PLN-07AT-OSS

Succession

SN07 OSS Guide (ATM)

Advance Feature Guide

SN07 Standard 01.04 December 2004

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Succession

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Advance Feature Guide

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SN07 IEMS Functionality 1915

Publication History

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Re-release of the Standard version of this document for SN07 FVS release.

August 2004

Re-release of the Standard version of this document for SN07 due to churn.

June 2004

Standard release of this document for SN07.

April 2004

Preliminary release of this document for SN07. The following sections are updated for this release:

- Mapping tables (ACTID-to-solutions; ACTID-to-OAM&P impacts)
- New or changed per release
- Feature deltas by product/network element
- Baseline information for Logs/Faults
- Baseline information for OMs/PMs

About this document

When to use this document

This document supports the SN07 release of Succession Solutions. It provides SN07 design documents that contain Operations Support Systems (OSS) information. It also provides information on what is new and changed in SN07, related to the following areas:

- Logs/faults
- Data schema tables
- Office parameters
- Alarms
- User interface/man-machine interface
- Operational/performance measurements (OMs/PMs)
- Service orders
- AMA/billing
- Software optionality control (SOC)

In addition, it provides a baseline of the Logs/Alarms and Operational Measurements (OMs)/Performance Measurements (PMs) that are available in Succession, organized by network element.

Information in this document is believed to be accurate at the time of publication, but it is subject to change. Use of this document should be restricted to resource planning and estimating for SN07. **Do not use this document to make changes to existing software.**

How this document is organized

This document is divided into the following sections:

- Mapping tables
  - — Mapping network elements to ACTIDs to solutions
  - — Mapping network elements to ACTIDs to OAM&P documentation elements
- New/changed information for SN07
  - — Logs and faults
  - — Data Schema/MIBs
  - — Commands/User Interface
  - — Service Order
  - — Office Parameters
  - — Operational Measurements/Performance Measurements
  - — AMA/Billing
  - — Software Optionality Control (SOC)
- SN07 features, organized by network element
- Succession Baseline information
  - — Logs/faults available in Succession, organized by network element
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- Appendix A: Network Data Provisioning
- Appendix B: SAM21 Alarms and Logs
- Appendix C: MG 9000 OMs/PMs
- Appendix D: Passport 15000 and MDM Logs/Faults
- Appendix E: USP Logs/Faults and OMs/PMs
- Appendix F: UAS Logs

Audience

This document is intended for Nortel Networks personnel, third-party OSS vendors, and customers who need to plan resources and estimate network impacts for this release.

How to check the version and issue of this document

The document release information on the title page and the footers of this document indicate the version and issue, for example, 01.01.

The first two digits indicate the version. The version number increases each time the document is updated to support a new software release. For example, the first release of a document is 01.01. In the next software release cycle, the first release of the same document is 02.01.

The second two digits indicate the issue. The issue number increases each time a document is revised but re-released in the same software release cycle. For example, the second release of a document in the same software release cycle would be 01.02.

Writing conventions

Descriptions of commands, parameters, and responses in this document use the following conventions:

Input prompt

An input prompt (> or #) indicates that the information that follows is a command:

```
>LIST
```

Commands and fixed parameters

Commands and fixed parameters that are entered at the MAP terminal are shown in uppercase letters:

```
>LIST ALL
```

Variables

Variables that are entered at a MAP terminal are shown in lowercase letters:

```
>TABLE table_name
```

References in this document

This document refers to the following Nortel Networks publications:

- 297-8001-840, *NA DMS-100 Log Report Reference Manual*
- 297-2621-840, *DMS-250 Logs Reference Manual*
- 297-5051-840, *SDM Log Report Reference Manual*
- NN10600-500, *Nortel Networks Multiservice Switch 7400/15000/20000 Alarms Reference*
- 241-6001-011, *Preside MDM Fault Management User Guide*
- 241-6001-501, *Preside MDM Proxy Alarms Reference Guide*
- NN10025-111, *SAM21 Product and Technology Fundamentals*
- NN10089-911, *SAM21 Fault Management*

- NN10083-911, *CS 2000 Fault Management*
- NN10090-911, *GWC Fault Management*
- NN10012-111, *SPM Product and Technology Fundamentals*
- NN10075-911, *SPM Fault Management*
- NN10080-911, *DPT-SPM (ATM) Fault Management*
- NN10077-911, *IW-SPM (ATM) Fault Management*
- NN10076-911, *MG 4000 Fault Management*
- NN10073-911, *UAS Fault Management*
- NN10074-911, *MG 9000 Fault Management*
- NN10082-911, *CS 2000 Core Manager Fault Management*
- NN10320-100, *CS 2000 Management Tools ATM Solutions Basics*
- NN10325-900, *CS 2000 Management Tools ATM/IP Fault Management*
- NN10276-500, *CS 2000 Management Tools ATM/IP Configuration Management*
- NN10092-911, *Passport 15000 Succession Fault Management*
- NN10149-711, *CS 2000 Performance*
- NN10146-711, *DPT-SPM (ATM) Performance*
- NN10143-711, *IW-SPM (ATM) Performance*
- NN10142-711, *MG 4000 Performance*
- NN10140-711, *MG 9000 Performance*
- NN10137-711, *USP Performance*
- NN10158-711, *Passport for Succession Performance*

To find more information about the Preside Multiserver Data Manager (MDM), refer to 241-6001-801, *Preside MDM Overview.*

SN07 Mapping Tables

Introduction

This document contains advance information about differences in operations, administration, maintenance, and provisioning (OAM&P) for Succession Networks Release 7 (SN07). The purpose of this document is to provide early information about new, modified or deleted items related to the following areas:

- Faults, including logs and alarms
- Data schema tables
- Office parameters
- User interface/human-machine interface
- Operational/performance measurements
- Software optionality control (SOC)
- Service orders
- AMA/billing

Table: Network elements-to-ACTID-to-documentation elements mapping

This table illustrates mapping from the network elements to their related ACTIDs to documentation elements (logs/faults, data schema, office parameters, servord, alarms, user interface/HMI, OMs/PMs, AMA/billing, and SOC (Software Optionality Control).

SN07 Solutions		Documentation Elements							
PRODUCT or APPLICATION	ACTID	Logs/Faults	Data Schema	Office Parms	Service Orders	Commands/User Interf/HMI	OMs/PMs	AMA/Billing	Optionality
AIN	A00001990	X	X						X
AIN	A00002016		X		X	X			X
AIN	A00004500		X				X		X
CS 2000	A00001319	X				X			
CS 2000	A00001649	X				X			
CS 2000	A00001650					X			
CS 2000	A00001847		X			X			
CS 2000	A00001898		X			X			
CS 2000	A00002008							X	
CS 2000	A00002009		X		X				X
CS 2000	A00002011								X
CS 2000	A00002012	X				X			
CS 2000	A00002013	X		X					X
CS 2000	A00002047		X			X			
CS 2000	A00002133					X			
CS 2000	A00002155					X			
CS 2000	A00002186								X
CS 2000	A00002196		X		X				X
CS 2000	A00002281		X						
CS 2000	A00002340						X		
CS 2000	A00002431		X						X
CS 2000	A00002432						X		
CS 2000	A00002433	X	X			X			
CS 2000	A00002499	X							
CS 2000	A00002510	X							
CS 2000	A00002538	X					X		
CS 2000	A00002549	X							
CS 2000	A00002555				X				
CS 2000	A00002558		X						
CS 2000	A00002607		X						
CS 2000	A00002741					X			
CS 2000	A00002744					X			

SN07 Solutions		Documentation Elements							
PRODUCT or APPLICATION	ACTID	Logs/Faults	Data Schema	Office Parms	Service Orders	Commands/User Interf/HMI	OMs/PMs	AMA/Billing	Optionality
CS 2000	A00002746					X			
CS 2000	A00002757	X							
CS 2000	A00002760		X			X			
CS 2000	A00002766						X		
CS 2000	A00002822					X			
CS 2000	A00002858	X		X		X			
CS 2000	A00002901		X						
CS 2000	A00002960		X						X
CS 2000	A00002966					X			
CS 2000	A00002979					X			
CS 2000	A00003073		X		X	X			
CS 2000	A00003454					X			
CS 2000	A00003459	X				X			
CS 2000	A00003486		X			X			
CS 2000	A00003487	X	X	X		X	X		
CS 2000	A00003490		X			X			
CS 2000	A00003604					X			
CS 2000	A00003617	X				X			
CS 2000	A00003905		X						X
CS 2000	A00003971	X				X			
CS 2000	A00004036							X	X
CS 2000	A00004037	X				X			
CS 2000	A00004046			X					
CS 2000	A00004126		X						
CS 2000	A00004260	X		X		X			
CS 2000	A00004391		X	X	X	X			X
CS 2000	A00004422					X			
CS 2000	A00004430	X					X		
CS 2000	A00004449		X						
CS 2000	A00004554					X			
CS2000	A00004713			X					
CS 2000	A00004868					X			
CS 2000	A00005073	X				X			
CS 2000	A00005074					X			
CS 2000	A00005190		X			X			
CS 2000	A00005192	X							
CS 2000	A00005193		X						
CS 2000	A00005268	X				X			

SN07 Solutions		Documentation Elements							
PRODUCT or APPLICATION	ACTID	Logs/Faults	Data Schema	Office Parms	Service Orders	Commands/User Interf/HMI	OMs/PMs	AMA/Billing	Optionality
CS 2000	A00005322					X			
CS 2000	A00005363	X	X						X
CS 2000	A00005485					X			
CS 2000	A00005758					X			
CS 2000	A00006693					X	X		
MG 4000	A00002970	X	X						
MG 9000	A00001893-94	X				X			
MG 9000	A00002020	X	X	X		X			
MG 9000	A00002380	X	X	X		X			
MG 9000	A00003074	X				X			
MG 9000	A00003531					X			
MG 9000	A00003567	X							
MG 9000	A00003571	X				X			
MG 9000	A00003591	X				X			
MG 9000	A00003737		X			X			
MG 9000	A00004109	X							
MG 9000	A00005016	X							
MG 9000	A00005317					X			
MG 9000	A00005375	X							
MG 9000	A00006639						X		
Media Server 2000	A00004873					X			
Network Patch Mgr.	A00003560					X			
Passport 15000	CD003116	X							
Passport 15000	CD003592 CD003266					X			
Passport 15000	Q00560863					X			
Passport 15000	Q00675702					X			
Passport 15000	Q00800761					X			
Passport 15000	Q00828166	X							
Passport 15000	Q00766794-96 Q00812294						X		
TOPS	A00002740		X						X
TOPS	A00002765		X						
TOPS	A00003687	X	X	X			X		
TOPS	A00003704		X						
TOPS	A00005160		X			X	X		

Table: Network elements-to-ACTID-to-solution mapping

This table illustrates mapping connections between the network elements, their related ACTIDs, and the applicable solutions.

	SN07 Solutions			
PRODUCT or APPLICATION	ACTID	PT-AAL1	UA-AAL1	Succon DMS
AIN	A00001990			X
AIN	A00002016			X
AIN	A00004500			X
CS 2000	A00001319	X		X
CS 2000	A00001649			X
CS 2000	A00001650			X
CS 2000	A00001847		X	
CS 2000	A00001898		X	
CS 2000	A00002008			X
CS 2000	A00002009			X
CS 2000	A00002011			X
CS 2000	A00002012			X
CS 2000	A00002013			X
CS 2000	A00002047			X
CS 2000	A00002133			X
CS 2000	A00002155			X
CS 2000	A00002186			X
CS 2000	A00002196			X
CS 2000	A00002281			X
CS 2000	A00002340			X
CS 2000	A00002431			X
CS 2000	A00002432			X
CS 2000	A00002433			X
CS 2000	A00002499			X
CS 2000	A00002510			X
CS 2000	A00002538			X
CS 2000	A00002549			X
CS 2000	A00002555		X	X
CS 2000	A00002558			X
CS 2000	A00002607		X	
CS 2000	A00002741			X
CS 2000	A00002744			X
CS 2000	A00002746		X	
CS 2000	A00002757			X
CS 2000	A00002760	X	X	X
CS 2000	A00002766			X

	SN07 Solutions			
PRODUCT or APPLICATION	ACTID	PT-AAL1	UA-AAL1	Succon DMS
CS 2000	A00002822			X
CS 2000	A00002858			X
CS 2000	A00002901			X
CS 2000	A00002960			X
CS 2000	A00002966			X
CS 2000	A00002979			X
CS 2000	A00003073			X
CS 2000	A00003454		X	
CS 2000	A00003459		X	
CS 2000	A00003486		X	
CS 2000	A00003487		X	
CS 2000	A00003490		X	
CS 2000	A00003604		X	
CS 2000	A00003617	X		
CS 2000	A00003905			X
CS 2000	A00003971			X
CS 2000	A00004036			X
CS 2000	A00004037			X
CS 2000	A00004046		X	
CS 2000	A00004126	X		
CS 2000	A00004260	X		
CS 2000	A00004391			X
CS 2000	A00004422			X
CS 2000	A00004430		X	
CS 2000	A00004449	X		
CS 2000	A00004554			X
CS 2000	A00004713			X
CS 2000	A00004868			X
CS 2000	A00005073			X
CS 2000	A00005074			X
CS 2000	A00005190			X
CS 2000	A00005192			X
CS 2000	A00005193			X
CS 2000	A00005268			X
CS 2000	A00005322	X		
CS 2000	A00005363			X
CS 2000	A00005758			X

	SN07 Solutions			
PRODUCT or APPLICATION	ACTID	PT-AAL1	UA-AAL1	Succon DMS
CS 2000	A00006693			X
MG 40000	A00002970	X	X	X
MG 9000	A00001893-94		X	
MG 9000	A00002020		X	
MG 9000	A00002380		X	
MG 9000	A00003074		X	
MG 9000	A00003531		X	
MG 9000	A00003567		X	
MG 9000	A00003571		X	
MG 9000	A00003591		X	
MG 9000	A00003737		X	
MG 9000	A00004109		X	
MG 9000	A00005016		X	
MG 9000	A00005317		X	
MG 9000	A00005375		X	
MG 9000	A00006639		X	
Media Server 2000	A00004873		X	
Network Patch Mgr.	A00003560	X	X	
Passport 15000	CD003116	X	X	
Passport 15000	CD003592 CD003266	X	X	
Passport 15000	Q00560863	X	X	
Passport 15000	Q00675702	X	X	
Passport 15000	Q00800761	X	X	
Passport 15000	Q00828166	X	X	
Passport 15000	Q00766794-96 Q00812294	X	X	
TOPS	A00002740			X
TOPS	A00002765			X
TOPS	A00003687			X
TOPS	A00003704			X
TOPS	A00005160			X

New or changed per release

New or changed for SN07

This section of the document describes the feature-based changes occurring in the SN07 release for the following categories:

- Logs/alarms
- Data schema and MIBs
- Commands
- Service order
- Office parameters
- Operational measurements (OMs) and Performance Measurements (PMs)
- AMA/Billing
- Software Optionality Control (SOC)

SSH Compatibility statement

Access to some functions requires the use of SSH compatible client software for access to secure telnet and ftp services (via the SSH standard). SSH clients are supplied bundled with some operating systems, but may need to be obtained separately. Sources for SSH clients include (but are not limited to):

- PUTTY - freeware
- OpenSSH - freeware
- SSH Inc. - commercial
- Secure CRT - commercial
- WinSCP - freeware

Nortel does not supply or recommend a particular supplier.

Logs/faults changes overview

The following logs/faults are new or changed for SN07. They also appear in the logs-by-product tables in the Baseline section of this document with

descriptions/cause for generation. More complete descriptions appear in the Feature Deltas section of this document.

Summary of new or changed Logs/Faults for SN07

Log/Fault Type	Log/Fault Name	New/Modified/Deleted, ACTID and Solution
Product = Carrier_AIN		
CAIN log (changed)	CAIN902	Feature A00001990 (Succession on DMS) updates this log to show the subscription method and other pertinent details when a call subscribes to CAIN, not when the query is sent to the Service Control Point (SCP). The METHOD field of the log indicates the subscription type (for example, ANI or OFFICE) and the precendence level. The CAIN902 log will indicate a METHOD of CICROUTE and precedence level of six when appropriate. CAIN902 is also generated when table CICROUTE does not have a CAINGRP option for the ALTERNATECARRIER and the carrier subscription is undone. Feature A00001990 updates the logs that indicate the subscription method to display the CIC information.
VAMP log (changed)	VAMP902	Feature A00001990 updates VAMP902, output when the VPTrace CI tool is enabled and an outbound message is sent through the VAMP framework to the SCP. The VAMP902 log might display the subscription type through the SUBINFO field, modified by this feature to include CARRIER as a possible value. This feature updates the logs that indicate the subscription method to display the CIC information.
Product = Call Server 2000		
SPM log (new)	SPM605	Feature A00001319 (PT-AAL1, Succession on DMS) creates new Info log SPM605 to indicate that a particular resource RM protection group is excluded by the SPMRESALIGN tool, without align RMID-PWID values.
SBA backup alarms (changed)	BAK50 BAK70 BAK90 NOBAK	Feature A00001649 (Succession on DMS) changes the priority of the backup alarms so that they take precedence over the NOCOM alarm.

Summary of new or changed Logs/Faults for SN07

Log/Fault Type	Log/Fault Name	New/Modified/Deleted, ACTID and Solution
XAC logs (changed)	XAC312 XAC610	Feature A00002012 (Succession on DMS) modifies XAC information and action logs related to the Core to MS InterConnect (CMIC) to display the new CMIC port device and CMIC packlets and links. This feature also modifies XAC information and action logs related to the Reset Terminal InterFace (RTIF) to display the new RTIF device and the RTIF packlets and ports. This activity also modifies the impact statement of existing XAC logs for the new CMIC/RTIF HIOP card. The affected logs include XAC610 and XAC312.
MScomm alarm (changed)		While feature A00002012 does not add or remove any existing XA-Core System alarms displayed under the XAC heading, it does introduce a new situation that raises this alarm. The alarm is indirectly raised if the system is unable to bring a misconfigured CMIC link in-service. An MScomm MAJOR alarm is raised if a CMIC link between the XA-Core and the Message Switch (MS) is in-service but not configured properly. An MScomm MAJOR alarm also occurs after a misconfigured CMIC link is newly provisioned by the system and the system brings the misconfigured CMIC link in-service. This alarm also occurs if the CMIC links are out of service.
GAME logs (new)	GAME101 GAME102	Feature A00002013 (Succession on DMS) creates two new logs. • GAME101 is created if the RSPTMOUT OM count is greater than zero. The log is created during the RSPTMOUT OM transfer period and records the RSPTMOUT OM count value. • GAME102 is created if RSPTMOUT OM count becomes equal to the office parm T1_TIMER _EXPIRY_MSG_SUPPRESS threshold value. The log is created when this feature suppresses a ‘T1 Timer Expiry’ message. When a GAME102 log is created it raises an external minor alarm. The alarm must be cleared before another log entry is created.
SPM log (new)	SPM399	Feature A00002432 (Succession on DMS) creates this new log, generated whenever an SPM enters or leaves an overload condition.

Summary of new or changed Logs/Faults for SN07

Log/Fault Type	Log/Fault Name	New/Modified/Deleted, ACTID and Solution
System alarm (new)	Baseln	Per feature A00002433 (Succession on DMS) the “Baseln” alarm is raised whenever any XA-Core Field Replaceable Unit (FRU) installed in the shelf is not at Hardware (HW) or Firmware (FW) baseline. Only the Major level is used. Associated with log XAC337.
XAC logs (new)	XAC337 XAC637 XAC415 (changed)	Per feature A00002433 (Succession on DMS) XAC337 is raised when the Baseln alarm is first raised, or the Baseln alarm is still raised and the non-baseline component list changes. XAC637 is raised when the Baseln alarm is cleared, due to an empty list of non-baseline components. XAC415 adds “not at baseline” as a reason for not running the SREx test.
STOR logs (new)	STOR605 STOR606 STOR607	Feature A00002499 (Succession on DMS) creates three new logs to flag the detection of faults by the XA-Core Store Audit. STOR605 (critical) is output when the Store Audit has detected a corruption in the Bstree structures containing the information about the data address space STOR is responsible for. STOR606 indicates that the Store Audit has found a corruption in the allocation information for data store which is dumped (such as DSPROT) and it is very likely that a attempt to perform a dump while in this state would fail. STOR607 is generated when the Store Audit detects a mismatch between the Store Allocator’s internal setting of an address’ blocking attribute and the actual setting of the attribute in memory hardware. The attribute is either blocking or write-blocking. An incorrect value could mislead the Store Allocator’s initialization routines and cause traps.
ITN log (new)	ITN307	Feature A00002510 (Succession on DMS) creates this INFO log to indicate that IP transmit failed.
CAP logs (changed)	CAP100 CAP101	Feature A00002538 (Succession on DMS) removes the complexity measurement from these capacity summary and capacity logs since the complexity measurement is not valid on an XA-Core (multiple-processing) switch.

Summary of new or changed Logs/Faults for SN07

Log/Fault Type	Log/Fault Name	New/Modified/Deleted, ACTID and Solution
XAUD logs (changed)	(various)	Feature A00002549 (Succession on DMS) extends and re-numbers the XAUD logs to match the numbers of the AUD logs for simplicity. Consult the FM section of this feature for a mapping table that shows both the old and new names.
Alarm Database logs (new)	Report Alarm Log Clear Alarm Log Alarm Summary Log	Feature A00002757 (Succession on DMS) provides functionality to an SSPFS Platform for the aggregation of Alarms into one database. Logs will be generated by the reporting entity when using the *Reporting API* to enter/update/clear alarms in the database. The Report Alarm Log is sent when requested by the entity that is reporting an alarm. The Clear Alarm Log is generated when a client clears an existing alarm in the alarms database managed by Alarmd. The Alarm Summary Log is sent periodically by Alarmd to summarize the Alarms in the database managed by Alarmd.
SPM log (changed)	SPM300	Feature A00002858 (Succession on DMS) modifies SPM300 with a new text reason showing that it is generated when a STS3L carrier experiences an RFI alarm.
LINE log (new)	LINE811	Feature A00003459 (UA-AAL1) creates new log LINE811, generated when the SYSB_LINES alarm is raised or cleared.
SYSB line alarm (new)	SysB Lns	Feature A00003459 (UA-AAL1) creates new alarm SysB Lns, raised when any of 3 thresholds are exceeded for the number of LGRPs in SYSB. The severity depends on which threshold is crossed.

Summary of new or changed Logs/Faults for SN07

Log/Fault Type	Log/Fault Name	New/Modified/Deleted, ACTID and Solution
IWBM logs (new)	IWBM800 IWBM801 IWBM802 IWBM803	Feature A00003487 (UA-AAL1) creates four new Interworking Bridge Manager Pool Logs. • IWBM800 indicates that the number of available IW bridges exceeds the first threshold (70%) when attempting to retrieve an IW-bridge ID from the IW bridge manager. • IWBM801 indicates that the number of available IW bridges falls to less than 65% of bridges in the pool in use. This log always occurs after IWBM800 • IWBM802 indicates that the number of available IW bridges exceeds the second threshold (90%) when attempting to retrieve an IW-bridge ID from the IW bridge manager. • IWBM803 indicates that the number of available IW bridges falls to less than 85% of bridges in the pool in use. This log always occurs after IWBM802.
XNET logs (new)	XNET605 XNET606 XNET607	Feature A00003487 (UA-AAL1) creates three new external packet network bearer connection logs. • XNET605 indicates that the bearer networks of the two parties in a connection attempt are not permitted to inter-connect, based on datafill in table NET2NET. • XNET606 indicates a software or provisioning problem in the switch, in that an appropriate bearer network could not be determined through provisioned data for a particular party in a connection attempt. • XNET607 indicates that an IW SPM interworking bridge was not available for the connection request, either because of a bridge exhaust condition, or a bridge is not available.

Summary of new or changed Logs/Faults for SN07

Log/Fault Type	Log/Fault Name	New/Modified/Deleted, ACTID and Solution
SPFS logs (new)	SPFS310 SPFS350	Feature A00003617 (PT-AAL1) creates two new logs. SPFS310 is generated for the following reasons: • when the CPU load Average threshold is exceeded, or when the related Major or Minor alarm is cleared. • when the Swap Space usage threshold is exceeded, or when the related Critical or Major alarm is cleared. • when the Memory usage threshold is exceeded, or when the related Major or Minor alarm is cleared. SPFS350 is generated for the following reasons: • when the File System is not mounted, the File System usage threshold is exceeded, a File System read/write failed, or when the related Critical, Major or Minor alarm is cleared.
SPM logs and NODE log (new)	SPM682 SPM683 NODE602	Feature A00003971 (Succession on DMS) creates three new logs. SPM682 indicates CEM manual reset. SPM683 indicates the reason for CEM swact. NODE602 indicates the reason for CEM state transition, generated only when the CEM state transitions from Insv to Istb or Insv to Sysb.
SPM logs and NODE logs (changed	Various; see details in next column	Feature A00003971 (Succession on DMS) performs multiple changes on multiple logs. The following logs are enhanced by adding the activity/status of the unit/device: SPM300, SPM500, SPM650, SPM651, SPM 684, SPM301, NODE302, NODE303, NODE326, NODE600, NODE601. The following logs are enhanced by adding the TaskName and the taskID: SPM311, SPM312. Log SPM331 is enhanced by adding new field “Reason” to provide a reason for protection switch failure.
UNB error and secret logs (changed)	UNB306 and others	Feature A00004037 (Succession on DMS) modifies existing UNB error and secret logs to report problems specific to Switched Remote CDCs during administration or audits. UNB306 logs are output if the PIC or LATA fields are deleted.

Summary of new or changed Logs/Faults for SN07

Log/Fault Type	Log/Fault Name	New/Modified/Deleted, ACTID and Solution
TRK log (changed)	TRK605	Feature A00004045 (Succession on DMS) modifies the existing TRK605 log to make the functionality available for the UCS DRU. This log is generated when the SOC UTRS0012 is ON and the called number is data filled in table CLIDN in a DMS-250 toll switch. The TRK605 log is used in a toll switch to identify the origination number when the called number is being traced.
XPKT logs (new)	XPKT806 XPKT807 (previously known as ATM806 and ATM807)	Feature A00004260 (PT-AAL1) introduces new logs XPKT806 and XPKT807. XPKT806 log with major alarm is raised on a per-node basis when the number of XPT301logs for that node crosses (i.e. reaches or exceeds) RAISE_THRESHOLD number of XPT301 logs within RAISE_CYCLE number of minutes, where RAISE_THRESHOLD and RAISE_CYCLE are office parameters provisionable on a per-node class basis. Likewise, the alarm will be cleared on a per-node basis via XPKT807 log when the number of XPT301 logs for that node does not exceed these thresholds.
New MAP Alarm Banner		Feature A00004260 (PT-AAL1) introduces a MAP banner alarm that is generated when the number of ATM606 logs crosses (i.e. meets or exceeds) thresholds controlled by the customer. ATM606 logs are currently generated whenever a call fails SVC setup through the ATM fabric. The new banner alarm will be displayed as “nn PKT” with major severity, where “nn” is the number of SMG4, IW, and DPT gateways (i.e. nodes) that have crossed the threshold for ATM606 logs.
XPKT logs (new)	XPKT301 XPKT302 ATM606 is replaced by XPKT301.	Feature A00004430 (UA-AAL1) introduces these two new logs to replace ATM606. The XPKT301 log is generated for ATM external network connection failures that fail during initial call setup. The XPKT302 log is generated for ATM external network connection failures that occur for established connections.
SDM log (new)	SDM739	Feature A00004868 (Succession on DMS) creates SDM739 to indicate file transfers between the FTP Client and the CORE and to show user log-ons to the CORE.
SDMB log (changed)	SDMB375	Feature A00005073 (Succession on DMS) modifies SPMB375 so that it is generated when an error occurs in SBA secure file transfer.

Summary of new or changed Logs/Faults for SN07

Log/Fault Type	Log/Fault Name	New/Modified/Deleted, ACTID and Solution
SDM logs (new)	SDM267 SDM314	Feature A00005190 (Succession on DMS) creates two new logs: SDM267 indicates a change in the condition of a CBM link. SDM314 indicates two SDM links connections are physically crossed.
SDM logs (new)	SDM314 SDM334 SDM335 SDM336 SDM633 SDM634 SDM635 SDM636	Feature A00005192 (Succession on DMS) creates the following new logs. • SDM314 indicates that two link connections are physically crossed. Associated with Major alarm Crossed Link. • SDM334 indicates that the signal on receive/transmit fibre to the OC3 card is faulty or not present. • SDM335 indicates a probable link equipment malfunction. Associated with Minor alarm Minor Link Fault. • SDM336 indicates that a response to CBM 800 heartbeat is not received from the core. Associated with major alarm Core Heartbeat. • SDM633 is a CBM info log that indicates a change in the condition of a CBM link. • SDM634 indicates that the OC3 Card Fault alarm raised with SDM334 has been cleared. • SDM635 indicates that the Minor Link Fault alarm raised with SDM335 has been cleared. • SDM636 indicates that the heartbeat alarm raised with SDM336 has been cleared.
NODE log and SPM logs (changed)	NODE500 SPM399 SPM300 SPM500	Feature A00005322 (PT-AAL1) modifies four logs that are now being triggered via resource exhaustion/overload conditions on the ATMRM with new text. - NODE500 “Node State Change” - SPM399 “SPM Overload Report” - SPM300 “Device Fault Report” - SPM500 “Device State Change”

Summary of new or changed Logs/Faults for SN07

Log/Fault Type	Log/Fault Name	New/Modified/Deleted, ACTID and Solution
Spectrum module alarms (changed)		Feature A00005322 (PT-AAL1) introduces new conditions in which Spectrum module alarms are generated. A minor alarm is raised against an ATMRM when it experiences resource exhaustion. When the CEM's CALLP performance degrades sufficiently, the CEM will raise a minor alarm. When the active CEM raises an alarm, the NODE will raise a similar alarm.
VAMP log (changed)	VAMP901	Feature A00005363 (Succession on DMS) modifies VAMP901 to display the new Business Customer ID parameter, and to make possible an additional value in the Digits Type subfield of the AMA Digits parameter.
SDMB logs (changed)	SDMB690 SDMB691	CR Q00664538 (Succession on DMS) creates the following logs: • SDMB690 indicates that an SBAIF alarm and the fault that caused it have cleared. • SDMB691 generates when a problem occurs with the scheduled transfer of billing files and when that fault clears. It also generates when a file transfer schedule is manually deactivated or deleted.
Product = MG 4000		
SPM log (changed)	SPM300	Feature A00002970 (UA-AAL1, PT-AAL1, Succession on DSM) modifies this log to show the "site" name as the one that is datafilled in table MNNODE.
Product = MG 9000		
MGEM log (new) NE log (new)	MGEM714 NE609	Feature A00001893-94 (UA-AAL1) creates this new audit log MGEM714, generated whenever a user attempts to image an MG9K device, and new software image log NE609, generated whenever a user executes an image request.
ESA logs (new)	ESA120 and ESA121	With feature A00002020 (UA-AAL1), information log ESA120 is generated if the CS 2000 successfully generates an ESA data file in SFDEV. ESA121 is generated if the CS 2000 fails to generate an MG 9000 ESA data file in SFDEV.

Summary of new or changed Logs/Faults for SN07

Log/Fault Type	Log/Fault Name	New/Modified/Deleted, ACTID and Solution
PM log (changed) ESA alarm (new)	PM181	Feature A00002380 (UA-AAL1) modifies Info log PM181 to indicate that the ABI of an ABI-hosted XPM is attempting to or successfully exit(s) ESA. This feature also creates a new fault type “Failed to enter ESA” for the ESA alarm (Critical). This alarm is displayed at MG9000 Element Manager and MG9000 LCI.
MGEM and VMG logs (new)	MGEM704 MGEM705 VMG600 VMG601	Feature A00003074 (UA-AAL1) creates 4 new INFO logs to inform users when data has not been saved in the database: • MGEM704 indicates that an attempt to correct the database has failed. • MGEM705 indicates that the Database is unavailable and correction failed. • VMG600 indicates that termination data was successfully provisioned in all appropriate areas except for the database. • VMG601 indicates that an attempt to correct termination data in the database has passed.
ESA alarm and ESA log (new)	nnESADownloadFault ESA302	Feature A00003567 (UA-AAL1) adds new alarm “nnESADownloadFault” to indicate a failure to download ESA data to given VMG. This alarm will only be generated for autonomous download attempts. This was indicated by a log in previous releases. The ESA302 log (Critical) is generated when the EM is unable to download ESA data to a VMG.

Summary of new or changed Logs/Faults for SN07

Log/Fault Type	Log/Fault Name	New/Modified/Deleted, ACTID and Solution
OVLD logs (new)	OVLD808 OVLD809 OVLD810	Feature A00003571 (Succession on DMS) introduces new alarms and corresponding logs. OVLD808 (Critical) indicates that an external messaging link has closed and cannot send/receive message. OVLD809 (Major) indicates that the message loss is high enough such that the message link is in a degraded service state. For ABI, this would mean that some calls are failing and perhaps maintenance actions are failing (e.g. static data download, etc.). OVLD810 (Minor) indicates message retransmissions are high enough that system is starting to see performance degradation. Potentially, this could mean increased latency, reduced messaging through the system, buffer overflows and perhaps heading toward congestion.
DS3 alarms and Logs (new)	ds3ais with MGCA333 ds3lof with MGCA334 ds3rai with MGCA335	Feature A00003591 (UA-AAL1) adds the following alarms and logs: • AlarmIndicationSignal (ds3ais) generates log MGCA333 when an AlarmIndicationSignal fault is received from the Gateway. • LossofFrame (ds3lof) generates log MGCA334 when a LossOfFrame fault is received from the Gateway. • RemoteAlarmIndication (ds3rai) generates log MGCA335 when a RemoteAlarmIndication fault is received from the Gateway.
HW Mismatch alarm and Log (new)	Hardware Fault NE301	Feature A00004109 (UA-AAL1) adds a new Hardware Mismatch alarm to indicate an incorrect replacement card has been installed. The NE301 log (Critical) is generated when such an equipment malfunction occurs.

Summary of new or changed Logs/Faults for SN07

Log/Fault Type	Log/Fault Name	New/Modified/Deleted, ACTID and Solution
VMG Out of Service faults (new)	VMG Admin State is OOS VMG Initializing VMG OOS-card locked VMG OOS-card disabled VMG OOS-Line Maintenance is not Ready VMG OOS-Megaco Maintenance is not Ready VMG OOS-GWC is not reachable VMG OOS-no reply from GWC VMG OOS-AAL1 bearer subsystem not ready VMG OOS-IP bearer subsystem not ready	Feature A00005016 (UA-AAL1) adds the following VMG Out of Service faults and enhances the information available in log VMG300: • VMG Admin State is OOS is generated when a vMGAdminStatusOutOfService fault is received from the MG9kEM server (Warning). Relates to log VMG322. • VMG Initializing is generated when a cardInitializing fault is received from the MG9kEM server (Warning). Relates to log VMG325. • VMG OOS-card locked is generated when a cardLocked fault is received from the MG9kEM server (Warning). Relates to log VMG323. • VMG OOS-card disabled is generated when a cardDisabled fault is received from the MG9kEM server (Warning). Relates to log VMG324. • VMG OOS- Line Maintenance is not Ready is generated when a lineMtceNotReady fault is received from the MG9kEM server (Critical). Relates to log VMG328. • VMG OOS- Megaco Maintenance is not Ready is generated when a MegacoMtceNotReady fault is received from the MG9kEM server (Critical). Relates to log VMG329. • VMG OOS- GWC is not reachable is generated when a GWCUnreachable fault is received from the MG9kEM server (Critical). Relates to log VMG373. • VMG OOS- no reply from GWC is generated when a noReplyFromGWC fault is received from the MG9kEM server. Relates to log VMG374. • VMG OOS- AAL1 bearer subsystem not ready is generated when an aal1BearerSubsystem OnPairNotReady fault is received from the MG9kEM server. Relates to log VMG376. • VMG OOS- IP bearer subsystem not ready is generated when an ipBearerSubsystem OnPairNotReady fault is received from the MG9kEM server. Relates to log VMG377.

Summary of new or changed Logs/Faults for SN07

Log/Fault Type	Log/Fault Name	New/Modified/Deleted, ACTID and Solution
SDMB logs (changed)	SDMB531 SDMB820	Feature A00005268 (Succession on DMS) modifies logs SDMB531 and SDMB820 to reflect the increased backup storage capacity for SBA on the CM fro 2 volumes per stream up to 69 volumes per stream.
Shelf Logs (new)	SHLF392 SHLF393	Feature A00005375 (UA-AAL1) adds new faults to provide the reason when shelf discovery failed due to a particular card or due to an incompatible card. • SHLF392 is generated when a shelfCompatibility fault is received from the MG9kEM server. • SHLF393 is generated when a cardDiscovery fault is received from the MG9kEM server.
SAM21 logs (changed)	SCUxxx IPOAxxx SM21xxx	Feature A00008902 (PT-IP) modifies SAM21 logs to add two lines for alarm detail. The 3 digits of the alarm ID use the first digit for the alarm category and the last two digits for the alarm's cause. Using a mapping table, the items of Category and Cause are added to the end of the alarm detail.
Product = Passport 15000		
Fan failure alarms (changed)		Feature CD003116 (UA-AAL1, PT-AAL1) implements repeating fan failure alarms once every 8 hours until the fan failure is corrected and the alarm is cleared. In addition, a major alarm is raised when the fabric reaches 65 degrees C, and a critical alarm is raised when the fabric reaches 70 degrees C.
P15K audit logs		Feature Q00828166 (UA-AAL1, PT-AAL1) sends an SCC2 log whenever an operator starts a provisioning session, issues activate command and commits a new provisioning view on the Passport.
Product = TOPS		
TOPS log (changed)	TOPS131	Feature A00003687 (Succession on DMS) modifies TOPS131 by adding additional text reasons to the Reason field and by adding a new field, Wireless type, which indicates whether the log was generated on an IS-41 or GSM call.

Summary of new or changed Logs/Faults for SN07

Log/Fault Type	Log/Fault Name	New/Modified/Deleted, ACTID and Solution
OAIN logs (changed)	OAIN606 OAIN607	Feature A00005160 (Succession on DMS) modifies the values that can appear in the existing OAIN606 and OAIN607 logs. OAIN 606 adds reason field “Msg Received at Unexpected Destination Address.” OAIN 607 adds reason field “XAETHR Transmit Failure.”
Product = CR Changes		
SDM log (changed)	SDM325	CR Q00970381 fixes the problem of SDM325 having a blank line in the middle of the log (after the header). Available in an SN07 patch.
SDM log (changed)	SDM610	CR Q00972933 fixes the problem of SDM610 having a blank line in the middle of the log (after the header). Available in an SN07 patch.
SDM logs (changed)	SDM327, SDM627	CR Q01001000 fixes the problem of these two logs having a different format in CBM than what was produced for SDM. Resolution of this issue will be to align the CBM log format of the logs with that of the older SDM version again. Fix will be available in an SN07 patch.
SDM/CBM logs (changed)		CR Q00970344 fixes an Equipment Identifier field problem in the header. The Equipment Identifier field in an NT STD/SCC2 log header is the last field in a header and is optional in that only some core logs make use of it. (CARR and PM logs do.) The CS2000 has a log formatting "rule" where if the header length exceeds 65 characters, the Equipment Identifier field (if present in the log) should be "wrapped" to a new line, i.e. an end-of-line string is added after Event Label, and the Equipment Identifier is moved to line 2 of the log with regular indentation. SN07 code churn in SDM's Log Delivery Service application resulted in the calculation of where 65th character position of the header being sometimes different than how the CS2000 calculated it. The end result of this was that some of the logs coming out of the SDM no longer looked as exactly like they would on the CS2000 because they'd possibly have 1 extra row in them if Equipment Identifier was used. To address this issue and make the CS2000 logs look the same on the SDM, the resolution of this CR will be patched back to SN07.

Summary of new or changed Logs/Faults for SN07

Log/Fault Type	Log/Fault Name	New/Modified/Deleted, ACTID and Solution
MG9K logs (changed)		CR Q00973875 fixes the problem that MG9K alarm logs sent to the OSS through IEMS had a tab character identing the 2 Site information rows and sometimes a blank would be found after the Description row. Resolution of these issues is available in an SN07 patch.
MG9K logs (changed)		CR Q00987360/Q00987380 fixes the problem that MG9000 alarm logs were being duplicated in the northbound OSS log stream from IEMS. Resolution of this issue will be available in an SN07 patch.
GWC logs (changed)	GWC3XX	CR Q00976754 fixes the problem that sometimes some of the GWC3XX logs for GWC had differeing formats of the Component Id field. Resolution of this issue is available in an SN07 patch.
IEMS logs (changed)	IEMS606	CR Q00989603 fixes the problem that when the number of log events received by IEMS reached a certain threshold, an IEMS606 log was generated with a severity and later cleared when the threshold was no longer crossed. An SN07 patch will for this CR will change the nature of IEMS606 to be an INFO log with no severity. One will be generated when the threshold is crossed. Another will be generated when an automatic old event cleanup will have completed.
IEMS logs (changed)	IEMS607	CR Q00992391 fixes the problem that when IEMS did a re-sync of its alarm list with a managed component it would create a clear log for when alarms were found to have gone away. These "explicit" clears used the log name/number of the original alarm and did not look like the regular clear logs. It was decided in these situations to instead create a new IEMS607 log for "explicit" clears for all managed components supporting re-sync. This log would contain all the information normally needed from a regular clear log. This new log will be introduced in an SN07 patch.

Data Schema tables/MIBs changes overview

The following Data Schema tables or MIBs are new or changed for SN07. More complete descriptions appear in the Feature Deltas section of this document.

Summary of new/changed Data Schema information for SN07

Table name	New or changed	Description
Product = AIN		
CICROUTE	Changed	Per feature A00001990 (Succession on DMS), there is a new subscription point in this table. Currently, Carrier Advanced Intelligent Network (CAIN) subscription can be achieved through tables TRKGRP, AINSCUSP, UNIPROF, AUTHCODU, AUTHCDX, and STDPRTCT. The sourcing of this patch will allow CAIN subscriptions to be added to table CICROUTE enabling subscription on a per Carrier Identification Code (CIC)-basis. This new subscription point will allow carriers to use the SCP to route calls based on their CIC. The new subscription point will be created by adding the CAINGRP option tuples of table CICROUTE, just as in other CAIN subscription tables.
TRKOPTS	Changed	Per feature A00002016 (Succession on DMS), creation of the AINDENY option in table TRKOPTS provides the ability to deny AIN prefix triggers (Specified_Carrier, One_Plus_Prefix, International, Operator Services). The AINDENY option in table TRKOPTS will also allow AINDENY to be associated with specific trunk groups as datafilled in table TRKGRP. (Only AIN-capable trunks will be allowed AINDENY options in table TRKOPTS.) The new option will function in a similar manner to the line and customer group options except that it will only block prefix triggers. It will not be capable of holding SFC, PFC, or Office-Wide PFC triggers. It will allow 15 DENYs or RESTOREs just as the line and customer group options.
CUSTSTN	Changed	Feature A00002016 (Succession on DMS) will enlarge the storage capacity of the CUSTSTN AINDENY option to 15 elements. allow the CUSTSTN, line and the TRKOPTS AINDENY to hold the four prefix triggers and block their triggering at the Info_Analyzed TDP.

Summary of new/changed Data Schema information for SN07

Table name	New or changed	Description
TRIGITM	Changed	Feature A00002016 requires addition of one or more prefix triggers to table TRIGITM. With feature A00002016, individual agents need to subscribe to the prefix triggers. Accomplishment of this task is possible in tables OFCTIID, CUSTIID, TRKAIN or through Servord. Feature A00004500 (Succession on DMS) modifies field SLHR to allow TCP, SCTP, and SS7 transports.
IPAPPL	New	Feature A00004500 (Succession on DMS) creates table IPAPPL to provide separation of various connections to the DMS. The use of SCTP transport requires that the application store the specific remote IP addresses and local Port number. Datafill in table IPAPPL provides these details.
Product = Call Server 2000		
LTCINV	Changed	Feature A00001847(UA-AAL1) modifies table LTCINV: • EXTDS512 OPT_ATTR is now allowed for LTC/LTCI/LGC peripheral types.
(continued) LTCINV	Changed	(continued) Feature A00001847(UA-AAL1) modifies table LTCINV: • “$” should be entered in the CSLNKTAB field for external XPMs (the C-side link information will be generated automatically).

Summary of new/changed Data Schema information for SN07

Table name	New or changed	Description
LTCPSINV RMMINV LTCINV	Changed	Feature A00001898 (UA-AAL1) modifies these tables as follows: • LTCPSINV is modified so that a single DS30A type P-side link can be added to SMA2 peripherals on link 52. • RMMINV has been modifed as follows: — New RMMSELECTOR of RMMSMA2 has been added. — CSIDEPM of SMA2 is now allowed when the RMMSELECTOR is RMMSMA2. — The CSIDPORT for SMA2 type CSIDEPM must be between 0 and 53, and must match that provisioned in table LTCPSINV for the SMA2 (port 52, although there is no specific error checking for this in RMMINV, it is enforced through table LTCPSINV). — For RMMSELECTOR of RMMLTC, peripheral types LTC and LGC are now supported for the CSIDEPM field. — The CSIDPORT for peripherals with a RMMSELECTOR of RMMLTC must be between 0 and 19. • LTCINV is modified so that the EXECTAB field for SMA2, LGC, and LTC can now include “RMM_TERM RSMEX.”
DNROUTE VOWINV	Changed	Feature A00002011 (Succession on DMS) modifies table DNROUTE to add VOWDNIDX field information. It also modifies table VOWINV to add VOWDNDN field information (for VOWKEY = VOWDN).
MNSHELF and MNCKTPAK	Changed	Feature A00002047 (Succession on DMS) modifies tables MNSHELF and MNCKTPAK to enforce specific restrictions with respect to the double density Spectrum backplane; these restrictions are located in the functional description for this feature.
STDPRTCT	Changed	Feature A00002281 (Succession on DMS) expands the maximum value of this table to allow for 32000 entries. This modification allows the customer to datafill significantly more AMA options.

Summary of new/changed Data Schema information for SN07

Table name	New or changed	Description
IPNETWRK	Changed	Per feature A00002281 (Succession on DMS) field name PARM in table IPNETWRK has been refined, a new value IRM_INTERFACE is added. This new value has an impact to the dump and restore table transfer order. Table CMIPADDR needs to be transferred before IPNETWRK.
PXRTE	Changed	Feature A00002319 (Succession on DMS) enhances the CNDSEL of the CND route selector with a VMI CND route condition. The CND_RTE_CONDITION type is extended with VMI value.
MNNODE and MNCKTPAK	Changed	Feature A00002431 (Succession on DMS) modifies tables MNNODE and table MNCKTPAK. It adds a new field *capindx* to table MNNODE, only for DMNCP class of SPMs to provision this capacity. Feature A00002431 introduces new error and success messages to table MNCKTPAK. For additional information, refer to the configuration section for this feature in the “Features Deltas” section of this document.
PECINV FWINV	Changed New	Per feature A00002433 (Succession on DMS) PECINV increases the maximum number of tuples from 200 to 256, and the default datafill is updated. New table FWINV is intended to maintain the FW baseline for a PEC and allows from 0 to 4 exception versions.
XAFWLOAD	Changed	Feature A00002433 (Succession on DMS) will provide a warning to display if an user tries to provision a non-baseline firmware loadname.
TOLLTRKS	New	Feature A00002558 (Succession on DMS) creates new table TOLLTRKS, which stores the common language location identifiers (CLLI) of all trunk groups carrying incoming toll completing traffic, and LDI evaluates the CLLI name to determine the long distance status.
LTCINV LGRPINV	Changed	Feature A00002607 (UA-AAL1) modifies these tables as follows: • LTCINV modifies field OPTATTR by adding 3new subfields for the EXTDS512 refinement. • LGRPINV modifes field LGRPOPTS by adding a new LGRPLOV refinement.

Summary of new/changed Data Schema information for SN07

Table name	New or changed	Description
SPMLDVAL	Changed	Feature A00002760 (PT-AAL1, UA-AAL1, Succession on DMS) increases the maximum number of tuples from 256 to 2048. It also creates new subfield PRODUCT_TYPE which defines the product line of the SPM, and changes subfield LOAD_TYPE to support both SP and SN.
EMMCDATA	New	Feature A00002901 (Succession on DMS) creates new table EMMCDATA, used to provision Enhanced Meet-Me Conferencing.
SCAISSRV	Changed	Feature A00002904 (Succession on DMS) adds new field TOGGCALL under categories TPCC and SCAI3WC. It also adds new parameter HDUHDLEG under category SCAICC for functions CALLHELD and CALLUNHELD.
TRKOPTS	Changed	Feature A00002960 (Succession on DMS) adds new trunk group option ORIGIDSCR for ISUP EANT trunks only. This allows the customer to specify which ISUP EANT trunks perform originator identification screening.
IBNFEAT KSETFEAT	Changed	Feature A00003073 (Succession on DMS) adds a Redirection subfield to the SimRing line option. When this option has a value of Not_allowed on a SimRing pilot DN then the resultant NPMDN legs are not allowed to call forward. The same case applies to table KSETFEAT.
LTCINV GATWYINV	Changed New	Feature A00003486 (UA-AAL1) modifies these tables as follows: • LTCINV modifies field OPTATTR by adding 1 new subfield for the EXTDS512 refinement and deleting 4 existing subfields for the EXTDS512 refinement. • Table Gateway Inventory (GATWYINV) is where gateway configuration information is provisioned. Provisioning gateways in this table does not allocate IOUI nodes of any kind. For this release, this table contains configuration information only (no nodes) involving gateways. The term “gateway” could either mean a physical gateway or logical gateway, it depends on the actual “gateway” in question.

Summary of new/changed Data Schema information for SN07

Table name	New or changed	Description
BEARNETS NETBRDGE NETPATH NET2NET GWC_NETWORK_CODEC_PROFILE GWC_NETWORK_RECOMMENDED_CODEC_SETTING	New	Feature A00003487 (UA-AAL1) creates six new tables, as follows: • BEARNETS identifies the bearer networks supported by the server and the network options that apply to the packet networks. • NETBRDGE defines the network bridging resources for interconnecting networks. Bridges provide the ability to connect one network to another without regard to the call type. Bridges typically have two connectivity endpoints, one for each of the networks that it interconnects. • NETPATH identifies the list of bridging resource groups (the bridge path) that can be used to interconnect two networks. In SN07, two bridges are required to connect an AAL1 agent and an IP agent, so the path consists of a bridge resource from each of those NETBRDGEs. • NET2NET defines the allowable interconnections between networks, and the network path used to interconnect them. • GWC_NETWORK_CODEC_PROFILE stores network codec profiles that are created by the customer. The profiles will be used when the customer adds a GWC node. Changed in SN07 to support multiple bearer networks. • GWC_NETWORK_RECOMMENDED_CODEC_SETTING stores recommended network codec settings. When customers add/change network codec profile, this information will help the customers to datafill the codec profile with the recommended codec setting. Changed in SN07 to support multiple bearer networks.

Summary of new/changed Data Schema information for SN07

Table name	New or changed	Description
MNNODE SERVRINV SERVSINV TRKOPTS OFRn IBNRTn HNPACONT:RTEREF FNPACONT:RTEREF GWCNode	Changed	Feature A00003487 (UA-AAL1) modifies eleven existing tables, as follows: • MNNODE added the new BEARNETS field (and related subfields) to IW DPT_ONLY and SMG4 nodes to indicate the bearer network associated with the node. It also added the BRDGCLLI field to IW BRDG_ONLY nodes to indicate the bridge groups the particular SPM node contributes to. • SERVRINV added the new BEARNETS field (and related subfields) to indicate the bearer networks of the packet nodes it controls. For SN07, there will be a limit of one bearer network per gateway controller, and it will be the default. • SERVSINV added provisioning consistency checks for use during an ONP. • TRKOPTS removes DPT from the APPLICATION field under the DYNAMIC option and adds DPT as a new OPTION. NGSS is added as a new selector field under the SIPT protocol. • OFRT, OFR2, OFR3, OFR4 changed the name of the CND/NOT PKT conditional selector to CND/NOT FABRIC and enhanced it to support conditional routing for multiple bearer fabrics (e.g., AAL1, AAL2 or IP) . It also added the new CND/NOT BEARNET selector to allow conditional routing based on the originator's bearer network.. • IBNRTE, IBNRT2, IBNRT3, IBNRT4 have the same changes found in the routing tables as described in the previous bullet on OFRx. • HNPACONT:RTEREF and FNPACONT:RTEREF have the same changes found in the routing tables as described in the previous bullet. • GWCNode adds three new fields: Network_Instance to indicate the network instance, Network_Fabric_Type to indicate the bearer network fabric type, and Network_Codec_Profile_Id to indicate the associated network codec profile.

Summary of new/changed Data Schema information for SN07

Table name	New or changed	Description
(continued) GATEWAYPROFILE	Changed	Feature A00003487 modifies eleven existing tables, as follows: (continued) • GATEWAYPROFILE adds new field Bearer_Fabric_Restriction_List used to support the fabric type check when customer associate gateway to GWC node.
LTCINV	Changed	Feature A00003490 (UA-AAL1) provides the ability to rehome an ABI XPM to a different GWC by performing a tuple change operation. This feature also makes modifications to the tuple change operation restrictions.
TRKOPTS	Changed	Feature A00003789 (Succession on DMS) introduces new option INTRACSE with new field RTE_ADV_CHOICE which must be datafilled to determine route advance behavior for specific CAUSE values.
DIRPPOOL DIRPOOL2	Changed New	Feature A00003905 (Succession on DMS) modifies DIRPPOOL and creates new table DIRPOOL2. • DIRPPOOL is modified to increase the number of volumes from 24 to 72 which requires 3X the memory store. Each individual volume field in table DIRPPOOL is now replaced with a field that contains three volume names. • DIRPOOL2 provides information needed to consolidate linked pools when moving to a load that now has 72 volumes per pool in table DIRPPOOL. The table is created at IPL. Its data is transferred during DART (if applicable). The table data is used during POSTSWACT to consolidate volumes in DIRPPOOL. At the end of POSTSWACT, table DIRPOOL2 is deleted from the switch.
CLIDN	Changed	Feature A00004045 (Succession on DMS) modifies the existing CLIDN table from DMS-100/200 for use on the DMS-250. Table CLIDN allows for a maximum of 67 ten-digit directory number (DN) (area code + office code + DN) tuples for which CLI call tracing is provided. These DNs are external to the switching unit. The ten-digit DNs include an area code + office code + directory number or a service code.

Summary of new/changed Data Schema information for SN07

Table name	New or changed	Description
SPMECAN	Changed	Feature A00004126 (PT-AAL1) adds new field IGNOREEC. This field (if set to Y) is used to instruct CEM Callp if it should use the FAREC and BK2BK fields in the SPMECAN tuple to set up ECANs for individual calls. If the field is set N, then ECANs are set up using the EC bits in the ACM/ANS and ANI callp messages in the CEM.
ACDLOGIN	Changed	Feature A00004391 (Succession on DMS) expands ADCLOGIN to support up to 30000 tuples. The LOGINID field is expanded from 4 to 5 digits.
ACDENLOG	Changed	Feature A00004391 (Succession on DMS) expands ADCENLOG to support up to 30000 tuples. The LOGINID field is expanded from 4 to 5 digits.
ACDGRP	Changed	Feature A00004391 (Succession on DMS) adds new field IDSIZE to specify the number of login digits to be used by all agents in the group.
KSETLINE KSETFEAT IBNFEAT	Changed	Feature A00004391 (Succession on DMS) expands the POSID field for certain tuples in these three tables from 4 digits to 5 digits. Existing 4 digit POSIDs will be padded with a leading 0 during ONP.
TRKMEM	Changed	Feature A00004449 (PT-AAL1) enables the provisioning of E911 MF trunk for DMSCP SPM in table TRKMEM.
SDMINV	Changed	Feature A00005190 (Succession on DMS) modifies SDMINV to add new PEC NTRX51LS for a simplex CBM which is OC3 connected.
CAINRESP CDRTMPLT	Changed	Feature A00005363 (Succession on DMS) modifies two tables: • CAINRESP adds new entry AMABUSCISTID (AMA Business Customer ID) to subfield CAIN_PARM_ VALUE. It also adds a new digits id type of 300 to the AMA_DIGS_TYPE subfield. • CDRTMPLT adds 3 new parameters to the FIELDS and REORIGCP subfields: BUSCUSTID, SLPID1ST and AMADGSWC.
Product = DMS_Centrex_Res		

Summary of new/changed Data Schema information for SN07

Table name	New or changed	Description
KSETFEAT	Changed	Per feature A00002009 (Succession on DMS), the name of up to 24 characters that this feature provides will be stored in table KSETFEAT.
LCCOPTS	Changed	Feature A00002009 also provides a list of compatible line class codes (LCCs) that will be specified in table LCCOPTS.
IBNXLA	Changed	Feature A00002196 (Succession on DMS) adds the following entries to the Result field: DNDACT and DNDDEACT.
RESFEAT	Changed	Feature A00002196 adds the following field to the table: DND_ONLY.
Product = MG4000		
MNNODE	Changed	Feature A00002970 (UA-AAL1, PT-AAL1, Succession on DMS) adds new field SITE to indicate the site location where the SMG4 is located. This is introduced only for SMG4 class of SPM nodes and can be datafilled only by the site names that are provisioned in Table SITE.
Product = MG9000		
ESAPXLA	Changed	Feature A00002020 (UA-AAL1) adds a new table dependency. LGRPINV is a read-only table that is filled as the result of MG9000 EM provisioning. It must be provisioned before table ESAPXLA. A00002020 adds LGRP selector to the PXLAKEY field.
ESAPXLA	Changed	Feature A00002380 (UA-AAL1) allows LGC/LTC and SMA type peripherals to be used. These peripherals are provisioned in table LTCINV. This is not expected to add a new dependency since LENLINES also depends on LTCINV and is already required.
PXLAKEY	Changed	Feature A00002380 (UA-AAL1) modifies table PXLAKEY. It adds the ABI selection.
UEMG Megaco Enterprise MIB	Changed	Feature A00005016 (UA-AAL1) modifies the MIB definition by adding fault types to the nnMegacoFaultType where previously there was only one fault type.
Product = TOPS		

Summary of new/changed Data Schema information for SN07

Table name	New or changed	Description
TDBDAOPT TOPSFTR TOPSPARM	Changed	Feature A00002740 (Succession on DMS) modiofies the following tables: • TDBAOPT adds new option OVERSEAS to the ADACCSRV field. • TOPSFTR adds parameter International_DA_Call_Comp to enable international DACC. • TOPSPARM adds parameter International_DACC_ Prefix to allow datafilling this tuple with the actual prefix digits (0-999).
(continued) VROPT	Changed	(continued) Feature A00002740 (Succession on DMS) modiofies the following tables: • VROPT parameter DACC_Local_Toll_Activation modifies the TOLL and ALL setting to now include International requested numbers.
XLACLASS XLABILL	New	Feature A00002765 (Succession on DMS) creates these two new tables. XLACLASS allows XLAGRP refinements based on a range including coin, station, hotel, and restricted. XLABILL allows XLAGRP refinements based on a range including paid, collect, third, cards, special calling, special called.
TRKOPTS	Changed	Feature A00002960 (Succession on DMS) introduces new trunk group option ORIGIDSCR. It allows the customer to specify which ISUP EANT trunks perform originator identification screening.

Summary of new/changed Data Schema information for SN07

Table name	New or changed	Description
MSCIDMAP TOPSMCDB	New	Feature A00003687 (Succession on DMS) creates two new tables. • Table Mobile Switching Center Identifier Mapping (MSCIDMAP) maps MSCIDs to TLDN pool identifiers from Table TOPSTLDN. This allows the customer to control TLDN allocation on a per-MSC basis. • Table TOPS Message Center Database (TOPSMCDB) provides datafill for a TOPS SMS SS7-based message center simulator. An operator position or automated node can send SMS messages using either IS-41 TCAP or GSM TCAP. When the simulator receives the SMS, it looks up the data stored against the SMS destination number to determine the disposition of the SMS. The simulator can successfully acknowledge the SMS, send back a failure message, or ignore the SMS so the TOPS SMS time-out code executes.
ISUPTRK TOPSFTR TOPSPARM TOPSTLDN TOPSTOPT	New	Feature A00003687 (Succession on DMS) modifies five tables as follows. • ISUPTRK adds value RLT_GSM in field RLT to accommodate WIN TOPS calls using GSM. **For future use.** • TOPSFTR adds value RLT_FOR_GSM to allow the customer to enable GSM TOPS ADACC with release. In order to activate the feature, the SOC option OSEA0104 must be on, and this tuple must be set to Y. **For future use.** • TOPSPARM adds two new parameters: SMS_LOG_FAILURE, and SMS_TIMEOUT. Enabling the first will lime the number of TOPS131 logs generated in SMS failure situations. Enabling the second permits control of how long TOPS waits before marking an SMS attempt as timed out. • TOPSTLDN is modified in SN07 to use a pool ID as the key field. • TOPSTOPT adds field WIRELESS to control whether TOPS can use wireless functions on a non-WIN (non-CAMEL) call.

Summary of new/changed Data Schema information for SN07

Table name	New or changed	Description
OAFUNDEF	Changed	Feature A00003704(Succession on DMS) modifies the TOPSAUTO option to include a DAS option. Since the DAS option will require a CT4Q and refinement option similar to TOPSOPER, the TOPSAUTO option is now broken into refinement areas for each automated system.
OANODINV, CMIPADDR, and QMSMIS	Changed	Feature A00005160 (Succession on DMS) modifies these tables as follows: In OANODINV, field NODEAREA has modified refinements. Also, if the entry in subfield ONPMTYPE is OSN, OSNM, or OSAC, 3 new fields are added. In CMIPADDR, a new cross check with table OANODINV is added, as is a new error message if an attempt is made to delete or change a CMHOST tuple whose active IP address is datafilled in OANODINV. In QMSMIS, cross checks are added to enforce that an OSSAIN QMS MIS server cannot be datafilled in table OANODINV with data path XAETHR.

Commands and User Interface changes overview

The following Commands and/or User Interface are new or changed for SN07. More complete descriptions appear in the Feature Deltas section of this document.

Summary of new and changed Commands or User Interface for SN07

Command/User Interface Name	Command/User Interface Description
Product = AIN	
Feature A00002016 (Succession on DMS), enhances the Traver tool to display information on subscriptions to AIN triggers and to display the criteria associated with those triggers. The tool also respects the AINDENY line and customer group options and will tell the user if the SCP query was blocked due to AINDENY. Traver will be enhanced to consider AINDENY for prefix triggers and trunk origination.	
Product = CS 2000	

Summary of new and changed Commands or User Interface for SN07

Command/User Interface Name	Command/User Interface Description
CI tool SPMRESALIGN (new)	Feature A00001319 (PT-AAL1, Succession on DMS) creates a new CI tool 'SPMRESALIGN' implemented as a new CI directory which ensures the following: • The RMID-PWID values of the Resource RMs (DSP & VSP RMs) are aligned. • The activity of DSP & VSP RMs are aligned as per the table MNCKTPAK datafill.
CLLI command in SBA RMS subsystem at BILLMTC interface (new)	Feature A00001649 (Succession on DMS) adds new CLLI command to retrieve the CLLI name from the BILLMTC interface. The "clli" command is not available either as a numbered command or as a menu command, unlike other commands in BILLMTC interface. The user has to directly enter the command "clli" at the BILLMTC interface from any level to retrieve the CLLI name.
MAPCI;MTC;PM (changed)	Feature A00001847 (UA-AAL1) updates the displays at this level to support certain maintenance functions and states for the ABI host XPMs. When an ABI peripheral (LTC, LTCI, LGC, LGCI, or SMA2) subtending a GWC is posted, the display looks just like it did for the same peripheral posted as a direct HOST peripheral (legacy).
MAPCI;MTC;PM (changed)	Feature A00001898 (UA-AAL1) updates the displays at this level to support certain maintenance functions for an RMM introduced as a subtending peripheral of an LTC, LGC, and SMA2. The RMM must be posted to perform maintenance actions on the RMM.

Summary of new and changed Commands or User Interface for SN07

Command/User Interface Name	Command/User Interface Description
	The following list details how feature A00002012 (Succession on DMS) updates various MAP levels and two MAP commands: Feature A00002012 allows the IO MAP level to display of a middle packlet with use of HIOP; it currently displays only the CMIC and RTIF functionalities in the lower and upper positions. This feature also provides a new CMIC MAP that shows the CMIC functionality hosted on either a CMIC packlet on a IOP card or CMIC/RTIF HIOP. With the CMIC port/link separation on the CMIC/RTIF HIOP, the new CMIC port0 and CMIC port1 will appear in the CMIC MAP level. Furthermore, A00002012 allows the two Time of Day (TOD) devices to appear for the CMIC/RTIF HIOP card, instead of one: TOD0 and TOD1. Furthermore, the *uneq* command will be used for deprovisioning a CMIC packlet on an IOP card or CMIC link on CMIC/RTIF HIOP card. The feature also allows use of the *trnsl* command with the new HIOP card; the feature does not change the functionality of the command. The *trnsl* command is also a command for use on the CMIC MAP level to obtain the specific MS port numbers to be busied. With introduction of the new CMIC/RTIP HIOP, the new RTIF MAP will display the functionality hosted by either an RTIP packlet on an IOP card or an CMIC/RTIP HIOP card. Furthermore, with the RTIP port/link separation on the CMIC/RTIF HIOP, the new RTIP link0 and link1 will appear on the RTIF MAP level. The RTIF local port will be changed to Link0, and the RTIF remote port will be changed to Link1. Port 0 and Port 1 will be left blank. With introduction of the new CMIC/RTIP HIOP card, the RTIF packlets will have to be migrated to the new card. Thus, the *uneq* command will be used for deprovisioning an RTIP packlet on an IOP card or an RTIF link on a CMIC/RTIF HIOP card.

Summary of new and changed Commands or User Interface for SN07

Command/User Interface Name	Command/User Interface Description
Per feature A00002133 (Succession on DMS), the “cbm_setup” tool is an installation interface that is command line driven. It provides an interface to initiate, complete and provide status feedback for installation. The SWIM level of the “cbmmtce” interface is used to install applications. It also provides a transaction history. These logs are maintained on the system and rotated weekly or as disk space requires. There is also a SWIM capability that will allow users to view logs. The suite of patching tools built into the SSPFS provide user interfaces to apply and remove patches and query and audit software. Another new mechanism for the Nortel Networks Core and Billing Manager (CBM) product provides verification of the integrity of patches as they are received. This feature will also provide a CBM capability to override embedded patching handling with a more cautious handling procedure. The root password is not required to control patching. Maintenance users (maint group or emsadm group) will have access to run the “patchctrl” tool. There are four tools are patching: patchconfig, patchctrl, queryloads, and patchfilter.	
QUERYCARD and QUERYSHELF (changed)	Feature A00002433 (Succession on DMS) enhances these commands to show if the field replaceable unit (FRU) is HW and FW/DLL baseline compatible. This feature enhances ONP precheck steps to detect a non-baseline FRU on the active image. It also provides a new pre-SWACT check to request/ receive the new side PECINV (hardware baseline) data.
RMI (BILLMTC) (changed)	Feature A00002741 (Succession on DMS) enhances RMI (BILLMTC) by allowing the user to configure the location of the downstream test files and to configure the location of the partial file that renames the functionality. It also allows the user to turn the auto-recovery option ON or OFF.
QUERYPM (changed)	Feature A00002746 (UA-AAL1) modifies this command to • Add additional screen output to the default QUERYPM command (without arguments) which reflects SITE, ABI slot, and network element number information. New output only occurs if the posted XPM is an ABI XPM. • Add an additional option to the QUERYPM command, ABICONN, which is used to trigger a looparound message at the ABI XPM for verifying connectivity between the CM and XPM.

Summary of new and changed Commands or User Interface for SN07

Command/User Interface Name	Command/User Interface Description
SPMLDINFO (changed)	Feature A00002760 (PT-AAL1, UA-AAL1, Succession on DMS) enhances the SPMLDINFO directory and related commands to enable the craftsperson to display the load release information for all the product lines of SPMs. Command **querypm files** is enhanced to display the running spectrum load release name for the posted SPM irrespective of the variant type.
CBM User Interface (UI) (new)	Feature A00002822 (Succession on DMS) creates a User Interface Manager for local CBM maintenance and system administration. Functions include access and control over the CBM application software, CBM configuration, and package installation/removal.
QUERYPM FLT REASON (changed)	Feature A00002858 (Succession on DMS) adds new ISTb reasons to the output of the QUERYPM FLT REASON Command: “Check SysB Carrier” and “Check Carrier on OC3 (or STM) RM” and “Check RFI Alarm on STS3L (or STM1M) Carrier.” This feature will only work on TDM (legacy) SPM nodes (i.e. SPM and STM1).
Feature A00002966 (Succession on DMS) is expected to port the following major functions from the SDM to the Core and Billing Manager (CBM): Passthru users using SSH/telent; restriction of shell for maint class users; and cbmgather tool. The feature is also expected to add the following enhancements: addition of query subcommand; querytape; dat0 and dat1; new option to *platgather* and *cbmgather* to specify number of days’ logs to be collected in order to accommodate a special need; capability for passthru users to change their own passwords for the SDM and CBM; listing, addition and modification of passthru users through the command line tool - passthru.	
PMUPGRADE directory (changed)	Feature A00002979 (Succession on DMS) modifies the LOADDISTRIB and PATCHDISTRIB options of the SET command, extending them to support electronic software delivery via FTP.
SimRing group commands (changed)	Feature A00003073 (Succession on DMS) adds a new option “Redirection” prompt to commands ADO, CHF, and EST.
QSIMR (changed)	Feature A00003073 (Succession on DMS) modifies the display of QSIMR. It adds an indication that Redirection is allowed/not allowed on the SimRing group.
CLI (changed)	Feature A00003454 (Succession on DMS) modifies the CLI command to configure this feature.

Summary of new and changed Commands or User Interface for SN07

Command/User Interface Name	Command/User Interface Description
SERVMAN (new)	Feature A00003454 (UA-AAL1) introduces this command to start, stop, and query the status of the SOCKS server.
PM MAP level for LGRP (new)	Feature A00003459 (UA-AAL1) modifies the PM MAP level to permit LGRP postings and related maintenance commands.
QUERYPM (changed)	Feature A00003486 (UA-AAL1) modifies the legacy QUERYPM command by displaying an additional screen to the default QUERYPM command (without arguments) which reflects the ABI MG9K. **Note:** New output only occurs if the posted XPM is an ABI XPM.
GWC-EM GUI (changed)	Feature A00003487 (UA-AAL1) modifies the GUI to include a new MIB table: GET_NETWORK_CODEC_PROFILE. It adds functionality to support the provisioning of multiple network codec profiles, and to support the specification of a bearer network fabric instance and a network codec profile for each GWC. Refer to the Feature Deltas section for screen shots.
TRAVER TR (changed)	Feature A00003487 (UA-AAL1) modifies this command to allow specifying the originator's bearer fabric or bearer network using the new optional TRKMEM or BEARNET parameters such that when encountering a CND/NOT FABRIC or CND/NOT BEARNET selector in the translations route, the parameters are used to determine how to interpret the CND/NOT route selector.

Summary of new and changed Commands or User Interface for SN07

Command/User Interface Name	Command/User Interface Description
ABIREHOME tool (changed)	Feature A00003490 UA-AAL1) adds 3 rehome query commands and 6 INVASIVE rehome commands to the ABIREHOME tool: • QUERY_IMPACTED_NODES/QIN: This command is used to display all the nodes currently marked as impacted. • FIND_AFFECTED_NODES/FAN: This command is used to display all the nodes impacted by rehome of given XPM node. • SHOW_NODE_STATUS / SNS: This command displays the current status, through ABI rehome, of a specified node, or all rehoming nodes. • SET_AFFECTED_NODES/SAN: This command is used to set the protected rehome bit for each node impacted by rehoming the given XPM. • CLEAR_AFFECTED_NODES/CAN: This command is used to clear the protected rehome bit for each node impacted by rehoming the given XPM. • MARK_DS512_LINK_VERIFIED/VER512: This command sets the DS512 Link Verified bit for the specified node.
(continued) ABIREHOME tool (changed)	(continued) Feature A00003490 UA-AAL1) adds 3 rehome query commands and 6 INVASIVE rehome commands to the ABIREHOME tool: • ADJUST_FRAME_SYNC/AFS - This command is used to adjust the frame sync on the ABI cards to sync to the inactive XPM unit. • ABORT_GWC_STATIC_DATA/ABORT_GWCSD - This command is used to send a limited static data update request to UNDO the recent GWC static data updates. • SEND_GWC_STATIC_DATA/GWCSD - This command is used to send a limited static data update request to GWCs with new or deleted ABI XPMs.

Summary of new and changed Commands or User Interface for SN07

Command/User Interface Name	Command/User Interface Description
OC3STS1PortView GUI (new) Performance browser (changed)	Feature A00003591 (UA-AAL1) creates the OC3STS1PortView GUI and modifies the Performance Browser: • If the carrier is channelized, the Carrier Configuration display, OC3STS1PortView, will display OC3 Section/Line and three STS1 path information. • If the carrier is in channelized mode, the Channelized Carrier Performance parameter, performance browser, will display the OC3 Section/Line, STS1 path performance parameters and DS3 path information(if DS3 payload is selected).
Carrier Provisioning GUI (changed)	Feature A00003604 (UA-AAL1) allows the user to provision the carrier (only for SONET and not for SDH) in “Channelized” mode in addition to the previously existing functionality. Three new provisioning pages are added to the GUI: • Carrier Provisioning page, invoked by selecting the DCC card and clicking on the “Carrier à Provisioning” option listed in the Menu. • Carrier Controls page for locking/unlocking the carrier, invoked by selecting the DCC card and clicking on the “Carrier à Controls” option listed in the Menu. • Carrier Status page, invoked by selecting the DCC card and clicking on the “Carrier à Status” option listed in the Menu.
CLI to query all system faults (new)	Feature A00003617 (PT-AAL1) creates a commnd line interface to query all the faults on a system (an aggregate view of the system). It also proveds interfaces to turn on, turn off and query alarm lights on Netra 1400 and N240 platforms. It also provides an interface to turn ON or OFF local logging.
MANUAL FORCE RTS (changed)	Feature A00003971 (Succession on DMS) modifies at the CEM PROT level the responses from command MANUAL FORCE to show reasons for the failure or refusal of the command. Also, one failure response to the RTS command has been changed for improved clarity.
USNBD CDC and AGENCY commands (changed)	Feature A00004037 (Succession on DMS) modifies these commands to allow a new type of transport protocol, SR (switched remote) for FSK CDC over trunks. The Agency commands ADD and LIST will be enhanced to add the PIC and LATA fields.

Summary of new and changed Commands or User Interface for SN07

Command/User Interface Name	Command/User Interface Description
APPL banner New commands: PKT, SPM_ATM, STATUS, SUMALL, SUMFAIL, PARMS, CLEAR, ZERO	Feature A00004260 (UA-AAL1) modifies the APPL banner in the existing/resident Map MTC level so a new alarm will be displayed whenever one of the SMG4/IW/DPT nodes have an XPKT806 alarm present. The new alarm is “nn PKT” with major severity, where “nn” is the number of SMG4/IW/DPT nodes with the alarm and “PKT” is Packet. The precedence of “nn PKT” with respect to existing APPL alarms is that “nn PKT” is higher than a SDM billing alarm but lower than a SysB SDM alarm.
ACDDEBUG ACDSHOW (changed)	Feature A00004391 (Succession on DMS) modifies these Command Interface tools to handle a 5-digit position ID so that indexing using these IDs will work properly.
SIPTRACE (new)	Feature A00004422 (Succession on DMS) introduces new command SIPTRACE to identify which SIP-T DPT (originating and/or terminating) is associated with an active call within the call server by means of SIP-T DPT callid. This new CI command utility is at the top level of CI.
SDM Menu enhancements	Feature A00004554 (Succession on DMS) implements scheduling of the system image backup to both SDM tape drives and the capability to configure the “Backup Required Alarm.”
Ability to configure secure file transfer	Feature A00005073 (Succession on DMS) provides optional secure outbound file transfer using OpenSSH sftp client. The SBA user can configure the secure file transfer by adding or changing an existing schedule tuple in billmtc.
OM Data Delivery (OMDD) enhancements	Feature A00005074 (Succession on DMS) modifies the OMDD User Interface (OMUI) by allowing the user to select either “Standard” or “Secure” file transfer for the destination in addition to the already existing parameters.
MAPCI modified to support an OC3-connected CBM	Feature A00005190 (Succession on DMS) modifies the MAPCI to support an OC3-connected CBM. Refer to the configuration section of this feature for the differences between the OC3 environment and the DS512 environment.
MAPCI modified at SDMBIL level	Feature A00005268 (Succession on DMS) introduces new MAPCI commands to allow the user the add (ADDVOL) or remove (RMEVOL) more than one volume at a time per stream. Also, the CONF command is modified to reflect this new capability.

Summary of new and changed Commands or User Interface for SN07

Command/User Interface Name	Command/User Interface Description
IOCAP MAPCI level (new)	Feature A00006693 (Succession on DMS) modifies the CAPACITY MAPCI level to provide a new IOCAP MAPCI level in XA-Core only. The new IOCAP level will provide IO utilization and IO messaging throughput information for HCMIC and HIOP IO cards. New commands at this level include IOCAP, QUIT, IOMAX, IOAVG, DISP, and STATUS.
Product = MG9000	
MG9K Element Manager GUI	Feature A00001893-94 (UA-AAL1) changes the MG9K Element Manager Graphical User Interface (GUI) at the card level by adding an item named *Software Image* to the *Actions* menu. It also asks the user to provide additional information at start up time for the MG9K EM Server. Also, the NPM will offer the ability to image an MG9K device via a new maintenance command *SmartImage.*
ESACOLL	Feature A00002020 (UA-AAL1) creates the ESACOLL command that will generate an ESA data file for MG9000 lines.
ESATRAVER	Feature A00002380 (UA-AAL1) modifies the ESATRAVER command to work with MG9000 ABI lines. These changes for ESATRAVER relate to MG9000 LGRPs and ABI XPMs. **Note: The information in A00002380 supersedes the ESATRAVER description in A00002020.**
MG9000EM GUI (changed)	Feature A00003074 (UA-AAL1) removes the menu tab for ExportNE because it is no longer needed. It creates a new status icon that appears when an EM has an MG9K provisioned but is no longer managing that MG9K. It also creates a new GUI error message if a database error is encountered during MG9000 EM GUI actions.
SPMCPCAP	Feature A00002431 (Succession on DMS) introduces this new CI tool to display the capacity information of SPM. This tool enables the user to list the SPM and their capacities based on the variant type or list the SPMs based on the capacities. There is also a provision to find out capacity for a given SPM number. Remarks field in this tool displays if CEM(s) are not datafilled in table MNCKTPAK.

Summary of new and changed Commands or User Interface for SN07

Command/User Interface Name	Command/User Interface Description
Feature A00003531 (UA-AAL) changes the following MG9K GUIs: • MG9K-EM Frame-view--Frames are displayed without a gap; the master frame is shown on the far left and all subtending frames to the right. • MG9K-EM "Provision a Virtual Media Gateway" GUI--Internal frame number is hard-coded to zero in VMG name, while provisioning VMG. • MG9K-EM Alarm browser GUI--the Description field changes so that once Frame location information is provisioned, for new alarms, Frame location detail is appended to the data which is shown in this field in SN06.2. If Frame location information is not provisioned, default fillers F's are appended to the data which is shown in this field in SN06.2.	
ESA Configuration View (changed)	Feature A00003567 (UA-AAL1) enhances the ESA Configuration View to support ABI ESA for enhanced ESA only. The subnet view is changed to show the DMS icon and subtending nodes.
OC3STS1PortView GUI (new) Performance browser (changed)	Feature A00003591 (UA-AAL1) creates the OC3STS1 PortView GUI and modifies the Performance Browser: • If the carrier is channelized, the Carrier Configuration display, OC3STS1PortView, will display OC3 Section/Line and three STS1 path information. • If the carrier is in channelized mode, the Channelized Carrier Performance parameter, performance browser, will display the OC3 Section/Line, STS1 path performance parameters and DS3 path information(if DS3 payload is selected).
Feature A00003737 (UA-AAL) creates the following new MG9K GUIs: • ESA Query Tool (LCI)--to inform the node owner whether a MG9K that has lost its communication with the Element Manger is in ESA and still processing calls. • Ethernet Provisioning (LCI)--to allow the user to provision the ethernet ports to a specified IP address so customers can gain remote access to the ethernet port for FTP and LCI management. • SNMP Alarm Log (LCI)--to allow the user to query and display the SNMP alarm from the active DCC, providing a history of all the major events that have occurred on a node. • Password Change (LCI)--to allow the customer with a means for changing the default password that all MG9ks are shipped with. This password is used for LCI and SSH FTP authentication.	

Summary of new and changed Commands or User Interface for SN07

Command/User Interface Name	Command/User Interface Description
GW Status Config Tab under the Switched Line Services screen	Feature A00005016 (UA-AAL1) adds a new field to the Gateway Status Configuration tab to show what alarms have been raised against the VMG. If there are no faults, then this field will be empty.
Product = Media Server	
MS2000 Series Node CLUI (changed)	Feature A00004873 (UA-AAL1) describes the following changes to the MS2000 Series Node CLUI: - ability to configure MS202 device, - Force Lock of a Device, and - ability to change the SNMP Community Strings.
Product = Passport 15000	
MDM login screen (changed)	Feature Q00675702 (UA-AAL1, PT-AAL1) enables customers to update the Succession release name string automatically when the new Succession releases are delivered or provide a graphical user interface to change the Succession release name string at an appropriate point in the release upgrade process.
Product = TOPS	
QUERYPM in OAINPMDIR directory; BUFSTATS in OSSAINCI directory	Feature A00005160 (Succession on DMS) makes the following changes: For QUERYPM, changes the output that is displayed when the QUERYPM command is issued with no arguments in the OAINPMDIR directory. The new BUFSTATS command allows the user to view information about the queues and buffer pools that are used for processing messages incoming to OSSAIN via an XA-Core Ethernet interface. It also allows the user to reset the low water marks associated with the free queues.

Servord changes overview

The following Service Order items are new or changed for SN07. More complete descriptions appear in the Feature Deltas section of this document.

Area	New or changed	ServOrd Description
Product = AIN		
With feature A00002016 (Succession on DMS), the AINDENY option in table TRKOPTS will also allow AINDENY to be associated with specific trunk groups as datafilled in table TRKGRP. (Only AIN-capable trunks will be allowed AINDENY options in table TRKOPTS.) The new option will function in a similar manner to the line and customer group options except that it will only block prefix triggers. It will not be capable of holding SFC, PFC, or Office-Wide PFC triggers. It will allow 15 DENYs or RESTOREs just as the line and customer group options. With feature A00002016, individual agents need to subscribe to the prefix triggers. Accomplishment of this task is possible in tables OFCTIID, CUSTIID, TRKAIN or through Servord.		
Product = CS 2000		
OPTION	New prompt	Per feature A00002009 (Succession on DMS), NAME24 can be assigned to KSET via Servord ADO command. It can also be added to a line with NEW and COPYSET commands.
VOW Options		Feature A00002011 (Succession on DMS) updates the list of incompatible options for VOW and VOWDN and removed the table that documented extra prompts for adding and deleting VOWDN option. These prompts are no longer valid or relevant.
ADO, DEO, and CLN	Changed	Feature A00002555 (Succession on DMS) allows the ADO, DEO and CLN Servord commands to manipulate the GND Bool in table LNINV for these supported line cards: 3A06BA, 7A25AA, SCD271, RDTCON, and RDTLSG. Other line cards that support GND are not affected by this feature.
ADO, CHF, EST	New prompts	Feature A00003073 (Succession on DMS) adds a new option “REDIRECTION” to the existing SimRing group commands. The “Redirection” prompt affects NPMDNs with active call forwarding (CAF, CFD, CFB).
POSID	New prompts	Feature A00004391 (Succession on DMS) changes the acceptable value of POSID to be a 5-digit value in the range of 00000 to 30000. This change affects command prompting for NEW, ADO, NEWACD, and CHF commands.

Area	New or changed	ServOrd Description
Product = DMS_Centrex_Res		
OPTION	New prompt	Per feature A00002009 (Succession on DMS), NAME24 can be assigned to KSET via Servord ADO command. It can also be added to a line with NEW and COPYSET commands.
SCA option	new field	Feature A00002196 (Succession on DMS) introduces a new field, DND_ONLY, for the SCA option.
CFDVT option	New prompt	CRs Q000707607 and Q00935523 (Succession on DMS) add new prompt RINGCTRL when provisioning the CFDVT option. The default should be FIXRING. This fix also allows IBN, MBS, and ISDN lines to now be provisioned with CFDVT PRGRING.

Office Parameter changes overview

The following office parameters are new or changed for SN07. More complete descriptions appear in the Feature Deltas section of this document.

Summary of new/changed Office Parameters for SN07

New or Change	Parameter Name	Description
Product = CS 2000		
New	T1_TIMER_EXPIRY_MSG_SUPPRESS	Feature A00002013 (Succession on DMS) creates this parameter in Table OFCVAR to provide optionality control for the feature in conjunction with SOC INW00001.
New	SPM_NODE_ISTB_FOR_CARRIER_OUTAGE	Feature A00002858 (Succession on DMS) creates this parameter in Table OFCENG. The parm name means SPM Node ISTb under PM Map banner for carrier outage. When the parameter is enabled (“Y”), any SPM carrier outage will cause an indicator under the PM banner that a SPM node has gone ISTb. When the parameter is disabled (“N”), carrier outages will never cause a SPM node to go ISTb. The parameter is only supported on TDM Legacy nodes (SPM and STM-1), and has no impact on Succession nodes (MG4K, LSA, IW, STS-1).
Changed	NETWORK_ACTIVE	Feature A00003487 (UA-AAL1) expands the value EXTENET in OFCOPT to include the ability to support multiple packet networks.

Summary of new/changed Office Parameters for SN07

New or Change	Parameter Name	Description
New	MULTINET_DISPLAY_ACTIVE PRE_SN07_DUMPSIDE_PACKET_FABRIC	Feature A00003487 (UA-AAL1) creates two new parameters. • MULTINET_DISPLAY_ACTIVE (OFCVAR) activates the new and changed OMs and logs. It enables the display of certain OM groups (such as TRK2NET1/TRK2NET2) and information displayed in certain logs such as IWBM. This office parameter cannot be turned on unless NETWORK_ACTIVE = EXTENET. • PRE_SN07_DUMPSIDE_PACKET_FABRIC (OFCSTD--This office parameter is set by the Nortel engineering team in an office parm changes flat file prior to the night of ONP. It is to be applied after the transfer of the office parameters and prior to the TABXFER. The parameter identifies the FABRIC type of the single packet fabric supported on the from side prior to the upgrade, in order for the proper network tuples to be created in tables BEARNETS, CLLI, NETBRDGE, NETPATH, and NET2NET, as well as allow the new network related fields in tables MNNODE, TRKOPTS, and SERVRINV to be assigned the proper default values.
Changed	NETWORK_ACTIVE	Feature A00003487 (UA-AAL1) expands the value EXTENET to include the ability to support multiple packet networks.
New	SYSBALARM	Feature A00003549 (UA-AAL1) creates this office parameter in table OFCVAR to set alarm thresholds for the SYSB alarm.
New	RTE_ADVANCE_FOR_INTRA_IMT_NCRT	Feature A00003789 (Succession on DMS, AAL2) creates this office parameter in OFCVAR to control the route advance behavior of CAUSE 34 in conjunction with the INTRACSE TRKOPTS option. The functionality of this parameter does not affect the route advance capability of cause values 42, 47 and 51.
Changed	ECAN_EDGE_STRATEGY	Per feature A00004046 (UA-AAL1), ECAN_EDGE_STRATEGY in table OFCENG in SN07 and beyond will only apply to AAL1 bearer networks. All other packet network type such as IP will assume the edge ECAN strategy.

Summary of new/changed Office Parameters for SN07

New or Change	Parameter Name	Description
New	XPKT806_SMG4_RAISE_CLEAR XPKT806_IW_RAISE_CLEAR XPKT806_DPT_RAISE_CLEAR XPKT806_SUPPRESSES_XPKT301	Feature A00004260 (PT-AAL1) creates four new parameters. • XPKT806_SMG4_RAISE_CLEAR (OFCENG) controls the raising of an ATM806 major alarm for SMG4 nodes due to the number of ATM606 hits against the SMG4 nodes. It also controls clearing the alarm via an XPKT807 log. • XPKT806_IW_RAISE_CLEAR (OFCENG) controls the raising of an ATM806 major alarm for IW nodes due to the number of ATM606 hits against the IW nodes. It also controls clearing the alarm via an XPKT807 log. • XPKT806_DPT_RAISE_CLEAR (OFCENG) controls the raising of an ATM806 major alarm for DPT nodes due to the number of ATM606 hits against the DPT nodes. It also controls clearing the alarm via an XPKT807 log. • XPKT806_SUPPRESSES_XPKT301 (OFCENG) controls suppression of XPKT301 logs for SPM nodes already in an XPKT806 alarm condition.
Changed	MAX_NUM_ACD_AGENTS_PER_SWITCH	Feature A00004391 (Succession on DMS) modifies this parameter in Table OFCOPT by increasing the miaximum value from 9999 to 30000. The actual value of this parameter can no longer be changed by the end user. In order to change the value of the parameter, the SOC usage limit must be changed.
Changed	RATED_POWER	Feature A00004713 (Succession on DMS) modifies this parameter in Table OFCENG to allow the users to change the value of Rated Power to as small as 1. Previous to SN07, the lowest possible value was 2.
Changed	RATED_POWER	Feature A00005193 (Succession on DMS) modifies this parameter in Table OFCENG to allow the users to change the value of Rated Power to as large as 9. Previous to SN07, the largest possible value was 7.

Summary of new/changed Office Parameters for SN07

New or Change	Parameter Name	Description
New	IO_WARNING_THRESHOLD	Feature A00006693 (Succession on DMS) creates this new parameter in table OFCENG to define a utilization warning threshold for all IO service types (CMIC, ETHR, AMDI) in the system. The IOCAP monitoring toolset uses the value of this parameter to peg the IOTHRESH register of the IOCAP OM whenever the IO utilization level of any IO service has exceeded this threshold on the switch.
Product = MG 9000		
New	ESA_GWDATA_DEVICE	Feature A00002020 (UA-AAL1) creates Emergency Stand Alone Gateway Data Device (ESA_GWDATA_DEVICE) in Table OFCENG. It specifies the device on the core where the ESA data is generated.
New New	ESA_GWDATAUPD_HOUR ESA_GWDATAUPD_BOOL	Feature A00002380 (UA-AAL1) creates the following new parameters in Table OFCENG. • Emergency Stand Alone Gateway Data Update Hour (ESA_GWDATAUPD_HOUR) in OFCENG specifies the time that file ESA_SYSTEM_ SD$XML should be generated. • Emergency Stand Alone Gateway Data Update Boolean (ESA_GWDATAUPD_ BOOL) in OFCENG enables the generation of file ESA_SYSTEM_ SD$XML.
Product = TOPS		
New	NUM_OF_WIN_TOPS_EXT_BLKS	Feature A00003687 (Succession on DMS) creates this new parameter in OFCAUT to control how many extension blocks are allocated for use by Wireless Intelligent Network (WIN) TOPS calls.
Deleted	NUM_OF_IS41TOPS_EXT_BLKS	Feature A00003687 (Succession on DMS) deletes this parameter from OFCENG. It is replaced by NUM_OF_WIN_TOPS_EXT_BLKS in OFCAUT.

OM/PM changes overview

The following OMs/PMs are new or changed for SN07. They also appear in the OMs/PMs-by-product tables later in this document with lists of registers

and descriptions. More complete descriptions appear in the Feature Deltas section of this document.

Summary of new or changed OMs/PMs for SN07

OM Group or PM name	New or Changed	Description
Product = AIN		
INSCTP	New	Feature A00004500 (Succession on DMS) creates this new OM group for AIN transports. The group consists of the following eight registers: . MSGOUT MSGIN SENDFAIL DATAERR MSG2BIG BMSFAIL DATARCVD NOTREADY
Product = Call Server 2000		
XACORE	Changed	Feature A00002012 (Succession on DMS) makes the following changes: • changes the OMs related to the AMDI functionality to give a consistent OM structure for components with port and link devices in the XA-Core system.
(continued) XACORE	(continued) Changed	(continued) • extends the existing CMIC and RTIF OMs to distinguish between packlet and device (port or link) state changes to give a more refined count of the CMIC and RTIF component state changes. • deletes four registers, adds seven new registers, and changes one register. Refer to the Performance section of this feature for details.
FCDRTM1E FCDRTM2E FCDRALG2	New	Feature A00002340 (Succession on DMS) provides the following new OM groups: FCDRTM1E. The group FCDRTM1E is used for register overflows from the OM group FCDRTMP1. FCDRTM2E. The group FCDRTM2E only applies to DMS. This group is used for register overflows from the OM group FCDRTMP2. FCDRALG2. This group is used for register overflows from the OM group FCDRALGR.

Summary of new or changed OMs/PMs for SN07

OM Group or PM name	New or Changed	Description
SPMACT SPMOVLD	Changed New	Feature A00002432 (Succession on DMS) adds new register CAPINDEX to display the capacity level at which the SPM is running. The capacity index is a numeric value, with possible values of 0, 1, or 2, corresponding to regular, enhanced and premium capacity, respectively. New SPMOVLD group will have 18 OM registers that give metrics on the SPM flow control system and the system overload control component.
XASTAT	Changed	Feature A00002538 (Succession on DMS) modifies OM group XASTAT to remove reister XASCMPLX since this measurement is not valid in XA-Core.
ATTAMA2	New	Feature A00002766 (Succession on DMS) creates new OM group ATTAMA2 which provides overflow for registers for AMANS and AMUNANS from OM group ATTAMA. ATTAMA2 is enabled/disabled with SOC BAS000023.
SCAISRV4	Changed	Feature A00002904 (Succession on DMS) creates two new registerrs to peg any application-specific outgoing SCAI messages. • TOGCLLRR - pegged when the switch sends out a RR in response to a valid DV_TOGGLE_CALL message request being received and processed. • TOGCLLRE - pegged when the switch sends out a RE in response to an invalid DV_TOGGLE_CALL message request being received.

Summary of new or changed OMs/PMs for SN07

OM Group or PM name	New or Changed	Description
DPTOFCP OFZ2NET1 OFZ2NET2 TRK2NET1 TRK2NET2	New	Feature A00003487 (UA-AAL1) adds five new OM groups. • DPTOFCP measures the performance of the supported dynamic packet trunk protocols for the office. The two supported protocols are BICC and SIP-T. • OFZ2NET1 provides information for traffic analysis per bearer network. It pegs calls for the intended destination, not the destination where the call terminates. • OFZ2NET2 provides information for traffic analysis per bearer network. The OFZ2NET2 OM group counts calls that the system routes to generalized no circuit treatment (GNCT). The system routes a call to GNCT when a trunk group is the last route in the route list and all trunks are busy. • TRK2NET1 provides information for per-trunk group traffic analysis per bearer network with information on trunk traffic for each trunk group. • TRK2NET2 provides information for per trunk group traffic analysis per bearer network. It contains extension registers for registers found in OM Group TRK2NET1.
DPTNODE IWBM	Changed	Feature A00003487 (UA-AAL1) modifies these two OM groups. • DPTNODE adds additional information to the OM tuples. If the DPT Node is a GWC, then the associated DPT protocol (i.e., BICC or SIP-T) is added to the information. If the DPT Node is an SPM (i.e., either MG4K or DTP SPM), then the associated bearer network, DPT protocol, and SPM node type are all added to the information provided. • IWBM is modified to collect data per each of the bridge pools as they are defined in table NETBRDGE.

Summary of new or changed OMs/PMs for SN07

OM Group or PM name	New or Changed	Description
AL1SVCOM	New	Feature A00004430 (UA-AAL1) creates new OM group AL1SVCOM, used to provide OM registers for ATM switched virtual circuits (SVC) external network connection bearer path call origination attempts and call failures. The group has 16 registers and is associated with the XPKT301 log (for UNI Call Setup connection failures) or XPKT302 log (for UNI Mid-call connection failures) for SPM IW, DPT SPM, SMG4, and MG9K.
IOCAP	New	A00006693 (Succession on DMS) creates this new OM group to provide information on IO capacity such as utilization and utilization high watermark and IO throughput information on a per IO service type (CMIC, ETHR and AMDI). The group consists of seven registers. This OM group provides one tuple for each IO service type. There are 3 possible IO service types (CMIC, ETHR, AMDI). The service type is displayed as a 4-character string.
AIN	Changed	CR Q00495482-02 (Succession on DMS) adds new register DLFL (Disconnect Leg Failures) that counts the number of times the Disconnect Leg response fails to complete its task.
Product = MG 9000		
GWOVLOM	New	Feature A00006639 (UA-AAL1) creates this OM group to count the number of denied call connection requests that are due to an overload condition on the MG 9000 node.
Product = Passport 15000		
Performance measurements	New	Q00766794, Q00766796 and Q00812294 (UA-AAL1, PT-AAL1) provide additional 5 and 30 minute performance measurements for P15K in the Succession Core: • Max fabric temperature during the 5 minute interval. OSS can then compute the temperature gradient and take appropriate corrective actions. • Number of active alarms and their severity during the 5 min interval. Network personnel can spot any unusual activity on the switch and alert the local maintenance personnel to take pro-active corrective actions.

Summary of new or changed OMs/PMs for SN07

OM Group or PM name	New or Changed	Description
(continued)		(continued) Q00766794, Q00766796 and Q00812294 (UA-AAL1, PT-AAL1) provide additional 5 and 30 minute performance measurements for P15K in the Succession Core: • Maximum CPU utilization for each of the FPs in the 5 minute period. • Successfully transferred cells by service category.
Product = TOPS		
IS41TOPS	Deleted	Feature A00003687 (Succession on DMS) deletes this OM group, replacing it with three others as described in the following table entry.
SMSTOPS WINTOPS TC7WRLSS	New	Feature A00003687 (Succession on DMS) creates three new OM groups. • SMSTOPS records application-level events for the TOPS short message service. • WINTOPS records application-level events for wireless ADACC with release. This group uses WIN in the name since wireless intelligent network capabilities are used to provide ADACC with release for both IS-41 and GSM. • TC7WRLSS records transport-level events such as types of TCAP messages sent and received, SS7 errors, etc. on TOPS wireless calls (SMS and WIN, as well as IS-41 and GSM).
TDGTHRU	New	Feature A00005160 (Succession on DMS) creates new OM group TOPS Datagram Throughput can be used in analyzing messaging throughput of TOPS applications that send and receive UDP datagrams. The 28 registers each count the number of messages in a particular size range that a TOPS application sent or received during the reporting period. The numbers in the register names indicate the size ranges or “buckets.”

AMA/Billing changes overview

The following AMA/Billing information is new or changed for SN07. More complete descriptions appear in the Feature Deltas section of this document.

Summary of new or changed AMA/billing

AMA/billing item	New or Changed	Description
Product = CS 2000		
Backing up billing data	New	Feature A00002008 (Succession on DMS) provides a manual procedure for backing up billing data from the CBM to a DVD, both with and without a script.
Multiple	Changed	Feature A00004036 (Succession on DMS) appends a Service Logic Identification Module (module code 039) to the current record as an AMAslpid is included in the corresponding update request. Refer to the Accounting section of this feature for additional details for each group.

SOC Optionality Control (SOC) changes

The following SOC information is new or changed for SN07. More complete descriptions appear in the Feature Deltas section of this document.

Summary of new or changed SOC information for SN07

SOC code	New or Changed	Description
Product = AIN		
CAIN0612	New	A State SOC will control feature A00001990 (Succession on DMS) -- state is either IDLE or ON. Functionality of this activity depends on a number of basic CAIN SOCs that are provided in the functional description (FN) for this activity. The SN07 Release Document will include this FN.
Per feature A00002016 (Succession on DMS), the SOCS relevant to the detected triggers need to be turned on. See the functional description of this activity in this document for a list of the SOC order codes for VSC and prefix triggers.		
INW0003	Changed	Feature A00004500 (Succession on DMS) modifies this SOC to control the IN Messaging over IP functionality. The limit in SOC must be set to at least the number of tuples datafilled in the table IPAPPLTC.

Summary of new or changed SOC information for SN07

SOC code	New or Changed	Description
CAIN0202	New	Feature A0005363 (Succession on DMS) adds a new SOC to enable new CAIN message processing. • Support for a new parameter, AMABusiness CustomerId in some incoming messages. • Support for a digits id (300) for an existing parameter, AMADigitsDialedWC • Support for retaining the first occurrence of an existing parameter, AMASlpID. Currently, only the last occurrence of this parameter is retained. • Support for 3 new parameters in the CDRTMPLT table: SLPID1ST, BUSCSTID and AMADGSWC. This feature does not create a new predefined template. The customer must either modify their existing template or create a new template which includes the 3 new parameters.
Product = CS 2000		
MDC00075	New	Feature A00002009 (Succession on DMS) introduces a SOC to control the NAME24 line option that enables subscribers to provide a name up to 24 characters for their private network. The SOC controls NAME24 line option processing, and it controls the display when NAME24 does not apply to the originator.
TBD	New	For non-MSL customer, standard SOC control will regulate feature A00002011 (Succession on DMS). VOWs and VOWDNs can be datafilled but will not be permitted to log in unless the feature is activated in SOC. If the SOC is turned off, attempts to log in by VOW user will be routed to FNAL treatment. In loads built for the MSL market, the SOC should always be turned on.
INW00001	New	Feature A00002013 (Succession on DMS) controls the functionality of T1 Timer Expiry Message Suppression. When enabled, T1 Timer Expiry messages are not generated. Suppressing the ‘T1 Timer Expiry’ messages from being generated will prevent the messages from flooding the network should an SCP go down.
BASE0015	New	Per feature A00002186 (Succession on DMS) when BASE0015 is ON, IOM DDU capacity increases from 1G to 4G. The status must be ON before the additional capacity is visible.

Summary of new or changed SOC information for SN07

SOC code	New or Changed	Description
SPMS0020 SPMS0028	New	Feature A00002431 (Succession on DMS) introduced two new USAGE SOCs under the existing SPMS group for DMSCP class of SPMs. The SOC option SPMS0020 corresponds to the SPMs with Enhanced capacity; the SOC option SPMS0028 corresponds to the SPMs with Premium capacity.
ICM00079	Changed	Feature A00002904 (Succession on DMS) adds a warning message when the CTI Toggle Transfer SOC ICM00079 is toggled from ON to IDLE state. The warning message indicates that state transition disables the associated dv_Toggle_Call functionality.
UTRS0011	New	Per feature A00002960 (Succession on DMS), when UTRS0011 is IDLE calls will not be blocked on any ISUP EANT trunks when the CPN or CN is not present. The new ORIGIDSCR option in Table TRKOPTS can be datafilled when SOC is IDLE. When UTRS0011 is ON certain calls can be blocked.
NSER0005	New	Per feature A00003789 (Succession on DMS), when NSER0005 is IDLE, CAUSE handling behavior is unchanged for calls with INTRA IMT originators. The new TRKOPTS option INTRACSE can be data filled when the SOC state is IDLE or ON. NSER0005 depends on SOC NSER0003 to be active.
BASE0014	New	Per feature A00003905 (Succession on DMS), when BASE0014 is IDLE, it limits the number of provisionable volumes per pool in table DIRPPOOL to 24. SOC state ON increases the total number of volumes per pool to 72.

Summary of new or changed SOC information for SN07

SOC code	New or Changed	Description
AIN00321 AIN00322 AIN00323 AIN00324 AIN00325 AIN00326 AIN00327	New	Feature A00004036 (Succession on DMS) creates seven new SOC options, as follows: • AIN00321 SVC MGR Basic handles all group 1 and 2 features except MWI, and Visual MWI. These features include ACB, AR, CWT, LDSA, CSMI, ACRJ and MSB in group 1. And PRN in group 2. • AIN00322 SVC MGR List Editing handles all group 3 and 5 features. These features include DRCW and SCRJ in group 3. And SCA, SCF in group 5. • AIN00323 SVC MGR Speed Call handles all group 9 features. These features include SCS, SC1/SC2/SC3, SCL and SCU. • AIN00324 SVC MGR Call Forward handles all group 4 and group 6 features. These features include CFUIF/CFW, CFDA/CFD and CFBL/CFB in group 4. And CFDDVT in group 6. • AIN00325 SVC MGR Privacy Control handles all group 7 features. These features include CNMB and CNNB. • AIN00326 SVC MGR COT and CCW handles all group 8 features. These features include COT and CCW. • AIN00327 SVC MGR SIMRING handles the SIMRING feature.
UTRS0012	New	Per feature A00004045 (Succession on DMS), when UTRS0012 is ON, call attempts on a supported incoming trunk to a called number marked for tracing in table CLIDN will generate a TRK605 log. When UTRS0012 is IDLE, call attempts on a supported incoming trunk to a called number marked for tracing in table CLIDN will not generate a TRK605 log.
ACD00101	New	A00004391 (Succession on DMS) creates a new SOC option to control the maximum number of ACD agents in the switch. Office parameter MAX_NUM_ACD_AGENTS_PER_SWITCH will automatically be updated to match the SOC usage limit.
Product = DMS_Centrex_RES		
RES00102	New	A00002196 (Succession on DMS) creates a new SOC option order code named Enh Do not Disturb.

Summary of new or changed SOC information for SN07

SOC code	New or Changed	Description
Product = MG 9000		
SPMS0020 SPMS0028	New New	Feature A00002431(Succession on DMS) creates two new USAGE SOCs under the existing SPMS group for DMSCP class of SPMs. The SOC option SPMS0020 corresponds to the SPMs with Enhanced capacity and the SOC option SPMS0028 corresponds to the SPMs with Premium capacity.
Product = TOPS		
ENSV0108	New	Feature A00002740 (Succession on DMS) introduces this SOC to enable International DACC. ENSV0108 requires ENSV0101, OSB00101, OSDA0101, and OSDA0102.

SN07 Feature Deltas

Product = AIN

A00001990 -- CAIN via CIC Route PEP Sourcing (Succession on DMS)

Functional Description

Currently, CAIN subscriptions can be achieved through tables TRKGRP, AINSCUSP, UNIPROF, AUTHCODU, AUTHCDX and STDPRTCT. The sourcing of this patch will allow CAIN subscriptions to be added to table CICROUTE enabling subscription on a per CIC (Carrier Identification Code) basis. This new subscription point will allow carriers to use the SCP to route calls based on their CIC.

This functionality was originally patched into the UCS12 load. That patch has been propagated to more recent UCS loads. This activity will source the patching into the SN07 load and put it under SOC (Software Optionality Control) control.

The new subscription point will be created by adding the CAINGRP option to tuples of table CICROUTE, just as in other CAIN subscription tables. The CAINGRP option takes one argument, the service name, as defined in table CAINGRP. In the example below, CIC 333 is subscribed service SRVC1.

CICROUTE Example with CAIN Subscription

KEY	NATLSTS	INTLSTS	MLTCOSID	OPCHIDX	PRTNM	IDPRTNM	ADIN	CICDELV	OPTIONS
3331	611	212	0	2	CIC	EAPT	3	ALWAYS	**CAINGRP SRVC1**

CAIN precedence levels determine the order in which specific subscription types are checked for applicability at a particular TDP. The new CICROUTE subscription point will have a new precedence level of CARRIER which will fit in the current order as below:

Precedence Level Between Subscription Types

Order	Subscription Type	Subscription Tables
1	SCP	Requested by SCP
2	Address	subtable STDPRT of STDPRTCT
3	Authorization Code	AUTHCODU, AUTHCDU*
4	ANI	ANICUSP, ANIVAL, UNIPROF
5	Agent	TRKGRP, CALLATTR, TRKFEAT
6	**Carrier**	CICROUTE
7	Office-wide	CAINPARM

Subscribing to CAIN via table CICROUTE

The originating agent types supported by this feature are PTS FGD, SS7 FGD, and SS7 Inter IMT.

All originating trunks wishing to use the CAIN functions must have the CAIN option defined in table TRKGRP, CALLATTR, or TRKFEAT. The CICRTE option also needs to be included in TRKGRP so translations will use table CICROUTE and encounter the new subscription point.

A service and its associated triggers must be added to table CAINGRP and the triggers must have their criteria defined in the relevant subscription tables.

Once the above datafill is in place, the CAINGRP option can be added to individual tuples in table CICROUTE. The CAINGRP option takes the name of a service defined in table CAINGRP.

More general information on CAIN datafill can be found in NTPs 297-2621-370*, the UCS DMS-250 NetworkBuilder Application Guides.

CallP Behavior

When a specific TDP (Trigger Detection Point) is encountered during call processing (see NTP 297-261-370 Network Builder Application Guide, Vol. 2), each subscription method is checked in the precedence order defined above. If a subscription to a CAIN service is defined via the CAINGRP option, and the service includes a trigger of this TDP, and the trigger's criteria is met, then the trigger will have its action performed.

Adding a new subscription point to CAIN does not affect the procedure described above. A service subscribed via table CICROUTE will have its triggers evaluated at the proper TDPs.

Traver

The traver tool simulates a call from the user specified originating trunk to the user specified address. Traver displays the following CAIN-specific information at each TDP encountered:

1. The name of the TDP encountered (e.g. ORIGATT)
2. The CAIN subscription method, if any (e.g. CARRIER)
3. The tuple from table CAINGRP detailing the subscribed to service
4. The tuple from the trigger table detailing the criteria being evaluated
5. The action, if any, taken if the trigger's criteria is met

Traver will be enhanced to display the subscription method of CARRIER, the CAINGRP data and the trigger table data if a call subscribes to CAIN via CICROUTE.

The following traver snippet shows the SCP being queried when it is determined that the call is subscribed to the SPECGRP service via table CICROUTE. This example was run via

> UVTSTS 611; traver tr dal221twdtls 2201234 t

Example Traver Output

```
--> ENTER TDP INFOANLZ <--
+++ CAIN SUBSCRIPTION VIA CARRIER +++
TABLE CAINGRP
SPECGRP 7 CAIN02 TCAP_SCCP (ANLZINFO INFOANLZ SPECDIG) $ $ (ADIN) (CAINGRP) (ORGTINFO) $
TABLE SPECDIG
SPECGRP ADDR 2201234 2201234 QUERY SDS_ADDR ROUTE $

UserID: DAL221TWDTLS 11
BearerCapability: SPEECH
CalledPartyID: 2201234
TriggerCriteriaType: SDS_ADDR
CallingPartyID: 214
+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

Log Changes

Logs that indicate the subscription method will be updated to display the CIC information.

CAIN902 Logs

CAIN902 logs show the subscription method and other relevant details when a call subscribes to CAIN (not when the query is sent to the SCP). The METHOD field of the log indicates the subscription type (e.g. ANI, OFFICE) and the precedence level. CAIN902 logs will indicate a METHOD of CICROUTE and a precedence level of 6 when appropriate.

VAMP902 Logs

VAMP902 logs are output when the VPTrace CI tool is enabled and an outbound message is sent through the VAMP framework to the SCP.

The VAMP902 log may display the subscription type via the SUBINFO field. The SUBINFO field will be enhanced by this activity to include CARRIER as a possible value.

SOC Control

This feature will be controlled by a State SOC (State is either IDLE or ON). The SOC id will be CAIN0612. Using the SOC CI command to activate or deactivate a order code is covered in NTP 297-8991-901.

Datafilling a CAINGRP option will be allowed regardless of the state of SOC CAIN0612. However, if the SOC is IDLE, the CAIN software will not recognize subscriptions via CICROUTE either during CallP or in the Traver Tool.

ONP

Reformat procs will be written as part of this feature to guarantee the validity of CICROUTE tuples whether the switch has patch HIJ00 activated or not.

Hardware Requirements or Dependencies

N/A.

Software Requirements or Dependencies

No new dependencies are introduced by this work beyond the new SOC order code detail above. However, using the functionality of this activity depends on a number of basic CAIN SOCs detailed below.

CAIN SOC Codes of Note

Order Code	Function
CAIN0100	Usage Option for all CAIN msgs to SCP
CAIN0200	Extension Parameters
CAIN050*	SOCs to enable Specific Trigger

CAIN SOC Codes of Note

Order Code	Function
CAIN0600	Conversational Digit Collection
CAIN0601	SCP Trigger Subscription
CAIN0602	EDPs Enabled
CAIN604	Inter IMT Support

Limitations and restrictions

Originating trunk types supported by this feature are PTS-FGD, SS7-FGD and SS7 Inter IMT. Other trunk types are incapable of passing the CIC information.

Interactions

Normal CIC Routing Suspended

If a CAINGRP is datafilled against a CICROUTE CIC, normal CIC routing will be suspended and CAIN processing will begin. For example, if the DEFCIC option is datafilled against a trunk in table TRKGRP that is supported by table CICROUTE with the DFCICRTE sub-option set (when this field is Y, the DEFCIC can be used as an index into table CICROUTE), call processing will exit and the CIC routing feature will begin CAIN processing. If a CAIN "no action" or continue response is encountered, normal CICROUTE call processing will continue.

CAINCIC Not Affected

The functionality of table TRKGRP option DEFCIC, sub-option CAINCIC will not be affected by this activity.

No Affect on CAIN Standard Routing

Standard routing parameters CARRIER, ALTERNATECARRIER and SECONDALTERNATECARRIER will continue to be used to identify a route by obtaining an STS value through table CICROUTE.

However, if the following scenario occurs, an extra CAIN902 log will be generated.

An Analyze_Route message containing CARRIER and ALTERNATECARRIER is received. Table CICROUTE is accessed for the CARRIER and a CAINGRP is picked up. The subsequent route selection results in a busy condition and the call route advances to the ALTERNATECARRIER. Table CICROUTE does not have a CAINGRP option for the ATLERNATECARRIER. Carrier subscription is undone and a CAIN902 log will be output to indicate this.

Applicable customer facing sections

Fault Management

- Logs __X___
- Alarms __N/A_

Configuration

- Data Schema __X___
- User Interface __N/A_
- Element Management __N/A_
- Security __X___
- Service Order __X___
- Office Parameters __X___

Accounting (includes AMA billing) __N/A_

Performance (includes operational measurements) _____

Indicate with an X if you are completing the sections of the DDOC listed below. Indicate with "N/A" if these sections do not apply to this functionality.

Realtime __N/A_

Engineering Information __N/A_

Glossary

Term	Description
CAIN	Carrier Advanced Intelligent Network
CIC	Carrier Identification Code
FGD	Feature Group D (Dial Plan for EANT trunks)
ONP	One Night Process (for software upgrade)
PEP	Product Enhancement Patch
PTS	Per-Trunk Signaling
SCP	Service Control Point
SOC	Software Optionality Control
SSP	Service Switching Point
UCS	Universal Carrier Software

Term	Description
VAMP	Variable AIN Messaging Platform

Product = AIN

A00002016 -- AINDENY CUSTSTN increase from 10 to 15 (Succession on DMS)

Functional Description

AINDENY currently exists as both a line and customer group option. Its purpose is to block the triggering of Vertical Service Code (VSC) triggers to lines and customer groups. The VSC triggers are Specific Feature Code (SFC), Public Feature Code (PFC) and Office-Wide PFC (OFCPFC). These triggers are all hit by the originator dialing a digit string starting with a * or #. The AINDENY line option blocks SFC, PFC and OFCPFC triggers. The CUSTSTN option only blocks OFCPFC triggers.

AINDENY options are lists of {ACTION, SCOPE} pairs where ACTION is either DENY or RESTORE and SCOPE specifies a specific tuple in table TRIGITM or a whole trigger-type. An AINDENY option of “AINDENY DENY TIID 4 OPFC3, DENY TIID 4 SFC2” will deny triggering to the triggers defined in table TRIGITM as “4 OPFC3” and “4 SFC2”. The option can block entire triggers types, e.g. “AINDENY DENY ALL SFC”. Furthermore, the option can specifically allow triggers that have been blocked by AINDENY. “AINDENY DENY ALL OFCPFC, RESTORE TIID 4 OFCPFC2” denies all Office-Wide PFC triggers except the “4 OFCPFC2” trigger.

Description

Customers have requested the ability to deny AIN Prefix triggers (Specified_Carrier, One_Plus_Prefix, International, Operator_Services) on a per trunk group basis. This can be accomplished by creating a new AINDENY option in table TRKOPTS. In addition, this activity will expand the CUSTSTN AINDENY option to hold 15 triggers to bring it in line with the AINDENY line option.

Enlarging the CUSTSTN AINDENY Option

Currently the AINDENY option of table CUSTSTN can only hold 10 elements; that is, only 10 DENY or RESTORE actions can be taken per customer group. The AINDENY line option can hold 15 elements. This activity will enlarge the storage capacity of the CUSTSTN AINDENY option to 15 elements.

Denying Prefix Triggers

The four Prefix triggers (Specified_Carrier, One_Plus_Prefix, International, Operator_Services) are all detected at the Info_Analyzed TDP. The AINDENY line and customer group options cannot currently block these trigger types. This activity will allow the CUSTSTN, line and the newly created TRKOPTS AINDENY options to hold the four Prefix triggers and block their triggering at the Info_Analyzed TDP.

Datafill for blocking Prefix triggers

The Prefix triggers are detected at the Info_Analyzed TDP (TDP 4). One or more Prefix triggers need to be added to table TRIGITM as shown here.

Example Datafill for the Prefix triggers in table TRIGITM

TDP	Name	Trigger	Criteria	State	Action	MSGSET	TRANSPRT	GTT
4	PRFXEX1	*SPECARR*	$	ULK	EVENT	R02	SS7	AINPOP
4	PRFXEX2	*ONEPLUS*	$	ULK	EVENT	R02	SS7	AINPOP
4	PRFXEX3	*INTERNTL*	$	ULK	EVENT	R02	SS7	AINPOP
4	PRFXEX4	*OPERSRV*	$	ULK	EVENT	R02	SS7	AINPOP

Secondly, individual agents need to subscribe to the Prefix triggers. This can be accomplished in tables OFCTIID, CUSTIID, TRKAIN or through Servord.

Subscribing Agents to AIN Prefix Triggers

Agent	Datafill
Office	table OFCTIID; add 4 PRFXEX1 ON
Customer Group	table CUSTTIID; add RESGRP 4 PRFXEX1 ON
Line	servord; ado $ 6213519 ain tiid 4 PRFXEX1 ON $
Trunk	table TRKAIN; add CLLI3 TIID 4 PRFXEX1 ON $

Next, the AINDENY option can be added to the line, table CUSTSTN or table TRKOPTS.

Adding the AINDENY option

Agent	Datafill
Customer Group	table CUSTSTN; add RESGRP AINDENY AINDENY DENY TIID 4 PRFXEX1 $
Line	servord; ado $ 6213519 AINDENY DENY TIID 4 PRFXEX1 $
Trunk	table TRKOPTS; add CLLI3 AINDENY DENY TIID 4 PRFXEX1 $

Finally, the SOCs relevant to the trigger being detected need to turned on. The following table details the SOC Codes for PFC, SFC, OFCPFC, and the Prefix triggers.

SOC Order Codes for VSC and Prefix Triggers

Trigger	SOC
SFC	AIN00294
PFC	AIN00294
OFCPFC	AIN00309
SPECARR	AIN00252
ONEPLUS	AIN00251
INTERNTL	AIN00253
OPERSRV	AIN00254

The New TRKOPTS AINDENY Option

Trunks can be subscribed to AIN triggers through table TRKAIN or through office-wide subscriptions. However, there is currently no way to block the triggering for specific trunk groups.

This activity will create a new AINDENY option in table TRKOPTS which will allow AINDENY to be associated with specific trunk groups (as datafilled in table TRKGRP). The new option will be functionally similar to the line and customer group options except that it will only block Prefix triggers. It will not be capable of holding SFC, PFC, or Office-Wide PFC triggers. It will allow 15 DENYs or RESTOREs just as the line and customer group options.

Datafilling AINDENY option in table TRKOPTS

Table TRKOPTS is indexed by a combination of trunk group and option name. To deny all Operator Services triggers, except trigger “4 OPSRV1” for trunk group ISUP2WITEA, add the tuple shown in the following table.

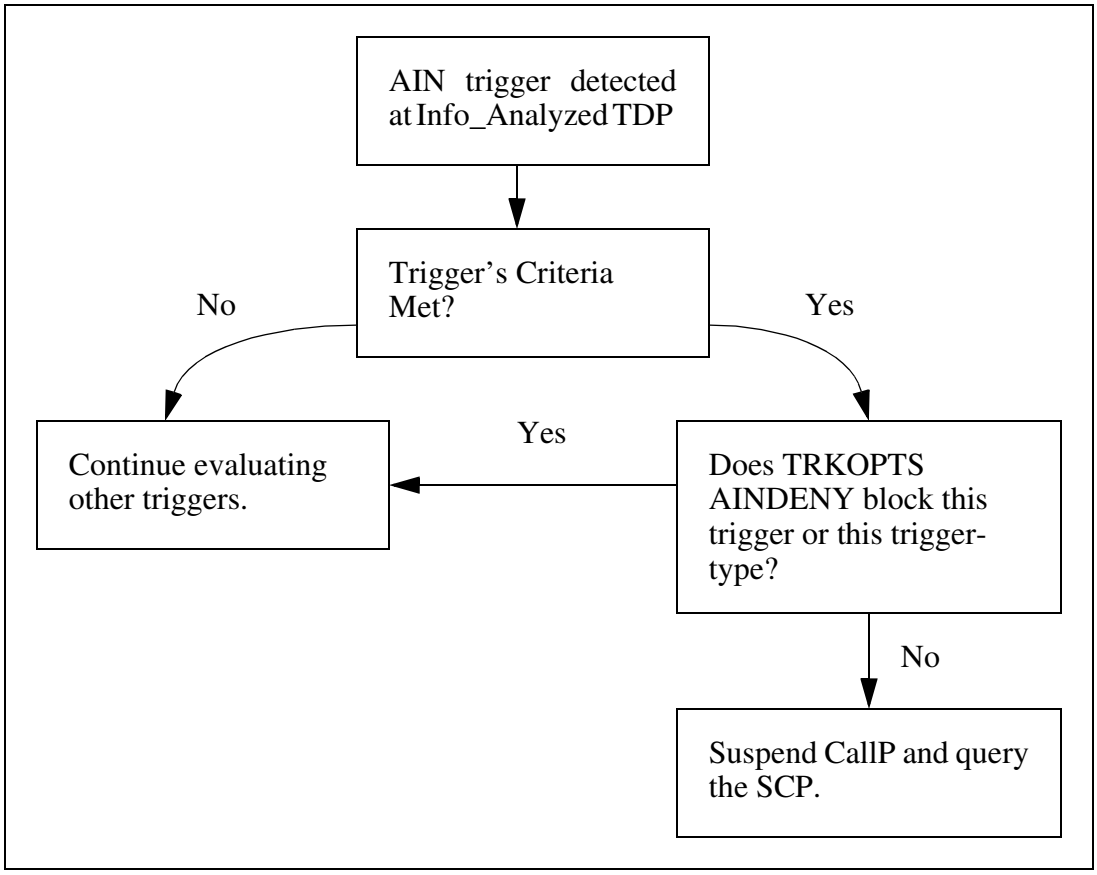
Example Datafill for an AINDENY Option in table TRKOPTS

OPTKEY	OPTINFO
ISUP2WITEA AINDENY	AINDENY (DENY ALL OPSERV) (RESTORE TIID 4 OPSRV1) $

TRKOPTS AINDENY CallP Behavior

When an originating trunk encounters the INFO_ANALYZED TDP and is subscribed to any AIN triggers at this TDP, it will evaluate the criteria for each subscribed trigger. If the criteria are met, call processing will be suspended while the SCP is queried. If there is a TRKOPTS AINDENY option datafilled against the originating trunk and the option specifies that the specific trigger

or trigger-type is denied, the SCP will not be queried and AIN will continue evaluating any other subscribed triggers at this TDP. This behavior is summarized in the following flowchart.



Traver

The Traver tool simulates a call from the user specified originator with the user specified digits. Traver will display information regarding subscriptions to AIN triggers and will display the criteria associated with those triggers. The tool also respects the AINDENY line and customer group options and will tell the user if the SCP query was blocked due to AINDENY. Traver code will be enhanced to consider AINDENY for Prefix triggers and trunk origination.

Example of line being denied a One_Plus trigger by AINDENY line option:

```
>traver l 6213512 16199451478 b
TABLE IBNLINES
HOST 01 0 00 23 0 DT STN RES 6213512 0 613_P621_0 L613_LATA1_0 613 (AR) $
TABLE LINEATTR
0 1FR NONE NT 0 10 NILSFC 0 NIL NIL 00 613_P621_0 L613_LATA1_0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
613_P621_0 NSCR 613 P621 NONE Y RESGRP 0 0 $ $
TABLE RATEAREA
L613_LATA1_0 L613 NIL LATA1 $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
HOST 01 0 00 23 0 AIN AIN TIID (4 MKSFC ON) $
TABLE CUSTSTN
RESGRP AIN AIN TIID
TABLE OFCVAR
AIN_OFFICE_TRIGGRP TIID
AIN Orig Attempt TDP: no subscribed trigger.
TABLE NCOS
RESGRP 0 0 0 RES613 ( XLAS RESX613 STARXLA RES)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
RESGRP NXLA RESXLA STARXLA 0 RES
TABLE DIGCOL
RES specified: RES digit collection
TABLE IBNXLA: XLANAME RESX613
TUPLE NOT FOUND
Default from table XLANAME:
RESX613
    (NET N N 0 N RES N Y GEN ( LATTR 0 613_P621_0 L613_LATA1_0)
    (EA NILC Y 0) $ $)$ 9
TABLE DIGCOL
RES specified: RES digit collection
TABLE LINEATTR
0 1FR NONE NT 0 10 NILSFC 0 NIL NIL 00 613_P621_0 L613_LATA1_0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
613_P621_0 NSCR 613 P621 NONE Y RESGRP 0 0 $ $
TABLE RATEAREA
L613_LATA1_0 L613 NIL LATA1 $
TABLE STDPRTCT
P621 ( 1) ( 0) 3
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
16 17 N DD 1 NA
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE HNPACONT
613 Y 925 12 ( 122) ( 1) ( 0) ( 0) 2 $
 . SUBTABLE HNPACODE
 . KEY NOT FOUND
 . REAL VALUE IS:  VCT VACT N
```

```
TABLE TMTCNTL
LNT ( 148)
 . SUBTABLE TREAT
 . VACT Y S T120
AIN Info Collected TDP: no subscribed trigger.
Checking AIN SFC Trigger Items as SFC is compatible with current call
Checking AIN SFC Trigger Items as SFC is compatible with current call
Checking AIN ONEPLUS Trigger Items as ONEPLUS is compatible with current
call
 .  . TABLE CUSTTIID
 .  . RESGRP 4 MKONE ON
 .  . TABLE TRIGITM
 .  . 4 MKONE ONEPLUS $ ULK EVENT R02 SS7 AINPOP $
 .  . TABLE IBNFEAT
 .  . HOST 01 0 00 23 0 AINDENY AINDENY (DENY TIID 4 MKONE) $
. . . TABLE C7GTTYPE
. . . AINPOP ANSI7 6 $
 .  .  . TABLE C7GTT
 .  .  . AINPOP 1000000000 1000000000 PCSSN (SIMTOOL_RTESET SIMTOOL 0) $
SSN
AIN Info Analyzed TDP: trigger criteria not met.
Line is subscribed to option AINDENY. Triggering denied.

+++ AIN TRAVER: SUCCESSFUL CALL TRACE +++


AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information


+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

Example of trunk being denied a One_Plus trigger by TRKOPTS AINDENY:

```
>traver tr priic 19199451478 b
TABLE TRKGRP
PRIIC PRA 0 PRAC NCRT DSEQ N (ISDN 501) $ $
TABLE LTCALLS
ISDN 501 PUB XLALEC 1 613_P621_1 L613_LATA1_0 $
 .  . TABLE TRKAIN
 .  . PRIIC TIID (4 MKONE ON) $
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP TIID
TABLE LINEATTR
1 1MR NONE NT 0 10 NILSFC 0 NIL NIL 00 613_P621_1 L613_LATA1_0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
613_P621_1 FR01 613 P621 TSPS Y RESGRP 0 0 $ $
TABLE RATEAREA
L613_LATA1_0 L613 NIL LATA1 $
TABLE STDPRTCT
P621 ( 1) ( 0) 3
 . SUBTABLE STDPRT
```

```
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . 191 1920 N DD 1 NA
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HPCPATTN
TUPLE NOT FOUND
TABLE HNPACONT
613 Y 925 12 ( 122) ( 1) ( 0) ( 0) 2 $
 . SUBTABLE HNPACODE
 . 919 919 FRTE 919
 . SUBTABLE RTEREF
 .  919 N D 3BCELL2WMF 0 N N
 . EXIT TABLE RTEREF
EXIT TABLE HNPACONT
LNP Info: Called DN is not resident.
LNP Info: HNPA results are used.
TABLE LCASCRCN
613 L613 ( 37) OPTL N N Y
 . SUBTABLE LCASCR
 . TUPLE NOT FOUND.  DEFAULT IS NON-LOCAL
TABLE PFXTREAT
TUPLE NOT FOUND.  DEFAULT IS TO LEAVE XLA RESULT UNCHANGED
TABLE CLSVSCRC
KEY NOT FOUND
AIN Info Collected TDP: no subscribed trigger.
Checking AIN ONEPLUS Trigger Items as ONEPLUS is compatible with current
call
 .  . TABLE TRIGITM
 .  . 4 MKONE ONEPLUS $ ULK EVENT R02 SS7 AINPOP $
 .  . TABLE TRKOPTS
 .  . PRIIC AINDENY (DENY ALL ONEPLUS) $
 .  .  . TABLE C7GTTYPE
 .  .  . AINPOP ANSI7 6 $
 .  .  . TABLE C7GTT
 .  .  . AINPOP 1000000000 1000000000 PCSSN (SIMTOOL_RTESET SIMTOOL 0) $ SSN
AIN Info Analyzed TDP: trigger criteria not met.
Line is subscribed to option AINDENY. Triggering denied.

+++ AIN TRAVER: SUCCESSFUL CALL TRACE +++


AIN Info Analyzed TDP: trigger criteria met.
Querying the database would occur now.
Use the AINMQG option to save the query to a file for use in TstQuery.
Use the AINRES option for further information


+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

Hardware Requirements or Dependencies

No new hardware requirements are introduced by this feature.

Software Requirements or Dependencies

The basic AIN SOC options need to be in state ON for the AINDENY option to be encountered during CallP. However, no new software dependencies are introduced by this feature.

Limitations and restrictions

Only AIN-capable trunks will be allowed AINDENY options in table TRKOPTS.

Prefix triggers are detected only on ISUP, NTNA/NI, 4ESS/5ESS PRI incoming trunks only.

Interactions

N/A.

Applicable customer facing sections

Fault Management

Logs	_N/A_
Alarms	_N/A_

Configuration

Data Schema	__X__
User Interface	__X__
Element Management	_N/A_
Security	_N/A_
Service Order	__X__
Office Parameters	_N/A_

Accounting (includes AMA billing)	_N/A_
Performance (includes operational measurements)	_N/A_

Glossary

Term	Description
AIN	Advanced Intelligent Networks
AINDENY	A line option and an option in table CUSTSTN that blocks specific AIN triggers from querying the SCP.
PFC	Public Feature Code: an AIN trigger
Prefix Triggers	The Specified_Carrier, One_Plus_Prefix, International, and Operator_Services AIN triggers.

Term	Description
SCP	Service Control Point: the machine that the SSP queries with AIN TCAP messaging.
SFC	Specific Feature Code: an AIN trigger
SOC	Software Optionality Control
SSP	Service Switching Point: the DMS-100 in AIN speak.
VSC	Vertical Service Code: SFC, PFC and OFCPFC are VSC-detecting triggers. VSC codes are digit strings starting with * or #.

Product = AIN

A00004500--IN TCAP Messaging on IP (Succession on DMS)

Description

This document is a Functional Description for the support of the AIN TCAP (Transaction Capability Application Part) messaging in Open Standards Protocol. This activity is provided on the DMS / CS2K - CORE. It is intended to transport the IN messages via the IP fabric - using the Simple Control Transport Protocol[1] (SCTP). Control SOC INW0003 is used to control the IN Messaging over IP functionality.

With the converging of PSTN and IP networks, the existing transfer protocols (e.g.: TCP) has some major limitations. SCTP (Stream Control Transmission Protocol) is designed to overcome the limitations of TCP as well as supporting the extra requirements of PSTN signalling over IP networks.

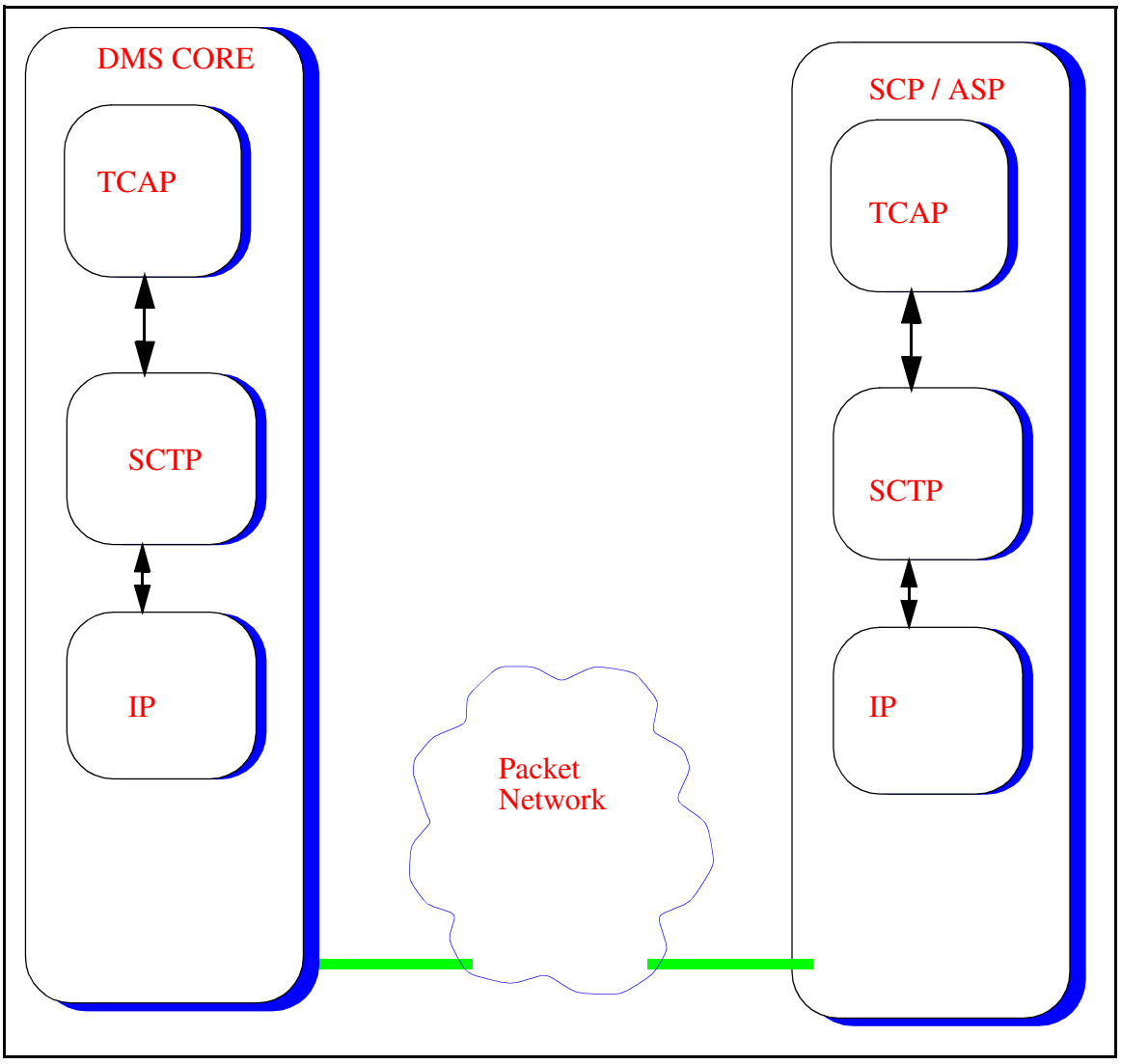
This activity provides the following functionality:

- Supporting AIN (IN) and LNP messages to / from the DMS / CS2K - CORE over SCTP / IP. Please note that the message sets supported for NA markets are only supported.

1. It should be noted that version 5 RFC is titled “Simple Control Transmission Protocol” and the original RFC2690 is titled “Stream Control Transmission Protocol”. Throughout this document SCTP is “Stream Control Transmission Protocol”.

Functional Behavior

Functional Behavior



The IN TCAP messages will use the SCTP as a transport layer over IP networks. The hardware at the DMS-Core / CS2K may be either EIU or HIOP depending upon the required bandwidth.

Note: HIOP card is available only over XA-CORE platform for high bandwidth IP access.

This feature provides an Interface to the IP network via SCTP, which enables an Advanced Intelligent Network (AIN) Application to access services offered by an Application Service Provider (ASP) located on an Offboard Processor

(OP) on an Ethernet / Local Area Network (LAN). The AIN Application uses the services of the Signalling System Number 7 (SS7) Transaction Capability Application Part (TCAP) Application Layer Protocol. This feature also provides the software to manage the SCTP association between the AIN Application in the Computing Module (CM) and the Application Service Provider in the Offboard Processor.

TCAP Background

Transaction Capability Application Part (TCAP) provides a common protocol for remote operations across the CCS7 network. The protocol consists of message formatting and contains rules and exchange procedures.

Transactions are functions which control non-circuit related information transfer between nodes in a CCS7 network. The TCAP protocol format is separated into two parts, the *Transaction and Component portions*.

The *Transaction Portion* provides a means of associating messages with a specific Application Process transaction. A transaction consists of one or more messages exchanged between Application Processes on the same or different Network Nodes.

The *Component Portion* ensures that Components are formatted an exchanged properly. A Component is a unit of information within a transaction. The Component Portion utilities provide all TCAP users with a common set of component encoding and decoding procedures. This eliminates the need for individual Applications that implement message formatting procedures thereby reducing development time and minimizing the risk of protocol errors.

A TCAP message consists of a Package containing a Transaction Portion plus one or more Components in any order.

TCAP enables the deployment of advanced intelligent network services by supporting non-circuit related information exchange between signaling points using the ***SCCP connectionless service***. An SSP uses TCAP to query an SCP to determine the routing number(s) associated with a dialed LNP, 800, 888, or 900 number. The SCP uses TCAP to return a response containing the routing number(s) (or an error or reject component) back to the SSP. Calling card calls are also validated using TCAP query and response messages.

In the CCS7 layered architecture, TCAP lies between the Application Processes using the CCS7 signalling network and the Signalling Connection Control Part (SCCP) which provides the message transfer capabilities.

Since IN TCAP messaging uses connectionless service, IN TCAP messages can be embedded in a transport layer function and transported across IP.

SCTP Background:

The limitations of TCP as a transport protocol for SS7 was the direct motivation for the using of SCTP as a new transport protocol. SCTP is a new IP transport protocol, which exists at an equivalent level with TCP and user datagram protocol (UDP) and which currently provides transport layer functions to many Internet-based applications. SCTP has been approved by the IETF as a proposed standard, and is specified in RFC 2960. Nortel Implementation of the SCTP transport protocol on the CORE was implemented by feature activity A59023997.

The SCTP transport service can be fragmented into several functionalities:

1. **Association Startup and Teardown** --An association is initiated by a request from the SCTP user. A cookie mechanism is employed during the initialization to provide protection against security attacks.
2. **Sequenced Delivery within Streams** --The SCTP user can specify at association startup time the number of streams to be supported by the association.
3. **User Data Fragmentation** --SCTP supports fragmentation and reassembly of user messages to ensure that the SCTP packet passed to the lower layer conforms to the path multiple-tenant unit (MTU).
4. **Acknowledgement and Congestion Avoidance** --SCTP assigns a transmission sequence number (TSN) to each user data message (fragment or unfragmented). The receiving end acknowledges all TSNs received, even if there are gaps in the sequence.
5. **Chunk Bundling** --The SCTP packet delivered to the lower layer consists of a common header followed by one or more chunks. The following table depicts the general structure of an SCTP packet:
6. **Packet Validation** --A mandatory verification tag field and a 32-bit checksum field are included in the SCTP common header.
7. **Path Management** --The SCTP path-management function chooses the destination transport address for each outgoing SCTP packet based on the SCTP user's instructions and the currently perceived reachability status of the eligible destination set.

The feature activity that implemented the SCTP stack on the core provides the above SCTP advantages and a framework for developing an Application Program Interface.

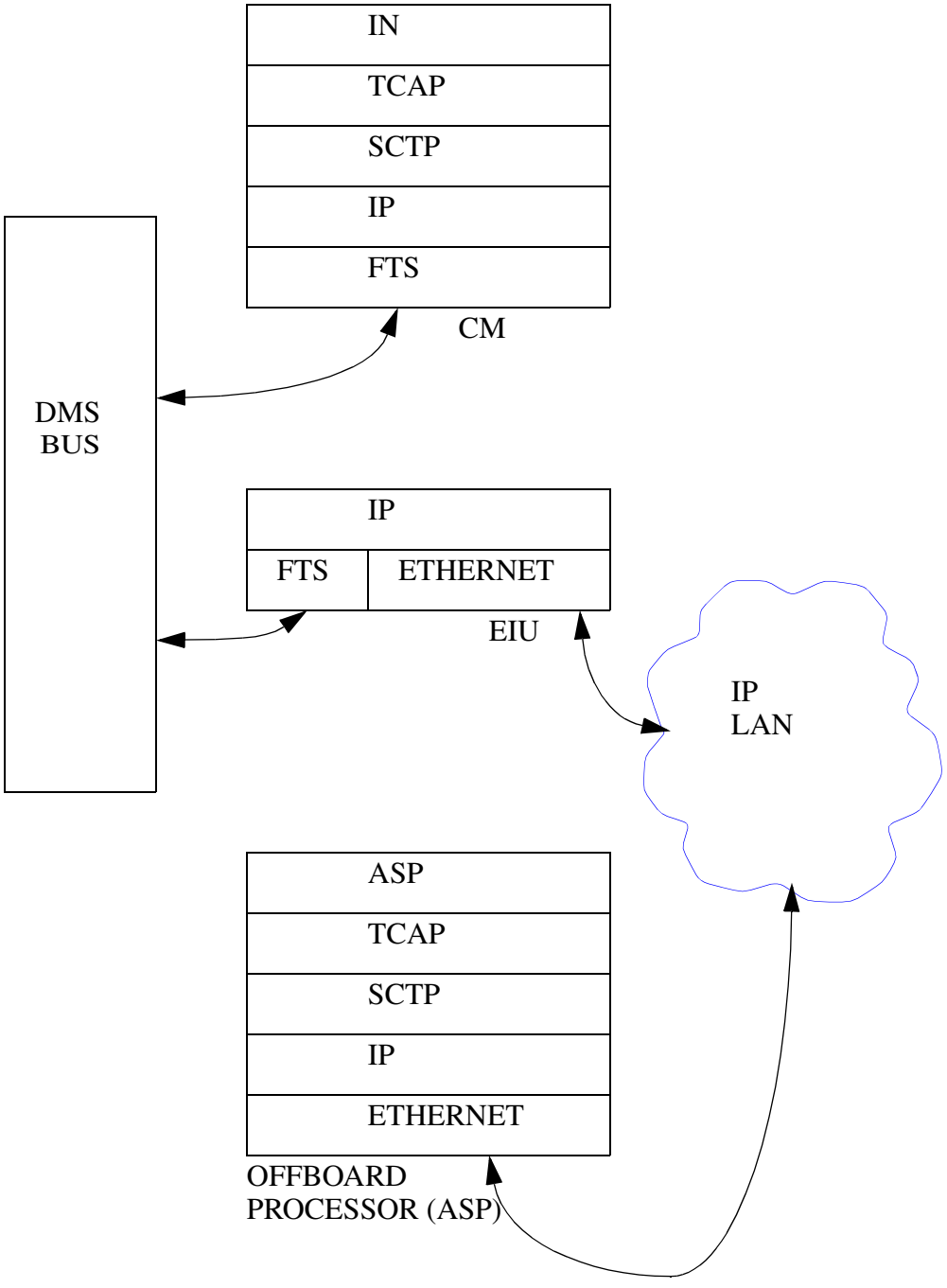
System Flow

The following figure shows the message flow between the AIN Application (located in the CM) and the ASP (connected on an Ethernet LAN). An IN/TCAP message is encoded and passed to SCTP for delivery to the ASP.

The SCTP transport hands over the TCAP Message to IP. IP forwards the Message to an Ethernet Interface Unit (EIU) through the Supernode Frame Transport System (FTS).In the EIU, the Message is received by FTS which passes it on to IP.

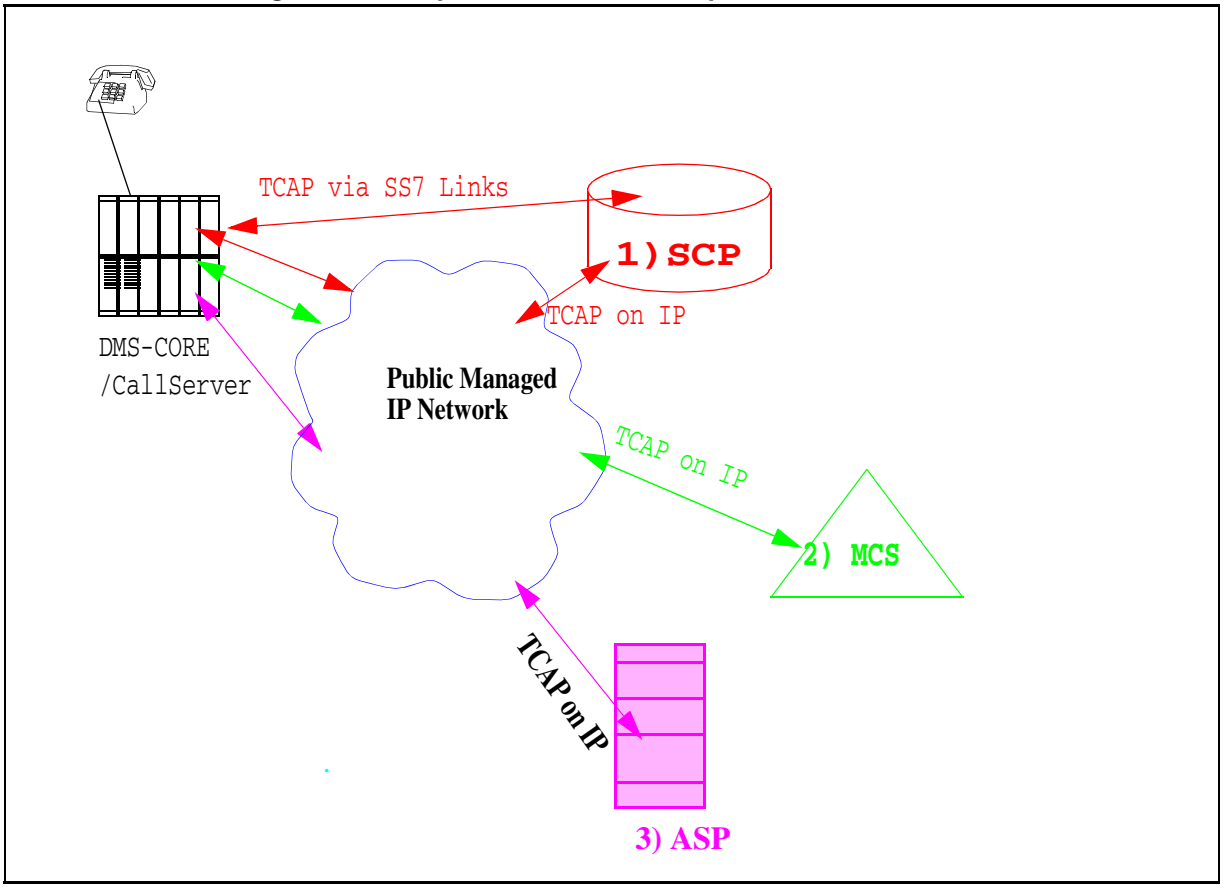
IP delivers the message to the Ethernet LAN which forwards it to the Appropriate Offboard Processor. On the ASP, the message is delivered to IP which passes it on SCTP transport which hands it over to the Application Service Provider. A Response Message from the ASP to the AIN Application follows the exact same path but in reverse order.

System Flow using EIU on DMS



Below is a diagrammatic representation of different nodes that could use the SCTP/IP interface.

Diagrammatic representation of Examples

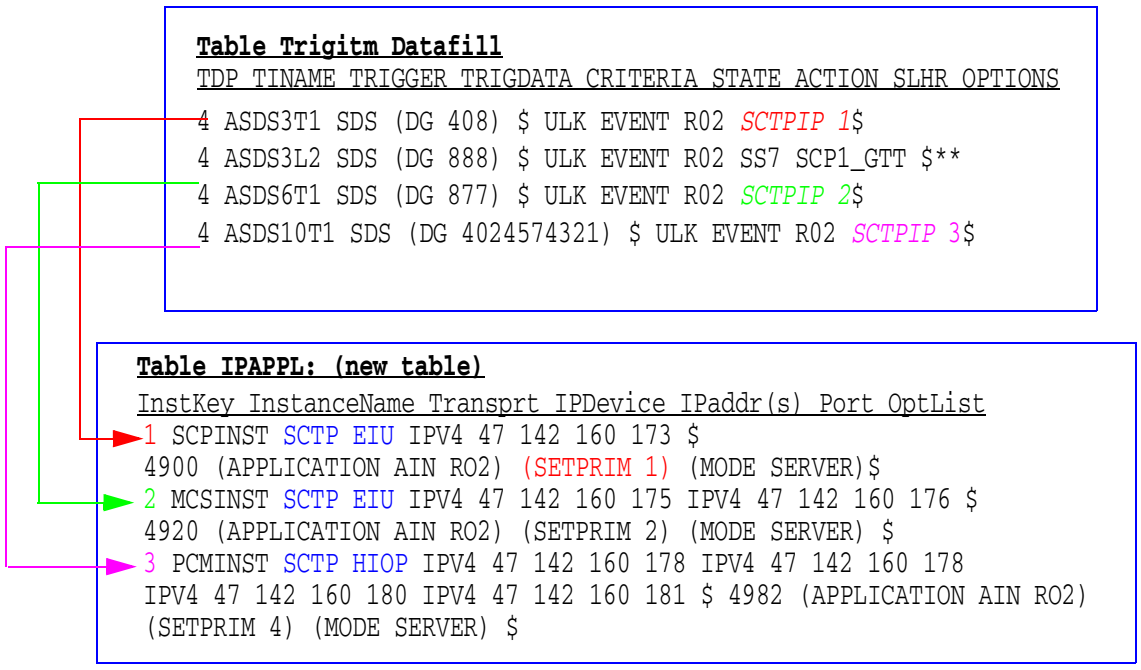


Provisioning

Only the TRIGITM model of subscription supports IN messaging over IP. The TRIGGRP model of subsrcription is not supported by this activity. Following datafill is required to allow IN messages over IP.

Table IPAPPL

Table Control Changes



```
Table Trigitm Datafill
TDP TINAME TRIGGER TRIGDATA CRITERIA STATE ACTION SLHR OPTIONS
4 ASDS3T1 SDS (DG 408) $ ULK EVENT R02 SCTPIP 1$
4 ASDS3L2 SDS (DG 888) $ ULK EVENT R02 SS7 SCP1_GTT $**
4 ASDS6T1 SDS (DG 877) $ ULK EVENT R02 SCTPIP 2$
4 ASDS10T1 SDS (DG 4024574321) $ ULK EVENT R02 SCTPIP 3$

Table IPAPPL: (new table)
InstKey InstanceName Transprt IPDevice IPaddr(s) Port OptList
1 SCPINST SCTP EIU IPV4 47 142 160 173 $
4900 (APPLICATION AIN RO2) (SETPRIM 1) (MODE SERVER)$
2 MCSINST SCTP EIU IPV4 47 142 160 175 IPV4 47 142 160 176 $
4920 (APPLICATION AIN RO2) (SETPRIM 2) (MODE SERVER) $
3 PCMINST SCTP HIOP IPV4 47 142 160 178 IPV4 47 142 160 178
IPV4 47 142 160 180 IPV4 47 142 160 181 $ 4982 (APPLICATION AIN RO2)
(SETPRIM 4) (MODE SERVER) $
```

** Note that SCP1_GTT points to the existing GTT for SS7 translations.

New **Table IPAPPL** datafill provides separation of various connections to the DMS. The use of SCTP transport requires that the application store the specific remote IP addresses and local Port number. Therefore table IPAPPL is datafilled in order to provide these details.

InstKey is datafilled in order to map this instance with an internally assigned instance number. This field is the unique key to the tuple. This field is used in the tuples in trigitm that uses SCTP as transport.

InstanceName is datafilled in order for the telco personnel to be able to distinguish one connection from the other.

Transprt is datafilled in order to classify the instance to which transport protocol be used. Currently the table will support SCTP functionality ONLY.

IPDevice is datafilled to indicate which IP interface hardware will be used. This table currently supports EIU and HIOP.

IP addresses (upto 4 addresses) are allowed in one instance tuple. This may be used to support multihoming. Please refer to Section " MultiHoming" on page 104. The first IP address in the list will be used as the primary address. IPV4 type IP addresses are supported.

Port Number is the local port number at which the DMS-Core will expect to receive messages from this instance. (Note that the remote port is received during the INIT message from the far-end). Valid range of Source port allowed to be configured on the CORE is from **4900 to 4982**.

The IN Messaging application using SCTP allows for multiple associations to an ASP on the same IP address, but using a different port number. Care must be taken to datafill a different portnumber in the source port field on the DMS Core. This method may be used by service providers that use the GTT or SSN in SS7 for translating to different applications.

OptList field may be datafilled with "**SETPRIME**" to set any of the IP address in an instance to be used as to set the primary destination address. The field is designed so as to support any future enhanced options. The setprime option is mandatory for AIN on SCTP.

This option has been used along with the position of the ipaddress as in above examples,(Please refer to " Table Control Changes" on page 100.), where in the SCTPINST the ipaddress "`47 142 160 173`" is set as the primary IP address.

Optlist sub-field "**APPLICATION**" can be datafilled to specify the application eg:AIN. This field is further augmented by **Msgset** eg: R01, R02. The application option is mandatory for AIN on SCTP.

Optlist sub-field "**mode**" is currently defaulted to the SERVER mode for AIN on SCTP. The IN TCAP messaging on IP requires the SCTP application runs in SERVER mode on the CORE.

Optlist sub-field "**multihoming"** is used to specify if the remote node supports multihoming. This option is currently only supported on the HIOP ipdevice.

Table Trigitim

In the trigitm model of AIN, the Trigitm table stores the trigger item definitions. Each trigger item also contains the Service Logic Host Route, which currently allows SS7 as transport and the datafill of a GTT per trigger item. The SLHR entry for each trigger specifies the ASP (Application Service Provider) destination (instance) to which this trigger query / messages will be sent.

When the transport mechanism is changed to SCTP, this entry needs to be changed for transport and GTT fields for each trigger item. It should be replaced with the transport as SCTP with an instance number.

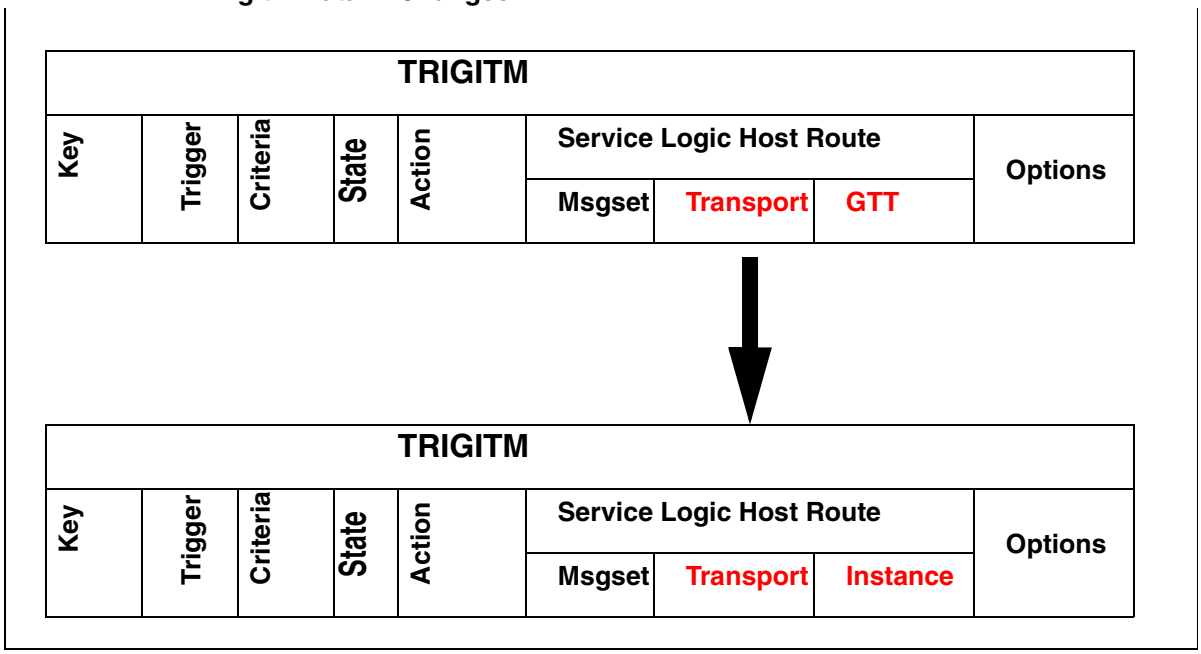
Field **SLHR's** sub-field transport in table trigitm is modified to allow the following transports:

- TCP (Lab-only)

- SCTP
- SS7

The Table trigitm changes are shown below.

Trigitm Datafill Changes



Logs and OMs

New OMS are added by this activity. Please refer to the OMs section(optpf) of this document for new OMs introduced by this activity.

Hardware Requirements or Dependencies

The DMS core usually carries out most of the IP traffic over EIU. CS2K assumes XA-Core and may use EIU, but most CS2Ks are equipped with HIOP card for higher bandwidth IP traffic. This feature will support IN messages over IP for both EIU as well as HIOP. The bandwidth limitations posed by EIU in general will apply. For detail Engineering Information please refer to EI section(optei) of this document.

From the IN Messaging application perspective, it will serve different instances using HIOP and EIU simultaneously on the same switching core. However, Please refer to appropriate hardware procedures when operating with HIOP card as well as EIU peripheral on the CORE.

Note: The CORE platform can either be an XA-Core or Brisc.

Software Requirements or Dependencies

Limit SOC INW0003 will be used with this functionality. The limit in SOC must be set to atleast the number of tuples datafilled in the table IPAPPL. For more instances to be added in the table IPAPPL limit of this SOC must be increased by additional number of tuples.

Initial limit of this SOC will be zero. When limit is zero no tuples can be added to the IPAPPL table. Tuples can be added only when a non-zero limit is set. Maximum limit that can be set will be 32.

Adding, deleting and modifying do not impact the value of the SOC limit. The value of the current usage counter is however changed accordingly

If SOC limit is reduced after adding tuples, IN messaging on IP functionality will not be affected, but no further tuples will be allowed to be added to the table IPAPPL.

If the SOC limit set is less than or equal to the current number of tuples in table IPAPPL, no further tuples will be allowed to be added to the table IPAPPL. An attempt to add a tuple will result in the following message being displayed:

“SOC option INW0003: Usage limit exceeded”
“ERROR: Table IPAPPL is under SOC usage control.”
“ACTION: SOC Limit must be increased before adding further tuples.”

Limitations and restrictions

For Engineering Information on the

- bandwidth,
- Message Size,
- SCTP/IP Link Messaging Rate,
- Normal Throughput,
- Failure ThroughPut,
- Link Capacity as Call Attempts Per Hour, Messages Per Second and others,

Please refer to the EI section of this Document.

For EIU and HIOP being shared between various IP applications, For EIU configurations across subnets, etc. please refer to specific hardware guidelines as well as the EI documentation referring to the bandwidth allotted to application sharing the hardware.

MultiHoming

Mutlihoming is not supported for IN Messaging using the SCTP on EIU configuration. Multihoming is supported by SCTP on the HIOP configuration.

Simultaneous HIOP and EIU

Please refer to appropriate hardware procedures when operating with HIOP card as well as EIU peripheral on the CORE.

Sample EIU Configurations

Please refer to NTP 297-8991-910, DMS-100 Family Ethernet Interface Unit User Guide TELECOM12 Standard 03.01 August 1999, EIU documentation(LANCOMM) for recommended EIU configurations.

Interactions

Tools such as AINTRACE and TRAVER will be supported to be able to refer to SCTP instances for the transactions using this transport.

Applicable customer facing sections

Fault Management

Logs	_X_____
Alarms	_ ___

Configuration

Data Schema	__X____
User Interface	__X____
Element Management	_____
Security	_____
Service Order	_____
Office Parameters	_____

Accounting (includes AMA billing)	_____
Performance (includes operational measurements)	__X____

Glossary

Term	Description
ASP	Application Service Provider
CS2K	Call Server 2000

Term	Description
SCP	Service Control Point
SCTP	Stream Control Transmission Protocol
TCP	Transmission Control Protocol
PSTN	Public Service Telephone Network
AIN	Advanced Intelligent Network
IP	Internet Protocol
IN	Intelligent Networks
CCS7	Common Channel Signalling 7
TCAP	Transaction Capabilities Application Part
SCCP	Service Connection Control Part
HIOP	High Performance I/O Peripheral
MCS	Multimedia Call Server
EIU	Ethernet Interface Unit
FTS	Frame Transport System

Configuration for A00004500

Hardware and Software Requirements

NONE

Initial Configuration

NONE

Office/Subnet parameters (OP/SP) (CM & SESM)

NONE

Upgrade Impact

NONE

Data schema (DS) (CM, MIBS, RDB)

New/modified tables, MIBs, or Database Schema

New table IPAPPL will be created to store data on each SCTP instance.

New or modified tables

Table/MIB name	NEW/CHANGED/ or DELETED/	Table Control (NEW/ OLD/UNCHANGED)
IPAPPL	NEW	NEW
TRIGITM	Changed	NEW
TRIGINFO	Changed	NEW

Table/MIB/Remote Database Schema information

Name: IPAPPL - Internet Protocol Appliction

Functional description

Table IPAPPL defines the IP Application instance that data will be transmitted over for a given service. This table is being created for the AIN on SCTP/IP project but it is being designed so that it could be used by other applications (ie. ACB/AR, NMS) that may want to use IP as a transport in the future. The table will contain the connection information for controlling the communications processes associated with the transport.

Usage sequence and implications (CM Only)

Tables must be datafilled in the following sequence:

IPAPPL

TRIGITM

OR

TRIGINFO

Tables TRIGITM and TRIGINFO use the INST (sctp instance) that is datafilled in table IPAPPL.

Size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
IPAPPL	0	64	Memory is automatically allocated for 64 Intelligent Network SCTP instances.

Fields/OIDs

The following table lists fields/OIDs for Table IPAPPL.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
INSTKEY	NEW	subfield	0-64	Defines the SCTP instance number.
INSTNAME	NEW	subfield	8 character vector	Defines the SCTP instance name.
TRANSPRT	NEW	subfield	SCTP	Defines the transport to be used by the application.
IPDEVICE	NEW	subfield	EIU/HIOP	Specifies the device that the instance will use.
IPADDRS	NEW	subfield	Vector of up to 4 IPV4 IP addresses	Specifies the remote IP addresses to be used for the instance.
IPPORT	NEW	subfield	UNSIGNEDINT	Specifies the IP port to be used.
OPTLIST	NEW	subfield	VECTOR of IP_OPTION_LIST	Specifies optional data associated with the instance.
Application	NEW	refinement of optlist	Service {AIN}	Defines the service that is using the insctance.
Multihoming	NEW	refinement of optlist		Specifies if the insctance supports multihoming.
Mode	NEW	refinement of optlist	Client, Server	Specifies if the insctance is a client or server.
Setprime	NEW	refinement of optlist	1 to 4	Specifies which of the IP address in the IPADDRS field is the primary.

Datafill example

The following example shows sample datafill for table IPAPPL

TABLE IPAPPL

INSTKEY INSTNAME TRANSPRT IPDEVICE IPADDRS IPPORT OPTLIST

---

0 SS SCTP EIU (IPV4 47 142 160 173) $ 4977 (APPLICATION AIN R02)

(SETPRIME 1) (MODE SERVER) $

Fields/OIDs

The following table lists fields/OIDs for Table TRIGITM/TRIGINFO.

Table field descriptions TRIGITM/TRIGINFO

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
AIN_TRANSPORT	Changed	refinement	SCTP INST {0 to 64}	Adding SCTP as a valid AIN transport.

Datafill example

The following example shows sample datafill for table TRIGITM and TRIGINFO.

TABLE TRIGITM

TDP TINAME TRIGGER TRIGDATA CRITERIA STATE ACTION SLHR OPTIONS

---

20 SSTAT TERMATT $ ULK EVENT R02 SCTPIP 0 $

TABLE TRIGINFO

KEY ACTION OPTIONS

AININFO EVENT TCAP R02 SCTPIP 0 $

Table release history update

NONE

Supplementary information

NONE

Translation verification other tools

The following example shows the output from TRAVER when it is used to verify TRIGITM.

>traver l 7502511 95505555 b

TABLE IBNLINES

HOST 00 0 00 22 0 DT STN IBN 7502511 CGA 0 0 909 (CDC) (CNDB) $

TABLE DNATTRS

909 750 2511

(PUBLIC (NAME ASTN1CGA0) $)

(PRIVATE (NAME PASTN1CGA0) $)$ $

TABLE DNGRPS

909 750 2511 2511

(PUBLIC (NAME CGA) $)

(PRIVATE (NAME PCGA) $)$

TABLE IBNFEAT

TUPLE NOT FOUND

TABLE CUSTSTN

TUPLE NOT FOUND

TABLE OFCVAR

AIN_OFFICE_TRIGGRP TIID

AIN Orig Attempt TDP: no subscribed trigger.

TABLE NCOS

CGA 0 0 0 CGA0 (IDDDARS N)$

TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL

CGA CGAXLA CGXXLA STARXLA 1 CGXCOL

TABLE DIGCOL

CGXCOL 9 POTS Y

TABLE IBNXLA: XLANAME CGAXLA

CGAXLA 9 NET Y Y 1 Y POTS N N GEN (LATTR 42 909_EAEO_42 L909_LATA1_42) (EA C541 Y 0)$ $

TABLE DIGCOL

POTS specified: POTS digit collection

TABLE LINEATTR

42 1FR NONE NT 0 0 NILSFC 0 NIL NIL 00 909_EAEO_42 L909_LATA1_42 $

LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE

TABLE XLAPLAN

909_EAEO_42 NSCR 909 EAEO RTE4 Y RGA 0 0 $ $

TABLE RATEAREA

L909_LATA1_42 L909 NIL LATA1 $

TABLE STDPRTCT

EAEO (1) (1) 6

. SUBTABLE STDPRT

WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE

BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO

DOCUMENTATION.

. 550 5551211 N NP 0 NA

. SUBTABLE AMAPRT

. KEY NOT FOUND

. DEFAULT VALUE IS: NONE OVRNONE N

TABLE HPCPATTN

TUPLE NOT FOUND

TABLE HNPACONT

909 Y 949 8 (133) (1) (0) (0) 2 $

. SUBTABLE HNPACODE

. 550 550 DN 909 550

TABLE TOFCNAME

909 550 $

TABLE DNINV

909 550 5555 D BLDN

TABLE DNFEAT

TUPLE NOT FOUND

TABLE DNATTRS

TUPLE NOT FOUND

TABLE DNGRPS

TUPLE NOT FOUND

TABLE TMTCNTL

LNT (148)

. SUBTABLE TREAT

. BLDN Y S T120

LNP Info: Called DN is not resident.

LNP Info: HNPA results are used.

TABLE LCASCRCN

909 L909 (10) OPTL N N Y

. SUBTABLE LCASCR

. 550 551

TABLE PFXTREAT

OPTL NP Y NP UNDT

AIN Info Collected TDP: no subscribed trigger.

Checking AIN SDS Trigger Items as SDS is compatible with current call

. . TABLE OFCTIID

. . 4 SSSDS ON

. . TABLE TRIGITM

. . 4 SSSDS SDS (DG 9095505555) $ ULK EVENT R02 SCTPIP 0 $

AIN Info Analyzed TDP: trigger criteria met.

Querying the database would occur now.

Use the AINMQG option to save the query to a file for use in TstQuery.

Use the AINRES option for further information

+++ AIN TRAVER: SUCCESSFUL CALL TRACE +++

AIN Info Analyzed TDP: trigger criteria met.

Querying the database would occur now.

Use the AINMQG option to save the query to a file for use in TstQuery.

Use the AINRES option for further information

+++ AIN TRAVER: SUCCESSFUL CALL TRACE +++

Service Orders (SO) (CM & SESM)

Not impacted.

Software optionality control (SOC)

A new usage/limit SOC INW00003 will be created by this activity to control the allocation of IN SCTP links in table IPAPPL. If the limit has not been met then the user will be allowed to add entries to table IPAPPL.

SOC

SOC option name:	IN Messages Over IP
SOC option title:	Yes
SOC option control type:	usage
New SOC option?	Yes
SOC option order code	INW00003
Option defined in DRU:	SHR
Affected products:	All

Element Management

Not Impacted.

Command interface changes

Command: TSTQUERY

The AIN TSTQUERY command will be changed to support SCTPIP as a valid transport.

Command type: Listed MENU

The setrnsp MENU command will be modified to allow for SCTPIP prompting.

Command target: All

Command availability: RES

Command description

The setrnsp command is used to specify which AIN transport the TSTQUERY message should be sent over.

Command syntax

Help setrnsp

Command to set the Transport

Parms: <Transport> {SS7 <GttName> STRING

<GttSource> {DEFAULT,

CHARGE,

CALLED},

TCPIP <Application Instance Number> {0 TO 3},

SCTPIP <Application Instance Number> {0 TO 64}

Qualifications and warnings

NONE

Responses

NONE

Example

Setrnsp sctpip 0

Security

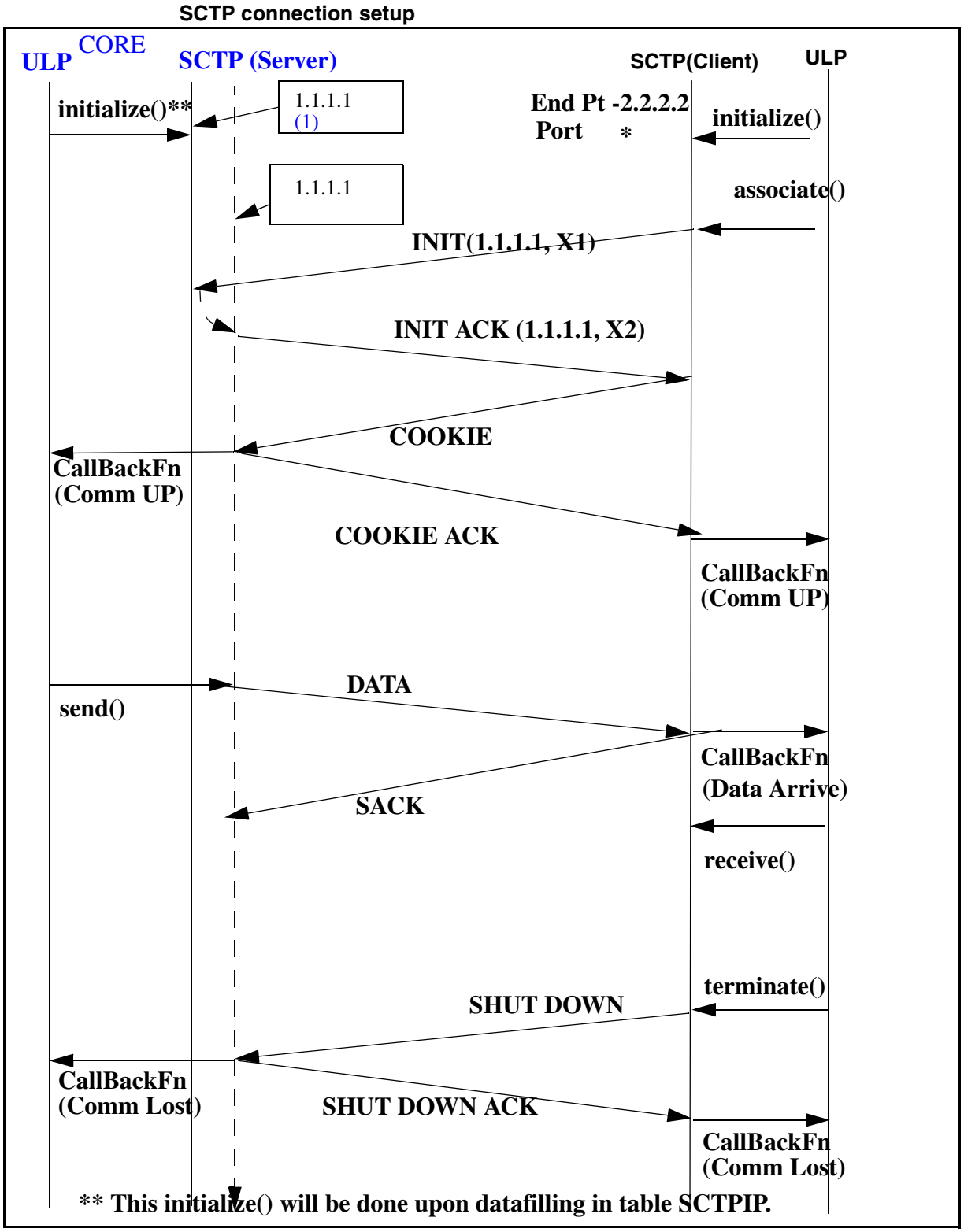
NONE

Configuration Walkthrough

NONE

Appendix A

Sample SCTP instance setup


SCTP connection setup
ULP
CORE
SCTP (Server)
SCTP(Client)
ULP
initialize()**
1.1.1.1
(1)
End Pt -2.2.2.2
Port *
initialize()
1.1.1.1
associate()
INIT(1.1.1.1, X1)
INIT ACK (1.1.1.1, X2)
COOKIE
CallBackFn
(Comm UP)
COOKIE ACK
CallBackFn
(Comm UP)
DATA
send()
CallBackFn
(Data Arrive)
SACK
receive()
terminate()
SHUT DOWN
CallBackFn
(Comm Lost)
SHUT DOWN ACK
CallBackFn
(Comm Lost)
** This initialize() will be done upon datafilling in table SCTPIP.

Performance Management for A00004500

Performance management strategy

Not Applicable

Performance management tools and utilities

Not Applicable

Performance Measurements (PM), Operational Measurements (OM), and stats

This activity adds new OM registers in a new OM group. The new OM group is INSCTP OM for AIN transports. The following sections will outline in detail what OMs will be pegged.

New OM registers

MSGOUT - Pegs Outgoing IN messages using SCTP

MSGIN - Pegs Incoming IN messages using SCTP

SENDFAIL - Pegs IN messages using SCTP for which send failed

DATAERR - Pegs IN messages which encountered errors at application data

DATARCVD - Pegs for Incoming IN message decoding

MSG2BIG- Pegs IN Messages which failed due to message length

BMSFAIL - Pegs instances when buffer errors encountered while sending IN messages over SCTP

NOTREADY - Pegs when SCTP layer indicates that it is not ready to process the message.Please note that this register even though displayed part of the OM group INSCTP, is NOT used by this activity.

INSCTP Group Display

```
>omshow INSCTP active

INSCTP

CLASS: ACTIVE
START:2004/01/12 08:30:00 MON; STOP: 2004/01/12 09:55:39 MON;
SLOWSAMPLES:        5 ; FASTSAMPLES:       48 ;


MSGOUT MSGIN SENDFAIL DATAERR
MSG2BIG BMSFAIL DATARCVD NOTREADY

  0
          0       0       0       0
          0       0       0       0
```

MSGOUT

Register MSGOUT (IN SCTP MSG Out) will be pegged for every outgoing AIN message using the SCTP transport.

MSGIN

Register MSGIN (IN SCTP MSG In) will be pegged for every incoming AIN message using the SCTP transport.

SENDFAIL

Register SENDFAIL (IN SCTP SeND FAilure) will be pegged for every outgoing AIN message using the SCTP transport that failed.

DATAERR

Register DATAERR (IN SCTP Data ERRor) will be pegged for every Data Error that occurs which causes a messaging failure.

MSG2BIG

Register MSG2BIG (IN SCTP message too BIG) will be pegged for every outgoing message that failed to be send because of the message size being too BIG. (i.e beyond the maximum size) Please refer to the EI section for maximum message size allowed.

BMSFAIL

Register INSCTBMS (IN SCTP BMS buffer failure) will be pegged if any buffer failure results in send or recieve failure.

DATARCVD

Register DATARCVD will be pegged when the IN msg is received from SCTP stack and we are ready to decode the IN message.

NOTREADY

Register NOTREADY is used to indicate that the SCTP layer is not ready to send or receive a message. This Register is presently not used with the current functionality(but will be displayed on OMSHOW as one of the registers in the group).

Associated OM groups

Not Applicable

Associated logs

TBD

OM Group template (applies only to DMS)

Not Applicable

Register (applies only to DMS)

Not Applicable

Product = CS 2000

A00001319 -- Device activity & RMID-PWID restoration tool & Panther enhancements (PT-AAL1, Succession on DMS)

Functional Description

This activity provides two new functionalities:

- A new CI tool 'SPMRESALIGN' which ensures the following:
  a. The RMID-PWID values of the Resource RMs (DSP & VSP RMs) are aligned.
  b. The activity of DSP & VSP RMs are aligned as per the table MNCKTPAK datafill.
- A new automated task as a part of Panther Upgrade. When this new task is executed, it will align the RMID-PWID values of all the resource RMs of all the SPMs in the office.

New CI tool SPMRESALIGN

A new CI tool 'SPMRESALIGN' is introduced as a part of this feature. This tool aligns the RMID-PWID values of the DSP/VSP RMs of the all the SPMs in the office. Once the RMID-PWID values of a particular RM is aligned, the activity of that particular RM is aligned as per the table MNCKTPAK datafill.

The tool is implemented as a new CI directory.The tool can be directly accessed from the CI prompt.The tool has the following commands:

- Align the RMID-PWID values of the resource RMs of all the SPMs in the office.

  CI:
  >SPMRESALIGN
  SPMRESALIGN:
  >align all

- Align the RMID-PWID values of the resource RMs based on the variant of SPMs

  CI:
  >SPMRESALIGN
  SPMRESALIGN:
  >align <variant>

  where the variant can be DMSCP, SMG4 or IW-DPT.

- Align the RMID-PWID values of the resource RMs of a single SPM.

  CI:
  >SPMRESALIGN
  SPMRESALIGN:
  >align spm <no>
  This command is applicable for all variants of SPMs.

- Align the RMID-PWID values of the resource RMs for a range of SPMs.

  CI:
  >SPMRESALIGN
  SPMRESALIGN:
  >align spm <from_no> <to_no>
  This command is applicable for all variants of SPMs.

This tool is a single user tool. i.e. only one user can use the tool at a time. Also all the command in this tool are privclassed. For this, the command ‘SPMRESALIGN; & ‘align’ will be added to the table CMDS.

Please refer to the Configuration section of this feature for more details on the CI tool.

Panther Enhancements

This feature enhances the planning phase of PMUPGRADE to create a default task. This new task is to align the RMID-PWID values of all the SPMs present in the entire office. The new task is appended to the upgrade plan and will be

passed to the SWUPGRADE tool. The new task will be created only if there is atleast one SPM is available in the upgrade plan.

In SWUPGRADE, the craft person can view this new task by issuing the command ‘display steps’. An example is as shown in the following figure.

SWUPGRADE steps

```
>swupgrade pm
SWUPGRADE:

>display steps

SWUPGRADE steps for target PM:

1_A_SPM                Needed    Perm  Act     Proc
ALIGN_RMS              Needed    Perm  Act     Proc
UPGRADE_COMPLETE Needed    Perm Act      Proc
```

The default task created is ALIGN_RMS. This task is an automated task. i.e. it is automatically executed as soon as all the upgrade tasks are completed. As this step starts executing, it halts for a user confirmation to proceed or abort this step. The following warning message will be displayed on the Panther screen

****WARNING: This step ALIGN_RMS will align the RMID-PWID values of all the Resource RMs of the SPMs in the office. Do you wish to continue?**
Please confirm ("YES", "Y", "NO", or "N"):

Once the craft person enters “YES”, Panther will start aligning the RMID-PWID values of the all the resource RMs in the office. If the craft person enters “NO”, it aborts this task.

Panther automatically triggers this alignment task only if all the other task in the plan is successfully completed without any failure. Also the user confirmation has to be turned off in the Panther planning phase. Otherwise Panther waits for a manual intervention after each task is completed, to trigger the next task.

On the other hand, the craft person can manually execute this alignment task by overriding all the other upgrade tasks. The craft person has to issue the following command:

>runstep ALIGN_RMS.

All the progress message that are part of the new CI tool will be printed on the Panther screen also. Please refer to section 13.9 in Configuration document to get more information on the progress messages.

Log generation

A new SPM log is introduced to make the craftperson aware that a particular resource RM protection group is excluded by the SPMRESALIGN tool, without align RMID-PWID values. A particular RM group will be excluded from the alignment due to three reasons:

- PWID duplication
- Any RM in invalid state.
- Sparing failure.

Under all these circumstances the new SPM log '**SPM605**' will be generated giving necessary information to the craftperson and what action to be taken. This is only an info log and there is no alarm associated with it. The fields of the SPM605 log are shown in the following figure.

SPM605 Log Format

a) PWID Duplication

```
SPM605  MAR25 05:06:48 3004 INFO RMID-PWID Alignment
        Prot group  : SPM 3 VSP
        Prot grp id  : 1
        Result       : Not Aligned
        Reason       : PWID duplication.
        Action       : Rectify the duplication and execute SPMRESALIGN
```

b) Any RM in invalid state

```
SPM605  MAR25 05:06:48 3004 INFO RMID-PWID Alignment
        Prot group  : SPM 3 VSP
        Prot grp id  :1
        Result       : Not Aligned
        Reason       : VSP 1 not in ISV/ISTB.
        Action       : Bring this RM to INSV and execute SPMRESALIGN
```

c) Sparing failure

```
SPM605  MAR25 05:06:48 3004 INFO RMID-PWID Alignment
        Prot group  :  SPM 3 VSP
        Prot grp id  :  1
        Result       :  Not Aligned
        Reason       :  Unsuccessfull sparing
        Action       :  Review the logs related to sparing
```

Hardware Requirements or Dependencies

None.

Software Requirements or Dependencies

None.

Limitations and restrictions

Following RM groups are excluded from the alignment process.

- If any RM in the group is having a PWID duplication.
- If there is no inactive RM in the group.
- If any RM in the group is in invalid state (offl, sysb, cbsy, manb).

No action is taken on these RM groups to align the RMID-PWID values. However, proper warning messages will be displayed. Please refer to the

Configuration section of this feature for more information on the warning messages.

Interactions

When the office upgrade using Panther is in progress, the craftperson is restricted from executing the commands in the 'SPMRESALIGN' tool. Proper message will be displayed to the craftperson.

a) In a multiple window upgrade shift, after each days shift the craft can run the CI tool on the SPMs which finished the upgrade or.

b) The craftperson can run the automated task from panther . This will be run automatically after all the steps. Proper message will be displayed that it will align the RMID-PWID values of all the Reousrce RMs in the office.

Applicable customer facing sections

Fault Management	
Logs	X
Alarms	N/A
Configuration	
Data Schema	N/A
User Interface	N/A
Element Management	N/A
Security	N/A
Service Order	N/A
Office Parameters	N/A
Accounting (includes AMA billing)	N/A
Performance (includes operational measurements)	N/A
Real-time	N/A
Engineering Information	N/A

Glossary

Term	Description
SPM	Spectrum Peripheral Module
RM	Resource Module

Term	Description
RMID	Resource Module ID
PWID	ProtWhom ID
DSP	Digital Signal Processor
VSP	Voice Signal Processor

Configuration for A00001319

Hardware and Software Requirements

None

Initial Configuration

None

Office/Subnet parameters (OP/SP) (CM & SESM)

None

Upgrade Impact

None

Data schema (DS) (CM, MIBS, RDB)

None

Service Orders (SO) (CM & SESM)

None

Software optionality control (SOC)

None

Element Management

None

Command interface changes

Directory: spmresalign

Directory description

A new CI directory is created to enable the craftperson to access various commands to align the RMID-RWID values of the all the resource RMs (DSP/VSP/DLC) of a particular SPM or a set of SPMs or all the SPMs present in the office.This tool is a single user tool. i.e. only one user can use the tool at a time.

Accessing directory: spmresalign

Access to directory and return to CI

To access spmresalign from the CI environment, enter **spmresalign**.

To return to the CI environment, enter **quit**.

Command: ALIGN

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

This command 'ALIGN' is used to align the RMID-PWID values of all the resource RMs of a single SPM, a set of SPMs or all the SPMs in the office.

Command syntax

The command syntax is as shown in the following figure.

: Syntax of align command

```
SYNTAX: align
Parms   : <OPTION> {ALL,
                    DMSCP,
                    SMG4,
                    IW_DPT,
                    SPM <FROM_NO>{0 TO 85}
                       [<TO_NO> {0 TO 85}]}


Parameter Description:

  ALL         :   This option aligns the RMID-PWID values of the resource RMs
                  of all the SPMs in the office.

  DMSCP       :   This option aligns the RMID-PWID values of the resource RMs
                  of all the DMSCP SPMs present in the office.

  SMG4        :   This option aligns the RMID-PWID values of the resource RMs
                  of all the MG4K SPMs present in the office.

  IW_DPT      :   This option aligns the RMID-PWID values of the resource RMs
                  of all the DPT SPMs present in the office.

  SPM <FROM_NO> <TO_NO>:This option aligns the RMID-PWID values of the resource
                  RMs of all the SPMs specified within the range <FROM_NO> to
                  <TO_NO>.If only <FROM_NO> is entered, the tool aligns the
                  RMID-PWID values of that particular SPM only.
                  This command is applicable to all variants of SPMs.
```

Qualifications and warnings

None

Responses

Wrong Input from the craftperson

a. If the tool is already in use, and if any other user try to access this tool a message will be displayed as shown:

SPMRESALIGN in use by <mapid>

b. If the craftperson enters an SPM number which is not present in the office, a message will be displayed as shown:

>align spm 26
SPM 26 is not provisioned.

c. If there are no dmscp SPMs present in the office.

>align dmscp
No DMSCP SPMs provisioned in the office.

d. If there are no MG4K SPMs present in the office.

>align smg4
No MG4K SPMs provisioned in the office.

e. If there are no DPT SPMs present in the office.

>align iw_dpt
No DPT SPMs provisioned in the office.
IW -Bridge only SPMs are not included in this.

f. If <from_no> is greater than <to_no>

>align spm 30 2
Invalid tuple range.

Progress Message

After building the necessary information and initial screening of a particular RM protection group, the group will be subjected to alignment process. The craftperson will be notified with proper message as shown:

SPM <no> <RM type> group < protection group id>: RMID-PWID Alignment in progress.

e.g : SPM 1 DSP group 1 : RMID-PWID Alignment in progress.

PWID duplication

If any of the RM in a particular RM protection group has a duplicate PWID, this particular group cannot be aligned. Hence the spmresalign tool will exclude this group, giving a proper message to the craftperson as shown:

*****Warning: SPM <no> <RM type><RM no> has a duplicate PWID. The RMID-PWID values of this <RM type> group cannot be aligned.**

e.g : ***Warning: SPM 1 DSP 1 has a duplicate PWID.
The RMID-PWID values of this DSP group cannot be aligned.

RMID-PWIDs already aligned.

If all the RMs in a particular protection group is already aligned, no further action will be taken by the tool. The tool will exclude this particular group, giving a proper message to the craftperson as shown

All the RMs in SPM <no> <RM type>group <protection group id> are already aligned.

e.g : All the RMs in SPM 1 DSP group 2 are already aligned.

No Inactive RM present in a protection group

If any of the RM protection group does not have an inactive RM, sparing cannot be performed on this group and the RMID-PWID values of this group cannot be aligned. The tool will exclude this particular group, giving a proper message to the craftperson as shown

*****Warning: SPM <no> <RM type>group <protection group id> does not have an inactive unit.The RMID-PWID values of this <RM type>group cannot be aligned.**

e.g : ***Warning: SPM 1 DSP group 1 does not have an inactive unit.
The RMID-PWID values of this DSP group cannot be aligned.

RM in invalid state

If any of the RM in a particular RM protection group is in invalid state (offl,sysb, cbsy, manb), the RMID-PWID values of this particular group cannot be aligned. Hence the spmresalign tool will exclude this group, giving a proper message to the craftperson as shown:

*****Warning: SPM <no> <RM type><RM no> is in invalid state. The RMID-PWID values of this <RM type> group cannot be aligned.**

e.g: ***Warning: SPM 1 DSP 2 is in invalid state.
The RMID-PWID values of this DSP group cannot be aligned.

RM sparing failure

If the sparing between two RMs for aligning the RMID-PWID values of a particular RM group fails, the RMID-PWID values of this particular group cannot be continued further. Hence the spmresalign tool will exclude this group, giving a proper message to the craftperson as shown:

*****Warning: SPM <no> <RM type><RM no> sparing failed.
The RMID-PWID values this <RM type> group cannot be aligned.**

e.g: ***Warning: SPM 1 DSP 2 sparing failed.
The RMID-PWID values this DSP group cannot be aligned.

SPM REX in progress

If SPM REX is in progress on a particular SPM, that SPM is excluded from the alignment process. Proper message is displayed to the craftperson as shown:

*****Warning: SPM REX in progress on SPM <no>
Re-execute the tool on this SPM once REX is completed.**

Panther upgrade in progress

If the Panther upgrade is in progress, the craftperson will be restricted from issuing the ‘align’ command from the spmresalign tool.The craftperson will be notified about this with proper warning message:

**Office upgrade in progress.
Please run the command after office upgrade is completed.**

Alignment completed

Once the RMID-PWID values of all the RMs in a particular RM group is completely aligned by the tool, a message is displayed to the craftperson:

SPM <no> <RM type> group < protection group id>: RMID-PWID Alignment completed.

e.g : SPM 1 DSP group 1 : RMID-PWID Alignment completed.

Final Summary

The spmresalign tool will give a final summary report of all the RM groups. This will help the craftperson to obtain a consolidated report.

Overall RMID-PWID Alignment Result:

SPM No	ProtGrp	GrpId	Result
SPM 1	DSP	1	Aligned
SPM 1	DSP	2	Aligned
SPM 1	VSP	1	Aligned
SPM 2	DSP	1	Not Aligned
SPM 2	DSP	2	Aligned
---	---	--	---
---	---	--	---

Example

The following table shows the output of align command.

Usage examples for align command

Description of task:	Align the RMID-PWID values of a set of SPMs or a single SPM or all the SPM.

Usage examples for align command

Command: MAP response:	spmresalign; align all CI: **>spmresalign** spmresalign: **>align all** SPM 1 DSP group 1: RMID-PWID Alignment in progress. SPM 1: Manual Sparing from DSP 0 to DSP 1 SPM 1 DSP group 1: RMID-PWID Alignment completed. All the RMs in SPM 1 DSP group 2 are already aligned. SPM 2 DSP group 1: RMID-PWID Alignment in progress. ***Warning: SPM 2 DSP group 1 does not have an inactive unit.The RMID-PWID values of this DSP group cannot be aligned. SPM 2 VSP group 1: RMID-PWID Alignment in progress. ***Warning: SPM 2 VSP 1 Sparing fialed. The RMID-PWID values of this VSP group cannot be aligned. Overall RMID-PWID Alignment Result --- SPM No. PrtGrp GrpId Result --- SPM 1 DSP 1 Aligned SPM 1 DSP 2 Aligned SPM 2 DSP 1 Not Aligned SPM 2 VSP 1 Not Aligned

Usage examples for align command

Command: MAP response:	spmresalign; align dmscp ***Note:*** The dmscp SPMs present in office are SPM 21 & 24 CI: **>spmresalign** spmresalign: **>align dmscp** SPM 21 DSP group 1: RMID-PWID Alignment in progress. SPM 21: Manual Sparing from DSP 0 to DSP 1 SPM 21 DSP group 1: RMID-PWID Alignment completed. SPM 21 VSP group 1: RMID-PWID Alignment in progress. SPM 21: Manual Sparing from VSP 0 to VSP 1 SPM 21 VSP group 1: RMID-PWID Alignment completed. All the RMs in SPM 24 DSP group 1 are already aligned. No RMs provisioned in SPM 24 VSP group 1. Overall RMID-PWID Alignment Result ---------- SPM No. PrtGrp GrpId Result ---------- SPM 21 DSP 1 Aligned SPM 21 VSP 1 Aligned SPM 24 DSP 1 Aligned

Usage examples for align command

Command: MAP response:	spmresalign; align spm <no> <no> CI: **>spmresalign** spmresalign: **>align spm 3 5** SPM 4 is not provisioned. SPM 3 DSP group 1: RMID-PWID Alignment in progress. SPM 3: Manual Sparing from DSP 0 to DSP 1 SPM 3 DSP group 1: RMID-PWID Alignment completed. SPM 5 DSP group 1: RMID-PWID Alignment in progress. SPM 5: Manual Sparing from DSP 0 to DSP 1 SPM 5: Manual Sparing from DSP 2 to DSP 0 SPM 5 DSP group 1: RMID-PWID Alignment completed. Overall RMID-PWID Alignment Result ---------- SPM No. PrtGrp GrpId Result ---------- SPM 3 DSP 1 Aligned SPM 5 DSP 1 Aligned
Command: MAP response:	spmresalign; align spm all CI: **>spmresalign** spmresalign: **>align spm all** Office upgrade in progress. Please run the command after office upgrade is completed.

Product = CS 2000

A00001649 -- SBA Robustness: End-to-end Integrity (Succession on DMS)

Description

This feature has two parts:
1. SBA Backup Alarms Precedence

2. Add "clli" command to BILLMTC Interface.

The following sections give a brief description on SBA Backup Alarms Precedence and later a brief description of Add “clli” command to BILLMTC interface.

SBA Backup Alarms Precedence

This feature is to change the priority of the backup alarms so that these alarms take precedence over NOCOM alarm.

When the NOCOM alarm appears on the MAP at the SDMBIL level, the streams on the CM go to backup mode. The billing records then generated will be written to backup files on backup volumes configured for the stream.

Eventually the backup space on core will start getting used up, and backup alarms will start appearing on the SDMBIL banner depending upon the amount of used space. When 50% of backup space has been used up, the BAK50 alarm will appear on the SDMBIL banner on the MAP indicating that only 50% of the configured backup space is available for the stream.

Once 70% of the backup space is used, the BAK50 alarm will be changed to BAK70 alarm. Again when a situation is reached wherein only 10% of the free space is available, BAK70 alarm will be replaced by the BAK90 alarm. Eventually when the system runs out of backup space, NOBAK alarm will appear under the SDMBIL banner replacing the BAK90 alarm.

Once the NOBAK alarm comes up for a stream, any further records generated would still persist in the buffer pool {buffer allocated to the stream}. Eventually if the situation continues, the buffers would get depleted and a NOSTOR{Critical} alarm will appear under SDMBIL level.

NOCOM alarm

```
Alarm condition : NOCOM occurs
APPL        : SDM    C
SDMBIL      : NOCOM  C


XAC      MS     IOD     Net      PM     CCS     Lns     Trks    Ext     APPL
 AMDI    04SBPT NODLOG    .      1 SPM     .       .        ...     .     SDM
  *C*                             *C*                                    *C*
 POST                OAMAP  ATMFW   SDM   SPMCP  SWMTC  SDMBIL        TOPSIP
```

```
  0 Quit                .       .      SysB     .       .  NOCOM .
  2 Post_                                *C*                   *C*
  3
  4                   AMA :       Bkup  Pri:        InSv  Rec:        InSv
  5                                     Bkup:       Bkup  Comm:       InSv
  6 TST
  7 Bsy
  8 RTS
  9 Conf_
 10            DispAL
 11 DispAL     critical:ALL:NOCOM:Communication to SDM cannot be established.
 12
 13 Status     major: AMA: BAKUP: Backup time exceeds 10 minutes.
 14 Query
 15
 16
 17 Audit
```

NOCOM with BAK50

```
Alarm condition : Still in NOCOM, but we have just hit BAK50
APPL            : SDM    C
SDMBIL          : BAK50  C


XAC       MS      IOD      Net       PM      CCS      Lns      Trks     Ext      APPL
 AMDI     04SBPT  NODLOG     .        1 SPM      .        .         ...      .      SDM
  *C*                                 *C*                                         *C*
 POST                  OAMAP  ATMFW    SDM    SPMCP  SWMTC  SDMBIL          TOPSIP
  0 Quit                 .       .      SysB     .       .  BAK50 .
  2 Post_                                *C*                   *C*
  3
  4                   AMA :       Bkup  Pri:        InSv  Rec:        InSv
  5                                     Bkup:       Bkup  Comm:       InSv
  6 TST
  7 Bsy
  8 RTS
  9 Conf_
 10            DispAL
 11 DispAL     critical:ALL:NOCOM:Communication to SDM cannot be established.
 12          critical: AMA: BAK50: WARNING, less than 50% free space for Backup
 13 Status     major: AMA: BAKUP: Backup time exceeds 10 minutes.
 14 Query
 15
 16
 17 Audit
 18
```

NOCOM with BAK70

```
Alarm condition : Still in NOCOM, but we have just hit BAK70
APPL            : SDM    C
SDMBIL          : BAK70  C


XAC      MS     IOD     Net      PM     CCS     Lns     Trks    Ext     APPL
 AMDI    04SBPT NODLOG    .      1 SPM     .       .       ...     .     SDM
  *C*                             *C*                                   *C*
 POST                OAMAP  ATMFW   SDM   SPMCP  SWMTC  SDMBIL        TOPSIP
  0 Quit               .      .     SysB    .      .  BAK70 .
  2 Post_                            *C*                  *C*
  3
  4                 AMA :      Bkup  Pri:       InSv  Rec:       InSv
  5                                  Bkup:      Bkup  Comm:      InSv
  6 TST
  7 Bsy
  8 RTS
  9 Conf_
 10           DispAL
 11 DispAL    critical:ALL:NOCOM:Communication to SDM cannot be established.
 12         critical: AMA: BAK70: WARNING, less than 30% free space for Backup
 13 Status    major: AMA: BAKUP: Backup time exceeds 10 minutes.
 14 Query
 15
 16
 17 Audit
 18
```

NOCOM with BAK90

```
Alarm condition :Still in NOCOM, but we have just hit BAK90
APPL            : SDM    C
SDMBIL          : BAK90  C


XAC      MS     IOD     Net      PM     CCS     Lns     Trks    Ext     APPL
 AMDI    04SBPT NODLOG    .      1 SPM     .       .       ...     .     SDM
  *C*                             *C*                                   *C*
 POST                OAMAP  ATMFW   SDM   SPMCP  SWMTC  SDMBIL        TOPSIP
  0 Quit               .      .     SysB    .      .  BAK90 .
  2 Post_                            *C*                  *C*
  3
  4                 AMA :      Bkup  Pri:       InSv  Rec:       InSv
  5                                  Bkup:      Bkup  Comm:      InSv
```

```
  6 TST
  7 Bsy
  8 RTS
  9 Conf_
 10           DispAL
 11 DispAL    critical:ALL:NOCOM:Communication to SDM cannot be established.
 12          critical: AMA: BAK90: WARNING, less than 10% free space for Backup
 13 Status    major: AMA: BAKUP: Backup time exceeds 10 minutes.
 14 Query
 15
 16
 17 Audit
 18
```

NOCOM out of backup space

```
Alarm condition : Still in NOCOM, but we run out of backup space
APPL            : SDM    C
SDMBIL          : NOBAK  C
```

```
XAC      MS     IOD     Net      PM     CCS     Lns     Trks    Ext     APPL
 AMDI    04SBPT NODLOG    .      1 SPM     .       .       ...     .     SDM
  *C*                            *C*                                    *C*
 POST               OAMAP  ATMFW   SDM   SPMCP  SWMTC  SDMBIL        TOPSIP
  0 Quit              .      .     SysB    .      .  NOBAK .
  2 Post_                          *C*                  *C*
  3
  4                AMA :      Bkup  Pri:       InSv  Rec:       InSv
  5                                 Bkup:      Bkup  Comm:      InSv
  6 TST
  7 Bsy
  8 RTS
  9 Conf_
 10           DispAL
 11 DispAL    critical:ALL:NOCOM:Communication to SDM cannot be established.
 12           critical: AMA: NOBAK: ERROR, no space on Backup volumes.
 13 Status    major: AMA: BAKUP: Backup time exceeds 10 minutes.
 14 Query
 15
 16
 17 Audit
 18
```

NOCOM out of buffers

```
Alarm condition : Still in NOCOM, but we run out of buffers .
APPL            : SDM    C
SDMBIL          : NOSTOR C

XAC      MS     IOD     Net      PM     CCS     Lns     Trks    Ext     APPL
 AMDI    04SBPT NODLOG    .      1 SPM     .       .       ...     .     SDM
  *C*                            *C*                                    *C*
 POST                OAMAP  ATMFW   SDM   SPMCP  SWMTC  SDMBIL        TOPSIP
  0 Quit               .      .     SysB    .      .     NOSTOR.
  2 Post_                            *C*                  *C*
  3
  4                  AMA :      Bkup  Pri:       InSv  Rec:       InSv
  5                                   Bkup:      Bkup  Comm:      InSv
  6 TST
  7 Bsy
  8 RTS
  9 Conf_
 10            DispAL
 11 DispAL     critical:ALL:NOCOM:Communication to SDM cannot be established.
 12            critical:AMA:NOBAK: ERROR, no space on Backup volumes.
 13 Status     critical:AMA:NOSTOR:No memory available to buffer records.
 14 Query      major: AMA: BAKUP: Backup time exceeds 10 minutes.
 15
 16
 17 Audit
 18
```

Add "clli" command to BILLMTC Interface

This feature will add a new functionality whereby a new command ("clli") will be introduced under the SBA RMI subsystem to retrieve the CLLI name from BILLMTC Interface.

This command is hidden and does not appear on the BILLMTC level. The command is available from all BILLMTC level as a non-menu command. The user can run the "clli" command from any level of BILLMTC interface to get the CLLI name.

"clli" command is not available either as a numbered command or as a menu command, unlike other commands in BILLMTC interface. The user has to directly enter the command "clli" at the BILLMTC interface from any level to retrieve the CLLI name.

"clli" command

Command name: "clli"

Command description:

"clli" command displays the current information about the CLLI connected with the sdm. The command should be used at BILLMTC level. The command is case in-sensitive.

The "clli" command response will be,

<Core CLLI Name>

Command Format:
clli

Parameters
None

Response :
<Core CLLI Name>

The “clli” command executed from BILLMTC level of BILLMTC interface

```
BILLMTC           MSH4_CALL_SERVER
 0 Quit
 2 Set
 3
 4 CONFSTRM

 5
 6
 7
 8 APPL
 9 Query
10 Mib
11 DispAl
12 Displogs
13 FILESYS
14 SCHEDULE
15 TOOLS
16 TAPE
17 Help
18 Refresh
root       > clli
Time  09:28
```

The “clli” command executed from BILLMTC; SCHEDULE level of BILLMTC interface.

```
SCHEDULE        MSH4_CALL_SERVER
 0 Quit
 2 Set
 3
 4
 5
 6
 7 Add
 8 Change
 9 Delete
10 List
11 RTB
12
13
14
15
16
17 Help
18 Refresh
root        >  clli
```

Help for clli

Help for “clli” command is available at all levels. To get the help for clli, enter the “help” without parameters at any billmtc level, help for “clli” command will be displayed along with the help for other commands.

The “help”command issued at BILLMTC interface

```
BILLMTC       The commands available at this level....
 0 Quit        0 Quit      -> Quits the current level
 2 Set         2 Set       -> Sets context
 3             3
 4 CONFSTRM    4 CONFSTRM -> Enters CONFSTRM level
 5             5
 6             6
 7             7
 8 APPL        8 APPL      -> Enters APPL level
 9 Query       9 Query     -> Displays current state of streams
10 Mib        10 Mib       -> Sets and gets MIB objects
11 DispAl     11 Dispal    -> Displays all current SDM alarms
12 Displogs   12 Displogs -> Displays logs not yet sent to CM
```

```
 13 FILESYS    13 FILESYS  -> Enters FILESYS level
 14 SCHEDULE   14 SCHEDULE -> Enters SCHEDULE level
 15 TOOLS      15 TOOLS    -> Enters TOOLS level
 16            16 TAPE     -> Enters TAPE level
 17 Help       17 Help     -> Available commands with syntax
 18 Refresh    18 Refresh  -> Refreshes the screen
   maint       MORE...
Time  12:16
```

Press enter to continue for the help for “clli”

```
BILLMTC       clli:  Displays core CLLI
 0 Quit
 2 Set
 3
 4 CONFSTRM
 5
 6
 7
 8 APPL
 9 Query
10 Mib
11 DispAl
12 Displogs
13 FILESYS
14 SCHEDULE
15 TOOLS
16
17 Help
18 Refresh
  maint       >
Time  12:17
```

Hardware requirements

None

Limitations and restrictions

“SBA Backup Alarms Precedence“ will put the following limitations.

Any critical alarm raised by SBA under the SDMBIL banner will be masked by the backup alarm if any. To see all the alarms (critical, major, minor) raised by SBA, the user will have to invoke the DispAl command to see the list of all SBA alarms.

“Add "clli" command to BILLMTC Interface“ will put the following limitations

The command is available only at BILLMTC level. The command can not be used at SDMRLOGIN level.

Interaction.

NA

Logs (LG)

Not Applicable

Data schema (DS)

Not Applicable

Alarms (AL)

Not Applicable

Command interface (BILLMTC)

New/modified commands

New command has been added through this “Add "clli" command to BILLMTC interface.

New/Modified Commands

Command name	NEW, CHANGED OR DELETED	New name (if renamed)	Directory/ BILLMTC level name	MENU/NON-MENU /HIDDEN
clli	NEW	-	BILLMTC	HIDDEN

Product = CS 2000

A00001650 -- SBA Patch Size Reduction (Succession on DMS)

Description

SDM SBA application is delivered to Nortel’s customers as SDM_SBA.DMS500 and SDM_AFT.DMS500 filesets in the previous releases. The total size of the two filesets are greater than 160^2 MB (40MB +

120MB). When there is a change in SBA base code to fix issues, the whole 120 MB fileset must be packaged and delivered. In an extreme case, if a change is in base MIB functional component, the two filesets of 160MB will also be required if AFT is installed. In most of the cases, SBA base fix does not require the AFT fileset to be delivered to the customers.

In the past releases, SBA fix filesets were stored into 4Gg DAT tape and shipped to customer sites. However, Nortel's SDM fix delivery method have been migrating from shipping MNCL tape(s) to downloading the filesets (or packages) into the customer networks via IP protocols (i.e. electronic delivery).

In cases where customer only has 28.8K modem in the networks, the total download time would be more than 9 hours (120MB / 211Kbytes per minute[3]) for SBA SDM_SBA.DMS500 fileset and more than 3 hours for AFT fileset. If the customers has high speed cable connection, then the time for SBA and AFT would be 3 hours and 48 minutes; and 55 minutes respectively. Therefore, the "fix filesets" would not be downloaded completely before maintenance window had expired even though the customer has high speed connection.

This feature reduces SBA/AFT deliverable(s)[4] size by de-coupling ACE and eighteen SBA base libraries code from SBA/AFT executable(s). The SBA base shared libraries will be packaged into the SBA fileset/package. The ACE library code will be packaged separately. The fileset/package for ACE is named as SDM_ACE.dist in AIX platform and SDM_ACE_5.3.0.0.pkg in Solaris platform.

Hardware Requirements or Dependencies

No new hardware required

Software Requirements or Dependencies

SBA and AFT requires ACE fileset and package in AIX and Solaris platforms respectively. The ACE fileset/package contains ACE shared libraries. This is the only copy of ACE library code. The filesets/packages must be installed in the following orders[5]:

1. ACE
2. SDM_SBA.DMS500
3. SDM_AFT.DMS500

2. The size information are taken from 19.72.0.0 NCL load. The SDM_SBA.DMS500-19.69.0.0.tape file is 120,287,232 bytes and the SDM_AFT.DMS500-19.69.0.0.tape file 40,079,360 bytes.
3. Data taken from "SDM Wellness Patching 3.1" presentation.
4. The deliverable(s) could be the whole SBA in a single fileset or a number of filesets of different sizes.
5. The installations follows the standard CBM and nSDM procedure

Similarly, the packages/filesets must be removed in the following orders.

1. SDM_AFT.DMS500
2. SDM_SBA.DMS500
3. ACE

In case ACE fileset is upgraded/patched, SBA and AFT fileset must be BSY/RTS after the new ACE fileset is installed otherwise SBA and AFT software will be running with the order version of ACE. This might lead to run time problems.

Limitations and restrictions

- SBA/AFT cannot be installed before ACE is installed.
- ACE cannot be removed before SBA/AFT are un-installed from the system. In CBM, the Solaris “pkgrm” command does not prevent user from removing lower layer package that are needed by other upper layer package. In other words, there is nothing stopping user from removing ACE fileset even if SBA/AFT have not been un-installed. It is important to note that if a user removes ACE package from the system, SBA/AFT will not function.
- SBA/AFT must be BSY/RTS if ACE is upgraded on the system.

Interactions

None

Applicable customer facing sections

Fault Management

Logs	__N/A____
Alarms	__N/A____

Configuration

Data Schema	___N/A____
User Interface	___N/A___
Element Management	___N/A___
Security	___N/A___
Service Order	___N/A___
Office Parameters	___N/A___

Accounting (includes AMA billing)	___N/A___
Performance (includes operational measurements)	___N/A___

Glossary

Term	Description
ACE	The ADAPTIVE Communication Environment. “It freely available, open-source object-oriented (OO) framework that implements many core patterns for concurrent communication software”

Product = CS 2000

A00001847 -- ABI Expansion Datafill (UA-AAL1)

Functional Description

Note: The FN/CN/EI/RT sections for activity A00001847 include the related information for a number of activities due to the close association of all these activities. The activities that are included in this group are:

- A00001847 - ABI Expansion Datafill
- A00001909 - ABI Trunk Support for RCC
- A00001936 - MG9K ABI Expansion - Node and Link Mtc

Note: Within this document the terms LTC and LGC are used, which the terms LTCI and LGCI are not used. The use of the term LGC or LTC implies both the ISDN and non-ISDN capable versions of these peripherals unless otherwise stated. This is done to avoid confusion as the LGCI and LTCI do not actually exist from a datafill perspective, they are simply LGCs and LTCs with an ISDN capability.

Description

This activity expands the set of supported Peripheral types that can be provisioned off an ABI card in a MG9000 gateway. In SN05 the initial ABI work provided support for the LGC (ISDN only) and SMA2 peripheral types. With this activity we will provide the capability for customers to provision not only SMA2 and LGC (ISDN only) peripherals off the ABI card, but also LTC and LGC (non-ISDN) peripherals on the ABI.

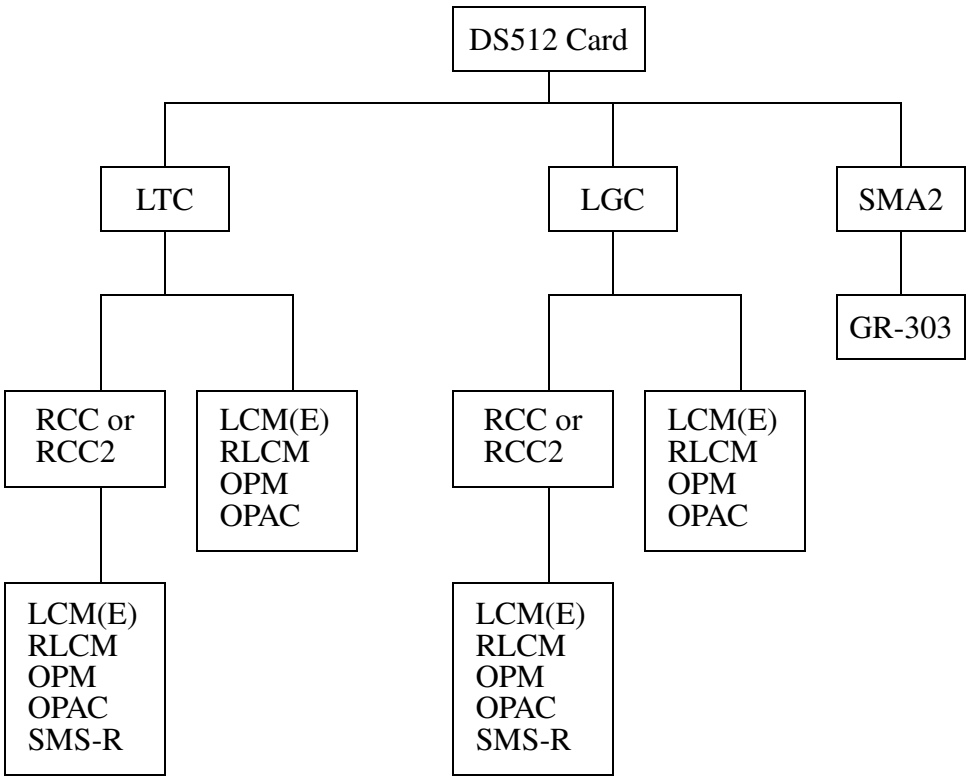
Also, as part of this activity the set of line concentrating devices (LCDs) supported off the above list of host peripherals has been expanded. When this activity is complete the set of supported LCDs will include:

4. LCM
5. RLCM

6. OPM
7. OPAC
8. RSC
9. RSCS

Also, the remotes (RSC/RSCS) will support the SMS-R (Mode I or II) as a subtending device, along with the LCM, RLCM, OPM, and OPAC. It should also be noted that whenever the RSC and RSCS are mentioned, both the single and dual configurations are implied. The following figure shows the allowed configurations for SN06.2. Note that this is a logical not a physical representation, and that it is not possible to host all these devices on a single DS512 card in the MG9000.

Supported SN06.2 Configurations



The main customer-visible changes for this activity will be the ability to provision the EXTDS512 optional field as part of the tuple in table LTCINV for the LTC Peripheral Type (the LGC was already supported in SN05 although only for ISDN lines). This optional field is used to identify the IP Address of the ABI Card and the Gateway Controller that the peripheral is

"hosted" off (the GWC must be datafilled in table SERVRINV prior to entering this information). Prior to this release if this optional field was added to an LTC tuple an error would result.

Note: Although only ISDN lines were supported on the ABI-based LGC in SN05, the EXTDS512 attribute could be added to any LGC (including normal LGCs without ISDN lines) without an error resulting. Thus, this is unchanged in SN06.2 except that we have added official support for the other LCCs on the LGC.

A full description of the table control changes is available in the Data Schema section of this document under Configuration.

Supported Line Class Codes and Features

The following tables lay out the supported Line Class Codes (LCCs) and features that are supported on the new ABI XPMs as well as what is currently supported. This table includes the terms LTCI and LGCI, but it should be noted that the LCCs supported are the same as for the LTC/LGC with the exception of the ISDNKSET.

Note: Although the subtending devices are not listed in the following list, they will support all the LCCs applicable for their host peripheral. For example, an RCC subtending an ABI based LTC will be able to support all the LCCs listed for the LTC in the table below, assuming that the RCC supports that LCC in a legacy environment.

LCC Support

	MG9000	MG9000 ABI Supported Peripherals			
LCC	**Lines**	**ESMA**	**LGCi**	**LTCi**	**LGC/LTC**
1FR	S	SN05	SN06.2	SN06.2	SN06.2
1MR	S	SN05	SN06.2	SN06.2	SN06.2
2WW	SN05	SN05	SN06.2	SN06.2	SN06.2
CDF	S	SN05	SN06.2	SN06.2	SN06.2
CFD	S	SN05	SN06.2	SN06.2	SN06.2
EOW	SN05	SN05	SN06.2	SN06.2	SN06.2
ETW	SN05	SN05	SN06.2	SN06.2	SN06.2
IBN	S	SN05	SN06.2	SN06.2	SN06.2
ISDNKSET	-	SN05	SN05	SN06.2	-
INW	S	SN05	SN06.2	SN06.2	SN06.2
M5008	S	SN06.2	SN06.2	SN06.2	SN06.2
M5009	S	SN06.2	SN06.2	SN06.2	SN06.2

LCC Support

	MG9000	MG9000 ABI Supported Peripherals			
LCC	**Lines**	**ESMA**	**LGCi**	**LTCi**	**LGC/LTC**
M5112	S	SN06.2	SN06.2	SN06.2	SN06.2
M5208	S	SN06.2	SN06.2	SN06.2	SN06.2
M5209	S	SN06.2	SN06.2	SN06.2	SN06.2
M5212	S	SN06.2	SN06.2	SN06.2	SN06.2
M5216	S	SN06.2	SN06.2	SN06.2	SN06.2
M5312	S	SN06.2	SN06.2	SN06.2	SN06.2
M5316	S	SN06.2	SN06.2	SN06.2	SN06.2
OWT	S	SN05	SN06.2	SN06.2	SN06.2
PBM	S	SN05	SN06.2	SN06.2	SN06.2
PBX	S	SN05	SN06.2	SN06.2	SN06.2
PSET	S	SN06.2	SN06.2	SN06.2	SN06.2
RES	S	SN05	SN06.2	SN06.2	SN06.2
TWX	SN05	SN05	SN06.2	SN06.2	SN06.2
ZMD	S	SN05	SN06.2	SN06.2	SN06.2
ZMZPA	S	SN05	SN06.2	SN06.2	SN06.2

Note: An “S” under the MG9000 Lines column means that this LCC was supported on the MG9000 prior to SN05 (SN05 was the first release for ABI XPMs).

Note: A “-” in any cell of the above table means that the LCC is not supported for that XPM type. For example, ISDNKSET is not supported on LGC/LTC XPMs as these XPMs are not ISDN capable.

The following LCCs are only supported on legacy, not on the MG9000 or ABI based XPMs:

1. 10FR - Ten-party flat rate, residence and business
2. 2FR - Two-party flat rate, residence and business
3. 4FR - Four-party flat rate, residence and business
4. 8FR - Eight-party flat rate, residence and business
5. ATA - Coin, coin first (prepay)
6. CSD - Circuit-switched digital service

7. CSP - Coin, semi-postpay
8. DATA - Data unit
9. PDATA - POTS data unit

Here is the list of supported services on ABI peripherals.

Service Support for ABI XPMs

Service	Non-PSET	PSET	BRI
18-Button Add-On for Meridian M5000 Series	-	S	-
900 Client	SN06	SN06	SN06
Access to Messaging	SN05	SN05	SN06
Access to Messaging Deny	SN05	SN05	SN06
Additional Call Offering Unrestricted	-	-	SN05
Additional Functional Calls	-	-	SN05
Advanced Intelligent Network	S	S	SN05
Advanced Intelligent Network DN	S	S	SN05
Aggregate CND Recording	-	-	SN05
Aggregate RND Recording	-	-	SN05
Agent Status Lamp	-	S	-
AIN Message Waiting	-	S	SN05
Alternate Service Provider		SN05	SN06
Analog Display Services Interfaces		-	-
Anonymous Caller Rejection	S	S	SN05
Answer Agent Key	-	S	-
Answer Emergency Key	-	S	-
Associated Group Assignment	-	-	SN05
Auto Lamp Refresh	-	-	SN05
Automatic Answer Back	-	S	SN06
Automatic Call Back	S	S	SN05
Automatic Call Distribution	S	S	-
Automatic Call Distribution Not Ready	S	S	-
Automatic Dial	-	S	SN05

Service Support for ABI XPMs

Service	Non-PSET	PSET	BRI
Automatic Display	-	S	-
Automatic Line	S	S	SN05
Automatic Message Accounting Test Call Capability	S	S	SN05
Automatic Recall	S	S	SN05
Automatic Recall Dialable Directory Number	S	S	-
Automatic SPID Selection	-	-	SN05
Automatic Time and Charges	S	S	SN05
Basic Business Group ISDN	-	-	SN05
Bearer Capability	-	-	SN05
Block Called Party Number	-	-	SN05
Block Callling Party Number	-	-	SN05
Bridged Night Number	S	S	SN05
Bulk Calling Line Identification	SN05	SN05	SN06
Busy Lamp Field for Meridian Business Sets	-	S	-
Call Agent	-	S	-
Call Appearance Call Handling	-	-	SN05
Call Busy Intragroup or Channel Bus Interface	S	S	SN05
Call Covering	-	SN05	-
Call Forward / Interface Busy	-	-	SN05
Call Forward Fraud Prevention Override	S	S	-
Call Forward Indication (CWT only prior to SN06)	SN06	-	-
Call Forward Timed for CFB	S	S	SN05
Call Forward Timed for CFD	S	S	SN05
Call Forwarding	S	-	-
Call Forwarding Busy	S	S	SN05
Call Forwarding Busy Internal Calls Only	S	S	SN05
Call Forwarding Busy Line	S	-	-
Call Forwarding Busy Unrestricted	S	S	SN05
Call Forwarding Do Not Answer (Business Sets)	S	S	SN05
Call Forwarding Do Not Answer (RES)	S	-	-

Service Support for ABI XPMs

Service	Non-PSET	PSET	BRI
Call Forwarding Do Not Answer for Hunt Group	S	S	-
Call Forwarding Do Not Answer Unrestricted	S	S	SN05
Call Forwarding Do Not Answer Variable Timer	S	S	SN05
Call Forwarding Fixed	S	S	SN05
Call Forwarding Group Do Not Answer	S	-	-
Call Forwarding Intragroup	S	S	SN05
Call Forwarding MADN Secondary Member	S	S	SN05
Call Forwarding on a Per Key Basis	-	S	-
Call Forwarding per DN per call type	-	-	SN05
Call Forwarding Remote Access	S	S	SN05
Call Forwarding Simultaneous/Screening	S	S	-
Call Forwarding Universal	S	S	SN05
Call Forwarding Usage Sensitive Denial	S	-	-
Call Forwarding Validation per DN call type	-	-	SN05
Call Hold	S	-	-
Call Logging	SN05	-	-
Call Management Group	SN05	-	-
Call Park	S	S	SN05
Call Pickup	S	S	SN05
Call Redirect	S	-	-
Call reference busy limit	-	-	SN05
Call Screening, Monitoring, and Intercept	SN06	SN06	-
Call Supervisor	-	S	-
Call Transfer	S	S	SN05
Call Transfer Warning	S	S	-
Call Waiting	S	S	SN05
Call Waiting Conference	S	-	-
Call Waiting Exempt	S	S	-
Call Waiting Intragroup	S	S	SN05
Call Waiting Originating	S	S	-

Service Support for ABI XPMs

Service	Non-PSET	PSET	BRI
Call Waiting Ringback	S	S	-
Called party address	-	-	SN05
Called Party Hold	SN05	-	-
Calling Id Delivery and Suppression Delivery	-	-	SN05
Calling Id Delivery and Suppression Suppression	-	-	SN05
Calling Line Identification	S	S	SN05
Calling Line Identification with Flash	S	-	-
Calling Name Delivery	S	-	SN05
Calling Name Delivery Blocking	S	-	SN06
Calling Number Delivery	S	-	SN05
Calling Number Delivery Blocking	S	-	-
Calling Number Delivery Blocking Override	-	SN05	SN05
Calling party address	-	-	SN05
Calling Party Identification	S	S	-
Cancel Call Waiting	S	S	-
Carrier Toll Denied	S	S	SN05
Circuit mode data	-	-	SN05
Circular Hunt	S	S	SN05
Common Control Switching Arrangement	S	-	-
Conference and call-to-call transfer	-	-	SN05
Conference Join	-	SN05	-
Control Multiple Call Forwarding	S	S	SN05
Controlled Interflow	-	S	-
Convert	S	-	-
Customer Originated Trace	S	S	SN05
Customer Originated Trace with AMA	S	S	-
Customer Data Change	SN06.2	SN06.2	-
Cutoff on Disconnect	S	-	-
Default Logical Terminal	-	-	SN05
Default bearer capability	-	-	SN05

Service Support for ABI XPMs

Service	Non-PSET	PSET	BRI
Default directory number	-	-	SN05
Denied Call Forwarding	S	S	SN05
Denied Incoming Calls	S	S	SN05
Denied Origination	S	S	SN05
Denied Termination	S	S	SN05
Deny Access to CLASS Features	S	-	-
Deny Call Redirect	S	-	-
Deny Call Waiting	S	-	-
Deny Call Waiting Conference	S	-	-
Deny CSMI	SN06	-	-
Deny In-Session Activation	S	S	SN06
Deny Suppressed Ringing Access	S	-	-
Deny three-way calling?usage sensitive	S	-	-
Detailed privacy change allowed recording	-	-	SN05
Dial Call Waiting	S	S	-
Dialable Directory Number	S	-	-
Dialed Number Identification Delivery	S	S	-
Digitone	S	-	-
Directed Call Park	S	S	SN05
Directed Call Pickup	S	S	SN05
Directed Call Pickup Barge-In	S	S	SN05
Directed Call Pickup Barge-In Exempt	S	S	SN05
Directed Call Pickup Exempt	S	S	SN05
Directory Number Hunt	S	S	SN05
Display	-	S	-
Display Agent Status	-	SN05	-
Display Option for Aries	-	S	-
Display Queue Status	-	SN05	-
Display Queue Threshold	-	SN05	-
Distinctive Ringing	S	S	SN05

Service Support for ABI XPMs

Service	Non-PSET	PSET	BRI
Distinctive Ringing/Call Waiting	S	S	-
Distributed Line Hunt	S	S	SN05
DN Sharing Multi Terminal	-	-	SN06
Do Not Disturb	S	S	SN05
Downloadable softkeys for ADSI set	SN05	-	-
Drop last add-on member	-	-	SN05
EKTS Hold	-	-	SN05
Electronic key Telephone System	-	-	SN05
Emergency Key	-	S	-
Enhanced WATS Access Line	S	-	-
Enhanced WATS Access Line for IntraLATA	S	-	-
Essential Line	S	S	SN05
Exclude External Calls from Call Forwarding	S	S	SN05
Exclude Intragroup Calls from Call Forwarding	S	S	SN05
Executive Busy Override	S	S	SN05
Executive Busy Override Exempt	S	S	SN05
Executive Message Waiting	S	S	-
Extended Call Management	S	S	-
Extension Bridging	S	-	-
Extension/Add-On	-	SN05	-
Fast Transfer	-	S	-
FAX-Thru Service	S	-	-
Feature Group	S	S	SN05
Feature Group S	S	S	-
Feature Keys	-	S	SN05
Flash Ignore	S	-	-
Flexible calling	-	-	SN05
Flexible calling deactivate conference facility	-	-	SN05
Forced Agent Availability	SN05	SN05	-
Free Number Terminating	S	S	SN05

Service Support for ABI XPMs

Service	Non-PSET	PSET	BRI
Full Carrier Toll Deny for International Carriers	S	S	-
Ground Loop Test Cancel	SN06.2	-	-
Ground Start	S	-	-
Group Intercom	S	S	SN05
Group Intercom All Calls	-	S	-
High layer compatibility	-	-	SN05
Hotel/Motel	S	-	-
In Call Service Deactivation	S	S	-
Inhibit Line Busy	S	S	SN05
Inhibit Ring Reminder	S	S	SN05
In-Session Activation	S	S	SN06
In-Session Activation Deactivation	S	S	SN06
Inspect Key	-	S	-
Intercom (Business Sets)	-	S	SN05
Intercom (Single-Party Revertive Calling)	S	-	-
InTER-LATA Full Carrier Toll Denied	S	S	SN05
Internal/External Call Forwarding Busy	S	S	SN05
Internal/External Call Forwarding Do Not Answer	S	S	SN05
International Primary Carrier	S	S	SN05
Intra-LATA Full Carrier Toll Denied	S	S	SN05
IntraLATA PIC	S	S	SN05
ISDN Bearer Capibility Routing	=	-	SN05
ISDN service recording recording in AMA	-	-	SN05
Key Set Music on Hold	-	S	SN06
Key Short Hunt	-	S	SN05
Last Number Redial	S	S	SN05
Last Number Redial Associated with Set	-	S	SN05
Leave Message	-	S	SN05
Line Music on Hold	S	S	SN06
Line of Business	-	S	-

Service Support for ABI XPMs

Service	Non-PSET	PSET	BRI
Line Overflow to DN	S	S	SN05
Line Overflow to Route	S	S	SN05
Line Study	S	S	SN05
Local Call Detail Recording	S	S	SN05
Local Number Portability Test	S	-	-
Local Service Provider Account Owner	S	-	SN05
Local Service Provider Switch Owner	S	-	SN05
Long Distance Signal Activate	S	-	-
Long Distance Signal Option	S	-	-
Long Distance Signal Ring	S	-	-
Long Distance Signal Tone	S	-	-
Lower Layer compatibility	-	-	SN05
M536 36-Button Add-On for Meridian M5000 Series	-	S	-
MADN (Multiple Appearance Directory Number)	S	S	SN05
MADN Ring Forwarding Manual	-	S	SN05
Make Set Busy	S	S	SN05
Make Set Busy Intragroup	S	S	SN05
Malicious Call Hold	-	S	SN05
MDN Lamp	S	S	-
MDN Member Display	S	S	SN05
MDN Member Name	S	S	SN05
MDN Release	S	S	SN05
MDN Ring Forwarding	S	S	SN05
Meridian Business Set Station Camp-On	-	S	-
Message Deactivation	SN05	SN05	SN06
Message Waiting	S	S	SN05
Message Waiting Indication	-	S	-
Message Waiting Query	-	S	-
Migrate	SN06	SN06	SN06
Multi-Line Hunt	S	S	SN05

Service Support for ABI XPMs

Service	Non-PSET	PSET	BRI
Multi-Party Bridging	S	-	-
Multi-point End Office Configuration	-	-	SN05
Mute	Legacy	S	-
Name Display	S	S	SN05
Negate Partial Ground Start Diagnostics	SN06.2	-	-
Network Facilities Access	SN05	SN05	-
Night Service	-	S	-
No Double Connect	SN06.2	SN06.2	SN06.2
No Hazard Test	SN06.2	-	-
No Line Insulation Test	SN06.2	-	-
No Cancel Call Waiting Without Call Waiting	S	-	-
No Deny	S	-	-
No Receiver Off-Hook Tone	S	S	SN06
Number of calls allowed	-	-	SN05
Number of DN appearances	-	-	SN05
Observe Agent	S	S	-
On Demand B-channel	-	-	SN06
Operator Number Identification	S	S	SN05
Originating Line Select	-	S	-
OUTWATS	S	-	-
Overflow Register (Software)	S	-	-
Overide Call Forward on Account Codes	S	-	-
Parameter Donwloading	-	-	SN05
Permanent Hold	S	-	SN05
Pilot DN Billing	S	S	-
Plug-Up (Trouble Intercept)	S	S	SN05
PORT	S	S	SN05
Power Features	-	S	-
Preferential Hunting	S	S	-
Prevent Delete Option	S	S	SN05

Service Support for ABI XPMs

Service	Non-PSET	PSET	BRI
Primary InterLATA Carrier	S	S	SN05
Privacy Change Allowed CIDS	-	-	SN05
Privacy for MADN	-	S	SN05
Privacy Release	-	S	SN05
Private Business Line	-	S	SN05
Protocol Version Control	-	-	SN05
Provide charge number for calling number	-	-	SN05
PVN Priority Line	S	S	SN06
Query Busy Station	-	S	-
Query Time and Date	-	S	-
Quick Conference Key	-	S	-
Rapid Messaging BRI	-	-	SN05
Rate Area	S	-	SN05
Reason Display	-	S	SN05
Received Digits Billing	S	S	-
Redirecting number delivery	-	-	SN05
Redirecting number pivacy for ISDN CFW	-	-	SN05
Remote Message Indicator	S	-	SN06
Remote Message Register for Local Calls	SN06	-	-
Remote Message Register for Toll Calls	SN06	-	-
Repeated Alert	-	S	-
Requested Suspension	S	S	SN05
Residential Call Hold	S	-	-
Restricted Sent Paid	S	S	SN05
Ring Again	S	S	SN05
SCWID with Disposition	S	-	-
Secondary Directory Number	S	-	-
Secondary Language	S	S	SN05
Security	S	S	SN05
Selective Call Acceptance	S	S	SN05

Service Support for ABI XPMs

Service	Non-PSET	PSET	BRI
Selective Call Forwarding	S	S	SN05
Selective Call Rejection	S	S	SN05
Series Completion	S	S	SN05
Service Group	S	S	SN05
Set Based Lamp Field	-	S	-
Set Model	S	S	-
Short Timed Release Disconnect	S	-	-
Simplified Message Desk Interface	S	S	-
Simultaneous Ringing	SN05	SN05	-
Single Line BRI	-	-	SN05
Single-line Queuing	-	S	-
Single-Line Variety Package	S	-	-
SMDI-SMDI Calling Number Delivery	S	-	-
Special Billing	S	S	SN05
Special Delivery Service	S	S	SN06
Special Delivery Service Deny	S	S	SN06
Speed Calling Long	S	S	SN05
Speed Calling Long List L30	S	-	-
Speed Calling Long List L50	S	-	-
Speed Calling Short	S	S	SN05
Speed Calling Short List	S	-	-
Speed Calling User	S	S	SN05
Spontaneous Call Waiting Id	S	-	-
Station Controlled Conference	S	S	SN05
Station Message Detail Recording	S	S	SN05
Station Origination Restriction	S	S	-
Station Origination Restrictions Controller	S	S	-
Station Specific Authorization Codes	S	S	SN05
Subscriber Activated Call Blocking	S	S	-
Subscriber Line Usage	S	S	SN05

Service Support for ABI XPMs

Service	Non-PSET	PSET	BRI
Subscriber Programmable Ringing	S	-	-
Supervisor	S	S	-
Suppress Line Identification Information	S	S	SN05
Suppressed Ringing Access	S	-	-
Suspended Service	S	S	SN05
Talking Call Waiting	SN05	-	-
Terminal Limit	-	-	SN05
Terminal Service Profile Identifier	-	-	SN05
Terminating Billing Option	S	S	SN05
Terminating DN Billing	S	S	-
Terminating Fault Option	S	S	SN06
Terminating Line Select	-	S	-
Terminator Billing Option on Hunt Group	S	-	-
Three-Way Calling	S	S	-
Three-Way Calling Public Announcement	S	S	-
Toll Denial	S	-	-
Toll Diversion	SN05	-	-
Toll Essential	S	S	SN05
Transfer a conference call	-	-	SN05
Translations Plan	S	-	SN05
Uniform Call Distribution	S	S	-
Uniform Call Distribution Logged In Indication	S	-	-
Uniform Call Distribution Login	-	S	-
Voice Mail Easy Access Deny	S	-	SN05
Voice Mail Easy Access Directory Number	S	-	SN05
Voice band information	-	-	SN05
Wake up call ring timeout	S	S	-
Wake-Up Call	S	-	-
Warm Line	S	S	SN05

The following list of services are only supported on Legacy Lines (these services are supported when the associated line is served by a DMS-100 Family host or remote line access peripheral subtended from the CS2000 ENET).

Legacy Only Services

Service	Line Option	Comment
1-Meg Modem Service	1MMS	
22-Key Add-On for Aries	M522, M0022	
Asymmetric Digital Subscriber Loop	ADSL	Associated with legacy-side ADSL service Hybrid Centrex groups planned for support in SN05. Allows the console to be legacy served while other group members are on legacy and/or MG9000 lines.
Attendant console and service set	-	
Automatic Identification of Outward Dialing	AIOD	
Automatic Location Identification	ALI	
BRI Caller ID	BRICLID	
Circle Digit	CD0-CD9	Option associated with 8-party and 10-party lines
Closed User Group	CUG	Option associated with DataPath service
Critical Path REStoration	CPR	Option associated with DataPath service
Deny Call Transfer Fraud Prevention	DENYCTFP	
Disconnect Timeout	DISCTO	Option associated with DataPath service
Data Unit Profile	DPR	Option associated with DataPath service
Emergency Service Line	ESL	
Fire Reporting System (Orig and Term)	FRO	
Fire Reporting System (Termination Only)	FRS	
Frequency Selective Ringing	FSR	Associated with multi-party line service
G-Lite	GLITE	
Hands-Free	HF	Option for Nortel proprietary ISDN sets (MD)
Hands-Free Mute	HFMUTE	Option for Nortel proprietary ISDN sets (MD)
Inhibit Make Busy	IMB	
Line Appearance on Digital Trunk PSAP	LDTPSAP	
Line-Ended Public Safety Answering Point	LINEPSAP	
Make Busy Key	MBK	

Legacy Only Services

Service	Line Option	Comment
Man Machine Interface	MMI	Support for Nortel P-Phone Power Feature test tools
Manual Line	MAN	Automatic Line service on MG9000 is a suitable substitute
Mute (non-Pset)	MUTE	
Multiple Position Hunt	MPH	
Network Resource Selector	NRS	Option associated with DataPath service
Night Service Directory Number	NSDN	
Overflow Register (Hardware)	OFR	
Packet mode data	PMD	
Random Make Busy	RMB	
Remote Message Register (SD Point)	RMS	
Remote Meter Pulsing	RMP	
Reverse Coin Disposal	RCD	
Softkey	SOFTKEY	Option for Nortel proprietary ISDN sets (MD)
Soft Key Display	SKDISP	Option for Nortel proprietary ISDN sets (MD)
Stop Hunt	SHU	
Subscriber Loop Carrier	SLC	Identifies coin lines resident on a SLC-96 remote
Terminal Management Environment	TME	Support for Nortel P-Phone Power Feature test tools
Uniform Call Distribution Signal Distributor	UCDSD	

Support of ABI RCC Trunks

Also, as part of this activity, trunks will be supported off of RCC/RCC2s subtending any of

- LGC
- LTC

The following trunk types will be supported off of an RCC/RCC2:

- TI
- TO
- T2

- IBNTI
- IBNTO
- IBNT2
- PBX
- PX
- ES

As well, intra-switching will be supported on theseRCC trunks.

Trunk Services Support

All Trunk services that are currently supported on the listed trunk types in the preceding section, such as ANI outpulsing and operator signals on ES trunks (rering, etc.), will continue to be supported when those trunks are hosted off of an ABI RCC.

Hardware Requirements or Dependencies

There is no hardware impact associated with this activity.

Software Requirements or Dependencies

This activity will be implemented in the SN06.2 stream in the CM, but due to customer requirements will be patched back into the SN06 CM release (officially this is called the SN06.2 release).

There are several other acitivies that are required to complete the support of the additional peripheral types. They include A00001979 - ABI Expansion GWC, A00001909 - ABI Trunk Support for RCC, and A00001936 - MG9K ABI Expansion - Node & Link Mtc.

Limitations and restrictions

The following restrictions exist on the new External XPM types added by this activity (it should be noted that all of these restrictions apply to the existing External XPMs as well as the new XPMs and are not new in SN06.2):

- Special Connections are not supported on any External XPM.
- External XPMs do not support broadcast loading or patching, although they do support parallel loading. Broadcast loading and patching are not supported due to the lack of support for IPMLs between the External XPMs.
- The MONTALK LINK command of the Trunk Test Position (TTP) is NOT supported on ABI RCC Trunks. When the MONTALK level is entered with an ABI RCC Trunk posted at the TTP, the MONTALK LISTEN mode is immediately entered. A conference resource is acquired, a two-way connection between the ABI RCC Trunk and conference circuit is made, a

two-way connection between the other party in the call and the conference circuit is made, and a one-way listen-only connection is made between the HSET and the conference circuit (i.e. normal MONTALK LISTEN operations). MONTALK TALK is supported on ABI RCC Trunks.

- The T108 and BERT tests of the TTP level of the MAP are supported for ABI RCC Trunks. When the trunk posted at the TTP connects to an ABI RCC Trunk (incoming or two-way), then the loop-back connection will be made at the ABI card of the MG9K Gateway.

Interactions

An MG9000 entering ESA will cause an RCC subtending an ABI-base XPM off the MG9000 to enter into ESA as well. When the MG9000 exits ESA and the C-side links come back into service, then the RCC will also exit ESA.

Applicable customer facing sections

Fault Management

Logs _____

Alarms _____

Configuration

Data Schema ___X__

User Interface ___X__

Element Management _____

Security _____

Service Order _____

Office Parameters _____

Accounting (includes AMA billing) _____

Performance (includes operational measurements) _____

Indicate with an X if you are completing the sections of the DDOC listed below. Indicate with “N/A” if these sections do not apply to this functionality.

Realtime __X___

Engineering Information __X___

Configuration for A00001847

This section documents the changes in the Data Schema introduced by activity A00001847. Specifically there are changes to the behavior of table LTCINV that are documented.

Note: The FN/CN sections for activity A00001847 include the related information for a number of activities due to the close association of all these activities. The activities that are included in this group are:

- A00001847 - ABI Expansion Datafill
- A00001909 - ABI Trunk Support for RCC
- A00001936 - MG9K ABI Expansion - Node and Link Mtc

Hardware and Software Requirements

Not Required

Initial Configuration

Not Required

Office/Subnet parameters (OP/SP) (CM & SESM)

Not Required

Upgrade Impact

Not Required

Data schema (DS) (CM, MIBS, RDB)

New/modified tables, MIBs, or Database Schema

Table/MIB name	NEW/CHANGED/ or DELETED/	Table Control (NEW/ OLD/UNCHANGED)
LTCINV	CHANGED	UNCHANGED (NEW)

Table/MIB/Remote Database Schema information

Name: LTCINV

Full Table Name: Line/Trunk Controller Inventory Table

Functional description

Table LTCINV lists all the line and trunk controlling peripherals that were historically directly connected to the ENET (although this is no longer the case as of SN05 with the additional of the EXTDS512 optional field). Tuples are added to this table for the following peripheral types (this is not an exhaustive list and only includes those which are relevant to this activity):

1. LGC/LGCI (although no distinction is made in the table itself)
2. LTC/LTCI (although no distinction is made in the table itself)
3. SMA2

Prior to this activity, the EXTDS512 optional attribute was only allowed to be provisioned on the LGCI and SMA2 types of peripherals. After this activity the entire peripheral list shown above will be allowed to have the EXTDS512 optional attribute assigned to them.

There is no change in the format of the table or in the format of the optional field, all that has been changed is the types of peripherals that are allowed to have the field provisioned. All other types of peripherals that can be added in table LTCINV will continue to receive an error message if the EXTDS512 field is provisioned.

> ***Note:*** Please refer to the documentation for SN05 activity A59038361 for more detailed information of the initial EXTDS512 design.

Usage sequence and implications (CM Only)

Current datafill order unchanged (SERVRINV must be datafilled prior to adding EXTDS512 peripherals in LTCINV).

Size

Table size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
LTCINV	Unchanged by this activity.	Unchanged by this activity.	All existing tuples, regardless of whether the EXTDS512 attribute is provisioned or not, have the physical space allocated for the information contained in this field; therefore, there is no memory impact from this activity as the memory is already allocated for all tuples in this table.

Fields/OIDs

The following table lists fields for LTCINV.

CSLNKTAB = “$”

OPT_ATTR = EXTDS512

When provisioning an external (non-ENET hosted) peripheral in LTCINV the EXTDS512 OPT_ATTR must be added. This optional attribute includes the IP

Address of the DS512 (ABI) card in the MG9000 and Gateway Controller host name (as provisioned in table SERVRINV).

It should be noted that the CSLNKTAB portion of the tuple is not datafilled when adding external XPMs. The content of the CSLNKTAB field is automatically generated by the LTCINV code and no longer refers to real C-side links to the ENET. A "$" should be entered when prompted for the CSLNKTAB entry (this is unchanged from SN05 behavior).

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
CSLNKTAB	Changed	Unchanged from SN05	None	For External XPMs this field no longer contains real C-side ENET links. Instead, "$" should be entered when prompted for this field. With this activity you should now enter "$" when provisioning External LTC/LTCI/LGC tuples in LTCINV.
OPT_ATTR (EXTDS512)	Changed	Unchanged from SN05	Unchanged from SN05	When datafilling external LTC/LTCI/LGC peripherals you should add this field and enter the IP address of the DS512 card in the MG9000 and the name of the host GWC (from table SERVRINV).

Datafill example

The following example shows sample datafill for table LTCINV. The changes from standard ENET-based peripheral datafill is highlighted with **bold** characters.

```
TABLE: LTCINV
>add
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
>y
LTCNAME:
>ltc 5
ADNUM:
>1001
FRTYPE:
>ltei
```

```
FRNO:
>0
SHPOS:
>32
FLOOR:
>1
ROW:
>d
FRPOS:
>32
EQPEC:
>6X02NA
LOAD:
>QLI18AH
EXECTAB:
>POTS   POTSEX
EXECTAB:
>KEYSET   KSETEX
EXECTAB:
>$
CSLNKTAB:
>$
OPTCARD:
>UTR15
OPTCARD:
>MSG6X69
OPTCARD:
>CMR13
CMRLOAD:
>CMR10A
OPTCARD:
>ISP
SLOT_NUMBER:
>16
OPTCARD:
>$
TONESET:
>northaa
PROCPEC:
>SX05AA $ SX05AA $
EXTLINKS:
>0
E2LOAD:
>SXFWAJ01
OPT_ATTR:
>EXTDS512
IPADDR:
>192   2   7  69
GWC_HOST:
>GWC 3
OPT_ATTR:
>$
PEC6X40:
>6X40FC
EXTSHELF: N
>
```

The following shows the range values for the OPTATTR field of table LTCINV. Note that this has not changed from the SN05 version.

```
TABLE: LTCINV
```

```
>ran
 1 LTCNAME           XPM_KEY
 2 ADNUM             ADMIN_NUMBER
 3 FRTYPE            FRAME_NAME
 4 FRNO              FRAME_NO
 5 SHPOS             SHELF_POS
 6 FLOOR             FLOOR_POS
 7 ROW               ROW_POS
 8 FRPOS             FRAME_POS
 9 EQPEC             PEC
10 LOAD              NPMLOAD_INFO
11 EXECTAB           TERM_EXEC_TC_TAB
12 CSLNKTAB          XPM_NET_CSLINK_TC_TAB
13 OPTCARD           EXT_OPT_CARD_TC_TAB
14 TONESET           TONE_SET_TYPE
15 PROCPEC           XPM_PEC_AREA_TAB
16 EXTLINKS          NUM_EXT_LNKS_RANGE
17 E2LOAD            NPMLOAD_INFO
18 OPTATTR           LTCINV_OPT_ATTR_VECTOR
19 PEC6X40           NT_6X40_PEC
20 EXTINFO           EXTENSION_INFO
LOGICAL TUPLE TYPE: LTC_LOGTUPLE
>ran 18
18 OPTATTR           LTCINV_OPT_ATTR_VECTOR
TYPE IS LTCINV_OPT_ATTR_VECTOR VECTOR OF UP TO 12 MULTIPLES WITH
        OPT_ATTR               LTCINV_OPT_ATTR REFINEMENTS:
        {EXTDS512}             MULTIPLE WITH
             IPADDR            TABLE OF 4 {0 TO 255}'S
             GWC_HOST          MULTIPLE WITH
                  PMTYPE       PM_TYPE
                  PMNO         {0 TO 255}
        OTHERWISE              LTCINV_OPT_ATTR_NIL_DATA
>
```

Table release history update

The following changes were made:

1. EXTDS512 OPT_ATTR is now allowed for LTC/LTCI/LGC peripheral types.
2. "$" should be entered in the CSLNKTAB field for external XPMs (the C-side link information will be generated automatically).

Supplementary information

Limitations:

- The CSLNKTAB and EXTDS512 optional attribute must align in each tuple in LTCINV. This means that if EXTDS512 exists then a "$" must have been entered in the CSLNKTAB field. A tuple must be either ENET based on External but not a combination of both.
- Multiple tuples of each type (ENET and External) can exist in the table at the same time.

- The EXTDS512 optional attribute can be provisioned only against LTC, LGC, LTCI, LGCI, and SMA2 peripheral types. Attempting to add the optional attribute to other peripheral types will result in the tuple failing verification and an error will be displayed.
- The derived CSLNKTAB entries for External XPMs cannot be changed by the user.
- The ability to change the Host Gateway Controller for External XPMs is not allowed.
- The EXTDS512 optional attribute cannot be added to an existing tuple using the change command in table control, nor can it be removed using change.

Translation verification other tools

Output from the check all table control command and tabaudit will be included at a later date, but no issues are expected with these commands as the changes to LTCINV are minor.

Service Orders (SO) (CM & SESM)

Not Required

Software optionality control (SOC)

Not Required

Element Management

Not Required

Command interface changes

Directory: MAPCI;MTC;PM

Directory description

No new commands or paramenters have been introduced; however, due to the ABI supported host XPMs in this feature, certain maintenance functions and states will be supported for the ABI host XPMs. When an ABI peripheral (LTC, LTCI, LGC, LGCI, or SMA2) subtending a GWC is posted, the display looks just like it did for the same peripheral posted as a direct HOST peripheral (legacy).

Accessing directory: PM

Access to directory or MAP level and return to CI

The updated displays are accessed through the PM (peripherals) level of the maintenance (MTC) level of the DMS core command interface (MAPCI).

Command: TRNSL C

Command type: Listed MENU

Command target: All

But will only appear for Succession ABI peripherals.

Command availability: RES

Command description

TRNSL C (translate c-side links) is not a new command, however when an LTC, LTCI, LGC, LGCI, or SMA2 subtends a GWC (gateway controller), the TRNSL C will display the c-side links of the peripheral as connecting to a GWC.

Each c-side link will simply reflect the name of the gateway controller to which it subtends. Link 0, 1, 4 and 5 (the message links) reflect the actual status of the c-side links. Currently, the speech links have the following string hardcoded as their status "**;Cap S;Status:OK".

It is important to note that TRNSL C indicates only which GWC supertends the ABI peripheral, it does not display the MG9K or ABI card that is in use for the messaging path.

Command syntax

TRNSL C command parameters and variables

Command	Parameters and variables
TRNSL C	unchanged
Parameters and variables	unchanged

Qualifications and warnings

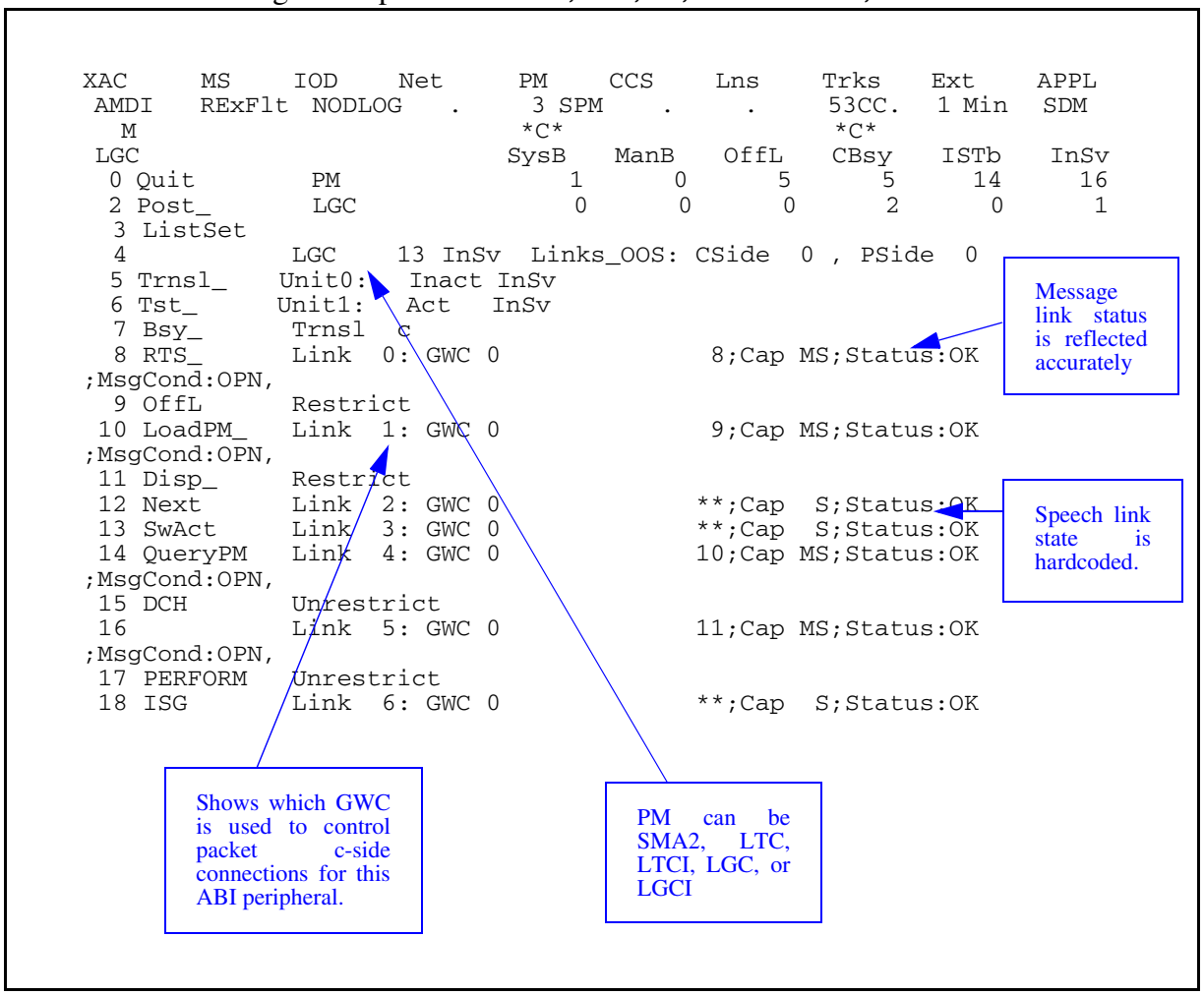
The TRNSL C command will provide the user with the following additional information when a GWC is involved:

"Please refer to the DS512 Interface EM for all link maintenance commands."

It should be noted that maintenance actions on the c-side links (e.g. bsy link 0, rts link 1, etc.) can only be performed on the c-side message links for ABI peripherals.

Example

Usage example for **"MAPCI;MTC;PM; POST <XPM>;TRNSL C " command**



Security

Not Required

Configuration Walkthrough

Not Required

Product = CS 2000

A00001898 -- ABI RIMM Support (UA-AAL1)

Functional Description

This activity adds support for hosting a Remote Maintenance Module (RMM) off of ABI-based XPMs, specifically the LTC, LTCI, LGC, LGCI, and SMA2. The need for an RMM hosted off peripherals other than the RCC/RCC2 type peripheral has come about due to the office collapse scenarios in which central office based XPMs such as LTCs, LGCs, and SMA2s are no longer co-resident with the Call Server. In these collapsed office sites there is a need to perform metallic line testing on these peripherals, but the existing MTM test resources are no longer available (MTMs must be hosted off of the ENET and hence cannot be present in the collapsed sites as there is no longer an ENET in these sites).

To fill this gap the RMM will be used for test access, but it needs to be reconfigured to be properly supported in the new environment where it is not part of the RSC/RSCS setup. The RMM uses DS30A links to connect to it's host peripheral, which is perfectly fine for the LTC/LGC type XPMs, but is a problem for the SMA2. The SMA2, prior to this activity, did not support a DS30A type interface on its P-side. With this activity we will add the capability for the SMA2 to host DS30A based subtending RMMs. This means that core provisioning, core maintenance, and the SMA2 load itself need to be altered to support the new DS30A interface.

Another issue with the RMM involves the hardware configuration. Specifically, the RMM has in the past always been sold by Nortel as a component of the RSC/RSCS, not as a stand-alone piece of hardware. For this activity the RMM needs to be supported in a new frame, and new cabling needs to be configured to allow it to be connected to the new host peripherals. This new hardware setup needs to be documented and made available to the customer to be installed in the collapsed office sites.

Hardware Requirements or Dependencies

There are two new hardware requirements for this project, the RMM frame and the DS30A card and cable to the RMM.

RMM Frames

The RMM will be housed in a MIS frame. This is an existing frametype, but prior to this feature, was not used to house RMM shelves. This frame type will be used regardless of whether the RMM subtends the SMA2 or LTC/LGC.

RMM Circuit Packs

The following circuits packs will be supported in an RMM in the ABI configuration. . The pack are:

- 0X10: Scan Detector
- 2X11: MTU, (Mult-Line Test Unit)
- 2X57: Signal Distribution Card
- 2X90: Datafilled as a Montalk or NTT (No Test Trunk)

- 3Z09: MTA (Metallic Test Access)

DS30A Cards and Cables

An RMM requires a DS30A interface to its host XPM. The SMA2 requires a MX74 DS30A card to interface the RMM. Prior to this feature, a DS30A card could not be provisioned on an SMA2 in LTCPSINV.

In addition a new cable is required to interface from the MX74 on the SMA2 to the RMM.

The LGC/LTC XPMs already supported a DS30A interface (6X48 card) prior to this feature. This card will be used for interfacing the RMM, but a new cable is required to connect from the LTC/LGC to the RMM.

Software Requirements or Dependencies

This activity will be implemented in the SN07 stream in the CM, but due to customer requirements will be patched back into the SN06 CM release (officially this is called the SN06.2 release).

There are several other acitivies that are required to complete the support of the RMM. They include A00001847 - ABI Expansion, and A00001936 - MG9K ABI Expansion - Node & Link Mtc.

Limitations and restrictions

The following limitations and restrictions exist for this activity:

- The RMM will only be supported on the LGC/LTC , and SMA2. The RMM will not be supported on the SMS in SN06.2.
- Only a single RMM will be supported hosted off an SMA2. This is due to the provisioning restriction whereby only a single DS30A link is allowed on the P-side of the SMA2.
- Only the circuits listed in section “ RMM Circuit Packs” on page 172 are supported on an ABI RMM. No effort has been made to prevent the datafill of other circuits packs, but they will not be supported.
- The RMM Selector field in table RMMINV will be set to RMMLTC for both LTCs and LGCs. This is done because the two types of peripherals are treated exactly the same (and are essentially alike from a hardware perspective) in their handling.

Interactions

None

Applicable customer facing sections

Fault Management

Logs

Alarms _____

Configuration

Data Schema __X___

User Interface __X__

Element Management _____

Security _____

Service Order _____

Office Parameters _____

Accounting (includes AMA billing) _____

Performance (includes operational measurements) _____

Indicate with an X if you are completing the sections of the DDOC listed below. Indicate with "N/A" if these sections do not apply to this functionality.

Realtime ___X__

Engineering Information ___X__

Configuration for A00001898

This section documents the configuration-related changes for activity A00001898. Specifically, there are changes in the provisioning system (as captured in the Data Schema section) as well as changes in the maintenance system (as captured in the Command Interface section). All sections that are not relevant for this activity are tagged as Not Applicable.

Hardware and Software Requirements

- The RMM has been installed
- A DS30A card has been inserted into the host peripheral (LTC, LGC, or SMA2) in the appropriate slot
- The host XPM and the RMM are connected via a DS30A cable
- The software for this activity is installed in the XACore
- The required SMA2 load (if the RMM is connected to an SMA2) is installed in the XPM

Initial Configuration

Not Applicable

Office/Subnet parameters (OP/SP) (CM & SESM)

Not Applicable

Upgrade Impact

The RMM load is unchanged by this activity and therefore is not required to be upgraded from the currently available load. All other loads are upgraded in the standard fashion and the upgrade procedure is not impacted by this activity.

The feature impacts Core, GWC, and XPM software. The standard DMS processes for upgrade order applies to ABI XPMs. With regard to GWCs and XPMs, the XPMs are upgraded first, followed by the GWCs.

Data schema (DS) (CM, MIBS, RDB)

New/modified tables, MIBs, or Database Schema

Table/MIB name	NEW/CHANGED/ or DELETED/	Table Control (NEW/ OLD/UNCHANGED)
TABLE LTCPSINV	Changed	Unchanged
TABLE RMMINV	Changed	Unchanged
TABLE LTCINV	Changed	Unchanged

Table/MIB/Remote Database Schema information

Name: TABLE LTCPSINV

Long Table Name: Line Trunk Controller P-Side Inventory

Functional description

Table LTCPSINV lists all the P-Side links for each of the XPMs datafilled in table LTCINV. A tuple in this table is automatically created when a tuple is added in LTCINV, and is only modified (tuples are not manually added or deleted in this table) by the craftsperson to indicate what types of links are available on the P-Side of the XPM.

This activity modifies the handling of the P-Side links for the SMA2 peripheral type. All other peripheral types are unaffected by this activity.

Prior to this activity the SMA2 was only allowed to have DS-1 or DCH type P-Side devices. With the implementation of this activity support is provided for a single DS30A P-Side link on the SMA2. This is specifically being added to allow the SMA2 to have an RMM subtending it. The RMM is connected to it’s host peripheral via a single DS30A link.

The format of LTCPSINV in not changed, all that is done is to allow the provisioning of a DS30A type link on the SMA2.

Usage sequence and implications (CM Only)

Current datafill order unchanged.

Size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
LTCPSINV	Unchanged by this activity	Unchanged by this activity	Unchanged by this activity.

Fields/OIDs

The following table lists fields/OIDs for LTCPSINV.

EXP_TAB = "<LINK NUMBER (0-53)> DS30A"

When modifying the LTCPSINV entry for the SMA2 the EXP_TAB entry is changed to be a P-Side type of DS30A from NILTYPE.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
EXP_TAB	Changed	Unchanged from the existing set of P-side types.	DS30A	EXP_TAB refers to the expanded table of P-side links that is available for CPM-based peripherals (of which the SMA2 is one). The EXP_TAB allows the entry of up to 54 P-side links on the XPM, which is what is available when the SMA2 is setup with an extension shelf. This activity adds the capability to add a DS30A link on the P-side of the SMA2 XPM, specifically on link 52 only.

Datafill example

The following example shows sample datafill for table LTCPSINV. The changes from the prior allowed SMA2 peripheral datafill is highlighted with **bold** characters. This example is for an SMA2 without at extension shelf, but the DS30A provisioning is identical (ie: link 52 is always used) for a single shelf system.

```
CI:
>
>table ltcpsinv
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: LTCPSINV
```

```
>pos sma2 3
      SMA2   3
          Y (0 DS1 DEFAULT N) (1 DS1 DEFAULT N)
          (2 DS1 DEFAULT N) (3 DS1 DEFAULT N) (4 NILTYPE ) (5 NILTYPE )
          (6 NILTYPE ) (7 NILTYPE ) (8 NILTYPE ) (9 NILTYPE ) (10 NILTYPE )
          (11 NILTYPE ) (12 NILTYPE ) (13 NILTYPE ) (14 NILTYPE )
          (15 NILTYPE ) (16 NILTYPE ) (17 NILTYPE ) (18 NILTYPE )
          (19 NILTYPE ) (20 NILTYPE ) (21 NILTYPE ) (22 NILTYPE )
          (23 NILTYPE ) (24 NILTYPE ) (25 NILTYPE ) (26 NILTYPE )
          (27 NILTYPE ) (28 NILTYPE ) (29 NILTYPE ) (30 NILTYPE )
          (31 NILTYPE ) (32 NILTYPE ) (33 NILTYPE ) (34 NILTYPE )
          (35 NILTYPE ) (36 NILTYPE ) (37 NILTYPE ) (38 NILTYPE )
          (39 NILTYPE ) (40 NILTYPE ) (41 NILTYPE ) (42 NILTYPE )
          (43 NILTYPE ) (44 NILTYPE ) (45 NILTYPE ) (46 NILTYPE )
          (47 NILTYPE ) (48 NILTYPE ) (49 NILTYPE ) (50 NILTYPE )
          (51 NILTYPE ) (52 NILTYPE ) (53 NILTYPE ) $
>change
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
>Y
EXP_PSIDES: Y
>
EXP_TAB: 0     DS1          DEFAULT N
>
EXP_TAB: 1     DS1          DEFAULT N
>
EXP_TAB: 2     DS1          DEFAULT N
>
EXP_TAB: 3     DS1          DEFAULT N
>
EXP_TAB: 4 NILTYPE
>
EXP_TAB: 5 NILTYPE
>
EXP_TAB: 6 NILTYPE
>
EXP_TAB: 7 NILTYPE
>
EXP_TAB: 8 NILTYPE
>
EXP_TAB: 9 NILTYPE
>
EXP_TAB: 10 NILTYPE
>
EXP_TAB: 11 NILTYPE
>
EXP_TAB: 12 NILTYPE
>
EXP_TAB: 13 NILTYPE
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EXP_TAB: 14 NILTYPE
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EXP_TAB: 15 NILTYPE
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EXP_TAB: 16 NILTYPE
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EXP_TAB: 17 NILTYPE
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EXP_TAB: 18 NILTYPE
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EXP_TAB: 19 NILTYPE
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EXP_TAB: 20 NILTYPE
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```

```
EXP_TAB: 21 NILTYPE
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EXP_TAB: 22 NILTYPE
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EXP_TAB: 23 NILTYPE
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EXP_TAB: 24 NILTYPE
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EXP_TAB: 25 NILTYPE
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EXP_TAB: 26 NILTYPE
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EXP_TAB: 27 NILTYPE
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EXP_TAB: 28 NILTYPE
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EXP_TAB: 29 NILTYPE
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EXP_TAB: 30 NILTYPE
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EXP_TAB: 31 NILTYPE
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EXP_TAB: 32 NILTYPE
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EXP_TAB: 33 NILTYPE
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EXP_TAB: 34 NILTYPE
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EXP_TAB: 35 NILTYPE
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EXP_TAB: 36 NILTYPE
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EXP_TAB: 37 NILTYPE
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EXP_TAB: 44 NILTYPE
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EXP_TAB: 45 NILTYPE
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EXP_TAB: 46 NILTYPE
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EXP_TAB: 47 NILTYPE
>
EXP_TAB: 48 NILTYPE
>
EXP_TAB: 49 NILTYPE
>
EXP_TAB: 50 NILTYPE
>
EXP_TAB: 51 NILTYPE
>
EXP_TAB: 52 NILTYPE
>52 DS30A
```

```
EXP_TAB: 53 NILTYPE
>
TUPLE TO BE CHANGED:
      SMA2   3
          Y (0 DS1 DEFAULT N) (1 DS1 DEFAULT N)
          (2 DS1 DEFAULT N) (3 DS1 DEFAULT N) (4 NILTYPE ) (5 NILTYPE )
          (6 NILTYPE ) (7 NILTYPE ) (8 NILTYPE) (9 NILTYPE ) (10 NILTYPE )
          (11 NILTYPE ) (12 NILTYPE ) (13 NILTYPE ) (14 NILTYPE )
          (15 NILTYPE ) (16 NILTYPE ) (17 NILTYPE ) (18 NILTYPE )
          (19 NILTYPE ) (20 NILTYPE ) (21 NILTYPE ) (22 NILTYPE )
          (23 NILTYPE ) (24 NILTYPE ) (25 NILTYPE ) (26 NILTYPE )
          (27 NILTYPE ) (28 NILTYPE ) (29 NILTYPE ) (30 NILTYPE )
          (31 NILTYPE ) (32 NILTYPE ) (33 NILTYPE ) (34 NILTYPE )
          (35 NILTYPE ) (36 NILTYPE ) (37 NILTYPE ) (38 NILTYPE )
          (39 NILTYPE ) (40 NILTYPE ) (41 NILTYPE ) (42 NILTYPE )
          (43 NILTYPE ) (44 NILTYPE ) (45 NILTYPE ) (46 NILTYPE )
          (47 NILTYPE ) (48 NILTYPE ) (49 NILTYPE ) (50 NILTYPE )
          (51 NILTYPE ) (52 DS30A ) (53 NILTYPE ) $
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
>Y
SMA2 3 UNIT 1 is not in service and not accepting static data.
Static data will be sent on next RTS.
WARNING: Static data needs to be updated for:
         SMA2 3
         BSY the INACTive unit, RTS and SWACT the peripheral.
TUPLE CHANGED
JOURNAL FILE INACTIVE
>
```

Table release history update

The following changes have been made to table LTCPSINV in this release:

A single DS30A type P-side link can be added to SMA2 peripherals on link 52.

Supplementary information

There are a number of restrictions on how the provisioning of the DS30A link on the SMA2 can be done. The following list defines the set of restrictions.

> ***Note:*** DS30A provisioning, and any associated restrictions, for LTCs and LGCs have not been changed and are not impacted by the restrictions listed here. These restrictions apply to the SMA2 only.

Limitations:

- There can be a maximum of 1 P-side DS30A link on an SMA2, and hence a maximum of 1 RMM subtending an SMA2.
- The DS30A uses link 52 regardless of whether this is a single or extension shelf system. Prior to this activity link 52 was not used by the SMA2 and therefore using this link does not impact any existing configurations. Any attempt to add the DS30A on a link other than 52 will result in an error.
- The DS30A cards can only be located in slots 13 and 15 of the main shelf of an SMA2 system (regardless of whether the system has an extension shelf or not). Due to a backplane restriction the cards will not fit into any

other slot in the main shelf. The DS30A cards cannot be placed into any slot in the extension shelf.

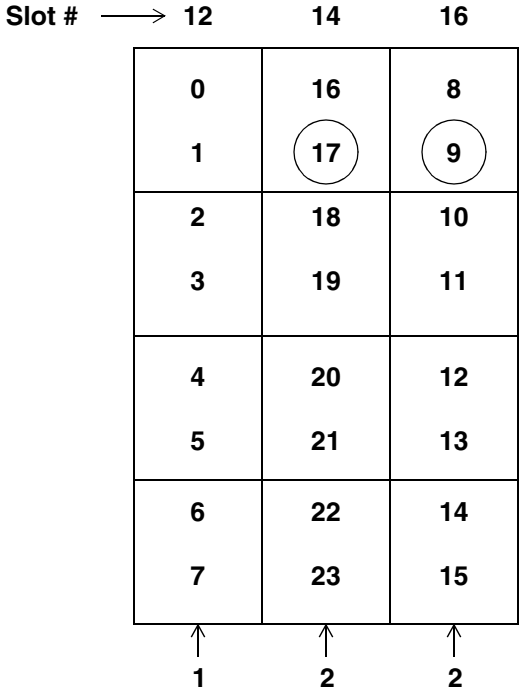
Note: Slots 13 and 15 of existing SMA2 systems will have a 0X50AA filler cards in them prior to this activity. These slots were previously unused by the SMA2 as there was no supported card that fit into these slots. To add the MX74 DS30A cards to an SMA2 these filler cards will need to be removed to allow installation.

Note: Two DS30A cards need to be installed into the SMA2 to ensure that the DS30A link is kept in service at all times as one card serves each unit of the XPM. Port 52 only terminates on the back of slot 15 in the SMA2 due to the hardware design of the shelf, but the two DS30A cards are linked on the backplane of the shelf to allow either card to communicate on port 52 depending on which card is active.

- There are no restrictions on the provisioning of DS-1s/DCHs and the DS30A link in an SMA2 as the DS30A uses a link number that is not used by any of the other type of p-side links.

"SMA2 Existing Slot and Link Usage Restrictions - Main Shelf" on page 181 and "SMA2 Existing Slot and Link Usage Restrictions - Extension Shelf" on page 182 show the existing slot and link restrictions for the SMA2. These diagrams are duplicates of those found in the existing SMA2 (ESMA) Maintenance NTP (297-8263-550) in the "SMA2 Hardware" Chapter. They are provided here for reference only. The NTP diagrams are the master copies of these and take precedence over these versions.

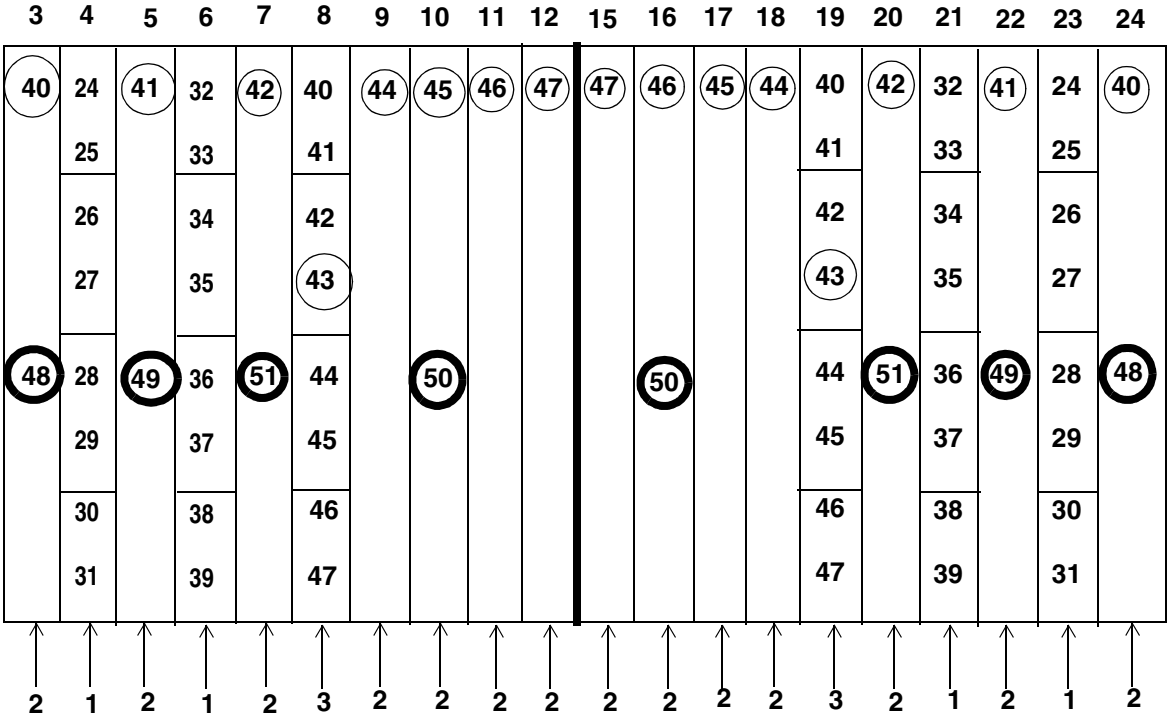
SMA2 Existing Slot and Link Usage Restrictions - Main Shelf



The bottom numbers indicate the type of cards that can be contained in the slot:
1 = DS-1
2 = DS-1 or DCH

NOTE: The allowed link numbers for DCH are circled.

SMA2 Existing Slot and Link Usage Restrictions - Extension Shelf



The bottom numbers indicate the type of cards that can be contained in the slot:
1 = DS-1 Only
2 = DCH Only
3 = DS-1 or DCH

NOTE: The allowed link numbers for DCH are circled, with the normal bold circles being those for the DCH links in the special initial configuration (48 DS-1s and 4 DCHs). The non-bold circles indicate the possible locations for the DCHs when not in the special initial configuration. The link numbers that are not circled are those used by the DS-1 cards with the exception of 43, which can be a DS-1 link or a DCH link depending on which type of card is in slot 8/19.

Translation verification other tools

Output from the check all table control command and tabaudit will be included at a later date, but no issues are expected with these commands as the changes to LTCINV are minor.

Name: TABLE RMMINV

Long Table Name: Remote Maintenance Module Inventory

Functional description

Table RMMINV contains the inventory list for all the RMMs provisioned in the office. Each tuple contains the RMM's site, the PEC code for the hardware,

information about the RMM load, the EXEC lineup for the RMM, and finally, a pointer to the C-side peripheral upon which the RMM is hosted.

This activity has altered this table to allow the C-side PM to include a new set of allowable XPM types, including LGC, LTC, and SMA2.

Note: Although official support of the LTC is added with this activity there are no code changes needed for this as the table already allowed an LTC to be the host peripheral for an RMM prior to this release.

Note: It should also be noted that LGCI and LTCIs are also supported as host peripherals for the RMM; however, the distinction between the LTC/LGC and their ISDN counterparts (LTCI/LGCI) is strictly done based on where ISDN subtending devices are provisioned on the host. There is no actual LTCI or LGCI XPM type defined in the DMS, they are known only as LTCs or LGCs.

Usage sequence and implications (CM Only)

Current datafill order unchanged.

Size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
RMMINV	Unchanged by this activity	Unchanged by this activity	Unchanged by this activity.

Fields/OIDs

The following table lists fields/OIDs for RMMINV.

CSPMINFO = “<RMMSMA2 or RMMLTC> <XPM Key from LTCINV> <Port Number of DS30A Link from LTCPSINV>”

For Example:

CSPMINFO = “RMMSMA2 SMA2 0 52”

where “SMA2 0” is the XPM key from LTCINV and “52” is the port number in LTCPSINV of a DS30A link on SMA2 0.

Note: It should be noted that the RMM Selector for the LTC and LGC peripherals is the same (RMMLTC). This is due to the fact that these two peripherals are simply variations of the same hardware, and are also treated identically in the software.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
CSPMINFO	Changed	New RMM Selector of RMMSMA2 has been defined for adding RMMs to SMA2 ABI XPMs.	RMMSMA2	When RMMSMA2 is entered as the RMM Selector for the CSPMINFO field the user is then prompted for the SMA name/number and the DS30A port to use. The DS30A port number must match that provisioned in table LTCPSINV for the SMA2 (52 is the only allowed link number for a DS30A on an SMA2).
CSPMINFO	Changed	The handling of the CSIDEPM has been modified such that when an RMM Selector of RMMLTC is entered the allowed C-side PM types now includes LTC and LGC.	CSIDEPM	When RMMLTC is entered as the RMM Selector for the CSPMINFO field the user is then prompted for the name/number of the LTC/LGC and the DS30A port to use (fields CSIDEPM and CSIDPORT). The DS30A port number must match that provisioned in table LTCPSINV for the XPM.

Datafill example

The following 3 examples show sample datafill for table RMMINV. The first example shows the provisioning of an RMM hosted on an SMA2, the second shows the provisioning of an RMM on an LTC, and the third shows the provisioning of an RMM on an LGC. The changes from the prior allowed datafill is highlighted with **bold** characters.

Example #1 - RMM hosted on SMA2:

```
CI:
>table rmminv
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: RMMINV
```

```
>add
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
>y
RMMNAME:
>rmms rmm 8
FRTYPE:
>mis
FRNO:
>5
SHPOS:
>44
FLOOR:
>3
ROW:
>c
FRPOS:
>2
EQPEC:
>6x13aa
LOAD:
>rmm10a
EXECS:
>rsmex
RMMSELECTOR:
>rmmsma2
CSIDEPM:
>sma2 3
CSIDPORT:
>52
TUPLE TO BE ADDED:
RMMS        RMM   8    MIS    5    44     3   C     2 6X13AA   RMM10A
   RSMEX RMMSMA2       SMA2      3 52
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
>y
Static data update for GWC  0 UNIT 0 submitted.
Static data update for GWC  0 UNIT 1 submitted.
SMA2 3 UNIT 0 is not in service and not accepting static data.
Static data will be sent on next RTS.
SMA2 3 UNIT 1 is not in service and not accepting static data.
Static data will be sent on next RTS.
Static data updates completed.
TUPLE ADDED
JOURNAL FILE INACTIVE
>
```

Example #2 - RMM hosted on LTC:

```
CI:
>table rmminv
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: RMMINV
>add
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
>y
RMMNAME:
>rmms rmm 5
FRTYPE:
>mis
FRNO:
>4
```

```
SHPOS:
>20
FLOOR:
>2
ROW:
>m
FRPOS:
>1
EQPEC:
>6x13aa
LOAD:
>rmm10a
EXECS:
>rsmex
RMMSELECTOR:
>rmmltc
CSIDEPM:
>ltc 0
CSIDPORT:
>18
TUPLE TO BE ADDED:
RMMS        RMM   5    MIS    4    20     2   M     1 6X13AA   RMM10A
   RSMEX  RMMLTC        LTC      0 18
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
>y
Static data update for LTC  0 UNIT 0 submitted.
Static data update for LTC  0 UNIT 1 submitted.
Static data updates completed.
TUPLE ADDED
JOURNAL FILE INACTIVE
>
```

Example #3 - RMM hosted on LGC:

```
CI:
>table rmminv
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: RMMINV
>add
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
>y
RMMNAME:
>rmms rmm 5
FRTYPE:
>mis
FRNO:
>4
SHPOS:
>20
FLOOR:
>2
ROW:
>m
FRPOS:
>1
EQPEC:
>6x13aa
LOAD:
>rmm10a
EXECS:
>rsmex
RMMSELECTOR:
```

```
>rmmltc
CSIDEPM:
>lgc 1
CSIDPORT:
>12
TUPLE TO BE ADDED:
RMMS        RMM   5    MIS    4    20     2   M     1 6X13AA   RMM10A
   RSMEX  RMMLTC        LGC 1 12
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
>y
Static data update for LGC 1 UNIT 0 submitted.
Static data update for LGC 1 UNIT 1 submitted.
Static data updates completed.
TUPLE ADDED
JOURNAL FILE INACTIVE
>
```

Table release history update

The following changes have been made to table RMMINV in this release:

1. New RMMSELECTOR of RMMSMA2 has been added.
2. CSIDEPM of SMA2 is now allowed when the RMMSELECTOR is RMMSMA2.
3. The CSIDPORT for SMA2 type CSIDEPM must be between 0 and 53, and must match that provisioned in table LTCPSINV for the SMA2 (port 52, although there is no specific error checking for this in RMMINV, it is enforced through table LTCPSINV).
4. For RMMSELECTOR of RMMLTC the following peripheral types are now supported for the CSIDEPM field:
   — LTC
   — LGC
5. The CSIDPORT for peripherals with a RMMSELECTOR of RMMLTC must be between 0 and 19.

Supplementary information

Limitations:

- The RMM is only supported on the LGC, LTC, and SMA2 ABI XPMs. It should also be noted that the RMM is not supported on the legacy (ENET-based) versions of these peripheral types.
- The CHANGE operation cannot alter the content of the C-side Port portion of the tuple. Any attempt to alter this value will result in an error and the tuple will be rejected by table control. If the C-side port information needs to be altered then the RMM must be deleted and re-added to the table. Note that this is not new behavior, it simply reflects the existing restriction for RMMs.

Translation verification other tools

Output from the check all table control command and tabaudit will be included at a later date, but no issues are expected with these commands as the changes to LTCINV are minor.

Name: TABLE LTCINV

Long Table Name: Line Trunk Controller Inventory

Functional description

Table LTCINV contains a list of all the provisioned LTC-type peripherals in the system. ABI-based XPMs are datafilled in this table and are distinguished by the addition of the EXTDS512 optional attribute to their tuples.

This activity alters the functionality of LTCINV to allow the provisioning of a new type of EXEC for the SMA2 peripherals. To support the functionality of the RMM on the SMA2 the RSMEX EXECs need to be downloaded to the SMA2 when the SMA2 is RTSed. Prior to this activity this set of EXECs were not allowed to be provisioned against an SMA2. This is an existing set of EXECs that just needs to be sent to the SMA2.

> ***Note:*** These EXECs need to be provisioned against the host peripheral for the RMM, which also can now include the LTC and LGC. Although we did not officially support the LTC and LGC prior to this release they were allowed to have the RSMEX EXECs provisioned against them already, so no work was done by this activity to support this.

Usage sequence and implications (CM Only)

Current datafill order unchanged.

Size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
LTCINV	Unchanged by this activity	Unchanged by this activity	Unchanged by this activity.

Fields/OIDs

The following table lists fields/OIDs for LTCINV.

EXECTAB = “RMM_TERM RSMEX”

When adding a subtending RMM on an LTC, LGC, or SMA2 the EXECTAB field needs to include RMM_TERM RSMEX. This can be done either at the time the XPM is first provisioned or can be added at a later date using the CHANGE command.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
EXECTAB	Changed	Unchanged from the existing set of EXECs.	RMM_TERM RSMEX	RSMEX EXECs need to be downloaded to the host peripheral for the RMM. The LTC/LGC already supported this set of EXECs but the SMA2 did not.

Datafill example

The following example shows sample datafill for table LTCINV. The example shown below demonstrates the addition of RSMEX EXECs to an SMA2 using the CHANGE command. The changes from the prior allowed SMA2 peripheral datafill is highlighted with **bold** characters.

```
CI:
>
>table ltcinv
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: LTCINV
>pos sma2 3
      SMA2   3
           2003    CMVI    1     1      1    F    22 MX85AB  XM219AZ
                          (          POTS   POTSEX) (       KEYSET   KSETEX)$
                (        4  7) (        4  8) (        4  9) (        4 10)$
           (UTR6 ) (MSGMX76 HOST ) (CMR5 CMR10A) (ISP 4) $
     NORTHAM                                                  AX74AA  AX74AA
                                                        0
                               NILLOAD
                                   (EXTDS512 192   2  25  65        GWC   0)$
     6X40FB                                           N
>cha
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
>y
ADNUM: 2003
>
FRTYPE: CMVI
>
FRNO: 1
>
SHPOS: 1
>
FLOOR: 1
>
ROW: F
>
FRPOS: 22
>
EQPEC: MX85AB
>
LOAD: XM219AZ
>
```

```
EXECTAB: POTS   POTSEX
>
EXECTAB: KEYSET   KSETEX
>
EXECTAB:
>RMM_TERM RSMEX
EXECTAB:
>$
CSLNKTAB: 4  7
>
CSLNKTAB: 4  8
>
CSLNKTAB: 4  9
>
CSLNKTAB: 4 10
>
CSLNKTAB:
>$
OPTCARD: UTR6
>
OPTCARD: MSGMX76
>
MX76LOC: HOST
>
OPTCARD: CMR5
>
CMRLOAD: CMR10A
>
OPTCARD: ISP
>
SLOT_NUMBER: 4
>
OPTCARD:
>$
TONESET: NORTHAM
>
PROCPEC: AX74AA  AX74AA
>
EXTLINKS: 0
>
E2LOAD: NILLOAD
>
OPT_ATTR: EXTDS512
>
IPADDR: 192   2  25  65
>
GWC_HOST: GWC   0
>
OPT_ATTR:
>$
PEC6X40: 6X40FB
>
EXTSHELF: N
>
TUPLE TO BE CHANGED:
      SMA2   3
           2003    CMVI    1     1      1    F    22 MX85AB  XM219AZ
 (         POTS   POTSEX) (       KEYSET   KSETEX) (     RMM_TERM    RSMEX)$
(        4  7) (        4  8) (        4  9) (        4 10)$
          (UTR6 ) (MSGMX76 HOST ) (CMR5 CMR10A) (ISP 4) $
     NORTHAM                                              AX74AA  AX74AA
                                                    0
                              NILLOAD
                                  (EXTDS512 192   2  25  65        GWC   0)$
```

```
     6X40FB                                                  N
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
>y
TUPLE CHANGED
JOURNAL FILE INACTIVE
>
```

Table release history update

The following changes have been made to table LTCINV in this release:

1. EXECTAB field for SMA2, LGC, and LTC can now include "RMM_TERM RSMEX"

Supplementary information

Limitations:

- The RMM is only supported on the LGC, LTC, and SMA2 ABI XPMs, not on the SMS.

Translation verification other tools

Output from the check all table control command and tabaudit will be included at a later date, but no issues are expected with these commands as the changes to LTCINV are minor.

Service Orders (SO) (CM & SESM)

Not Applicable

Software optionality control (SOC)

Not Applicable

Element Management

Not Applicable

Command interface changes

Directory: MAPCI;MTC;PM

Directory description

No new commands or parameters have been introduced. However an RMM has been introduced as a subtending peripheral of an LTC, LGC, and SMA2. Existing maintenance actions through the MAP are supported for an RMM subtending these peripherals.

Accessing directory: PM

Access to directory or MAP level and return to CI

The updated displays are accessed through the PM (peripherals) level of the maintenance (MTC) level of the DMS core command interface (MAPCI). The RMM must be posted to perform maintenance actions on the RMM.

Command: TRNSL C

Command type: Listed MENU

Command target: All

This functionality will only be used in Succession ABI loads, but the software exists in all loads.

Command availability: RES

Command description

TRNSL C (translate c-side links) is not a new command, however when an RMM subtends an LTC, LGC, or SMA2, a TRNSL C of the RMM will display its c-side link.

Note that the supertending[6] peripheral is an ABI peripheral, and a TRNSL C of that peripheral will provide additional ABI information.

Command syntax

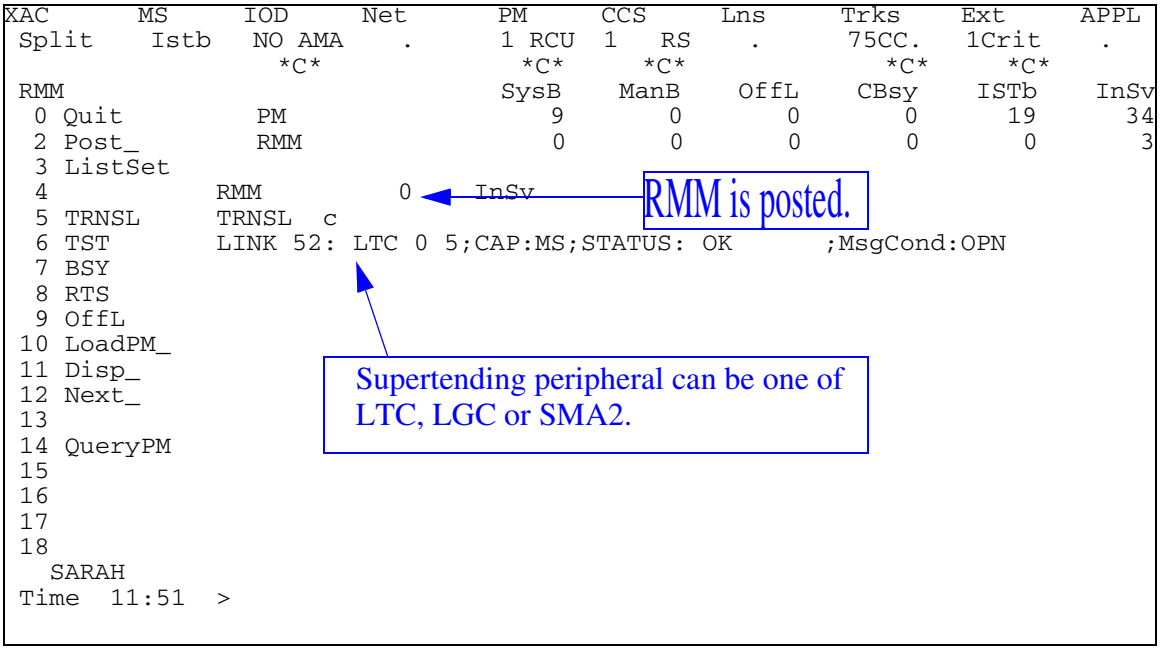
TRNSL C

Command	Parameters and variables
TRNSL C	unchanged
Parameters and variables	unchanged

Example

Usage example for "MAPCI;MTC;PM; POST RMM <X>;TRNSL C" command

6. The phrase "supertend peripheral" defines the peripheral which is immediately to the Cside of the peripheral being described. The phrase is meant to distinguish it from "host" peripheral, which sometimes implies the peripheral connected to the Network.



Command: TRNSL P

Command type: Listed MENU

Command target: All

But will only be seen in Succession ABI loads.

Command availability: RES

Command description

TRNSL P (translate p-side links) is not a new command, however when an RMM subtends an LTC, LGC, or SMA2, a TRNSL P of the supertending peripheral will display the p-side links of the peripheral as connecting to a RMM on the applicable port.

Note that the supertending peripheral is an ABI peripheral, and a TRNSL C of that peripheral will provide additional ABI information.

Command syntax

TRNSL P

Command	Parameters and variables
TRNSL P	unchanged

TRNSL P

Command	Parameters and variables
Parameters and variables	unchanged

Example

Usage example **"MAPCI;MTC;PM; POST <XPM>;TRNSL P" command**

```
XAC      MS     IOD     Net      PM     CCS     Lns     Trks    Ext     APPL
 Split    Istb   NO AMA    .      1 RCU  1   RS    .      75CC.   1Crit    .
                  *C*              *C*     *C*             *C*     *C*
 RCC2                              SysB    ManB    OffL    CBsy    ISTb    InSv
  0 Quit          PM                  9       0       0       0      19      34
  2 Post_         LTC 0       0       0       0       2       0
  3 ListSet
  4 BITS       LTC 0 ISTb  Links_OOS: CSide  0 , PSide  8
  5 Trnsl_     Unit0:   Inact ISTb
  6 Tst_       Unit1:   Act   ISTb
  7 Bsy_       Trnsl  p
  8 RTS_       Link  1: Carrier of Class - Trunk ;Status:SBsy
  9 Offl       Link  2: Carrier of Class - Trunk ;Status:SBsy
 10 LoadPM_    Link  3: Carrier of Class - Trunk ;Status:SBsy
 11 Disp_      Link  4: Carrier of Class - Trunk ;Status:SBsy
 12 Next      Link  5: RMM 0              0;Cap MS;Status:OK      ;MsgCond:OPN
13 SwAct     Link  6: Carrier of Class - Trunk ;Status:SBsy
 14 QueryPM   Link  7: Carrier of Class - Trunk ;Status:SBsy
 15 DCH       Link 10: DCH 5;Status:OK
 16 IRLINK    Link 17: DCH 6;Status:OK
 17 Perform
 18 ISG
   SARAH
 Time  11:56  MORE...
```

LTC posted. Could also be LGC or SMA2

RMM is displayed on appropriate link.

Security

Not Applicable

Configuration Walkthrough

The following lists the steps to provision and RMM hosted on an existing SMA2 ABI XPM:

1. Upgrade all Succession components (Core, GWC, MG9K, etc.) to SN06.2.
2. Install RMM and Power up.
3. Install DS30A boards (MX74) in slot 13 and 15 of an SMA2 shelf following existing procedure for MX74 installation for RCC2 shelf. One place this procedure is defined is in "DMS-100 Family NA100 Card Replacement Procedure Vol 7 of 7 LEC0015 and up". There is a section within this document entitled "NTMX74 in an RSC-S (DS-1) Model A RCC2".
4. Install the DS30A cable from the SMA2 (port 52) to the RMM.

5. Provision LTCINV for the SMA2 which supertends the RMM with EXECTAB set to “RMM_TERM RSMEX”.
6. Table LTCPSINV - Change the new SMA2 tuple to include a DS30A link on the SMA2 in P-side port 52 for the RMM (note the restrictions on where this link may exist are documented earlier in this chapter).
7. Table RMMINV - Add a new RMM to point to the SMA2 as it’s CSIDEPM with the CSIDPORT set to the same port number as the DS30A datafilled in step #6 (52).
8. Once this is complete the new SMA2 can be RTSed and brought into service and it should download the RSMEX EXECs..
9. Test the DS30A cable by running a DS30A test from the map with SMA2 XPM posted.
10. RTS the DS30A link.
11. Load and RTS the RMM.

Product = CS 2000

A00002008 -- CBM Introduction (Succession on DMS)

Description

This document will be broken into two sub sections. The first sub section will describe **Adding a Logical volume for SBA**. The sub section second will describe the procedure for **DVD Billing record backup**.

Adding a Logical volume for SBA

For AIX:

- The instructions have not changed and can be found in Accounting module, chapter, “Adding a logical volume for SBA“
- Alternatively, the “makelv” command described below for CBM can also be used on AIX to create a Logical Volume for SBA billing files
- The recommended "logical_volume_name" remains the same on AIX: "/sba/<stream name>".
  - i.e. /sba/ama;

For CBM:

- the "makelv" command can also be used on CBM to create a Logical Volume for SBA billing files. Consult the configuration section for the actual instructions on how to do this.

DVD Billing record backup

The purpose of this subsection is to describe a manual procedure for backing up billing data from the CBM to a DVD. Three procedures will be described. The First procedure will be how to blank a DVD-RW disk. The Second procedure will be what the customer will do to back up the closed sent and closed not-sent billing directories using a script that is provided to them. The third procedure will document how to create a DVD without the aid of the script. This could be of use in emergency scenarios or when only specific files are to be backed up.

Note: These actions should be performed only during non-peak hours unless a DVD backup is urgent in a special case.

Note: It is worth pointing out that the tape functionality has been removed for the CBM(Solaris) system. Only DVD functionality is supported. And DVD functionality has not been added to SDM (FX) systems. Users of this system should continue to use the current tape backup procedure.

Note: It is necessary to be a root user to execute these procedures

Note: These are best effort procedures. No locking is done on the files being copied

Note: On a CBM850, if a swact occurs during any of the following procedures the action will fail and must be started again on the newly active side.

Blanking a DVD-RW

Blanking the DVD-RW erases the contents of the DVD. It is a necessary step before a DVD-RW can be written to if it has previously been written to. It is unnecessary and not possible to do this to DVD-R type DVD's.

Note: This procedure is not specific to billing. It is an sspfs general procedure.

- You first must insert the DVD-RW which you intend to blank into the DVD drive.
- First, issue the UNIX command "cdrw -l" (as shown below). If it returns a message indicating that there are no devices or media then use the eject button on the front of the DVD drive to open the tray. If the cdrw -l command lists a device then use the UNIX eject command to open the tray as explained in the next point

```
#> /usr/bin/cdrw -l
```

- To open the a drive unit that has media already inserted in it use the UNIX eject command (as shown bellow). If the eject command does not work it may be the case that someone is in the DVD directory or another backup procedure is running.

  #> /usr/bin/eject cdrom

- After successfully inserting your DVD, list the contents of the DVD-RW with the following UNIX command to ensure that it is the DVD you intend to blank.

  #> /usr/bin/ls /cdrom/cdrom0

- If you are satisfied that this is the disc you intend to blank, then enter the following UNIX command. This step can take a significant amount of time to complete. possibly more than one hour.

  #> /usr/bin/cdrw -b all

- To confirm the DVD is now blanked. Ensure the DVD is inserted. Then enter the UNIX command below. It should return some device information and the statement “Media is blank”

  #> /usr/bin/cdrw -M

Using script to back up billing records

This is the procedure the craft person would most likely use to back up the closed sent and closed not sent directories. This method is non selective in the files that it chooses to back up. It backs up the entire contents of the selected directories. It writes the files to the DVD in the following directory format “/<Stream name>/<Directory name>/files”.

Note: This procedure does not move the files from closed not sent to closed sent

- The craft person should ensure that he/she has a large enough supply of blank DVD’s at least one for each stream they intend to back up. possibly more if the streams are larger than 2GB. The script will alert the craft person as to the number of disks that are required for each stream before proceeding to write the records to the DVD. Note that the DVDs should be blank. Consult the blanking procedure if the DVD’s are not blanked.
- You first must insert the DVD-RW which you intend to write into the DVD drive.
- First, issue the UNIX command “cdrw -l” (as shown below). If it returns a message indicating that there are no devices or media then use the eject button on the front of the DVD drive to open the tray. If the cdrw -l command lists a device then use the UNIX eject command to open the tray as explained in the next point

  #> /usr/bin/cdrw -l

- To open the a drive unit that has media already inserted in it use the UNIX eject command (as shown bellow). If the eject command does not work it may be the case that someone is in the DVD directory or another backup procedure is running.

  #> /usr/bin/eject cdrom

- The next step is to enter sbadvdwrite at a UNIX prompt to start the script. you will get the following result

```
#> sbadvdwrite
Billing Data DVD Backup
--------------------------------------------------------------------------------
This is a utility to back up closed sent and closed not sent billing records.
A blank DVD should be in inserted in the DVDRW drive.

Press Enter to proceed, or type Abort to abort:
```

- Then press enter to proceed or abort to stop the scripts execution
- Next you will be asked to select the stream you would like to back up as is shown in the following result. If no streams are configured the script will print out and error message stating so and exit.

```
Billing Data DVD Backup Stream Display
--------------------------------------------------------------------------------
The following streams are available to be backed up.

AMA
OCC
SMDR

Billing Data DVD Backup Stream Selection
--------------------------------------------------------------------------------

>AMA

Enter the stream that you would like to back up and hit return.
```

- Now enter the stream that you would like to back up or abort to stop the scripts execution.
- Then press enter to proceed or abort to stop the scripts execution

```
Press Enter to proceed, or type Abort to abort:
```

- Next you will be prompted for which directories you would like to back up. Make your selection.

```
Billing Data DVD Backup Directory Selection
--------------------------------------------------------------------------------

enter the number corresponding to the directory(s) that you want backed up
and hit return:

1    - Closed Sent
2    - Closed Not Sent
3    - Both Closed Sent and Closed Not Sent

>3
Closed sent and Closed Not Sent have been
selected for backup.

Press Enter to proceed, or type Abort to abort:
```

- Then press enter to proceed or abort to stop the scripts execution
- Then you will advised of the number of DVD's that will be required to back

```
'1' blank DVD(s) will be required.

Press Enter to proceed, or type Abort to abort:
```

- Then press enter to proceed or abort to stop the scripts execution
- Next the DVD(s) are written to. Follow the on screen instructions with regards to when to insert DVDs into the DVD tray if more than 1 DVD is required. The DVD tray will eject automatically when the DVD is finished being written to.

```
creating scratch /tmp/.tar 2046m d97
creating scratch /tmp/.iso 2048m d98
Looking for CD devices...
Checking for media...
Please insert a blank cd and hit <enter> OR type <abort>:
Checking for media...
Media is blank
Start cdwrite of /tmp/.tar/billingdir/, iso_space=/tmp/.iso.
```

```
Please wait...
executing /usr/bin/mkisofs -r -J   -o /tmp/.iso/iso.img /tmp/.tar/billingdir/
Using P0403021.000;1 for  /tmp/.tar/billingdir/closedSent/P040302182716AMA
(P040302182715AMA)
Using P0403021.001;1 for  /tmp/.tar/billingdir/closedSent/P040302182715AMA
(P040
302182614AMA)
Using P0403021.002;1 for  /tmp/.tar/billingdir/closedSent/P040302182614AMA
(P040302181113AMA)
Using P0403021.003;1 for  /tmp/.tar/billingdir/closedSent/P040302181113AMA
(P040302181112AMA)
Using P0403021.004;1 for  /tmp/.tar/billingdir/closedSent/P040302181112AMA
(P040302181011AMA)
Using P0403021.005;1 for  /tmp/.tar/billingdir/closedSent/P040302181011AMA
(P040
302173310AMA)
Using P0403021.006;1 for  /tmp/.tar/billingdir/closedSent/P040302173310AMA
(P040
302173309AMA)
Using P0403021.007;1 for  /tmp/.tar/billingdir/closedSent/P040302173309AMA
(P040
302173108AMA)
Using P0403021.008;1 for  /tmp/.tar/billingdir/closedSent/P040302173108AMA
(P040
302172307AMA)
Using P0403021.009;1 for  /tmp/.tar/billingdir/closedSent/P040302172307AMA
(P040
302172306AMA)
Using P0403021.00A;1 for  /tmp/.tar/billingdir/closedSent/P040302172306AMA
(P040
U302172205AMA)
Using P0403021.00B;1 for  /tmp/.tar/billingdir/closedSent/P040302172205AMA
(P040
302165504AMA)
Using P0403021.00C;1 for  /tmp/.tar/billingdir/closedSent/P040302165504AMA
(P040
302165503AMA)
Using P0403021.00D;1 for  /tmp/.tar/billingdir/closedSent/P040302165503AMA
(P040
302165402AMA)
Using P0403021.00E;1 for  /tmp/.tar/billingdir/closedSent/P040302165402AMA
(P040
302164901AMA)
Using P0403021.00F;1 for  /tmp/.tar/billingdir/closedSent/P040302164901AMA
(P040
302164100AMA)
```

Using P0403021.00G;1 for /tmp/.tar/billingdir/closedSent/P040302164100AMA (P040

302153832AMA)

Using P0403021.00H;1 for /tmp/.tar/billingdir/closedSent/P040302153832AMA (P040

302153831AMA)

Using P0403021.00I;1 for /tmp/.tar/billingdir/closedSent/P040302153831AMA (P040

302153730AMA)

35.63% done, estimate finish Wed Mar 3 16:29:21 2004

71.26% done, estimate finish Wed Mar 3 16:29:21 2004

Total extents actually written = 14049

Total translation table size: 0

Total rockridge attributes bytes: 2364

Total directory bytes: 6144

Path table size(bytes): 42

Max brk space used c000

14049 extents written (27 Mb)

Looking for CD devices...

Initializing device...done.

Preparing to write DVD

Writing track 1...done.

Finalizing (Can take upto 4 minutes)...done.

write /tmp/.tar/billingdir/ succeeds

cdwrite exiting with return code 0

removing scratch /tmp/.tar d97

removing scratch /tmp/.iso d98

Billing Data DVD Backup Finished

---

you have now completed the DVD backup operation. Please ensure all requested files have been written to the DVD(s)

- You have now completed the script based backup procedure.Label the DVD(s) with a CD/DVD safe pen and repeat until all of the required streams are backed up. When finished writing all disks use the ls command to confirm that all of the desired files have been copied and are of the correct size.

Manual procedure for writing to DVD

This is a procedure intended mainly for GNPS when they have been contacted by a customer to purge billing files. Probably due to down stream network connectivity problems. Or for a customer who wishes to back up specific files. The sbadvdwrite script is the preferred method for customers who intend to do general back ups

Note: This is not a billing specific procedure it is a general sspfs procedure

Note: This procedure does not move the files from closed not sent to closed sent

Note:

- You first must insert the DVD-RW which you intend to write into the DVD drive.
- First, issue the UNIX command “cdrw -l” (as shown below). If it returns a message indicating that there are no devices or media then use the eject button on the front of the DVD drive to open the tray. If the cdrw -l command lists a device then use the UNIX eject command to open the tray as explained in the next point

  #> /usr/bin/cdrw -l
- To open the a drive unit that has media already inserted in it use the UNIX eject command (as shown bellow). If the eject command does not work it may be the case that someone is in the DVD directory or another backup procedure is running.

  #> /usr/bin/eject cdrom
- Next you want to confirm that all of the data which you want to put on the DVD will fit. You will need to use the cd and ls UNIX commands as follows. First use the cd command to set the current directory to the directory which contains the files you want to back up. In this case the files are in the /export/tmatt/closedsent directory. so the following command is issued.

  #> cd /export/tmatt/closedsent

  Next use the ls command as follows. This command lists all of the files in the current directory. The size of the files in bytes is listed in the fifth column of the output (in bold bellow). Add the size of each file you intend to back up together and ensure that the total size of all files does not exceed 2000000000 bytes. If it does you will need to use more than one DVD. Divide the files up to make the most efficient use of each DVD.

  #> /usr/bin/ls -l

  total 270524

  -rw-r--r-- 1 maint maint **7034800** Feb 3 16:56 data1

  -rw-r--r-- 1 maint maint **4915002** Jan 26 18:55 data2

```
-rw-r--r--  1 maint    maint 10000000 Feb  2 15:21 data3
-rw-r--r--  1 maint    maint 57590000 Jan 23 11:59 data5
```

- Next you need to create a ISO9660 file system from the files you intend to back up. To do this you use the UNIX command mkisofs. Use it as folllows.Where <destination file> is the name of the binary file that contains the ISO9660 file system. This is selected by the crafts person. <pathspec> represents the full path of the files that are to be backed up. It is very important to ensure that the directory in which you are creating the ISO9660 binary file has at least 2000000000 bytes of free space or the mkisofs command will fail.

  #> /usr/bin/mkisofs -o <destination file> -a -J -L -R <pathspec>

  For example if you wanted to create the <destination file> /export/home/maint/tmatt/tempiso out of the two files data1 and data2 from above you would issue the following UNIX command

  #> /usr/bin/mkisofs -o export/home/maint/tmatt/tempiso -a -J -L -R /export/tmatt/closedsent/data1 /export/tmatt/closedsent/data2

  Note: this command will fail if the files in the path spec total more than 2000000000 bytes in size

- Next you will write the binary that you have created to the DVD. For this you will use the UNIX command cdrw as follows.

  #> /usr/bin/cdrw -C -i <iso9660 file>

  Where <iso9660 file> is the binary you just created above. So for example you would use the following command to write the Binary to the DVD.

  #> /usr/bin/cdrw -C -i export/home/maint/tmatt/tempiso

- Now delete the iso9660 file which was created previously with the rm UNIX command as follows. This is an important step which allows you the regain disk space.

  #> /usr/bin/rm export/home/maint/tmatt/tempiso

Software Requirements or Dependencies

N/A

Hardware Requirements or Dependencies

DVDRW must be installed in the system

Limitations and restrictions

none

Interactions

none

Applicable customer facing sections

Fault Management

- Logs ___N___
- Alarms ___N___

Configuration

- Data Schema ___N___
- User Interface ___N___
- Element Management ___N___
- Security ___N___
- Service Order ___N___
- Office Parameters ___N___

Accounting (includes AMA billing) ___N___

Performance (includes operational measurements) ___N___

Product = CS 2000

A00002009 -- Enhance display on PEPSET (Succession on DMS)

Functional Description

This feature activity is to migrate an existing line option, NAME24, from the MSL layer to the CCM layer.

NAME24 was created in the MSL layer under feature “Name Display Character Extension”. The documentations about the option creation are located in PLS DOC under names of AX1228 (CCM) and AX1240 (MSL).

NAME24 line option enables subscribers to provide a name up to 24 characters for their private network. This NAME will be displayed on a KSET at the other end of the call. The display format will be following:

NAME24 --- Top line

DN --- Bottom line.

A SOC will be associated with this feature in CCM. After the migration, NAME24 will be a SOCed line option in the CCM layer and a non-SOCed line option in the MSL layer.

The SOC will have two functionalities. It controls NAME24 line option processing and the display when NAME24 doesn't apply to the originator. See section 2.6, 2.7 and 2.8 for details.

The SOC_FTR_ ID for this activity is "00002009" with Order Code "MDC00075"

This feature activity involves changes to the MSL layer as well as the CCM layer. But the changes will not affect the behaviors of the existing Name Display Character Extension (NAME24) feature in the MSL layer.

Hardware Requirements or Dependencies

There is no hardware requirement.

Software Requirements or Dependencies

CCM20

Limitations and restrictions

- This display feature will only be applied to KSET phones.
- IVD sets will be supported in MSL as well.
- NAME24 is limited to inter-custgrp or intra-custgrp calls in the same switch.

Servord

Assignment

NAME24 can be assigned to a KSET via Servord ADO command. It also can be added to a line with NEW and COPYSET commands.

Since NAME24 works on top of NAME option NAME24 can only be assigned to a KSET that has NAME option on it or NAME option is going to be added to the line with NAME24 together. And NAME option can't be deleted if NAME24 option still presents on the line.

See Servord section for details and examples.

SO prompt

Here shows a simple assignment of this option in Servord. See the Servord section for more examples.

```
>ado
SONUMBER:    NOW   3  9 16 PM
>
DN_OR_LEN:
>7234532
OPTKEY:
>1
OPTION:
>name24
DISPLAY_NAME:
>name24on7234532
OPTKEY:
>$
COMMAND AS ENTERED:
ADO NOW 3 9 16 PM 7234532 ( 1 NAME24 NAME24ON7234532 ) $
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
>y
MACHINES ARE OUT OF SYNC, SERVICE ORDERS NOT ALLOWED
JOURNAL FILE IS INACTIVE, SERVICE ORDERS NOT ALLOWED
SHOULD ORDER BE DONE ANYWAY? (Y OR N)
>y
```

Interactions

Interaction with REASON

Since NAME24 provides a name up to 24 characters it preserves all spaces of the top line of the display phone for the name and moves DN to the bottom line.

When REASON option presents NAME24 will simply quit processing because the limited display space. The display will be the same as if NAME24 is not on the line.

Interaction with NAME feature

NAME24 works on top of NAME option. It overrides a name provided by NAME option for a specific network_id when it is appreciated.

Name Option - Up to two names

With NAME option two names can be datafilled for two different network ids. The name with network id matching the network_id of the call will be displayed.

The network_id of a call is determined by comparing two network_ids datafilled in table CUSTNTWK for the two parties in the call. If they are the same the network_id datafilled is the network_id of the call. If they are not the same or any one of them is not datafilled the “public” network_id is the network_id of the call.

NAME24 - Only one name

With NAME24 option on top of NAME option, a name up to 24 characters can be datafilled. It was intended to be used as a “private” name for people with long surnames.

In original design, NAME24 overrode any one of the two names datafilled by NAME option as its network_id matching the network_id of the call, which makes the two names for two different networks became one name for two different networks.

This activity will limit NAME24 only to override “private name” if it is datafilled by NAME option. This change will not affect MSL customers.

The following two tables summarizes the interactions with NAME option before and after this activity.

Datafills

	Party A	Party B	Party C	Party D
CUSTGRP	IBNTST	IBNTST	BNR	CLASSDSP
CSUTNTWK	PRIVATE	PRIVATE	PUBLIC	--
NAME option	private: Nice public: Nortel	private: Kevin public: Nortel	public: JCPenny	public: JCPenny
NAME24 option	Nice_PictureFrames	Kevin_Alex_Blazejewski	JCPenny_CaryTown	JCPenny_Crabtree

NAME Display Two Names (without NAME24)

Calls	Network ID of the Call	Display on A	Display on B	Display on C	Display on D
A <-> B	private	Kevin	**Nice**	n/a	n/a
A <-> C	public	JCPENNY	n/a	**Nortel**	n/a
A <-> D	public	JCPENNY	n/a	n/a	**Nortel**
C<-> D	public	n/a	n/a	JCPENNY	JCPENNY

Before: NAME24 Overrides Two Names

Calls	Network ID Of the Call	Display on A	Display on B	Display on C	Display on D
A <-> B	private	Kevin Alex Blazejewski	*Nice PictureFrames*	n/a	n/a
A <-> C	public	JCPenny CaryTown	n/a	*Nice PictureFrames*	n/a
A <-> D	public	JCPenny Crabtree	n/a	n/a	*Nice PictureFrames*
C<-> D	public	n/a	n/a	JCPenny Crabtree	JCPenny CaryTown

After: NAME24 only Overrides Private Name

Calls	Network ID of the Call	Display on A	Display on B	Display on C	Display on D
A <-> B	private	Kevin Alex Blazejewski	*Nice PrictrueFrames*	n/a	n/a
A <-> C	public	JCPenny	n/a	*Nortel*	n/a
A <-> D	public	JCPenny	n/a	n/a	*Nortel*
C<-> D	public	n/a	n/a	JCPenny	JCPenny

Interaction with TCAPNM

NAME24 will not override TCAPNM but will display TCAPNM and DN in two separated lines.

NAME24 interacts with TCAPNM in the same way as NAME option. When it detects that TCAPNM applies to the line it will not check if the TCAPNM is retrieved successfully. If no TCAPNM is retrieved no name will be displayed.

Interaction with AUTODISP

NAME24 will display KEY# with DN on the bottom line of the display phone for incoming calls.

ALEXANDER BLAZEJEWSKI
KEY -1 6841000

Interaction with other features

The NAME24 will not work with features that require extra messages being displayed because of the limited display space. Also, NAME24 will not work with features that have their own specific name to be displayed.

When any one of following features is applied to the line NAME24 will quit its processing. The display will be the same as if NAME24 is not on the line.

a. An E911 call.

b. Attendant is attached to the call.

c. Call is forwarded/redirected/transferred/pickUped

d. The agent is an ACD agent

e. Agent is a MADN

Move DN to the bottom line - Controlled by NAME24 SOC

Background -- DN being dropped from display

When only the Name and DN are going to be displayed and NAME24 does not apply to the originator, the Name and DN will be displayed on the same top line of the terminator's display phone, and the bottom line will be left empty.

There are some cases that DN will be dropped from display and the bottom line will be left empty on the terminator's display.

Without NAME24 option

- DN will not be displayed on the terminator if originator's Name + DN is over 15 characters long and terminator has a 2x16 display window
- DN will not be displayed on the terminator if originator's Name + DN is over 24 characters long and the terminator has a display window of 2x16 or 2x24.

With NAME24 option but NAME24 doesn't apply

- With NAME24 on the originator, if the terminator has a display window of 2x16, the DN will not be displayed on the terminator if the originator's Name + DN is over 15 characters long.

Why can't we use the bottom line to display DN for those calls?

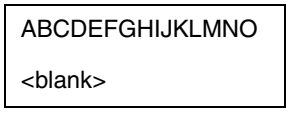
NAME24 SOC shifts the DN to the bottom line on terminator

Since NAME24 works in the call environment that only NAME and DN are going to be displayed (except AUTODISP), it will display the DN on the bottom line on the terminator's display phone if NAME24 SOC is On, and NAME24 doesn't apply to the originator because of the following reason(s):

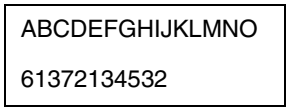
- The originator doesn't have NAME24 option on it.
- The originator has NAME24 option on it but the terminator has a display window of 2x16.
- The originator has NAME24 option on it but can not be displayed (possibly, the call is on the public network).
- The TCAPNM applies to the originator

Example:

- Party A (6137234532) has NAME option with a name of "abcdefghijklmno".
- Party B has a 2x16 display KSET,
- Party A calls party B
- Display on B:
  - — NAME24 SOC Idle



  - — NAME24 SOC On



Applicable customer facing sections

Fault Management

- Logs _NA__
- Alarms _NA__

Configuration

- Data Schema _X___
- User Interface _NA__
- Element Management _NA__
- Security _NA__
- Service Order _X____
- Office Parameters _NA__

Accounting (includes AMA billing) _NA__

Performance (includes operational measurements) _NA__

Realtime _X___

Engineering Information _X___

Glossary

Acronym	Expansion of Acronym
PSET	Proprietary Business Set
KSET	Key Set
IVD	Integrated Voice and Data
MBS	Meridian Business Set
ISDN	Integrated Services Digital Network
CCM	DMS 100 Common Layer
MSL	Meridian Stored Logic
PLS	Product Library System
SOC	Software Optionality Control
CUSTGRP	Customer Group
CUSTNTWK	A table name in DMS

Acronym	Expansion of Acronym
IPL	Initial
PRIVATE	A network ID
PUBLIC	A network ID
IBNTST	A customer group name
BNR	A customer group name
CLASSDSP	A customer group name

Configuration for A00002009

Data schema (DS)

- Table KSETFEAT: The name up to 24 characters provided by this feature will be stored in this table.
- Table LCCOPTS: The list of compatible LCCs of this feature will be specified here.

Service Orders (SO)

Summary of service order impact

NAME24 must be added to a set via SERVORD.

Service order change details

- No NEW LCC introduced by this feature.
- NEW OPTION NAME24 introduced by this feature.
- NAME option must be assigned for NAME24 option to work.

Line class code compatibility

Compatible LCCs in the CCM layer:

- PSET
- P_Phone
- M5008
- M5009
- M5208
- M5209
- M5112
- M5212

- M5312
- M5216
- M5316

Compatible LCCs in the MSL layer

- P_Phone
- PSET
- M5008
- M5009
- M5208
- M5209
- M5112
- M5212
- M5312
- M5216
- M5316
- M2008
- M2616
- M2216A
- M2216B
- M2008
- M2016s
- M2616ct.

Assignability

The following functionalities apply to this option:

- set functionality: <no>
- subset functionality: <no>
- DN functionality: <yes>
- key functionality: <no>

Option prerequisites

NAME24 has the following prerequisites:

NAME.

New Prompts

New Prompt

Prompt Text	Valid Input	Description	Areas Affected by Prompt
DISPLAY_NAME	Vector of up to 24 chars	This field is used to enter up to 24 characters to be displayed	OPTION

SERVORD examples

NAME option must be on the line

```
>ado
SONUMBER:     NOW   3  4  9 PM
>
DN_OR_LEN:
>7502537
OPTKEY:
>1
OPTION:
>name24
DISPLAY_NAME:
>yourNameUpto24Characters
OPTKEY:
>$
COMMAND AS ENTERED:
ADO NOW 3 4 9 PM 7502537 ( 1 NAME24 TESTINGTSTINGTESTING1 ) $
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
>y
NAME24 CAN ONLY BE ADDED TO A LINE AFTER
THE NAME OPTION HAS BEEN ADDED .
```

—continued—

```
NAME24 did NOT pass checking.
***  ERROR - INCONSISTENT DATA  ***
COMMAND AS ENTERED:
ADO NOW 3 4 9 PM 7502537 ( 1 NAME24 TESTINGTSTINGTESTING1 ) $
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
>n
```

Add NAME and NAME24 together

```
>ado
SONUMBER:    NOW   3  4  9 PM
>
DN_OR_LEN:
>7502537
OPTKEY:
>1
OPTION:
>name
NETNAME:
>public
DISPLAYNAME:
>NameForPublic
NETNAME:
>$
OPTKEY:
>1
OPTION:
>name24
DISPLAY_NAME:
>nameUpto24Characters
OPTKEY:
>$
```

—continued—

```
COMMAND AS ENTERED:
ADO NOW 3 4 9 PM 7502537 ( 1 NAME ( PUBLIC TESTING15 ) $ ) ( 1 NAME24
TESTINGTESTINGTESTING1 ) $
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
>y
MACHINES ARE OUT OF SYNC, SERVICE ORDERS NOT ALLOWED
JOURNAL FILE IS INACTIVE, SERVICE ORDERS NOT ALLOWED
SHOULD ORDER BE DONE ANYWAY? (Y OR N)
>y
```

Query the DN

```
>qdn 7502537
--------------------------------------------------------------------------------
DN:     7502537
TYPE: SINGLE PARTY LINE
SNPA: 909   SIG:  N/A    LNATTIDX: N/A
LINE EQUIPMENT NUMBER:     HOST  00 0 18 19
LINE CLASS CODE:  M5209 SET
KEY:  1
CUSTGRP:            CGA  SUBGRP: 0  NCOS: 0  RING: Y
CARDCODE:  6X21AC    GND: N  PADGRP: PPHON  BNV: NL MNO: Y
PM NODE NUMBER     :    67
PM TERMINAL NUMBER :    596
OPTIONS:
NAME PUBLIC NAMEFORPUBLIC 3WC CWI CWO
PIC C541 Y NAME24 NAMEUPTO24CHARACTERS CWT Y Y N 1 CFU N $ I 1 CWD PRL
```

Query table KSETFEAT

```
>table ksetfeat
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: KSETFEAT
>
>pos 0 0 18 19 name24
HOST  0 0 18 19 1   NAME24      NAME24       NAMEUPTO24CHARACTERS
```

Can’t delete NAME if NAME24 is on the line

```
>deo
SONUMBER:    NOW   3  4  9 PM
>
DN_OR_LEN:
>7502537
OPTKEY:
>1
OPTION:
>name
OPTKEY:
>$
COMMAND AS ENTERED:
DEO NOW 3 4 9 PM 7502537 ( 1 NAME ) $
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
>y
CANNOT DELETE NAME FROM A LINE IF NAME24 EXISTS.
NAME did NOT pass checking
***  ERROR - INCONSISTENT DATA  ***
COMMAND AS ENTERED:
DEO NOW 3 4 9 PM 7502537 ( 1 NAME ) $
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
>n
```

Software optionality control (SOC)

— Option assignment via SERVORD will not be limited by the SOC states (On or Off).

— Option processing will be performed only when the SOC state is On.

SOC

SOC option name:	Enh Name/Num Dis
SOC option title:	00036430
SOC option control type:	state
New SOC option?	Yes
SOC option order code	MDC00075
Option defined in DRU:	CCM
Affected products:	CCM

Product = CS 2000

A00002011 -- Virtual Office Worker (Succession on DMS)

Functional Description

The intent of this activity is to migrate the Virtual Office Worker (VOW) software from the MSL DRU into the CCM DRU.

The function of the VOW software is not changing as a result of this feature with the exception that it will now be available to all DMS-100 customers instead of limited to MSL-100 PBXs. Also, the function of the VOW feature will be controlled by SOC for those customers who are not using MSL-100 loads.

What follows is essentially a cut/paste of the original feature FN with several updates and corrections for items that were found during designer and product verification test phases.

For reference purposes, the original FN can be found in the PLS DOC library under AX1236FN.AA20.

Feature synopsis

This feature will allow telecommuters who do not have dedicated physical phone sets to access their dedicated Directory Number (DN) and associated

features/options by logging into their dedicated DN from any of a pre-designated group of phone sets. Once logged in, all features and options will operate normally, and all calls to the dedicated DN will terminate to the set on which the login occurred. Also, when logged in, all calls originated from the set will be billed to the dedicated DN.

Functional overview

This feature will meet the needs of Virtual Office Workers (VOWs) on a DMS-100 or MSL-100 PBX. A VOW is an individual, such as a telecommuter, who periodically visits an enterprise office location but does not have dedicated office space. VOWs typically retain various services including a dedicated DN, voice mail, departmental billing, and features specific to their set configuration. VOWs often reside in temporary cubicles or shared workspaces when visiting the office, yet they also desire the use of their dedicated DN and associated features. Prior to this functionality, no simple means existed by which VOWs could access their dedicated DN and features from these temporary workspaces that were not specifically tailored for any user.

This feature will enable a VOW to access his/her dedicated DN and features from any of a pre-designated group of Meridian Business Set (MBS), Integrated Voice and Data (IVD), or Integrated Business Network (IBN) phone sets. This includes being able to access any features and associated data which might be assigned to his/her set, as well as being able to both originate and receive calls using his/her dedicated DN. With this feature, a VOW will be able to login to or logout from his/her dedicated DN from any in the group of pre-designated sets. Support and functionality for provisioning, operational measurements, and logs will also be provided.

In general, there will not be a one-to-one relationship between VOWs and the physical sets used to access dedicated DNs and features. As an example, there may be 15 pre-designated sets for a particular customer group, allowing 15 VOWs to access their dedicated DN and features at a time. If all VOWs in this customer group only require access to their dedicated DN and features one day a week during a 5-day work-week, then with the proper coordination, these 15 physical sets could support up to 60 VOWs each week.

Feature description

VOW Setup

To begin with, ensure that feature SOC MDC00076 is turned ON for the office. Note that the SOC is always ON for MSL-100 load types.

In order for VOW to function, the following must be datafilled/provisioned for each customer group that allows VOW functionality:

- In table CUSTSTN, feature VOWDN must be datafilled. The CUSTSTN tuple contains the following:

— NCOS and SUBGRP values for translations purposes on the pre-designated VOW sets when no VOW is logged in;

— A boolean value specifying whether or not the VOW authorization code is required within the associated customer group during use of the VOWIN feature access code;

— A boolean value specifying whether the personal (SW) authorization code is required within the associated customer group during use of the VOWIN feature access code;

— A boolean value specifying whether the associated customer group is to be audited, and if so, a value specifying the hour of the day the audit is to occur;

— A boolean value specifying whether or not VOW functionality interacts with call forwarding functionality to enable call forwarding for a VOW when s/he logs out and to disable call forwarding for a VOW when s/he logs in;

— The length of the VOW personal ID code (referred to as passcode throughout the remainder of this document) length values used to uniquely identify a VOW within a customer group; and,

— The line class code of the sets which will make use of VOW functionality.

- In table IBNXLA, feature translators VOWIN, VOWOUT, VOWPCC, and VOWROUT must be datafilled.
- In table AUTHCDE, VOW and SW authorization codes must be datafilled if these authorization codes are enabled through the VOWDN tuple in table CUSTSTN. These will be used during use of the VOWIN feature access code.

Within the customer groups that are to offer VOW functionality, a VOW's dedicated DN and features must be provisioned on a phone set pre-designated for use with VOW functionality. On this set, the line option VOW must be assigned. Assignment of the VOW line option includes the specification of the initial passcode for the associated VOW. Once assigned, the VOW will be logged into his/her dedicated DN and features. In other words, when initially assigned, the VOW's dedicated DN and features will still be associated with the physical set on which they were provisioned prior to the assignment of the VOW line option until the VOW logs out, or is logged out by the VOW audit.

The value of the passcode associated with the VOW line option must have a length matching the PCCLEN value in the associated VOWDN tuple in table CUSTSTN. Once a VOW's passcode has been set, it can be changed by the user through the use of the VOWPCC feature access code in table IBNXLA or by switch personnel by changing the VOWPID field in the appropriate tuple in table VOWINV. When changed, the passcode must still have a length

matching the PCCLEN value in the associated VOWDN tuple in table CUSTSTN.

If the value of the PCCLEN field in the VOWDN tuple in table CUSTSTN changes, the associated VOWPID fields in table VOWINV will immediately be impacted. If the PCCLEN value is changed to a smaller value, then the VOWPID values for VOWs in the corresponding customer group will be truncated to match the new PCCLEN value (e.g., changing the PCCLEN value from 6 to 4 will change a VOWPID value of '123456' to '1234'). If the PCCLEN value is changed to a larger value, then the corresponding VOWPID values will be right-padded with zeros up to the new PCCLEN value (e.g., changing the PCCLEN value from 6 to 8 will change a VOWPID value of '123456' to '12345600').

Note: If the PCCLEN value for a customer group is changed, all VOWs within the corresponding customer group must be notified of the resulting impact to their passcode values. If this notification does not occur, the VOWs within the customer group will not be able to log in.

Also, all pre-designated sets that are to be used by VOWs need to have the VOWDN line option assigned within the customer groups that are to offer VOW functionality.

Switch personnel can log a VOW in or out of his/her dedicated DN and features through the use of CKLN/CLN Servord commands. In these scenarios, the CKLN/CLN commands work as they would normally, but a VOW LEN is provided as either the source or target LEN of the change LEN command.

Practical VOW setup example

VOW is a fairly flexible feature in nature. There are a variety of methods which could be used to setup the feature and get started using it. Unfortunately, this flexibility can lead to confusion. To help alleviate this confusion, a simple, practical example is provided below.

This example demonstrates how telephone company switch personnel might create a group of 2 VOWDN "drop-in" sets which are to be shared by 4 real VOW users.

1. For non MSL loads, turn on the feature SOC MDC00076.
2. Datafill a VOWDN feature tuple in table CUSTSTN.
3. Datafill the VOWIN, VOWOUT, VOWPCC, and VOWROUT feature translators in table IBNXLA.
4. Datafill VOW and SW tuples in table AUTHCDE if required in the CUSTSTN tuple.

Note: For more information on table datafill for CUSTSTN, IBNXLA, and AUTHCDE, see section " VOW Setup" on page 220, or refer to the Appendix B, the Data Schema section in this document.

5. Choose 2 blank lens which will eventually be used as the "drop-in" phones.
6. Using one of the blank lens, use the Servord NEW command to create the real set data for 1 of the VOW users. Add the VOW line option when the set is being created.
7. Using CKLN/CLN, move the newly created VOW user to a VOW len (VOW x y).
8. Repeat steps 6 and 7 until all 4 VOW users real set data has been defined and moved to a free VOW len.
9. Now use the Servord NEW command again to create the set data for the 2 "drop-in" phones using the same 2 blank lens. Add the VOWDN line option when the set is being created.

At this point, the 2 VOWDN "drop-in" phones are ready to take/receive calls or to be used to login any of the 4 VOW users via the VOWIN access code.

It should be noted that at the moment that a VOW user is logged in at one of the VOWDN "drop-in" phones, a new VOWDN tuple will appear in table DNROUTE. This tuple can be considered as a placeholder for the VOWDN information. As soon as the VOW user logs back out, the DNROUTE tuple is removed, and the VOWDN information is restored to the physical line.

VOW Login

On a set with the VOWDN line option assigned, a VOW performs the following steps to log in:

1. Go off-hook.

   Note: A VOWDN set which does not have a logged in VOW user will receive stutter dial tone when going off hook.

2. Upon receipt of stutter dial tone, dial the VOWIN feature access code datafilled in table IBNXLA (e.g., '*80') against the appropriate customer group.

3. Upon receipt of dial tone, dial the VOW authorization code datafilled in table AUTHCDE (e.g., '7654321') against the appropriate customer group and NCOS. The length of this authorization code is specified in table AUTHCDE. If a mistake is made when entering the VOW authorization code, pressing the '*' key will restart collection of the VOW authorization code.

   Note 1: This step is required only if the use of the VOW authorization code is enabled through the VOWDN tuple in table CUSTSTN for the corresponding customer group.

   Note 2: Use of authorization codes can require an ACCT code depending on the datafill for AUTH in table CUSTHEAD. If required, the ACCT code must be appended to the AUTH code.

4. Upon receipt of dial tone, dial the personal (SW) authorization code datafilled in table AUTHCDE (e.g., '1234567') against the appropriate customer group and NCOS. The length of this authorization code is specified in table AUTHCDE. If a mistake is made when entering the personal authorization code, pressing the '*' key will restart collection of the personal authorization code.

   Note 3: This step is required only if the use of the personal (SW) authorization code is enabled through the VOWDN tuple in table CUSTSTN for the corresponding customer group.

   Note 4: Use of authorization codes can require an ACCT code depending on the datafill for AUTH in table CUSTHEAD. If required, the ACCT code must be appended to the AUTH code.

5. Upon receipt of dial tone, dial the PDN for the VOW set data to whose passcode is being modified (e.g., '2149975005'). If a mistake is made when entering the PDN, pressing the '*' key will restart collection of the PDN.

   Note: The PDN must be entered as a 10 digit number.

6. Upon receipt of dial tone, dial the passcode unique to that VOW (e.g., '9975056449'). The length of this passcode is specified in table CUSTSTN in the VOWDN tuple associated with the customer group. If a mistake is made when entering the passcode, pressing the '*' key will restart collection of the passcode.

At this point, logs will be generated and OMs will be pegged to indicate a successful login attempt. If an error occurred, either due to user input or otherwise during any of the above steps, OMs will be pegged to indicate that an error occurred during a login attempt, and the set will return to an idle state.

If successfully logged in, the VOW will be able to make and receive calls using the dedicated DN that would then be associated with the VOW set on which the login took place. Also, any features previously provisioned against the dedicated DN will operate normally, retaining any settings from the previous logout.

Once logged in, the VOWs dedicated DN and associated data will be associated with a physical LEN, as illustrated below in sample QLEN output.

```
>qlen 9975121
------------------------------------------------------------------------------
LEN:     HOST 0 0 0 1
TYPE: SINGLE PARTY LINE
SNPA: 214
DIRECTORY NUMBER:     9975121
LINE CLASS CODE:  M2016S
CUSTGRP:          BNRRCH  SUBGRP: 0  NCOS: 0  RING: Y
CARDCODE:  8D02AB    GND: N  PADGRP: NPDGP  BNV: NL MNO: Y
PM NODE NUMBER     :    55
PM TERMINAL NUMBER :    33
OPTIONS:
CWI VOW
CFD F 5122 I 1 2 CWT Y Y N 1 2

   KEY       DN
   ---       --
     1       DN             9975121

   KEY     FEATURE
   ---     -------
     1        CFD F                          5000         I  1  2
     4        CWT Y Y N  1  2
------------------------------------------------------------------------------
```

Furthermore, some changes will be seen in tables VOWINV and DNROUTE once the VOW user is successfully logged in. In table VOWINV, the VOWDN tuple is removed. The VOW agent DN is now linked to the VOWDN set physical len in the VOW tuple. The same tuple also shows the LOGGEDIN bool as ‘Y’. In table DNROUTE, a DN placeholder tuple has been created to store and reserve the VOWDN set DN until the VOW user logs out.

VOW Logout

On a set with the VOW line option assigned, a VOW performs the following to log out:

1. Go off-hook.
2. Upon receipt of dial tone, dial the VOWOUT feature access code datafilled in table IBNXLA (e.g., '*81') against the appropriate customer group.

At this point, logs will be generated and OMs will be pegged to indicate a successful logout attempt. If an error occurred either due to user input or otherwise during any of the above steps, OMs will be pegged to indicate that an error occurred during a logout attempt, and the set will return to an idle state.

If successful, the VOW will be logged out. Calls can terminate on or be originated from the set on which the logout attempt took place. All data, including the dedicated DN and features, associated with the VOW who just logged out will be completely disassociated with the set.

At this point, the VOWDN set will now deliver stutter dial tone upon going off hook in order to denote that no VOW user is logged in at that set.

Once logged out, the VOWs dedicated DN and associated data will not be associated with any physical LEN. Instead, it will be associated with a VOW logical terminal as illustrated below in sample QLEN output. Similarly, when logged out, the pre-designated VOW set returns to the standard line with VOWDN option.

```
>qlen 9975121
------------------------------------------------------------------------------
LEN:     VOW 1 1
TYPE: SINGLE PARTY LINE
SNPA: 214
DIRECTORY NUMBER:     9975121
LINE CLASS CODE:  M2016S
CUSTGRP:          BNRRCH  SUBGRP: 0  NCOS: 0  RING: Y
CARDCODE: NOT APPLICABLE GND: N  PADGRP: NPDGP  BNV: NL MNO: N
OPTIONS:
CWI VOW
CFD F 5122 I 1 2 CWT Y Y N 1 2

   KEY       DN
   ---       --
```

```
     1       DN             9975121

   KEY     FEATURE
   ---     -------
     1        CFD F                          5000         I  1  2
     4        CWT Y Y N  1  2
------------------------------------------------------------------------------
>qlen HOST 0 0 0 1
------------------------------------------------------------------------------
LEN:     HOST 0 0 0 1
TYPE: SINGLE PARTY LINE
SNPA: 214
DIRECTORY NUMBER:     9975122
LINE CLASS CODE:  M2016S
CUSTGRP:          BNRRCH  SUBGRP: 0  NCOS: 0  RING: Y
CARDCODE:  8D02AB    GND: N  PADGRP: NPDGP  BNV: NL MNO: Y
PM NODE NUMBER     :    55
PM TERMINAL NUMBER :    33
OPTIONS:
DTM VOWDN $

   KEY       DN
   ---       --
     1       DN          2149975900

   KEY     FEATURE
   ---     -------
   1   VOWDN
------------------------------------------------------------------------------
```

Furthermore, some changes will be seen in tables VOWINV and DNROUTE once the VOW user is successfully logged out. In table VOWINV, the VOWDN tuple is restored. The VOW agent DN is now associated with the VOW virtual len in the VOW tuple. The same tuple also shows the LOGGEDIN bool as ‘N’. In table DNROUTE, the DN placeholder tuple previously created has now been removed.

VOW Passcode Change

On a set within the same customer group on the same switch as the VOW's set data, a VOW can perform a passcode change as follows:

1. Go off-hook.
2. Upon receipt of dial tone, dial the VOWPCC feature access code datafilled in table IBNXLA (e.g., '*82') against the appropriate customer group.
3. Upon receipt of dial tone, dial the PDN for the VOW set data to whose passcode is being modified (e.g., '2149975005'). If a mistake is made when entering the PDN, pressing the '*' key will restart collection of the PDN.

   Note: The PDN must be entered as a 10-digit number.

4. Upon receipt of dial tone, dial the current passcode unique to that VOW (e.g., '9975056449'). The length of this passcode is specified in table CUSTSTN in the VOWDN tuple associated with the customer group. If a mistake is made when entering the current passcode, pressing the '*' key will restart collection of the current passcode.
5. Upon receipt of dial tone, dial the new passcode for that VOW (e.g., '9975056944'). The length of this passcode is specified in table CUSTSTN in the VOWDN tuple associated with the customer group. If a mistake is made when entering the new passcode, pressing the '*' key will restart collection of the new passcode.
6. Upon receipt of dial tone, re-dial for confirmation the new passcode for that VOW (e.g., '9975056944'). The length of this passcode is specified in table CUSTSTN in the VOWDN tuple associated with the customer group. If a mistake is made when re-entering the new passcode, pressing the '*' key will restart collection for the re-entry of the new passcode.

If the first new passcode does not match the second (confirmation) new passcode, then the VOW's passcode will not be changed. Further, if another VOW in the same customer group should have the same passcode as the new passcode, then passcode will not be changed.

Whether successful or not, OMs will be pegged to record the result of the passcode change attempt.

VOW Remote Logout

On a set within the same customer group on the same switch as the VOW's set data, a VOW can perform a remote logout as follows:

1. Go off-hook.
2. Upon receipt of dial tone, dial the VOWROUT feature access code datafilled in table IBNXLA (e.g., '*83') against the appropriate customer group.

3. Upon receipt of dial tone, dial the PDN for the VOW set data which is being remotely logged out(e.g., '2149975005'). If a mistake is made when entering the PDN, pressing the '*' key will restart collection of the PDN.

   Note: The PDN must be entered as a 10 digit number.

4. Upon receipt of dial tone, dial the current passcode unique to that VOW (e.g., '9975056449'). The length of this passcode is specified in table CUSTSTN in the VOWDN tuple associated with the customer group. If a mistake is made when entering the current passcode, pressing the '*' key will restart collection of the current passcode.

If the VOW was logged in, this will force a logout from a remote station. At this point, logs will be generated and OMs will be pegged to indicate a successful remote logout attempt. If an error occurred either due to user input or otherwise during any of the above steps, OMs will be pegged to indicate that an error occurred during a logout attempt, and the set will return to an idle state.

The VOW set data will be modified as described in section " VOW Logout" on page 226 if the remote logout attempt is successful.

VOW Audit Process

In the VOWDN tuple in table CUSTSTN, a customer group can specify whether an audit is to be executed every 24 hours against the VOWs in the customer group, and if so, the specific hour at which the audit will execute. If enabled, the audit will execute at the specified hour every day, and will log out those VOWs who are still logged in. Logs will be generated and OMs will be pegged to record any actions taken by the audit.

If the set at which a VOW is logged in is not in an idle state when the audit executes, then that VOW will not be logged out by the audit. Instead, at the next hour, the audit will check the set again, and if the VOW is still logged in and the set is in an idle state, the audit will log the VOW out. If still logged in and the set is not in an idle state, the audit will attempt to log out the VOW at the next hour. This will repeat until the VOW is logged out, either manually or through the audit.

VOWs who are logged out through the audit can log back in just as if they had logged themselves out.

Table VOWINV and CI command VOWCI

As sets/DNs are assigned the VOW and VOWDN line options, table VOWINV will be automatically datafilled with information regarding the sets involved with VOW functionality. Tuples are not permitted to be added or deleted from this table through the TABLE editor. In addition, not all fields can be modified through the TABLE editor. The only field that can be modified is

the VOWPID field, which contains a VOW's passcode. This field can be modified by switch personnel in order to reset a VOW's passcode, if necessary.

The VOWCI CI command provides alternate views of the data present in table VOWINV. For example, it can be used to list details on:

- the physical sets from which VOWs can log in
- the VOWs currently logged in or logged out
- data per customer group

More information on the VOWINV table and the VOWCI CI command can be found in Appendix D of this document.

VOW Limits

Up to 20,500 VOWs can exist within a single switch, if all VOWs require only a single LEN. Within a customer group, there is no limitation on the number of VOWs, except for the maximum number per switch of 20,500. This limit facilitates having more actual VOWs (i.e., VOW set data with the VOW line option assigned) than VOWDN sets (i.e., physical sets with the VOWDN line option assigned).

IVD sets can be configured with a second (mate) LEN. If a VOW's dedicated DN and features are associated with such a set, then that VOW will require two VOW LENs, thus reducing the maximum possible number of VOWs.

Up to 4,095 VOWDNs can exist within a single switch. Within a customer group, there is no limitation on the number of VOWDNs, except for the maximum number per switch of 4,095.

Logs (LG)

A new log type, VOW, is created for use with VOW functionality. This new log type contains numerous reports. Information concerning these new logs can be found in the Fault Management section of this feature.

The new log reports will be generated for the following events:

- Successful log in
- Successful log in through CLN/CKLN
- Successful log out
- Successful log out through CLN/CKLN
- Successful log out through audit process

Data schema (DS)

A new table, VOWINV, is created for use with VOW functionality. The format of this new table can be found in the Configuration section of this feature.

In addition, other tables must be properly datafilled prior to using VOW functionality. These include tables DNROUTE, CUSTSTN, IBNXLA, and AUTHCDE. More detailed information than that provided in this section is available in the Configuration section of this feature.

A new LEN format is introduced by this functionality. A VOW virtual LEN or logical terminal is denoted through type EXT_LEN with the following format:

- VOW <VOW Node Number> <VOW Terminal Number>

A VOW Node Number is a value from 1 to 10, and a VOW Terminal Number is a value 1 to 2050. An example of a VOW LEN is ‘VOW 2 955’.

DNROUTE
In table DNROUTE, a unique DN will be allocated for each VOWDN set which already has a VOW user logged in. This tuple is created automatically when a VOW user logs in, and it is automatically removed when a VOW user logs out.

CUSTSTN
In table CUSTSTN, feature VOWDN must be datafilled against each customer group that will allow VOW functionality. The datafill for each customer group contains the following:

— NCOS and SUBGRP values for translations purposes on the pre-designated VOW sets when no VOW is logged in;

— A boolean value specifying whether or not the VOW authorization code is required within the associated customer group during use of the VOWIN feature access code;

— A boolean value specifying whether the personal (SW) authroization code is required within the associated customer group during use of the VOWIN feature access code;

— A boolean value specifying whether the associated customer group is to be audited, and if so, a value specifying the hour of the day the audit is to occur;

— A boolean value specifying whether or not VOW functionality interacts with call forwarding functionality to enable call forwarding for a VOW when s/he logs out and to disable call forwarding for a VOW when s/he logs in;

— The length of the VOW personal ID code (referred to as passcode throughout the remainder of this document) length values used to uniquely identify a VOW within a customer group; and,

— The line class code of the sets which will make use of VOW functionality.

IBNXLA
In table IBNXLA, the feature translators VOWIN, VOWOUT, VOWROUT, and VOWPCC must be datafilled against the appropriate XLANAME and DGLIDX such that VOWs can log in, log out, and change their individual passcodes.

AUTHCDE
In table AUTHCDE, VOW and SW authorization codes must be datafilled if these authorization codes are enabled through the VOWDN tuple in table CUSTSTN. These values will be used when a VOW attempts to log in.

Enhanced AUTHCDE functionality, such as PIN digits and ACCT codes are supported by the VOW authorization code.

Service orders (SO)

Two new line options, VOW and VOWDN, are created for use with VOW functionality. Details on these line options can be found in the Configuration section of this feature.

These line options will be valid on the sets described in the table which follows. ***Note:*** *IVD sets apply to MSL loads only.*

VOW/VOWDN Line Option Compatible Sets

Set Type	LCC
MBS	PSET
	M5009
	M5112
	M5209
	M5312
	M5212
	M5008
	M5208
	M5216
	M5316

VOW/VOWDN Line Option Compatible Sets

Set Type	LCC
IVD	M2009
	M2112
	M2018
	M2317
	M2008
	M2616
	M2016S
	M2216A
	M2216B
	M2006
	M2616CT
IBN	IBN

The VOWDN line option applies to a set from which a VOW can log in. It will be compatible with the DTM (Deny Termination) line option in order that calls to the shared VOWDN datafilled in DNROUTE against the corresponding customer group does not terminate when dialed.

Both the VOW and VOWDN line options must be assigned to the PDN of a keyset with a line format in table KSETLINE of DN or to an IBN set with a line format in table IBNLINES of STN. As such, they are both incompatible with MDN (Multiple Appearance Directory Number), ACD (Automatic Call Distribution), attendant consoles, and GIC (Group Intercom) line formats.

Man Machine interface (MM)

A new CI command, VOWCI, is created to allow easy access to information pertaining to sets involved with VOW functionality. Details on this new command can be found in the MM section (Appendix D) of this document.

Operational measurements (OM)

A new OM group, VOW, is created for use with VOW functionality. Details on this new OM group can be found in the Configuration section of this feature.

The new OM registers will be pegged for the following events:

- Successful log in
- Successful log in through CLN/CKLN

- Successful log out
- Successful log out through CLN/CKLN
- Successful log out through audit process
- Successful passcode change
- Invalid log in attempt
- Invalid log out attempt
- Invalid passcode change attempt

AMA/Billing information (AM)

AMA/Billing information is not impacted by this activity. As such, no AM section is included in this document. While there is an explicit requirement which concerns billing, the existing billing functionality handles the billing of calls from the temporary LEN to the corresponding virtual DN.

Hardware Requirements or Dependencies

Not Applicable.

Software Requirements or Dependencies

None.

Interactions

- The provisioning of the VOW line option to a set results in the creation of a tuple in table VOWINV as well as the allocation of a virtual VOW LEN for use by the set to which the VOW line option is assigned. If the set is an IVD set whose mate LEN is present, a second virtual VOW LEN will be allocated for the mate LEN.
- The removal of the VOW line option from a set results in the deletion of the corresponding tuple in table VOWINV, and the deallocation of the virtual VOW LEN(s).
- Once logged in, existing features associated with a VOW's dedicated DN will operate as if the VOW's set were originally provisioned against the set from which s/he logged in. This includes originating and receiving calls, billing, message waiting indication, and calling and caller name and number display.
- Similarly, once logged out, options associated with the VOW dedicated DN such as call forwarding will operate as if the VOW were actually logged in, assuming that such features were active at the time the VOW logged out.
- If the VOWDN tuple in table CUSTSTN enables the VOW functionality to interact with call forwarding, then when a VOW logs out, his/her call forwarding will be activated. Similarly, when a VOW logs in, his/her call

forwarding will be deactivated. This interaction applies only to the basic call forwarding types CFU, CFF, and CFI. It does not apply to any other call forwarding types such as CFK, CFB or CFD.

- When logged out, the VOW data is moved from a physical LEN to a virtual LEN. When this occurs, the DNs on a VOW's set data which was moved appear to the system to be in a busy (offline) state. As such, calls to logged out VOW DNs will not ring, but will instead receive busy tone. The table below outlines how calls to a logged-out VOW's DN will forward using CFB and CFD. Per normal call forward operation, and active CFU, CFF, CFI, and CFK call forwarding type takes precedence over active CFB and CFD call forwarding types on a logged out VOW's set data.

CFB/CFD Interactions with Logged-out VOWs

	CFB Active	**CFB Inactive**	**CFB Not Provisioned**
CFD Active	Calls will forward using CFD	Calls will forward using CFD	Calls will forward using CFD
CFD Inactive	Calls will forward using CFB	Calls will not forward using either CFB or CFD	Calls will not forward using either CFB or CFD
CFD Not Provisioned	Calls will forward using CFB	Calls will not forward using either CFB or CFD	Calls will not forward using either CFB or CFD

- When logged in, VOW users receive normal dial tone upon going off hook. When logged out, the VOWDN sets will deliver stutter dial tone to indicate that no VOW user is logged in at that set. If using IBN set types, this can cause confusion if stutter dial tone is utilized as a message waiting indicator. The end user will not be able to differentiate between a logged in VOW user with a message waiting and a VOWDN set with no VOW users logged in. For this reason, it is recommended that a lamp be used as the message waiting indicator if the physical equipment is available to accomodate it.
- If a logged in VOW user dials 911, their dedicated VOW DN will be presented to the 911 operator as the call back DN. This number will be used to lookup the address (physical location) of the 911 caller. In some VOW configurations, the VOWDN sets may be physically located in several different areas. In these configurations, the 911 system will not be able to determine which physical location that the VOW user is logged in from. This problem can not be avoided, but can be minimized if the VOWDN sets are physically located as close to each other as possible.

Limitations and restrictions

- In general, this entire feature activity is compatible with most existing features. The exceptions are:

  a. The VOWDN line option is not compatible with any other line option/feature except for SETMODEL, DGT, DISP, M0200, and NAME.

  b. The VOW line option is not compatible with MADN, ACD, or HUNT groups. Hence, it is not compatible with the MDN, ACD, and the various HUNT-related line options. It is also not compatible with ACB, AR, BLF, C2USER, CALLOG, DLH, DNH, DOR, DRING, MDN, MLH, NFA, SBLF, SIMRING, SLU, TRANSFER, VOWDN, and XFER.

- Up to 20,500 VOWs can exist within a single switch, if all VOWs require only a single LEN. Within a customer group, there is no limitation on the number of VOWs, except for the maximum number per switch of 20,500.
- Up to 4,095 VOWDNs can exist within a single switch. Within a customer group, there is no limitation on the number of VOWDNs, except for the maximum number per switch of 4,095.
- IVD sets can be configured with a second (mate) LEN. If a VOW's dedicated DN and features are associated with such a set, then that VOW will require two VOW LENs, thus reducing the maximum possible number of VOWs.
- Within a customer group, all VOW's dedicated DNs and features must be associated with the same type of set. The pre-designated physical sets from which these VOWs will log in must also be of that same set type.
- The calls that can be originated from a set with VOWDN assigned are determined/restricted by the translations set up against the corresponding customer group and the NCOS/SUBGRP values in the VOWDN tuple in table CUSTSTN. Translations can limit these VOWDN sets to make only E911 calls, E911 and local calls, E911, local, and long distance calls, etc.
- Once the VOW line option is assigned, the associated set can only be further provisioned in Servord (i.e., using ADO, NEW, etc.) when the associated VOW is logged in. If a VOW is logged out, his/her set data will be associated with a VOW logical terminal instead of with a physical LEN, and any provisioning by switch personnel must be performed as follows:

  1. Use the appropriate CKLN/CLN Servord command to move the VOW's set data from a VOW logical terminal to a physical LEN. This will log the VOW in to the specific physical LEN.[7]

  2. Perform the required provisioning through Servord.

3. Use the appropriate CKLN/CLN Servord command to move the VOW's set data from the physical LEN back to a VOW logical terminal. This will log the VOW out of the previously-specified LEN.

The previous provisioning statements also apply when removing a VOW line from service. CKLN/CLN must first be used to move the VOW set data to a physical LEN. The set can then be removed via the Servord OUT command.

A VOW login can occur only from a set with VOWDN assigned which is in the same customer group as the VOW's set data for the VOW who is attempting to log in.

Due to the number of tables modified when moving VOW set data from a physical LEN to a virtual LEN and vice versa, access to VOW functionality through the VOWIN, VOWOUT, VOWROUT, and VOWPCC feature access codes will not be allowed during an ONP. This is to ensure data consistency over a software upgrade. Once the ONP is complete, VOW access will again be permitted.

Applicable customer facing sections

Fault Management	
Logs	___X___
Alarms	__N/A__
Configuration	
Data Schema	___X___
User Interface	___X___
Element Management	__N/A__
Security	__N/A__
Service Order	___X___
Office Parameters	__N/A__
Accounting (includes AMA billing)	__N/A__
Performance (includes operational measurements)	___X___

7. The audit time, if activitated for the associated customer group, should be considered when performing these actions. If these provisioning actions are executed when the VOW audit runs for the associated customer group, the VOW user will effectively be logged out by the audit process.

Glossary

Term	Description
ACD	Automatic Call Distribution (Line option/format)
AUTHCDE	Table AUTHCDE
CCM	DMS-100 Common (DRU)
CFB	Call Forward Busy (Line option)
CFD	Call Forward Don't Answer (Line option)
CFF	Call Forward Fixed (Line option)
CFI	Call Forward Internal (Line option)
CFK	Call Forward Per Key (Line option)
CFU	Call Forward Universal (Line option)
CI	SOS Command Interpreter
CKLN	Change Keyset LEN (Servord Command)
CLN	Change LEN (Servord command)
CUSTSTN	Table CUSTSTN
DGLIDX	Digilator Index (Part of key to table IBNXLA)
DN	Directory Number
DNINV	Table DNINV
DNROUTE	Table DNROUTE
DRU	Development Release Unit
DTM	Deny Termination (Line option)
FNAL	Feature Not Allowed (Treatment type)
GIC	Group Intercom (Line option/KSETLINE line format)
HUNT	HUNT Group
IBN	Integrated Business Network
IBNLINES	Table IBNLINES
IBNXLA	Table IBNXLA
IVD	Integrated Voice and Data
KSETLINE	Table KSETLINE

Term	Description
LEN	Line Equipment Number
MADN	Multiple Appearance Directory Number
MBS	Meridian Business Set
MDN	Multiple Appearance Directory Number (Line option/format)
MSL	Meridian Stored Logic
NCOS	Network Class of Service
NFA	Network Facility Access
OM	Operational Measurement
PBX	Private Branch Exchange
QLEN	Query LEN (CI command)
SOC	Software Optionality Control
STN	Station (IBNLINES Line format)
SUBGRP	Subgroup (of customer group)
SW	System Wide (Authorization code type)
TABLE	Table Editor CI Command
TL	Telecom (DRU)
VOW	Virtual Office Worker (i.e., a Telecommuter) Also, any of the following: * Line option * Authorization code type in table AUTHCDE
VOWCI	VOWCI CI Command
VOWINV	Table VOWINV
VOWDN	Any of the following: * Entry in table CUSTSTN * Entry in table DNINV * Entry in table DNROUTE * KSETLINE/IBNLINES Line format
VOWIN	VOW Login Feature Translator in table IBNXLA
VOWOUT	VOW Logout Feature Translator in table IBNXLA

Term	Description
VOWPCC	VOW Passcode Change Feature Translator in table IBNXLA
VOWROUT	VOW Remote Logout Feature Translator in table IBNXLA
XLANAME	Translations Name (Part of key to table IBNXLA)

Fault Management for A00002011

This section contains the log reference information from the original design document (AX1236LG.AA20).

It has not been modified from the original version.

New/Modified Logs

New/Modified Logs

LOG NAME	LOG NUMBER	NEW/MOD DELETED	SYSTEM (SOS/UNIX)
VOW	501	New	SOS
VOW	502	New	SOS
VOW	601	New	SOS
VOW	602	New	SOS

Log report: VOW501

Example

VOW501 Example

```
VOW501  JAN28 14:08:23 0007 PASS VOW ATTEMPT PASSED
        VOW USER = 2149975055
        VOW LEN  = IPE0 0 1 1 12
        ACTION   = LOGIN
        METHOD   = VOWIN
```

Overview

This log report is generated when a VOW access attempt (login, logout, or passcode change) passes.

Format

VOW501 Format

```
VOW501  mmmdd hh:mm:ss nnnn PASS VOW ATTEMPT PASSED
        VOW USER = nnnnnnnnn
        VOW LEN  = xxxx nn n nn nn
        ATTEMPT  = xxxxxxxxxxxxxxx
        METHOD   = xxxxxxx
```

Field description

Field name: VOW USER
Field optionality: MANDATORY
Type: digit
Size: 10 digits
Value(s): nnnnnnnnnn, where n=0-9
Descriptions: The directory number of the VOW user who logged in.
NTP table reference: N/A

Field name: VOW LEN
Field optionality: MANDATORY
Type: char/digit
Size: 15 char/digit
Value(s): xxxx nn n nn nn, where x=0-9, A-Z, and n=0-9
Descriptions: The LEN at which the VOW user is logged in.
NTP table reference: N/A

Field name: ATTEMPT
Field optionality: MANDATORY
Type: char
Size: 15 char
Value(s): LOGIN, LOGOUT, PASSCODE CHANGE
Descriptions: LOGIN is specified if the successful action being reported is a login attempt (through VOWIN, CKLN, or CLN). LOGOUT is specified if the successful action being reported is a logout attempt (through VOWOUT, CKLN, CLN, VOWROUT, or the VOW Audit). PASSCODE CHANGE is specified if the successful action being reported is a passcode change attempt through VOWPCC.

Field name: METHOD
Field optionality: MANDATORY
Type: char
Size: 7 char
Value(s): VOWIN, VOWOUT, VOWROUT, VOWPCC, CKLN, CLN, AUDIT
Descriptions: VOWIN is specified if the successful attempt being reported is a login attempt through the VOWIN access code. VOWOUT is specified if the successful attempt being reported is a logout attempt through the VOWOUT access code. VOWROUT is specified if the successful attempt being reported

is a remote logout attempt through the VOWROUT access code. VOWPCC is specified if the successful attempt being reported is a passcode change attempt through the VOWPCC access code. CKLN is specified if the successful attempt being reported is a login or logout attempt through the CKLN Servord command. CLN is specified if the successful attempt being reported is a login or logout attempt through the CLN Servord command. AUDIT is specified if the successful attempt being reported is a logout attempt by the VOW Audit.

Action to be taken

No immediate action.

Post-analysis

This log is generated whenever a VOW access attempt completes successfully. The OM registers available through OM group VOW provide further information to measure the overall use of VOW functionality.

Internal

This log report is specific to VOW functionality, and will only be generated from within VOW-specific code.

OM register

OM Group: VOW.

Registers: INPASS, OUTPASS, CINPASS, COUTPASS, PCCPASS, AUDPASS, ROUTPASS

Log report: VOW502

Example

VOW502 Example

```
VOW502  JAN28 14:08:23 0007 FAIL VOW ATTEMPT FAILED
        VOW USER = 2149975055
        VOW LEN  = IPE0 0 1 1 12
        ACTION   = LOGIN
        METHOD   = VOWOUT
```

Overview

This log report is generated when a VOW access attempt (login, logout, or passcode change) fails.

Format

VOW502 Format

```
VOW502  mmmdd hh:mm:ss nnnn FAIL VOW ATTEMPT FAILED
        VOW USER = nnnnnnnnn
        VOW LEN  = xxxx nn n nn nn
        ATTEMPT  = xxxxxxxxxxxxxxx
        METHOD   = xxxxxxx
```

Field description

Field name: VOW USER
Field optionality: MANDATORY
Type: digit
Size: 10 digits
Value(s): nnnnnnnnnn, where n=0-9
Descriptions: The directory number of the VOW user who logged in.
NTP table reference: N/A

Field name: VOW LEN
Field optionality: MANDATORY
Type: char/digit
Size: 15 char/digit
Value(s): xxxx nn n nn nn, where x=0-9, A-Z, and n=0-9
Descriptions: The LEN from which the VOW user logged out.
NTP table reference: N/A

Field name: ATTEMPT
Field optionality: MANDATORY
Type: char
Size: 15 char
Value(s): LOGIN, LOGOUT, PASSCODE CHANGE
Descriptions: LOGIN is specified if the failed action being reported is a login attempt (through VOWIN, CKLN, or CLN). LOGOUT is specified if the failed action being reported is a logout attempt (through VOWOUT, CKLN, CLN, VOWROUT, or the VOW Audit). PASSCODE CHANGE is specified if the failed action being reported is a passcode change attempt through VOWPCC.

Field name: METHOD
Field optionality: MANDATORY
Type: char
Size: 7 char
Value(s): VOWIN, VOWOUT, VOWROUT, VOWPCC, CKLN, CLN, AUDIT
Descriptions: VOWIN is specified if the failed attempt being reported is a login attempt through the VOWIN access code. VOWOUT is specified if the failed attempt being reported is a logout attempt through the VOWOUT access code. VOWROUT is specified if the failed attempt being reported is a remote

logout attempt through the VOWROUT access code. VOWPCC is specified if the failed attempt being reported is a passcode change attempt through the VOWPCC access code. CKLN is specified if the failed attempt being reported is a login or logout attempt through the CKLN Servord command. CLN is specified if the failed attempt being reported is a login or logout attempt through the CLN Servord command. AUDIT is specified if the failed attempt being reported is a logout attempt by the VOW Audit.

Action to be taken

No immediate action.

Post-analysis

This log is generated whenever a VOW access attempt completes unsuccessfully. The OM registers available through OM group VOW provide further information to measure the overall use of VOW functionality.

Internal

This log report is specific to VOW functionality, and will only be generated from within VOW-specific code.

OM register

OM Group: VOW.

Registers: INFAIL, OUTFAIL, CINFAIL, COUTFAIL, PCCFAIL, AUDFAIL, ROUTFAIL

Log report: VOW601

Example

VOW601 Example

```
VOW601  JAN28 14:08:23 0007 INFO VOW AUDIT COMPLETE
        CUSTOMER GROUP     = BNRRCH
        LOGGED IN          = 23
        ATTEMPTED LOGOUTS  = 21
        SUCCESSFUL LOGOUTS = 20
        FAILED LOGOUTS     = 1
```

Overview

This log report is generated when the VOW audit process completes. It contains counts of the number of VOW users who were logged in when the audit began, the number of VOW users on which logouts were attempted by the audit, and success and failure counts for those attempts.

Format

VOW601 Format

```
VOW601  mmmdd hh:mm:ss nnnn INFO VOW AUDIT COMPLETE
        CUSTOMER GROUP      = xxxxxxxxxxxxxxxx
        LOGGED IN           = nnnnn
        ATTEMPTED LOGOUTS   = nnnnn
        SUCCESSFUL LOGOUTS  = nnnnn
        FAILED LOGOUTS      = nnnnn
```

Field description

Field name: CUSTOMER GROUP
Field optionality: MANDATORY
Type: char
Size: 16 char
Value(s): xxxxxxxxxxxxxxxx, where x=0-9, A-Z
Descriptions: The customer group to which the log applies.
NTP table reference: N/A

Field name: LOGGED IN
Field optionality: MANDATORY
Type: digit
Size: 5 digits
Value(s): nnnnn, where n=0-9
Descriptions: The number of VOW users within the customer group which were logged in when the audit began.
NTP table reference: N/A

Field name: ATTEMPTED LOGOUTS
Field optionality: MANDATORY
Type: digit
Size: 5 digits
Value(s): nnnnn, where n=0-9
Descriptions: The number of VOW users against which logouts were attempted through the audit.
NTP table reference: N/A

Field name: SUCCESSFUL LOGOUTS
Field optionality: MANDATORY
Type: digit
Size: 5 digits
Value(s): nnnnn, where n=0-9
Descriptions: The number of audit logout attempts which were successful.
NTP table reference: N/A

Field name: FAILED LOGOUTS
Field optionality: MANDATORY
Type: digit
Size: 5 digits
Value(s): nnnnn, where n=0-9
Descriptions: The number of audit logout attempts which were un-successful.
NTP table reference: N/A

Action to be taken

No immediate action.

Post-analysis

This log is generated whenever the VOW audit process completes. The OM registers available through OM group VOW provide further information to measure the overall use of VOW functionality.

Internal

This log report is specific to VOW functionality, and will only be generated from within VOW-specific code.

OM register

OM Group: VOW.

Registers: AUDPASS, AUDFAIL

Log report: VOW602

Example

VOW602 Example

```
VOW602  JAN28 14:08:23 0007 INFO VOW INFORMATION
        INFO: Could not seize line to RTS
```

Overview

This log report is generated when VOW processing finds some error due to which processing cannot continue. It contains a text message describing the error event. This log is always followed by one of the VOW501, VOW502, or VOW601 logs which will provide further information regarding the agents involved with the VOW processing which failed.

Format

VOW602 Format

```
VOW602  mmmdd hh:mm:ss nnnn INFO VOW INFORMATION
        INFO: xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
```

Field description

Field name: INFO
Field optionality: MANDATORY
Type: char
Size: Up to 40 chars
Value(s): 40(x), where x=0-9, A-Z
Descriptions: Provides a textual description of an internal error which has occurred during VOW processing.
NTP table reference: N/A

Action to be taken

No immediate action.

Post-analysis

This log is generated whenever an error occurs during VOW processing. Watch for VOW501, VOW502, or VOW601 logs to provide further information regarding the agents and actions involved when the error occurred.

Internal

This log report is specific to VOW functionality, and will only be generated from within VOW-specific code.

OM register

OM Group: None

Configuration for A00002011

Data Schema (DS)

This section contains data schema information from the original design document (AX1236LG.AA20).

The original document has been modified in the following manner:

- Removed references to table DNINV. After the feature re-write, this table was no longer impacted.
- Added the VOWDNIDX field information to the DNROUTE tuple description. This is a new field that was added late in the design.
- Added the VOWDNDN field information to the VOWINV tuple (for VOWKEY = VOWDN).

LEN format

Although not specific to any one table, a new LEN format is introduced by this functionality. A VOW virtual LEN or logical terminal is denoted through type EXT_LEN with the following format:

- VOW <VOW Node Number> <VOW Terminal Number>

A VOW Node Number is a value from 1 to 10, and a VOW Terminal Number is a value 1 to 2050. An example of a value VOW LEN is 'VOW 2 955'.

When a VOW logs out, his/her set data will be moved from the associated physical LEN to a virtual VOW LEN. This will impact every table which has a reference to the physical LEN.

When a VOW logs in, his/her set data will be moved from the associated virtual LEN to a physical LEN. This will impact every table which has a reference to the virtual LEN.

New/modified Table List

TABLE NAME	NEW, CHANGED or DELETED	TABLE CONTROL (NEW/OLD/UNCHANGED)
AUTHCDE	CHANGED	UNCHANGED
CUSTSTN	CHANGED	UNCHANGED
DNROUTE	CHANGED	UNCHANGED
IBNXLA	CHANGED	UNCHANGED
VOWINV	NEW	NEW

Table Name: AUTHCDE

General

A new value is made available in field AUTHTYPE.

Field Information

AUTHCDE Field Modifications

FIELD NAME	RANGE OF VALUES	STATUS	DEFAULT VALUES
AUTHTYPE	SSAC,SW,SUPAC,ASR,VOW	Changed	N/A

Description of changed or new fields

A new value, VOW, is available in field AUTHTYPE. This value is used to denote the tuple as a VOW authorization code.

Datafill sequence
Datafill sequence is unchanged.

Table sizing
Table sizing is unchanged.

Dump and restore
Dump and restore requirements are unchanged.

Activation
Modified fields do not affect functionality activation.

Example

```
AUTHPART AUTHCODE INFO

----------------------

BNRRCH 7654321 IBN 0 N $ VOW $
```

Table Name: CUSTSTN

General
A new value is made available in fields OPTNAME and OPTION. Additional fields are made available in a refinement specific to the new OPTNAME/OPTION value.

Field Information

CUSTSTN Field Modifications

FIELD NAME	RANGE OF VALUES	STATUS	DEFAULT VALUES
OPTNAME	CUSTSTN_OPTN	Changed	N/A
OPTION	CUSTSTN_OPTN	Changed	N/A
NCOS	NETWORK_CLASS_OF_SERVICE: 0 to 511	New	None
SUBGRP	SUBGRP_NUMBER: 0 to 7	New	None
VOWAUTH	YES_NO: Y or N	New	None
SWAUTH	YES_NO: Y or N	New	None
AUDIT	YES_NO: Y or N	New	None
HOUR	INT: 0 to 23[a]	New	None
CFW	YES_NO: Y or N	New	None
PCCLEN	INT: 4 TO 10	New	None
VOWLCC	LINE_CLASS_CODE	New	None

a. Only prompted if AUDIT = Y

Description of changed or new fields

Fields OPTNAME and OPTION have changed to allow a new CUSTSTN_OPTN value of VOWDN. The remaining new fields are present only in the refinement of CUSTSTN_FEAT for the VOWDN CUSTSTN_OPTN value.

NCOS specifies the network-class-of-service to be associated with all physical sets with the VOWDN line option assigned in the corresponding customer group. Similarly, SUBGRP specifes the sub-group associated with the same physical sets. VOWAUTH and SWAUTH specify whether the VOW and personal (SW) authorization codes are required for a VOW login attempt. AUDIT specifies whether or not the VOW audit is to be executed against the corresponding customer group. If AUDIT is set to Y, then HOUR must also be specified as the hour (0 denotes midnight/12:00 AM, 12 denotes noon/12:00 PM) at which the VOW audit is to be executed against the corresponding customer group. CFW specifies whether or not call forwarding interactions with VOW logins and logouts are enabled. PCCLEN specifies the length of the passcode values for VOWs in the corresponding customer group. VOWLCC specifies the line class code of the sets within the customer group which are to make use of VOW functionality (i.e., those sets to which the VOWDN and VOW line options may be assigned).

The PCCLEN value has a direct relationship on the VOWPID value specified through the use of the VOW line option and on the VOWPID field in table VOWINV. When initially set through the VOW line option, the VOWPID value must have a length matching the PCCLEN value in the associated VOWDN tuple in table CUSTSTN. Once a VOW's passcode has been set, it can be changed by the user through the use of the VOWPCC feature access code in table IBNXLA or by switch personnel by changing the VOWPID field in the appropriate tuple in table VOWINV. When changed, the passcode must have a length matching the PCCLEN value in the associated VOWDN tuple in table CUSTSTN.

If the value of the PCCLEN field in the VOWDN tuple in table CUSTSTN changes, the associated VOWPID fields in table VOWINV will immediately be impacted. If the PCCLEN value is changed to a smaller value, then the VOWPID values for VOWs in the corresponding customer group will be truncated to match the new PCCLEN value (e.g., changing the PCCLEN value from 6 to 4 will change a VOWPID value of '123456' to '1234'). If the PCCLEN value is changed to a larger value, then the corresponding VOWPID values will be right-padded with zeros up to the new PCCLEN value (e.g., changing the PCCLEN value from 6 to 8 will change a VOWPID value of '123456' to '12345600').

Note: If the PCCLEN value for a customer group is changed, all VOW's within the corresponding customer group must be notified of the resulting impact to their passcode values. If this notification does not occur, the VOW's within the customer group will not be able to log in.

Datafill sequence
Datafill sequence is unchanged.

Table sizing
Table sizing is unchanged.

Dump and restore
Dump and restore requirements are unchanged.

Activation
Modified fields do not affect functionality activation.

Example

```
CUSTNAME OPTNAME OPTION

-----------------------

BNRRCH VOWDN VOWDN 0 0 Y Y Y 0 Y 7 PSET

BNRRTP VOWDN VOWDN 0 40 Y N N N 4 M2616
```

Table Name: DNROUTE

General
A new value is made available in field FEATURE. Additional fields are also made available in a refinement specific to the new FEATURE value.

Field Information

DNROUTE Field Modifications for FEAT Result Selector

FIELD NAME	RANGE OF VALUES	STATUS	DEFAULT VALUES
FEATURE	FTRDN_CODE	Changed	N/A
VOWDNIDX	{0 to 4095}	New	None
CUSTGRP	CUSTOMER_GROUP	New	None

Description of changed or new fields
FEATURE is modified within the FEAT result selector to allow a new FTRDN_CODE value of VOWDN. If VOWDN is present as the value of FEATURE, then two new fields are required:

- Fields VOWDNIDX of type VOWDN_DN_COUNT_TYPE (range 0 to 4095) is used primarily to provide and display a unique index value for each VOWDN directory number in the system. When adding the FEAT VOWDN tuple, if the index value is already used, the system provides the user with an available index.
- Field CUSTGRP of type CUSTOMER_GROUP represents the customer group associated with the tuple.

Datafill sequence
Datafill sequence is unchanged.

Table sizing
Table sizing is unchanged.

Dump and restore
Dump and restore requirements are unchanged.

Activation
Modified fields do not affect functionality activation.

Example

```
AREACODE OFCCODE STNCODE DNRESULT
---------------------------------
919 657 7293 FEAT VOWDN 1045 BNRRTP
```

Table Name: IBNXLA

General
New values are made available in field FEATURE.

Field Information

IBNXLA Field Modifications

FIELD NAME	RANGE OF VALUES	STATUS	DEFAULT VALUES
FEATURE	IBN_LOG_FEATURE	Changed	N/A

Description of changed or new fields
The following new values are made available within field FEATURE: VOWIN, VOWOUT, VOWPCC, and VOWROUT. VOWIN indicates the VOW Login feature. VOWOUT indicates the VOW Logout feature. VOWPCC indicates the VOW Passcode Change feature. VOWROUT indicates the VOW Remote Logout feature.

Datafill sequence
Datafill sequence is unchanged.

Table sizing
Table sizing is unchanged.

Dump and restore
Dump and restore requirements are unchanged.

Activation
Modified fields do not affect functionality activation.

Example

```
KEY RESULT

----------

FRCH 30 FEAT N N VOWIN

FRCH 31 FEAT N N VOWOUT

FRCH 32 FEAT N N VOWPCC

FRCH 33 FEAT N N VOWROUT
```

Table Name: VOWINV

General

This table is used to store data associated with VOW functionality. It contains the physical or virtual LEN(s) associated with a VOW's dedicated DN and associated data, his or her personal ID code, and his or her primary DN. As VOW log in and log out of their dedicated DNs, this table is automatically updated to keep the information up-to-date. VOWINV also contains information identifying the physical sets which have the VOWDN line option assigned.

Tuples can not be added to or deleted from this table through the Table Editor. In addition, only the VOWPID field can be modified through the Table Editor. Any other modifications to the table through the Table Editor are blocked.

Field Information

VOWINV Fields

FIELD NAME	RANGE OF VALUES	STATUS	DEFAULT VALUES
VOWKEY	VOW_KEY: CUSTGRP: CUSTOMER_GROUP KEYDATA: VOW_KEY_DATA_AREA: VOWTYPE: VOW_TUPLE_TYPE: VOW or VOWDN VOWPDN: VOWPDN_TYPE[a] AREACODE: SERVING_NUMBERING_PLAN_AREA OFCCODE: OFCCODE_DIGIT_REGISTER STNCODE: STNCODE_DIGIT_REGISTER VOWDNLEN: EXT_LEN[b]	New	None
VOWDATA	VOW_DATA_AREA: VOWTYPE: VOW_TUPLE_TYPE: VOW or VOWDN[c]	New	None

a. Only prompted if VOWTYPE = VOW in VOWKEY field.
b. Only prompted if VOWTYPE = VOWDN in VOWKEY field.
c. Value of VOWTYPE field matches value of VOWTYPE in VOWKEY field.

No further fields exist in table for a VOW_TUPLE_TYPE value of VOWDN. For a VOW_TUPLE_TYPE value of VOW, the fields shown in Table , "Remaining VOWINV Fields for VOW_TUPLE_TYPE Value VOW." exist.

Remaining VOWINV Fields for VOW_TUPLE_TYPE Value VOW

FIELD NAME	RANGE OF VALUES	STATUS	DEFAULT VALUES
VOWPID	VOW_PERSONAL_ID: Vector of 4 to 10 digits	New	None
VOWLEN	EXT_LEN	New	None
VOWMATE	VOW_MATE_VAR_AREA: MATE: YES_NO: Y or N MATELEN: EXT_LEN[a]	New	New
LOGGEDIN	YES_NO: Y or N	New	None
PHYSLEN	EXT_LEN	New	None

Remaining VOWINV Fields for VOW_TUPLE_TYPE Value VOW

FIELD NAME	RANGE OF VALUES	STATUS	DEFAULT VALUES
PHYSMATE	VOW_MATE_VAR_AREA: MATE: YES_NO: Y or N MATELEN: EXT_LEN[b]	New	New
VOWDNDN	VOWPDN_TYPE: AREACODE: SERVING_NUMBERING_PLAN_AREA OFCCODE: OFCCODE_DIGIT_REGISTER STNCODE: STNCODE_DIGIT_REGISTER[c]	New	New

a. Only prompted if MATE = Y in VOWMATE field.
b. Only prompted if MATE = Y in PHYSMATE field.
c. Only prompted if VOWTYPE = VOWDN in VOWKEY field.

Description of changed or new fields

VOWKEY is the table key and uniquely identifies a tuple through a customer group (CUSTGRP) and VOW_TUPLE_TYPE value (VOWTYPE). If a VOW_TUPLE_TYPE of VOW is specified, then VOWPDN, identifying the primary DN of the VOW, is also part of VOWKEY. If a VOW_TUPLE_TYPE of VOWDN is specified, then VOWDNLEN, identifying a physical LEN on which the VOWDN option is assigned, is also part of VOWKEY.

VOWDATA contains the remaining data for the tuples. VOWTYPE within VOWDATA matches the value of VOWTYPE within VOWKEY.

If VOWTYPE within VOWDATA contains the VOW_TUPLE_TYPE VOW, then the following fields are present in the tuple:

- VOWPID provides the associated VOW passcode value.
- VOWLEN provides the pre-assigned virtual VOW LEN for use by the associated VOW user.
- VOWMATE provides the pre-assigned virtual VOW mate LEN for use by the associated VOW user, if appropriate.
- LOGGEDIN specifies whether or not the associated VOW user is logged in or not.
- If LOGGEDIN is set to Y, then PHYSLEN provides the physical LEN through which the VOW user is logged in.
- If LOGGEDIN is set to Y, then PHYSMATE provides the physical mate LEN, if appropriate.

If VOWTYPE within VOWDATA contains the VOW_TUPLE_TYPE VOWDN, then the following field is present in the tuple:

- VOWDNDN provides the directory number associated with the corresponding VOWDN set.

Datafill sequence

This table is datafilled automatically when VOWs log in and log out, as well as when switch personnel manipulate VOW set data through the CKLN and CLN commands. It is also updated as VOWs are logged out through the VOW audit. Switch personnel can modify only the VOWPID value within this table. Tuples can not be added, deleted, or otherwise modified through the table editor.

Virtual VOW LENs are pre-assigned when the VOW line option is added to a set through Servord and a tuple is created in table VOWINV. Virtual VOW LENs are un-assigned only when the VOW line option is removed from a set through Servord and the corresponding tuple is deleted from table VOWINV.

Table sizing

The table below shows the table sizing information. The table takes up 2,406,030 bytes whether full or empty .

VOWINV Table Sizing

Minimum Size	0 tuples
Maximum Size	41,000 tuples[a]
CC restart type required to increase size	N/A

a. A maximum of 20,500 tuples contain a VOWTYPE value of VOW. A maximum of 20,500 tuples contain a VOWTYPE value of VOWDN. The maximum total tuples is 41,000.

Dump and restore

This is a new table. Reformat procedures are not required.

Activation

Functionality activation is not affected by this new table.

Example

```
VOWKEY VOWDATA
--------------
BNRRCH VOWDN LCM1 00 1 09 31 VOWDN 214 997 8880
BNRRCH VOW 2149975134 VOW 839943 VOW 2 66 N N IPE0 0 0 2 3 N
BNRRTP VOWDN IPE0 00 0 00 12 VOWDN 919 657 8181
BNRRTP VOW 9196577665 VOW 5576643 VOW 4 644 Y VOW 4 645 Y DLM0 0 0 4 12 Y DLM0 0 0 4 13
```

Office parameters

No office parameters are modified, added, or deleted as a result of this feature functionality.

Service Orders (SO)

This section contains service order information from the original design document (AX1236SO.AA20).

The original document has been modified in the following manner:

- Updated the list of incompatible options for VOW and VOWDN.
- Removed the table that documented extra prompts for adding and deleting VOWDN option. These prompts are no longer valid or relevant.

Summary of service order impact

This activity impacts service orders by making two new line options, VOW and VOWDN, available.

A new LEN format is introduced by this functionality. A VOW virtual LEN or logical terminal is denoted through type EXT_LEN with the following format:

- VOW <VOW Node Number> <VOW Terminal Number>

A VOW Node Number is a value from 1 to 10, and a VOW Terminal Number is a value 1 to 2050. An example of a value VOW LEN is ‘VOW 2 955’.

Details of service order change

No NEW LCC introduced by this feature.

NEW OPTIONS introduced by this feature: VOW, VOWDN

LIST options NOT compatible with new options introduced:

VOW is not compatible with MDN, ACD, the various HUNT-related options, and the following: ACB, AR, BLF, C2USER, CALLOG, DOR, DRING, NFA, SBLF, SIMRING, SLU, TRANSFER, VOWDN, and XFER.

VOWDN is incompatible with all options except: SETMODEL, DGT, DISP, M0200, and NAME.

No other options which must be assigned.

Meridian digital centrex feature assignment requirements

FEATURE	500 2500	MDC SET	MDC BUSINES SET SET RELATIONSHIP							
			SET	SUBSET	KEY	DN	DEDKEY	LAMP	CODE	DISPLAY
VIRTUAL OFFICE WORKER (VOW)	Y	Y		X						
VIRTUAL OFFICE WORKER DN (VOWDN)	Y	Y		X						

On a keyset, these options must be assigned to the primary DN.

New commands

None.

New prompts

One new prompt is implemented by this feature:

VOW Prompts

PROMPT TEXT	VALID INPUT	DESCRIPTION	AREAS AFFECTED BY PROMPTS.
VOWPID	10-digit directory number	When adding VOW to a set, an initial passcode must be specified for the associated VOW user. This value is a digit register between 4 and 10 digits in length as specified by the PCCLEN field of the VOWDN tuple for the corresponding customer group in table CUSTSTN.	ADO (VOW)

Example of service order

Example of ADO command with VOW line option on keyset:

```
>ado
SONUMBER:     NOW  98  9 24 AM
>
DN_OR_LEN:
>9975057
OPTKEY:
>1
```

```
OPTION:
>VOW
VOWPID:
>12345
OPTKEY:
>$
COMMAND AS ENTERED:
ADO NOW 98 9 24 AM 9975057 ( 1 VOW )$
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
>Y
MACHINES OUT OF SYNC OR NO JF, OVERRIDE IN EFFECT.
>
```

Example of ADO command with VOWDN line option on keyset:

```
>ado
SONUMBER:     NOW  98  9 24 AM
>
DN_OR_LEN:
>9975057
OPTKEY:
>1
OPTION:
>VOWDN
OPTKEY:
>$
COMMAND AS ENTERED:
ADO NOW 98 9 24 AM 9975057 ( 1 VOWDN ) $
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
>Y
MACHINES OUT OF SYNC OR NO JF, OVERRIDE IN EFFECT.
>
```

Example of ADO command with VOW line option on non-keyset:

```
>ado
SONUMBER:     NOW  98  9 24 AM
>
DN_OR_LEN:
>9975003
OPTION:
```

```
>VOW
VOWPID:
>12345
OPTION:
>$
COMMAND AS ENTERED:
ADO NOW 98 9 24 AM 9975003 ( VOW )$
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
>Y
MACHINES OUT OF SYNC OR NO JF, OVERRIDE IN EFFECT.
>
```

Example of ADO command with VOWDN line option on non-keyset:

```
>ado
SONUMBER:     NOW  98  9 24 AM
>
DN_OR_LEN:
>9975003
OPTION:
>VOWDN
OPTION:
>$
COMMAND AS ENTERED:
ADO NOW 98 9 24 AM 9975003 ( VOWDN ) $
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
>Y
MACHINES OUT OF SYNC OR NO JF, OVERRIDE IN EFFECT.
>
```

Example of NEW command with VOW on a keyset:

```
>new
SONUMBER:     NOW  98  9 29 PM
>
DN:
>9975059
LCC_ACC:
>pset
GROUP:
>bnrrch
```

```
SUBGRP:
>0
NCOS:
>0
SNPA:
>214
KEY:
>1
RINGING:
>y
LTG:    0
>
LEN_OR_LTID:
>LCM2  00 0 06 31
OPTKEY:
>1
OPTION:
>VOW
VOWPID:
>12345
OPTKEY:
>$
COMMAND AS ENTERED:
NEW NOW 98 9 29 PM 9975059 PSET BNRRCH 0 0 214 1 Y 0 LCM2 00 0 06 31 ( 1 VOW ) $
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
>y
MACHINES OUT OF SYNC OR NO JF, OVERRIDE IN EFFECT.
>
```

Example of NEW command with VOWDN on a keyset:

```
>new
SONUMBER:     NOW  98  9 29 PM
>
DN:
>9975059
LCC_ACC:
>pset
GROUP:
>bnrrch
```

```
SUBGRP:
>0
NCOS:
>0
SNPA:
>214
KEY:
>1
RINGING:
>y
LTG:    0
>
LEN_OR_LTID:
>LCM2  00 0 06 31
OPTKEY:
>1
OPTION:
>VOWDN
OPTKEY:
>$
COMMAND AS ENTERED:
NEW NOW 98 9 29 PM 9975059 PSET BNRRCH 0 0 214 1 Y 0 LCM2 00 0 06 31 ( 1 VOWDN ) $
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
>y
MACHINES OUT OF SYNC OR NO JF, OVERRIDE IN EFFECT.
>
```

Example of NEW command with VOW on a non-keyset:

```
>new
SONUMBER:     NOW  98  9 29 PM
>
DN:
>9975007
LCC_ACC:
>ibn
GROUP:
>bnrrch
SUBGRP:
>0
```

```
NCOS:
>0
SNPA:
>214
LTG:    0
>
LEN_OR_LTID:
>LCM1  00 1 18 00
OPTION:
>VOW
VOWPID:
>12345
OPTION:
>$
COMMAND AS ENTERED:
NEW NOW 98 9 29 PM 9975007 IBN BNRRCH 0 0 214 0 LCM1 00 1 18 00 ( VOW ) $
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
>y
MACHINES OUT OF SYNC OR NO JF, OVERRIDE IN EFFECT.
>
```

Example of NEW command with VOWDN on a non-keyset:

```
>new
SONUMBER:     NOW  98  9 29 PM
>
DN:
>9975007
LCC_ACC:
>ibn
GROUP:
>bnrrch
SUBGRP:
>0
NCOS:
>0
SNPA:
>214
LTG:    0
>
```

```
LEN_OR_LTID:
>LCM1  00 1 18 00
OPTION:
>VOWDN
OPTION:
>$
COMMAND AS ENTERED:
NEW NOW 98 9 29 PM 9975007 IBN BNRRCH 0 0 214 0 LCM1 00 1 18 00 ( VOWDN ) $
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
>y
MACHINES OUT OF SYNC OR NO JF, OVERRIDE IN EFFECT.
>
```

Example of DEO command with VOW line option on keyset:

```
>deo
SONUMBER:     NOW  98  9 29 PM
>
DN_OR_LEN:
>LCM2  00 0 06 31
OPTKEY:
>1
OPTION:
>vow
OPTKEY:
>$
COMMAND AS ENTERED:
DEO NOW 98 9 29 PM LCM2 00 0 06 31 ( 1 VOW ) $
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
>y
MACHINES OUT OF SYNC OR NO JF, OVERRIDE IN EFFECT.
>
```

Example of DEO command with VOWDN line option on keyset:

```
>deo
SONUMBER:     NOW  98  9 29 PM
>
DN_OR_LEN:
>LCM2  00 0 06 31
OPTKEY:
```

```
>1
OPTION:
>vowdn
OPTKEY:
>$
COMMAND AS ENTERED:
DEO NOW 98 9 29 PM LCM2 00 0 06 31 ( 1 VOWDN ) $
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
>y
MACHINES OUT OF SYNC OR NO JF, OVERRIDE IN EFFECT.
>
```

Example of DEO command with VOW line option on non-keyset:

```
>deo
SONUMBER:     NOW  98  9 29 PM
>
DN_OR_LEN:
>LCM2  00 0 06 31
OPTION:
>vow
OPTKEY:
>$
COMMAND AS ENTERED:
DEO NOW 98 9 29 PM LCM2 00 0 06 31 ( VOW ) $
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
>y
MACHINES OUT OF SYNC OR NO JF, OVERRIDE IN EFFECT.
>
```

Example of DEO command with VOWDN line option on non-keyset:

```
>deo
SONUMBER:     NOW  98  9 29 PM
>
DN_OR_LEN:
>LCM2  00 0 06 31
OPTION:
>vowdn
OPTKEY:
>$
```

```
COMMAND AS ENTERED:
DEO NOW 98 9 29 PM LCM2 00 0 06 31 ( VOWDN ) $
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
>y
MACHINES OUT OF SYNC OR NO JF, OVERRIDE IN EFFECT.
>
```

Software Optionality Control (SOC)

For non-MSL customers, this feature will be regulated by standard SOC control. VOWs and VOWDNs can be datafilled, but VOW users will not be permitted to log-in or perform passcode changes unless the feature is activated in SOC. If the SOC is turned off, attempts to log-in or perform passcode changes by a VOW user will be routed to FNAL treatment.

SOC

SOC option name:	MDC00076
SOC option title:	Virtual Office Worker
SOC option control type:	state
New SOC option?	Yes
SOC option order code	00036425
Option defined in DRU:	CCM
Affected products:	CCM20

In loads built for the MSL market, the SOC should always be ON.

User interface

This section contains the man-machine interface information from the original design document (AX1236MM.AA20).

It has not been modified from the original version.

Directories

Table of new/modified directories

DIRECTORY NAME	NEW, CHANGED OR DELETED	NEW NAME (if renamed)	TARGET	RES/ NONRES
VOWCIDIR	NEW		BOTH	RES

Accessing directory: VOWCIDIR

To access

>VOWCI

To return to CI

>QUIT

or

>LEAVE

Commands

Table of New/modified commands

COMMAND NAME	NEW, CHANGED OR DELETED	NEW NAME (if renamed)	DIRECTORY NAME
VOWSETS	NEW		VOWCIDIR
VOWALL	NEW		VOWCIDIR
VOWIN	NEW		VOWCIDIR
VOWOUT	NEW		VOWCIDIR
VOWCUST	NEW		VOWCIDIR

Command name: VOWSETS

Command type: NON-MENU

Command target: BOTH

Command availability: RES

Command description

This command will provide a formatted listing of all physical sets which have the VOWDN line option assigned. Included will be the associated set type, the associated customer group, and the customer-group specific information associated with the VOWDN sets, such as the VOWDN/VOW information from table DNROUTE/DNINV and the VOWDN information from table CUSTSTN.

A customer group can be specified to limit the output to a single customer group. If no customer group is specified, output will be provided for all applicable customer groups.

Warning
None

Command syntax

```
>VOWCI

VOWCI:

>Q VOWSETS

COMMAND VOWSETS: LIST VOW SETS

COMMAND VOWSETS:

VOWSETS [<CUSTOMER_GROUP>]

>
```

Parameter definitions

PARAMETER	VALUE	DEFINITION
custgrp	STRING RANGE	CUSTOMER_GROUP

Command name: VOWALL

Command type: NON-MENU

Command target: BOTH

Command availability: RES

Command description
This command will provide a formatted listing of all VOW user's DNs which have the VOW line option assigned. Included will be the set type, the associated customer group, whether the user is logged in or logged out, and the LEN (physical or virtual) with which the user's set data is currently associated.

A customer group can be specified to limit the output to a single customer group. If no customer group is specified, output will be provided for all applicable customer groups.

Warning
None

Command syntax

```
>VOWCI

VOWCI:

>Q VOWALL

COMMAND VOWALL: LIST ALL VOW USERS (LOGGED IN OR
LOGGED OUT)

COMMAND VOWALL:

VOWALL [<CUSTOMER_GROUP>]

>
```

Parameter definitions

PARAMETER	VALUE	DEFINITION
custgrp	STRING RANGE	CUSTOMER_GROUP

Command name: VOWIN

Command type: NON-MENU

Command target: BOTH

Command availability: RES

Command description
This command will provide a formatted listing of all VOW user's DNs which have the VOW line option assigned and which are also logged into their DNs. Included will be the set type, the associated customer group, and the physical LEN with which the user's set data is currently associated.

A customer group can be specified to limit the output to a single customer group. If no customer group is specified, output will be provided for all applicable customer groups.

Warning
None

Command syntax

```
>VOWCI

VOWCI:

>Q VOWIN

COMMAND VOWIN: LIST ALL LOGGED IN VOW USERS

COMMAND VOWIN:

VOWIN [<CUSTOMER_GROUP>]

>
```

Parameter definitions

PARAMETER	VALUE	DEFINITION
custgrp	STRING RANGE	CUSTOMER_GROUP

Command name: VOWOUT

Command type: NON-MENU

Command target: BOTH

Command availability: RES

Command description
This command will provide a formatted listing of all VOW user's DNs which have the VOW line option assigned and which are also logged out of their DNs. Included will be the set type, the associated customer group, and the virtual LEN with which the user's set data is currently associated.

A customer group can be specified to limit the output to a single customer group. If no customer group is specified, output will be provided for all applicable customer groups.

Warning
None

Command syntax

```
>VOWCI

VOWCI:

>Q VOWOUT

COMMAND VOWOUT: LIST ALL LOGGED OUT VOW USERS
```

```
COMMAND VOWOUT:

VOWOUT [<CUSTOMER_GROUP>]

>
```

Parameter definitions

PARAMETER	VALUE	DEFINITION
custgrp	STRING RANGE	CUSTOMER_GROUP

Command name: VOWCUST

Command type: NON-MENU

Command target: BOTH

Command availability: RES

Command description
This command provides the same information as VOWSETS and VOWALL.

A customer group can be specified to limit the output to a single customer group. If no customer group is specified, output will be provided for all applicable customer groups.

Warning
None

Command syntax

```
>VOWCI

VOWCI:

>Q VOWCUST

COMMAND VOWCUST: LIST VOW CUSTOMER GROUP INFORMATION

COMMAND VOWCUST:

VOWCUST [<CUSTOMER_GROUP>]

>
```

Parameter definitions

PARAMETER	VALUE	DEFINITION
custgrp	STRING RANGE	CUSTOMER_GROUP

Responses

Response

NO VOW DATA ASSOCIATED WITH CUSTOMER GROUP.

Explanation:
An attempt was made using one of the subcommands in the VOWCI CI increment to access VOW data for a specific customer group which has no associated VOW data.

System action:
The system response is output at the MAP.

User action:
The user should correct the customer group to one which has associated VOW data.

Notes

None

Examples

None

Alarms

None

Performance Management for A00002011

Operational measurement changes (OM)

This section contains operational measurement information from the original design document (AX1236OM.AA20).

It has not been modified from the original version.

New/modified OM group list

GROUP NAME (acronym)	GROUP NAME (expanded)	NEW, CHANGED or DELETED	REASON
VOW	VIRTUAL OFFICE WORKER	NEW	Created to track use of VOW functionality.

OM Group: VOW

This OM group tracks the use of VOW functionality.

Group structure

Key field: CUSTOMER_GROUP

Info field: NIL_TYPE_ID

Number of tuples: 1

Datafill

Table VOWINV is related to this OM group.

Register list

The following registers exist within this OM group: INPASS, INFAIL, OUTPASS, OUTFAIL, CINPASS, CINFAIL, COUTPASS, COUTFAIL, AUDPASS, AUDFAIL, PCCPASS, PCCFAIL, ROUTPASS, ROUTFAIL.

Associated OM groups

No OM groups are associated with this group.

Validation formula

INPASS + INFAIL = Total VOWIN Attempts

OUTPASS + OUTFAIL = Total VOWOUT Attempts

PCCPASS + PCCFAIL = Total VOWPCC Attempts

CINPASS + CINFAIL = Total CKLN/CLN Login Attempts

COUTPASS + COUTFAIL = Total CKLN/CLN Logout Attempts

AUDPASS + AUDFAIL = Total Audit Logout Attempts

ROUTPASS + ROUTFAIL = Total VOWROUT Attempts

Associated products

This OM group is associated with VOW functionality which is specific to the MSL-100 product.

OMSHOW example

TBD

OM Logic flow or pseudocode

INPASS is pegged for a successful VOWIN attempt.

INFAIL is pegged for a failed VOWIN attempt.

OUTPASS is pegged for a successful VOWOUT attempt.

OUTFAIL is pegged for a failed VOWOUT attempt.

CINPASS is pegged for a successful VOW login attempt using CKLN/CLN.

CINFAIL is pegged for a failed VOW login attempt using CKLN/CLN.

COUTPASS is pegged for a successful VOW logout attempt using CKLN/CLN.

COUTFAIL is pegged for a failed VOW logout attempt using CKLN/CLN.

PCCPASS is pegged for a successful VOWPCC attempt.

PCCFAIL is pegged for a failed VOWPCC attempt.

AUDPASS is pegged for a successful VOW logout through the VOW audit.

AUDFAIL is pegged for a failed VOW logout through the VOW audit.

ROUTPASS is pegged for a successful VOWROUT attempt.

ROUTFAIL is pegged for a failed VOWROUT attempt.

New/modified registers

VOW Registers

REGISTER NAME (acronym)	REGISTER NAME (expanded)	NEW ACTIVATED CHANGED ZEROED DELETED	BCS NUMBER
INPASS	VOWIN Pass	New	MSL10
INFAIL	VOWIN Fail	New	MSL10
OUTPASS	VOWOUT Pass	New	MSL10
OUTFAIL	VOWOUT Fail	New	MSL10
CINPASS	VOW CKLN/CLN Login Pass	New	MSL10
CINFAIL	VOW CKLN/CLN Login Fail	New	MSL10
COUTPASS	VOW CKLN/CLN Logout Pass	New	MSL10
COUTFAIL	VOW CKLN/CLN Logout Fail	New	MSL10
PCCPASS	VOW Passcode Change Pass	New	MSL10
PCCFAIL	VOW Passcode Change Fail	New	MSL10
AUDPASS	VOW Audit Logout Pass	New	MSL10
AUDFAIL	VOW Audit Logout Fail	New	MSL10
ROUTPASS	VOWROUT Pass	New	MSL10
ROUTFAIL	VOWROUT Fail	New	MSL10

Register name: INPASS

Register type

Peg

Register description

INPASS is pegged for a successful VOWIN attempt.

Associated register

INFAIL

Validation formula

INPASS + INFAIL = Total VOWIN Attempts

Associated logs

Log number: VOW501
This log report is generated when a successful VOWIN attempt occurs.

EXT register
None

Register name: INFAIL

Register type
Peg

Register description
INFAIL is pegged for a failed VOWIN attempt.

Associated register
INPASS

Validation formula
INPASS + INFAIL = Total VOWIN Attempts

Associated logs
Log number: VOW502
This log report is generated when a failed VOWIN attempt occurs.

EXT register
None

Register name: OUTPASS

Register type
Peg

Register description
OUTPASS is pegged for a successful VOWOUT attempt.

Ass0ociated register
OUTFAIL

Validation formula
OUTPASS + OUTFAIL = Total VOWOUT Attempts

Associated logs
Log number: VOW501
This log report is generated when a successful VOWOUT attempt occurs.

EXT register
None

Register name: OUTFAIL

Register type
Peg

Register description
OUTFAIL is pegged for a failed VOWOUT attempt.

Associated register
OUTPASS

Validation formula
OUTPASS + OUTFAIL = Total VOWOUT Attempts

Associated logs
Log number: VOW502
This log report is generated when a failed VOWOUT attempt occurs.

EXT register
None

Register name: CINFAIL

Register type
Peg

Register description
CINPASS is pegged for a successful VOW login attempt using CKLN/CLN.

Associated register
CINFAIL

Validation formula
CINPASS + CINFAIL = Total CKLN/CLN Login Attempts

Associated logs
Log number: VOW501
This log report is generated when a successful VOW login through CKLN/CLN occurs.

EXT register
None

Register name: CINFAIL

Register type
Peg

Register description
CINFAIL is pegged for a failed VOW login attempt using CKLN/CLN.

Associated register
CINPASS

Validation formula
CINPASS + CINFAIL = Total CKLN/CLN Login Attempts

Associated logs
Log number: VOW502
This log report is generated when a failed VOW login through CKLN/CLN occurs.

EXT register
None

Register name: COUTPASS

Register type
Peg

Register description
COUTPASS is pegged for a successful VOW logout attempt using CKLN/CLN.

Associated register
COUTFAIL

Validation formula
COUTPASS + COUTFAIL = Total CKLN/CLN Logout Attempts

Associated logs
Log number: VOW501
This log report is generated when a successful VOW logout through CKLN/CLN occurs.

EXT register
None

Register name: COUTFAIL

Register type
Peg

Register description
COUTFAIL is pegged for a failed VOW logout attempt using CKLN/CLN.

Associated register
COUTPASS

Validation formula
COUTPASS + COUTFAIL = Total CKLN/CLN Logout Attempts

Associated logs
Log number: VOW502
This log report is generated when a failed VOW logout through CKLN/CLN occurs.

EXT register
None

Register name: PCCPASS

Register type
Peg

Register description
PCCPASS is pegged for a successful VOWPCC attempt.

Associated register
PCCFAIL

Validation formula
PCCPASS + PCCFAIL = Total VOWPCC Attempts

Associated logs
Log number: VOW501
This log report is generated when a successful VOWPCC attempt occurs.

EXT register
None

Register name: PCCFAIL

Register type
Peg

Register description
PCCFAIL is pegged for a failed VOWPCC attempt.

Associated register
PCCPASS

Validation formula
PCCPASS + PCCFAIL = Total VOWPCC Attempts

Associated logs
Log number: VOW502
This log report is generated when a failed VOWPCC attempt occurs.

EXT register
None

Register name: AUDPASS

Register type
Peg

Register description
AUDPASS is pegged for a successful VOW logout through the VOW audit.

Associated register
AUDFAIL

Validation formula
AUDPASS + AUDFAIL = Total Audit Logout Attempts

Associated logs
Log number: VOW501, VOW601
VOW501 is generated when a successful logout through the VOW audit occurs. VOW601 is generated when the VOW audit completes.

EXT register
None

Register name: AUDFAIL

Register type
Peg

Register description
AUDFAIL is pegged for a failed VOW logout through the VOW audit.

Associated register
AUDPASS

Validation formula
AUDPASS + AUDFAIL = Total Audit Logout Attempts

Associated logs
Log number: VOW502, VOW601
VOW502 is generated when a failed logout through the VOW audit occurs.
VOW601 is generated when the VOW audit completes.

EXT register
None

Register name: ROUTPASS

Register type
Peg

Register description
ROUTPASS is pegged for a successful VOWROUT attempt.

Associated register
ROUTFAIL

Validation formula
ROUTPASS + ROUTFAIL = Total VOWROUT Attempts

Associated logs
Log number: VOW501
This log report is generated when a successful VOWROUT attempt occurs.

EXT register
None

Register name: ROUTFAIL

Register type
Peg

Register description
OUTFAIL is pegged for a failed VOWROUT attempt.

Associated register
ROUTPASS

Validation formula
ROUTPASS + ROUTFAIL = Total VOWROUT Attempts

Associated logs
Log number: VOW502
This log report is generated when a failed VOWROUT attempt occurs.

EXT register
None

Test case(s)
None

Product = CS 2000

A00002012 -- HIOP-CMIC/RTIF development (Succession on DMS)

Functional Description

This document provides an overview of the functionality provided by the Operations, Administration, and Maintenance (OAM) software for the High Performance Input Output Processor card (HIOP) with CMIC, RTIF, TOD, and ETHR functionality (CMIC/RTIF HIOP).

This HIOP card supports the following functionalities:

- Core to Message Switch (MS) InterConnect (CMIC), providing high speed access to the DMS Message Switch via OC3 links,
- Reset Terminal InterFace (RTIF). The RTIF local ports support XA-Core connectivity to Video Display Terminals (VDT) (EIA RS232 standard). The RTIF remote ports provide connection to remote terminals via modem (EIA RS422 standard).

- Time Of Day (TOD) support, and
- Ethernet, providing high speed access to the Succession Network via 100Mb/s full duplex ethernet links.

  Note: the OAM changes related to the Ethernet functionality were delivered by the XA-Core Ethernet Maintenance feature and are described in document AT.59019176 in fmdoc.

  Note: this feature does not introduce any changes to the Reset Terminal Interface (RTIF) behavior. The RTIF components are backwards compatible to the packlet.

This software provides the maintenance interface to the craft person for monitoring and manipulating the state of the HIOP common equipment, the CMIC, RTIF, ETHR ports and links, and TOD. For more information on the HIOP circuit pack, please refer to document 'HIOP Maintenance Software' (AT.59029980).

The components of the interface to the XA-Core are consistent with the XA-Core OAM interface. These include the maintenance administration position (MAP), logs, alarms, and operational measurements (OMs). All maintenance, fault handling, redundancy checking, and event reporting functionalities provided by this feature are consistent with established XA-Core maintenance procedures and guidelines.

The software associated with XA-Core CMIC/RTIF HIOP OAM Software provides the following functionality:

- changes the existing CMIC MAP level and MAP commands in order to maintain the new CMIC ports,
- changes the existing RTIF MAP level and MAP commands in order to maintain the new RTIF links (local and remote),
- changes the existing alarms, logs, and operational measurements that report on the maintenance status of the CMIC and RTIF ports and links.

HIOP card description

The CMIC/RTIF HIOP card is similar to the NTLX04CA HIOP card that supports AMDI, ETHR, and RTIF functionality. The main hardware difference between the two is the transmitter used in the OC3 hardware:

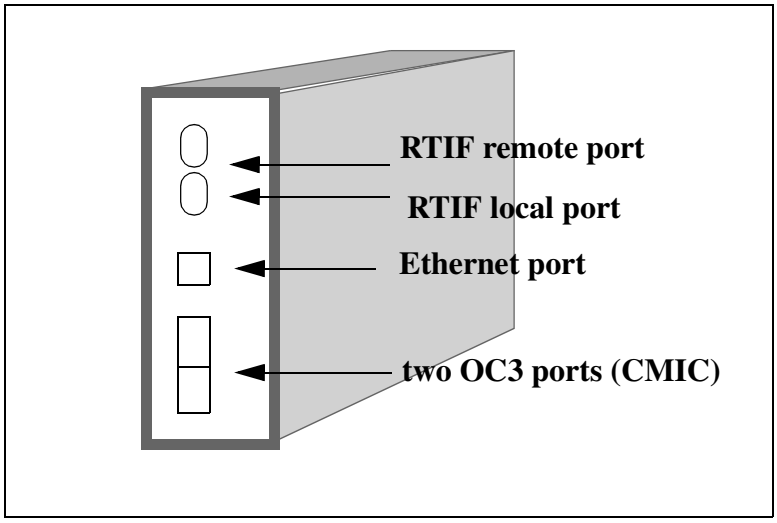
- the NTLX04CA HIOP card has single-mode transmitter (OC3 used for AMDI),
- the CMIC/RTIF HIOP card has multi-mode transmitter (OC3 used for CMIC).

The XA-Core CMIC/RTIF HIOP circuit pack is equipped with:

- two OC3 ports,
- one ethernet port, and
- two RTIF ports: one RS232 RTIF local port and one RTIF remote port.

Unlike circuit pack NTLX03 (IOP), the HIOP card does not support packlets. Refer to the following figure.

HIOP card



The HIOP LED strategy follows established XA-Core guidelines: the card is equipped with one red and one green LED which show the status of the card. Three additional amber LEDs represent presence or loss of signal on RTIF, ETHR, and CMIC links respectively.

The XA-Core Visual Indicator (LED) Strategy is described in XA0015FN.

Interactions

- XA-Core HIOP Maintenance Software: AT.59029980,
- XA-Core Ethernet Maintenance feature: AT.59019176,
- XA-Core Visual Indicator (LED) Strategy: XA0015,
- XA-Core provisioning feature: AT.59009527.

Applicable customer facing sections

Fault Management

Logs	__X____
Alarms	__X____
Configuration	
Data Schema	___N/A___
User Interface	___X___
Element Management	___N/A___
Security	___N/A___
Service Order	___N/A___
Office Parameters	___N/A___
Accounting (includes AMA billing)	___N/A___
Performance (includes operational measurements)	___X___

Glossary

Term	Description
AMDI	ATM Multimode Data Interface
CMIC	Core to MS InterConnect
DMS	Digital Multiplex Switch
ETHR	Ethernet
HIOP	High performance Input Output Processor
MAP	Maintenance Administration Position
MS	Message Switch
OAM	Operations, Administration, and Maintenance
OM	Operational Measurement
PIDR	P side IDentification Register
RTIF	Reset Terminal InterFace
SN	SuperNode
SNSE	SuperNode Shelf Extension
TOD	Time Of Day
VDT	Video Display Terminals
XA-Core, XAC	eXtended Architecture Core

Fault Management for A00002012

This feature does not change the fault management strategy of the XA-Core.

Fault management tools and utilities

This feature does not change the fault management tools and utilities of the XA-Core.

Logs

CMIC XAC log changes

Since this feature introduces port/link separation for the CMIC functionality on HIOP, the XAC information and action logs will now show the new CMIC port device, in addition to the CMIC packlets and CMIC links. The feature does not change the format of either the information or action logs.

- CMIC packlets and CMIC links on packlet are going to be shown the same way as before (no port/link separation for CMIC packlets),
- CMIC ports and links on HIOP will have the packlet field left blank.

The XAC610 log is chosen to show the difference.

Current XAC610 Log for CMIC packlet:

```
XA506AX     XAC610 JAN29 06:37:35 8000 RTS  Returned To Service
        DESCRIPTION: State has changed from SYSB to INSV by RECOVERY action
        CARD:   Type State Site FL Row Bay    Shf/Slt/Pk    EqPEC/Serial
                CMIC INSV  HOST 01 A00 DPCC:00 00 15R L  NTLX05AB/NNTM171VY7C0
```

Current XAC610 Log for CMIC link on packlet:

```
XA506AX     XAC610 JAN29 06:37:35 8000 RTS  Returned To Service
        DESCRIPTION: State has changed from SYSB to INSV by MS-MTCE action
        LINK:   Type State Site FL Row Bay    Shf/Slt/Pk/Lk    EqPEC/Serial
              CMIC INSV  HOST 01 A00 DPCC:00 00 15R L  1  NTLX05AB/NNTM171VY7C0
```

New XAC610 Log for CMIC port on HIOP (packlet field blank):

```
XA506ax XAC610 MAR05 17:54:47 1200 RTS  Returned To Service
        DESCRIPTION: State has changed from SYSB to INSV by RECOVERY action
        PORT: Type State Site FL Row Bay    Shf/Slt/Pk/Pt EqPEC/Serial
              CMIC INSV  HOST 01 A00 DPCC:00 00 15R    1 NTLX17AA/NNTM64422MWV
```

New XAC610 Log for CMIC link on HIOP (packlet field blank):

```
XA506ax XAC610 MAR05 17:54:47 1200 RTS  Returned To Service
        DESCRIPTION: State has changed from SYSB to INSV by MS-MTCE action
        LINK: Type State Site FL Row Bay    Shf/Slt/Pk/Lk EqPEC/Serial
              CMIC INSV  HOST 01 A00 DPCC:00 00 15R    1 NTLX17AA/NNTM64422MWV
```

RTIF XAC log changes

Since this feature introduces port/link separation for the RTIF functionality on HIOP, the XAC information and action logs will now show the new RTIF link

device, in addition to the RTIF packlets and RTIF ports. This feature does not change the format of either the information or action logs.

- RTIF packlets are going to be shown the same way as before,
- RTIF port representation on packlets will be changed to RTIF links: Llink0 and Link1,
- RTIF ports and links on HIOP will have the packlet field left blank.

The XAC610 log is chosen to show the difference.

Current XAC610 Log for RTIF packlet:

```
XA506BH      XAC605 MAR05 10:11:02 6800 INFO RTIF Alarm Cleared
        DESCRIPTION: State has changed from MBSY to INSV by MANUAL action
        CARD: Type State Site FL Row Bay    Shf/Slt/Pk   EqPEC/Serial
              RTIF INSV  HOST 01 A00 DPCC:00 00 04R U NTLX08AA/NNTM171P3G37
```

Current XAC610 Log for RTIF port on packlet (port will be obsoleted):

```
XA506BH      XAC605 MAR05 10:11:02 6800 INFO RTIF Alarm Cleared
        DESCRIPTION: State has changed from MBSY to INSV by MANUAL action
        PORT: Type State Site FL Row Bay    Shf/Slt/Pk/Pt   EqPEC/Serial
              RTIF INSV  HOST 01 A00 DPCC:00 00 04R U  0 NTLX08AA/NNTM171P3G37
```

New XAC610 Log for RTIF link on packlet (no port field on packlet):

```
XA506BH      XAC605 MAR05 10:11:02 6800 INFO RTIF Alarm Cleared
        DESCRIPTION: State has changed from MBSY to INSV by MANUAL action
        LINK: Type State Site FL Row Bay    Shf/Slt/Pk/Lk EqPEC/Serial
              RTIF INSV  HOST 01 A00 DPCC:00 00 04R U  0 NTLX08AA/NNTM171P3G37
```

New XAC610 Log for RTIF port on HIOP (packlet field blank):

```
XA506BH      XAC605 MAR05 10:11:02 6800 INFO RTIF Alarm Cleared
        DESCRIPTION: State has changed from MBSY to INSV by MANUAL action
        PORT: Type State Site FL Row Bay    Shf/Slt/Pk/Pt EqPEC/Serial
              RTIF INSV  HOST 01 A00 DPCC:00 00 04R    0 NTLX17AA/  NNTM171P3G37
```

New XAC610 Log for RTIF link (packlet field blank):

```
XA506BH      XAC605 MAR05 10:11:02 6800 INFO RTIF Alarm Cleared
        DESCRIPTION: State has changed from MBSY to INSV by MANUAL action
        LINK: Type State Site FL Row Bay    Shf/Slt/Pk/Lk    EqPEC/Serial
              RTIF INSV  HOST 01 A00 DPCC:00 00 04R    0  NTLX17AA/NNTM171P3G37
```

IO XAC log changes

Since this feature introduces the new CMIC/RTIF HIOP card, minor modifications are needed to the impact statement of the existing XAC logs for this new resource. There is no other change for any information or action logs.

Current XAC312 Log for AMDI/RTIF/ETHR HIOP:

```
S106BI   *  XAC312 MAR11 10:24:19 6700 FLT  IOP (Input Output Processor Fault)
        IMPACT: AMDI, Ethernet and RTIF services are unavailable on this IO
        DESCRIPTION: State has changed from INSV to MBSY by MANUAL action
        CARD: Type State Site FL Row Bay    Shf/Slt         EqPEC/Serial
              HIOP MBSY  HOST 01 A00 DPCC:00 00 05R      NTLX04BA/  NNTM64422MWV
```

XAC312 Log for new CMIC/RTIF HIOP (different impact statement):

```
S106BI   *  XAC312 MAR11 10:24:19 6700 FLT  IOP (Input Output Processor Fault)
        IMPACT: CMIC, Ethernet and RTIF services are unavailable on this IO
        DESCRIPTION: State has changed from INSV to MBSY by MANUAL action
        CARD: Type State Site FL Row Bay    Shf/Slt         EqPEC/Serial
              HIOP MBSY  HOST 01 A00 DPCC:00 00 05R      NTLX17AA/  NNTM64422MWV
```

Alarms

This feature does not add or remove any existing XA-Core system alarms which are displayed under the XAC title in the alarm banner. It only adds to the scenarios by which the MSComm XAC Alarm is raised.

MScomm alarm

The MScomm alarm is raised if there is a communication problem between the XA-Core and the Message Switch (MS).

Current MScomm alarm and CMIC link RTS behavior

Currently, the MScomm alarm is raised only if a hardware component used for the communication between the XA-Core and the Message Switch (MS) goes out of service, on either the XA-Core or MS side. The following severities can be observed:

- CRITICAL: no communication,
- MAJOR: no communication link redundancy,
- MINOR: communication link redundancy is partially lost.

Configuration problems with the CMIC links between the XA-Core and the Message Switch (MS) do *not* directly raise the MScomm alarm. The alarm is raised indirectly by the fact that the system will not bring the misconfigured CMIC link in-service.

Following steps show how the current system behavior handles CMIC link misconfiguration on a packlet:

- the CMIC link on the packlet gets misconfigured,
- the CMIC link will *not* come in-service,
- the XAC326 ‘MS link Configuration Mismatch’ log is generated,
- the XAC303 ‘MScomm’ log is generated, and
- as a consequence of the CMIC link will being out of service, the MScomm XAC alarm is raised.

Once the correct configuration is established, the following will occur:

- the CMIC link on the packlet will come in-service,
- the XAC626 ‘MS Link Configuration Restored’ log is generated,
- the XAC603 ‘MScomm Alarm Cleared’ log is generated,
- the MScomm XAC alarm is cleared.

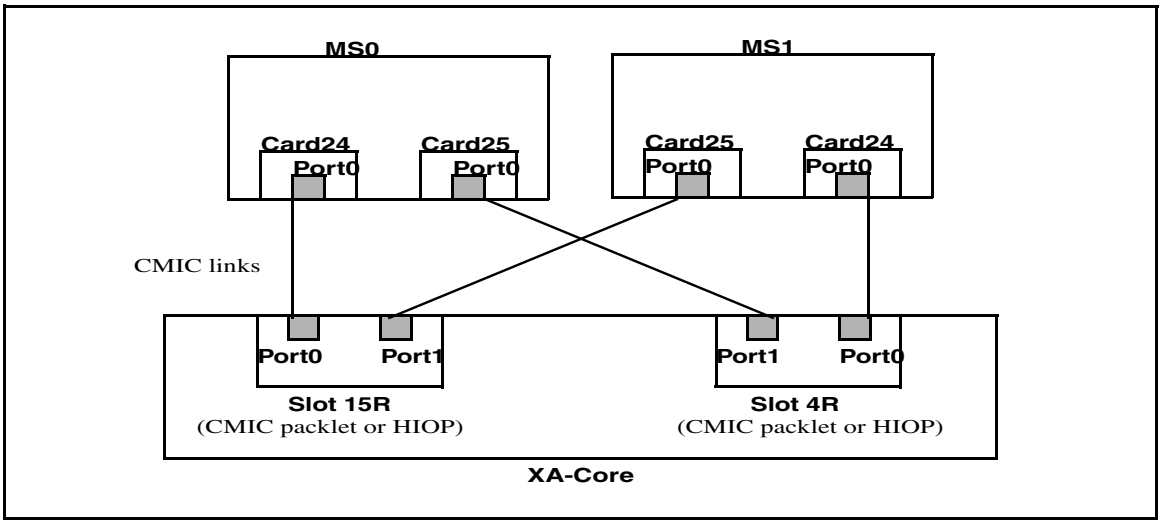
Recommended XA-Core to MS configuration
Currently, the only supported configuration between the XA-Core and the Message Switch (MS) requires four CMIC links to be cross-connected between the XA-Core and the Message Switch (MS), with specific mappings between the MS CMIC paddle board ports and the XA-Core CMIC links. This setup provides the maximum CMIC link redundancy, and node and component isolation protection.

Note: This feature does *not* change the currently recommended XA-Core to MS configuration.

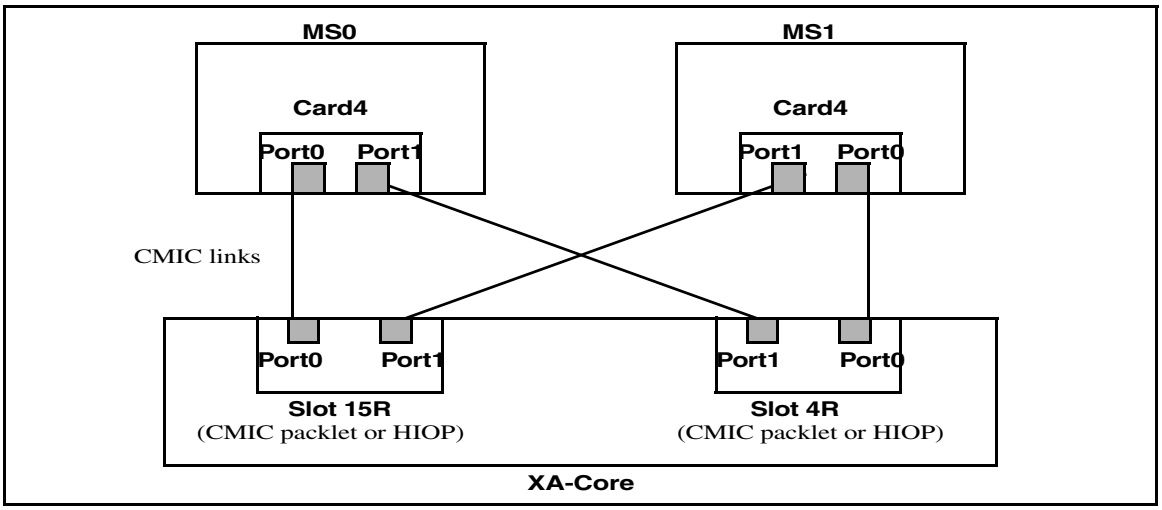
Please refer to “ Recommended XA-Core - MS configuration (SuperNode)” on page 290.

Please refer to “ Recommended XA-Core - MS configuration (SuperNode SE)” on page 291.

Recommended XA-Core - MS configuration (SuperNode)



Recommended XA-Core - MS configuration (SuperNode SE)



New MScomm alarm and CMIC link RTS behavior

This feature adds to the scenarios that raise the MSComm XAC Alarm.

Presently, the MScomm alarm is raised only if a hardware component used for the communication between the XA-Core and the Message Switch (MS) goes out of service, on either the XA-Core or MS side.

In addition to these scenarios, from now on, an MScomm MAJOR alarm will also be raised if a CMIC link between the XA-Core and the Message Switch (MS) is in-service but not configured properly.

Support for new XA-Core to MS configuration

This feature does *not* change the currently recommended XA-Core to MS configuration.

Please refer to " Recommended XA-Core - MS configuration (SuperNode)" on page 290.

Please refer to " Recommended XA-Core - MS configuration (SuperNode SE)" on page 291.

However, with the introduction of flexible provisioning of CMIC components, the system will be able to support new XA-Core to MS configurations. CMIC packlets or CMIC/RTIF HIOPs can possibly be provisioned in any empty (unequipped) element slots. The same redundancy and isolation protection rules are going to be applied as before.

This new approach will help the system to adapt more gracefully to CMIC link misconfigurations. For example, this will avoid a possible boot loop during commissioning of a new XA-Core office when all CMIC links are

misconfigured with respect to the recommended setup (still satisfying all redundancy and isolation protection rules). Instead of failing the boot, the system will successfully boot and bring the CMIC links in-service. Once the system is up and running, craft personnel can rectify the CMIC link misconfiguration.

The system behavior with respect to bringing a misconfigured CMIC link in-service is different depending on the following scenarios:

- a misconfigured CMIC link is being newly provisioned by the system (e.g. boot, restart, provisioning): the system will bring the misconfigured CMIC link in-service and raise the MScomm MAJOR alarm. Please refer to Section " Misconfigured CMIC link provisioning" on page 292.

- an already provisioned CMIC link is improperly connected into a different port (e.g. card replacement): the system will *not* bring the misconfigured CMIC link in-service. Please refer to Section " Provisioned CMIC link is misconfigured" on page 293.

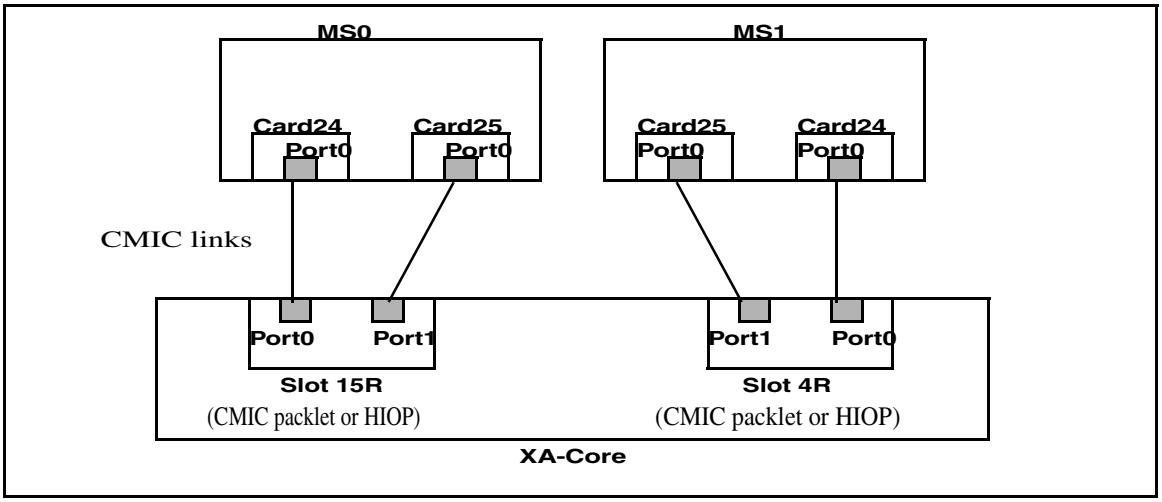
Misconfigured CMIC link provisioning

This scenario can happen during boot, restart, and provisioning.

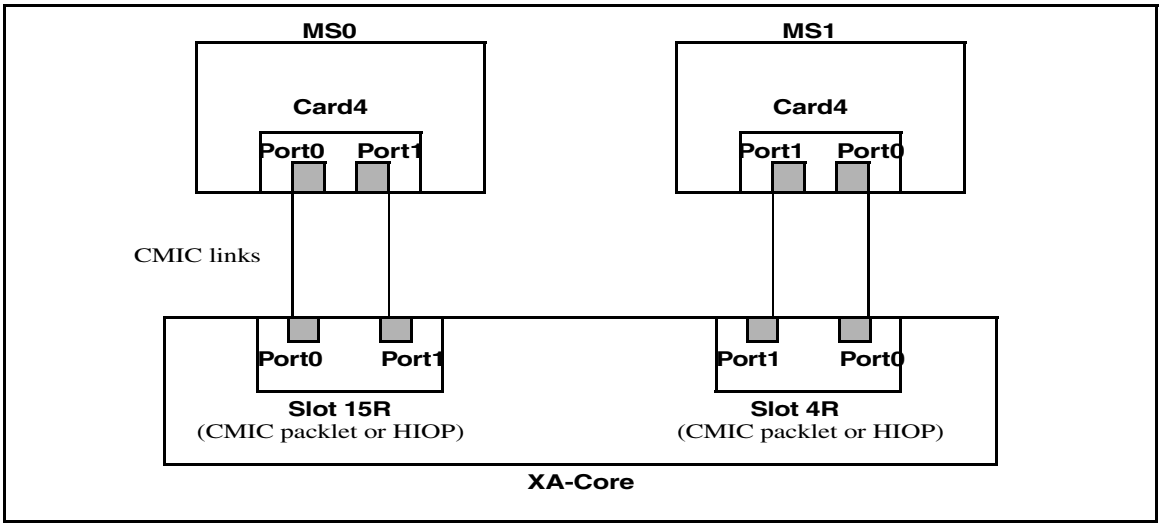
Please refer to " CMIC links not cross-connected (SuperNode)" on page 292.

Please refer to " CMIC links not cross-connected (SuperNode SE)" on page 293.

CMIC links not cross-connected (SuperNode)



CMIC links not cross-connected (SuperNode SE)



Following steps show how the new system behavior handles CMIC link misconfiguration during boot, restart, and provisioning:

- the CMIC links get misconfigured (e.g. during commissioning of a new XA-Core office),
- the system will bring the CMIC links in-service,
- the XAC326 MS link Configuration Mismatch log is generated,
- although all CMIC components are in-service, the MScomm XAC MAJOR alarm is raised because of the configuration error.

Once the correct configuration is established, the following will occur:

- the XAC626 ‘MS Link Configuration Restored’ log is generated,
- the MScomm XAC alarm is cleared,

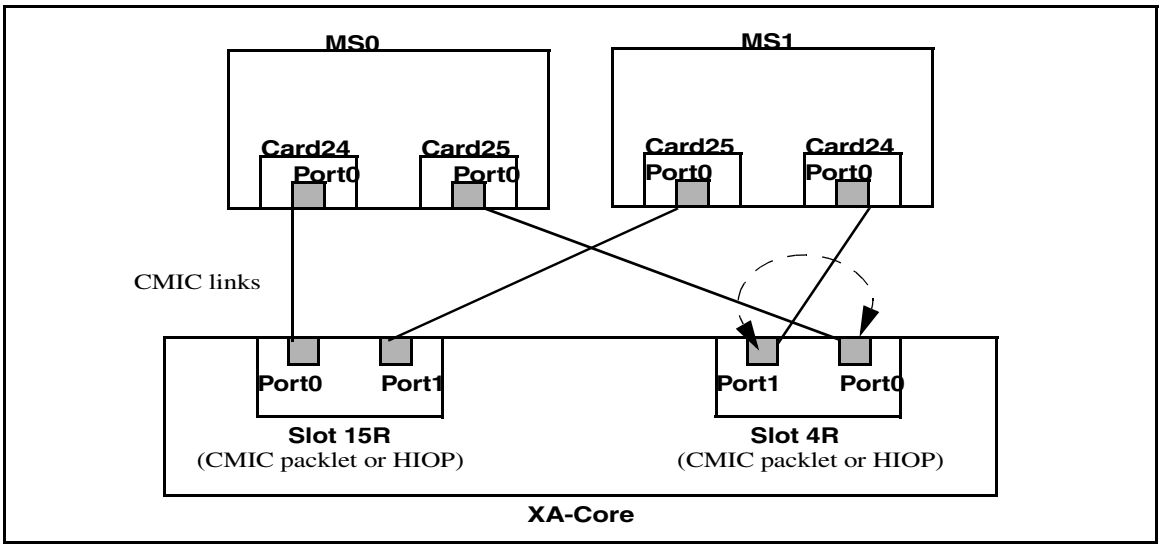
Provisioned CMIC link is misconfigured

This scenario can happen during a card replacement procedure. That is, two existing (provisioned) CMIC links on the same FRU are interchanged and incorrectly connected into the other port.

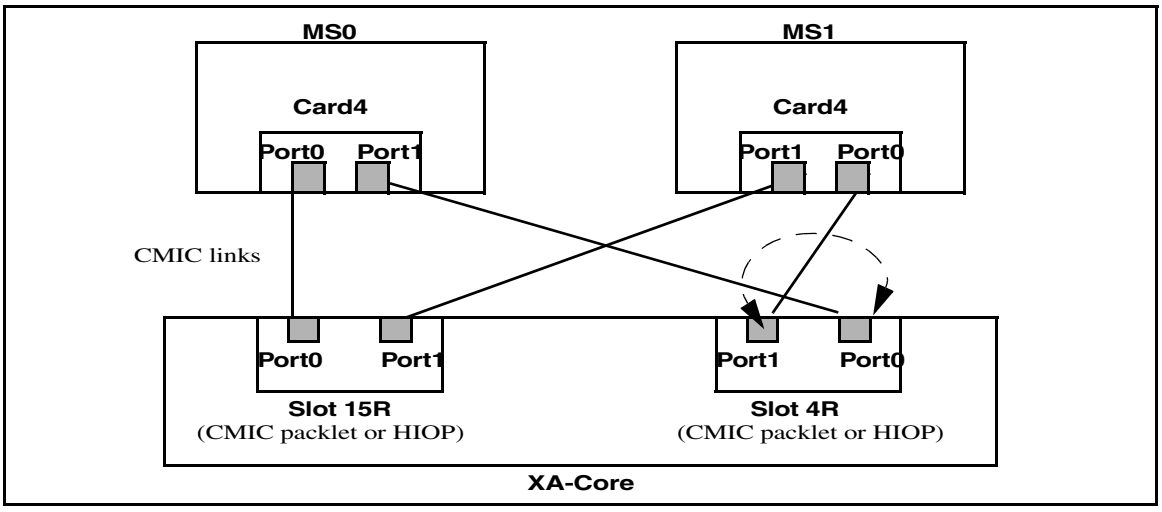
Please refer to “ Interchanged CMIC links on same FRU (4R) (SuperNode)” on page 294.

Please refer to “ Interchanged CMIC links on same FRU (4R) (SuperNode SE)” on page 294.

Interchanged CMIC links on same FRU (4R) (SuperNode)



Interchanged CMIC links on same FRU (4R) (SuperNode SE)



Following steps show how the new system behavior handles CMIC link misconfiguration during card replacement:

- during a card replacement procedure, the CMIC links on a given FRU get misconfigured,
- the system will *not* bring the CMIC links in-service,
- the XAC326 MS link Configuration Mismatch log is generated,

- the MScomm XAC MAJOR alarm is raised because of the out of service CMIC links.

Once the correct configuration is established, the following will occur:

- the XAC626 ‘MS Link Configuration Restored’ log is generated,
- the MScomm XAC alarm is cleared,
- the system will attempt to bring the OOS CMIC links in-service.

Configuration for A00002012

Command interface changes

Currently on XA-Core, the CMIC functionality on packlet is provided by a CMIC link. The RTIF functionality on packlet is provided by an RTIF port. With the introduction of the CMIC/RTIF HIOP card, port/link separation will be implemented for the CMIC and RTIF functionalities on HIOP. That is, both services will be maintained by a port and a link. Hence, the CMIC and RTIF MAP levels have to change to reflect the new port/link separation.

Note: this feature does not implement port/link separation on CMIC and RTIF packlets.

Port/link separation has already been done for the ETHR and AMDI functionality on the HIOP card by the Ethernet Maintenance feature (A59019176) and the HIOP ATM Maintenance software feature (A59035251). In order to have consistent MAP representation of ports and links in the XA-Core system, this feature will reuse the OAM design decisions applied for those features.

IO MAP level

Currently on the IO MAP level, the CMIC and RTIF functionality are only represented on packlets in lower and upper positions. No ‘middle’ packlets exist. Please refer to “ IO MAP with CMIC and RTIF packlets on IOPs in slots 4R and 15R” on page 296. With the introduction of the CMIC/RTIF HIOP, these functionalities can be hosted on either packlets or HIOP cards. Please refer to “ IO MAP with CMIC/RTIF HIOPs in slots 4R and 15R” on page 296.

IO MAP with CMIC and RTIF packlets on IOPs in slots 4R and 15R

```
 XAC      MS      IOD      Net      PM      CCS      Lns     Trks     Ext      APPL
  .       .        .        .       .        .       .       .       .        .

IO                    Front:   111111111  Rear: 111111     SM     PE     IO    PKLT
 0 Quit               123456789012345678  456789012345     .      .      .     .
 2                Sta: . ..-..-..-.- ..    ....-----...     0      0      0     0
 3                Dep:
 4                Typ: *               *   *          *
 5                Slot: Side: Status:              Upper:     Middle:     Lower:
 6 Tst_             2   Front      .              Tape .                 Disk .
 7 Bsy_            17   Front      .              Tape .                 Disk .
 8 RTS_             4   Rear       .              RTIF .                 CMIC .
 9                 15   Rear       .              RTIF .                 CMIC .
10 LoadFW_
11
12 Uneq_
13
14 Alarm_
15
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

IO MAP with CMIC/RTIF HIOPs in slots 4R and 15R

```
 XAC      MS      IOD      Net      PM      CCS      Lns     Trks     Ext      APPL
  .       .        .        .       .        .       .       .       .        .

IO                    Front:   111111111  Rear: 111111     SM     PE     IO    PKLT
 0 Quit               123456789012345678  456789012345     .      .      .     .
 2                Sta: . ..-..-..-.- ..    ....-----...     0      0      0     0
 3                Dep:
 4                Typ: *               *   *          *
 5                Slot: Side: Status:              Upper:     Middle:     Lower:
 6 Tst_             2   Front      .              Tape .                 Disk .
 7 Bsy_            17   Front      .              Tape .                 Disk .
 8 RTS_             4   Rear       .              RTIF .     ETHR .      CMIC .
 9                 15   Rear       .              RTIF .     ETHR .      CMIC .
10 LoadFW_
11
12 Uneq_
13
14 Alarm_
15
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

CMIC MAP level

Currently, the CMIC functionality can only be hosted by a CMIC packlet on an IOP card. Please refer to “ Current CMIC MAP level with CMIC packlets in slots 4R and 15R” on page 297.

Current CMIC MAP level with CMIC packlets in slots 4R and 15R

```
 XAC       MS      IOD      Net       PM       CCS      Lns     Trks     Ext      APPL
  .        .        .        .        .         .        .       .        .         .

CMIC              Front:   111111111  Rear: 111111     SM     PE     IO    PKLT
 0 Quit           123456789012345678  456789012345     .      .      .     .
 2          Sta: . ..-..-..-.- ..    ....------...     0      0      0     0
 3          Dep:
 4          Typ:                      *          *
 5          Slot: Side: Packlet:  Status:  Link0: Link1:  TOD:
 6 Tst_      4    Rear  Lower      .         .      .       .
 7 Bsy_      15   Rear  Lower      .         .      .       .
 8 RTS_
 9
10 loadFW_
11
12 Uneq_
13 Route_
14 Alarm_
15 Cntrs_
16 Trnsl_
17 Indicat_
18 Query_
  XMAP0
Time  14:12    >
```

With the introduction of the CMIC/RTIF HIOP, the new CMIC MAP will show the functionality hosted by either a CMIC packlet on an IOP card, or by a CMIC/RTIF HIOP. Also, with CMIC port/link separation on CMIC/RTIF HIOP, new CMIC port0 and CMIC port1 components will be shown on the CMIC MAP level. Furthermore, instead of showing one TOD device component per CMIC packlet, two TOD devices will be shown for each CMIC/RTIF HIOP card: TOD0 and TOD1.

Summary of CMIC MAP field changes

Component	Current MAP field	New MAP field	New/Deleted/ Changed
CMIC Port 0	n/a	‘Port0’	new
CMIC Port 1	n/a	‘Port1’	new
CMIC Link TOD	‘TOD’	‘TOD0’	changed
CMIC Link1 TOD	n/a	‘TOD1’	new

For CMIC packlets represented on the new CMIC MAP level, the following components will be shown as before: Slot, Side, Packlet, Status, link0, and link1. Port0 and port1 components will be left blank. The TOD component will be represented by the new TOD0 component. The TOD1 component will be left blank. Please refer to “ New CMIC MAP level with CMIC packlets in slots 4R and 15R” on page 298.

New CMIC MAP level with CMIC packlets in slots 4R and 15R

```
 XAC       MS      IOD      Net       PM      CCS      Lns     Trks     Ext      APPL
  .        .        .        .        .        .        .       .        .        .

CMIC              Front:   111111111  Rear: 111111     SM     PE     IO    PKLT
 0 Quit           123456789012345678  456789012345     .      .      .     .
 2               Sta: . ..-..-..-.- ..   ....-----...    0      0      0     0
 3               Dep:
 4               Typ:                    *          *
 5               Slot: Side: Packlet Status: Port0 Port1 Link0 Link1 TOD0 TOD1
 6 Tst_           4    Rear  Lower   .                   .      .      .
 7 Bsy_           15   Rear  Lower   .                   .      .      .
 8 RTS_
 9
10 loadFW_
11
12 Uneq_
13 Route_
14 Alarm_
15 Cntrl_
16 Trnsl_
17 Indicat_
18 Query_
  XMAP0
Time  14:12    >
```

For CMIC functionality on CMIC/RTIF HIOP represented on the new CMIC MAP level, since the card does not have packlets, the ‘Packlet’ location field, and the packlet ‘Status’ field will be left blank. Also, in addition to the two CMIC links, there are going to be two new CMIC ports shown (Port0 and Port1), as well as two TOD devices for each CMIC/RTIF HIOP card (TOD0 and TOD1). Please refer to “ New CMIC MAP level with CMIC/RTIF HIOPs in slot 4R and 15R” on page 299.

New CMIC MAP level with CMIC/RTIF HIOPs in slot 4R and 15R

```
 XAC      MS      IOD      Net      PM      CCS      Lns     Trks     Ext      APPL
  .       .        .        .       .        .        .       .       .         .

CMIC            Front:   111111111  Rear: 111111     SM     PE     IO    PKLT
 0 Quit         123456789012345678  456789012345     .      .      .     .
 2         Sta: . ..-..-..-.- ..    ....-----...     0      0      0     0
 3         Dep:
 4         Typ:                     *          *
 5         Slot: Side: Packlet Status: Port0 Port1 Link0 Link1 TOD0 TOD1
 6 Tst_     4    Rear                 .     .     .     .     .     .
 7 Bsy_     15   Rear                 .     .     .     .     .     .
 8 RTS_
 9
10 loadFW_
11
12 Uneq_
13 Route_
14 Alarm_
15 Cntrl_
16 Trnsl_
17 Indicat_
18 Query_
 XMAP0
Time  14:12   >
```

The new CMIC MAP level will be able to show both, packlet and HIOP, configurations during the migration from one configuration to the other (e.g. CMIC packlet to CMIC/RTIF HIOP).

Command: uneq

With the introduction of the new CMIC/RTIF HIOP card, the CMIC packlets will have to be migrated to the new card. Hence, from now on, the XA-Core system will support the provisioning and deprovisioning of CMIC components. The ‘uneq’ command will be used for deprovisioning a CMIC packlet on an IOP card or a CMIC link on a CMIC/RTIF HIOP card. Currently CMIC packlet deprovisioning is not supported.

New or modified CMIC MAP commands

Command Name	NEW, CHANGED or DELETED	Directory/MAP level name	MENU/NON-MENU/ HIDDEN
uneq	New	MAPCI;MTC;XAC;CMIC	Menu
trnsl	Changed	MAPCI;MTC;XAC;CMIC	Menu

Command description

The ‘uneq’ MAP command is used to deprovision a component from the XA-Core system. On the CMIC MAP level, the ‘uneq’ command will be used to deprovision a CMIC packlet residing on an IOP card, or to deprovision a CMIC link residing on a CMIC/RTIF HIOP card. Until now, deprovisioning

of CMIC packlets was not supported since they were part of the ‘fixed’ XA-Core configuration (slots 4R and 15R). From now on, deprovisioning of CMIC components is needed for the migration of CMIC packlets to CMIC/RTIF HIOP cards and back.

Summary of the new ‘uneq’ CMIC MAP level command

Command	Menu#	Type	Options	Function
uneq	12	Operational	None	- Deprovision a CMIC packlet on an IOP card - Deprovision a CMIC link on an HIOP card

Command syntax

The ‘uneq’ command requires parameters. If you do not enter any parameters or you enter invalid parameters, the MAP terminal displays an error message. The MAP terminal prompts you to enter a correct parameter value.

‘uneq’ command parameters and variables

Command	Parameters and variables
uneq	- slot number (0 to 17), - side (front, f or rear, r), - packlet position (upper, u, or lower, l), - link number (link0 or link1).
Parameters and variables	Description
slot number	Use the ‘slot number’ parameter value to indicate the number of the physical shelf slot: 0 to 17
side	Use the ‘side’ parameter value to indicate the component location in the physical shelf: front, f or rear, r
packlet position	Use the ‘packlet position’ parameter value to indicate the CMIC packlet location on an IOP card: upper, u or lower, l. This is used only for CMIC packlet deprovisioning and is not used for CMIC link.
link number	Use the ‘link number’ parameter value to indicate the CMIC link position on a CMIC/RTIF HIOP card: link0 or link1. This is used only for CMIC link deprovisioning and is not used for CMIC packlets.

Note: The ‘slot number’ parameter value will usually be ‘4’ or ‘15’. The ‘side’ parameter value will usually be ‘rear’ or ‘r’. The ‘packlet position’ parameter value will usually be ‘lower’ or ‘l’.

Qualifications and warnings

The ‘uneq’ command should be used with great care since it deprovisions a component from the XA-Core system. There are some general requirements for the successful completion of the ‘uneq’ command. They are (in order):

- first, the component must be brought into a ‘ManB’ state,
- then, the component must be pulled from the shelf,
- finally, the ‘uneq’ command can be issued for the component.

Since the ‘uneq’ command on the CMIC MAP level can be issued for the CMIC packlet residing on an IOP card or for a CMIC link residing on an HIOP card, the command usage will be different depending on the component being deprovisioned. Please refer to Section “ Example” on page 302.

Note: Deprovisioning of CMIC links on packlets is not supported.

MAP Responses

MAP outputs with associated meanings and actions

Command
RESPONSE: Command submitted. Uneq 4 Rear Lower completed. **Meaning:** This response indicates that the ‘uneq’ command has completed successfully. **System or user actions:** none
RESPONSE: Command submitted. Improper state for required action, no action take **Meaning:** this response indicates that the ‘uneq’ command has been issued without bringing the component into the ‘ManB’ state first. **System or user actions:** the craft person has to ‘ManB’ the component
RESPONSE: Command submitted H/W must be removed from shelf, no action taken **Meaning:** this response indicates that the ‘uneq’ command has been issued without removing the component from the shelf, or without waiting long enough for the system to recognize the component’s loss of clock. **System or user actions:** the craft person has to remove the component from the shelf. If the component is already removed, the craft person has to wait long enough (e.g. one minute) for the system to recognize the component’s loss of clock.

MAP outputs with associated meanings and actions

Command
RESPONSE: Card/device is unadressable...no action taken. **Meaning:** this response indicates that there is no provisioned component in the given location. **System or user actions:** the craft person has to check the FRU location
RESPONSE: Either incorrect optional parameter(s) OR too many parameters **Meaning:** this response indicates that the 'uneq' command was issued without following the correct syntax. For example, the 'link0' or 'link1' parameter values were entered while deprovisioning a CMIC packlet on an IOP card (CMIC link deprovisioning not supported on packlets). **System or user actions:**
RESPONSE: <slot> <side> is an IOP. Packlet location must be specified **Meaning:** this response indicates that the 'uneq' command was issue for a CMIC packlet slot, but the packlet location parameter value (lower, l or upper, u) was not specified. **System or user actions:** re-enter the 'uneq' command with correct syntax.
RESPONSE: <slot> <side> is an HIOP. Packlet location does not apply. **Meaning:** this response indicates that the 'uneq' command was issued for a CMIC link on an HIOP card, but a packlet location parameter value was entered. **System or user actions:** re-enter the 'uneq' command with correct syntax.

Example

Usage examples for 'uneq' command on the CMIC MAP level

Description of task: Command: MAP response:	Deprovision a CMIC packlet on an IOP card Example: uneq 4 rear lower Example: Command submitted. Uneq 4 Rear Lower completed
Description of task: Command: MAP response:	Deprovision a CMIC link 0 on an HIOP card Example: uneq 4 rear link0 Example: Command submitted. Uneq 4 Rear Link0 completed.

Command: trnsl

With the introduction of the new CMIC/RTIF HIOP card, the CMIC packlets will have to be migrated to the new card. Hence, from now on, the 'trnsl' command has to support the new HIOP card. This feature does not change the functionality of the command.

Command description

The ‘trnsl’ MAP command is used on the MAPCI;MTC;XAC;CMIC MAP level to find out the identity of the MS CMIC paddle board ports connected to a given CMIC link on the XA-Core. Until now, the ‘trnsl’ command was only used on CMIC packlets. From now on, it can be issued for either a CMIC packlet or CMIC component on the HIOP card.

Command syntax

This feature does not change the parameter values expected by the ‘trnsl’ command, its menu number on the CMIC MAP level. It only makes changes to the usage of the command. That is, for CMIC/RTIF HIOP cards, the packlet location parameter value should not be entered. For CMIC packlets, the ‘trnsl’ command should be issued as before.

MAP Responses

MAP outputs with associated meanings and actions

Command
RESPONSE: Command submitted. Trnsl 4 Rear completed. **Meaning:** This response indicates that the ‘trnsl’ command has completed successfully. **System or user actions:** none
RESPONSE: Card/device is unadressable...no action taken. **Meaning:** this response indicates that there is no provisioned component in the given location. **System or user actions:** the craft person has to check the FRU location
RESPONSE: Either incorrect optional parameter(s) OR too many parameters **Meaning:** this response indicates that the ‘trsnl’ command was issued without following the correct syntax. For example, the packlet location parameter value was entered for an HIOP. **System or user actions:** re-enter the ‘trnsl’ command with correct syntax.
RESPONSE: <slot> <side> is an IOP. Packlet location must be specified **Meaning:** this response indicates that the ‘trnsl’ command was issued for a CMIC packlet slot, but the packlet location parameter value (lower, l or upper, u) was not specified. **System or user actions:** re-enter the ‘uneq’ command with correct syntax.
RESPONSE: <slot> <side> is an HIOP. Packlet location does not apply. **Meaning:** this response indicates that the ‘trnsl’ command was issued for a CMIC component on an HIOP card, but a packlet location parameter value was entered. **System or user actions:** re-enter the ‘trnsl’ command with correct syntax.

Example

For CMIC packlets, the ‘trnsl’ command usage will be the same. For CMIC components on an HIOP card, the ‘trnsl’ command will have to be entered without specifying the packlet location (lower or upper). Next table shows some examples.

Usage examples for ‘trnsl’ command on the CMIC MAP level

Description of task: Command: MAP response:	Trnsl a CMIC packlet on an IOP card Example: trnsl 4 rear lower Example: Command submitted. Trnsl 4 Rear Lower completed
Description of task: Command: MAP response:	Trnsl CMIC on an HIOP card Example: trnsl 4 rear Example: Command submitted. Trnsl 4 Rear completed.

RTIF MAP level

Currently, the RTIF functionality can only be hosted by an RTIF packlet on an IOP card. Please refer to “ Current RTIF MAP level with RTIF packlets on IOPs in slots 4R and 15R” on page 304.

Current RTIF MAP level with RTIF packlets on IOPs in slots 4R and 15R

```
 XAC      MS      IOD      Net      PM      CCS      Lns     Trks     Ext      APPL
  .       .        .        .       .        .       .       .        .        .

RTIF            Front:   111111111  Rear: 111111     SM     PE     IO    PKLT
 0 Quit         123456789012345678  456789012345     .      .      .     .
 2              Sta: . ..-..-..-.- ..   ..-.-------..     0      0      0     0
 3              Dep:
 4              Typ:                    *          *
 5              Slot: Side: Packlet:   Status:   Local Port:  Remote Port:
 6 Tst_          4    Rear  Upper      .          .             .
 7 Bsy_          15   Rear  Upper      .          .             .
 8 RTS_
 9
10
11
12 Uneq_
13
14 Alarm_
15 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

With the introduction of the new CMIC/RTIF HIOP, the new RTIF MAP will show the functionality hosted by either an RTIF packlet on an IOP card or an CMIC/RTIF HIOP card. Also, with RTIF port/link separation on CMIC/RTIF

HIOP, new RTIF link0 and RTIF link1 components will be shown on the RTIF MAP level.

Summary of RTIF MAP field changes

Component	Current MAP Field	New MAP Field	New/Deleted/ Changed
RTIF Local Port on Packlet	'Local Port'	'n/a'	Deleted
RTIF Remote Port on Packlet	'Remote Port'	'n/a'	Deleted
RTIF Local Link on Packlet	n/a	'Link0'	New
RTIF Remote Link on Packlet	n/a	'Link1'	New
RTIF Local Port on HIOP	n/a	'Port0'	New
RTIF Remote Port on HIOP	n/a	'Port1'	New
RTIF Local Link on HIOP	n/a	'Link0'	New
RTIF Remote Link on HIOP	n/a	'Link1'	New

For RTIF packlets on the new RTIF MAP level, the following components will be shown as before: Slot, Side, Packlet, Status. The RTIF local port will be changed to Link0. The RTIF remote port will be changed to Link1. Port0 and Port1 will be left blank. Hence, the RTIF MAP level will be consistent with other packlet MAP levels that have no port/link separation. Please refer to " New RTIF MAP level with RTIF packlets on IOPs in slots 4R and 15R" on page 306.

New RTIF MAP level with RTIF packlets on IOPs in slots 4R and 15R

```
 XAC      MS     IOD     Net      PM      CCS     Lns    Trks    Ext     APPL
  .       .       .       .       .       .       .      .       .       .

RTIF            Front:   111111111  Rear: 111111     SM    PE    IO   PKLT
 0 Quit         123456789012345678  456789012345     .     .     .    .
 2         Sta: . ..-..-..-.- ..    ..-.------..     0     0     0    0
 3         Dep:
 4         Typ:                     *          *
 5         Slot: Side: Packlet: Status:  Port0: Port1: Link0: Link1:
 6 Tst_     4    Rear  Upper    .                      .      .
 7 Bsy_     15   Rear  Upper    .                      .      .
 8 RTS_
 9
10
11
12 Uneq_
13
14 Alarm_
15 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

For RTIF functionality on CMIC/RTIF HIOP represented on the new RTIF MAP, since the card does not have packlets, the ‘Packlet’ location field, and the packlet ‘Status’ field will be left blank. Also, in addition to the local and remote RTIF ports, there are going to be two new RTIF links shown (link0 and link1). Please refer to “ New RTIF MAP level with CMIC/RTIF HIOP cards in slots 4R and 15R” on page 306.

New RTIF MAP level with CMIC/RTIF HIOP cards in slots 4R and 15R

```
 XAC      MS     IOD     Net      PM      CCS     Lns    Trks    Ext     APPL
  .       .       .       .       .       .       .      .       .       .

RTIF            Front:   111111111  Rear: 111111     SM    PE    IO   PKLT
 0 Quit         123456789012345678  456789012345     .     .     .    .
 2         Sta: . ..-..-..-.- ..    ..-.------..     0     0     0    0
 3         Dep:
 4         Typ:                     *          *
 5         Slot: Side: Packlet: Status:  Port0: Port1: Link0: Link1:
 6 Tst_     4    Rear                    .      .      .      .
 7 Bsy_     15   Rear                    .      .      .      .
 8 RTS_
 9
10
11
12 Uneq_
13
14 Alarm_
15 Cntrs_
16
17 Indicat_
18 Query_
 XMAP0
Time  14:12    >
```

The new RTIF MAP level will be able to show both, packlet and HIOP, configurations during the migration from one configuration to the other (e.g. RTIF packlet to CMIC/RTIF HIOP).

Command: uneq

With the introduction of the new CMIC/RTIF HIOP card, the RTIF packlets will have to be migrated to the new card. Hence, from now on, the XA-Core system will support the provisioning and deprovisioning of RTIF components. The 'uneq' command will be used for deprovisioning a RTIF packlet on an IOP card or an RTIF link on a CMIC/RTIF HIOP card. Currently, RTIF packlet deprovisioning is not supported.

New or modified CMIC MAP commands

Command Name	NEW, CHANGED or DELETED	Directory/MAP level name	MENU/NON-MENU/ HIDDEN
uneq	changed	MAPCI;MTC;XAC;RTIF	Menu

Command description

The 'uneq' MAP command is used to deprovision a component from the XA-Core system. On the RTIF MAP level, the 'uneq' command will be used to deprovision a RTIF packlet residing on an IOP card, or to deprovision a RTIF link residing on a CMIC/RTIF HIOP card. Until now, deprovisioning of RTIF packlets was not supported since they were part of the 'fixed' XA-Core configuration (slots 4R and 15R). From now on, deprovisioning of RTIT components is needed for the migration of RTIF packlets to CMIC/RTIF HIOP cards and back.

Summary of the new 'uneq' CMIC MAP level command

Command	Menu#	Type	Options	Function
uneq	12	Operational	None	- Deprovision a RTIF packlet on an IOP card - Deprovision a RTIF link on an HIOP card

Command syntax

The 'uneq' command requires parameters. If you do not enter any parameters or you enter invalid parameters, the MAP terminal displays an error message. The MAP terminal prompts you to enter a correct parameter value.

<'uneq'> command parameters and variables

Command	Parameters and variables

<'uneq'> command parameters and variables

Command	Parameters and variables
uneq	- slot number (0 to 17), - side (front, f or rear, r), - packlet position (upper, u, or lower, l), - link number (link0 or link1).
Parameters and variables	**Description**
slot number	Use the 'slot number' parameter value to indicate the number of the physical shelf slot: 0 to 17
side	Use the 'side' parameter value to indicate the component location in the physical shelf: front, f or rear, r
packlet position	Use the 'packlet position' parameter value to indicate the RTIF packlet location on an IOP card: upper, u or lower, l. This is used only for RTIF packlet deprovisioning and is not used for RTIF link.
link number	Use the 'link number' parameter value to indicate the RTIF link position on a CMIC/RTIF HIOP card: link0 or link1. This is used only for RTIF link deprovisioning and is not used for RTIF packlets.

Note: The 'slot number' parameter value will usually be '4' or '15'. The 'side' parameter value will usually be 'upper' or 'u'. The 'packlet position' parameter value will usually be 'upper' or 'u'.

Qualifications and warnings

The 'uneq' command should be used with great care since it deprovisions a component from the XA-Core system. There are some general requirements for the successful completion of the 'uneq' command. They are (in order):

- first, the component must be brought into a 'ManB' state,
- then, the component must be pulled from the shelf,
- finally, the 'uneq' command can be issued for the component.

Since the 'uneq' command on the RTIF MAP level can be issued for the RTIF packlet residing on an IOP card or for an RTIF link residing on an HIOP card, the command usage will be different depending on the component being deprovisioned. Please refer to Section " Example" on page 310.

Note: Deprovisioning of RTIF links on packlets is not supported.

MAP Responses

MAP outputs with associated meanings and actions

Command
RESPONSE: Command submitted. Uneq 4 Rear Upper completed. **Meaning:** This response indicates that the 'uneq' command has completed successfully. **System or user actions:** none
RESPONSE: Command submitted. Improper state for required action, no action take **Meaning:** this response indicates that the 'uneq' command has been issued without bringing the component into the 'ManB' state first. **System or user actions:** the craft person has to 'ManB' the component
RESPONSE: Command submitted H/W must be removed from shelf, no action taken **Meaning:** this response indicates that the 'uneq' command has been issued without removing the component from the shelf, or without waiting long enough for the system to recognize the component's loss of clock. **System or user actions:** the craft person has to remove the component from the shelf. If the component is already removed, the craft person has to wait long enough (e.g. one minute) for the system to recognize the component's loss of clock.
RESPONSE: Card/device is unadressable...no action taken. **Meaning:** this response indicates that there is no provisioned component in the given location. **System or user actions:** the craft person has to check the FRU location
RESPONSE: Either incorrect optional parameter(s) OR too many parameters **Meaning:** this response indicates that the 'uneq' command was issued without following the correct syntax. For example, the 'link0' or 'link1' parameter values were entered while deprovisioning an RTIF packlet on an IOP card (RTIF link deprovisioning not supported on packlets). **System or user actions:**
RESPONSE: <slot> <side> is an IOP. Packlet location must be specified **Meaning:** this response indicates that the 'uneq' command was issue for an RTIF packlet, but the packlet location parameter value (lower, l or upper, u) was not specified. **System or user actions:** re-enter the 'uneq' command with correct syntax.

MAP outputs with associated meanings and actions

Command
RESPONSE: <slot> <side> is an HIOP. Packlet location does not apply. **Meaning:** this response indicates that the 'uneq' command was issued for an RTIF link on an HIOP card, but a packlet location parameter value was entered. **System or user actions:** re-enter the 'uneq' command with correct syntax.

Example

Usage examples for 'uneq' command on the RTIF MAP level

Description of task: Command: MAP response:	Deprovision a RTIF packlet on an IOP card Example: uneq 4 rear upper Example: Command submitted. Uneq 4 Rear Upper completed
Description of task: Command: MAP response:	Deprovision a RTIF link 0 on an HIOP card Example: uneq 4 rear link0 Example: Command submitted. Uneq 4 Rear Link0 completed.

Configuration Walkthrough

Provisioning and Deprovisioning

For provisioning and deprovisioning the CMIC, RTIF, IOP, and HIOP components, this feature makes use of the XA-Core provisioning feature. For a more detailed explanation of the provisioning feature please refer to FN-A59009527.

CMIC packlet deprovisioning on IOP

Deprovisioning a CMIC packlet on an IOP card follows the general guidelines for deprovisioning any component in XA-Core. In addition, deprovisioning of CMIC packlets also have some particular characteristics:

- first, the CMIC links have to be manually busied from the MS side (links will go 'CBsy'),
- then the CMIC packlet must be brought into a 'ManB' state,
- once the CMIC links are 'CBsy' and the CMIC packlet is 'ManB', the craft person should remove the CMIC packlet from the IOP card,

- once the CMIC packlet is removed from the IOP card, the craft person should issue the ‘uneq’ command for the CMIC packlet. This deprovisions the CMIC packlet and the CMIC links.

CMIC link deprovisioning on HIOP

Deprovisioning a CMIC link on an HIOP card follows the general guidelines for deprovisioning any component in XA-Core. In addition, deprovisioning of CMIC links also have some particular characteristics:

- first, the CMIC link has to be manually busied from the MS side (link will go ‘CBsy’),
- once the CMIC link is ‘CBsy’, the craft person should remove the CMIC link from the HIOP card,
- once the CMIC link is ‘CBsy’ and removed from the HIOP card, the craft person should issue the ‘uneq’ command for the CMIC link. This deprovisions the CMIC link.

CMIC packlet provisioning on IOP

Provisioning of CMIC packlets is done as follows:

- have the host IOP card provisioned and in-service, with an empty (unprovisioned) packlet location,
- on the MS side, the craft person must manually busy both MS ports for the CMIC packlet we want to provision,
- after both MS ports are ‘ManB’, the craft person should plug in the CMIC packlet with no links attached,

  Note: when the system provisions the CMIC packlet, the CMIC links are automatically added to the system inventory. They will be ‘CBsy’.
- once the CMIC packlet is provisioned, the craft person should bring the CMIC packlet in-service,
- after the CMIC packlet is in-service, with the CMIC link ‘CBsy’, the craft person should plug the CMIC links into the CMIC packlet,
- on the MS side, once the CMIC links are provisioned and ‘CBsy’, the craft person must test both MS ports connected to the CMIC links,
- after the MS port tests pass, the craft person should bring the MS ports in-service. This will also bring the CMIC links in-service.

CMIC link provisioning on HIOP

Provisioning of CMIC links on HIOP is done as follows:

- have the host HIOP card provisioned and in-service, with an empty (unprovisioned) OC3 link location,
- on the MS side, the craft person must manually busy the MS port for the CMIC link we want to provision,
- after the MS port is ‘ManB’, the craft person should plug the CMIC link into the OC3 port of the HIOP card (the CMIC link will be ‘CBsy’),
- on the MS side, once the CMIC link is provisioned and ‘CBsy’, the craft person must test the MS port connected to the CMIC link,
- after the MS port test passes, the craft person should bring the MS port in-service. This will also bring the CMIC link in-service.

Migration procedures

With the introduction of the new CMIC/RTIF HIOP card, the CMIC and RTIF functionality presently hosted by packlets on IOP cards will have to be migrated to the new HIOP card. Also, a ‘back-out’ migration procedure has to be available so that the office can go from the CMIC/RTIF HIOP cards back to packlets.

Migration from CMIC and RTIF packlets to CMIC/RTIF HIOP for SuperNode (SN)

This section describes the migration procedure from an XA-Core system with CMIC and RTIF functionality provided by packlets on IOP cards to a system with CMIC and RTIF functionality provided by CMIC/RTIF HIOP cards. The recommended approach will provision the new HIOP cards in the *same* slots (4R and 15R) as the deprovisioned IOP cards with packlets. Because of lost redundancy during the migration, there are two E2 conditions during this procedure.

The following sequence of events shows the steps:

- Start with a CMIC and RTIF packlet configuration on IOP cards in slots 4R and 15R (no CMIC/RTIF HIOP cards in the shelf). Please refer to “ Initial CMIC and RTIF packlet configuration - XA-Core rear view” on page 313.

Initial CMIC and RTIF packlet configuration - XA-Core rear view

- set the ‘xa_component_install_state’ office parameter in table OFCENG to ‘manbusy’,
- verify that table XAFWLOAD is datafilled with valid FW (ROM) and DLL (RAM) loads for the new CMIC/RTIF HIOP card,
- issue the ‘trnsl’ command for the CMIC packlet in 4 rear lower: ‘trnsl 4 rear lower’. The MAP response should look like this:

```
trnsl 4 rear lower
Command Submitted.
Trnsl  4 Rear   Lower    completed

Link 0 is connected to MS1 Shelf 0 Card 24 Port 0
Link 1 is connected to MS0 Shelf 0 Card 25 Port 0
```

- record the MS port numbers returned by the ‘trnsl’ command for the CMIC packlet in 4 rear lower,
- on the MS MAP level, manually busy the MS ports returned by the ‘trnsl’ command for CMIC packlet in slot 4 rear lower (Port 0 on MS 1, Shelf 0, Card 24 and Port 0 on MS 0, Shelf 0, Card 25). The CMIC links will go ‘CBsy’.
- on the CMIC MAP level, manually busy the CMIC packlet in slot 4 rear lower,
- on the RTIF MAP level, manually busy the RTIF packlet in slot 4 rear upper,
- on the IO MAP level, manually busy the IOP card in slot 4 rear,
- pull the CMIC packlet in slot 4 rear lower with links attached,
- pull the RTIF packlet in slot 4 rear upper,
- pull the IOP card in slot 4 rear,
- wait one minute for the system to recognize the loss of clock,
- on the CMIC MAP level, issue the ‘uneq’ command for the CMIC packlet: ‘uneq 4 rear lower’.
- on the RTIF MAP level, issue the ‘uneq’ command for the RTIF packlet: ‘uneq 4 rear upper’.

- on the IO MAP level, issue the ‘uneq’ command for the IOP card: ‘uneq 4 rear’. The following logs should be generated:

```
XAC628 MAR19 14:16:20 5600 INFO XA-Core Provisioning Report
        DESCRIPTION: Resource has been deprovisioned
        CARD: Type State Site FL Row Bay    Shf/Slt/Pk    EqPEC/Serial
              CMIC MBSY  HOST 01 A00 DPCC:00 00 04R L  NTLX05AB/NNTM64422MWV

XAC628 MAR19 14:17:20 5700 INFO XA-Core Provisioning Report
        DESCRIPTION: Resource has been deprovisioned
        CARD: Type State Site FL Row Bay    Shf/Slt/Pk    EqPEC/Serial
              RTIF MBSY  HOST 01 A00 DPCC:00 00 04R U  NTLX08AA/NNTM64422MWV

XAC628 MAR19 14:18:20 5800 INFO XA-Core Provisioning Report
        DESCRIPTION: Resource has been deprovisioned
        CARD: Type State Site FL Row Bay    Shf/Slt    EqPEC/Serial
              IO   MBSY  HOST 01 A00 DPCC:00 00 04R NTLX03AB/NNTM64422MWV
```

- at this stage, the CMIC and RTIF functionality is provided only by the packlets in slot 15 rear. Please refer to “ Reduced CMIC and RTIF redundancy (service on packlets) - XA-Core rear view” on page 314.

Reduced CMIC and RTIF redundancy (service on packlets) - XA-Core rear view

- plug the CMIC/RTIF HIOP card into slot 4 rear with no links attached. The following log should be generated:

  Note: Once the HIOP card is provisioned, all its associated ports will be provisioned as well.

```
XAC628 MAR19 14:20:20 6800 INFO XA-Core Provisioning Report
        DESCRIPTION: New resource has been provisioned
        CARD: Type State Site FL Row Bay    Shf/Slt    EqPEC/Serial
              HIOP MBSY  HOST 01 A00 DPCC:00 00 04R NTLX04BA/NNTM64422MWV
```

- the craft person should verify the success of the system-initiated provisioning test of the HIOP card in slot 4 rear by checking the XAC log 640 in logutil:

```
XAC640 MAR19 14:20:40 6900 INFO Test Report
        Type Link_Num Slot Side Packlet  Test_Type Result
        HIOP          4    R            OOS       Passed
        Initiator: Action initiated by the system
```

- once the integrity of the HIOP card in slot 4 rear has been verified, the craft person should manually RTS the card,

Note: Once the HIOP card is in-service, all its associated ports are automatically brought in-service by the system, provided their OOS test passes.

- plug the CMIC links into the OC3 ports of the HIOP card in slot 4 rear. The system will automatically provision the CMIC links, perform an OOS test on them, and bring them into a ‘CBsy’ state.

  Note: use the same configuration as recorded for the ‘trnsl’ command issued for the CMIC packlet in slot 4 rear lower. The following log should be generated:

```
XAC628 MAR19 14:22:20 7000 INFO XA-Core Provisioning Report
        DESCRIPTION: New resource has been provisioned
        LINK: Type State Site FL Row Bay    Shf/Slt/Lk    EqPEC/Serial
              CMIC CBSY  HOST 01 A00 DPCC:00 00 04R 0  NTLX04BA/NNTM64422MWV

XAC628 MAR19 14:22:20 7100 INFO XA-Core Provisioning Report
        DESCRIPTION: New resource has been provisioned
        LINK: Type State Site FL Row Bay    Shf/Slt/Lk    EqPEC/Serial
              CMIC CBSY  HOST 01 A00 DPCC:00 00 04R 1  NTLX04BA/NNTM64422MWV
```

- on the MS MAP level, test the MS ports returned by the ‘trnsl’ command for the CMIC packlet in slot 4 rear lower (Port 0 on MS 1, Shelf 0, Card 24 and Port 0 on MS 0, Shelf 0, Card 25).

- on the MS MAP level, if the previous MS port tests passed, bring them in-service (Port 0 on MS 1, Shelf 0, Card 24 and Port 0 on MS 0, Shelf 0, Card 25). On the MS MAP level the MS ports will go from ‘M’ to ‘.’, while on the XAC CMIC MAP level the CMIC links will go from ‘CBsy’ to ‘.’.

- once the CMIC links are in-service, issue the ‘trnsl’ command for the CMIC links on HIOP in 4 rear: ‘trnsl 4 rear’. The MAP response should look like this:

```
trnsl 4 rear
Command Submitted.
Trnsl  4 Rear completed

Link 0 is connected to MS1 Shelf 0 Card 24 Port 0
Link 1 is connected to MS0 Shelf 0 Card 25 Port 0
```

- record the MS port numbers returned by the ‘trnsl’ command for the CMIC links on HIOP card in 4 rear. Verify that they are the same as the MS port numbers recorded before deprovisioning the CMIC packlet in 4 rear lower,

- plug the RTIF local link into the HIOP card’s local RTIF port in slot 4 rear. The system will automatically provision and attempt to bring the local RTIF link in-service. The following log should be generated:

```
XAC628 MAR19 14:23:20 7200 INFO XA-Core Provisioning Report
        DESCRIPTION: New resource has been provisioned
        LINK: Type State Site FL Row Bay    Shf/Slt/Lk    EqPEC/Serial
              RTIF CBSY  HOST 01 A00 DPCC:00 00 04R 0  NTLX04BA/NNTM64422MWV
```

- plug the RTIF remote link into the HIOP card's remote RTIF port in slot 4 rear. The system will automatically provision and attempt to bring the remote RTIF link in-service. The following log should be generated:

```
XAC628 MAR19 14:23:20 7200 INFO XA-Core Provisioning Report
        DESCRIPTION: New resource has been provisioned
        LINK: Type State Site FL Row Bay    Shf/Slt/Lk    EqPEC/Serial
              RTIF CBSY  HOST 01 A00 DPCC:00 00 04R 1  NTLX04BA/NNTM64422MWV
```

- at this point, we have a hybrid CMIC and RTIF system: the CMIC and RTIF functionality in slot 15R is still provided by packlets on IOP cards, while the CMIC and RTIF functionality in slot 4R is provided by the new CMIC/RTIF HIOP. Please refer to " Intermediate (hybrid) CMIC and RTIF configuration - XA-Core rear view" on page 316.

Intermediate (hybrid) CMIC and RTIF configuration - XA-Core rear view

- issue the 'trnsl' command for the CMIC packlet in 15 rear lower: 'trnsl 15 rear lower'. The MAP response should look like this:

```
trnsl 15 rear lower
Command Submitted.
Trnsl 15 Rear   Lower    completed

Link 0 is connected to MS0 Shelf 0 Card 24 Port 0
Link 1 is connected to MS1 Shelf 0 Card 25 Port 0
```

- record the MS port numbers returned by the 'trnsl' command for the CMIC packlet in 15 rear lower,
- on the MS MAP level, manually busy the MS ports returned by the 'trnsl' command issued for the CMIC packlet in slot 15 rear lower (Port 0 on MS 0, Shelf 0, Card 24 and Port 0 on MS 1, Shelf 0, Card 25). The CMIC links will go 'CBsy'.
- on the CMIC MAP level, manually busy the CMIC packlet in slot 15 rear lower,
- on the RTIF MAP level, manually busy the RTIF packlet in slot 15 rear upper,
- on the IO MAP level, manually busy the IOP card in slot 15 rear,
- pull the CMIC packlet in slot 15 rear lower, with links attached,
- pull the RTIF packlet in slot 15 rear upper,

- pull the IOP card in slot 15 rear,
- wait one minute for the system to recognize the loss of clock,
- on the CMIC MAP level, issue the ‘uneq’ command for the CMIC packlet: ‘uneq 15 rear lower’,
- on the RTIF MAP level, issue the ‘uneq’ command for the RTIF packlet: ‘uneq 15 rear upper’,
- on the IO MAP level, issue the ‘uneq’ command for the IOP card: ‘uneq 15 rear’. The following logs should be generated:

```
XAC628 MAR19 14:25:20 7300 INFO XA-Core Provisioning Report
        DESCRIPTION: Resource has been deprovisioned
        CARD: Type State Site FL Row Bay    Shf/Slt/Pk    EqPEC/Serial
              CMIC MBSY  HOST 01 A00 DPCC:00 00 15R L  NTLX05AB/NNTM64422MWV

XAC628 MAR19 14:26:20 7400 INFO XA-Core Provisioning Report
        DESCRIPTION: Resource has been deprovisioned
        CARD: Type State Site FL Row Bay    Shf/Slt/Pk    EqPEC/Serial
              RTIF MBSY  HOST 01 A00 DPCC:00 00 15R U  NTLX08AA/NNTM64422MWV

XAC628 MAR19 14:27:20 7500 INFO XA-Core Provisioning Report
        DESCRIPTION: Resource has been deprovisioned
        CARD: Type State Site FL Row Bay    Shf/Slt    EqPEC/Serial
              IO   MBSY  HOST 01 A00 DPCC:00 00 15R NTLX03AB/NNTM64422MWV
```

- Please refer to “ Reduced CMIC and RTIF redundancy (service on HIOP) - XA-Core rear view” on page 317.

Reduced CMIC and RTIF redundancy (service on HIOP) - XA-Core rear view

- plug the CMIC/RTIF HIOP card into slot 15 rear with no links attached. The following log should be generated:

```
XAC628 MAR19 14:28:20 7600 INFO XA-Core Provisioning Report
        DESCRIPTION: New resource has been provisioned
        CARD: Type State Site FL Row Bay    Shf/Slt    EqPEC/Serial
              HIOP MBSY  HOST 01 A00 DPCC:00 00 15R NTLX04BA/NNTM64422MWV
```

- the craft person should verify the success of the system-initiated provisioning test of the HIOP card in slot 15 rear by checking the XAC log 640 in logutil:

```
XAC640 MAR19 14:29:40 7700 INFO Test Report
        Type Link_Num Slot Side Packlet  Test_Type Result
        HIOP          15   R             OOS       Passed
        Initiator: Action initiated by the system
```

- once the integrity of the HIOP card in slot 15 rear has been verified, the craft person should manually RTS the card,

  Note: Once the HIOP card is in-service, all its associated ports are automatically brought in-service by the system, provided their OOS test passes.

- plug the CMIC links into the OC3 ports of the HIOP card in slot 15 rear. The system will automatically provision the CMIC links, perform an OOS test on them, and bring them into a ‘CBsy’ state.

  Note: use the same configuration as recorded for the ‘trnsl’ command issued for the CMIC packlet in slot 15 rear lower.

```
XAC628 MAR19 14:30:20 7800 INFO XA-Core Provisioning Report
        DESCRIPTION: New resource has been provisioned
        LINK: Type State Site FL Row Bay    Shf/Slt/Lk    EqPEC/Serial
              CMIC CBSY  HOST 01 A00 DPCC:00 00 15R 0  NTLX04BA/NNTM64422MWV

XAC628 MAR19 14:31:20 7900 INFO XA-Core Provisioning Report
        DESCRIPTION: New resource has been provisioned
        LINK: Type State Site FL Row Bay    Shf/Slt/Lk    EqPEC/Serial
              CMIC CBSY  HOST 01 A00 DPCC:00 00 15R 1  NTLX04BA/NNTM64422MWV
```

- on the MS MAP level, test the MS ports previously returned by the ‘trnsl’ command for CMIC packlet in slot 15 rear lower (Port 0 on MS 0, Shelf 0, Card 24 and Port 0 on MS 1, Shelf 0, Card 25).

- on the MS MAP level, if the previous MS port tests passed, bring them in-service (Port 0 on MS 0, Shelf 0, Card 24 and Port 0 on MS 1, Shelf 0, Card 25). On the MS MAP level the MS ports will go from ‘M’ to ‘.’, while on the XAC CMIC MAP level the CMIC links will go from ‘CBsy’ to ‘.’.

- once the CMIC links are in-service, issue the ‘trnsl’ command for the CMIC links on HIOP 14 rear: ‘trnsl 14 rear’. The MAP response should look like this:

```
trnsl 15 rear
Command Submitted.
Trnsl 15 Rear completed

Link 0 is connected to MS0 Shelf 0 Card 24 Port 0
Link 1 is connected to MS1 Shelf 0 Card 25 Port 0
```

- record the MS port numbers returned by the ‘trnsl’ command for the CMIC links on HIOP card in 4 rear. Verify that they are the same as the MS port numbers recorded before deprovisioning the CMIC packlet in 15 rear lower,
- plug the RTIF local link into the HIOP card’s local RTIF port in slot 15 rear. The system will automatically provision and attempt to bring the local RTIF link in-service.

```
XAC628 MAR19 14:33:20 8100 INFO XA-Core Provisioning Report
```

```
        DESCRIPTION: New resource has been provisioned
        LINK: Type State Site FL Row Bay    Shf/Slt/Lk    EqPEC/Serial
              RTIF CBSY  HOST 01 A00 DPCC:00 00 15R 0  NTLX04BA/NNTM64422MWV
```

- plug the RTIF remote link into the HIOP card's remote RTIF port in slot 15 rear. The system will automatically provision and attempt to bring the remote RTIF link in-service.

```
XAC628 MAR19 14:34:20 8200 INFO XA-Core Provisioning Report
        DESCRIPTION: New resource has been provisioned
        LINK: Type State Site FL Row Bay    Shf/Slt/Lk    EqPEC/Serial
              RTIF CBSY  HOST 01 A00 DPCC:00 00 15R 1  NTLX04BA/NNTM64422MWV
```

- set the 'xa_component_install_state' office parameter in table OFCENG back to 'inservice',

- at this point, the CMIC/RTIF HIOP cards in slots 4R and 15R are all in-service, along with their associated CMIC and RTIF links. No CMIC or RTIF packlets on IOP cards are provisioned in the shelf. This constitutes the end of the migration procedure from CMIC and RTIF packlets to CMIC/RTIF HIOP. Please refer to " Final CMIC/RTIF HIOP configuration - XA-Core rear view" on page 319.

Final CMIC/RTIF HIOP configuration - XA-Core rear view

Migration from CMIC and RTIF packlets to CMIC/RTIF HIOP for SuperNode SE (SNSE)

The migration procedure from CMIC and RTIF packlets to CMIC/RTIF HIOP cards for SuperNode Shelf Extension (SNSE) is similar to the SuperNode (SN) case. The only exception is the MS port numbers that have to be busied, tested, and enabled during the migration procedure. The 'trnsl' command should be used on the CMIC MAP level to get the specific MS port numbers to be busied. Please refer to " SN to SNSE port mapping" on page 319.

SN to SNSE port mapping

SN MS port	SNSE MS port	XA-Core CMIC link
MS 0, Card 24, Port 0	MS 0, Card 4, Port 0	Slot 15 rear, link 0
MS 1, Card 25, Port 0	MS 1, Card 4, Port 1	Slot 15 rear, link 1
MS 1, Card 24, Port 0	MS 1, Card 4, Port 0	Slot 4 rear, link 0

SN to SNSE port mapping

SN MS port	SNSE MS port	XA-Core CMIC link
MS 0, Card 25, Port 0	MS 0, Card 4, Port 1	Slot 4 rear, link 1

Migration from CMIC/RTIF HIOP back to CMIC and RTIF packlets on IOP for SuperNode (SN)

This section describes the migration procedure from an XA-Core system with CMIC and RTIF functionality provided by CMIC/RTIF HIOP cards to a system with CMIC and RTIF funcitionality provided by packlets on IOP cards. The recommended approach will provision the new IOP cards and CMIC and RTIF packlets in the *same* slots (4R and 15R) as the deprovisioned HIOP cards. Hence, because of lost redundancy during the migration, there are two E2 conditions during this procedure.

The following sequence of events shows the steps:

- start with a CMIC/RTIF HIOP configuration in slots 4R and 15R (no IOP cards with CMIC or RTIF packlets provisioned in the shelf). Please refer to " Initial CMIC/RTIF HIOP locations - XA-Core rear view" on page 320.

Initial CMIC/RTIF HIOP locations - XA-Core rear view

- set the 'xa_component_install_state' office parameter in table OFCENG to 'manbusy',
- issue the 'trnsl' command for the CMIC links on the HIOP card in slot 4 rear: 'trnsl 4 rear'. The MAP response should look like this:

```
trnsl 4 rear
Command Submitted.
Trnsl  4 Rear completed

Link 0 is connected to MS1 Shelf 0 Card 24 Port 0
Link 1 is connected to MS0 Shelf 0 Card 25 Port 0
```

- record the MS port numbers returned by the 'trnsl' command for the CMIC links on the HIOP card in slot 4 rear,
- on the MS MAP level, manually busy the MS ports returned by the 'trnsl' command for CMIC links on the HIOP card in slot 4 rear (Port 0 on MS 1, Shelf 0, Card 24 and Port 0 on MS 0, Shelf 0, Card 25). The CMIC links will go 'CBsy'.

- pull the CMIC links on the HIOP in slot 4 rear,
- wait one minute for the system to recognize the loss of clock,
- on the CMIC MAP level, issue the ‘uneq’ command for the CMIC links on the HIOP in slot 4 rear: ‘uneq 4 rear link0’ and ‘uneq 4 rear link1’. The following logs should be generated:

```
XAC628 MAR19 14:16:20 5600 INFO XA-Core Provisioning Report
        DESCRIPTION: Resource has been deprovisioned
        LINK: Type State Site FL Row Bay    Shf/Slt/Lk    EqPEC/Serial
              CMIC CBSY  HOST 01 A00 DPCC:00 00 04R 0  NTLX17AA/NNTM64422MWV

XAC628 MAR19 14:16:20 5600 INFO XA-Core Provisioning Report
        DESCRIPTION: Resource has been deprovisioned
        LINK: Type State Site FL Row Bay    Shf/Slt/Lk    EqPEC/Serial
              CMIC CBSY  HOST 01 A00 DPCC:00 00 04R 1  NTLX17AA/NNTM64422MWV
```

- on the RTIF MAP level, manually busy the RTIF links on the HIOP card in slot 4 rear,
- pull the RTIF links from the HIOP card in slot 4 rear,
- wait one minute for the system to recognize the loss of clock,
- on the RTIF MAP level, issue the ‘uneq’ command for the RTIF links on the HIOP card: ‘uneq 4 rear link0’ and ‘uneq 4 rear link1’. The following logs should be generated:

```
XAC628 MAR19 14:16:20 5600 INFO XA-Core Provisioning Report
        DESCRIPTION: Resource has been deprovisioned
        LINK: Type State Site FL Row Bay    Shf/Slt/Lk    EqPEC/Serial
              RTIF MBSY  HOST 01 A00 DPCC:00 00 04R 0  NTLX17AA/NNTM64422MWV

XAC628 MAR19 14:16:20 5600 INFO XA-Core Provisioning Report
        DESCRIPTION: Resource has been deprovisioned
        LINK: Type State Site FL Row Bay    Shf/Slt/Lk    EqPEC/Serial
              RTIF MBSY  HOST 01 A00 DPCC:00 00 04R 1  NTLX17AA/NNTM64422MWV
```

- on the IO MAP level, manually busy the HIOP card in slot 4 rear,
- pull the HIOP card in slot 4 rear,
- wait one minute for the system to recognize the loss of clock,
- on the IO MAP level, issue the ‘uneq’ command for the HIOP card: ‘uneq 4 rear’. The following log should be generated:

```
XAC628 MAR19 14:18:20 5800 INFO XA-Core Provisioning Report
        DESCRIPTION: Resource has been deprovisioned
        CARD: Type State Site FL Row Bay    Shf/Slt    EqPEC/Serial
              HIOP MBSY  HOST 01 A00 DPCC:00 00 04R NTLX17AA/NNTM64422MWV
```

- at this stage, the CMIC and RTIF funcitionality is provided only by the packlets in slot 15 rear. Please refer to “ Reduced CMIC and RTIF redundancy (service on HIOP) - XA-Core rear view” on page 322.

Reduced CMIC and RTIF redundancy (service on HIOP) - XA-Core rear view

- plug an IOP card into slot 4 rear with no packlets attached. The following log should be generated:

```
XAC628 MAR19 14:20:20 6800 INFO XA-Core Provisioning Report
        DESCRIPTION: New resource has been provisioned
        CARD: Type State Site FL Row Bay    Shf/Slt    EqPEC/Serial
              IOP  MBSY  HOST 01 A00 DPCC:00 00 04R NTLX03AB/NNTM64422MWV
```

- the craft person should verify the success of the system-initiated provisioning test of the IOP card in slot 4 rear by checking the XAC log 640 in logutil:

```
XAC640 MAR19 14:20:40 6900 INFO Test Report
        Type Link_Num Slot Side Packlet  Test_Type Result
        IOP           4    R             OOS       Passed
        Initiator: Action initiated by the system
```

- once the integrity of the IOP card in slot 4 rear has been verified, the craft person should manually RTS the card,

- plug the CMIC packlet into the in-service IOP card in slot 4 rear lower with the CMIC links attached. The system will automatically provision the CMIC packlet, perform an OOS test on it, and bring it into a ‘ManB’ state.

  Note: Once the CMIC packlet is provisioned, both CMIC links will be automatically provisioned as well. They will be ‘CBsy’.

  Note: when plugging the CMIC links into the CMIC packlet, use the same configuration as recorded for the ‘trnsl’ command issued for the CMIC links on the HIOP card in slot 4 rear.

```
XAC628 MAR19 14:22:20 7000 INFO XA-Core Provisioning Report
        DESCRIPTION: New resource has been provisioned
        CARD: Type State Site FL Row Bay    Shf/Slt/Pk    EqPEC/Serial
              CMIC MBSY  HOST 01 A00 DPCC:00 00 04R L  NTLX05AB/NNTM64422MWV
```

- the craft person should verify the success of the system-initiated provisioning test of the CMIC packlet in slot 4 rear lower by checking the XAC log 640 in logutil:

```
XAC640 MAR19 14:20:40 6900 INFO Test Report
        Type Link_Num Slot Side Packlet  Test_Type Result
        CMIC          4    R    L       OOS       Passed
        Initiator: Action initiated by the system
```

- once the integrity of the CMIC packlet in slot 4 rear lower has been verified, the craft person should manually RTS the CMIC packlet,

- on the MS MAP level, test the MS ports returned by the ‘trnsl’ command for the CMIC links on the HIOP in slot 4 rear (Port 0 on MS 1, Shelf 0, Card 24 and Port 0 on MS 0, Shelf 0, Card 25).

- on the MS MAP level, if the previous MS port tests passed, bring them in-service (Port 0 on MS 1, Shelf 0, Card 24 and Port 0 on MS 0, Shelf 0, Card 25). On the MS MAP level the MS ports will go from ‘M’ to ‘.’, while on the XAC CMIC MAP level the CMIC links will go from ‘CBsy’ to ‘.’.

- once the CMIC links are in-service, issue the ‘trnsl’ command for the CMIC links on the CMIC packlet in slot 4 rear lower: ‘trnsl 4 rear lower’. The MAP response should look like this:

```
trnsl 4 rear lower
Command Submitted.
Trnsl  4 Rear lower completed

Link 0 is connected to MS1 Shelf 0 Card 24 Port 0
Link 1 is connected to MS0 Shelf 0 Card 25 Port 0
```

- record the MS port numbers returned by the ‘trnsl’ command for the CMIC links on the CMIC packlet in 4 rear lower. Verify that they are the same as the MS port numbers recorded before deprovisioning the CMIC/RTIF HIOP card in 4 rear,
- plug the RTIF packlet into the IOP card in 4 rear upper, with links attached.
- the system will automatically provision the RTIF packlet, perform an OOS test on it, and bring it into a ‘ManB’ state.

  Note: Once the RTIF packlet is provisioned, the system will automatically provision the local and remote RTIF links.

```
XAC628 MAR19 14:23:20 7200 INFO XA-Core Provisioning Report
        DESCRIPTION: New resource has been provisioned
        CARD: Type State Site FL Row Bay    Shf/Slt/Pk    EqPEC/Serial
              RTIF CBSY  HOST 01 A00 DPCC:00 00 04R U  NTLX08AA/NNTM64422MWV
```

- the craft person should verify the success of the system-initiated provisioning test of the RTIF packlet in slot 4 rear upper by checking the XAC log 640 in logutil:

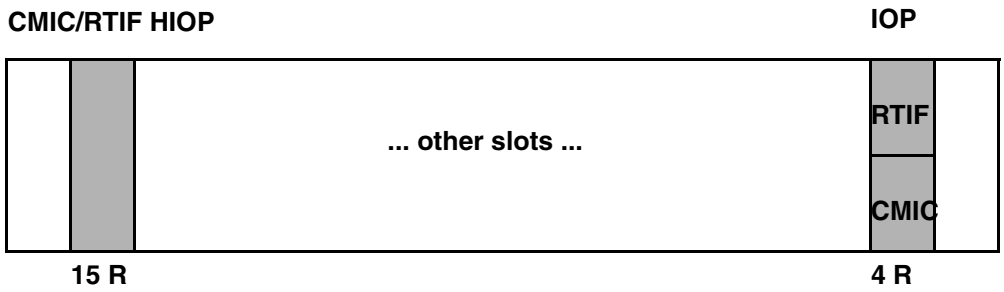
```
XAC640 MAR19 14:20:40 6900 INFO Test Report
        Type Link_Num Slot Side Packlet  Test_Type Result
        RTIF          4    R    U       OOS       Passed
        Initiator: Action initiated by the system
```

- once the integrity of the RTIF packlet in slot 4 rear upper has been verified, the craft person should manually RTS the packlet,

- once the RTIF packlet is in-service, the system will automatically attempt to bring the local and remote RTIF links in-service.

- at this point, we have a hybrid CMIC and RTIF system: the CMIC and RTIF functionality in slot 15R is still provided by an HIOP card, while the CMIC and RTIF functionality in slot 4R is provided by packlets. Please refer to " Intermediate (hybrid) CMIC and RTIF configuration - XA-Core rear view" on page 324.

Intermediate (hybrid) CMIC and RTIF configuration - XA-Core rear view



- issue the 'trnsl' command for the CMIC links on the HIOP card in slot 15 rear: 'trnsl 15 rear'. The MAP response should look like this:

```
trnsl 15 rear
Command Submitted.
Trnsl  15 Rear completed

Link 0 is connected to MS0 Shelf 0 Card 24 Port 0
Link 1 is connected to MS1 Shelf 0 Card 25 Port 0
```

- record the MS port numbers returned by the 'trnsl' command for the CMIC links on the HIOP card in slot 15 rear,
- on the MS MAP level, manually busy the MS ports returned by the 'trnsl' command for CMIC links on the HIOP card in slot 15 rear (Port 0 on MS 0, Shelf 0, Card 24 and Port 0 on MS 1, Shelf 0, Card 25). The CMIC links will go 'CBsy'.
- pull the CMIC links on the HIOP in slot 15 rear,
- wait one minute for the system to recognize the loss of clock,
- on the CMIC MAP level, issue the 'uneq' command for the CMIC links on the HIOP in slot 15 rear: 'uneq 15 rear link0' and 'uneq 15 rear link1'. The following logs should be generated:

```
XAC628 MAR19 14:16:20 5600 INFO XA-Core Provisioning Report
        DESCRIPTION: Resource has been deprovisioned
        LINK: Type State Site FL Row Bay    Shf/Slt/Lk    EqPEC/Serial
              CMIC CBSY  HOST 01 A00 DPCC:00 00 15R 0  NTLX17AA/NNTM64422MWV

XAC628 MAR19 14:16:20 5600 INFO XA-Core Provisioning Report
        DESCRIPTION: Resource has been deprovisioned
        LINK: Type State Site FL Row Bay    Shf/Slt/Lk    EqPEC/Serial
              CMIC CBSY  HOST 01 A00 DPCC:00 00 15R 1  NTLX17AA/NNTM64422MWV
```

- on the RTIF MAP level, manually busy the RTIF links on the HIOP card in slot 15 rear,

- pull the RTIF links from the HIOP card in slot 15 rear,
- wait one minute for the system to recognize the loss of clock,
- on the RTIF MAP level, issue the ‘uneq’ command for the RTIF links on the HIOP card: ‘uneq 15 rear link0’ and ‘uneq 15 rear link1’. The following logs should be generated:

```
XAC628 MAR19 14:16:20 5600 INFO XA-Core Provisioning Report
        DESCRIPTION: Resource has been deprovisioned
        LINK: Type State Site FL Row Bay    Shf/Slt/Lk    EqPEC/Serial
              RTIF MBSY  HOST 01 A00 DPCC:00 00 15R 0  NTLX17AA/NNTM64422MWV

XAC628 MAR19 14:16:20 5600 INFO XA-Core Provisioning Report
        DESCRIPTION: Resource has been deprovisioned
        LINK: Type State Site FL Row Bay    Shf/Slt/Lk    EqPEC/Serial
              RTIF MBSY  HOST 01 A00 DPCC:00 00 15R 1  NTLX17AA/NNTM64422MWV
```

- on the IO MAP level, manually busy the HIOP card in slot 15 rear,
- pull the HIOP card in slot 15 rear,
- wait one minute for the system to recognize the loss of clock,
- on the IO MAP level, issue the ‘uneq’ command for the HIOP card: ‘uneq 15 rear’. The following log should be generated:

```
XAC628 MAR19 14:18:20 5800 INFO XA-Core Provisioning Report
        DESCRIPTION: Resource has been deprovisioned
        CARD: Type State Site FL Row Bay    Shf/Slt    EqPEC/Serial
              HIOP MBSY  HOST 01 A00 DPCC:00 00 15R NTLX17AA/NNTM64422MWV
```

- at this stage, the CMIC and RTIF funcitionality is provided only by the packlets in slot 4 rear. Please refer to “ Reduced CMIC and RTIF redundancy (service on packlet) - XA-Core rear view” on page 325.

Reduced CMIC and RTIF redundancy (service on packlet) - XA-Core rear view

- plug an IOP card into slot 15 rear with no packlets attached. The following log should be generated:

```
XAC628 MAR19 14:20:20 6800 INFO XA-Core Provisioning Report
        DESCRIPTION: New resource has been provisioned
        CARD: Type State Site FL Row Bay    Shf/Slt    EqPEC/Serial
              IOP  MBSY  HOST 01 A00 DPCC:00 00 15R NTLX03AB/NNTM64422MWV
```

- the craft person should verify the success of the system-initiated provisioning test of the IOP card in slot 15 rear by checking the XAC log 640 in logutil:

```
XAC640 MAR19 14:20:40 6900 INFO Test Report
        Type Link_Num Slot Side Packlet  Test_Type Result
        IOP           15   R             OOS       Passed
        Initiator: Action initiated by the system
```

- once the integrity of the IOP card in slot 15 rear has been verified, the craft person should manually RTS the card,

- plug the CMIC packlet into the in-service IOP card in slot 15 rear lower with the CMIC links attached. The system will automatically provision the CMIC packlet, perform an OOS test on it, and bring it into a ‘ManB’ state.

  Note: Once the CMIC packlet is provisioned, both CMIC links will be automatically provisioned as well. They will be ‘CBsy’.

  Note: when plugging the CMIC links into the CMIC packlet, use the same configuration as recorded for the ‘trnsl’ command issued for the CMIC links on the HIOP card in slot 15 rear.

```
XAC628 MAR19 14:22:20 7000 INFO XA-Core Provisioning Report
        DESCRIPTION: New resource has been provisioned
        CARD: Type State Site FL Row Bay    Shf/Slt/Pk    EqPEC/Serial
              CMIC MBSY  HOST 01 A00 DPCC:00 00 15R L  NTLX05AB/NNTM64422MWV
```

- the craft person should verify the success of the system-initiated provisioning test of the CMIC packlet in slot 15 rear lower by checking the XAC log 640 in logutil:

```
XAC640 MAR19 14:20:40 6900 INFO Test Report
        Type Link_Num Slot Side Packlet  Test_Type Result
        CMIC          15   R    L        OOS       Passed
        Initiator: Action initiated by the system
```

- once the integrity of the CMIC packlet in slot 15 rear lower has been verified, the craft person should manually RTS the CMIC packlet,

- on the MS MAP level, test the MS ports returned by the ‘trnsl’ command for the CMIC links on the HIOP in slot 15 rear (Port 0 on MS 0, Shelf 0, Card 24 and Port 0 on MS 1, Shelf 0, Card 25).

- on the MS MAP level, if the previous MS port tests passed, bring them in-service (Port 0 on MS 0, Shelf 0, Card 24 and Port 0 on MS 1, Shelf 0, Card 25). On the MS MAP level the MS ports will go from ‘M’ to ‘.’, while on the XAC CMIC MAP level the CMIC links will go from ‘CBsy’ to ‘.’.

- once the CMIC links are in-service, issue the ‘trnsl’ command for the CMIC links on the CMIC packlet in slot 15 rear lower: ‘trnsl 15 rear lower’. The MAP response should look like this:

```
trnsl 15 rear lower
```

```
Command Submitted.
Trnsl  15 Rear lower completed

Link 0 is connected to MS0 Shelf 0 Card 24 Port 0
Link 1 is connected to MS1 Shelf 0 Card 25 Port 0
```

- record the MS port numbers returned by the ‘trnsl’ command for the CMIC links on the CMIC packlet in 15 rear lower. Verify that they are the same as the MS port numbers recorded before deprovisioning the CMIC/RTIF HIOP card in 15 rear,
- plug the RTIF packlet into the IOP card in 15 rear upper, with links attached.
- the system will automatically provision the RTIF packlet, perform an OOS test on it, and bring it into a ‘ManB’ state.

  Note: Once the RTIF packlet is provisioned, the system will automatically provision the local and remote RTIF links.

```
XAC628 MAR19 14:23:20 7200 INFO XA-Core Provisioning Report
        DESCRIPTION: New resource has been provisioned
        CARD: Type State Site FL Row Bay    Shf/Slt/Pk    EqPEC/Serial
              RTIF CBSY  HOST 01 A00 DPCC:00 00 15R U  NTLX08AA/NNTM64422MWV
```

- the craft person should verify the success of the system-initiated provisioning test of the RTIF packlet in slot 15 rear upper by checking the XAC log 640 in logutil:

```
XAC640 MAR19 14:20:40 6900 INFO Test Report
        Type Link_Num Slot Side Packlet  Test_Type Result
        RTIF          15    R    U        OOS       Passed
        Initiator: Action initiated by the system
```

- once the integrity of the RTIF packlet in slot 15 rear upper has been verified, the craft person should manually RTS the packlet,
- once the RTIF packlet is in-service, the system will automatically attempt to bring the local and remote RTIF links in-service.
- set the ‘xa_component_install_state’ office parameter in table OFCENG back to ‘inservice’,
- at this point, the CMIC and RTIF packlets on IOP cards in slots 4R and 15R are all in-service, along with their associated CMIC and RTIF links. No CMIC/RTIF HIOP cards are provisioned in the shelf. This constitutes the end of the migration procedure from CMIC/RTIF HIOP to CMIC and RTIF packlets. Please refer to “ Final CMIC and RTIF packlet locations - XA-Core rear view” on page 328.

Final CMIC and RTIF packlet locations - XA-Core rear view

Migration from CMIC/RTIF HIOP back to CMIC and RTIF packlets on IOP for SuperNode Shelf Extension (SNSE)

The migration procedure from CMIC/RTIF HIOP cards to CMIC and RTIF packlets on IOP cards for SuperNode Shelf Extension (SNSE) is similar to the SuperNode (SN) case. The only exception is the MS port numbers that have to be busied, tested, and enabled during the migration procedure. The 'trnsl' command should be used on the CMIC MAP level to get the specific MS port numbers to be busied. Please refer to " SN to SNSE port mapping" on page 319.

Performance management for A00002012

Performance management strategy

This feature does not change the performance management strategy of the XA-Core system.

Performance management tools and utilities

This feature changes the Operational Measurements (OM) structure for the CMIC, RTIF, and AMDI functionality on the XA-Core. This is so that the OMs will reflect port/link separation of the CMIC and RTIF functionality on the new CMIC/RTIF HIOP card. All OMs changed, deleted, or added by this feature belong to the XACORE OM group.

Operational Measurements (OM), Group XACORE

OM description

Current OM structure for CMIC, RTIF, and AMDI

Currently, the CMIC and RTIF functionalities peg the following OMs: XACMIC, XARTIF, XALOCP, and XAREMP. With this OM structure in

place for CMIC, RTIF, and AMDI, these OMs do not distinguish between packlet or device (port or link) state changes.

Current OM structure for CMIC, RTIF and AMDI

Functionality	OM	Pegged by event
CMIC	XACMIC	- CMIC packlet Insv -> OOS because of fault - CMIC link Insv -> OOS
RTIF	XARTIF	- RTIF packlet InSv -> OOS because of fault
RTIF	XALOCP	- RTIF local port InSv -> OOS because of fault
RTIF	XAREMP	- RTIF remote port InSv -> OOS because of fault
AMDI	XAMDI	- AMDI packlet InSv -> OOS because of fault - AMDI port InSv -> OOS because of fault
AMDI	XAMDILNK	- AMDI link InSv -> OOS because of fault

Release history update

The OM group XACORE is being modified in release CSP20.

With the Ethernet Maintenance feature (A59019176) the Ethernet OMs were extended to support port/link separation. This allowed a more accurate count of the various packlet, port, and link faults. Since this feature also implements port/link separation for CMIC and RTIF on HIOP, it will extend the existing CMIC and RTIF OMs to distinguish between packlet and device (port or link) state changes. Consequently, we will have a more refined count of the CMIC and RTIF component state changes.

This feature also changes the OMs related to the AMDI functionality. This is so that we'll have a consistent OM structure for components with port and link devices in the XA-Core system.

Refer to the following table.

New OM structure for CMIC, RTIF, and AMDI

Functionality	OM	Pegged by event	New/Deleted/ Changed
CMIC	XACMIC	- CMIC packlet InSv -> OOS because of fault - CMIC link InSv -> OOS because of fault	Deleted
CMIC	XCMIC	CMIC packlet InSv -> OOS because of fault	New
CMIC	XCMICPRT	CMIC port InSv -> OOS because of fault	New
CMIC	XCMICLNK	CMIC link InSv -> OOS because of fault	New

New OM structure for CMIC, RTIF, and AMDI

Functionality	OM	Pegged by event	New/Deleted/ Changed
RTIF	XARTIF	RTIF packlet InSv -> OOS because of fault	Deleted
RTIF	XALOCP	RTIF local port InSv -> OOS because of fault	Deleted
RTIF	XAREMP	RTIF remote port InSv -> OOS because of fault	Deleted
RTIF	XRTIF	RTIF packlet InSv -> OOS because of fault	New
RTIF	XRTIFPRT	- RTIF local port InSv -> OOS because of fault - RTIF remote port InSv -> OOS because of fault	New
RTIF	XRTIFLNK	- RTIF local link InSv -> OOS because of fault - RTIF remote link InSv -> OOS because of fault	New
AMDI	XAMDI	- AMDI packlet InSv -> OOS because of fault	Changed
AMDI	XAMDIPRT	- AMDI port InSv -> OOS because of fault	New
AMDI	XAMDILNK	- AMDI link InSv -> OOS because of fault	Unchanged

Registers

The XACORE group new OM register display on the MAP terminal is as follows:

OM XACORE Group Display

XAPE	XARXPE	XASM	XARXSM
XAIOP	XARXIO	XADISK	XATAPE
XRTIF	XRTIFPRT	XRTIFLNK	XCMIC
XCMICPRT	XCMICLNK	XARXABRT	XARXBASE
XARXFULL	XARXALL	XAMDI	XAMDIPRT
XAMDILNK	XETHR	XETHRPRT	XETHRLNK

Register XACMIC

Register description

Existing XA-Core CMIC (XCMIC) peg register counts the number of critical CMIC packlet and link faults detected on the XA-Core.

Register release history update

Register is being removed in CSP20. In order to have consistent naming convention for OMs in the XACORE group, from CSP20, the CMIC packlet faults are going to be counted by the new peg register XCMIC. The CMIC link faults are going to be counted by the new peg register XCMICLNK.

Register XCMIC

Register description

The XA-Core CMIC (XCMIC) peg register counts the number of critical CMIC packlet faults detected on the XA-Core.

Register release history update

Register is being introduced in CSP20.

Associated registers

None.

Associated logs

The system generates the MScomm log report (XAC303) when a CMIC packlet goes out of service.

The system generates the MScomm Alarm Cleared (XAC603) when the CMIC fault clears on the packlet.

Register XCMICPRT

Register description

The XA-Core CMIC PORT (XCMICPRT) peg register counts the number of critical CMIC port faults detected on the XA-Core.

Register release history update

Register is being introduced in CSP20.

Associated registers

None.

Associated logs

The system generates the MScomm log report (XAC303) when a CMIC port goes out of service.
The system generates the MScomm Alarm Cleared (XAC603) when the CMIC fault clears on the port.

Register XCMICLNK

Register description

The XA-Core CMIC LINK (XCMICLNK) peg register counts the number of critical CMIC link faults detected on the XA-Core.

Register release history update

Register is being introduced in CSP20.

Associated registers

None.

Associated logs

The system generates the MScomm log report (XAC303) when a CMIC link goes out of service.

The system generates the MScomm Alarm Cleared (XAC603) when the CMIC fault clears on the link.

Register XARTIF

Register description

The existing XA-Core RTIF (XARTIF) peg register counts the number of critical RTIF packlet faults detected on the XA-Core.

Register release history update

Register is being removed in CSP20. In order to have consistent naming convention for OMs in the XACORE group, from CSP20, the RTIF packlet faults are going to be counted by the new peg register XRTIF.

Register XALOCP

Register description

The existing XA-Core RTIF (XARTIF) peg register counts the number of critical RTIF local port faults detected on the XA-Core.

Register release history update

Register is being removed in CSP20. From CSP20, the RTIF local port faults are going to be counted by the new peg register XRTIFPRT.

Register XAREMP

Register description

The existing XA-Core RTIF (XARTIF) peg register counts the number of critical RTIF remote port faults detected on the XA-Core.

Register release history update

Register is being removed in CSP20. From CSP20, the RTIF remote port faults are going to be counted by the new peg register XRTIFPRT.

Register XRTIF

Register description

The XA-Core RTIF (XRTIF) peg register counts the number of critical RTIF packlet faults detected on the XA-Core.

Register release history update

Register is being introduced in CSP20.

Associated registers

None.

Associated logs

The system generates the RTIF log report (XAC305) when an RTIF packlet goes out of service.

The system generates the RTIF Alarm Cleared log report (XAC605) when the RTIF fault clears on the packlet.

Register XRTIFPRT

Register description

The XA-Core RTIF PORT (XRTIFPRT) peg register counts the number of critical RTIF port faults detected on the XA-Core.

Note: There are no separate peg registers for local and remote RTIF port faults. Both peg XRTIFPRT.

Register release history update

Register is being introduced in CSP20.

Associated registers

None.

Associated logs

The system generates the RTIF log report (XAC305) when an RTIF port goes out of service.

The system generates the RTIF Alarm Cleared log report (XAC605) when the RTIF fault clears on the port.

Register XRTIFLNK

Register description

The XA-Core RTIF LINK (XRTIFLNK) peg register counts the number of critical RTIF link faults detected on the XA-Core.

Note: There are no separate peg registers for local and remote RTIF link faults. Both peg XRTIFLNK.

Register release history update

Register is being introduced in CSP20.

Associated registers

None.

Associated logs

The system generates the RTIF log report (XAC305) when an RTIF link goes out of service.

The system generates the RTIF Alarm Cleared log report (XAC605) when the RTIF fault clears on the link.

Register XAMDI

Register description

Existing XA-Core AMDI (XAMDI) peg register counts the number of critical AMDI packlet and port faults detected on the XA-Core.

Register release history update

Register is being changed in CSP20. From CSP20, the AMDI port faults are going to be counted by the new peg register XAMDIPRT. Register XAMDI will peg the critical faults against the AMDI packlet. No other modification is introduced.

Register XAMDIPRT

Register description

The XA-Core AMDI PORT (XAMDIPRT) peg register counts the number of critical AMDI port faults detected on the XA-Core.

Register release history update

Register is being introduced in CSP20.

Associated logs

The system generates the AMDI log report (XAC309) when an AMDI port goes out of service.

The system generates the AMDI Link Condition Cleared (XAC609) when the AMDI fault clears on the port.

Product = CS 2000

A00002013--Intelligent Network T1 Timer Expiry Message Suppression (Succession on DMS)

Functional Description

The T1 Timer specifies a length of time, in seconds, the SSP waits for response from an off-board processor after sending it a query message before the call is routed to treatment. When routing the call to treatment, a ‘T1 Timer Expiry’ message is generated by the SSP.

This feature, when enabled, will suppress ‘T1 Timer Expiry’ messages from being generated. Suppressing the ‘T1 Timer Expiry’ messages from being generated will prevent the messages from flooding the network should an SCP go down.

However, suppressing the ‘T1 Timer Expiry’ messages violates the standard procedure for this situation and is therefore adding optional functionality.

This feature depends on SOC INW00001 to switch the functionality ON/OFF and uses office parameter T1_TIMER_EXPIRY_MSG_SUPPRESS to provide feature optionality control.

The office parameter contains four fields, the first of which allows the user to switch the ‘T1 Timer Expiry’ message generation ON/OFF. When the feature is on, the remaining three fields allow the user to switch log generation ON/OFF, alarm generation ON/OFF and specify a threshold value. The threshold value is related with the alarm generation and is explained later on.

If the suppress option is switch on, no “T1 Timer Expiry” messages will be generated.

If the log option is switched on, then a GAME101 log will be created when the RSPTMOUT OM count is greater than zero. The RSPTMOUT is an OM peg that is incremented everytime the SSP generates a ‘T1 Timer Expiry’ message.

If the alarm option is switched on, then a GAME102 log will be created when the RSPTMOUT OM count is greater than or equal to the threshold value specified in the office parm T1_TIMER_EXPIRY_MSG_SUPPRESS. This log generates an external minor alarm. It will stay activated while the RSPTMOUT OM count is greater than or equal to the threshold value, as previously described. Or, until an operator clears the minor alarm from the banner. The RSPTMOUT OM count will be checked against the threshold value everytime the RSPTMOUT OM transfer period expires. If the RSPTMOUT OM count drops below the threshold value and the minor alarm was generated in the previous RSPTMOUT OM transfer period, then this feature will clear the minor alarm.

For more details on the log or alarm, please refer to the relevant documentation.

Hardware Requirements or Dependencies

None.

Software Requirements or Dependencies

None.

Limitations and restrictions

This feature will impact DMS-100 (including TDM, Succession, MSL), MMP and SSR. All other markets are not affected by this feature.

Interactions

None.

Applicable customer facing sections

Fault Management

Logs	_X____
Alarms	_X____

Configuration

Data Schema	_N/A__
User Interface	_N/A__
Element Management	_N/A__
Security	_N/A__
Service Order	_N/A__
Office Parameters	_X____

Accounting (includes AMA billing)	_N/A__
Performance (includes operational measurements)	_N/A__

Indicate with an X if you are completing the sections of the DDOC listed below. Indicate with “N/A” if these sections do not apply to this functionality.

Realtime	_X____
Engineering Information	_X____

Glossary

Term	Description
SCP	Service Control Point
SOC	Software Optionality Control
OM	Operational Measurement

Fault Management for A00002013

Fault management strategy

None.

Fault management tools and utilities

None.

Logs

Log GAME101

Explanation

A GAME101 log will be created if the RSPTMOUT OM count is greater than zero. The log will be created during the RSPTMOUT OM transfer period and will record the RSPTMOUT OM count value.

Format

The log report format follows:

```
office * GAME101 mmmdd hh:mm:ss seqno INFO GAME_ERR_REPORT
REASON = reason_field
COUNT  = count_field
```

Example

An example of the log report follows:

```
S3_500_17BL CM GAME101 APR04 05:10:16 0504 INFO GAME_ERR_REPORT
REASON    = Suppressed T1 Timer Expiry Message
COUNT     = 25
```

Field descriptions

Field	Value	Description
reason_field	CONSTANT	A string describing the reason the log was created. In this case, it is due to suppressing a 'T1 Timer Expiry' message.
count_field	UNSIGNED INTEGER	A copy of the RSPTMOUT OM count value. It will be a number in the range from 1 to 32,767.

Action

If a high number of GAME101 logs are output it could be an indication that there is a problem with the SCP. The SCP should be checked to verify that it is operating normally.

If a low number of GAME101 logs show occasionally, it could be related to a network congestion.

Any number of GAME101 logs are highlighting a problem that needs to be addressed by your SCP first level support.

Associated Operational Measurements or Performance Measurements

This feature monitors the RSPTMOUT OM count, found in the AIN OM group, checking to see if it increments past zero. The count is incremented everytime the T1 timer expires and the SSP, as a consequence, attempts to generate a 'T1 Timer Expiry' message.

Additional information

N/A

Log GAME102

Explanation

A GAME102 log will be created if RSPTMOUT OM count becomes equal to the office parm T1_TIMER_EXPIRY_MSG_SUPPRESS threshold value. The log will be created when this feature suppresses a 'T1 Timer Expiry' message.

When a GAME102 log is created it will raise an external minor alarm. The alarm will need to be cleared before another log entry will be created through the situation described earlier. The alarm will be cleared either by an operator or by this feature. The feature will clear the alarm during the second transfer

period to pass after initially creating the log entry. The reason for doing this, will be to expose the alarm for long enough to get noticed by an operator. If the problem persists after clearing the alarm, then a new log will be created, as described earlier and as a consequence, a new external minor alarm will be raised.

Format

The log report format follows:

```
office * GAME102 mmmdd hh:mm:ss seqno INFO GAME_ERR_REPORT
REASON = reason_field
COUNT  = count_field
```

Example

An example of the log report follows:

```
S3_500_17BL CM GAME102 APR04 05:10:16 0504 INFO GAME_ERR_REPORT
REASON = Threshold reached for suppressing T1 Timer Expiry Messages
COUNT  = 100
```

Field descriptions

Field	Value	Description
reason_field	CONSTANT	A string describing that the number of times a 'T1 Timer Expiry' message was suppressed has reached the office parm T1_TIMER_EXPIRY_MSG_SUPPRESS threshold value.
count_field	UNSIGNED INTEGER	A copy of the RSPTMOUT OM count value. It will be a number in the range from 1 to 32,767.

Action

If you frequently find a high number of GAME102 logs, it could be that you have the office parm T1_TIMER_EXPIRY_MSG_SUPPRESS threshold value set too low. If this is the case, the threshold value should be modified according to the configuration recommendations.

If the office parm T1_TIMER_EXPIRY_MSG_SUPPRESS threshold value is not too low, it could be a problem with the SCP.

If the T1_TIMER_EXPIRY_MSG_SUPPRESS threshold value has been set accordingly, it could be a problem with the application T1 Timer value being set too low.

You should have your SCP first level support look into any of these problems.

Associated Operational Measurements or Performance Measurements

This feature monitors the RSPTMOUT OM count, found in the AIN OM group, checking to see if it increments to value equal to the office parm T1_TIMER_EXPIRY_MSG_SUPPRESS threshold. The count is incremented everytime the T1 timer expires and the SSP, as a consequence, attempts to generate a 'T1 Timer Expiry' message.

Additional information

N/A

Alarms

Alarm GAME102

This is a minor external alarm, that is associated with GAME102 log (" Log GAME102" on page 338). This alarm indicates that Service Control Point (SCP) is not responding to each query and the T1 timers associated with each query is expiring.

Related documentation

1. 297-5161-022, Vol 1-3, AIN Service Enablers: Service Implementation Guides.

Configuration for A00002013

Hardware and Software Requirements

There are no hardware or software requirements.

Initial Configuration

During the ONP, if the patch TBF56 is found active on the switch, SOC INW00001 will be switched ON and the office parm T1_TIMER_EXPIRY_MSG_SUPPRESS will be initialized to indicate that all 'T1 Timer Expiry' messages should be suppressed.

If the patch TBF56 is found and not active on the switch during ONP, then SOC INW00001 will be switched ON and the office parm T1_TIMER_EXPIRY_MSG_SUPPRESS will be initialized to indicate that no 'T1 Timer Expiry' messages should be suppressed.

If the patch TBF56 is not found, then the SOC INW00001 will be switched OFF and the office parm T1_TIMER_EXPIRY_MSG_SUPPRESS will be initialized to indicate that no ‘T1 Timer Expiry’ messages should be suppressed.

Office/Subnet parameters (OP/SP) (CM & SESM)

Not applicable.

New/modified office/subnet parameters

Parm table	Parameter name	NEW/ CHANGED/ DELETED/ RELOCATED	Domain (CM or Subnet Management
OFCVAR	T1_TIMER_EXPIRY_MSG_SUPPRESS	NEW	CM

Parameter information

T1_TIMER_EXPIRY_MSG_SUPPRESS

T1_TIMER_EXPIRY_MSG_SUPPRESS

Functional description

This office parm will be used to provide optionality control for the feature.

Provisioning rules

There will be four fields in office parm T1_TIMER_EXPIRY_MSG_SUPPRESSION, to switch ‘T1 Timer Expiry’ message suppression ON/OFF, log ON/OFF, alarm ON/OFF and a threshold value.

If SOC INW00001 is switched OFF, the user will not be permitted to provision the office parm T1_TIMER_EXPIRY_MSG_SUPPRESSION.

The user will be able to switch the log or alarm ON/OFF, if the SOC INW00001 is ON and the office parm T1_TIMER_EXPIRY_MSG_SUPPRESSION field suppression is switched ON. Additionally, they can only specify a threshold value grater than zero if the alarm creation is ON. If they try to provision incorrectly, then a suitable message will be displayed to indicate the reason for failing the change in SERVORD.

The threshold value is used to determine when to create a GAME102 log entry, which in turn raises an external minor alarm. In order to calculate the value of the threshold, the user should take the highest RSPTMOUT OM count value found within a 24 hour period and multiply this number by 1.25. Calculating

the threshold in this way, provides a small amount of padding against the worst situation.

Incidentally, the user will only be permitted to enter a threshold value greater than zero when the alarm option is ON. The threshold value of zero is invalid when the alarm option is ON and if the user attempts to provision it in this way, it will be denied. If denied, a suitable message will be displayed to indicate the problem.

Range information

The table below provides information about all four fields, as described in Provisioning Rules. Fields 1 to 3 are of type BOOLEAN and will only have a value of ‘TRUE’ or ‘FALSE’. It is interpreted that ‘TRUE’ is equivalent to ‘ON’ and ‘FALSE’ is ‘OFF’. Field 4 is an UNSIGNED INTEGER with a value range of 0 to 32,767.

Range Information

Field	Minimum	Maximum	Default
1	OFF	ON	OFF
2	OFF	ON	OFF
3	OFF	ON	OFF
4	0	32,767	0

Activation

In order to suppress ‘T1 Timer Expiry’ messages from being generated, the user will need to switch the SOC INW00001 to ON and the office parm T1_TIMER_EXPIRY_MSG_SUPPRESS field suppression to ON. Once these are ON, the user has the option to activate log or alarm generation when a ‘T1 Timer Expiry’ message is suppressed.

Dependencies

None.

Consequences

The following fields, as briefly explained above in section 13.3.2.1.3 Provisioning Rules, represent:

SOC INW00001 needs to be switches ON, before any provisioning of office parm T1_TIMER_EXPIRY_MSG_SUPPRESSION is permitted.

Field 1: Suppression (ON/OFF). When ‘ON’ all ‘T1 Timer Expiry’ messages will be suppressed and permits provisioning of fields 2 to 4.

Field 2: Log (ON/OFF). When ‘ON’, creates an entry in GAME101 during the RSPTMOUT OM transfer period, if the RSPTMOUT OM count is greater than zero.

Field 3: Alarm (ON/OFF): When ‘ON’, creates an entry in GAME102 if the RSPTMOUT OM count equals the office parm T1_TIMER_EXPIRY_MSG_SUPPRESSION threshold value. In turn, when an entry is created, an external minor alarm will be raised.

Field 4: Threshold (0 - 32,767). Used when determining if a entry in the GAME102 log should be created.

For more information on the behavior of these fields, please refer to the relevant customer documentation.

Verification

During the verification of the four fields the following checks will be done:

Field 1: This can only be equal to ON or OFF. In order for this to be equal to ON, SOC INW00001 should be switched ON.

Field 2: This can only equal to ON or OFF. This can only be set to ON, if field 1 is set to ON.

Field 3: This can only equal to ON or OFF. This can only be set to ON, if field 1 is set to ON.

Field 4: This can only be a number in the range 1 to 32,767. It can only change from a value of 0 if field 3 is set to ON. If field 3 is set to OFF, then the only valid value in this field is 0.

Memory requirements

Need memory to store data:

Units per memory block = 1

Words per memory block = 3

If the parameter value = 1

words required = (((parameter value - 1)/units per block) + 1) *words per block = 3

Parameter release history update

New in SN07.

Upgrade Impact

Dump and Restore

Same details as “ Initial Configuration” on page 340.

Element Management Upgrade

N/A

Data schema (DS) (CM, MIBS, RDB)

N/A

Service Orders (SO) (CM & SESM)

N/A

Software optionality control (SOC)

SOC

SOC option name:	INW00001
SOC option title:	T1 Timer Expiry Msg
SOC option control type:	ON/OFF
New SOC option?	Yes
SOC option order code	INw00001
Option defined in DRU:	SHR
Affected products:	CNA, MMP, MSL, SSR, Succession

Element Management

N/A

Command interface changes

N/A

Security

N/A

Configuration Walkthrough

NA

Product = CS 2000

A00002047 -- SPM Backplane (Succession on DMS)

Functional Description

This feature is being implemented in release SN07, under the following activities:

- A00002047 for DMSSHR(20)
- A00002057 for SP(20)--information included in A00002047

The feature entails the implementation of a new double density backplane for the Spectrum family of products.

The intent of this feature is to enable space efficiency by collapsing today's two-shelf Spectrum node configuration into a single double density card shelf. This can be accomplished in several ways. One example would be an IW SPM that does not use ECAN, provisioned with two CEMs, two ATM RMs, three DSP RMs, and a Sync RM. This has a straightforward conversion to a single-shelf configuration using the double density backplane. A second example would be a densely configured MG4K node, provisioned with two CEMs, two ATM RMs, two OC3 RMs, four DSP RMs, seven COH RMs, two Sync RMs, two DLC RMs, and an Alarm RM. In this case, when taken together with the new Spectrum resource module, the NTLX45AA Telephony Services Processor (TSP), customers will be able to fit four such Spectrum nodes into a single frame, one node per shelf.

The Double Density SPM program will significantly improve the trunk port density of the Spectrum-based product portfolio. Program benefits are a 50% density increase, achieved by a 50% footprint reduction, and a small yearly operating cost reduction (power and floor-space savings) which lowers the customer cost of ownership. The Double Density SPM program introduces new Spectrum back plane hardware, the NTLX51CA. The new back plane will provide backwards compatibility with the existing Resource Modules. Due to slot limitations, products that use the three-slot LSA complexes will experience slot exhaustion in the Double Density Spectrum-these products currently include MG4K LSA/STS1 and GSM e3 TCU/BSC-and, thus, will not be able to exploit the new backplane.

There are two distinct phases to the Double Density Spectrum Program. The first phase (A00002047, covered in this FN) modifies the existing Spectrum backplane hardware, NTLX51BA, to support four 15-slot Spectrum nodes per frame; currently two 30-slot nodes are supported per frame. The second phase, A00002386, constructs a new high-density DSP/ECAN card (the Telephony Services Processor, or TSP card) creating a new ECAN and DSP applications. This second phase also modifies the Spectrum software to support the concept

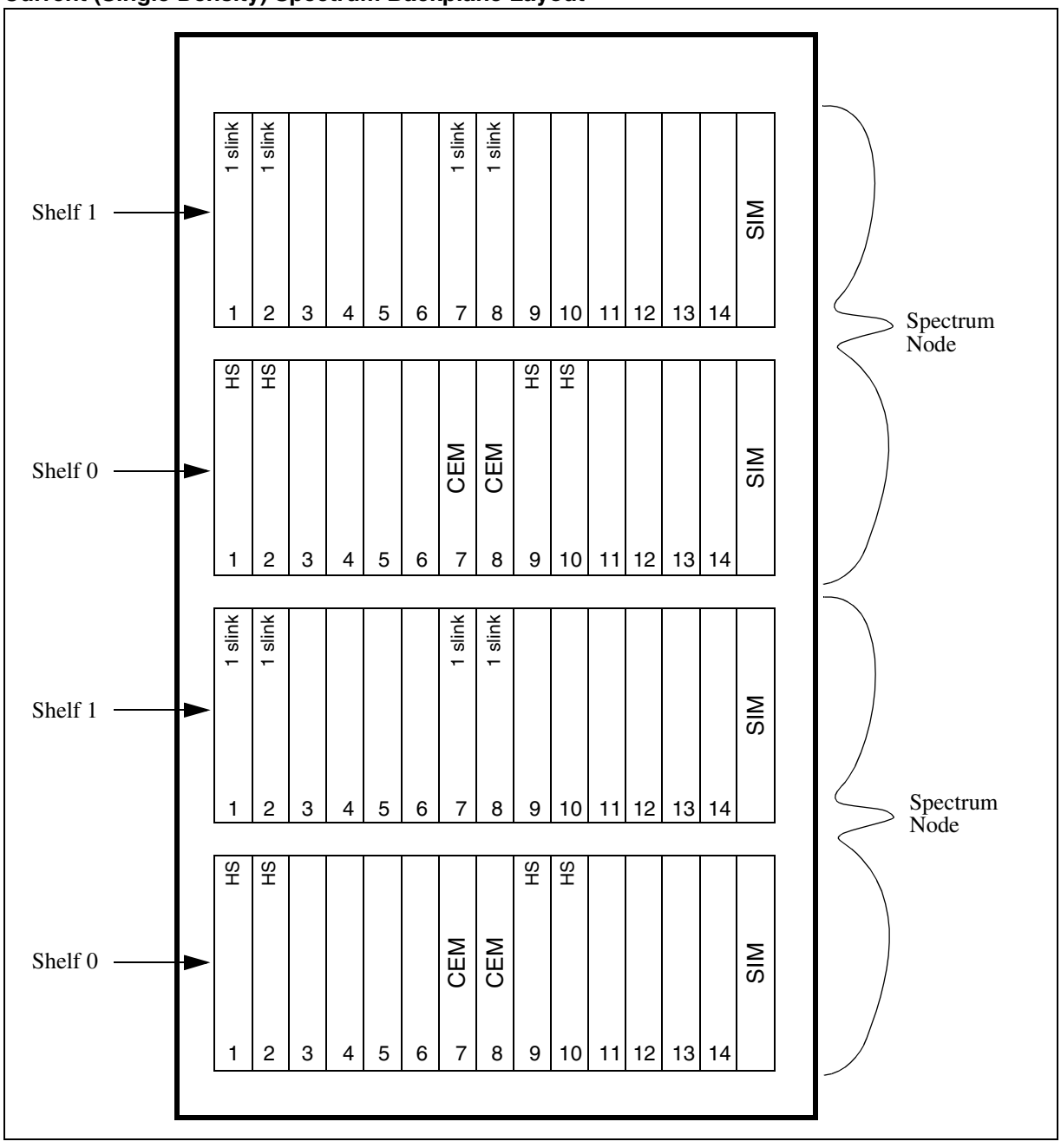
of dynamic resource re-assignment within a single call and allows DSP and ECAN applications to co-exist on a single card.

Background Information

Today's Spectrum hardware includes a frame with PEC NTLX91BA that houses a backplane with PEC NTLX51BA which in turn supports **two** Spectrum nodes, each spanning two contiguous card shelves. (Please refer to " Current (Single Density) Spectrum Backplane Layout" on page 347.)

As illustrated, each Spectrum node occupies two shelves within the frame, each shelf housing 15 slots. Slot 15 on each shelf is dedicated for the Shelf Interface Modules (SIMs). Slots 7 and 8 of shelf 0 for each Spectrum node are dedicated for the Common Equipment Modules (CEMs).

Current (Single Density) Spectrum Backplane Layout



The remaining slots support various Spectrum resource modules (RMs), each having varying serial link (slink) requirements, depending upon the inter-module communication needs. Four high-speed slots are each serviced by 9 slinks and can be used for RM types such as OC3 or ATM. Low-speed slots are serviced by 3 slinks and can be used for RM types such as DSP or VSP. There are also four slots (1, 2, 7, and 8 on shelf 1) with single slinks which can accommodate DLC, DLC2, and ALM cards.

Feature Description

The new hardware layout for Double Density Spectrum includes a frame with PEC NTLX91CA (identical to the NTLX91BA frame[8]) that houses a backplane with PEC NTLX51CA which in turn supports **four** Spectrum nodes, each spanning only a single card shelf. (Please refer to " New Double Density Spectrum Backplane Layout" on page 349.)

Slot 15 on each shelf is still dedicated for the SIMs. Also, since each shelf is a "shelf 0", slots 7 and 8 on each shelf are dedicated for CEMs. Of the remaining slots, ten of them are high-speed (9 slink) slots, slots 5 and 6 are single slink slots.

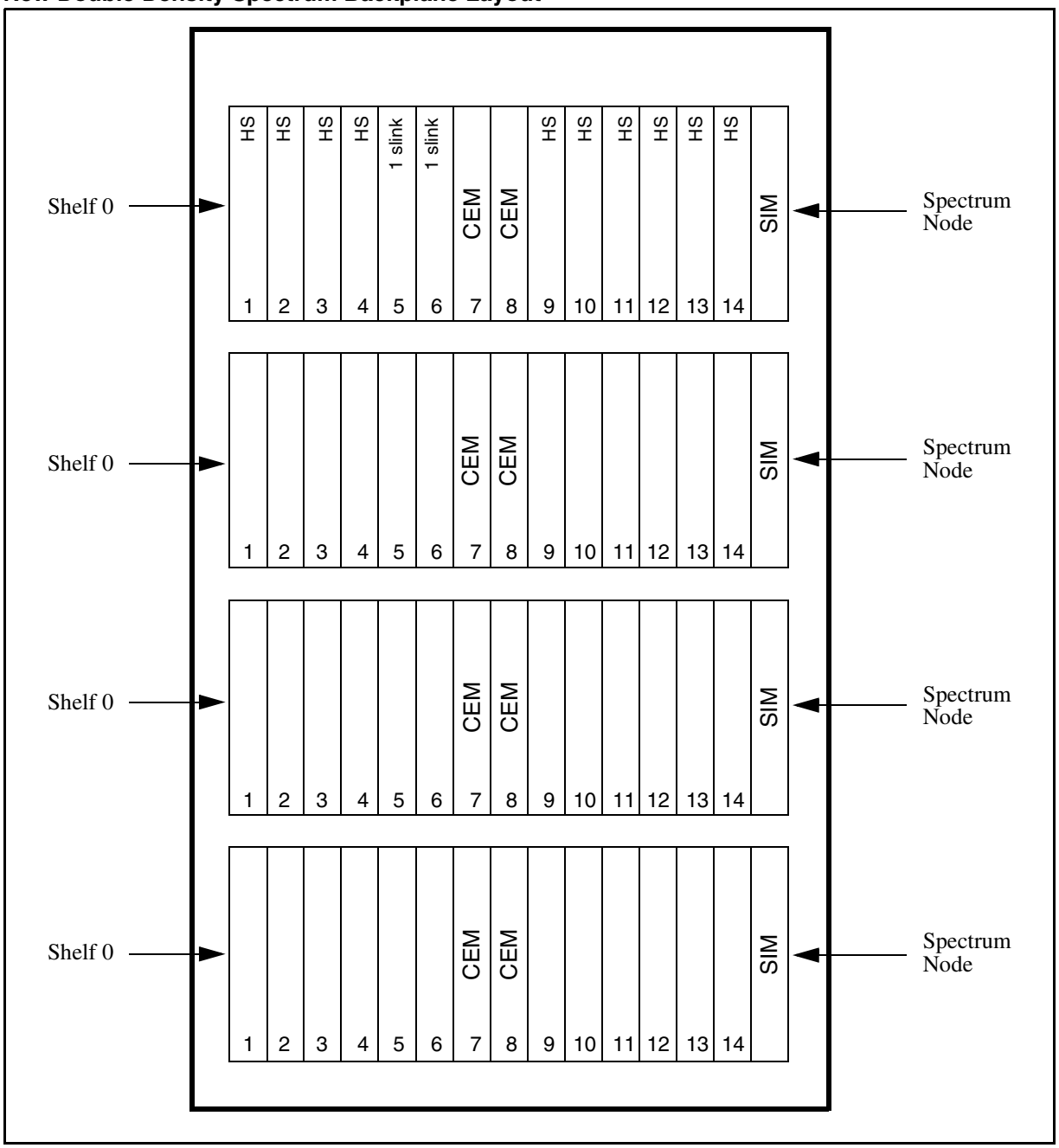
Clock synchronization traces are present in slots 1 and 2 (for use by ATM RMs), slots 9 and 10 (for use by OC3 or ATM RMs), and slots 5 and 6 (for use by Sync RMs, and also suitable for DLC and DLC2 RMs).

The addition of high-speed slots (and consequent reduction in low-speed slots) enable the single-shelf Spectrum layout through compression of DSP and ECAN functionality into a very small number of the new Telephony Services Processor (TSP) RMs.

Note: To provide a future migration path for the Spectrum product (e.g., for OC-12 support), a set of Differential Link (D-Link) signals have been added to the double density backplane assembly. These D-link signals route between slots 5 & 6 and the ten high-speed slots; slots 5 & 6 form the hub of the D-link signals which emanate in a star configuration to the high-speed slots.

8. The new frame PEC code is needed to facilitate ordering, since the frame and backplanes are ordered as a unit.

New Double Density Spectrum Backplane Layout



Limitations and restrictions

Though high-speed and double density Spectrum backplanes may co-reside in the same office, the two backplanes cannot be mixed within the same Spectrum frame.

Logs (LG)

N/A

Data schema (DS)

New/modified tables

Table name	NEW, CHANGED or DELETED	Table Control (NEW/OLD/UNCHANGED)
MNSHELF	changed	unchanged
MNCKTPAK	changed	unchanged

There are no new fields for tables MNSHELF or MNCKTPAK. Rather, the verification rules have changed in support of the double density Spectrum backplane. Tables MNSHELF and MNCKTPAK will be modified to enforce the following restrictions with respect to the double density Spectrum backplane:

- a single frame cannot contain both a traditional (high speed) Spectrum shelf assembly (NTLX51BA) and a new double density shelf assembly (NTLX51CA)
- a single NTLX91CA frame can be provisioned with no more than four Spectrum nodes, using only double density Spectrum shelf assemblies (NTLX51CA)
- frames older than NTLX91CA with backplanes older than NTLX51CA cannot be datafilled with more than two Spectrum nodes
- circuit packs cannot be datafilled on shelf 1 of a Spectrum node that resides on a double density backplane (since shelf 1 cannot exist)
- prevent higher speed cards from being datafilled in slots 5 and 6 (the SRM slots) of a double density Spectrum node
- ATM RMs can be datafilled in slots 1 and 2, or 9 and 10 only
- OC3 RMs can be datafilled in slots 9 and 10 only
- Sync RMs can be datafilled in slots 5 and 6 only

Office parameters (OP)

N/A

Service orders (SO)

N/A

Alarms (AL)

N/A

Command interface (CI)

MAP Display Changes

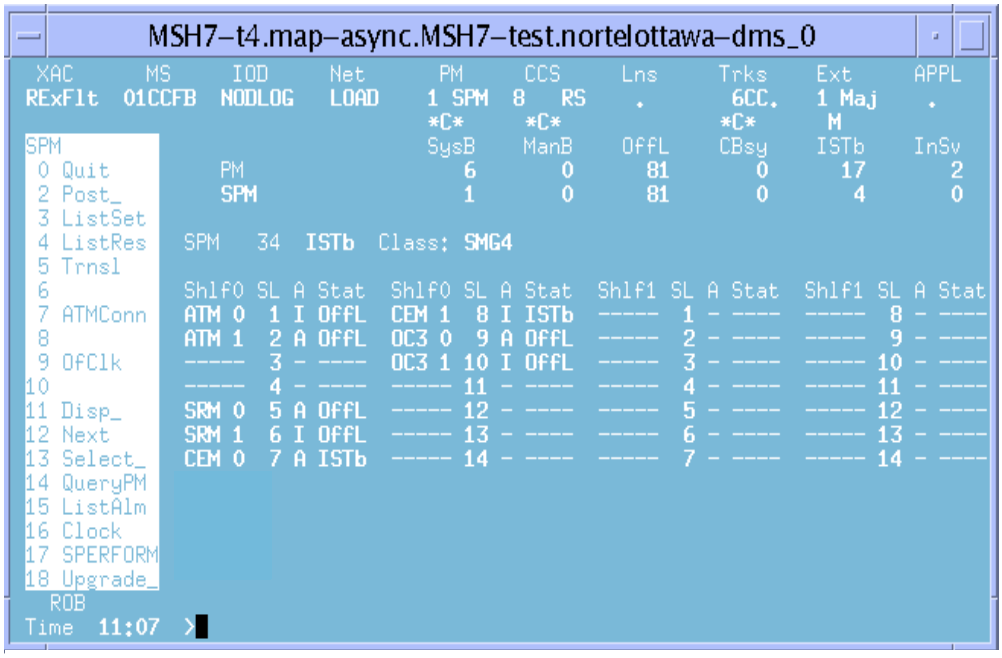
Since a double density Spectrum node will only use up one card shelf, rather than the two shelves used up by a traditional Spectrum node, corresponding changes are necessitated to some of the SPM MAP displays. Specifically, the SPM shelf level and CEM/RM protection level MAP displays will be truncated to display only the one card shelf. The following subsections illustrate the changes.

SPM Shelf Level MAP Changes

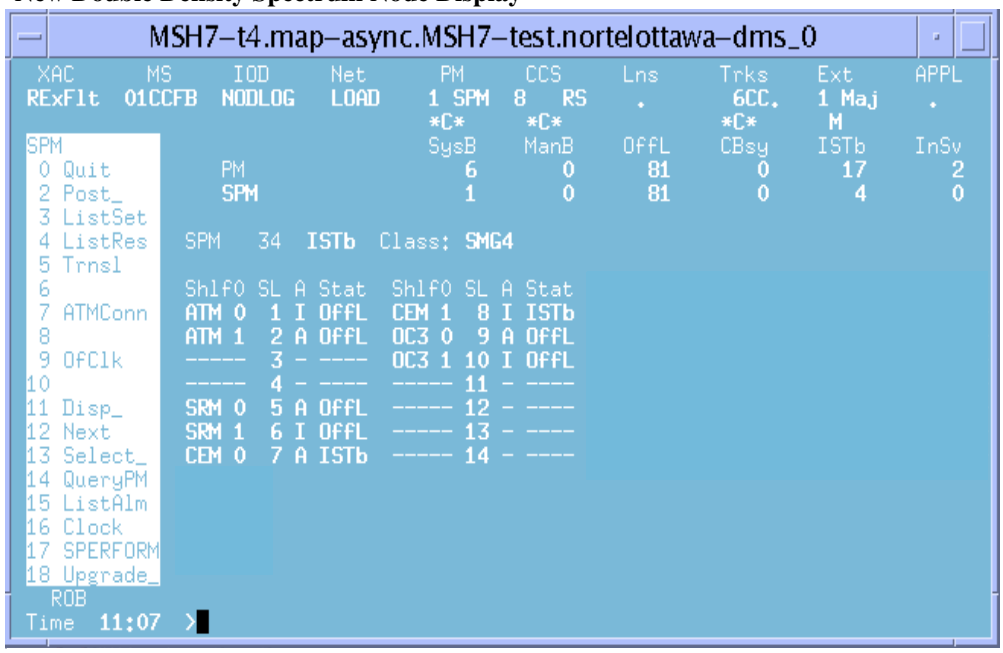
The SPM shelf level MAP summarizes the states of all of the SPM's cards. (Figure on page 351 and Figure on page 352.)

> mapci;mtc;pm;post spm 34

Old Single Density Spectrum Node Display



New Double Density Spectrum Node Display

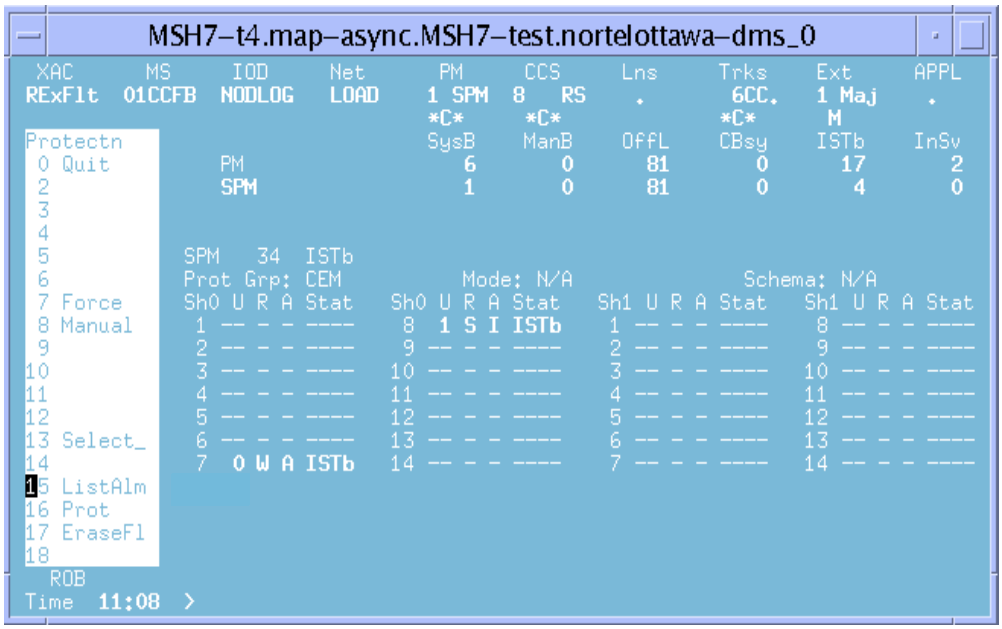


SPM Module Protection Level MAP Changes

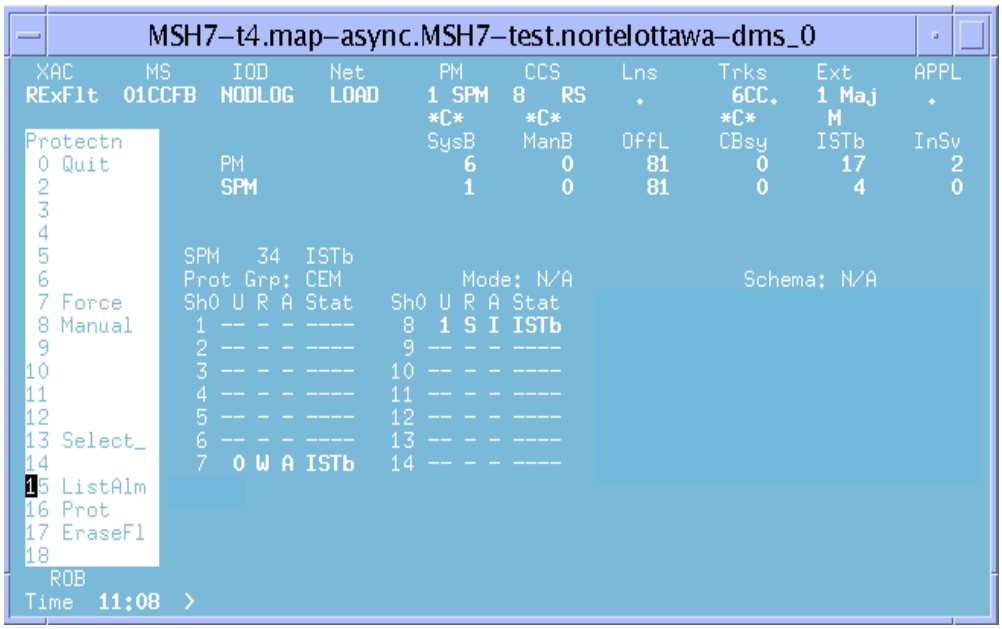
The CEM (or RM) protection level MAPs are used for manually switching CEM (or RM) activity between units in the same Protection Group. (Refer to the two figures that follow, here and on page 353.)

> mapci;mtc;pm;post spm 34;select cem 0; prot

Old Single Density Spectrum Node Display



New Double Density Spectrum Node Display



Glossary

Term	Description
TSP	Telephony Services Processor - a new, high-density Spectrum resource module that can be used to replace multiple VSP, DSP, and COH resource modules.

Product = CS 2000

A00002133 -- CBM SDM SW Installation & Commissioning (Succession on DMS)

Functional Description

This feature provides the following functionality:

CBM product functionality:

- Software delivery processes for the CBM product
- Installation for the CBM product in both single and dual server high availability configuration

- Preparation work required in SN07 for CBM upgrades in SN08

Product generic functionality:

- A platform for patching for products based on the Solaris operating system
- An easy to use interface for installing and removing software

Software Delivery

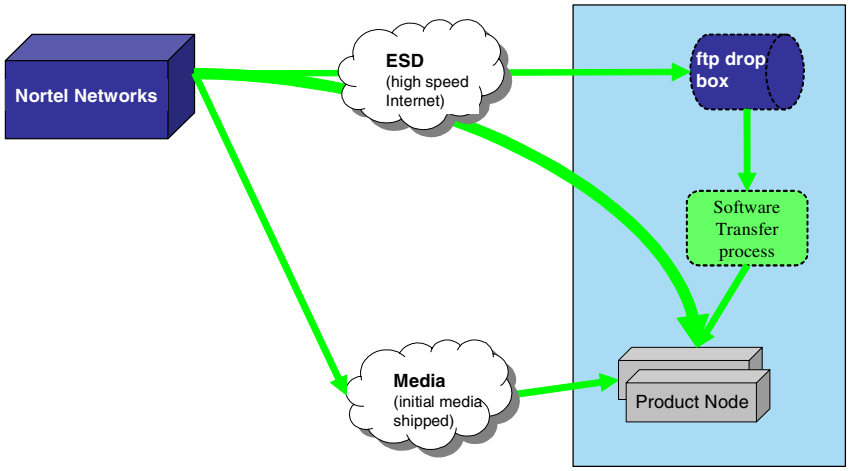
Electronic software delivery (ESD) is the supported method of software delivery for the CBM product. To support ESD, customers will require a high speed internet connection.

ESD provides greater responsiveness than media delivery. ESD provides business value by enabling automatic application of software reducing support costs.

CDROM media will be included with the initial product installation. Patches and maintenance load images will be delivered through ESD

ESD deliveries can be deposited on an intermediary machine, or directly onto the product node if access is provided. The direct access method is preferred as it is simpler.

The following diagram depicts an overview of software delivery.



The CDROM media will contain the final load image for the product and all available packages at the time the CDROM image was mastered. From that point on, the product will be patched using electronic patch delivery.

Installation

Installation procedures will support system preparation prior to shipment to the customer site to add business value. Preparation work includes installation of the SSPFS platform and CBM common software. Value is created by reducing installation technician labour costs as a single technician can perform the common parts of the installation process on many machines at the same time at the factory. This saves installation time and complexity during the install procedure at the customer site.

For two node clusters, the following steps are performed on the active node. Either node can be arbitrarily selected to be the active node for installation.

Installations for a single node cluster are very similar to installations for a two node cluster. Simply skip the last step where the inactive node is cloned.

Installation steps:

1) Install Solaris and the SSPFS platform and the CBM common components

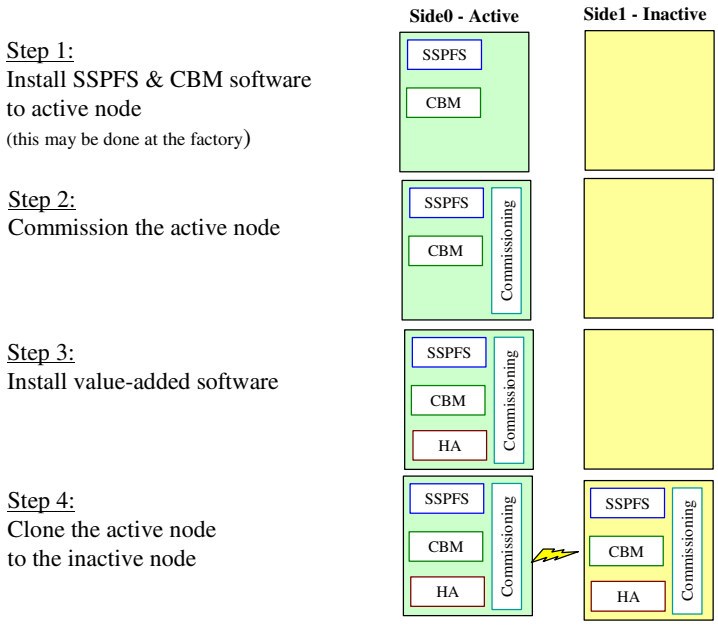
<these steps will be performed at the factory prior to shipment to site>

2) Perform system commissioning

3) Install value-added software such as Billing, OM Delivery, or any other purchased software.

If this is a two-node cluster, then

4) Clone the inactive node from the active node using the sync mechanism provide with the SSPFS HA framework



CBM Common software installation:
The installation interface is command line driven and common to all CBM based products. The “cbm_setup” installation tool provides a simple interface to initiate, complete, and provide status feedback for the installation.

<Begin screen capture>

==========
CBM Setup Program

==========
Checking available disk space.

Checking SSPFS setup.

Checking base directory.

/opt/nortel/cbm/7 exists.

Examining installed packages ...

Verifying required packages ...

GNU Compiler and Libraries COMPLETELY INSTALLED

RogueWave SourcePro Libraries COMPLETELY INSTALLED

Platform Base COMPLETELY INSTALLED

SDM Base Maintenance Interface COMPLETELY INSTALLED

Platform Utilities COMPLETELY INSTALLED

Generic Data Delivery COMPLETELY INSTALLED

Log Delivery Service COMPLETELY INSTALLED

Table Access Service COMPLETELY INSTALLED

OM Access Service COMPLETELY INSTALLED

Verification completed.

<End screen capture>

Upgrade preparation work:

cbm_setup will be used to provide a simple command line interface for upgrades. This adds business value by reducing training costs that would be required to learn multiple interfaces.

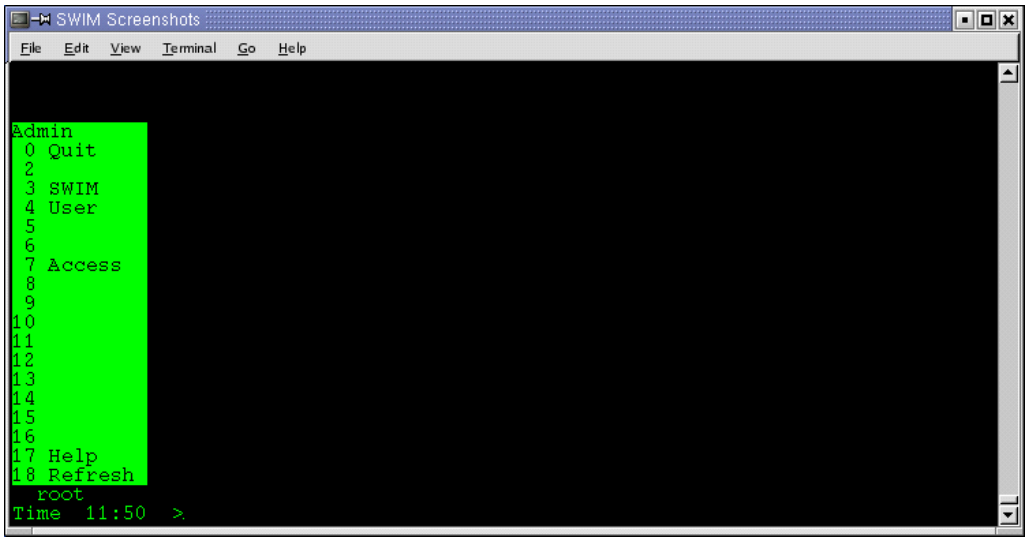
cbm_setup was designed to minimize user interaction prompts which adds business value by preventing user error and reducing labour and training costs.

CBM Upgrades were not completed as part of this activity.

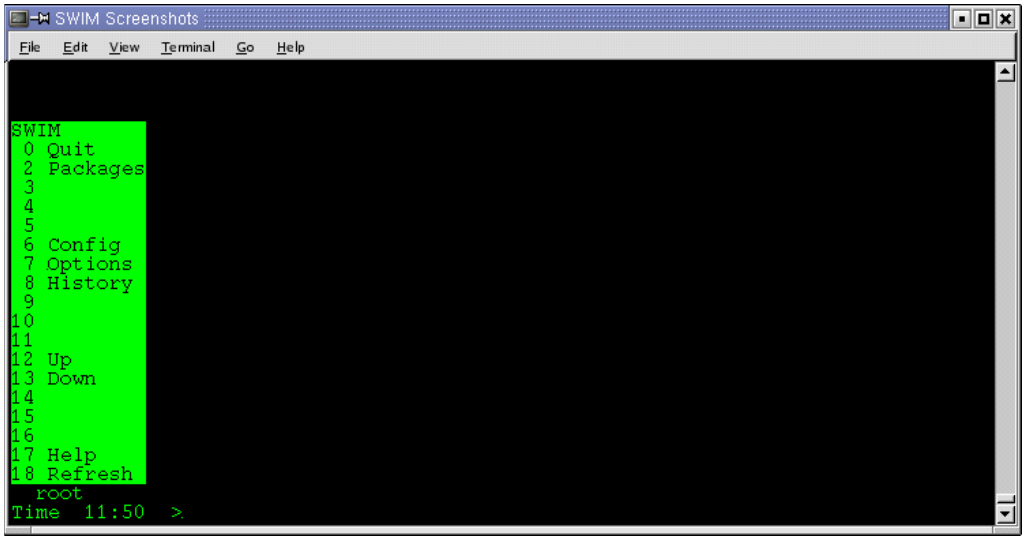
Software management:

Value-added applications are installed via the SWIM level of the cbmmtce interface. Applications can be installed or removed at any time after initial installation. Applications must only be installed from the active node cbmmtce interface. This interface provides business value by providing a common interface across products for package removal and installation.

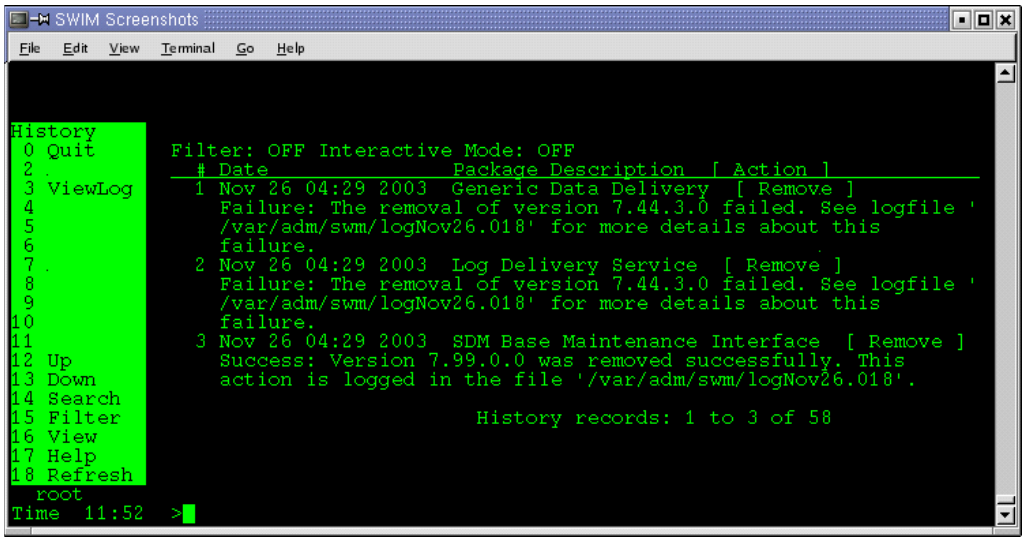
The SWIM level is accessible directly by typing SWIM and then enter in the cbmmtce interface, or through the admin level of the cbmmtce interface as detailed in the following graphic:



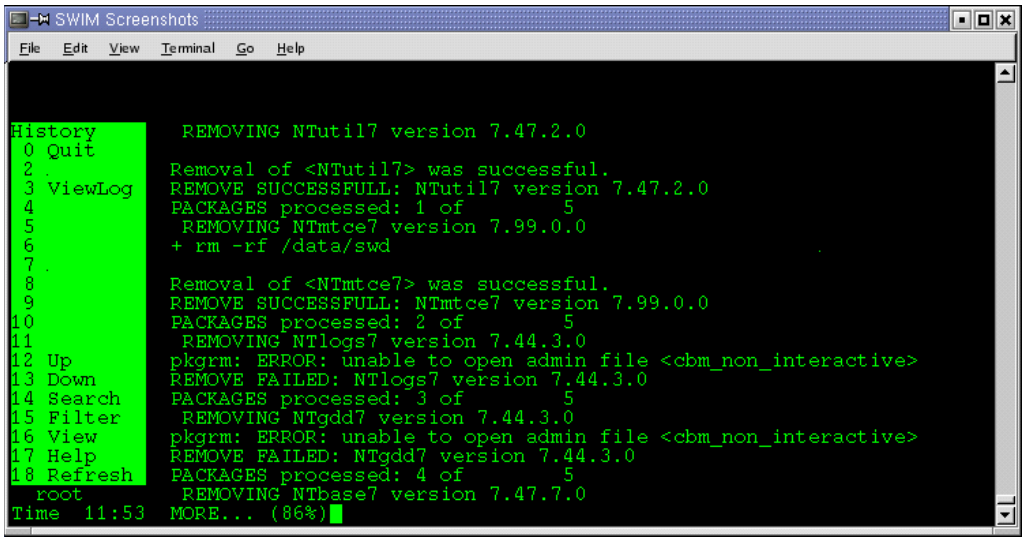
The options provided by the SWIM level are shown in the following graphic:



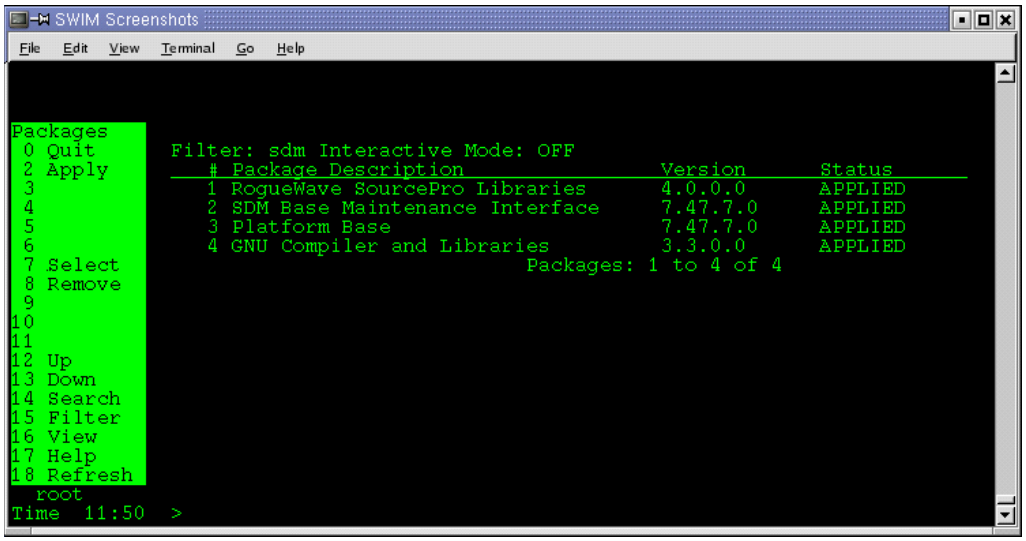
The SWIM -> History level provides a transaction history of packages that were applied using SWIM. These logs are maintained on the system and rotated every week or as disk space requires them to be rotated.



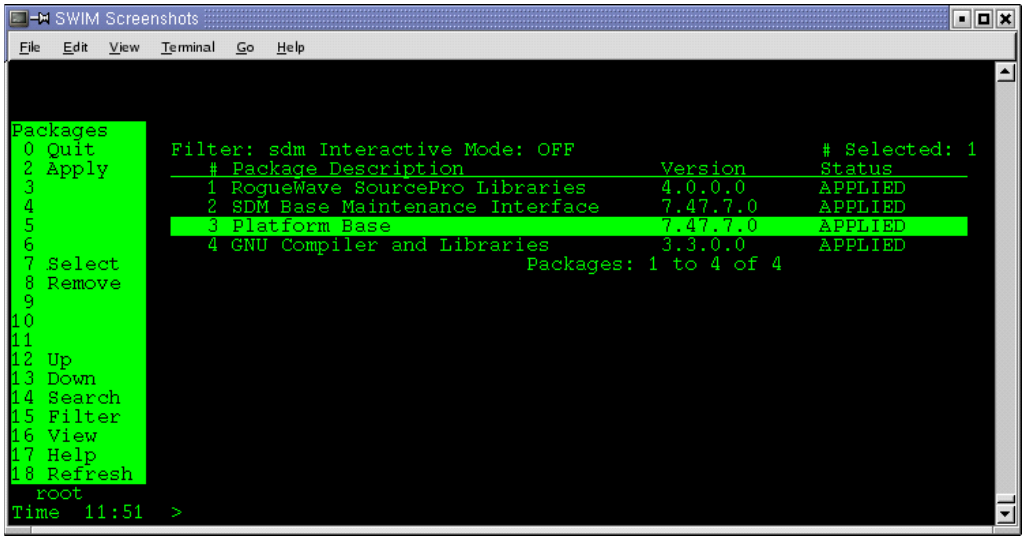
The SWIM -> History -> ViewLog level can be used to view the details from the application of a package using SWIM.



The SWIM -> Packages level shows software that is installed. The SWIM -> Packages -> Apply level should be used to apply software. It will provide a listing of available software Packages in a specified or default directory. The default directory is /swd/.



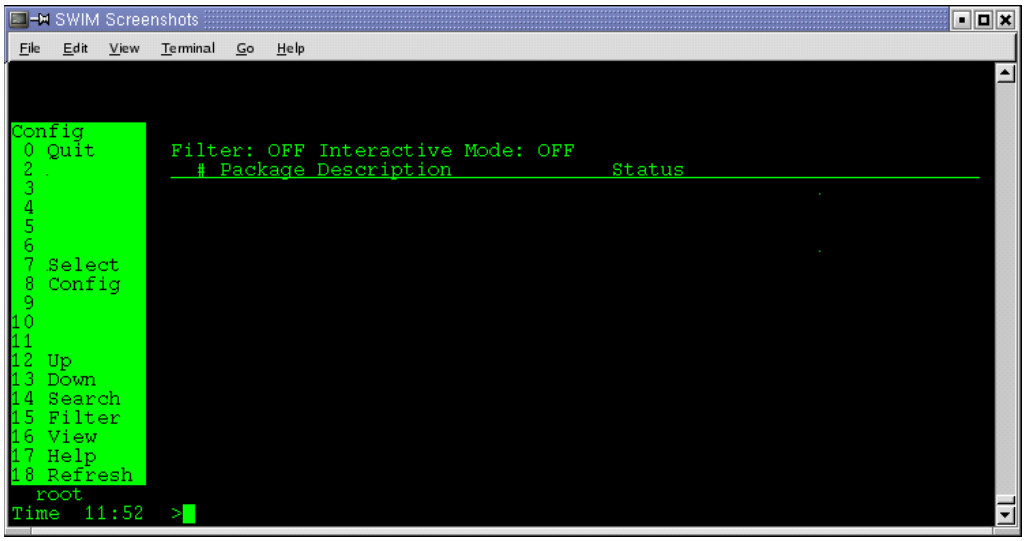
SWIM -> Packages, with an installed package selected



Application configuration:

Applications that require manual configuration will be configured via a command line interface initiated from the cbmmtce interface's config level. This provides business value as the interface and approach are the same across products preventing re-learning to reduce training costs and user error.

The following graphic depicts the config level:



Applications not requiring manual configuration will automatically be configured during installation or as they are brought into service depending on the scenario. The process of configuring these applications will be transparent to the system user.

Applications requiring manual configuration can be configured in two ways:

1) During installation, SWIM will notice the application requires manual configuration and at the end of the installation it will automatically prompt the user for the configuration steps and information.

Multiple installations requiring configuration will be batch queued such that the manual configuration steps are all executed at the end of the software installation cycle.

2) Should the user decide not the configure the application at installation time.They can configure, or reconfigure the application from the config level of the cbmmtce interface.

Patching:

A suite of tools to control patching are built into the SSPFS product. The tools are available to any products built on top of the SSPFS product, including the CBM product.

The patching suite tools create business value by reducing patching & support costs. They provide simple and product generic user interfaces to apply and remove patches as well as query and audit software.

Corrective content will be made available to the customers as individual patches. These will be provided in Solaris patch format contained within a tar and gzipped archive.The patching tools automatically handle processing and applying the patches.

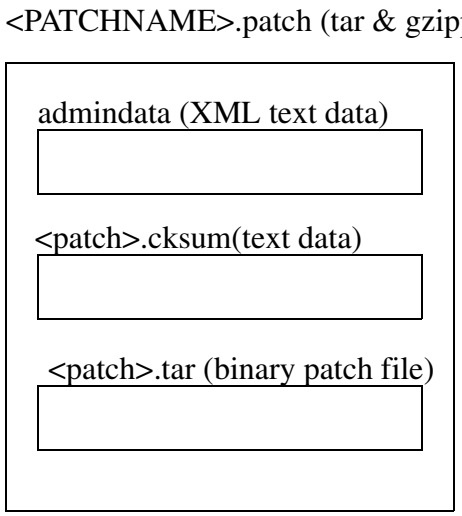
New for the CBM is a mechanism to guarantee the integrity of patches as they are received. The checksum delivered with the patch is used to verify the integrity of the patch archive. Any patch that is damaged in any way on its way to the CBM will be rejected as damaged.The customer will be informed of any such rejection.

Patches will be compressed and transported as a single file. The compression adds value by reducing disk space requirements and ESD transfer times for patches.

The patch archive will contain checksum data to verify the patches integrity. Should the patch file become corrupt in any way, the system will be able to detect, avoid applying, and alarm the corrupt patch.

An administrative file is provided with all patches to provide status information, release notes for the patch, and handling instructions for the patching tools.

The following diagram denotes the structure of patches provided by Nortel:



Patches are designated as one of three types: active node apply, inactive node apply, and manual apply. The patch type is used to trigger the appropriate handling of the patch while being applied in highly available cluster configuration. For single node configurations, inactive apply patches automatically become manual apply patches.

Both active node apply and inactive node apply patches can be applied automatically by setting a schedule with the patchconfig tool.There are separate schedules for each. Manual patches are never automatically applied, and cannot be scheduled. For non-clustered systems, the inactive apply schedule does not exist as patches are either active apply or manual apply.

Patches have an attribute embedded within them to determine whether they require a system reboot to be applied. If they require a reboot, the patching suite software will initiate the reboot. Depending on the scenario triggered by the patch type, the reboot may be handled either automatically, or manually with user prompts.

Patches applied on the active node will only affect service for specific applications modified or updated by the patch. Patches applied on the inactive side will not be enabled until after a SWACT (which involves a loss of service for all applications). However, applying the patch on the inactive side allows a continuation of service on the active side while the patch is being applied on the inactive.

Patches are only applied to the mate node once the patch has successfully been applied to the first node. Patches that fail to apply successfully will be automatically removed and an alarm will notify the user of the unsuccessful apply attempt.

Patch Handling	Applied Automatically	Can be scheduled	Node applied on	Description
Active Apply	Yes	Yes	Active	This handling is ideal for non disruptive or patches for less sensitive applications.
Inactive Apply	Yes	Yes	Inactive	This handling is ideal for disruptive or sensitive application patches.
Manual Apply	No	No – manually initiated	Inactive node with prompts	This handling is ideal for disruptive patches, patches that require manual interaction, or highly sensitive applications.

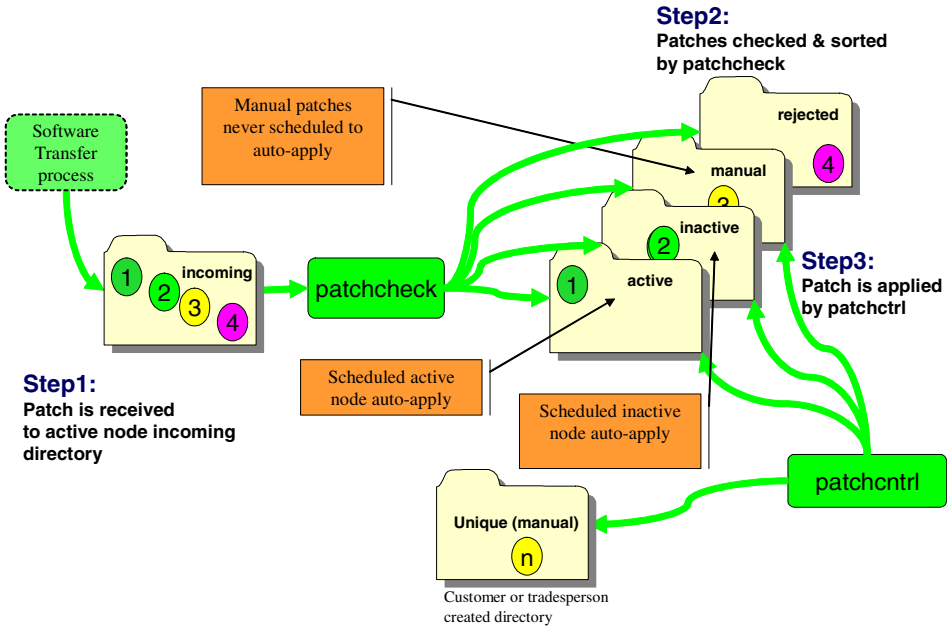
Additional Patch Attributes:

Reboot required: Yes/No Patch Status: S/V/R/Z

RPS States:
Submitted
Verification
Released
Zapped

These attributes trigger special handling. VO patches = manual apply.

The following diagram details how patches will be received in the incoming directory and processed by patchcheck to be sorted into directories according to required apply handling: Multiple patches will be applied in sequence.



Also new for the CBM is the capability to override embedded patching handling with a more cautious handling procedure. This feature is enabled by setting patch filters. Patch filters allow declaration of patches matching criteria to be always inactive apply, or always manual apply. The filters are set, updated, or removed using the patchfilter command. The filtering mechanism is based on the filter pattern matching the patch name, or the name of the package the patch updates, or the category of the patch.

Patch filters always add more conservative handling to patches. For example, making an active apply application such as Billing a strictly manual apply application. Patches requiring special handling cannot be filtered to remove that special handling. For example, a manual patch cannot be filtered to make it active apply.

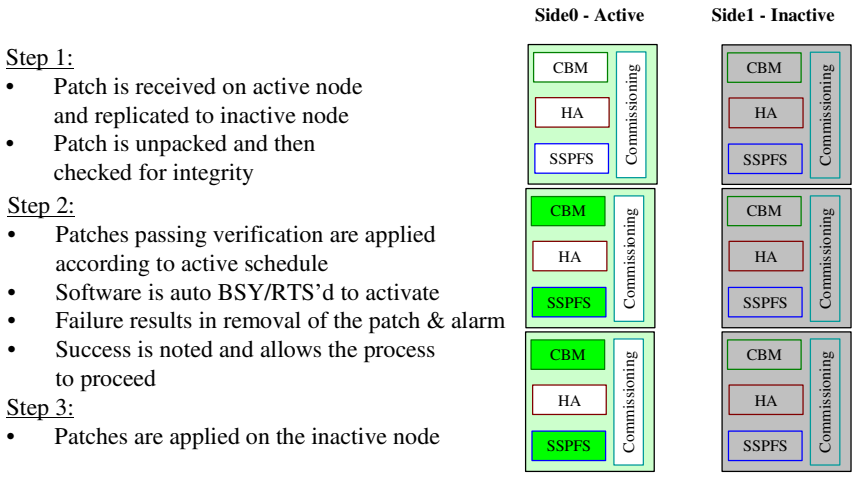
A status field is embedded within the patch to track the deployment state of the patch. This state is referenced to determine the appropriate behavior for patch application. Verification (V) patches will be automatically classed as manual apply patches only. Release (R) status patches will follow their appropriate handling based on the patch type field, or any defined patch filters.

The configurable patch application schedules provide business value by allowing automatic patch application during less busy periods and reducing support costs as that would have been incurred if manual interaction was required.

The patch format used by the patching suite provides automatic patch application and automatic application restart once the patch has been applied (if required). CBM patches will restart applications automatically by default.

The patching tools provide high availability cluster support. This feature enables value by automatically handling sensitive or disruptive patches requiring reboots or restart of important applications. These patches are handled automatically by applying them on the inactive node of the cluster and then SWACT'ing. These inactive apply patches will be applied on the inactive node to minimize service disruption.

The following diagram depicts how active apply patches are handled:



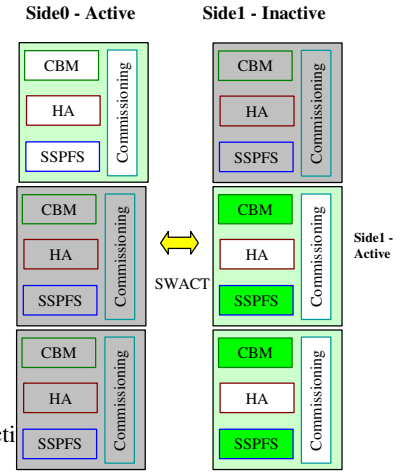
The following diagram depicts how inactive apply patches will be handled:

Patching security & robustness features:

Step 1:
- Patch is received on active node and replicated to inactive node
- Patch is unpacked and then checked for integrity

Step 2:
- Patches passing verification are applied according to inactive schedule
- Failure results in removal of the patch & alarm
- SWACT and RTS is initiated to activate
- Success is noted and allows the process to proceed

Step 3:
- Patches are applied on the inactive (formerly acti node)



The patching suite provides several important security features to enable a high level of security for customer networks.

The patching suite includes automatic integrity checking to screen and alarm corrupt patches & prevent their application. The patching suite supports encrypted file transfers & inter node communication.

The manual patch application type is supported to provide complete control over sensitive patches. Patch filters provide the ability to define more sensitive handling for defined applications to minimize service disruption

Important design considerations were factored to ensure a high level of robustness for the patching suite. No application level software required to apply patches. Patches are applied using low level operating system commands to ensure application of patches will not be blocked by a daemon or service being unavailable.

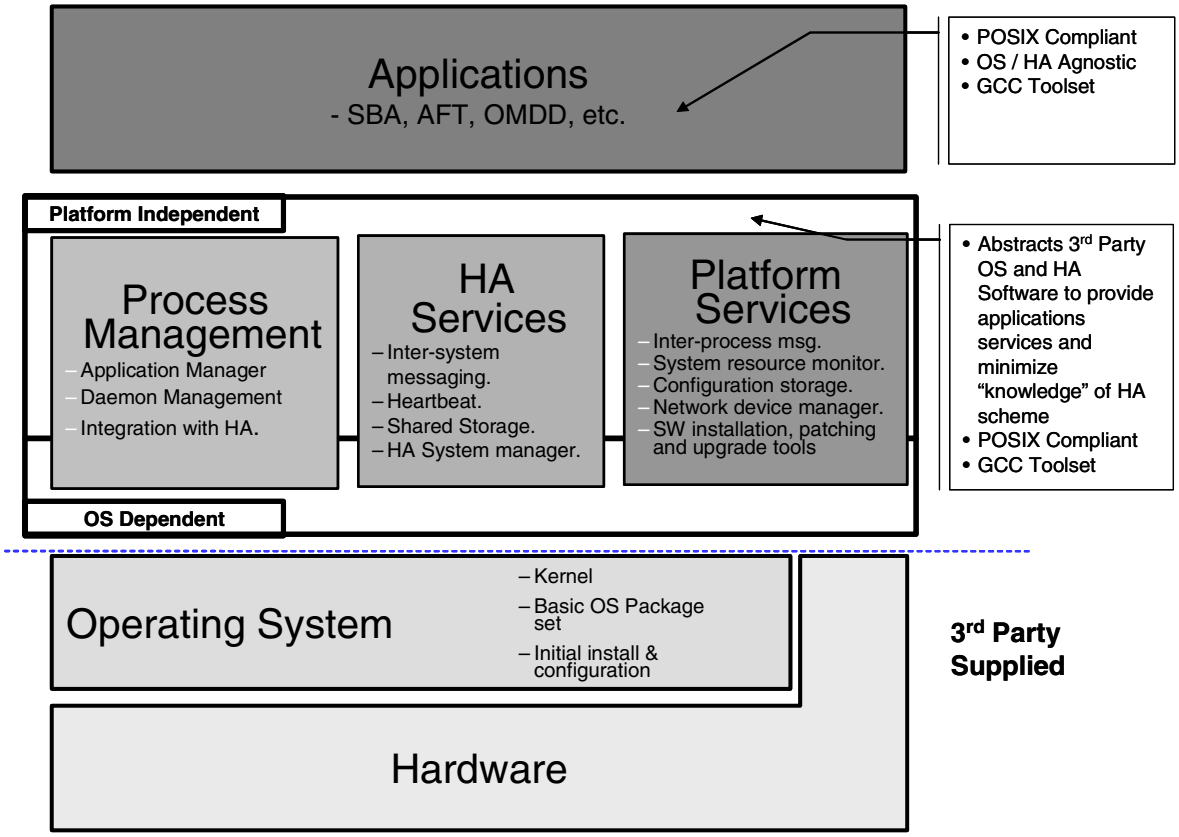
No special daemons required to support patching. For the automatic scheduling functions to work, the cron server must be functioning.

New for this release, the root password not required to control patching. Maintenance users (maint group, or emsadm group) will have access to run patchctrl. This enables them to apply patches without accessing the root password.

Please see the patching limitations section of this document for information regarding a possible security exploit.

Hardware and Software Requirements or Dependencies

The CBM product requires the Sun Microsystems N240 hardware platform that is provided by the SSPFS platform. The CBM product utilizes the Solaris operating system also provided by the SSPFS platform.



Dependencies for Patching include:

- Solaris patchadd and patchrm tools
- High available software
- Alarming facilities

Dependencies for Installation include:

- SSPFS installation script and commissioning interfaces
- Solaris pkgadd and pkgrm tools
- CDROM or ESD Image (ISO) of CDROM

- HA Cloning tool
- Alarming facilities
- Application registration interfaces
- Application set up automation

Upgrade preparation dependencies:

- HA Cloning tool
- Alarming facilities
- Application registration interfaces

Limitations and restrictions

General Limitations:
There are differences between SDM's legacy patching processes and interfaces and the patching suite interfaces developed in A0002133. These differences are not likely to be accepted by customers creating a requirement to enhance the patching suite tools to understand and support SDM patching.The patching suite tools were designed with this goal in mind.

The following limitations are noted for the following components.

Patching limitations:

- Patches must be provided in Sun patch format
- Patch integrity checking requires a checksum to be include with the patch
- For the patch handling mechanisms (active apply, inactive apply, manual apply) to work, an amindata file containing information defining the intended handling must be included with the patch
- Solaris patches must follow a Solaris patch manager supported naming convention.
- Patches are cumulative until completion of a design activity to create incremental patching tools
- Patches must handle restart of dependent applications until a more sophisticated shared library & dependency handing tool is developed
- Z status patches will never be delivered, but are not automatically removed from products installed in the field.
- **Important:** Patches can not be verified to have originated from Nortel Networks without the development of a patch authenticity checking mechanism. Lack of this mechanism provides a significant security hole.

Installation limitations:
Packages need to be supplied in Sun package format.

Interactions

Installation Interactions:

Installation of CBM core software is completed through using the cbm_setup interface. This tool will automatically install the CBM core (also known as “base”) software. The core software packages will be installed and their installation verified automatically without any prompts.

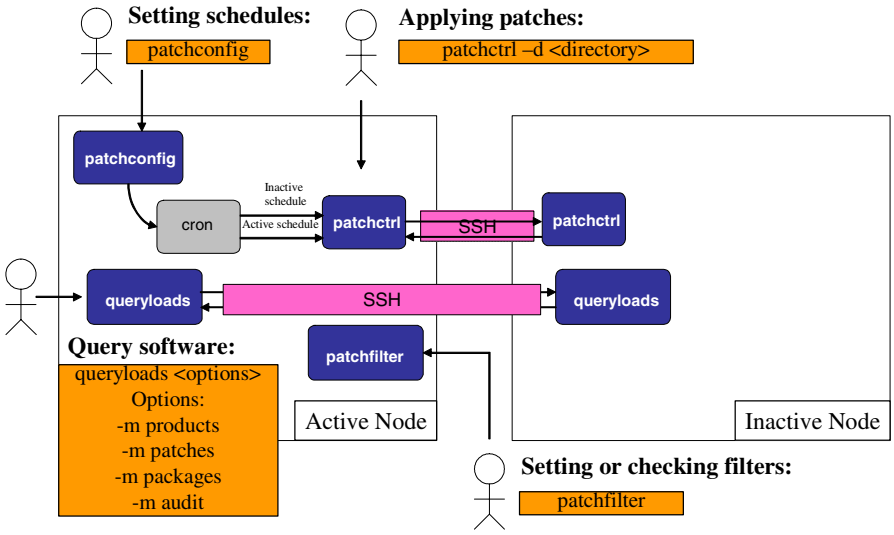
Value-added software such as Billing, OM Delivery, and other applications that are sold separately from the code platform software can be installed at any time after the initial installation using the SWIM interface. For two node cluster configurations, the SWIM interface will automatically install the software packages selected onto both nodes.

Upgrade Interactions:

The planned interface for CBM ugprades will be cbm_setup. This work will be completed in a new activity.

Patching Interactions:

There are 4 interfaces for patching. They are depicted in the following graphic:



1) patchconfig

The patchconfig tool is used to set, or reset the patching schedules.

The user will be prompted for two schedules, one for the active apply schedule and one for the inactive apply schedule.These schedules will be used to trigger application of patches for the respective node and patch handling type.

<TODO: Add screen capture for patchconfig>

2) patchctrl
The patchctrl tool provides a single interface for patch application. It automatically handles active patch apply, inactive patch apply, or manual apply scenarios. If patches require a reboot, it will automatically initiate the reboot or prompt when patching manually.

patchctrl will automatically handle triggering a SWACT for patches that require it when the system is a two node cluster. During manual patch application, a SWACT will be preceded by a prompt.

3) queryloads
queryloads provides an easy to use interface to gather software information about the system. queryloads reports information in one of two formats, a human friendly report, or raw XML data.

queryloads reports information on the Nortel products installed on the system, the software packages installed, and the software patches installed. If provided with a product name, queryloads will automatically filter output to report information for that product rather than all software installed on the system.

4) patchfilter
patchfilter provides an interface to set or remove filter instructions. Patch filters allow customers to define more conservative handling for patches. This enables making patches for designated applications either inactive or manual apply even though the patch itself may be an active apply patch. Filters only allow more conservative handling. For example, a manual patch could not be made an active apply patch.

5) Alarms
A minor alarm (Istb) will be raised on the node when a patch has failed to apply. A command line tool will be provided to manually clear this alarm.

A minor alarm (Istb) will be raised and automatically cleared on the node when a patch fails the integrity check

Applicable customer facing sections

Fault Management

Logs	___X___
Alarms	___X___

Configuration

- Data Schema ___X___
- User Interface ___X___
- Element Management ___X___
- Security ___X___
- Service Order ___NA___
- Office Parameters ___NA___

Accounting (includes AMA billing) ___NA___

Performance (includes operational measurements) ___NA___

Realtime ___NA___

Engineering Information ___NA___

Glossary

Term	Description
CBM	The Nortel Networks Core and Billing Manager product.
SDM	The Nortel Networks SuperNode Data Manager product.
NPM	Network Patch Manager
Patch	An atomic unit for delivering changes to deployed products. Patches may contain files, directories, and links to affect changes on the system.
SSPFS	Nortel's Succession platform based on the Solaris operating system.
SWACT	SWitch of ACTivity from the active cluster node to have the inactive cluster node take over.
cron	The UNIX cron daemon, a facility for scheduling execution of commands.
Value added software	Software that provides additional capability beyond the core product. (and costs extra)

Product = CS 2000

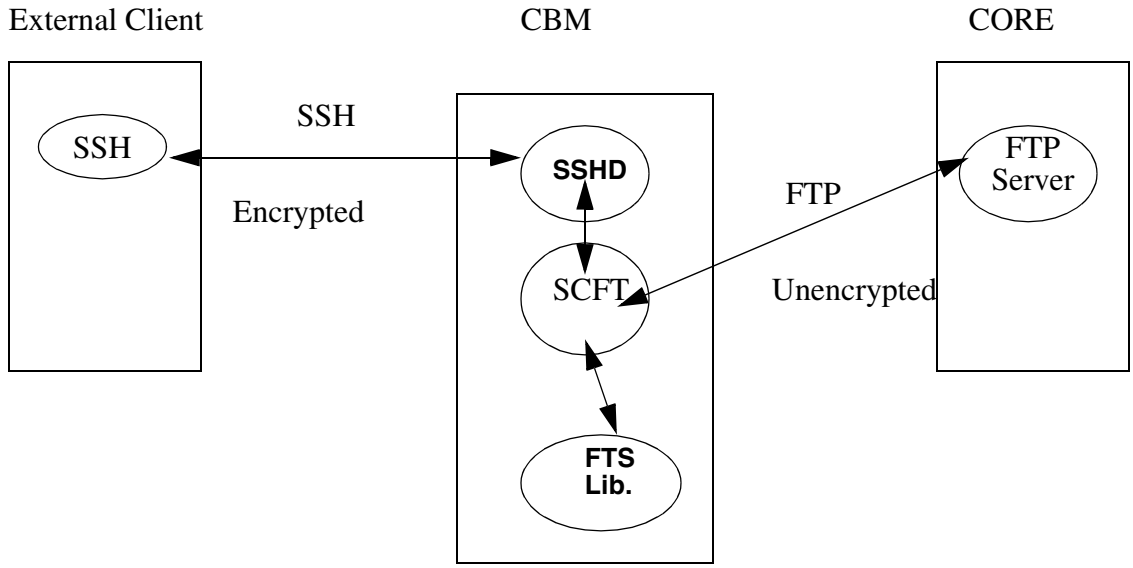
A00002155 -- SSH Core File Transfer (SCFT) for CBM and SDM (Succession on DMS)

Description

This feature is intended to provide a non-DCE option for secure FTP that will allow secure FTP access to the CORE through the CBM or SDM.The feature can be used to retrieve files from the core and transfer files to the core from an external workstation through the CBM or SDM. The feature provides the security supplied by the SSH (version 2) so that the core will not be compromised by illegal users. The SCTP code that runs on the CBM or SDM provides much of the standard FTP functionality, enabling the remote client to perform all the FTP operation that may be needed to maintain the CORE through the CBM or SDM.

This feature provides the dynamic creation of the CM FTP users. This is accomplished by the SSH core file transfer authorizing the user executing the command based on their group memberships.

SSH Core File Transfer



Hardware Requirements or Dependencies

This feature will run both on the CBM platform as well as the SDM.

Software Requirements or Dependencies

The external client must have standard SSH (version 2) running on his machine. He must also have the SCFT code running on the CBM or SDM. It would also be useful but not necessary to have the Korn shell script created by Nortel for running the SCFT code through SSH loaded on the external client's machine. The SCFT code as well as the Korn Shell script will be delivered to the client as a packaged SDM/CBM load.

Handling SSH authorized_keys file over SWACTs.

If you are using a CBM-850 system that has two CBM clustered together, special care must be take that the SSH authorized_keys file are kept current on both sides. This is particularly important if you do a swact as you may no longer be able to connect password free if the authorized_keys file is different. The authorized_keys file can be copied over to the cbm on the other side by using the syncFile.ksh command.

> /opt/servman/shell/syncFile.ksh /.ssh/authorized_keys

Limitations and restrictions

Only a restricted subset of FTP commands are supported with the SSH Core File Transfer. However, it should be noted that one of the commands supported is the "command" feature which allows any FTP command to be entered as a string that will be performed on the FTP server on the core. With this command virtually any FTP command can be entered.

Core image files can not be transferred from an outside client at this time. There is code within the Core that prohibits this.

It should also be noted that all commands must fit onto one line and must be passed to the SCFT code intact.This is necessary because the FTP connection to the core is created and removed after each command. So you can not, for instance, set the output type to Binary in one command then do a put in the next and expect the type to be binary. The binary command will not be remembered for the put and the type will default back to the standard FTP type of ASCII.

Interactions

This feature will use the previously existing FTS code to perform the FTP commands that are requested through the SSH Core File Transfer code. Some changes have been made to allow the output to be returned to the external client. The external client will also be required to have a standard SSH installed on their system.

Applicable customer facing sections

Fault Management

Logs ___X__

Alarms __N/A_

Configuration

Data Schema __N/A_

User Interface __X___

Element Management __N/A_

Security ___X__

Service Order __N/A_

Office Parameters __N/A_

Accounting (includes AMA billing) __N/A_

Performance (includes operational measurements) __N/A_

Glossary

Term	Description
AIX	IBM UNIX operating system on the SDM FX
CBM	Core Billing Manager
CM	Command Module (the CPU of the DMS)
CMFT	Command Module File Transfer Script
AIX	IBM UNIX operating system on the SDM FX
CBM	Core and Billing Manager
Core	DMS switch computing engine
DCE	Distributed Computer Environment
FTP	File transfer protocol
FTS	File transfer System (Nortel proprietary code)
IP	Internet Protocol
SCFT	SSH Core File Transfer
SDM	SuperNode Data Manager
SSH	Secure Shell protocol
SSHD	Secure Shell protocol Daemon

Product = CS 2000

A00002186 -- IOM DDU Capacity Enhancement (Succession on DMS)

Introduction

In 1999, Nortel committed to Netas to deliver sufficient storage for their switches for 25M billing records.

The feature patch was implemented for SN04/CSP17, and this is the source implementation of the enhanced functionality. The FN for the original feature patch can be found in FMDOC library as TURKPFN.

The IOM DDU disk capacity is currently limited to 1G. This feature provides increase in the capacity to 4G by utilizing the additional capacity supported by the new IOM load, IOMEXXXX.

Functional Overview

This feature increases the IOM DDU capacity from 1G to 4G. The maximum number of volumes per DDU increases from 32 to 63. The maximum volume size remains unchanged at 65,536 KBytes. By allocating 63 volumes at maximum volume size, the entire 4G can be used.

There are no HMI changes introduced in this feature. All the maintenance tools, such as DISKDBG, DSKALLOC, and DSKUT will continue to function with no visible changes to their interface.

Soc BASE0015

The ability to use the additional disk capacity is controlled by SOC BASE0015. The status of this SOC must be set to YES before the additional capacity is visible. If the status is set to IDLE after additional volumes have been allocated, further volume allocation maintenance may not be possible, however all volumes and files will continue to be accessible.

Hardware Requirements or Dependencies

- The capacity enhancement is applicable only to the IOM DDU
- The IOM disk drive, NTFX32BA must be Release 7 or later

Software Requirements or Dependencies

- SOC BASE0015 needs to be activated for this functionality.
- The IOM load with version IOMEXXXX must be used in conjuction with this feature

Limitations and restrictions

- Once the IOM has been upgraded to the new load, do not revert back to the old load, as this may cause the DDU to no longer function correctly and potentially require the disk to be reformatted.
- The IOM disk drive, NTFX32BA must be Release 7 or later.
- Setting the SOC BASE0015 to IDLE may prevent further volume allocation maintenance, however the volumes which have already been allocated will continue to be accessible.

Interactions

None

Applicable customer facing sections

Fault Management

Logs _N/A__

Alarms _N/A__

Configuration

Data Schema _N/A__

User Interface _N/A__

Element Management _N/A__

Security _N/A__

Service Order _N/A__

Office Parameters _N/A__

Accounting (includes AMA billing) _N/A__

Performance (includes operational measurements) _N/A__

Glossary

DDU	Disk Drive Unit
DIRP	Device Independent Recording Package
HMI	Human Machine Interface
IOM	Input/Output Module
MOP	Method of Procedure

Product = CS 2000

A00002196 -- Do Not Disturb - Residential Market (Succession on DMS)

Functional Description

Do Not Disturb (DND) is an existing DMS feature that makes an MDC station appear busy to incoming calls when the station is idle. DND is scheduled via table DNDSCHED and allows pre-programmed times to be datafilled which specify a begin time to activate DND and an end time to deactivate it. DND is not currently supported on RES lines but will be as a result of this activity.

Selective Call Acceptance (SCA) feature allows a subscriber to selectively accept calls arriving from a limited set of previously identified directory numbers.

There is currently no mechanism to allow a subscriber to create a list of callers that would by-pass DND when it is active. This activity will change the current interaction between SCA and DND so that a subscriber can selectively accept calls while DND is active.

Enhanced Do Not Disturb

Currently there is no combination of features that allows a subscriber to activate a Do Not Disturb feature at a predetermined time each day, for example from 6 p.m. until 7 p.m. each evening (dinner hour), and at the same time maintain a list of DNs that are optionally allowed to bypass DND when it is active.

The Enhanced DND feature will be available to RES & MDC lines and provides the following capabilities:

- Via Table DNDSCHED, calls can be blocked at a predetermined time period each day. Table DNDSCHED allows up to 63 different time periods to be datafilled per customer group.
- A subscriber can dial DND feature access codes to activate or deactivate Do Not Disturb. The DNDACT feature access code will activate Do Not Disturb and the DNDDEACT feature access code will deactivate Do Not Disturb.
- Table DNDSCHED begin and end times will interact with DNDACT and DNDDEACT feature access codes. If a subscriber's line has Do Not Disturb active as a result of a begin time in table DNDSCHED, the subscriber can dial the DNDDEACT feature access code to deactivate DND. Likewise, an end-time deactivation of DND via Table DNDSCHED will turn off Do Not Disturb, whether it was activated via the DND feature access code or a begin time in table DNDSCHED.

- SCA will be enhanced to allow callers on the SCA screening list to bypass DND when it is active. This functionality will be controlled by the new parameter DND_ONLY, which will be visible when provisioning SCA.
- The new field DND_ONLY will default to N during provisioning and is visible during NEW, ADO (Add Option), and CHF (Change Feature) commands.
- Enhanced DND is defined as a line with both the DND and SCA options with SCA field DND_ONLY = Y.
- When Enhanced DND is active (DND and SCA with DND_ONLY=Y are both active), callers not on the SCA screening list will be routed to SCA treatment while callers on the SCA screening list will bypass DND and terminate to the line.
- If DND is active and SCA with DND_ONLY=Y is inactive, then all callers receive DND treatment as defined by Tables DNDSCHED and IBNTREAT.
- If DND is inactive and SCA is active (DND_ONLY=Y) then SCA screening will not be attempted on any termination. With DND_ONLY = Y, SCA screening is only done when DND is active. Under this condition, no SCA OMs will be pegged.
- Enhanced Do Not Disturb will be controlled by SOC RES00102.

New Activation Code for Table IBNXLA

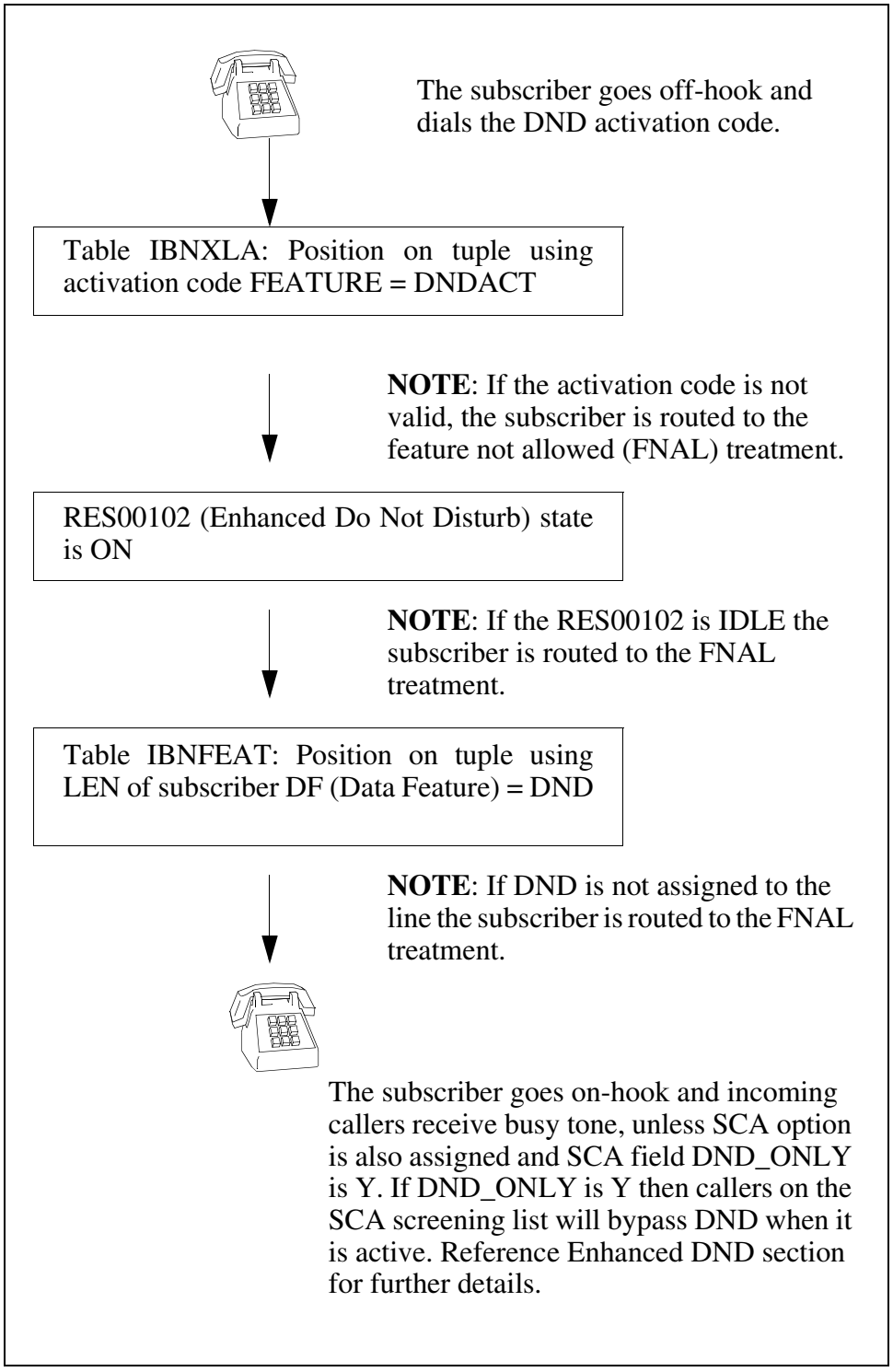
Current implementation of DND does not allow a MDC or RES line to mark its DN busy by dialing an access code that interworks with scheduled Do Not Disturb times. This will be changed by this activity so that an access code can be datafilled in Table IBNXLA that MDC or RES lines can dial to activate and deactivate DND and that interworks with Table DNDSCHED.

If DND is active on a line as a result of a begin time in table DNDSCHED it is currently not possible to deactivate it by dialling an access code. This activity will enhance DND so a Table DNDSCHED activation of DND can be deactivated by MDC and RES lines by dialing the DND deactivation access code.

The DND Activation and Deactivation access codes will be available when the TRSEL (TRanslation SELector) is set to FEAT in Table IBNXLA. The new Features added are DNDACT (DND Activate) and DNDDEACT (DND Deactivate).

A Table DNDSCHED activation of DND will create an entry in Table DNDMSB with STATUS set to DNDGA. DNDACT and DNDDEACT will interwork with Table DNDSCHED, therefore a subscriber who dials DNDACT to activate DND will also create an entry in Table DNDMSB of DNDGA.

DND Activation



Refer to the configuration section (section optcn) for further details.

Selective Call Acceptance

Background

Currently, the SCA feature allows a subscriber to selectively accept calls arriving from a limited set of previously identified directory numbers.

In its current implementation SCA will not override DND when DND is active. If DND and SCA are active on a subscriber's line, callers on the SCA list will not terminate but will receive busy treatment due to DND. With this activity the interaction between DND & SCA will be modified when the new field DND_ONLY is Y so that callers on the SCA list can bypass DND when DND is active. If DND_ONLY is N then existing behavior remains unchanged.

Enhancement

The SCA enhancement being provided by this activity will change the conditions under which SCA screening can be applied so that SCA screening is only considered if DND is active. This functionality will be provided by a new field DND_ONLY (Y/N) that will be included at SCA servord provisioning. Current SCA subscribers will have the new field DND_ONLY initialized to FALSE over an ONP to preserve existing functionality. Refer to the configuration section (section optcn) for further details.

When DND is active and SCA is active with the DND_ONLY field set to Y on a subscriber's line then only callers on the SCA list will be allowed to terminate to the line. All callers not on the SCA list will be routed to SCA treatment.

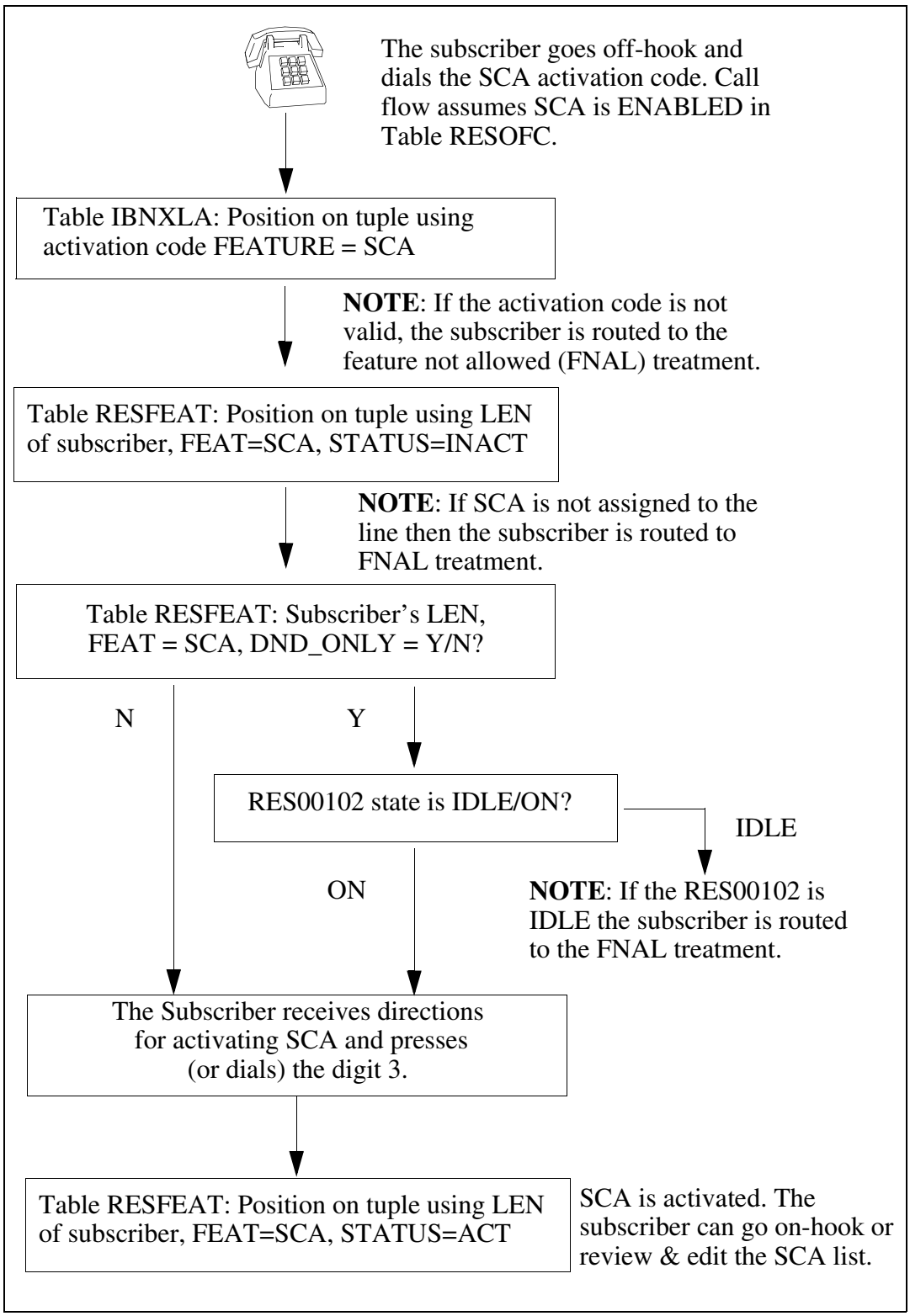
If DND is not active and the SCA field DND_ONLY is set to Y, then SCA screening will not apply to any incoming calls and all callers terminate to the line. The purpose of SCA screening when DND_ONLY is set to Y is to allow a list of callers to bypass the Do Not Disturb feature. If DND is not active then the SCA screening list will not apply to any incoming calls.

If DND_ONLY bool is set to N then the SCA feature (when ACTIVE) will screen callers to the subscriber's line regardless of whether DND is active or not. This preserves existing functionality.

An SCA subscriber with DND_ONLY set to Y can only dial the SCA access code when RES00102 is ON. If RES00102 is IDLE, then the SCA subscriber with DND_ONLY set to Y will receive FNAL (Feature Not Allowed) treatment if the SCA access code is dialed.

The following figure shows the SCA activation call flow:

SCA Activation



Description of Enhanced DND

The following paragraphs and figures show table datafill, servord and a description of call scenarios for Enhanced DND.

Prior to datafilling Table DNDSCHED, Table CUSTSTN should be datafilled to indicate the number of DND groups supported for the customer group. In the example shown, “63” represents the number of Do Not Disturb groups supported by the customer group. Its range is from 1 to 63.

Example datafill for Table CUSTSTN

```
TABLE: CUSTSTN

CUSTNAME OPTNAME OPTION
    RESGRP          DND  DND 63
```

The following figure shows example datafill for Table DNDSCHED.

Example datafill for Table DNDSCHED

```
TABLE: DNDSCHED

DNDSCKEY     DIVERSN          SCHED
RESGRP   1         1              $
RESGRP   2         1      (18 0 19 0)$
```

Using the above datafill as an example, if a RES subscriber who resides in the RESGRP customer group is assigned the DND option and DNDGRP is set to 2, then DND will be active each evening from 6 p.m. until 7 p.m. for this line. If DND is active and the call will not complete due to SCA overriding DND (SCA with DND_ONLY = Y), then the caller will be diverted to IBN treatment number 1 as defined by the DIVERSN field.

The following figure shows an example datafill for Table IBNTREAT. The DIVERSN field in Table DNDSCHED should be datafilled in Table IBNTREAT so callers who receive DND treatment are routed appropriately.

Example datafill for Table IBNTREAT

```
TABLE: IBNTREAT

CUSTGRP      IBNTRTMT          ITDATA
RESGRP              1     Y TRMT BUSY
```

NOTE: A default tuple should be datafilled in Table IBNTREAT with IBNTRTMT set to 0. This should be done for each customer group. An IBNTRTMT of 0 is used as the default treatment for any line with DND that does not have a corresponding entry in Table DNDSCHED to derive a diversion. An example for the RESGRP customer group is shown in the following figure.

Example datafill for Table IBNTREAT

```
TABLE: IBNTREAT

CUSTGRP      IBNTRTMT          ITDATA
RESGRP              0     Y TRMT BUSY
```

Referring to"Example datafill for Table DNDSCHED" on page 382 and "Example datafill for Table IBNTREAT" on page 382, a caller who calls a DND active RESGRP 2 line would be routed to BUSY treatment, provided SCA with DND_ONLY=Y was not active and either allowed the termination or routed the call to SCA treatment.

Example DND ADO with DNDGRP assigned as RESGRP 2

```
ADO $ 6210040
OPTION:
>DND
DNDGRP:
>2
```

If a subscriber in the RESGRP customer group does not want DND to become active at a preset time each day, then they can be assigned to RESGRP 1. This is done by assigning the RESGRP subscriber to DNDGRP 1 at servord time.

Example DND ADO with DNDGRP assigned as RESGRP 1

```
ADO $ 6210042
OPTION:
>DND
DNDGRP:
>1
```

The following ADO example assigns SCA with DND_ONLY set to Y

Example SCA ADO with DND_ONLY = Y

```
ADO $ 6210040
OPTION:
>SCA
BILLING_OPTION: NOAMA
>
STATUS:
>ACT
DNS:
>6136213500
VBCOUNT:
>7
DNS:
>$
DND_ONLY: N
>Y
```

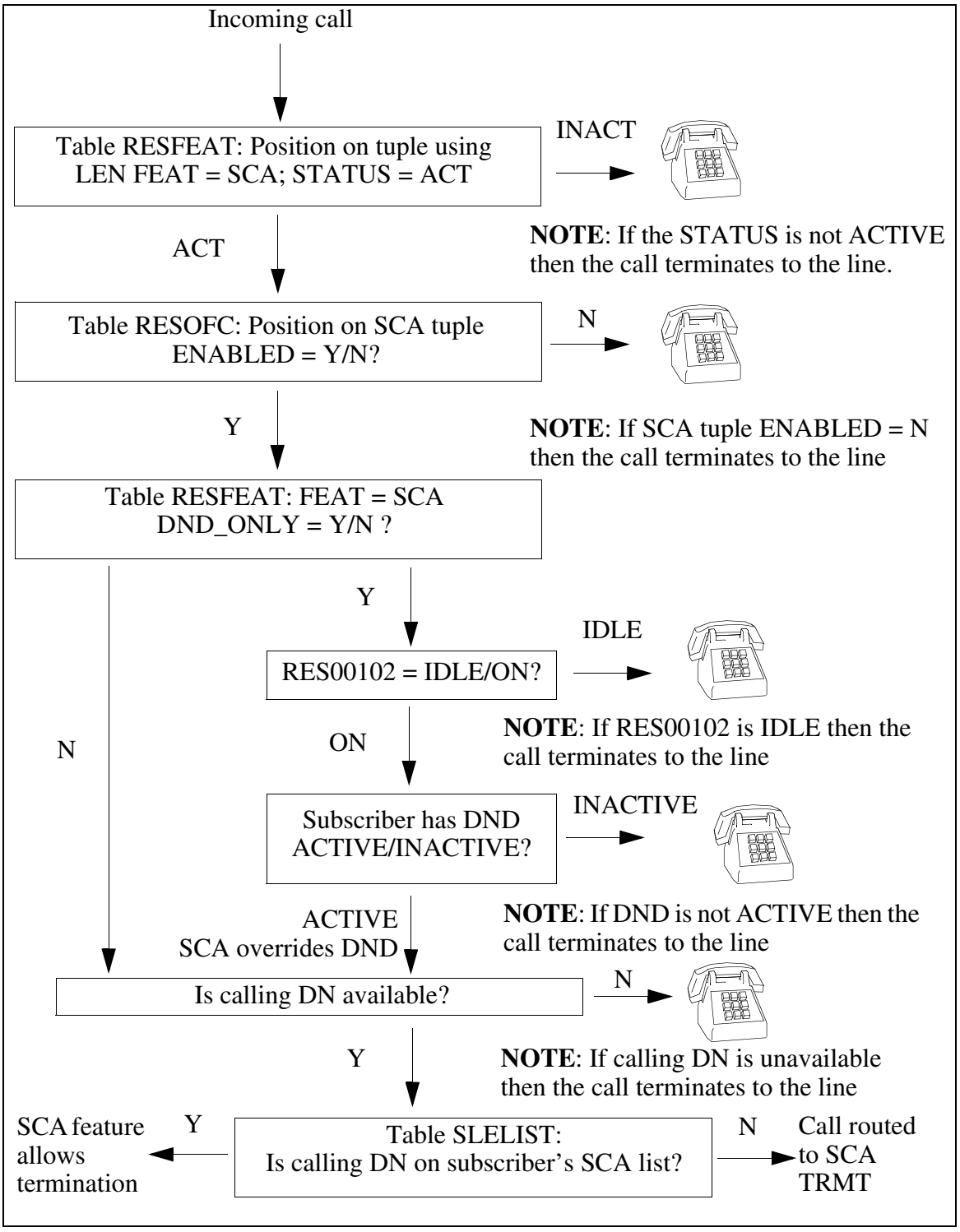
As described in the section 2.2.2, if DND is active on a subscriber's line and it also has subscribed to SCA with DND_ONLY set to "Y" and SCA is active, then callers on the SCA screening list will terminate to a line with DND active, whether DND was activated via Table DNDSCHED or by dialing the DNDACT (DND Activate) access code from Table IBNXLA.

If DND is assigned but not active on a line, and the line has SCA with DND_ONLY bool set to "Y" then SCA screening will not apply to any call termination attempt. Lines with SCA and the DND_Only bool set Y will only apply SCA screening when DND is active.

If the DND subscriber wishes to block all callers when DND is active, then the SCA feature enhancement can be turned off or not subscribed to, or DND_ONLY can be set to "N."

The following diagram shows the Enhanced DND call flow:

Enhanced DND Call Flow



Refer to TablePlease refer to " DND & SCA (DND_ONLY = Y) Provisioned (RES00102 SOC=ON)" on page 388. for a description of DND & SCA interactions provided by this activity.

Refer to TablePlease refer to " DND & SCA (DND_ONLY = Y) Provisioned (RES00102 SOC=IDLE)" on page 388. for a description of DND and SCA interactions as they existed prior to this activity. This funtionality will be preserved by this activity by setting the SCA DND_ONLY bool to "N" at provisioning time.

No new OMs or billing records are created as a result of this activity. AMA record generation will be not be impacted by Enhanced DND functionality.

Software Optionality Control

Enhanced DND functionality provided by this activity will be under SOC control. The SOC code is RES00102. If SOC is ON then the functionality will be provided:

- MDC & RES subscribers can dial the DNDACT and DNDDEACT access codes.
- MDC & RES SCA subscribers with DND_ONLY set to Y can dial the SCA access code.
- MDC & RES subscribers with DND active and SCA active with DND_ONLY bool set to Y receive Enhanced DND functionality.

If SOC is IDLE then the enhancements just described will not be provided, although datafill will be allowed.

Refer to the Configuration section (optcn) for further details.

If RES00102 is IDLE and the SCA option is added to a line with DND_ONLY set to Y, then DND_ONLY functionality will not be provided. In this scenario a message will be output to the servord user stating that functionality will not be provided until RES00102 is turned ON. An example is provided below:

Assigning DND_ONLY = Y when RES00102 is IDLE

```
>ADO $ 7234500
OPTION:
>SCA
BILLING_OPTION: NOAMA
>
STATUS:
>ACT
DNS:
>$
DND_ONLY: N
>Y
OPTION:
>$
COMMAND AS ENTERED:
ADO NOW 3 10 9 PM 7234500 ( SCA NOAMA INACT $ Y ) $
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
>Y
DND_ONLY functionality requires RES00102 to be turned ON
```

QSL changes

Query Screening List (QSL) command will not change as a result of this activity, but the display for SCA out will be changed to reflect the status of the new field DND_ONLY. A new line titled “Do Not Disturb Only” will be displayed and will show the status of DND_ONLY field. Refer to the optcn section for details.

Hardware Requirements or Dependencies

None

Software Requirements or Dependencies

RES00035: Selective Call Acceptance

Limitations and restrictions

Enhanced DND is not available on a pay-per-use (PPU) basis.

Existing limitations and restrictions regarding DND will remain unchanged as a result of this activity.

Existing limitations and restrictions regarding SCA will remain unchanged as a result of this activity.

Interactions

With this activity there is a new interaction between DND and SCA. The following tables summarizes these interactions:

Note: Enhanced DND subscriber is defined as a subscriber with DND and SCA with DND_ONLY = Y assigned.

DND & SCA (DND_ONLY = Y) Provisioned (RES00102 SOC=ON)

IF DND_ONLY = Y	THEN
DND Inactive SCA Inactive	All callers terminate to the Enhanced DND subscriber
DND Inactive SCA Active	All callers terminate to the Enhanced DND subscriber
DND Active SCA Active	Callers on SCA List terminate to the Enhanced DND subscriber Callers not on SCA List receive SCA treatment
DND Active SCA Inactive	No callers terminate to the Enhanced DND subscriber

DND & SCA (DND_ONLY = Y) Provisioned (RES00102 SOC=IDLE)

IF DND_ONLY = Y	THEN
DND Inactive SCA Inactive	All callers terminate to the Enhanced DND subscriber
DND Inactive SCA Active	All callers terminate to the Enhanced DND subscriber
DND Active SCA Active	No callers terminate to the Enhanced DND subscriber
DND Active SCA Inactive	No callers terminate to the Enhanced DND subscriber

DND & SCA (DND_ONLY = N) Provisioned (RES00102 SOC=IDLE or SOC=ON)

IF DND_ONLY = N	THEN
DND Inactive SCA Inactive	All callers terminate to DND/SCA subscriber

DND & SCA (DND_ONLY = N) Provisioned (RES00102 SOC=IDLE or SOC=ON)

IF DND_ONLY = N	THEN
DND Inactive SCA Active	Callers on SCA List terminate to DND/SCA subscriber Callers not on SCA List receive SCA treatment
DND Active SCA Active	Callers on SCA List pass SCA screening but are denied termination by DND Callers not on SCA List receive SCA treatment
DND Active SCA Inactive	Callers denied termination by DND

Note: Inactive assumes that the option is assigned but inactive.

Applicable customer facing sections

Fault Management

Logs	N/A
Alarms	N/A

Configuration

Data Schema	X
User Interface	N/A
Element Management	N/A
Security	N/A
Service Order	X
Office Parameters	N/A

Accounting (includes AMA billing)	N/A
Performance (includes operational measurements)	N/A

Indicate with an X if you are completing the sections of the DDOC listed below. Indicate with “N/A” if these sections do not apply to this functionality.

Realtime	N/A
Engineering Information	N/A

Glossary

Term	Description
DND	Do Not Disturb
QSL	Query Screen List
SCA	Selective Call Acceptance

Configuration for A00002196

Hardware and Software Requirements

All hardware and software installation complete and all commissioning activities successful.

Initial Configuration

N/A

Office/Subnet parameters (OP/SP) (CM & SESM)

N/A

Upgrade Impact

Dump and Restore

Lines with the SCA option appear in Table RESFEAT. During the ONP process SCA lines will be restored with the new field DND_ONLY set to its default value of “N.”

Lines with DND active as a result of dialing the DNDACT code in table IBNXLA will appear in Table DNDMSB with a status of DNDGA. This ensures that the DND status is preserved over an ONP.

Element Management Upgrade

N/A

Data schema (DS) (CM, MIBS, RDB)

New/modified tables, MIBs, or Database Schema

IBNXLA, RESFEAT

New or modified tables

Table/MIB name	NEW/CHANGED/ or DELETED/	Table Control (NEW/ OLD/UNCHANGED)
IBNXLA	Changed	Unchanged

New or modified tables

Table/MIB name	NEW/CHANGED/ or DELETED/	Table Control (NEW/ OLD/UNCHANGED)
RESFEAT	Changed	Unchanged

Table Schema information

Name: IBNXLA

IBN Translation

Functional description

Table IBNXLA specifies data for the translation of digits. These digits originate from both an IBN station and a RES station.

Usage sequence and implications (CM Only)

Tables must be datafilled in the following sequence:

Current datafill order unchanged.

Size

Unchanged

Table size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
IBNXLA	Unchanged	Unchanged	Unchanged

Fields/OIDs

The following table lists fields for Table IBNXLA.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
Key	Unchanged	XLANAME	Vector up to 8 Chars	Translator Name
Key	Unchanged	DGLIDX	Vector up to 18 digits	Digilator Index
Result	Unchanged	TRSEL	FEAT	Translator Selector
Result	Unchanged	ACR	Y/N	Account Code Entry
Result	Unchanged	SMDR	Y/N	Station Message Detail Recording
Result	New	FEATURE	DNDACT	DND Activation

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
Result	New	FEATURE	DNDDEACT	DND Deactivation

Datafill example

The following example shows sample datafill for table IBNXLA.

Table IBNXLA example datafill

```
TABLE: IBNXLA

          KEY                    RESULT
-------------------------------------------------
RXCFN  77     FEAT  N  N  DNDACT
RXCFN  78     FEAT  N  N  DNDDEACT
```

Table release history update

DNDACT (DND Activation) and DNDDEACT (DND Deactivation) added as new FEATURE options (type IBN_LOG_FEATURE).

Supplementary information

A subscriber dials the DNDACT feature access code to activate Do Not Disturb and the DNDDEACT feature access code to deactivate Do Not Disturb.

Translation verification

The following example shows the output from Traver when it is used to verify Table IBNXLA datafill.

DND Activation Traver

DND Activation:

```
>TRAVER L 6210040 B77 B
TABLE IBNLINES
HOST 00 0 00 21 0 DP STN RES 6210040 0 613_P621_0
L613_LATA1_0 613 (DND) $
TABLE LINEATTR
0 1FR NONE NT 0 10 NILSFC 0 NIL NIL 00 613_P621_0
L613_LATA1_0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
613_P621_0 FR01 613 P621 TSPS Y RESGRP 0 2 $ $
TABLE RATEAREA
L613_LATA1_0 L613 NIL LATA1 $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE NCOS
RESGRP 2 0 0 RNCOS2 ( XLAS RXCMN2 NXLA RES)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA,
FEATXLA, VACTRMT, AND DIGCOL
RESGRP NXLA RESXLA RXCFN 0 RES
TABLE DIGCOL
RES specified: RES digit collection
NCOS FEAT XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME RXCFN
RXCFN 77 FEAT N N DNDACT
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++

Feature  DNDACT   not supported by TRAVER

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

DND Deactivation Traver

DND Deactivation:

```
>TRAVER L 6210040 B78 B
TABLE IBNLINES
HOST 00 0 00 21 0 DP STN RES 6210040 0 613_P621_0
L613_LATA1_0 613 (DND) $
TABLE LINEATTR
0 1FR NONE NT 0 10 NILSFC 0 NIL NIL 00 613_P621_0
L613_LATA1_0 $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
613_P621_0 FR01 613 P621 TSPS Y RESGRP 0 2 $ $
TABLE RATEAREA
L613_LATA1_0 L613 NIL LATA1 $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE NCOS
RESGRP 2 0 0 RNCOS2 ( XLAS RXCMN2 NXLA RES)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA,
FEATXLA, VACTRMT, AND DIGCOL
RESGRP NXLA RESXLA RXCFN 0 RES
TABLE DIGCOL
RES specified: RES digit collection
NCOS FEAT XLA name is NIL. Go to next XLA name.
TABLE IBNXLA: XLANAME RXCFN
RXCFN 78 FEAT N N DNDDEACT
AIN Info Collected TDP: no subscribed trigger.
TABLE TRIGGRP
Trigger AIN LNP is applicable to office.
AIN Info Analyzed TDP: trigger criteria not met.

+++ TRAVER: SUCCESSFUL CALL TRACE +++

Feature  DNDDEACT   not supported by TRAVER

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

Name: RESFEAT

RESidential line FEATures

Functional description

Table RESFEAT contains the assignment of custom local area signaling services (CLASS) for residential lines.

Usage sequence and implications (CM Only)

Tables must be datafilled in the following sequence:

Current datafill order unchanged.

Size

Unchanged

Table size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
RESFEAT	Unchanged	Unchanged	Unchanged

Fields/OIDs

The following table lists fields for Table RESFEAT .

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
LINE	Unchanged	N/A	EXT_LEN	Line Equipment Number
KEY	Unchanged	N/A	RESFEAT_ KEY_RANGE	0 to 76
FEAT	Unchanged	N/A	SCA	Selective Call Acceptance feature
VAR	Unchanged	DF Subfield	SCA	SCA Data Feature
VAR	Unchanged	AMA Subfield	{AMA, NOAMA}	Automatic Message Accounting
VAR	Unchanged	STATUS Subfield	{INACT, ACT, UNIVI, UNIVA}	Status
DND_ONLY	**NEW**	DF Refinement (DF=SCA)	**{Y, N}**	**Y** if SCA applies only when DND is active **N** for standard SCA

Datafill example

The following example shows sample datafill for table RESFEAT.

Table RESFEAT example datafill

```
TABLE: RESFEAT

            LINE     KEY     FEAT
                                                    VAR
-----------------------------------------------------------------
HOST 00 1 08 05          0      SCA
                                SCA NOAMA ACT Y
```

Table release history update

DND_ONLY field added to SCA data feature.

Supplementary information

None

Translation verification

Table RESFEAT is not included in TRAVER output.

Service Orders (SO) (CM & SESM)

This activity does not introduce a new LCC, a new option, or change any existing compatibilities. It does introduce a new field for the SCA option.

Service order change details

A new field DND_ONLY is added to the existing SCA (Selective Call Acceptance) option. Its default value is “N.” When DND_ONLY is set to “Y” then this instance of SCA only applies if DND is active. If DND is not active, then SCA screening does not apply to any incoming calls.

LCC and options

Unchanged

Meridian digital centrex feature assignment requirements

Feature	500/2500	MDC SET	ISDN SET
DND	Y	Y	Y
SCA	Y	Y	Y

New commands

None

New Fields

How service order options are presented

Description

A new field will be added to the SCA feature. The new field is DND_ONLY (Y/N). When DND_ONLY is set to "Y" it indicates that this instance of SCA should only apply when DND is active on the line. If DND is not active, then this instance of SCA will not screen any incoming calls. If DND_ONLY is set to "N" then the interaction documented prior to this activity between DND & SCA applies.

ADO Example

The following example shows the SCA option added to a line. The field DND_ONLY is set to Y (Note its default value is N).

Example of the SCA option in prompt mode

```
>ADO $
DN_OR_LEN:
>6210040
OPTION:
>SCA
BILLING_OPTION: NOAMA
>NOAMA
STATUS:
>ACT
DNS:
>6136210042
VBCOUNT:
>7
DNS:
>$
DND_ONLY: N
>Y
OPTION:
>$
```

Example of the ADO option in no-prompt mode

```
ADO $ 6210040 SCA NOAMA ACT 6136210042 7 $ Y $
```

Option prompts

System prompts for <abbreviated option name> option

Prompt	Valid input	Description	Areas affected by prompt
ADO	N/A	Add Option	Servord Command
DN_OR_LEN:	A DN or a LEN	Enter the DN or LEN	DN or LEN prompt
OPTION	SCA	Selective Call Acceptance	Option Prompt
BILLING_OPTION	NOAMA or AMA	AMA Status	SCA suboption prompt (Existing)
STATUS	INACT, ACT, UNIVI, UNIVA	Activity Status	SCA suboption prompt (Existing)
DNS	TEN DIGIT DN	The DN to add to the SCA list	SCA suboption prompt (Existing)
VBCOUNT	0 TO 10	Ten Digit Count	SCA suboption prompt (Existing)
DND_ONLY	Y/N	Enter Y if this instance of SCA applies only when DND is active. Enter N for standard SCA.	SCA suboption prompt (NEW)

CHF Example

The following examples show the SCA feature being changed via the CHF command and the new field DND_ONLY bool defaults to N.

Example of the SCA option in prompt mode

```
>CHF $
DN_OR_LEN:
>6210040
OPTION:
>SCA
BILLING_OPTION: NOAMA
>NOAMA
STATUS:
>ACT
DND_ONLY: N
>Y
OPTION:
>$
```

Example of the ADO option in no-prompt mode

```
CHF $ 6210040 SCA NOAMA ACT Y $
```

Option prompts

System prompts for <abbreviated option name> option

Prompt	Valid input	Description	Areas affected by prompt
CHF	N/A	Change Feature	Servord Command
DN_OR_LEN:	A DN or a LEN	Enter the DN or LEN	DN or LEN prompt
OPTION	SCA	Selective Call Acceptance	Option Prompt
BILLING_OPTION	NOAMA or AMA	AMA Status	SCA suboption prompt (Existing)
STATUS	INACT, ACT, UNIVI, UNIVA	Activity Status	SCA suboption prompt (Existing)

System prompts for <abbreviated option name> option

Prompt	Valid input	Description	Areas affected by prompt
DND_ONLY	Y/N	Enter Y if this instance of SCA applies only when DND is active. Enter N for standard SCA.	SCA suboption prompt (NEW)

Line class code compatibility

Line class code compatibility does not change with this activity.

<abbreviated option name> compatibility to LCC

Line class code	Compatible?
RES	Yes
IBN	Yes
PSET	Yes
M5008	Yes
M5009	Yes
M5112	Yes
M5208	Yes
M5209	Yes
M5212	Yes
M5216	Yes
M5312	Yes
M5316	Yes
M6310	Yes
M6320	Yes
ISDNKSET	Yes

Assignability

Unchanged.

Option prerequisites

Unchanged

Notes
None

Feature identification
Functionality: <functional group>

Feature number: <feature number>

SERVORD+ Exceptions

Software optionality control (SOC)

SOC

SOC option name:	Enh Do Not Disturb
SOC option title:	No
SOC option control type:	state
New SOC option?	Yes
SOC option order code	RES00102
Option defined in DRU:	CCM
Affected products:	NA100

Element Management

New/modified GUIs

None

Command interface changes

Directory: N/A

Command: QSL

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

Query Screen List is available from the CI prompt by typing “QSL” and provides the screening lists associated with a line. Command input is not changing as a result of this activity, but the output will be changed to reflect when SCA DND_ONLY is applicable.

Command syntax

<CommandName> command parameters and variables

Command	Parameters and variables	Description
QSL	DN_OR LEN	7- TO 10-DIGIT DN or LEN
	OPTKEY	1 to 76
	FEATURE	SLE feature name SCA, SCF, or SCRJ , or ALL
	FORMAT	F (Full) or H (Hex)

Qualifications and warnings

None

Responses

<response>

MAP outputs with associated meanings and actions

Command: QSL 6210040 SCA F
<RESPONSE>: ---------- DN: 6136210040 LEN: HOST 00 0 00 21   SCA feature is ACTIVE and will not generate AMA records. Do Not Disturb Only: Yes. Contents of SCA list are: 6136210042 ---------- **Meaning:** 6136210042 is on 6136210040 SCA screening list. The output Do Not Disturb Only indicates the value of the SCA field DND_ONLY. In this example the field DND_ONLY is set to Y. When DND_ONLY is Y then SCA screening applies when DND (Do Not Disturb) is active (provided SCA is active & RES00102 is ON). If DND is active, then caller(s) on the SCA screening list (in this example, 6136210042) will bypass DND and terminate. Callers not on the SCA screening list will receive SCA treatment. If DND is not active, then all callers terminate without going through SCA screening as this iteration of SCA (DND_ONLY = Y) only applies screening when DND is active. **System or user actions:** None.

MAP outputs with associated meanings and actions

Command: QSL 6210040 SCA F
<RESPONSE>: ---------- DN: 6136210042 LEN: HOST 00 0 00 21   SCA feature is ACTIVE and will not generate AMA records. Do Not Disturb Only: No. Contents of SCA list are: 6136210040 ---------- **Meaning:** 6136210040 is on 6136210042 SCA screening list. The output Do Not Disturb Only indicates the value of the SCA field DND_ONLY. In this example the field DND_ONLY is set to N. When DND_ONLY is N then SCA screening applies to all incoming calls (provided SCA is active) . If DND is active, then caller(s) on the SCA screening list (in this example, 6136210042) will receive DND treatment and not terminate. Callers not on the SCA screening list will receive SCA treatment. If DND is not active or not provisioned, then callers on the SCA screening list will terminate and callers not on the SCA screening list will receive SCA treatment. **System or user actions:** None

Security

None

Configuration Walkthrough

NA

Product = CS 2000

A00002281 -- AMAPRT Expansion (Succession on DMS)

Functional Description

Table STDPRTCT, subtable AMAPRT, is a table that allows customers to add AMA specific options that are triggered by translations. The present limit of

8191 tuples in table AMAPRT limits the customer's ability to assign AMA options based on translations. This feature will expand the maximum value of this table to allow for 32000 entries, thus allowing the customer to datafill many more AMA options.

Hardware Requirements or Dependencies

N/A

Software Requirements or Dependencies

N/A

Limitations and restrictions

N/A

Interactions

N/A

Applicable customer facing sections

Fault Management

- Logs ___
- Alarms ___

Configuration

- Data Schema __N/A_
- User Interface ___
- Element Management ___
- Security ___
- Service Order ___
- Office Parameters ___

Accounting (includes AMA billing) ___

Performance (includes operational measurements) ___

Realtime ___

Engineering Information _X__

Product = CS 2000

A00002340 -- Add Extension Registers for CDR OMS (Succession on DMS)

Functional Description

Two new OM groups FCDRTM1E and FCDRTM2E will be provided for the overflows from the groups FCDRTMP1 and FCDRTMP2. One new group FCDRALG2 will provided for the overflow from the group FCDRALGR.

The OM groups FCDRTMP1 and FCDRTMP2 each contains 32 registers to peg the usage of up to 32 different CDR templates. The OM group FCDRALGR contains eight registers to count the method used to choose the CDR template. The maximum size of a register is 65535 or #FFFF. The maximum size is controlled by the OM sub-system. With the addition of an extension register, every rollover will be pegged This allows up to a maximum value of 4,294,901,760 before the extension register overflows. This value is calculated by (65535 * 65535) + 65535.

The OM subsystem limits the maximum registers per OM group at 32 so new OM extension groups must be defined for the FCDRTMP1 and RFCDRTMP2 groups.

The new extension functionality will be implemented under SOC control. This will allow for controlled customer implementation and also provide the ability to disable the new extension if required.

The following displays the current OM group FCDRTMP1 along with the new OM extension group FCDRTM1E. The group FCDRTMP2 will be expanded in the same fashion for templates 32-63 using the new group FCDRTM2E.

The FCDRALGR group will have its extension registers in the new group FCDRALG2 as shown in the following example.

```
FCDRTMP1

CLASS: HOLDING
START:2003/04/04 09:35:00 FRI; STOP: 2003/04/04 09:40:00 FRI;
SLOWSAMPLES:          3 ; FASTSAMPLES:          30 ;

          TMPLT_0    TMPLT_1    TMPLT_2    TMPLT_3
          TMPLT_4    TMPLT_5    TMPLT_6    TMPLT_7
          TMPLT_8    TMPLT_9   TMPLT_10   TMPLT_11
         TMPLT_12   TMPLT_13   TMPLT_14   TMPLT_15
         TMPLT_16   TMPLT_17   TMPLT_18   TMPLT_19
         TMPLT_20   TMPLT_21   TMPLT_22   TMPLT_23
         TMPLT_24   TMPLT_25   TMPLT_26   TMPLT_27
```

```
          TMPLT_28    TMPLT_29    TMPLT_30    TMPLT_31

    0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0


FCDRTM1E

CLASS: HOLDING
START:2003/04/04 09:35:00 FRI; STOP: 2003/04/04 09:40:00 FRI;
SLOWSAMPLES:          3 ; FASTSAMPLES:          30 ;

           TMPLT_0     TMPLT_1     TMPLT_2     TMPLT_3
           TMPLT_4     TMPLT_5     TMPLT_6     TMPLT_7
           TMPLT_8     TMPLT_9    TMPLT_10    TMPLT_11
          TMPLT_12    TMPLT_13    TMPLT_14    TMPLT_15
          TMPLT_16    TMPLT_17    TMPLT_18    TMPLT_19
          TMPLT_20    TMPLT_21    TMPLT_22    TMPLT_23
          TMPLT_24    TMPLT_25    TMPLT_26    TMPLT_27
          TMPLT_28    TMPLT_29    TMPLT_30    TMPLT_31

    0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0


FCDRTMP2

CLASS: ACTIVE
START:2003/04/24 13:00:00 THU; STOP: 2003/04/24 13:08:17 THU;
SLOWSAMPLES:          5 ; FASTSAMPLES:          50 ;

          TMPLT_32    TMPLT_33    TMPLT_34    TMPLT_35
          TMPLT_36    TMPLT_37    TMPLT_38    TMPLT_39
          TMPLT_40    TMPLT_41    TMPLT_42    TMPLT_43
          TMPLT_44    TMPLT_45    TMPLT_46    TMPLT_47
          TMPLT_48    TMPLT_49    TMPLT_50    TMPLT_51
          TMPLT_52    TMPLT_53    TMPLT_54    TMPLT_55
          TMPLT_56    TMPLT_57    TMPLT_58    TMPLT_59
          TMPLT_60    TMPLT_61    TMPLT_62    TMPLT_63

    0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0
```

```
                0          0          0          0
                0          0          0          0
                0          0          0          0
                0          0          0          0


FCDRTM2E

CLASS: ACTIVE
START:2003/04/24 13:00:00 THU; STOP: 2003/04/24 13:08:17 THU;
SLOWSAMPLES:          5 ; FASTSAMPLES:          50 ;

         TMPLT_32   TMPLT_33   TMPLT_34   TMPLT_35
         TMPLT_36   TMPLT_37   TMPLT_38   TMPLT_39
         TMPLT_40   TMPLT_41   TMPLT_42   TMPLT_43
         TMPLT_44   TMPLT_45   TMPLT_46   TMPLT_47
         TMPLT_48   TMPLT_49   TMPLT_50   TMPLT_51
         TMPLT_52   TMPLT_53   TMPLT_54   TMPLT_55
         TMPLT_56   TMPLT_57   TMPLT_58   TMPLT_59
         TMPLT_60   TMPLT_61   TMPLT_62   TMPLT_63

    0
                0          0          0          0
                0          0          0          0
                0          0          0          0
                0          0          0          0
                0          0          0          0
                0          0          0          0
                0          0          0          0
                0          0          0          0


FCDRALGR

CLASS: ACTIVE
START:2003/09/18 03:45:05 THU; STOP: 2003/09/18 03:54:45 THU;
SLOWSAMPLES:          1 ; FASTSAMPLES:          3 ;

         INTERNAL   CALLTYPE    SUBRNUM        TRK
             TCAP      FIXED    BESTFIT    RTEATTR

    0
                0          0          0          0
                0          0          0          0

FCDRALG2

CLASS: ACTIVE
START:2003/09/18 03:45:05 THU; STOP: 2003/09/18 03:54:45 THU;
SLOWSAMPLES:          1 ; FASTSAMPLES:          3 ;

         INTERNAL   CALLTYPE    SUBRNUM        TRK
             TCAP      FIXED    BESTFIT    RTEATTR

    0
                0          0          0          0
                0          0          0          0
```

Hardware Requirements or Dependencies

None.

Software Requirements or Dependencies

The capabilities will be under SOC control.

This activity only impacts offices using the UCS software layer.

Limitations and restrictions

None

Interactions

The existing OM groups will not be changed. The new groups will contain only new registers. The new OM groups are:

- FCDRTM1E
- FCDRTM2E
- FCDRALG2

Applicable customer facing sections

Fault Management

Logs	__N/A____
Alarms	__N/A____

Configuration

Data Schema	__N/A____
User Interface	__N/A____
Element Management	__N/A____
Security	__N/A____
Service Order	__N/A____
Office Parameters	__N/A____

Accounting (includes AMA billing)	__N/A____
Performance (includes operational measurements)	___X___

Fault Management for A00002340

Performance management strategy

This feature provides the new OM groups FCDRTM1E, FCDRTM2E and FCDRALG2.

Performance management tools and utilities

None

Performance Measurements (PM), Operational Measurements (OM), and stats

PM, OM, and stats format

N/A

OM Group FCDRTM1E (applies only to DMS)

OM description

OM Group FCDRTM1E

The group FCDRTM1E is only pegged when the UBFR0008 SOC is ON.

This group is used for register overflows from the OM group FCDRTMP1.

Release history update

The OM group is being provided new in the UCS20 release.

Registers

OM group registers display on the MAP terminal as follows:

```
FCDRTM1E

CLASS: HOLDING
START:2003/04/04 09:35:00 FRI; STOP: 2003/04/04 09:40:00 FRI;
SLOWSAMPLES:          3 ; FASTSAMPLES:          30 ;

           TMPLT_0     TMPLT_1     TMPLT_2     TMPLT_3
           TMPLT_4     TMPLT_5     TMPLT_6     TMPLT_7
           TMPLT_8     TMPLT_9    TMPLT_10    TMPLT_11
          TMPLT_12    TMPLT_13    TMPLT_14    TMPLT_15
          TMPLT_16    TMPLT_17    TMPLT_18    TMPLT_19
          TMPLT_20    TMPLT_21    TMPLT_22    TMPLT_23
          TMPLT_24    TMPLT_25    TMPLT_26    TMPLT_27
          TMPLT_28    TMPLT_29    TMPLT_30    TMPLT_31

    0
                0           0           0           0
```

0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

Group structure

This OM group provides 32 pre-defined tuples.

Associated OM groups

This OM group is used as register overflows for the OM group FCDRTMP1.

Associated functional groups

None

OM group registers logic flow chart

Refer to the comments in the Associated Register section.

Register (applies only to DMS)

TMPLT_0 through TMPLT_31

Register description

Each register is associated with the CDR template being used for a CDR billing record. The CDR template index corresponds to the register number. The index number of a CDR template may be viewed from the MAP under the CI CTMPLT. The “TEMPLATE ALL” command will list out the indexes.

The data range for these registers is a decimal value of 0-65535.

This OM group supports indexes 0-31.

Example: CDR template UCS13 is index 9. The related OM register will be TMPLT_9.

```
>ctmplt
>template all
The list of indices and defined templates is as follows:
 0 : CDR2AMA
 1 : CDR2AMA2
 2 : CDR2AMA3
 3 : RESERVED03
 4 : RESERVED04
 5 : AMAREC
 6 : UCS09
 7 : UCS11
 8 : UCS12
 9 : UCS13
```

Register release history update

All the registers in this group are new in the UCS20 release.

Associated registers

Each register is this OM group is related to a register in group FCDRTMP1. When the register in group FCDRTMP1 reaches 65535, the associated extension register in group FCDRTM1E will be incremented. If the SOC is IDLE, the FCDRTM1E register will not be pegged. In either case, the register in group FCDRTMP1 will wrap to 0 when it overflows.

Example:

Group FCDRTMP1; Register TMPLT_9
Group FCDRTM1E; Register TMPLT_9

A FCDRTM1E register in is pegged once for every FCDRTMP1 register overflow. A value of 1 in the FCDRTM1E overflow register indicates 65535 pegs. A value of 1 in the FCDRTMP1 register indicates one peg.

Once the FCDRTM1E overflow register is pegged, the register in FCDRTMP1 will reset to 0 and resume pegging.

Associated logs

None

OM Group FCDRTM2E (applies only to DMS)

OM description

OM Group FCDRTM2E

The group FCDRTM2E is only pegged when the UBFR0008 SOC is ON.

This group is used for register overflows from the OM group FCDRTMP2.

Release history update

The OM group is being provided new in the UCS20 release.

Registers

OM group registers display on the MAP terminal as follows:

```
FCDRTM2E

CLASS: ACTIVE
START:2003/04/24 13:00:00 THU; STOP: 2003/04/24 13:08:17 THU;
SLOWSAMPLES:          5 ; FASTSAMPLES:          50 ;

          TMPLT_32    TMPLT_33    TMPLT_34    TMPLT_35
```

```
          TMPLT_36    TMPLT_37    TMPLT_38    TMPLT_39
          TMPLT_40    TMPLT_41    TMPLT_42    TMPLT_43
          TMPLT_44    TMPLT_45    TMPLT_46    TMPLT_47
          TMPLT_48    TMPLT_49    TMPLT_50    TMPLT_51
          TMPLT_52    TMPLT_53    TMPLT_54    TMPLT_55
          TMPLT_56    TMPLT_57    TMPLT_58    TMPLT_59
          TMPLT_60    TMPLT_61    TMPLT_62    TMPLT_63

    0
                  0           0           0           0
                  0           0           0           0
                  0           0           0           0
                  0           0           0           0
                  0           0           0           0
                  0           0           0           0
                  0           0           0           0
                  0           0           0           0
```

Group structure

This OM group provides 32 pre-defined tuples.

Associated OM groups

This OM group is used as register overflows for the OM group FCDRTMP2.

Associated functional groups

None

OM group registers logic flow chart

Refer to the comments in the Associated Register section.

Register (applies only to DMS)

TMPLT-32 through TMPLT_63

Register description

Each register is associated with the CDR template being used for a CDR billing record. The CDR template index corresponds to the register number. The index number of a CDR template may be viewed from the MAP under the CI CTMPLT. The “TEMPLATE ALL” command will list out the indexes.

The data range for these registers is a decimal value of 0-65535.

This OM group supports indexes 32-63.

Example: CDR template UCS13 is index 9. The related OM register will be TMPLT_9.

```
>ctmplt
>template all
The list of indices and defined templates is as follows:
 0 : CDR2AMA
 1 : CDR2AMA2
```

```
2 : CDR2AMA3
3 : RESERVED03
4 : RESERVED04
5 : AMAREC
6 : UCS09
7 : UCS11
8 : UCS12
9 : UCS13
```

Register release history update

All the registers in this group are new in the UCS20 release.

Associated registers

Each register is this OM group is related to a register in group FCDRTMP2. When the register in group FCDRTMP2 reaches 65535, the associated extension register in group FCDRTM2E will be incremented. If the SOC is IDLE, the FCDRTM2E register will not be pegged. In either case, the register in group FCDRTMP2 will wrap to 0 when it overflows.

Example:

Group FCDRTMP2; Register TMPLT_21
Group FCDRTM2E; Register TMPLT_21

A FCDRTM2E register in is pegged once for every FCDRTMP2 register overflow. A value of 1 in the FCDRTM2E overflow register indicates 65535 pegs. A value of 1 in the FCDRTMP2 register indicates one peg.

Once the FCDRTM2E overflow register is pegged, the register in FCDRTMP2 will reset to 0 and resume pegging.

Associated logs

None

OM Group FCDRALG2 (applies only to DMS)

OM description

OM Group FCDRALG2

The group FCDRALG2 is only pegged when the UBFR0008 SOC is ON.

This group is used for register overflows from the OM group FCDRALGR.

Release history update

The OM group is being provided new in the UCS20 release.

Registers

OM group registers display on the MAP terminal as follows:

```
FCDRALG2

CLASS: ACTIVE
START:2003/09/18 03:45:05 THU; STOP: 2003/09/18 03:54:45 THU;
SLOWSAMPLES:          1 ; FASTSAMPLES:          3 ;

          INTERNAL    CALLTYPE     SUBRNUM         TRK
              TCAP       FIXED     BESTFIT     RTEATTR

    0
                 0           0           0           0
                 0           0           0           0
```

Group structure

This OM group provides 8 pre-defined tuples.

Associated OM groups

This OM group is used as register overflows for the OM group FCDRALGR.

Associated functional groups

None

OM group registers logic flow chart

Refer to the comments in the Associated Register section.

Register (applies only to DMS)

INTERNAL
CALLTYPE
SUBRNUM
TRK
TCAP
FIXED
BESTFIT
RTEATTR

Register description

These registers have the same description as those in the group FCDRALGR. The only difference is that these are extension registers. This means that one count here is equal to 65535 counts of the same register in FCDRALGR. They keep track of the number of times the register in group FCDRALGR have overflowed.

Register release history update

All the registers in this group are new in the UCS20 release.

Associated registers

Each register is this OM group is related to a register in group FCDRALGR. When the register in group FCDRALGR reaches 65535, the associated extension register in group FCDRALG2 will be incremented. If the SOC is IDLE, the FCDRALG2 register will not be pegged. In either case, the register in group FCDRALGR will wrap to 0 when it overflows.

Example:

Group FCDRALGR; Register FIXED
Group FCDRALG2; Register FIXED

A FCDRALG2 register in is pegged once for every FCDRALGR register overflow. A value of 1 in the FCDRALG2 overflow register indicates 65535 pegs. A value of 1 in the FCDRALGR register indicates one peg.

Once the FCDRALG2 overflow register is pegged, the register in FCDRALGR will reset to 0 and resume pegging.

Associated logs

None

Software Optionality Control

This feature creates new SOC UBFR0008 as follows.

SOC details

SOC option name:	UCS CDR OM Expansion
SOC option title:	UCS CDR OM Expansion
SOC option control type:	state
New SOC option?	Yes
SOC option order code	UBFR0008
Option defined in DRU:	UCS
Affected products:	SN07

Product = CS 2000

A00002431 -- LX82BA capacity delivery (Succession on DMS)

Functional Description

This activity provides a mechanism for NORTEL to provide incremental call processing capacity for the NTLX82BA CEM card to its DMSCP SPM customers. The various levels of capacities for DMSCP class of SPMs are

1. Standard capacity - Call processing capacity equal to that of the NTLX82AA CEM card.
2. Enhanced capacity - Call processing capacity approximately equal to that of 2 times that of the NTLX82AA.
3. Premium capacity - Call processing capacity approximately equal to that of 3 times that of the NTLX82AA.

For Non-DMSCP class of SPMs, only two levels of capacities, Standard and Premium are provided based on the CEM PEC (NTLX82BA) that are datafilled in table MNCKTPAK. If both the CEMs are datafilled with NTLX82BA PEC, then the capacity is Premium else the capacity is Standard.

Currently, NTLX82BA CEMs running CST and CEM loads (DMSCP SPM) have their CALLP capacity reduced to that of the NTLX82AA whereas NTLX82BA CEMs running IWS (IW SPM) or MG4 (MG4K SPM) load have their CALLP capacity equivalent to that of NTLX82BA.

DMSCP class of SPMs:

This activity provides the ability to control the call processing capacity at the node level for DMSCP class of SPMs provisioned with NTLX82BA cards, using core SOC options. The customer can provision the desired capacity in table MNNODE if appropriate SOC keys are available.

The various functionalities provided as part of this activity are:

- Two usage SOCs, one for Enhanced and the other for Premium capacity.
- Table control changes in table MNNODE and table MNCKTPAK.
- New CI tool to display the capacity provisioned on the SPMs present in the office

Two Usage SOCs to provide Enhanced and Premium Capacity

Two new USAGE SOCs are created under the existing SPMS group for DMSCP class of SPMs. The SOC option SPMS0020 corresponds to the SPMs with Enhanced capacity and the SOC option SPMS0028 corresponds to the SPMs with Premium capacity. When the SOC keys are not available, the limit and the usage are zero and no DMSCP class of SPMs are capable of running at Enhanced or Premium capacity. Refer to the following figure for the format of the two SOCs. Both the SOC options have hard usage limit. RTU is ‘Y’ for usage limit >0 and RTU is ‘N’ for usage limit = 0. For each value of the hard limit a separate SOC key is available for the customer. The threshold value for these SOC options are set to 100%.

The hard limit value of SPMS0020 denotes the maximum number of DMSCP class of SPMs in the office that can be provisioned with Enhanced capacity and the hard limit value of SPMS0028 denotes the maximum number of DMSCP class of SPMs in the office that can be provisioned with Premium capacity.

The value of the USAGE of SPMS0020 and SPMS0028 denotes the number of DMSCP class of SPMs currently running with the Enhanced and Premium capacity respectively from Core's perspective.

Please refer to section" Software optionality control (SOC)" for more details on the Usage SOCs.

SPMS group options as listed in SOC framework

```
>select option SPMS0020 verbose

GROUP:SPMS
OPTION    NAME                  RTU STATE   USAGE   LIMIT    UNITS  LAST_CHG
------    ----                  --- -----   -----   -----    -----  --------
SPMS0020  Enhanced Call cap       Y     -       0       0      1SM  03/06/13
          replaces options:       NONE
          threshold:     100%     high water mark:       0

          FEATURE   STATE  USAGE     UNITS
          -------   -----  -----     -----
          00002431      -  0            1SM
             NAME:  SPMS Enhanced Call cap

>select option SPMS0028 verbose

GROUP:SPMS
OPTION    NAME                  RTU STATE   USAGE   LIMIT    UNITS  LAST_CHG
------    ----                  --- -----   -----   -----    -----  --------
SPMS0028  Premium Call cap        Y     -       0       0      1SM  03/06/13
          replaces options:       NONE
          threshold:     100%     high water mark:       0

          FEATURE   STATE  USAGE     UNITS
          -------   -----  -----     -----
          00002432      -  0            1SM
             NAME:  SPMS Premium Call cap
```

Note: SOC option SPMS0028 uses the feature id 00002432.

Table control support to provision the desired capacity in table MNNODE

For DMSCP class of SPMs, table control changes are made to provision the desired capacity per node in table MNNODE. A new field 'capindx' is added in table MNNODE, only for DMSCP class of SPMs to provision this capacity. This new field can take the values 'Standard', 'Enhanced' or 'Premium', 'Standard' being the default value.

During an ONP from an earlier release where the capindx field is not present to a release where the capindx field is introduced in table MNNODE, this field is set to 'Standard'. For using 'Enhanced' or 'Premium' values during tuple

addition, the respective SOC options must have its RTU set to Y and Usage count must be less than its Limit. Also for using ‘Enhanced’ capacity, number of DMSCP SPMs provisioned with Enhanced capacity must be less than the limit of SPMS0020 SOC option and for using ‘Premium’ capacity, number of DMSCP SPMs provisioned with Premium capacity must be less than the limit of SPMS0028 SOC option.

SOC 504 is an existing log that gets generated when the RTU is set for any SOC option.

While changing the capindx field to ‘Enhanced’ or ‘Premium’ values, the PEC codes of the CEM units provisioned in table MNCKTPAK for this node are also verified for NTLX82BA, in addition to the SOC check. If all the check passes, the appropriate SOC usage value is incremented. For capindx field changes from ‘Enhanced’ or ‘Premium’ values to ‘Standard’, appropriate SOC usage counts are decremented only if both the CEM tuples are present in table MNCKTPAK. Tuple change without any change to the ‘capindx’ field is not validated. For tuple deletion, there are no restrictions enforced on this field.

In table MNCKTPAK, the CEM tuples of DMSCP variant of SPM are allowed to be provisioned only with the PECs - NTLX82AA, NTLX82AB and NTLX82BA. The provisioning of the PEC is dependent on the capindx field present in table MNNODE. Incase the capindx in table MNNODE is ‘Standard’, the PEC shall be allowed to be datafilled as NTLX82AA, NTLX82AB or NTLX82BA. In case of ‘Enhanced’ or ‘Premium’ capindx, the PEC must be datafilled as NTLX82BA.

The provisioned capacity in table MNNODE, is downloaded to the local using DDM framework. Local throttles the callp capacity based on the capacity index downloaded.

Please refer to section“ Data schema (DS) (CM)” for more details on the error, warning and success messages introduced by this activity during table control operations in table MNNODE and table MNCKTPAK.

CI tool to display capacity information

A new CI tool, SPMCPCAP, is introduced to display the capacity information of SPM. This tool enables to list the SPM and their capacities based on the variant type or list the SPMs based on the capacities. There is also a provision to find out capacity for a given SPM number. Remarks field in this tool displays if CEM(s) are not datafilled in table MNCKTPAK.

Please refer to section“ Command interface changes” for more details on the CI tool.

Non-DMSCP class of SPMs

Table MNNODE is not modified for Non-DMSCP class of SPMs. Also in table MNCKTPAK no validations for CEM PEC are introduced by this activity.

The CI tool, SPMCPCAP, is used to display the capacity information of Non-DMSCP class of SPMs also. Only two capacities, ‘Standard’ and ‘Premium’ are displayed in this case. For Non-DMSCP variants, MG4K and IW, the capacity information is derived based on the table MNCKTPAK datafill. If both the CEM are datafilled with NTLX82BA PEC cards, then capacity is set to ‘Premium’. For other combinations of PEC cards, the capacity is set to ‘Standard’. Remarks field in this tool displays if CEM(s) are not datafilled in table MNCKTPAK.

Please refer to section“ Command interface changes” for more details on the CI tool.

Hardware Requirements or Dependencies

None.

Software Requirements or Dependencies

None.

Limitations and restrictions

- SOC limit can be decremented to a value less than the usage count.
- The CI tool displays the callp capacities for SPMs from core’s perspective only. The capacity will be enforced if there is a PEC mismatch at the local.

Interactions

None.

Applicable customer facing sections

Fault Management

Logs	__N/A__
Alarms	__N/A__

Configuration

Data Schema	__X__
User Interface	__X__
Element Management	__N/A__
Security	__N/A__

Service Order __N/A__

Office Parameters __N/A__

Accounting (includes AMA billing) __N/A__

Performance (includes operational measurements) __N/A__

Glossary

Term	Description
CEM	Common Equipment Module
CI	Command Interpreter
PEC	Product Engineering Code
RTU	Right to Use
SOC	Software Optionality Control
SPM	Spectrum Peripheral Module

Configuration for A00002431

Hardware and Software Requirements

None.

Initial Configuration

None.

Office/Subnet parameters (OP/SP) (CM & SESM)

None.

Upgrade Impact

Dump and Restore

During an ONP from an earlier release where the capindx field is not present to a release where the capindx field is introduced in table MNNODE, this field is set to ‘Standard’.

Element Management Upgrade

Not Applicable.

Data schema (DS) (CM)

New/modified tables

Table name	NEW/CHANGED/ or DELETED/	Table Control (NEW/ OLD/UNCHANGED)
MNNODE	CHANGED	NEW
MNCKTPAK	CHANGED	NEW

Table information

Name: MNNODE

Functional description

A new field ‘capindx’ is added in table MNNODE for DMSCP class of SPMs only. This new field can take the values ‘Standard’, ‘Enhanced’ or ‘Premium’ where ‘Standard’ is the default value.

During tuple addition in table MNNODE, for using ‘Enhanced’ or ‘Premium’ values, the respective SOC options must have its RTU set to Y and the Usage count must be less than its Limit. Also for using ‘Enhanced’ capacity, number of DMSCP SPMs provisioned with Enhanced capacity must be less than the limit of SPMS0020 SOC option and for using ‘Premium’ capacity, number of DMSCP SPMs provisioned with Premium capacity must be less than the limit of SPMS0028 SOC option.

While changing the capindx field to ‘Enhanced’ or ‘Premium’ values, the PEC codes of the CEM units provisioned in table MNCKTPAK for this node are also verified for NTLX82BA, in addition to the SOC check. If all the check passes, the appropriate SOC usage value is incremented. For capindx field changes from ‘Enhanced’ or ‘Premium’ values to ‘Standard’, appropriate SOC usage counts are decremented if both the CEM tuples are present in table MNCKTPAK.

Tuple change with No change to the ‘capindx’ field is not validated. For tuple deletion, there are no restrictions enforced on this field. Refer to “ New Error Messages”, “ New Warning Messages” and “ New Success Messages” for the various Error, Warning and Success messages that are introduced in table MNNODE as part of this activity.

Note: All the table control operations in " New Error Messages" shall be failed with appropriate error messages and all the table control operation in " New Warning Messages" and " New Success Messages" shall be passed with appropriate messages.

New Error Messages

No.	Table Control operations	Pre - conditions
	Error Messages	
1	a. Tuple addition in MNNODE with 'Enhanced' capacity. b. Tuple change in MNNODE from 'Standard' to 'Enhanced' capacity. c. Tuple change in MNNODE from 'Premium' to 'Enhanced' capacity.	SPMS0020 SOC option's RTU set to 'N'
	RTU value not set for SPM Enhanced capacity SOC option SPMS0020.	
2	a. Tuple addition in MNNODE with 'Premium' capacity. b. Tuple change in MNNODE from 'Standard' to 'Premium' capacity. c. Tuple change in MNNODE from 'Enhanced' to 'Premium' capacity.	SPMS0028 SOC option's RTU set to 'N'
	RTU value not set for SPM Premium capacity SOC option SPMS0028.	
3	a. Tuple addition in MNNODE with 'Enhanced' capacity. b. Tuple change in MNNODE from 'Standard' to 'Enhanced' capacity. c. Tuple change in MNNODE from 'Premium' to 'Enhanced' capacity.	SPMS0020 SOC option's Limit is equal to the No. of SPMs provisioned with 'Enhanced' capacity.
	Capindx cannot be provisioned as Enhanced capacity for more SPMs than the limit of SOC option SPMS0020. Check existing tuples using SPMCPCAP tool.	

New Error Messages

No.	Table Control operations	Pre - conditions
	Error Messages	
4	a. Tuple addition in MNNODE with 'Premium' capacity. b. Tuple change in MNNODE from 'Standard' to 'Premium' capacity. c. Tuple change in MNNODE from 'Enhanced' to 'Premium' capacity.	SPMS0028 SOC option's Limit is equal to the No. of SPMs provisioned with 'Premium' capacity.
	Capindx cannot be provisioned as Premium capacity for more SPMs than the limit of SOC option SPMS0028. Check existing tuples using SPMCPCAP tool.	
5	a. Tuple change in MNNODE from 'Standard' to 'Enhanced' capacity.	a. No. of SPMs provisioned with Enhanced capacity is less than the Limit and b. One or Both the CEM PEC is/are not NTLX82BA.
	Both CEM PEC codes must be NTLX82BA for Enhanced capacity. **Verify MNCKTPAK datafill.**	
6	a. Tuple change in MNNODE from 'Standard' to 'Premium' capacity.	a. No. of SPMs provisioned with Premium capacity is less than the Limit and b. One or Both the CEM PEC is/are not NTLX82BA.
	Both CEM PEC codes must be NTLX82BA for Premium capacity. **Verify MNCKTPAK datafill.**	

New Warning Messages

No.	Table Control operations	Pre - conditions
	Warning Messages	
1	a. Tuple addition in MNNODE with 'Enhanced' capacity. b. Tuple change in MNNODE from 'Standard' to 'Enhanced' capacity. c. Tuple change in MNNODE from 'Premium' to 'Enhanced' capacity	a. SPMS0020 SOC option's RTU set to Y, No. of SPMs provisioned with Enhanced capacity is less than the Limit and b. One or both the CEM tuples in table MNCKTPAK is/are not provisioned.
	WARNING: Capindx provisioned as Enhanced capacity. **Both CEMs must be provisioned as NTLX82BA.**	
2	a. Tuple addition in MNNODE with 'Premium' capacity. b. Tuple change in MNNODE from 'Standard' to 'Premium' capacity. c. Tuple change in MNNODE from 'Enhanced' to 'Premium' capacity.	a. SPMS0028 SOC option's RTU set to Y, No. of SPMs provisioned with Enhanced capacity is less than the Limit and b. One or both the CEM tuples in table MNCKTPAK is/are not provisioned.
	WARNING: Capindx provisioned as Premium capacity. **Both CEMs must be provisioned as NTLX82BA.**	

New Success Messages

No.	Table Control operations	Pre - conditions
	Success Messages	
1	a. Tuple change in MNNODE from 'Enhanced' to 'Standard' capacity.	Both the CEM tuples are present in table MNCKTPAK.
	Datafill conditions met for de-activation of **SPM Enhanced capacity SOC option SPMS0020.**	
2	a. Tuple change in MNNODE from 'Premium' to 'Standard' capacity.	Both the CEM tuples are present in table MNCKTPAK.
	Datafill conditions met for de-activation of **SPM Premium capacity SOC option SPMS0028.**	

New Success Messages

No.	Table Control operations	Pre - conditions
	Success Messages	
3	a. Tuple change in MNNODE from 'Standard' to 'Enhanced'. b. Tuple change in MNNODE from 'Premium' to 'Enhanced'.	a. No. of SPMs provisioned with Enhanced capacity is less than the Limit and b. Both the CEM tuples are present in table MNCKTPAK and both the CEM PEC are NTLX82BA.
	Datafill conditions met for activation of SPM Enhanced capacity SOC option SPMS0020.	
4	a. Tuple change in MNNODE from 'Standard' to 'Premium'. b. Tuple change in MNNODE from 'Enhanced' to 'Premium'.	a. No. of SPMs provisioned with Premium capacity is less than the Limit and b. Both the CEM tuples are present in table MNCKTPAK and both the CEM PEC are NTLX82BA.
	Datafill conditions met for activation of SPM Premium capacity SOC option SPMS0028.	

Usage sequence and implications (CM Only)
Current datafill order unchanged.

Size
Not impacted.

Fields/OIDs
The following table lists fields for table MNNODE which are changed as part of this activity.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
CAPINDX	New	Not Applicable		This field is introduced for DMSCP class of SPMs only in table MNNODE.

Datafill example

Datafill examples for each capacity datafilled in table MNNODE are shown below.

Datafill example

```
SPM 1 SPM_1 DMSCP 1 SYNC LOOP 15 (COT 60) (DTMF 60) (ECAN 60) (TONESYN 60)
(MF 60) $ (SYSB CR RPT) (MANB MJ RPT) (ISTB MN RPT) (SYSBNA CR RPT)
(MANBNA MJ RPT) (COTLOW MN RPT) (DTMFLOW MN RPT) (ECANLOW MN RPT)
(TONESLOW MN RPT) (MFLOW MN RPT) (CMRLOW MN RPT) (PATCHFAIL MJ RPT)
(SMCHLD MJ RPT) (SMCHLD24 CR RPT) $ (ABTRK SPMEX) $ STANDARD

SPM 2 SPM_2 DMSCP 1 SYNC LOOP 15 (COT 60) (DTMF 60) (ECAN 60) (TONESYN 60)
(MF 60) $ (SYSB CR RPT) (MANB MJ RPT) (ISTB MN RPT) (SYSBNA CR RPT)
(MANBNA MJ RPT) (COTLOW MN RPT) (DTMFLOW MN RPT) (ECANLOW MN RPT)
(TONESLOW MN RPT) (MFLOW MN RPT) (CMRLOW MN RPT) (PATCHFAIL MJ RPT)
(SMCHLD MJ RPT) (SMCHLD24 CR RPT) $ (ABTRK SPMEX) $ ENHANCED

SPM 3 SPM_3 DMSCP 1 SYNC LOOP 15 (COT 60) (DTMF 60) (ECAN 60) (TONESYN 60)
(MF 60) $ (SYSB CR RPT) (MANB MJ RPT) (ISTB MN RPT) (SYSBNA CR RPT)
(MANBNA MJ RPT) (COTLOW MN RPT) (DTMFLOW MN RPT) (ECANLOW MN RPT)
(TONESLOW MN RPT) (MFLOW MN RPT) (CMRLOW MN RPT) (PATCHFAIL MJ RPT)
```

Table release history update

Not Applicable

Supplementary information

Not Applicable

Translation verification other tools

Not Applicable

Name: MNCKTPAK

Functional description

The CEM tuples of DMSCP variant of SPM are allowed to be provisioned only with the PECs - NTLX82AA, NTLX82AB and NTLX82BA in table MNCKTPAK. With the introduction of the new field ‘CAPINDX’ in table MNNODE, the provisioning of the PEC is dependent on the capindx value. The capindx can be provisioned with ‘Standard’, ‘Enhanced’ or ‘Premium’.

If the capindx in table MNNODE is ‘Standard’, the PEC shall be allowed to be datafilled as NTLX82AA, NTLX82AB or NTLX82BA. In the case of an ‘Enhanced’ or ‘Premium’ capindx, the PEC must be datafilled as NTLX82BA.

For Non-DMSCP class of SPMs, no validations for CEM PEC are introduced by this activity. The PEC that is datafilled for both the CEMs in table MNCKTPAK automatically determines the capacity for that SPM. If both the CEMs are datafilled with NTLX82BA PEC cards, then capacity is ‘Premium’ and for any other combinations of PEC cards, the capacity is ‘Standard’. Refer to “ New Error Messages” and “ New Success Messages” for the various Error and Success messages that are introduced in table MNCKTPAK as part of this activity.

New Error Messages

No.	Table Control operations	Pre - conditions
	Error Messages	
1	a. Addition of a CEM tuple in table MNCKTPAK with NTLX82AA. b. Updation of a CEM PEC from NTLX82BA to NTLX82AA.	a. The capindx field in table MNNODE is Enhanced or Premium and b. The other CEM tuple may or may not be present.
	Cannot allocate NTLX82AA card for an SPM that has been datafilled with Enhanced or Premium capacity. Check MNNODE datafill.	
2	a. Addition of a CEM tuple in table MNCKTPAK with NTLX82AB. b. Updation of a CEM PEC from NTLX82BA to NTLX82AB.	a. The capindx field in table MNNODE is Enhanced or Premium and b. The other CEM tuple may or may not be present.
	Cannot allocate NTLX82AB card for an SPM that has been datafilled with Enhanced or Premium capacity. Check MNNODE datafill.	

New Success Messages

No.	Table Control operations	Pre - conditions
	Success Messages	
1	a. Addition of a CEM tuple in table MNCKTPAK with NTLX82BA.	a. The capindx field in table MNNODE is Enhanced and b. The other CEM tuple is already present.
	Datafill conditions met for activation of SPM Enhanced capacity SOC option SPMS0020.	
2	a. Addition of a CEM tuple in table MNCKTPAK with NTLX82BA.	a. The capindx field in table MNNODE is Premium and b. The other CEM tuple is already present.
	Datafill conditions met for activation of SPM Premium capacity SOC option SPMS0028.	
3	a. Deletion of a CEM tuple in table MNCKTPAK with NTLX82BA.	a. The capindx field in table MNNODE is Enhanced and b. The other CEM tuple is already present.
	Datafill conditions met for de-activation of SPM Enhanced capacity SOC option SPMS0020.	
4	a. Deletion of a CEM tuple in table MNCKTPAK with NTLX82BA.	a. The capindx field in table MNNODE is Premium and b. The other CEM tuple is already present.
	Datafill conditions met for de-activation of SPM Premium capacity SOC option SPMS0028.	

Usage sequence and implications (CM Only)
Current datafill order unchanged.

Size
Not impacted.

Fields/OIDs
The following table lists fields for table MNCKTPAK which are changed as part of this activity.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action

Datafill example
Not Applicable.

Table release history update
Not Applicable

Supplementary information
Not Applicable

Translation verification other tools
Not Applicable

Service Orders (SO) (CM & SESM)

Not Applicable

Software optionality control (SOC)

Two new USAGE SOCs are created under a new group called CAP. These SOCs are used only by DMSCP class of SPMs. The SOC option SPMS0020 corresponds to the SPMs with Enhanced capacity and the SOC option SPMS0028 corresponds to the SPMs with Premium capacity.

The hard limit value of SPMS0020 denotes the maximum number of DMSCP class of SPMs in the office that can be provisioned with Enhanced capacity and the hard limit value of SPMS0028 denotes the maximum number of DMSCP class of SPMs in the office that can be provisioned with Premium capacity. The threshold value of these SOC options are set to 100%.

The value of the USAGE of SPMS0020 and SPMS0028 denotes the number of DMSCP class of SPMs currently running with the Enhanced and Premium capacity respectively from Core's perspective. Refer to" Appendix A: SOC commands" for the syntax of some of the SOC commands.

Enhanced SOC option

SOC option name:	SPMS Enhanced Call cap
SOC option title:	Yes
SOC option control type:	usage
New SOC option?	Yes
SOC option order code	SPMS0020
Option defined in DRU:	SHR
Affected products:	SPM

Premium SOC option

SOC option name:	SPMS Premium Call cap
SOC option title:	Yes
SOC option control type:	usage
New SOC option?	Yes
SOC option order code	SPMS0028
Option defined in DRU:	SHR
Affected products:	SPM

Element Management

Not Applicable.

Command interface changes

Directory: None

Directory description

Accessing directory: CI

Access to directory or MAP level and return to CI

Command: SPMCPCAP

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

Command SPMCPCAP is used to display CallP capacity information for SPMs.

Command syntax

The command syntax is as shown in the following figure.

Syntax of SPMCPCAP command

```
>help spmcpcap
SPM Callp Capacity information tool.
SPMCPCAP - Displays Callp Capacity information for SPMs.
           Remarks field displays if CEM(s) are not
           datafilled for the SPM.

Parms: <OPTION> {Class <Class type> {DMSCP,
                                     IW,
                                     MG4K,
                                     ALL},
                Capacity <Capacity type> {Standard,
                                          Enhanced,
                                          Premium,
                                          ALL},
                SPM <SPM Number> {0 TO 85}}
```

Syntax : spmcpcap
Parameter Description:

CLASS DMSCP : List CallP capacities of all the DMSCP SPMs provisioned in the office.

CLASS MG4K : List CallP capacities of all the MG4K SPMs provisioned in the office.

CLASS IW : List CallP capacities of all the IW SPMs provisioned in the office.

CLASS ALL : List CallP capacities of all the classes of SPMs provisioned in the office.

CAPACITY Standard: List all the SPMs in an office that have 'Standard' CallP capacity.

CAPACITY Enhanced: List all the SPMs in an office that have 'Enhanced' CallP capacity.

CAPACITY Premium : List all the SPMs in an office that have 'Premium' CallP capacity.

CAPACITY ALL : List all the SPMs in an office and their corresponding CallP capacity.

SPM <SPM NO> : List CallP capacity for a given SPM node number.

Qualifications and warnings

If either or both the CEM tuple are not present in table MNCKTPAK for an SPM, then the remarks field against that SPM displays that the CEM datafill is incomplete. If the both the CEM tuples are datafilled, remarks field displays 'None' against that SPM.

CallP capacity information is taken from table MNNODE datafill for DMSCP class of SPMs. Supported capacities for this class are 'Standard', 'Enhanced' and 'Premium'.

For other classes (MG4K and IW) this capacity is derived from CEM PEC datafill in table MNCKTPAK. Supported capacities for these classes are 'Standard' and 'Premium'. If the CEM(s) are not datafilled in table MNCKTPAK, then the tool displays 'Standard' capacity for MG4Ks and IWs.

Responses

Listing SPMs with Enhanced CallP capacity

Listing of SPMs with Enhanced capacity will not display information of MG4K and IW SPMs as this capacity is invalid for these classes. This option is valid for DMSCP class of SPMs only.

Example

The following table lists various usage examples for SPMCPCAP command.

Usage examples for SPMCPCAP command

Description of task:	Display CallP Capacity information for a SPM node
Command: MAP response:	CI: >spmcpcap class DMSCP ---------- SPM No Capacity Remarks ---------- 3 Premium CEM(s) not datafilled. 4 Enhanced CEM(s) not datafilled. 10 Enhanced None. 13 Premium None. 14 Standard None. ----------

Usage examples for SPMCPCAP command

Command:

```
CI:
>spmcpcap class MG4K
-----------------------------------------------
  SPM No     Capacity          Remarks
-----------------------------------------------
     0       Standard           None.
     1       Standard           None.
     6       Standard           None.
     7       Standard           None.
     8       Premium            None.
     9       Standard           None.
    12       Standard           None.
    27       Standard           None.
    29       Standard           None.
    30       Standard           None.
-----------------------------------------------
```

MAP response:

Command:

```
CI:
>spmcpcap class IW
-----------------------------------------------
  SPM No     Capacity          Remarks
-----------------------------------------------
    11       Premium            None.
-----------------------------------------------
```

MAP response:

Usage examples for SPMCPCAP command

Command:

```
CI:
>spmcpcap class ALL
```

MAP response:

```
DMSCP :
-----------------------------------------------
  SPM No     Capacity         Remarks
-----------------------------------------------
     3       Premium     CEM(s) not datafilled.
     4       Enhanced    CEM(s) not datafilled.
    10       Enhanced          None.
    13       Premium           None.
    14       Standard          None.
-----------------------------------------------

IW :
-----------------------------------------------
  SPM No     Capacity         Remarks
-----------------------------------------------
    11       Premium           None.
-----------------------------------------------

MG4K :
-----------------------------------------------
  SPM No     Capacity         Remarks
-----------------------------------------------
     0       Standard          None.
     1       Standard          None.
     6       Standard          None.
     7       Standard          None.
     8       Premium           None.
     9       Standard          None.
    12       Standard          None.
    27       Standard          None.
    29       Standard          None.
    30       Standard          None.

-----------------------------------------------
```

Command:

```
CI:
>spmcpcap capacity Enhanced
```

MAP response:

```
-----------------------------------------------
  SPM No     Capacity         Remarks
-----------------------------------------------
     4       Enhanced    CEM(s) not datafilled.
    10       Enhanced          None.
-----------------------------------------------
```

Command:

```
CI:
>spmcpcap SPM 7
```

MAP response:

```
-----------------------------------------------
  SPM No     Capacity         Remarks
-----------------------------------------------
     7       Standard          None.
-----------------------------------------------
```

Security

Not Applicable.

Configuration Walkthrough

Not Applicable.

Appendix A: SOC commands

Appendix A lists the syntax for various SOC commands.

- To display information about SOC group and options.

  SOC:

  >SELECT GROUP CAP

  >SELECT OPTION SPMS0020

  >SELECT OPTION SPMS0028

- To assign a limit to the new SOC options, SPMS0020 and SPMS0028.

  SOC:

  >ASSIGN LIMIT <value of limit> <key code> TO SPMS0020

  >ASSIGN LIMIT <value of limit> <key code> TO SPMS0028

- To assign the threshold value (percentage and absolute).

  SOC:

  >ASSIGN THRESHOLD <percentage value> PERCENT TO SPMS0020

  >ASSIGN THRESHOLD <absolute value> ABSOLUTE TO SPMS0020

Product = CS 2000

A00002432 -- SPM Enhanced Overload OMs and Logs (Succession on DMS)

Functional Description

In the SP20 release, two new software optionality control (SOC) keys will be available that provides enhanced and premium call processing capability on the NTLX82BA CEM card. These keys are being added in feature A00002431. This capacity increase will allow the NTLX82BA card's performance to be approximately 2x that of an NTLX82AA card for 'enhanced' capability and approximately 3x for 'premium'. This additional capacity capability requires improvements to the SPM engineering information available to our customers.

This feature is also being used as a reference for the CAP00002 SOC key. That functionality is documented under feature ID A00002431.

This feature implements new operational measurements (OMs, or 'pegs') that will allow a craftsperson to monitor the performance of SPMs when the SPM is experiencing peak traffic levels that are in excess of the SPM engineering limit. It also augments an existing OM group, SPMACT, to include the capacity level.

There are two components that control the number of calls that can be handled by a given SPM. The first is the System Overload Control subsystem, which is controlled by the core and is dependent on core resources. The second is the SPM flow control system, which is controlled by the SPM and is influenced by SPM resource levels. The OMs and logs that are presented in this section will include data from both components.

Hardware requirements

None, the OMs and logs described in this section apply to all CEM platforms.

Limitations and restrictions

Core and local loads must both support the new functionality.

Interactions

The OMs and logs are driven by call processing on the SPM.

A new OM group will be added (SPMOVLD), and one new OM will be added to an existing group (SPMACT). For logs, a new log type (SPM399) will be introduced that indicates transitions in and out of the SPM overload conditions.

Logs (LG)

A new log will be introduced (SPM399) for flagging overload conditions in SPMs. This log is generated whenever an SPM enters/leaves an overload condition. The reason and the action for the craft are displayed in the log so that some action can be taken to rectify the condition. In addition, some diagnostic information for the designer is also printed in the log.

New/modified logs

Log name	Log number	NEW/MOD/DELETED	System (SOS/UNIX)
SPM	399	New	SOS
SPM	313	Mod	SOS

The format/field-details and examples of the new log SPM 399 are given in detail in the 'Fault Management' section of this document.

Data schema (DS)

New/modified tables

Table MNNODE will be modified in a related feature: A00002431. Please refer to that design document for more details.

Office parameters (OP)

Not applicable.

Service orders (SO)

Not applicable.

Alarms (AL)

Not applicable.

Command interface (CI)

Not applicable.

Operational measurements (OM)

New/modified OM groups

Group name (acronym)	Group name (expanded)	NEW, CHANGED or DELETED	Reason
SPMACT	Spectrum Activity	Changed	One register added
SPMOVLD	Spectrum Overload	New	

One new register will be added to the SPMACT OM group - CAPLEVEL, which indicates what the SPM's capacity index is. The capacity index is a numeric value, with possible values of 0, 1, or 2, corresponding to regular, enhanced and premium capacity, respectively.

The new SPMOVLD group will have 18 OM registers that give metrics on the SPM flow control system and the system overload control component. All OM registers that apply to the system overload control component start with an 'S', all others apply to the flow control system:

Flow Control Peg	SOC Peg	Description
OVLDNUM	SOVLDNUM	Number of times the system entered overload. For SOC (system overload control), this means the CM is in beyond_capacity state.
OVLDPNUM	not applicable	Number of times the SPM entered 'overload pending'.
OVLDUSG	SOVLDUSG	For Flow control, OVLDUSG represents the number of seconds the system was in overload. For SOC, SOVLDUSG represents the number of messages that were processed by SOC while the CM was in a beyond_capacity state.
OVLDPUSG	not applicable	Number of seconds the SPM was in 'overload pending'.
CLSDLYD	SCLSDLYD	The number of calls delayed by the two systems. When flow control and SOC are active, this will be equal to the number of new originations.
CLSDND CLSPTQ	SCLSDND	In flow control, CLSDND represents calls that were denied due to there being too many calls in the flow control system, while CLSPTQ represents calls denied because of too many messages on a PTQ. In SOC, these two registers are combined into a single 'Calls Denied' register that counts calls that were tossed regardless of the reason. This register in SOC includes origination messages that were counted in SMSGPTQ and SHDROVFL (see below).
CLSABDN	SCLSABDN	Calls in either system that were abandoned by the client. Normally the abandon message comes from call processing on the Core.
CLSMSC	not applicable	Calls lost to miscellaneous resource failures.
not applicable	SNUMORIG	Total number of originations passing through SOC (delayed or not).
not applicable	SMSGLOST	Number of messages lost because of SOC system limits (includes SMSGPTQ and SHDROVFL)
not applicable	SMSGPTQ	Number of messages of any type that were lost due to PTQ overflow.
not applicable	SHDROVFL	Number of messages of any type that were lost due to SOC header array overflow.

All of the above OMs will be presented in OMSHOW on a per-node basis. The 'Performance' section of this book gives details about the new and the changed OM groups.

AMA/Billing information (AM)

Not applicable.

Glossary

Term	Description
PTQ	Per Terminal Queue - in SOC (System Overload Control) and Spectrum flow control, this is a queue that stores messages that are to be delivered to a given terminal ID.
SOC	An overloaded acronym that can mean either System Overload Control or Software Optionality Control, depending on the context.

References

A00002431 - Core/SPM Software Optionality Control implementation, available elsewhere in this document.

Fault Management for A00002432

Fault management strategy

This activity introduces a new core log (SPM 399) for flagging the overload conditions in the SPMs. This log is generated whenever an SPM enters/leaves an overload condition. The reason and the action for the craft are displayed in the log so that some action can be taken to rectify the condition. In addition, some diagnostic information for the designer is also printed in the log.

Fault management tools and utilities

LOGUTIL in the core is the standard tool for looking at the logs. The commands for looking for the new log SPM 399 are given below.

CI: logutil; open spm 399;back all

Logs

Explanation

Log Title: SPM 399

Name: SPM Overload Report

Description: This log is generated whenever an SPM enters/leaves a pre-defined overload condition. The overload conditions are given in section 12.3.4, Table 1.

Event type: This log will have a severity of ‘Minor’ when the SPM enters the overload condition and a severity of ‘No alarm’ when the SPM leaves the overload condition. A ‘Minor’ severity will show one asterisk in the first line of the log and a ‘No alarm’ severity will show none.

Format

```
<LABCLLI> <*> SPM399 <MMdd hh:mm:ss SSSS> TBL  SPM Overload Report
    SPM   <xx> CEM   <y> : <Activity> <state> Time: <hh:mm:ss.SSS>
    Reason: <Reason string>
    Prev: <previous state> Curr: <current state> Diagnostic: <#HHHH>
    Action: <Action string>
    Location: SPM <SPM no> Type: <Type> Fabric: <Fabric>

    The last line shown in the log format will be present only when the
    SPM_ENHANCED_OUTPUT office parameter in OFCVAR is activated.
```

Example

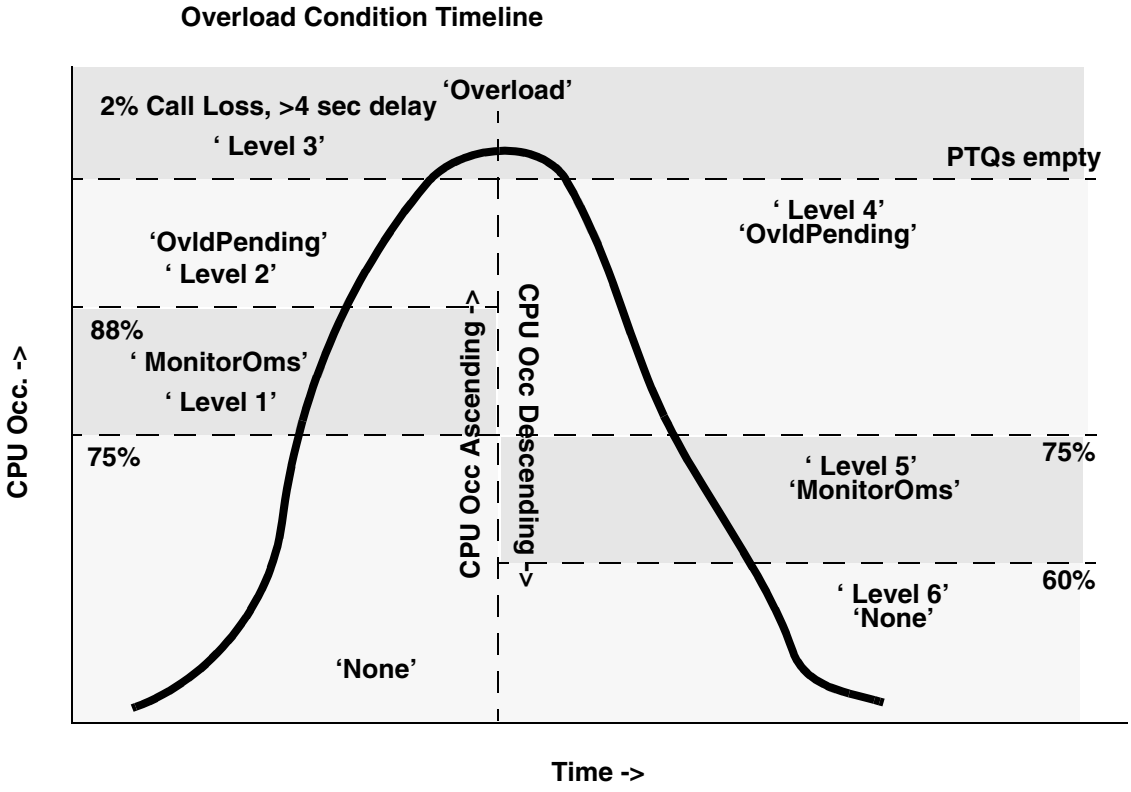
The following two examples show how the log will look like for the onset of an overload condition and for the clearing of an overload condition.

Example of the log when entering an overload condition

```
RSN06BPINDY1 * SPM399 APR25 11:01:06 9256 TBL  SPM Overload Report
    SPM   2 CEM   1 : A  INSV        Time: 11:01:06.685
    Reason: CEM in Overload Pending state
    Prev: None   Curr: OvldPending Diagnostic: #0C2B
    Action: Check SPMACT and SPMOVLD OMs.
    Location: SPM 2 Type: SMG4 Fabric: ATM
```

Example of the log when clearing an overload condition

```
RSN06BPINDY1 SPM399 APR25 11:01:06 9256 TBL  SPM Overload Report
    SPM   2 CEM   1 : A  INSV        Time: 11:01:06.685
    Reason: Overload cleared.
    Prev: OvldPending Curr: None Diagnostic: #0000
    Action: None.
```



The overload control mechanism has four different levels; two when going into overload and two when leaving overload.

Level 1: When Application + System Occupancy goes over 75%

- Check Overload OMs MIP (maintenance in progress) indicator is seen in the MAP (Maintenance and Administration Position), when the active CEM is posted.
- No effect on processing of calls (no call flow control).
- SPM399 'SPM Overload Report' log with a blank (no alarm) alarm level and reason 'Overload OMs initiated' is generated
- No alarm against the SPM node or CEM card.

Level 2: When Application + System Occupancy goes over 88%

- Overload Pending MIP indicator is seen in the MAP, when the active CEM is posted.
- No alarm against the SPM node or CEM card.
- SPM399 'SPM Overload Report' log with an alarm level of 'Minor' and reason 'CEM in Overload Pending state' is generated

- Call flow control is initiated: Messages from new calls are queued. One queued message from new calls is handled for every 10 messages from calls in progress.

Level 3: When >2% of calls are lost, or any calls are delayed > 4 seconds

- Overload MIP indicator is seen in the MAP, when the active CEM is posted.
- Unit state changes to ISTB (In-Service Trouble)
- SPM500 reporting the SPM state change.
- SPM399 ‘SPM Overload Report’ log with an alarm level of ‘Major’ and reason ‘CEM experiencing Overload’ is generated
- Call flow control continues. One queued message from new calls is handled for every 10 messages from calls in progress.

Level 4: When the backlog of CallP messages in flowcontrol are processed. (CallP FlowControl PTQ empty.)

- Overload pending MIP indicator is seen in the MAP, when the CEM is posted.
- Unit state changes back to INSV (In-Service)
- SPM500 log reporting the SPM state change.
- SPM399 ‘SPM Overload Report’ log with an alarm level of ‘Minor’ and reason ‘CEM in Overload Pending state’ is generated
- Call flow control continues. One queued message from new calls is handled for every 10 messages from calls in progress.

Level 5: When Application + System Occupancy goes below 75%

- Check Overload OMs MIP indicator is seen in the MAP, when the CEM is posted.
- SPM399 ‘SPM Overload Report’ log with reason ‘Overload Pending cleared’ is generated
- Call flow control increases handling of originations: One queued message from new calls is handled for every three messages from calls in progress. Messages from new calls are no longer queued.

Level 6: When Application + System Occupancy goes below 60% (The application occupancy is set to this level to avoid the risk of toggling back and forth between level 1 and level 6)

- Overload OMs Started MIP indicator is cleared.
- SPM399 ‘SPM Overload Report’ log with a blank (no alarm) alarm level and reason ‘Overload cleared’ is generated

- Call flow control increases handling of originations: One queued message from new calls is handled for every two messages from calls in progress.

  Note: Application and System Occupancy is calculated during the last minute interval.

Field descriptions

The following table gives the field descriptions for the variable fields (fields within '< >' in the "Format" section of this document) of the new log.

Field descriptions

Field	Value	Description
LABCLLI	The CLLI of the office where the log is getting generated	
Priority of Alarm	Two asterisks (**), one asterisk (*) or empty space	Two asterisks (**) appear for a log of 'Major' severity, one asterisk (*) appears for a log of severity 'Minor' and empty space appears for a log of severity 'No Alarm'.
`MMMdd hh:mm:ss`	MMM - JAN to DEC dd - 01 to 31 hh - 00 to 23 mm - 00 to 59 ss - 00 to 59	Date and Time when the log was generated in the core.
`SSSS`	0000 to 9999	Log serial number.
xx	00 to 85	SPM number for which the log is generated.
y	0,1	CEM number of the SPM for which the log is generated.
Activity	A,I	Activity of the CEM. 'A' for Active and 'I' for Inactive.
State	INSV,ISTB,MANB,SYSB	State of the CEM.
hh:mm:ss.SSS	hh - 00 to 23 mm - 00 to 59 ss - 00 to 59 SSS - 000 to 999	Time when the error/error-clearing event happened in the SPM. This time will be earlier than the time that appears on the first line because the event happens in the SPM first and then the core generates the log.

Field descriptions

Field	Value	Description
Reason	1) “Overload OMs initiated” 2) “CEM in Overload Pending state” 3) “CEM experiencing Overload” 4) “Overload Pending cleared” 5) “Overload cleared”	These are the four possible strings that can appear in the ‘Reason’ field of the log. The first three reasons are for error scenarios and the fourth one is for the error-clearing scenario.
Prev	1)”None” 2) Man-at-arms 3)”OvldPending” 4)”Overload”	This field gives the overload condition of the SPM before the error/error-clearing event happened.
Curr	1)”None” 2) MonitorOMs 3)”OvldPending” 4)”Overload”	This field gives the current overload condition of the SPM.
Diagnostics	“#0000” to “#FFFF”	This field is for the designers who are doing the trouble-shooting. The craft need not look in to this field.
Action	1)”Check SPMACT and SPMOVLD OMs.” 2) “Contact your next level of support.” 3)”None.”	This field gives the craft information on the action that needs to be taken. The string 1) is for logs generated for “Check OMs” and “Overload Pending”. String 2) is generated in addition to String 1) when an “Overload” event occurs. The last string is for logs generated for an error-clearing scenario.
SPM no	00 to 85	SPM number
Type	DMSCP,SMG4,IW	Variant of the SPM
Fabric	ATM,IP,ENET	The switching fabric

The 4 reason strings correspond to the following 4 conditions respectively.
1) When the CPU occupancy exceeds 75%
2) When flow control is activated. The CPU threshold for this is 88%. If the SPM was previously in Overload, it reverts to Overload Pending when Flow Control’s PTQs are empty.
3) Once 2% of calls are lost, or a call is delayed for > 4 seconds, while in flow control
4) When CPU occupancy drops below 75%
5) When CPU occupancy drops below 60%

Action

The ‘Action’ field of the log contains the action that is needed to be taken by the craft. For the situations when the SPM is leaving an overload condition, the ‘Action’ field will have ‘None’ and no action need be taken.

Associated Operational Measurements

In the OM group SPMOVLD, the OVLDNUM register is pegged when the SPM enters the ‘Overload’ condition and register OVLDUSG maintains the number of seconds the SPM was in the ‘Overload’ condition in the present OM collection interval. Similarly, the register OVLDPNUM is pegged when the SPM enters the ‘Overload Pending’ condition and register OVLDPUSG maintains the number of seconds the SPM was in the ‘Overload Pending’ condition in the present OM collection interval.

Performance for A00002432

Performance management strategy

Customers, field support and design must have a means of monitoring and troubleshooting the overload conditions that lead to call processing problems in the Spectrum Peripheral Module (SPM). This activity introduces some means to do the same. SPM variants supported by this activity are DMSCP, SMG4 (also called MG4K), IW Bridge and IW DPT. The following performance monitoring components are introduced.

1. A new OM group SPMOVLD is added to provide aggregate overload statistics of each SPM
2. A new register CAPINDEX is added to the existing OM group SPMACT to display the capacity level at which the SPM is running. (Refer to ACT.A00002431 in the FMDOC for the feature which enabled SPMs to run at three different capacity levels)

Performance management tools and utilities

PM information in general can be accessed with the following tool.

- DMS OM system (i.e. OMSHOW command)

This command can be used as follows on the CI prompt.

CI: OMSHOW SPMOVLD ACTIVE
This will display the registers of SPMOVLD OM group for which the statistics is being gathered.

Since the OM registers are incremented on the SPM, the ‘active’ registers will not have the most up-to-date information. At the end of each OM collection interval, the latest register values from the SPM are uploaded to the core.

CI: OMSHOW SPMOVLD HOLDING

This will display the registers of SPMOVLD OM group with the contents of the previous collection period.

It is recommended to use the OMSHOW command with the 'HOLDING' option.

Operational Measurements

The following table gives the list of new and modified OM groups as a result of this activity.

List of New/Modified OM groups

Group Name (acronym)	Group Name (expanded)	New/Modified	Registers
SPMOVLD	Spectrum Overload statistics	New	OVLDNUM OVLDPNUM OVLDUSG OVLDPUSG CLSDLYD CLSDND CLSPTQ CLSABDN CLSMSC SOVLDNUM SOVLDUSG SCLSDLYD SCLSDND SCLSABDN SNUMORIG SMSGLOST SMSGPTQ SHDROVFL

Group Name (acronym)	Group Name (expanded)	New/Modified	Registers
SPMACT	Spectrum Occupancy statistics	Modified (New register given in bold)	CEMSYSHI CEMAPPHI CEMBAKHI AVGCEMSY AVGCEMAP AVGCEMBK ORIGHI TERMHI AVGORIG AVGTERM TOTLORIG TOTLTERM NUMREPTS **CAPINDEX**

SPMOVLD

OM description

SPMOVLD - Spectrum Overload Statistics

The new SPMOVLD group will have 18 OMs that give metrics on the SPM flow control system and the system overload control component. All OMs that apply to the system overload control component start with an ‘S’, all others apply to the flow control system.

The actual peg counts and usage counts (accurate to one second) are accumulated on the peripheral and then uploaded to the OM group using the Spectrum OM Transfer System (SOTS).

Release history update

OM group SPMOVLD is introduced in SN07 as part of this feature.

Group structure

OM group SPMOVLD provides one tuple for each SPM (as datafilled in table MNNODE).

Key field: <spm_no>

- <spm_no> is an integer in the range {0 to 85}.

The following figure shows OM group SPMOVLD as displayed on the MAP terminal.

OM Group Display for SPMOVLD

```
>omshow spmovld holding

SPMOVLD

CLASS: HOLDING
START:2003/04/27 08:23:57 SUN; STOP: 2003/04/27 08:30:00 SUN;
SLOWSAMPLES:          3 ; FASTSAMPLES:          24 ;

        INFO (SOTS_NODE_INFO_TYPE)
           OVLDNUM    OVLDPNUM     OVLDUSG    OVLDPUSG
           CLSDLYD      CLSDND      CLSPTQ     CLSABDN
            CLSMSC    SOVLDNUM    SOVLDUSG    SCLSDLYD
           SCLSDND    SCLSABDN    SNUMORIG    SMSGLOST
           SMSGPTQ    SHDROVFL

    0
            SPM  0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0
                 0           0
```

Associated OM groups

SPMACT

The register CAPINDEX in the OM group SPMACT gives the capacity level at which the SPM is running. The overload conditions existing in an SPM depend on this capacity level.

If thee is a PEC mismatch between what is datafilled in MNCKTPK and the actual card in the CEM slot, the CAPINDEX register for an SPM may not match what is datafilled in MNNODE. That is, if an SPM is datafilled as having ‘premium’ capacity and one of the CEMs is an LX82AA card, then the CAPINDEX register will indicate that the SPM is running at ‘standard’ capacity, effectively overriding the datafill.

A new CI tool is available called SPMCPCAP - this tool will indicate what the datafilled capacity level is for a given SPM. For more information on this tool, please refer to feature A00002431’s design documentation.

Associated functional groups

None.

Associated functionality codes

Not Applicable.

OM group registers logic flow chart

Not Applicable.

Registers

Details of the registers in SPMOVLD are given in the following table. Peg registers keep a count of a particular event and usage registers keep a count of the time (in seconds) for which a particular condition persisted.

Registers in the new OM group SPMOVLD

Register Name (acronym)	Register Name (expanded)	Type of the register	Associated Registers	Associated Logs
Description				
OVLDNUM	Overload Number	Peg		SPM 399
Gives the number of times the node entered overload due to the flow control component.				
OVLDPNUM	Overload Pending Number	Peg		SPM 399
Gives the number of times the node entered ‘overload pending’ due to the flow control component				
OVLDUSG	Overload Usage	Usage		
Gives the number of seconds the node was in overload due to the flow control component.				
OVLDPUSG	Overload Pending Usage	Usage		
Gives the number of seconds the node was in ‘overload pending’ due to the flow control component				
CLSDLYD	Calls Delayed	Peg		
Gives the number of calls delayed by the node due to the flow control component				
CLSDND	Calls Denied	Peg		
Gives the number of calls that were denied due to there being too many calls in the flow control component.				
CLSPTQ	Calls Per Terminal Queue	Peg		
Gives the number of calls denied because of too many messages on a Per Terminal Queue in the flow control component.				
CLSABDN	Calls Abandoned	Peg		
Gives the number of calls that were abandoned by the node in the flow control component.				
CLSMSC	Calls Miscellaneous	Peg		

Registers in the new OM group SPMOVLD

Register Name (acronym)	Register Name (expanded)	Type of the register	Associated Registers	Associated Logs
Description				
Gives the number of calls lost to miscellaneous resource failures in the flow control component.				
SOVLDNUM	SOC Overload Number	Peg		
Gives the number of times the system entered overload (the CM is in beyond_capacity state)				
SOVLDUSG	SOC Overload Usage	Peg		
Gives the number of messages that were processed by the system overload component while the CM was in a beyond_capacity state.				
SCLSDLYD	SOC Calls Delayed	Peg		
Gives the number of calls delayed by the system overload component.				
SCLSDND	SOC Calls Denied	Peg		
Gives the number of calls that were tossed regardless of the reason. This register includes origination messages that were counted in SMSGPTQ and SHDROVFL.				
SCLSABDN	SOC Calls Abandoned	Peg		
Gives the number of calls that were abandoned by the system due to the system overload component.				
SNUMORIG	SOC Number of Originations	Peg		
Gives the number of originations passing through the system overload component (delayed or not).				
SMSGLOST	SOC Messages Lost	Peg		
Gives the number of messages lost because of system overload control limits (includes SMSGPTQ and SHDROVFL)				
SMSGPTQ	SOC Message PTQ	Peg		
Gives the number of messages of any type that were lost due to PTQ overflow.				
SHDROVFL	SOC Header Overflow	Peg		
Gives the number of messages of any type that were lost due to system overload control header array overflow.				

SPMACT

OM description

SPMACT - Spectrum Occupancy Statistics

Release history update

OM group SPMACT is modified to include a new register CAPINDEX, in SN07 as part of this feature.

Group structure

OM group SPMACT provides one tuple for each SPM (as datafilled in table MNNODE).

Key field: <spm_no>

- <spm_no> is an integer in the range {0 to 85}.

The following figure shows OM group SPMACT as displayed on the MAP terminal. The new register CAPINDEX is made bold in the figure (but not on the actual display)

OM Group Display for SPMACT

```
>omshow spmact holding

SPMACT

CLASS: HOLDING
START:2003/04/28 13:00:00 MON; STOP: 2003/04/28 13:30:00 MON;
SLOWSAMPLES:         18 ; FASTSAMPLES:         180 ;

       INFO (SOTS_NODE_INFO_TYPE)
         CEMSYSHI   CEMAPPHI   CEMBAKHI   AVGCEMSY
         AVGCEMAP   AVGCEMBK     ORIGHI     TERMHI
          AVGORIG    AVGTERM   TOTLORIG   TOTLTERM
         NUMREPTS   CAPINDEX

    0
           SPM  1
                1          1          97          1
                1         97           0          0
                0          0           0          0
                2          1
```

Associated OM groups

None.

Associated functional groups

None.

Associated functionality codes

Not Applicable.

OM group registers logic flow chart

Not Applicable.

Registers

Details of the new register added in SPMACT OM group are given in the following table. The type of the register is given as 'Index', which means that it is not a regular Peg/Usage kind of a register. This register gives the capacity index of the particular SPM.

New register in SPMACT OM group

Register Name (acronym)	Register Name (expanded)	Type of the register	Associated Registers	Associated Logs
Description				
CAPINDEX	Capacity Index	Index		
Gives the capacity level at which the SPM is running. This can take values 0,1 or 2. For non-DMSCP variants of SPMs, this can take only 0 and 2 as values. Indices 0,1 and 2 refer to Standard, Enhanced and Premium capacities respectively. Non-DMSCP variants of SPMs include SMG4, IW-DPT and IW-BRDG-ONLY.				

Glossary

PTQ - Per Terminal Queue
SOC - System Overload Control
SPM - Spectrum Peripheral Module

Product = CS 2000

A00002433 -- XA-Core Baseline Control (Succession on DMS)

Functional Description

Field baseline implies the minimum HW/FW release/version that Nortel Networks requires for reliable XA-Core operation. The HW field baseline is updated due to a class 'A' HW change. The FW field baseline is updated due to a severe FW bug.

1. HW baseline compatibility is based on PEC presence in table PECINV and meeting Release constraints.

2. FW baseline compatibility is based on PEC presence in table FWINV and FW/DLL meeting Version constraints.

See *"Activity Behavior" on page 455* for detailed info.

Activation

The activity is activated by default, in all XA-Core loads.

Baseline Defaults

XA-Core **hardware** baselines are stored in table **PECINV**.
XA-Core **firmware** baselines are stored in **New table FWINV**.
These tables are provisioned in the loadbuild stage of software delivery.

Tables PECINV and FWINV are user modifiable, but caution must be exercised in making any changes, since the changes can impact the system, as further described below. Both tables are NOT restored over an ONP.
CSP20 defaults are shown in the following table. HW/FW exceptions can be provisioned to indicate a HW release or FW version which **must** not be allowed. Any release/version greater than or equal to the baseline release/version is OK to use, as long as it is NOT listed as an exception. There are currently no exception values.

CSP20 Baseline HW Releases, FW Versions

Grp	Type	PEC	PECINV HW Release	FWINV FW Version[a][s]:	
			Baseline	FW Baseline	DLL Baseline
Cards	PE	NTLX02AA	n/a	Not supported	
		NTLX02CA	01	XAPE01AG	Not user modifiable
		NTLX02DA		XAPE02AB	
	IOP	NTLX03AA	28	XAIO01AK	N/A
		NTLX03AB	03		
		NTLX03BA	28		
		NTLX03BB	03		
	HIOP	NTLX04AA	01	XHIO02AA	XHIO02AH
		NTLX04BA			
		NTLX04CA		XHIO02AH	
		NTLX17AA		XHIO03AA	
PkIt	CMIC	NTLX05AA	n/a	Not supported	
		NTLX05AB	01	PK12CE12	N/A
	AMDI	NTLX05BA			
	ETHR	NTLX09AA		EP14D003	
No FW	SM	NTLX14CA		N/A	

CSP20 Baseline HW Releases, FW Versions

	DISK	NTLX06AA			
		NTLX06AB			
		NTLX06AC			
	TAPE	NTLX07AA			
		NTLX07BA			
	RTIF	NTLX08AA			
		NTLX08AB			

a. There are currently no hardware or firmware exceptions.

Activity Behavior

HW and FW baseline behavior is summarized below for Hardware (PECINV) and Firmware (FWINV) respectively.

Details follow in subsequent sections.

Baseline Behavior - PECINV vs. Hardware

Input Conditions		Behaviour		
PEC	Hardware Rel vs. PECINV Rel	RTS	Baseln Alarm	SREx
Not in PECINV	n/a	Fail	Raise	No SREx for X if X non-baseline. X=PE&SM | IO
IN PECINV	= exception Rel OR < baseline Rel			
	>= baseline Rel	Pass	Lower	OK

Baseline Behavior - FWINV vs. Firmware

Input Conditions		Behaviour		
PEC	Firmware Ver vs. FWINV Ver	RTS	Baseln Alarm	SREx
NOT in FWINV: pe, iop, hiop cards cmic, amdi, ethr pklts	n/a	Fail	Raise	No SREx for X if X non-baseline. X=PE&SM | IO
IN FWINV pe, iop, hiop[a] card, cmic, amdi, ethr pklts	= exception Ver			
	< baseline Ver	Pass[b]		OK
	>= baseline Ver	Pass	Lower	
NOT in FWINV: sm, disk, tape, rtif	don't care. FRU have no FW			

a. HIOP: Both FW & DLL must pass baseline checks.

b. FW/DLL updated AFTER unsplit, so we must RTS, since later SREx/ManB/Reload would leave a previously working FRU OOS.

Baseln Alarm

New Baseln Major alarm is used to indicate that at least one non-baseline (Hardware or Firmware) FRU is present in the system.
Baseln alarm raising or lowering is triggered by:

1. Manual “MAPCI;MTC;XAC;QUERY CARD” of a below baseline FRU
2. Manual “MAPCI;MTC;XAC;QUERY SHELF”
3. System initiated query - occur periodically and after certain events
4. Manual “MAPCI;MTC;XAC;<level>;UNEQ” after FRU BSY, then pull

The alarm is lowered when all FRU have baseline compatible HW and FW[9].

To get a list of the non-baseline FRU responsible for the alarm, type, from MAPCI;MTC;XAC level:

1. ALARM Baseln - lists the problem FRU, but no baseline specific info
2. QUERY SHELF - ALL FRU info in the XA-Core shelf.
   Look for “*” in Hardware and Firmware “OK” columns.

Related Logs

1. **New XAC337** (FLT) - generated when the Baseln alarm is first raised, and whenever the list of non-baseline items changes, and is non-empty.
   The log lists the non-baseline FRU with related baseline information.
2. **New XAC637** (INFO)- generated when the Baseln alarm is lowered, indicating all FRU are now baseline compatible. The log is NOT generated due to a restart clearing the alarm, as discussed in *“Limitations and restrictions” on page 458*.
3. XAC415 - generated when SREx Baseline precheck determines that a PE or SM card is non-baseline, so no SREx is permitted.
   New reason added: “XACore Hardware or Firmware is not at baseline”.

SREx Impact

SREx is **bypassed** and an XAC415 log generated if a PE or SM card is not at baseline. Subsequent AutoDump is disallowed, since no image test was run.

OOS IO tests are bypassed if ONLY IO related FRU are non-baseline.

Table Control

Table PECINV - **new warning** is displayed if the user attempts a change or delete operation on a tuple with a subsystem of XACHW.
Warn that FRU WILL NOT RTS if the tuple is deleted or if the baseline or exception list change is not compatible with existing/newly inserted hardware.

9. Or any restart occurs. See *“Limitations and restrictions” on page 458*

New table FWINV - contains firmware (and DLL) baseline(s) indexed by PEC. Also provides the ability to indicate a FW release which should not be allowed if declared an "exception" version(s).

Table XAFWLOAD - **new warning** is displayed if the user attempts to provision a non-baseline firmware loadname.
Warn that Baseln alarm will be raised after the FRU is RTS'd, if a non-baseline loadname is used.

OAM

From MAPCI;MTC;XAC level (or sublevels), QUERY SHELF output **adds** Hardware and Firmware baseline[s] and FRU status indicator ("OK").
Any "*" in the OK column requires investigation.
The OK column entry is of the form "x" where x is:

1. **P*** = PEC not in table **P**ECINV
2. **F*** = PEC not in table **F**WINV, and FRU has FW (and DLL - HIOP only)
3. **N*** = **N**ot baseline compatible. I.e. Below baseline.
4. **X*** = Release/Version is an e**X**ception Rel/Ver in table PECINV/FWINV
5. **I*** = Could not read MIM **I**DPROM, to get PEC/Rel.
   This occurs during some maintenance activities.
   Baseln alarm/log will NOT be generated solely from this info.
6. **Y** = **Y**es, this FRU is baseline compatible.

"HW-SW vintage" column is **removed** from QUERY SHELF output, to allow for new baseline information. Vintage is still visible from the QUERY CARD command.

CI "POLL SHORT <dev1> <dev2>" is **enhanced** to show the output from a "QUERY SHELF" command. On a Supernode, it currently displays the output from MAPCI;MTC;CM;QUERYCM NOEMPTY.
XAC;QUERY SHELF is the XA-Core logical equivalent.

ONP Prechecks

The following **ONP precheck steps are enhanced** to detect non-baseline FRU on the active image. The steps fail if the equivalent of a QUERY SHELF displays "P*, F*, X* or N*", as previously described in *"OAM" on page 457*.

1. "ONPREADY", step "DISPLAY_PEC_INFO"
2. "SWUPGRADE READY; START", step "VERIFY_SN_PECS_INFO"
3. "BCSUPDATE; PRECHECK", step "DISPLAY_PEC_INFO"

ONP Pre-SWACT

While split, a **new pre-SWACT check** requests/receives the new-side PECINV (hardware baseline) data, to see if existing HW meets new-side baseline requirements. Alert the user if it does not.

FW checks are NOT done, since FW is currently updated in the first available Mtc window AFTER the unsplit succeeds. The Baseln Major alarm WILL be raised shortly after the unsplit, if the FWINV baselines have changed from one CSP release to another - this is a reminder to do the suggested FW/DLL upgrades.

Hardware Requirements or Dependencies

This activity applies only to XA-Core.

The XA-Core must be at hardware baseline for new ONP prechecks to pass. Hardware baselines are detailed in "XA-Core Maintenance Manual" (NTP 297-8991-510).

A patch will be developed for each of CSP17-CSP19, in order to determine the switch's current hardware baseline status. The intent is to avoid any ONP baseline issues when upgrading to CSP20-CSP22.

Software Requirements or Dependencies

No new software dependencies.

Since XA-Core firmware is upgraded after the ONP, below baseline firmware must be permitted to RTS; however, it will cause the Baseln alarm to be raised. Firmware baselines are detailed in the "DMS-100 Family NA100 Peripheral Module Software Release Document" (NTP 297-9081-599).

Limitations and restrictions

New Baseln alarm is cleared over all restarts. The alarm is re-raised when the non-baseline item is queried manually or by the system (within 10 minutes).

Since XA-Core firmware is upgraded after the ONP, below baseline firmware must be permitted to RTS; however, it will cause the Baseln alarm to be raised.

No incompatibilities with other features.

Interactions

Table XAFWLOAD - a new warning is displayed if the user attempts to provision a non-baseline firmware loadname.
Warn that Baseln alarm will be raised after the FRU is RTS'd.

Table PECINV - a new warning is displayed if the user attempts a change or delete operation on a tuple with a subsystem of XACHW.

Warn that FRU **WILL NOT** RTS if the tuple is deleted.
Warn that FRU **MAY NOT** RTS if the baseline or exception list change is not compatible with existing/newly inserted hardware.

Applicable customer facing sections

Fault Management

- Logs _X____
- Alarms _X____

Configuration

- Data Schema _X____
- User Interface _X____
- Element Management _n/a___
- Security _n/a___
- Service Order _n/a___
- Office Parameters _n/a___

Accounting (includes AMA billing) _n/a___

Performance (includes operational measurements) _n/a___

Realtime _n/a___ Mtc Code

Engineering Information _X___

Glossary

Term	Description
Baseline	The minimum HW/FW release/version that Nortel Networks requires for reliable XA-Core operation.
DLL	DownLoadable Loader
Exception	A HW release/FW version greater than or equal to the baseline release/version is OK to use, as long as it is NOT listed explicitly as an exception. I.e. an exception indicates HW/FW which must not be used.
FRU	Field Replaceable Unit - card or IOP packlet
FW	FirmWare
HW	HardWare
IOP	Input Output Processor Card

Term	Description
ManB	Manual Busy
MIM	Module Information Memory
ONP	One Night Process
OOS	Out Of Service
PE	Processor Element Card
RTS	Return To Service
SM	Shared Memory Card
SREx	System Routine Exercise

Fault Management for A00002433

Fault management strategy

Baseln Alarm

System alarm “Baseln” is raised whenever any XA-Core Field Replaceable Unit (FRU) installed in the shelf is not at Hardware (HW) or Firmware (FW) baseline. Only the Major level is used.
“ALARM Baseln” command will list the non-baseline components from MAPCI;MTC;XAC level, or its sub-levels.

1. Baseln alarm is raised due to HW issue when:
   a. Product Equipment Code (PEC) is missing from table PECINV
   b. Actual PEC HW release is less than PECINV baseline release
   c. Actual PEC HW release equals one of the PECINV exception releases
2. Baseln alarm is raised due to FW issue when:
   a. PEC is missing from table FWINV, and associated FRU has FW
   b. Actual PEC FW version is less than FWINV baseline version
   c. Actual PEC FW version equals one of the FWINV exception releases

Logs

1. New XAC337 FLT log is produced when:
   a. Baseln alarm is first raised
   b. Baseln alarm still raised, and non-baseline component list changes. The log lists all of the non-baseline components known.

2. New XAC637 INFO log is produced when Baseln alarm is cleared, due to an empty list of non-baseline components.
3. Existing XAC415 log adds “not at baseline” reason for not running the SREx test.

Fault management tools and utilities

MAPCI;MTC;XAC; ALARM BASELN

Returns a list of field replaceable unit (FRU) which are not at HW or FW baseline.

MAPCI;MTC;XAC; QUERY SHELF

Returns a list of FRU installed in the XA-Core shelf. Those FRU which are not at HW or FW baseline are indicated with a “*” in the OK column[s] - see CN section for more info.

LOGUTIL; OPEN XAC 337/637/415

XAC337 - list of components not at baseline
XAC637 - all components now at baseline
XAC415 - system state at time SREx test was bypassed, due to HW or FW not being at baseline.

Update HW

BSY, remove, and replace with correct PEC/release.

Update FW

FW is updated from MAPCI;MTC;XAC; <level> as per MTC manual steps, summarized briefly here:

a. update table XAFWLOAD PEC/NEW tuple to baseline FW (and HIOP DLL) version found in table FWINV
b. BSY <pos>; LOADFW <pos> FILE NEW; RTS <pos>
(Note that RTS downloads HIOP DLL during OOS TST)
c. update table XAFWLOAD by changing current to old, new to current

Logs

Three logs are detailed below: XAC415, XAC337, XAC637.

Explanation

Log Title: XAC415

Name: INFO Routine Exercise (REx) Report

Description: Generated when SREx is bypassed, due to:

One or more non-baseline PE|SM card being found in the XA-Core shelf. SREx is not impacted by FW being BELOW baseline on the PE, since FW is updated AFTER the ONP; however, SREx is not run if the PE/SM's entry is absent from FWINV, or it uses an exception version.

Event type: Log severity = MAJOR

Format

XAC415 Format and Example

```
<switch>      XAC415 <mmmdd hh:mm:ss ssd> INFO Routine Exercise (REx) Report
        INITIATOR      CLASS      RESULT
          System       <class>    Not Run
        Reason:<reason>
```

```
 **  XAC415 JAN08 19:47:22 5201 INFO Routine Exercise (REx) Report
        INITIATOR      CLASS      RESULT
         System        Full       Not Run
        Reason: XA-Core HW (PECINV) or FW (FWINV) is not at baseline
```

Field descriptions

Field	Value	Description
<class>	Existing list: "BASE", "ALL", "FULL", "IO", "PE", "SM"	SREx class requested.
<reason>	"XA-Core HW (PECINV) or FW (FWINV) is not at baseline" <other existing reasons>	Self-explanatory

Action

Investigate non-baseline components using:

1. LOGUTIL; OPEN XAC337 or
2. MAPCI;MTC;XAC;ALARM BASELN.

Update HW or FW/DLL as required.

Associated Operational Measurements or Performance Measurements

None.

Explanation

Log Title: XAC337

Name: FLT Baseln Alarm Raised

Description: Log is produced when:

a. Baseln alarm is first raised

b. Baseln alarm still raised, and non-baseline component list changes. The log lists the non-baseline components known at generation time.

Event type: Log severity = MAJOR

Format

XAC337 Format and Example

```
Type FRU     PEC+Release BL OK  Typ Version  Baseline OK
      ---- ------  ----------- -- --  --- -------- -------- --
     <fru> <pos>   <pec+rel><rel><ok><fw_dll><fwname><fwname><ok>
```

```
 **  XAC337 JAN15 22:55:35 7176 FLT  Baseln Alarm Raised
      Card/packlets below have non-baseline HW and/or FW.
      Investigate items with "N*" or U* in OK column.
                  - HW vs. PECINV -  -- Firmware vs. FWINV --
      Type FRU     PEC+Release BL OK  Typ Version  Baseline OK
      ---- ------  ----------- -- --  --- -------- -------- --
   eg. HIOP 14 R    NTLX14CA 01 02 N*  FW  XHIO02AH XHIO02AH Y
                                       DLL XHIO02AI XHIO02AH N*
      CMIC  4 R L  NTLX05AB 01 01 Y   FW  PK12CE12 ??       N*
      PE    4 F    NTLX02DA 01 ?? N*  FW  XAPE02AB XAPE02AB Y
      PE    5 F    NTLX02AA 01 ?? U*  FW  XAPE02AB XAPE02AB Y
```

```
**  XAC337 <mmmdd hh:mm:ss ssd> FLT  Baseln Alarm Raised
      Card/packlets below have non-baseline HW and/or FW.
      Investigate items with "N*" or U* in OK column.
                  - HW vs. PECINV -  -- Firmware vs. FWINV --
```

Field descriptions

Field	Value	Description
fru	Valid fru names: cards: pe, iop, hiop, **sm** pklts: cmic, amdi, ethr, **disk, tape, rtif**	FRU (field replaceable unit) names. **Bolded** FRU have no FW.
pos	Slot number: 1-30 front/rear: F or R upper/lower: U or L	Position of FRU in XA-Core shelf.
pec	8 character alphanumeric. NTLXnnaa: n=0-9, a=A-Z	Product Equipment Code (PEC)
rel	2 character alphanumeric. "00" through "ZZ"	HW rel
OK	2 chars: "Y " = Yes - at baseline "N*" = Non-baseline	Indicates if HW and/or FW is baseline compatible.
fw_dll	FW or DLL	Indicates if following fw_name field is for FirmWare or DLL.
fw_name	8 character alphanumeric.	Firmware load name.

Action

See *"Action" on page 462*

Associated Operational Measurements or Performance Measurements

None.

Explanation

Log Title: XAC637

Name: INFO Baseln Alarm Cleared

Description: Log is produced when alarm was raised, but now lowered, since no longer any non-baseline components.

Event type: Log severity = NONE

Format

XAC637 Format and Example

```
<switch>      XAC637 <mmmdd hh:mm:ss ssd> INFO Baseln Alarm Cleared
                <string>
```

```
XAC637 JAN15 23:13:26 4432 INFO Baseln Alarm Cleared
  All XAC HW at PECINV baseline. All XAC FW/DLL at FWINV baseline.
```

Field descriptions

Field	Value	Description
string	`All XAC HW at PECINV baseline. All XAC FW/DLL at FWINV baseline.`	XA-Core now at baseline.

Action

See *"Action" on page 462*.

Associated Operational Measurements or Performance Measurements

None.

Alarms

System alarm Baseln is added.
See "Fault management strategy" on page 460 for alarm behavior, and associated logs. The components listed should be investigated, and likely replaced. ALARM Baseln output simply lists the problem FRU and locations. More useful information appears in XAC337 log/QUERY SHELF outputs.

The alarm is cleared when no XA-Core components are non-baseline.

The output format for MAPCI; MTC; XAC; ALARM BASELN lists those components which are non-baseline.

ALARM BASELN Format

```
Alarm       Severity       Status
SysBTh      <sev     >     <Enabled/Disabled>
Cause                              Resource      State Slot/Pk/Dev
<cause>                            <res>         <st>  <slot > <dev>
....
<cause>                            <res>         <st>  <slot > <dev>

Where:
<sev>    = Cleared, Minor, Major, Critical
<cause>  = HW or FW is non-baseline.
<res>    = NIL, PE, SM, IOP, HIOP, Tape, Disk, RTIF, CMIC,
           AMDI, ETHR, RTIFp, RTIFp, AMDIp, CMICp,
           AMDIl, CMICl, ETHRp, ETHRl, TOD};
<st>     = '     ', INSV, ISTB, SYSB, CBSY, MBSY, SPLT, UNEQ
<slot>   = <slot number> +  <' ' | F | R> +  <' ' | L | U>
<dev>    = ' ' | 0 | 1
```

ALARM SysBTh Example - alarm OFF

```
Alarm       Severity       Status
Baseln      Cleared        <Enabled/Disabled>
```

ALARM SysBTh Example - alarm ON

```
Alarm       Severity       Status
Baseln      Major          Enabled
Cause                              Resource      State Slot/Pk/Dev
HW or FW is non-baseline.          RTIF          INSV  15R  U
HW or FW is non-baseline.          IOP           INSV  15R
```

Related documentation

XA-Core Maintenance Manual - 297-8991-510.

XA-Core Reference Manual - 297-8991-810.

Configuration for A00002433

Hardware and Software Requirements

This feature is intended to verify that an XA-Core meets baseline HW and FW requirements, that may vary from one SW release to another.

Initial Configuration

No configuration steps are required to enable this feature in CSP20.
For CSP17/18/19, a patch must be developed which does a “precheck” to alert the user that they are not at HW baseline for CSP20, and that these components will not come into service if they were to continue with the unsplit.
Documentation will also indicate the required HW PEC and HW releases required.

Office parameters

No new or modified office parameters.

Upgrade Impact

Dump and Restore

No dump and restore impact, as existing table PECINV, and new table FWINV are NOT restored over an ONP.

CSP20 XA-Core Baselines

HW baselines and optional exception releases are listed in table PECINV.
FW baselines and optional exception versions are listed in table FWINV.
XA-Core baselines are shown below - these should be added to customer ONP documentation. Used in ONP prechecks weeks prior to ONP, while unsplit: (a) ONPREADY, b) SWUPGRADE READY; START, c) BCSUPDATE; PRECHECK) as well as during ONP pre-swact checks, while split (BCSUPDATE; SWACTCI; PRESWACT):

XA-Core HW Baselines, CSP20 - Table PECINV

```
>TABLE PECINV; FORMAT PACK
>RANGE SSYSBASE
 2 SSYSBASE          SN_SSYS_BASELINE
TYPE IS SN_SSYS_BASELINE VECTOR OF UP TO 11 MULTIPLES WITH
        SUBSYS           SN_SUBSYSTEM_HW
        BASELINE         TABLE OF 2 CHAR'S
        EXCPTN           VECTOR OF UP TO 4 TABLES OF 2 CHAR'S

>LIST ALL (SSYSBASE GE XACHW)
TOP
PEC        SSYSBASE
--------   -------------
NTLX02CA (XACHW 01 $) $
NTLX02DA (XACHW 01 $) $
NTLX03AA (XACHW 28 $) $
NTLX03AB (XACHW 03 $) $
NTLX03BA (XACHW 28 $) $
NTLX03BB (XACHW 03 $) $
NTLX04AA (XACHW 01 $) $
NTLX04BA (XACHW 01 $) $
NTLX04CA (XACHW 01 $) $
NTLX05AB (XACHW 01 $) $
NTLX05BA (XACHW 01 $) $
NTLX06AA (XACHW 01 $) $
NTLX06AB (XACHW 01 $) $
NTLX06AC (XACHW 01 $) $
NTLX07AA (XACHW 01 $) $
NTLX07BA (XACHW 01 $) $
NTLX08AA (XACHW 01 $) $
NTLX08AB (XACHW 01 $) $
NTLX09AA (XACHW 01 $) $
NTLX12AA (XACHW 04 $) $
NTLX14CA (XACHW 01 $) $
NTLX17AA (XACHW 01 $) $
NTLX22AA (XACHW 07 $) $
NTLX22BA (XACHW 02 $) $
NTLX27AA (XACHW 01 $) $
BOTTOM

>COUNT (SSYSBASE GE XACHW)
BOTTOM
SIZE = 26
```

XA-Core FW Baselines, CSP20 - Table FWINV

```
>TABLE FWINV; FORMAT PACK
>RANGE FWBASE
 2 FWBASE            TFWINV_TUPLE
TYPE IS TFWINV_TUPLE VECTOR OF UP TO 2 MULTIPLES WITH
        FWTYPE       {FW,DLL}
        VERSION      TABLE OF 8 CHAR'S
        EXCEPTIONS   VECTOR OF UP TO 4 TABLES OF 8 CHAR'S

>LIST ALL
TOP
PEC        FWBASE
--------   --------------------------------
NTLX02CA (FW XAPE01AG $) $
NTLX02DA (FW XAPE02AB $) $
NTLX03AA (FW XAIO01AK $) $
NTLX03AB (FW XAIO01AK $) $
NTLX03BA (FW XAIO01AK $) $
NTLX03BB (FW XAIO01AK $) $
NTLX04AA (FW XHIO02AA $)(DLL XHIO02AJ $) $
NTLX04BA (FW XHIO02AA $)(DLL XHIO02AJ $) $
NTLX04CA (FW XHIO02AH $)(DLL XHIO02AJ $) $
NTLX17AA (FW XHIO03AA $)(DLL XHIO03AA $) $
NTLX05AB (FW PK12CE12 $) $
NTLX05BA (FW PK12CE12 $) $
NTLX09AA (FW EP14D003 $) $
BOTTOM

>COUNT
BOTTOM
SIZE = 13
```

Pre-ONP checks (while usnplit)

Existing steps have been enhanced for XA-Core, and to check for non-baseline XA-Core HW/FW/DLL.

1. ONPREADY % Step "DISPLAY_PEC_INFO"
   Step saves MAP output to file, then scans it for baseline failures.
2. BCSUPDATE; PRECHECK % Step "DISPLAY_PEC_INFO"
   Step display MAP output to screen ONLY.
   Step always "fails", so that user will manually scan for non-baseline indicators.
   Override the step to continue, once all resources are at baseline.
3. SWUPGRADE READY; START % Step "VERIFY_SN_PECS_INFO"
   Step saves MAP output to file, then scans it for baseline failures.

PRESWACT checks (while split)

A new preswact check is added, and run while the XA-Core is split. Active side queries are sent to inactive side for comparison against NEW PECINV baselines. Incompatible cards/packlets are sent back to active side for display. If list is nil, step passes, else preswact step fails.

PRESWACT - Baseline Check Behavior

```
ACTIVE SIDE                                          INACTIVE SIDE
-----------                                          --------------
1- Card/pklt query list -> Buf
                                    Buf
2- preswact_transfer(PSEND, INITIAL) --->
   Invokes
                                      3- Compare card/pklts vs NEW PECINV baseli
                                               Non-baseline items->Buf

                                    Buf
4- preswact_transfer(PRECEIVE)      <---
   Pass: Display OK OR
   Fail: list problem card/pklts
```

Sample output, when HW is NOT compatible with NEW side baselines:

Sample PRESWACT output - step XACORE_BASELN_CHECK

```
>BCSUPDATE; SWACTCI; PRESWACT
XACORE_BASELN_CHECK                executing
      16 of 23 cards+packlets compatible with NEW SIDE baselines.

      ******************************************************
      ** XACore resources incompatible with NEW baselines. **
      ** ABORT PRESWACT AND UPDATE RESOURCES TO MEET       **
      ** NEW BASELINES, ONCE SYSTEM IS UNSPLIT.            **
      ******************************************************

      Non-baseline XA-Core Resources vs NEW side:
      -------------------------------------------
                  --HW vs. PECINV--
      Type NT Loc  PEC+Release BL OK  Failure reason on NEW side
      ---- ------  ----------- -- --
      Disk  2 F L  NTLX06AC 00 01 N*  Below PECINV Baseline
      IOP  17 F    NTLX03BB 02 03 N*  Below PECINV Baseline
      IOP   4 R    NTLX03AA 03 28 N*  Below PECINV Baseline
      CMIC  4 R L  NTLX05AB 00 01 N*  Below PECINV Baseline
      HIOP 14 R    NTLX04BA 00 01 N*  Below PECINV Baseline
      IOP  15 R    NTLX03AB 00 03 N*  Below PECINV Baseline
      RTIF 15 R U  NTLX08AB 00 01 N*  Below PECINV Baseline

      XACORE_BASELN_CHECK               not complete

      Investigate and correct if needed.
```

Data schema (DS)

New/modified tables

Table name	NEW/CHANGED/ or DELETED/	Table Control (NEW/ OLD/UNCHANGED)
PECINV	CHANGED	UNCHANGED (NEW)
FWINV	NEW	NEW

Table Data Schema information

Name: PECINV

PECINV is changed in the following ways:

1. Maximum number of tuples is increased from 200 to 256.
2. Default datafill (added at loadbuild time using PLS DMSPL module EXTPECHWSUB) is updated:
   a. Added new PECs and their correct baseline releases.
   b. Corrected baseline release on some existing PECs.

Functional description

PECINV is intended to maintain the HW baseline PEC, release and exception releases for various subsystems.

Its data is accessed by:

1. CHECKMS CI - MSHW and STDHW subsystems only.
2. CHECKREL CI - all supported subsystems.
3. SREX - through run_hardware_monitor() check.
   Only MSHW subsystem. has a target procedure bound currently.

Usage sequence and implications

No table dependencies. Current datafill order unchanged.

Size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
PECINV	0	256	Store for 256 tuples is pre-allocated in DSPROT. Each tuple approx 20 bytes

Datafill example

The following example shows sample datafill for table FWINV:

PECINV examples

```
PEC SSYSBASE
------------
1. NTLX02CA (XACHW 01 $) $
```

Table release history update

1. Extended maximum tuple range from 200 to 256.
2. Added missing PEC/releases to default datafill: (now 210 entries at IPL)
   NTLX02DA XACHW 01 % ATLAS PE
   NTLX03AB XACHW 03 % single width IOP card
   NTLX03BB XACHW 03 % double width IOP card
   NTLX04AA XACHW 01 % HIOP card - ETHR
   NTLX04BA XACHW 01 % HIOP card - ETHR/AMDI
   NTLX04CA XACHW 01 % HIOP card - ETHR/CMIC
   NTLX05AB XACHW 01 % CMIC packlet
   NTLX05BA XACHW 01 % AMDI packlet
   NTLX06AC XACHW 01 % Disk packlet - 34.2 GB
   NTLX07BA XACHW 01 % Tape packlet - 20 GB DDS4
   NTLX08AB XACHW 01 % RTIF Packlet
   NTLX09AA XACHW 01 % ETHR Packlet
   NTLX17AA XACHW 01 % HIOP Card - CMIC/RTIF .
3. Corrected baseline releases on existing PECs:
   NT9X13DE LIMHW 01 --> 03
   NT9X63AA MSHW 01 --> 10
   NT9X71AB LIMHW 00 --> 01
   NT9X72BA LISHW 00 --> 01
   NTLX02AA XACHW 04 --> 01
   NTLX03AA XACHW 04 --> 28
   NTLX03BA XACHW 04 --> 28
   NTLX05AA XACHW 02 --> 01
   NTLX06AA XACHW 02 --> 01
   NTLX07AA XACHW 02 --> 01
   NTLX12AA XACHW 02 --> 04
   NTLX14CA XACHW 02 --> 01
   NTLX22AA XACHW 02 --> 07
   NTLX27AA XACHW 02 --> 01
4. Removed XA-Core PECs - no longer supported
   NTLX02AA XACHW % HIPPO based PE
   NTLX05AA XACHW % CMIC packlet

Supplementary information
NONE

Translation verification other tools
PECINV does not use translation verification tools.

Name: FWINV
FWINV is a NEW table.

Functional description
FWINV is intended to maintain the FW baseline for a PEC, and allows from 0 up to 4 exception versions.

Its data is accessed by:

1. MAPCI;MTC;XAC;QUERY SHELF/CARD
2. Periodic internal queries
3. SREx
4. Card/Packlet RTS
5. ONP prechecks, prior to ONP
6. ONP preswact, while split, during ONP

Usage sequence and implications
No table dependencies. Current datafill order unchanged.

Size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
FWINV	0	64	Store for 64 tuples is pre-allocated in DSPROT. Each tuple is 90 bytes.

Fields/OIDs
The following table lists fields for table FWINV. Only 2 fields are shown by the RANGE command: PEC (key) and FWBASE. FWBASE is further broken down into FWTYPE/FWBASE/EXCEPTIONS

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
PEC	NEW	Subfield	8 chars	Must begin with NTLX

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
FWBASE	NEW	Subfield	Sum of 3 below	
FWTYPE	NEW	Subfield	FW or DLL	FW for ROM baseline. DLL for DLL baseline.
VERSION	NEW	Subfield	8 chars	ASCII A-Z, 0-9, beginning with: PE: XAPE IOP: XAIO HIOP: XHIO CMIC: PKdd, d=0-9 AMDI: PKdd, d=0-9 ETHR: EPdd, d=0-9 NO FW for: SM, DISK, TAPE, RTIF
EXCEPTIONS	NEW	Subfield	8 chars	Same restrictions as above. This FW/DLL version is bad, and will be alarmed if used.

Datafill example

The following example shows sample datafill for table FWINV.

FWINV examples

```
PEC FWBASE
------------
1. NTLX02CA (FW XAPE01AG $) $
2. NTLX04CA (FW XHIO02AH $) (DLL XHIO02AI $)

%% Eg. ONLY, to show exception format.
3. NTLX05AB (FW PK12CE12 (PK12CE13) $) $
```

Table release history update

Initial release.

Supplementary information

NONE

Translation verification other tools

FWINV does not use translation verification tools.

Service Orders (SO)

No impact to Service Orders.

Software optionality control (SOC)

Feature is not SOC controlled.

Command interface changes

QUERY CARD and QUERY SHELF commands are enhanced to show if FRU is HW and FW/DLL baseline compatible.

Directory: MAPCI; MTC; XAC

Directory description

Existing levels are still used - only the display is changed for QUERY SHELF. QUERY SHELF is available from XAC and its sublevels:
XACMTC, SM, PE, IO, CMIC, RTIF, DISK, TAPE, AMDI, ETHR

Accessing directory: XACDIR

Access to directory or MAP level and return to CI
enter XAC level from CI:
MAPCI;MTC;XAC
exit to CI:
QUIT ALL

Command: QUERY SHELF

Command type: Listed MENU

Command target: XA-Core

Command availability: RES

Command description

QUERY SHELF lists:

1. Last REX data: time, type, result
2. Information per FRU installed in the shelf.

Command syntax

QUERY SHELF command parameters and variables

Command	Parameters and variables
QUERY SHELF	No additional parameters available.

Qualifications and warnings

NA

Example

See the following figure.

Query SHELF Example

```
>MAPCI NODISP;MTC;XAC
>QUERY SHELF

LAST REX DATA
-------------
REXtst run at: 1976/01/02 01:56:52
REXtst type  : full
REXtst result: pass

SHELF DATA
----------
Notes:
  FW: ROM version. HIOP adds DLL version on following line.
  OK: Yes, No, IDPROM read fail, Unsupported.  "*"=Investigate!
            --HW vs. PECINV--                ----FW vs. FWINV----
Pos    Type PEC+ HW Rel BL OK Serial Number  FW Vers. Baseline OK
------ ---- ---------- -- -- -------------- -------- -------- --
 2 F   IOP  NTLX03BA 30 28 Y    NNTM6441882N XAIO01AK XAIO01AK Y
 2 F L Disk NTLX06AC 01 01 Y    NNTM171W2SKC n/a      n/a      Y
 2 F U Tape NTLX07AA 02 01 Y    NNTM171XLG8W n/a      n/a      Y
 4 F   PE   NTLX02CA 02 01 Y    NNTM64419MYY XAPE01AG XAPE01AG Y
 5 F   PE   NTLX02CA 01 01 Y    NNTM64416MJB XAPE01AG XAPE01AG Y
11 R   SM   NTLX14CA 02 01 Y    NNTM64415KXH n/a      n/a      Y
 7 F   SM   NTLX14CA 09 01 Y    NNTM64429LK2 n/a      n/a      Y
10 R   SM   NTLX14CA 02 01 Y    NNTM1721FG2L n/a      n/a      Y
 8 F   SM   NTLX14CA 09 01 Y    NNTM64429LM1 n/a      n/a      Y
12 F   PE   NTLX02CA 05 01 Y    NNTM171WT19M XAPE01AG XAPE01AG Y
13 F   PE   NTLX02CA 12 01 Y    NNTM64415C78 XAPE01AG XAPE01AG Y
16 F   PE   NTLX02CA 05 01 Y    NNTM171WMXQ9 XAPE01AG XAPE01AG Y
17 F   IOP  NTLX03BB 02 03 N*   NNTM6441VHPX XAIO01AK XAIO01AK Y
17 F L Disk NTLX06AA 02 01 Y    NNTM1721FDZW n/a      n/a      Y
17 F U Tape NTLX07AA 02 01 Y    NNTM171Z17HM n/a      n/a      Y
 4 R   IOP  NTLX03AA 03 28 N*   NNTM17218T79 XAIO01AK XAIO01AK Y
 4 R L CMIC NTLX05AB 01 01 Y    NNTM171VY7C9 PK12CE12 PK12CE12 Y
 4 R U RTIF NTLX08AA 02 01 Y    NNTM171BP2Y0 n/a      n/a      Y
10 F   SM   NTLX14CA 02 01 Y    NNTM64419R6Q n/a      n/a      Y
14 R   HIOP NTLX04BA 01 01 Y    NNTMEM0135GG XHIO02AA XHIO02AA Y
                                             XHIO02AH XHIO02AJ N*
15 R   IOP  NTLX03AB 01 03 N*   NNTM6441DSGW XAIO01AK XAIO01AK Y
15 R L CMIC NTLX05AB 03 01 Y    NNTM171Z1GWG PK12CE12 PK12CE12 Y
15 R U RTIF NTLX08AB 01 01 Y    NNTM171ZQ2DS n/a      n/a      Y
```

Command: QUERY CARD

Command type: Listed MENU

Command target: XA-Core

Command availability: RES

Command description

QUERY CARD output varies per FRU type. Common to all is:

1. Information per FRU installed in the shelf.

Command syntax

QUERY SHELF command parameters and variables

Command	Parameters and variables
QUERY CARD <position>	position = <slot> <front | rear> [<upper | lower>]

Qualifications and warnings

NA

Example

See the following figure.

Query CARD Examples

```
>MAPCI NODISP;MTC;XAC
>QUERY CARD 2 F
Notes:
  OK: Yes, No, IDPROM read fail, Unsupported.  "*"=Investigate!
            --HW vs. PECINV--                 ----FW vs. FWINV----
Pos    Type PEC+ HW Rel BL OK Serial Number  FW Vers. Baseline OK
------ ---- ---------- -- -- -------------- -------- -------- --
 2 F   IOP  NTLX03BA 30 28 Y    NNTM6441882N XAIO01AK XAIO01AK Y
HW/SW Vintage   : 01

>QUERY CARD 17 F L
Notes:
  OK: Yes, No, IDPROM read fail, Unsupported.  "*"=Investigate!
            --HW vs. PECINV--                 ----FW vs. FWINV----
Pos    Type PEC+ HW Rel BL OK Serial Number  FW Vers. Baseline OK
------ ---- ---------- -- -- -------------- -------- -------- --
17 F L Disk NTLX06AA 02 01 Y    NNTM1721FDZW n/a      n/a      Y
HW/SW Vintage   : 01
Vendor          : SEAGATE
Product ID      : ST39216W
Revision        : 0004
Nom Capacity(MB): 8602
Block Size   (B): 512

>QUERY CARD 4 R L
Notes:
  OK: Yes, No, IDPROM read fail, Unsupported.  "*"=Investigate!
            --HW vs. PECINV--                 ----FW vs. FWINV----
Pos    Type PEC+ HW Rel BL OK Serial Number  FW Vers. Baseline OK
------ ---- ---------- -- -- -------------- -------- -------- --
 4 R L CMIC NTLX05AB 00 01 N*   NNTM171VY7C9 PK12CE12 PK12CE12 Y
HW/SW Vintage   : 01

>QUERY CARD 4 R U
Notes:
  OK: Yes, No, IDPROM read fail, Unsupported.  "*"=Investigate!
            --HW vs. PECINV--                 ----FW vs. FWINV----
Pos    Type PEC+ HW Rel BL OK Serial Number  FW Vers. Baseline OK
------ ---- ---------- -- -- -------------- -------- -------- --
 4 R U RTIF NTLX08AA 02 01 Y    NNTM171BP2Y0                     Y
HW/SW Vintage   : 01

>QUERY CARD 14 R
Notes:
  OK: Yes, No, IDPROM read fail, Unsupported.  "*"=Investigate!
            --HW vs. PECINV--                 ----FW vs. FWINV----
Pos    Type PEC+ HW Rel BL OK Serial Number  FW Vers. Baseline OK
------ ---- ---------- -- -- -------------- -------- -------- --
14 R   HIOP NTLX04BA 00 01 N*   NNTMEM0135GG XHIO02AA XHIO02AA Y
                                            XHIO02AH XHIO02AI N*
HW/SW Vintage   : 01
Ethernet MAC Address : 00603887A969
Port     IP Address  : n/a  % Actual IP addresses, if provsioned
Assigned IP Address 1: n/a
Assigned IP Address 2: n/a
```

Security

No impact to switch security.

Configuration Walkthrough

NA

Product = CS 2000

A00002499 -- Store Audit for XA-CORE (Succession on DMS)

Functional Description

This feature is to implement refinements to the XA-Core Store Audit in preparation for enabling the audit in the field.

There are no external customer requirements addressed by this feature. The driver requirements for this feature work are all from the design community which felt that the existing audit code was incomplete, and in fact the audit was left disabled by default in previous releases.

This feature does intend to add new logs to report any detected faults in Store Allocator data. When the audit was initially created, STOR600 logs were used to flag problems found by the audit's original code. In later releases new functionality was added to the audit code base, but instead of using logs, detected faults were reported using footprints and swerrs. It is the intention of this audit to consolidate the fault reporting mechanisms and make them consistent.

Hardware Requirements or Dependencies

No dependencies identified at this time.

Software Requirements or Dependencies

No dependencies identified at this time.

Limitations and restrictions

None identified at this time.

Interactions

None identified at this time.

Applicable customer facing sections

Fault Management

Logs	___X__
Alarms	__N/A_
Configuration	
Data Schema	__N/A_
User Interface	__N/A_
Element Management	__N/A_
Security	__N/A_
Service Order	__N/A_
Office Parameters	__N/A_
Accounting (includes AMA billing)	__N/A_
Performance (includes operational measurements)	__N/A_

Fault Management for A00002499

Fault management strategy

Three new logs are introduced by this feature to flag the detection of faults by the XA-Core Store Audit. There are existing STOR logs already defined for use by the audit which the new logs will augment.

Fault management tools and utilities

N/A.

Logs - STOR605

Explanation

Log Title: STOR605

Name: Store Bstree Corruption

Description: This log is output when the Store Audit has detected a corruption in the Bstree structures containing the information about the data address space STOR is responsible for.

Event type: Critical.

Format

STOR605 Format

```
HHHHHHH STOR605 mmmdd hh:mm:ss ssdd INFO Store Bstree Corruption
      Bstree nodes corrupt= XXXX
      Check SOSB Footprint data - STORE FP EVENT generated.
```

Field descriptions

Field	Value	Description
Bstree nodes corrupt	1 - 9999	Number of problems detected by a single pass of the audit.

Action

The log text indicates to the support personnel that footprints should be collected. This log is only notification that a problem was detected; the detailed fault information is dumped in the SOSB footprints (with the title text "STORE FP EVENT"). Once the details of the corruption(s) is analyzed further recovery action may be required. The corruption may be an invalid pointer or a bad state in the data, and may affect any store type. If DSTEMP is affected the corruption may be cleared by a core restart. If DSPROT is affected the core image may no longer be viable and a reboot or system SWACT may be needed to recover.

Associated Operational Measurements or Performance Measurements

None.

Additional information

None.

Logs - STOR606

Explanation

Log Title: STOR606

Name: Dump Data Corruption

Description: This log indicates that the Store Audit has found a corruption in the allocation information for data store which is dumped (such as DSPROT) and it is very likely that a attempt to perform a dump while in this state would fail.

Event type: Critical.

Format

STOR606 Format

```
HHHHHHH STOR606 mmmdd hh:mm:ss ssdd INFO Store Dump Data Corruption
     ADDR= XXXXXXXX STORTYPE= YYYYYYYY BLOCKSIZE= ZZZZZZZZ
```

Field descriptions

Field	Value	Description
ADDR	00000000 - FFFFFFFF (hexidecimal)	Address of the block of store flagged as corrupt.
STORTYPE	STORTYPE2 (module STOR)	Storetype of the corrupted block.
BLOCKSIZE	00000000 - FFFFFFFF (hexidecimal)	Size in bytes of the corrupted block.

Action

Should these logs be generated the state of the system's allocation information for protected store is such that a valid image dump cannot be performed. Nortel Networks support personnel should be contacted immediately to further investigate the problem. If a valid image file exists then the system may need to be rebooted or otherwise restored to the valid image using a SWACT.

Associated Operational Measurements or Performance Measurements

None.

Additional information

None.

Logs - STOR607

Explanation

Log Title: STOR607

Name: Store Attribute Corruption

Description: This log is generated when the Store Audit detects a mismatch between the Store Allocator's internal setting of an address' blocking attribute and the actual setting of the attribute in memory hardware. The attribute is either blocking or write-blocking. An incorrect value could mislead the Store Allocator's initialization routines and cause traps.

Event type: Major.

Format

STOR607 Format

```
HHHHHHH STOR607 mmmdd hh:mm:ss ssdd INFO Store Attribute Corruption
      ADDR= XXXXXXXX ST2ATTR= YYYY HW_ATTR= ZZZZ
```

Field descriptions

Field	Value	Description
ADDR	00000000 - FFFFFFFF (hexidecimal)	Address of the block of store flagged as having mismatching attributes.
ST2ATTR	0 - blocking memory 1 - write-blocking memory 2 - attribute read error	Blocking attribute of the memory recorded internally by the Store Allocator.
HW_ATTR	0 - blocking memory 1 - write-blocking memory 2 - attribute read error	Blocking attribute of the memory as reported by hardware.

Action

In the event of blocking attribute mismatches being detected support personnel will have to investigate further. Footprints and logs should be collected, as well as FQT (Fault Query Tool) data to determine if any memory hardware failures have occurred.

If blocking attribute mismatches exist in the system, it is possible that there will be no other immediate symptoms as long as there is no Store Allocator activity related to the affected memory. However if a restart occurs the Store Allocator may be unable to correctly access this memory, and in the worst case a restart progression may lead to a system reboot. Thus, manual restarts should be avoided until technical support can determine exactly what memory is affected.

Associated Operational Measurements or Performance Measurements

None.

Additional information

None.

Product = CS 2000

A00002510 -- LANCOMM IP over IRM (Succession on DMS)

Functional Description

This document provides the design intent for the feature to provide LANCOMM IP over the IRM on XA-CORE. The purpose of this feature is to provide LANCOMM TCP and UDP availability when communicating over the XACORE Ethernet messaging system. This feature does not address LANCOMM issues of performance or robustness.

At present the IRM IP is used to transmit and receive packets to and from the XACORE IO hardware. The IRM implementation of IP is very minimal with some of the features such as ARP routing being performed by the firmware. The IRM IP implementation does not support TCP or features like IP fragmentation and extra options. The LANCOMM version of IP supports IP more completely. This feature will use the IRM IP to receive packets from the IO cards, however the IRM will then will use callback routines that will be registered with the IRM for packets intended for LANCOMM to pass the packets to LANCOMM UDP or TCP. The LANCOMM IP will be used to process the packets. A TCP or UDP packet coming from the LANCOMM intended for the IRM will be injected in to the IRM IP after it has passed through the LANCOMM IP to be transmitted to Ethernet.

The specific purpose of this feature is to support the Next generation Supernode Data Manager (nSDM) that is being developed on a Solaris platform to replace the existing SDM FX which uses a DS512 to connect to the CORE. The nSDM will not have a DS512. It will connect to the CORE via Ethernet. This feature will also support FTP or TELNET over IRM from another source other than the SDM like for instance an workstation. [10]This will not be a EIU replacement but will exist in the same load as EIU.This Feature will support the following SDM applications with LANCOMM IP over IRM.

- RPC (UDP)
- NTP -Network Time Protocol (UDP)
- FTP (TCP)

10. Telnet and FTP over IRM will be enabled for all devices connected to a CORE that is in lab mode. In field mode the only recognised device allowed to access the CORE through the Ethernet will be SDM.

- Telnet (TCP)
- SBA -Billing (RFC TCP)

Hardware Requirements or Dependencies

A nSDM and a SDM FX which are connected to the Core by HIOP are required to fully test the feature. We also need a nSDM system that is connected to a core that has both EIU and HIOPs.

Software Requirements or Dependencies

There should be no software dependencies as this feature will work with both the existing SDM FX and NSDM.

Limitations and restrictions

Only one SDM will be connected to the CORE at a time.

Any application that wants to use LANCOMM IP over IRM is required to bind to the NIL IP address. All present SDM applications are compliant.

Any application that are using the EIU will continue to function.

Under this CSP20 release only, the SDM will be the only application node making use of the LANCOMM IP over IRM feature. The number of SDM nodes are limited to four.

Interactions

All applications using LANCOMM IP over IRM on the nSDM will function as they did before on the SDM fx without any impact to the user.

Applicable customer facing sections

Fault Management	
Logs	X
Alarms	N/A
Configuration	
Data Schema	X
User Interface	N/A
Element Management	N/A
Security	N/A
Service Order	N/A
Office Parameters	N/A
Accounting (includes AMA billing)	N/A

Performance (includes operational measurements) X

Realtime N/A

Engineering Information X

Glossary

Term	Description
Arp	Address Resolution Protocol
Core	DMS switch computing engine
FTP	File Transfer Protocol
HIOP	High Performance I/O processor packlet
IP	Internet Protocol
IRM	IP routing and Maintenance
LANCOMM	Core network layer for Telnet and FTP
nSDM	next Generation Supernode Data Manager
SDM	Supernode Data Manager
SDM FX	SDM Fault tolerant platform based on IBM AIX UNIX and redundant Motorola hardware.
TCP	Transmission Control Protocol
UDP	internet User Datagram Protocol

Fault Management for A00002510

Fault management strategy

Unchanged

Fault management tools and utilities

Unchanged

Logs

Explanation

Log Title: ITN307

Name:

Description:

XASKY07BD ITN313 SEP30 11:09:34 8200 INFO IP TRANSMIT FAILED

NODE:CM

Route to Destination Known but Unavailable

SRC IP: 47.129.216.60

DST IP: 47.80.0.209

Configuration for A00002510

Hardware and Software Requirements

NA

Initial Configuration

NA

Office/Subnet parameters (OP/SP) (CM & SESM)

NA

Upgrade Impact

NA

Data schema (DS) (CM, MIBS, RDB)

New/modified tables, MIBs, or Database Schema

Table/MIB name	NEW/CHANGED/ or DELETED/	Table Control (NEW/ OLD/UNCHANGED)
IPNETWRK	changed	old

Table/MIB/Remote Database Schema information

Table schema for IPNETWRK has been modified as follow.

Field name PARM in table IPNETWRK has been refined, a new value IRM_INTERFACE is added. The introduction of this new value has an impact to the dump and restore table transfer order. Table CMIPADDR needs to be transferred before IPNETWRK.

Name:

IP Network Table

Functional description

A new field has been introduced in CSP20 to specify the IP address that has been assigned for the XA-Core IOP (IRM). This IP Address must have been datafilled in table CMIPADDR.

Usage sequence and implications (CM Only)

Tables must be datafilled in the following sequence:

Transfer order must be changed such that CMIPADDR is transferred before IPNETWRK.

CMIPADDR

IPNETWRK

Size

NA

Datafill example

NA

Table release history update

NA

Supplementary information

NA

Translation verification other tools

NA

Service Orders (SO) (CM & SESM)

NA

Software optionality control (SOC)

NA

Element Management

NA

Security

NA

Configuration Walkthrough

NA

Product = CS 2000

A00002538 -- Performance Measurement Tools (Succession on DMS)

Functional Description

This feature will remove the COMPLEX (call complexity) measurement from the XA-Core platform as this measurement is not valid for XA-Core.

The COMPLEX measurement is currently displayed in:

- the CAPCI CI command
- the CAPACITY level of MAPCI
- the DETAIL level of MAPCI
- the SCHEDMAP level of MAPCI
- CAPLOGS - specifically the CAP100 and CAP101 logs
- XASTAT OM - XASCMPLX measurement

Hardware Requirements or Dependencies

None

Software Requirements or Dependencies

None

Limitations and restrictions

None

Interactions

None

Applicable customer facing sections

Fault Management

Logs	__X___
Alarms	_____

Configuration

Data Schema	_____

User Interface _____

Element Management _____

Security _____

Service Order _____

Office Parameters _____

Accounting (includes AMA billing) _____

Performance (includes operational measurements) ___X__

Fault Management for A00002538

Fault management strategy

N/A

Fault management tools and utilities

N/A

Logs

CAP 100

Explanation

Log Title: CAP100

Name: Capacity Summary Log

Description: Since the complexity (COMPLEX) measurement is not valid on an XA-CORE (multiple processing) switch, it will be removed from the capacity summary log data collection and display.

Event type: INFO

Format

In previous releases, the CAP100 is displayed as:

```
XASKY07AZ      CAP100 SEP09 20:59:33 8800 INFO CAPACITY_SUMMARY
CATMP/HR       0 UTIL  --  ENGCATMP     --  MAXCATMP     --  COMPLEX   --
```

The field “COMPLEX” will be removed from CAP log 100 in this release (CSP20) as displayed below:

```
XASKY07AZ      CAP100 SEP09 20:59:33 8800 INFO CAPACITY_SUMMARY
CATMP/HR        0 UTIL  --  ENGCATMP      --  MAXCATMP      --
```

Field descriptions

The remaining fields are not changed.

Action

No change

Associated Operational Measurements or Performance Measurements

No change

Additional information

No change

CAP log 101

Explanation

Log Title: CAP101

Name: Capacity log

Description: Since the complexity (COMPLEX) measurement is not valid in XA-CORE (multiple processing) switch, it will be removed from CAP log 101 data collection and display.

Event type: INFO

Format

In previous releases, the CAP101 is displayed as:

```
XASKY07AZ      CAP101 SEP09 20:59:33 8700 INFO CAPACITY_DATA
11: CATMP/HR       0 UTIL  --  ENGCATMP      --  MAXCATMP      --
COMPLEX   --  ENGLEVEL BELOW CCOVRLD OFF CMICOVRLD OFF PESC  NO
12: CATMP/HR       0 UTIL  --  ENGCATMP      --  MAXCATMP      --
COMPLEX   --  ENGLEVEL BELOW CCOVRLD OFF CMICOVRLD OFF PESC  NO
13: CATMP/HR       0 UTIL  --  ENGCATMP      --  MAXCATMP      --
COMPLEX   --  ENGLEVEL BELOW CCOVRLD OFF CMICOVRLD OFF PESC  NO
14: CATMP/HR       0 UTIL  --  ENGCATMP      --  MAXCATMP      --
COMPLEX   --  ENGLEVEL BELOW CCOVRLD OFF CMICOVRLD OFF PESC  NO
15: CATMP/HR       0 UTIL  --  ENGCATMP      --  MAXCATMP      --
COMPLEX   --  ENGLEVEL BELOW CCOVRLD OFF CMICOVRLD OFF PESC  NO
```

The field “COMPLEX” will be removed form CAP101 in this release (CSP20) as displayed below:

```
XASKY07AZ      CAP101 SEP09 20:59:33 8700 INFO CAPACITY_DATA
11: CATMP/HR       0 UTIL  --  ENGCATMP      --  MAXCATMP      --
ENGLEVEL BELOW CCOVRLD OFF CMICOVRLD OFF PESC  NO
12: CATMP/HR       0 UTIL  --  ENGCATMP      --  MAXCATMP      --
ENGLEVEL BELOW CCOVRLD OFF CMICOVRLD OFF PESC  NO
```

```
13: CATMP/HR        0 UTIL  --  ENGCATMP      --  MAXCATMP      --
ENGLEVEL BELOW CCOVRLD OFF CMICOVRLD OFF PESC  NO
14: CATMP/HR        0 UTIL  --  ENGCATMP      --  MAXCATMP      --
ENGLEVEL BELOW CCOVRLD OFF CMICOVRLD OFF PESC  NO
15: CATMP/HR        0 UTIL  --  ENGCATMP      --  MAXCATMP      --
ENGLEVEL BELOW CCOVRLD OFF CMICOVRLD OFF PESC  NO
```

Field descriptions

The remaining fields are not changed.

Action

No change

Associated Operational Measurements or Performance Measurements

No change

Additional information

No change

Performance Management for A00002538

Performance management strategy

N/A

Performance management tools and utilities

N/A

Performance Measurements (PM), Operational Measurements (OM), and stats

XASTAT OM group

OM Group template (applies only to DMS)

XASTAT OM group

OM description

OM group XASTAT

Capacity operational measurements

Release history update

The OM group XASTAT is being modified in CSP20. It will be changed as follows:

Register XASCMPLX will be removed from OM group XASTAT since this measurement is not valid in XA-Core.

Registers

It is the same as in previous releases except the register XASCMPLX is removed.

In previous releases, XASTAT OM group registers display on the MAP terminal as follows:

```
XASTAT

CLASS: ACTIVE
START:2003/09/11 12:30:00 THU; STOP: 2003/09/11 12:48:29 THU;
SLOWSAMPLES:         12 ; FASTSAMPLES:         111 ;

          XASUTIL    XASPUTIL    XASCMPLX    XASSCHED
          XASFORE    XASMAINT      XASDNC       XASOM
         XASGTERM      XASBKG    XASAUXCP     XASNETM
          XASSNIP     XASPESC     XASNXFR     XASOVER
         XASOTHLD

    0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0
                 0
```

After removing XASCMPLX in CSP20, it will be displayed as:

```
XASTAT

CLASS: ACTIVE
START:2003/09/11 12:30:00 THU; STOP: 2003/09/11 12:48:29 THU;
SLOWSAMPLES:         12 ; FASTSAMPLES:         111 ;

          XASUTIL    XASPUTIL    XASSCHED     XASFORE
         XASMAINT      XASDNC       XASOM    XASGTERM
           XASBKG    XASAUXCP     XASNETM     XASSNIP
          XASPESC     XASNXFR     XASOVER    XASOTHLD

    0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0
```

Group structure

No change

Associated OM groups

No change

Associated functional groups

No change

Associated functionality codes

No change

OM group registers logic flow chart

No change

Register (applies only to DMS)

No change

Product = CS 2000

A00002549 -- CSP20 CALLP Robustness (Succession on DMS)

Functional Description

- ***Design Component 2: OM threshold alarms for call processing resources - table ALARMTAB.***
- ***Design Component 3: Extension Block Format Code expansion.***
- ***Design Component 4: Increase Cpwakeup Accuracy.***

Design Component 2: OM threshold alarms for call processing resources - table ALARMTAB

This feature component adds datafill to the system table ALARMTAB. The table is datafilled prior to the release of the nodata load to the field. This adds an alarm to the existing EXT alarm banner component and the existing log OM2200 to be triggered upon depletion of the base call processing resource ECCB (Extended Call Condense Blocks). This alarm is based on the existing Operational Measurement register defined in CP2 - ECCBOVFL (ECCB Overflow). The table ALARMTAB currently exists for several base call processing resources. This addition is an enhancement to this set of alarms.

All actions and explanations are already documented for the existing base call processing resources and are identical for the ECCB resource depletion. Documentation for the logs and the alarm already exist and can be found in the following NTPs:

- ***297-8991-500 04.02 Maintenance and Operations Manual***
- ***297-2621-851P1 09.02 UCS DMS-250 Data Schema Reference Manual Vol 1 of 5***
- ***297-2621-8141 10.03 DMS-250 Operational Measurements Reference Manual Vol 1 of 2***
- ***297-8101-8141 06.01 Operational Measurements Reference Manual Vol. of 3***
- ***297-2621-8403 09.01 UCS DMS-250 Logs Reference Manual Vol 3 of 6***
- ***297-2621-8405 09.01 UCS DMS-250 Logs Reference Manual Vol 5 of 6***
- ***297-8101-3503 06.01 Base DMS STP Translations Guide Vol. 3 of 6***

- *297-2621-106 07.02 UCS DMS-250 ISDN Reference Manual*
- *297-2621-395 08.02 DMS-250 Billing Records Application Guide*
- *297-2621-851P5 09.02 UCS DMS-250 Data Schema Reference Manual Vol 5 of 5*
- *297-5051-914 07.02 DDMS and GUIDE Install and Admin Reference Manual*
- *297-8101-8142 06.01 Operational Measurements Reference Manual Vol. 2 of 3*

Extension Block Format Code expansion

Currently, there are only a total of 256 extension format codes in the system. We are quickly approaching this limit thereby limiting the number of available extension format codes for new users. Design Component 3 of this feature - EXT Format Code Expansion - addresses this issue. In particular, the total number of extension format codes in the system will be increased from 256 to 511.

Increasing the total number of extension format codes from 256 to 511 causes the size of the extension format codes to increase from 8-bits to 9-bits. The extension format code is a field within the extension block header (the first structure/field in every extension block). This may affect downstream processors if they extract the format code from the extension blocks hex dump. The total size of the extension block header is not being increased; however, two of its fields were re-arranged so that the new size of the format code could be accommodated. Specific details of this change are presented in the FM (Fault Management) section of this feature.

For each extension format code, there is a corresponding (unique) AUD and XAUD log. The XAUD logs are output whenever an extension block is reclaimed by the XA-Core audit process and the AUD logs are used to dump extension block contents for all other processes (i.e., non-audit reclaims such as call deaths).

Currently the AUD logs assume the values 400 through 431, and 500 through 723. The XAUD logs assume values 600 through 610 (for standard call processing resources) and 700 through 955 (for extension blocks).

This feature will require that the ranges for the before mentioned AUD logs be extended beyond 723 to accommodate the new extension format codes. The XAUD logs will also be extended and the numbering convention (numeric range) will be changed to match that for the AUD logs for simplicity. That is, each extension format code will now have the same AUD and XAUD number (i.e., the associated logs for extfc 109 will be AUD577 and XAUD577).

Please note that as each new extension format code is defined/added in the system, it is the responsibility of the user to define and document it. Therefore, the only changes visible to the customer will be for the existing XAUD log numbers (those currently defined at the time of this feature). Furthermore, the contents of these logs (apart from the location and number of bits of the extfc in the extension block head) are in no way being changed.

Increase Cpwakeup Accuracy

This component of the feature will affect the real-time of the switch. This real-time increase will be minimal.

Hardware Requirements or Dependencies

Not applicable.

Software Requirements or Dependencies

Not applicable.

Limitations and restrictions

Not applicable.

Interactions

Not applicable.

Applicable customer facing sections

Fault Management	
Logs	____X____
Alarms	___N/A__
Configuration	
Data Schema	___N/A___
User Interface	___N/A___
Element Management	___N/A___
Security	___N/A___
Service Order	___N/A___
Office Parameters	___N/A___
Accounting (includes AMA billing)	___N/A___
Performance (includes operational measurements)	___N/A___
Realtime	____X____
Engineering Information	___N/A___

Fault Management for A00002549

Fault management strategy

N/A

Fault management tools and utilities

N/A

Logs

Explanation

Log Title: AUDmmm & XAUDnnn (where mmm & nnn are numeric values)

Name: Call Processing Resource Dump

Description: XAUD logs are generated whenever a call processing resource is recovered by the audit process running on the XA-Core platform. AUD logs are generated/used by all other non-audit processes.

The numeric values for the XAUD logs used to cover the range from 600 to 610 for standard resources (i.e., XAUD600, XAUD601, XAUD602, and XAUD609) and 700 to 955 for extension block resources. The numeric values for the XAUD logs are being extended and changed to match those for the AUD logs for simplicity. The new numeric values for the XAUD logs will now be 395, 397, 432, 434 and ranges from 400 to 431 and 500 to 982. A table is being included below (in the 'Additional Information' section) to illustrate the new numbering system for the XAUD logs.

Please note, the total number of AUD and XAUD logs will vary from load to load. This feature is not adding more AUD or XAUD logs to the load, it is only setting the framework so that applications will be able to add more in the future.

The size, format and contents for the AUD and XAUD logs of standard resources is not being changed. However, the location and number of bits used to represent the extension block's format code in the header (within the hex dump of the log) has changed for all extension block logs. **The only noticeable difference to the customer will be the number following the XAUD string in the log title**.

Event type: INFO

Format

No change to the format of the AUD or XAUD log (originally defined by feature ACT.A19011742). A sample format is being included for reference.

General format of all XAUD logs:

```
XAUD<nnn> <date> <time> <sequence> INFO <resource> Recovery
  REMARK: <remark>
  PTR: <item> INDEX: <prim> <sec> CURRENT AUDIT GENERATION: <gen>
  STATE: <state> PROBLEM: <problem>
  <hex dump>
```

Sample of an encapsulator recovery log (standard resource):

```
XAUD397 APR29 10:34:37 2900 INFO Encapsulator Recovery
  REMARK: Associated CCB queue is empty
  PTR: 4B1EF920  INDEX: 0001 000F  CURRENT AUDIT GENERATION: 00BD
  STATE: UNAVAILABLE_ENC  PROBLEM:   ERROR_LINKS
  444B B9D4 0000 0001 0001 FDCF 7BCD FDFD FDFD FDFD
  FDFD FDFD FDFD FDFD FDFD FDFD FD72 0001 0000 FDFD
  FDFD FDFD FDFD FDFD FDFD FDFD FDFD FDFD FDFD FDFD
  FDFD FDFD FFFF 0000 FD02 FFFF 0000 FFFF 0000 0000
  FDFC FFFF 0000 FDFD FDFD FDFD FDFD FDFD
```

The total size of the extension block header has not been increased and hence the total size of the hex dump has not been increased. However, the location and number of bits used to represent the extension block format code in the header portion of the hex dump has changed for all extension block logs.

Sample hex dump portion of an extension block recovery log:

```
<XAUD or AUD log title>
<hex_dump>:
FFFF 0000 7340 FCF5 FDFD FDFD FDFD FDFD FDFD FDFD
FDFD FDFD FDFD FDFD FDFD FDFD
```

The extension format code will now be 9-bits starting at offset 6 (i.e., 14th hex digit) in the hex dump. As illustrated in the above, the format code will be 9-bits of CF5.

i.e., CF5 hex = 110**0 1111 0101** bin ==> FORMAT CODE = **245**

Only the right-most 9-bits of the 14th, 15th and 16th hex digits in the hex dump will be used to represent the format code. In this case the format code is 245. The remaining three bits of the 14th hex digit are unused at present.

Field descriptions

No change. The field descriptions are being provided here for reference.

Field	Value	Description
nnn	numeric	Value from ranges outlined in description above
date	date	System supplied, when the recovery happened
time	time	System supplied, when the recovery happened

Field	Value	Description
sequence	numeric	System supplied, sequence within log system
resource	text	Name of the resource recovered
remark	text	Further clarification as to why it was recovered
item	hex numeric	Memory address of item
prim	hex numeric	Primary index into item's resource pool
sec	hex numeric	Secondary index into item's resource pool
gen	hex numeric	Audit generation when recovered
state	text	State of item at the time of recovery
problem	text	Description of problem that resulted in the log
hex dump	hex numeric	Multi line dump of the contents of the resource

Action

No immediate action required.

Associated Operational Measurements or Performance Measurements

N/A

Additional information

New mapping of XAUD log numbers being introduced by this feature.:

New mapping for Standard resources:

AUDnnn	Old XAUDxxx	New XAUDnnn
AUD397	XAUD600	XAUD397
AUD395	XAUD601	XAUD395
AUD432	XAUD602	XAUD432
AUD434	XUAD609	XAUD434

New mapping for extension block resources

AUDnnn	Old XAUDxxx	New XAUDnnn
AUD400	XAUD700	XAUD400
AUD401	XAUD701	XAUD401
...	...	...
AUD430	XAUD730	XAUD430
AUD431	XAUD731	XAUD431

New mapping for extension block resources

AUDnnn	Old XAUDxxx	New XAUDnnn
AUD500	XAUD732	XAUD500
AUD501	XAUD733	XAUD501
...	...	...
AUD708	XAUD940	XAUD708
AUD709	XAUD941	XAUD709
AUD979	XAUD942	XAUD979
AUD980	XAUD943	XAUD980
AUD981	XAUD944	XAUD981
AUD982	XAUD945	XAUD982
AUD714	XAUD946	XAUD714
AUD715	XAUD947	XAUD715
...	...	...
AUD723	XAUD955	XAUD723
AUD724	N/A	XAUD724
AUD725	N/A	XAUD725
...	...	...
AUD977	N/A	XAUD977
AUD978	N/A	XAUD978

Product = CS 2000

A00002555 -- SERVORD manipulation of the GND option (Succession on DMS, UA-AAL1)

Functional Description

This SN07 activity allows Servord commands ADO, DEO and CLN to manipulate the GND option. The GND option for lines resides in table LNINV. Table LNINV contains the hardware information about the line including the Line Equipment Number (LEN) card code and GND. If GND is set to Y, the line will be a ground start line if the line card is supportive. The list of line cards supported are:

- 3A06BA
- 7A25AA
- RDTCON
- RDTLSG
- SCD271

The GND option appears as a line option when a query is performed on the DN or LEN but it is currently not an option than can be manipulated via Servord. This activity will allow Servord to manipulate the GND option on the above line cards, including

- ADO and DEO of the GND option
- CLN will propagate the GND information of the OLD_LEN to the NEW_LEN

Lines that currently auto populate table LNINV on NEW, EST and ADD such as Succession and lines off of RDT peripherals will continue to function as before.

The redundant feature which is turned on by table OFCVAR parm SO_ALLOW_REDUNDANT_FEATURE is now supported for the GND option for the ADO, DEO and CLN Servord commands.

CLN will set the value of GND to that of the OLD_LEN if the NEW_LEN is one of the supported line cards. A warning message will be output that GND being set to the OLD_LEN value. The below example shows the warning message if GND will be set to TRUE on the NEW_LEN

```
WARNING: GND will be changed to TRUE in Table LNINV
          on the NEW LEN, same setting as the OLD LEN
```

Also for CLN, if the NEW_LEN is not a supported line card and the value of GND is different than the OLD_LEN GND value, the below warning message will be output

```
WARNING: GND is FALSE in Table LNINV on the NEW LEN
          the setting was TRUE on the OLD LEN
```

If the value of GND is the same on the OLD_LEN and the NEW_LEN, no warning message is output.

There are additional line cards that support GND but also require some manual intervention such as a strap or a switch to be toggled in order for the GND to take effect. Attempts to manipulate GND on these type line cards will result in an error message as in releases prior to this feature.

It may be necessary to BSY and RTS the line at the MAP in order for the change in GND value to effect.

Hardware Requirements or Dependencies

There is no new hardware introduced by this feature. It is limited to the servord commands and line cards aforementioned

Software Requirements or Dependencies

This is an SN07 deliverable.

Limitations and restrictions

Servord GND manipulation is limited to the ADO, DEO and CLN commands and to the supported line card types

- 3A06BA
- 7A25AA
- RDTCON
- RDTLSG
- SCD271

Currently, GND can be added via NEW, NEWACD, EST, ADD, EXBEST and EXBADD for lines that can be auto populated into table LNINV. This is not changed by this feature.

Interactions

If the Servord Redundant feature which is activated by table OFCVAR parameter SO_ALLOW_REDUNDANT_FEATURE is turned off, attempts to manipulate GND on commands or line cards not supported will be rejected. If If this office parameter is turned on, then a warning message will be output that GND will be ignored for non-supported commands and line cards.

Applicable customer facing sections

Fault Management

Logs _n/a_____

Alarms _n/a_____

Configuration

Data Schema __n/a____

User Interface __n/a____

Element Management __n/a____

Security __n/a____

Service Order ___X___

Office Parameters ___n/a___

Accounting (includes AMA billing) __n/a____

Performance (includes operational measurements) __n/a____

Glossary

Term	Description
GND	GROUND as in GROUND START
MAP	Maintenance Administration Position
BSY	BUSY -Refers to maintenance action at MAP
RTS	Return To Service -Refers to maintenance action at MAP

Configuration for A00002555

This feature allows the ADO, DEO and CLN Servord commands to manipulate the GND Bool in table LNINV for certain adaptive line cards.

Hardware and Software Requirements

SN07

Service Orders (SO) (CM & SESM)

This feature allows the ADO, DEO and CLN Servord commands to manipulate the GND Bool in table LNINV for the below list of the supported line cards.

- 3A06BA
- 7A25AA
- SCD271
- RDTCON
- RDTLSG

The above line cards are referred to in this document as the supported line cards.

There are other line cards that support GND but they are not supported by this feature. Other Servord commands are not affected. Commands that establish new service such as NEW and EST will function as before.

If table OFCVAR parm SO_ALLOW_REDUNDANT_FEATURE is set to Y, then the redundant feature is turned on. Redundant feature is now supported for GND for the ADO, DEO and CLN commands. This means for example, if the ADO of GND is attempted to a line that already has the GND option, the command will not be rejected and no journal file update will occur.

Service order change details

LCC and options

There are no new options introduced by this feature. The behavior of the ADO, DEO and CLN Servord commands is changed for the GND option for the supported line cards only. The GND option is not applicable to key sets or ISDNSETs. The option pertains mostly to COIN and PBX lines.

New commands

There are no new commands introduced by this feature.

How service order options are presented

Description

The GND option is used to specify that the line will be a GROUND START line. It is determined by the value of GND in table LNINV for the tuple associated with the line. Only certain line cards can be ground start lines and only the supported line cards apply to this feature. Prior to this feature, the ADO, DEO and CLN Servord commands could not change the GND Bool for any line. This value was set when the tuple was datafilled in table LNINV. This feature doesn't add the GND option or additional prompts as the option already exists. It allows the Servord commands ADO, DEO and CLN to change the value for GND for the supported line cards. Prior to this feature, an error message was given when GND was attempted to be ADO-ed or DEO-ed. The error message is still given for lines that do not have a supported line card. Use QLEN or QDN to determine the line card and GND value. Positioning on the LEN in table LNINV can also be used.

Perhaps the biggest enhancement of this feature is with the CLN command. If the NEW_LEN has a supported line card, the value of GND will be set to that of the OLD_LEN. If the value will change, a warning message is output. If the NEW_LEN does not have a supported line card, the value of GND on the NEW_LEN will be the same as it was prior to execution of the CLN command. If the value of GND is different between the OLD_LEN and the NEW_LEN, a warning message will be output.

QLEN or QDN can be used to determine the line card and the value of GND. GND will also appear in the option list if it set to Y in table LNINV. The below example shows a line with a RDTLSG line card with GND set to Y.

```
>qlen rdt0 1 0 1 2
------------------------------------------------------------------------
---
LEN:     RDT0  01 0 01 02
TYPE: SINGLE PARTY LINE
SNPA: 908
DIRECTORY NUMBER:     9451104
LINE CLASS CODE:      1FR
SIGNALLING TYPE:  DIGITONE
LINE TREATMENT GROUP:     0
LINE ATTRIBUTE INDEX:     400
CARDCODE:  RDTLSG    GND: Y  PADGRP: STDLN  BNV: NL MNO: N
PM NODE NUMBER     :    221
PM TERMINAL NUMBER :    2
OPTIONS:
DGT GND NAME PUBLIC C1FR1RGB
OFFICE OPTIONS:
AIN TIID
------------------------------------------------------------------------
---
>
```

Example

Example of ADO of the GND option in Prompt mode

```
>ado
SONUMBER:      NOW    3    12   1 PM
>
DN_OR_LEN:
>RDT0 1 0 1 2
OPTION:
>GND
OPTION:
>$
COMMAND AS ENTERED:
ADO NOW 3 12 1 PM RDT0 1 0 1 2 ( GND ) $
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
>y
```

Example of DEO of GND in No Prompt mode

```
>deo
SONUMBER:       NOW    3    12   1 PM
>
DN_OR_LEN:
>RDT0 1 0 1 2
OPTION:
>GND
OPTION:
>$
COMMAND AS ENTERED:
DEO  NOW 3 12 1 PM RDT0 1 0 1 2 ( GND ) $
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
>y
```

The following example shows a CLN from a OLD_LEN that has GND set to a NEW_LEN that has a supported line card.

Note: The warning is output only if the GND values are different between the OLD_LEN and NEW_LEN prior to the execution of the command.

Example of CLN command to a NEW_LEN with Supported Line Card

```
>CLN
SONUMBER:       NOW    3    12   1 PM
>
OLD_LEN:
>RSC0 0 0 3 0
NEW_LEN:
>RSC0 0 0 0 7
COMMAND AS ENTERED:
CLN NOW 3 12 1 PM RSC0 00 0 03 00 RSC0 00 0 00 07
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
y
WARNING: GND will be changed to TRUE in table LNNIV
            on the NEW_LEN, same setting as the OLD_LEN
```

The following example shows a CLN from a OLD_LEN that has GND set to a NEW_LEN that doesn't have a supported line card.

Note: The warning is output only if the GND values are different between the OLD_LEN and NEW_LEN prior to the execution of the command.

Example of CLN, NEWLEN is not a Supported Line Card

```
>CLN
SCONUMBER:       NOW    3    12   1 PM
>
OLD_LEN:
>RSC0 0 0 3 0
NEW_LEN:
>0 0 0 3
COMMAND AS ENTERED:
CLN NOW 3 12 1 PM RSC0 00 0 03 00 HOST 00 0 00 03
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT
y
WARNING: GND is FALSE in table LNNIV on the NEW_LEN
                The setting was TRUE on the OLD_LEN
```

Example of ADO and DEO of the GND option in no-prompt mode for SERVORD+

```
ADO $ RDT0 1 0 1 2 GND $ Y Y

DEO $ RDT0 1 0 1 2 GND $ Y Y
```

Option prompts

There are no changes to prompts. The GND option already exists.

Line class code compatibility

There are no changes to LCC compatibility for GND

Assignability

The following functionalities apply to this option:

- set functionality: NO
- subset functionality: NO
- DN functionality: NO
- key functionality: NO

The GND option is not a typical line option in that it gives added functions to the line or set. It determines how the line card detects when the subscriber goes off hook. It is a hardware function of the line card, transparent to the subscriber.

Option prerequisites

GND has the following prerequisites:

None

Notes
The following notes apply to GND:

This feature applies only to the supported line cards. It may be necessary to post the line at the MAP and BSY and RTS the line in order for the change to take effect

Feature identification
Feature number: A00002555

SERVORD+ Exceptions
none known.

Software optionality control (SOC)

NA

Element Management

NA

Command interface changes

NA

Security

NA

Configuration Walkthrough

NA

Product = CS 2000

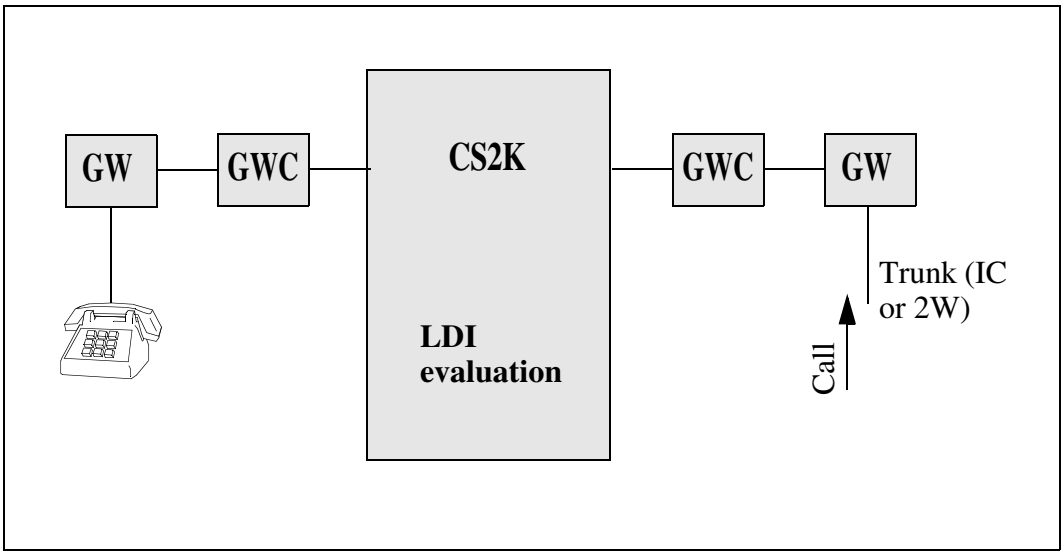
A00002558 -- LDI display for Class phone (Succession on DMS)

Functional Description

Overview

The Long Distance Indicator (LDI) feature identifies long distance calls and provides the LDI indicator information to the subscriber. The feature works with CND, CNAMD, DDN features that use the Multiple Data Message (MDM) format.

Functional Behavior Diagram



The preceding figure shows an example of an ISN07 office which is a terminating exchange. When a long distance call reaches the subscriber set, LDI evaluates the call. A call is deemed long distance when any of the following condition is satisfied:

- Reverse translation - The dialable DN's first digit is 1 and it has a total of 8 or 11 digits; or
- Table TOLLTRKS - The incoming trunk group CLLI present in table TOLLTRKS.

If a call is deemed long distance, the system delivers the LDI to the line through MGCP. The LDI is delivered as the character L. Following is the message which captured by tool CALLTRAK.

```
OUTGOING  02:07:15.859  NODE TYPE= LCM_NODE
DS512: ENCAP MS_CARD= 6 MS_PORT= 20  NODE= 8216
NN= 0041  TN= 0004  MSGTAG= 00  ROUTE= 2018  ERROR= 00  LENGTH= 30
AGENT= HOST 01 0 00 03    DN 1066020003
80 5F DF 65 00 DE A4 CC 1F 09 39 17 1B 80 19 01 08 30 34 33 30 30 32 30 37 02
0A 31 31 31 31 31 31 31 31 31 31 06 01 4C

00    80  STKI1    5F
02    DF  ASSCH2
03    65  STPIDSCAN
04    00  NOOP
05    DE  SEND
          DST  = TPT_P3
          SRC  = CC
          LEN  = 1F
          FIAT = FIAT_CCCP
               39 17 1B 80 19 01 08 30 34 33 30 30 32 30 37 02 0A 31 31
               31 31 31 31 31 31 31 31 06 01 4C
```

The LDI is displayed as the example below:

“12345656L Name “ or

“12345656
L Name“

Datafill

Reverse translation

The following is an example of how to make a call be deemed as a long distance call through reverse translation:

Table DNREGION

TEST 0 9

Table DNREVXLA

TEST1 0 9 (TEST 0 N N) $

Table CUSTNTWK

GDNTCUST PUBLIC 1 (PUBLIC **TEST1** 11) $ (CLID OFFNET) (RNID OFFNET) $

Table TOLLTRKS

If the trunk is datafilled in table TOLLTRKS, the call is deemed as a long distance call too. The following shows an example on how to datafill TOLLTRKS. For more information on this table, please refer to the Configuration section of this feature.

Table TRKGRP

HKISUP IBNT2 0 NPDGP NCRT GDNTCUS2 0 MIDL 0 N ANSDISC 0 Y N N N N N Y 0 0 N 0 0 0 0 N N N N N N N N N INTL $

Table TOLLTRKS

HKISUP

Hardware Requirements or Dependencies

Not applicable

Software Requirements or Dependencies

Not applicable

Limitations and restrictions

All the limitations and restrictions of feature AG1841CLASS/CMS Long Distance Indicator.

Interactions

Not applicable.

Applicable customer facing sections

Fault Management

- Logs N/A
- Alarms N/A

Configuration

- Data Schema X
- User Interface N/A
- Element Management N/A
- Security N/A
- Service Order N/A
- Office Parameters N/A

Accounting (includes AMA billing) N/A

Performance (includes operational measurements) N/A

Glossary

Term	Description
CLASS	Custom Local Area Signaling Services
CLLI	Common Language Location Identifiers
CNA	100 North America
CNAMD	Calling Name Delivery
CND	Calling Number Delivery
DDN	Dialable Number Delivery
LDI	Long Distance Call Indicator
MDM	Multiple Data Message format

Configuration for A00002558

Hardware and Software Requirements

None

Initial Configuration

None

Office/Subnet parameters (OP/SP) (CM & SESM)

None

Upgrade Impact

None

Data schema (DS) (CM, MIBS, RDB)

New/modified tables, MIBs, or Database Schema

Table/MIB name	NEW/CHANGED/ or DELETED/	Table Control (NEW/ OLD/UNCHANGED)
TOLLTRKS	NEW	NEW

Table/MIB/Remote Database Schema information

Name: <TOLLTRKS>

Functional description

Table TOLLTRKS stores the common language location identifiers (CLLI) of all trunk groups carrying incoming toll completing traffic, and LDI evaluates the CLLI name to determine the long distance status.

Usage sequence and implications (CM Only)

Tables must be datafilled in the following sequence:

TRKGRP

TOLLTRKS

Size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
TOLLTRKS	0	8192	Memory is automatically allocated.

Fields/OIDs

The following table lists fields/OIDs for TOLLTRKS.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
CLLI	New	N/A	alphanumeric (1 to 16 characters)	Common language location identifier. This field specifies the trunk over which long distance calls can come into an office. Enter a CLLI from table TRKGRP (1 to 16 characters)

Datafill example

The following example shows sample datafill for table TOLLTRKS:

```
CLLI
-----------------------------------

ANSIISUP
ETSIISUP
HKISUP
CTUP
```

Table release history update

Table TOLLTRKS is created for trunks.

Supplementary information

None

Translation verification other tools

None

Service Orders (SO) (CM & SESM)

None

Software optionality control (SOC)

None

Element Management

None

Command interface changes

None

Security

None

Configuration Walkthrough

None

Product = CS 2000

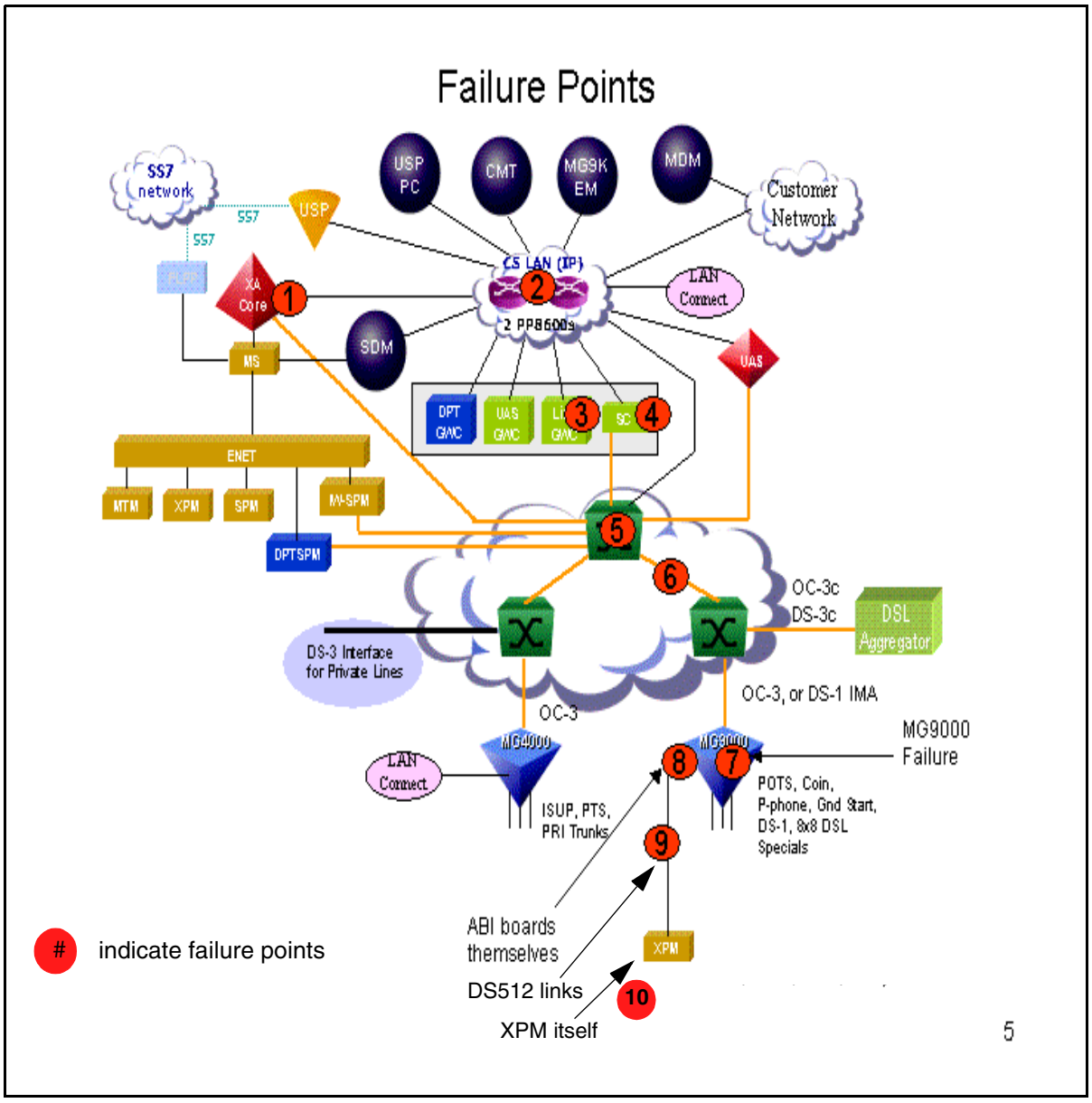
A00002607 -- ABI XPM SITE and MG9K Location Support (UA-AAL1)

Functional Description

The purpose of this feature is to provide physical location data to aid in the determination and ultimately the resolution of ABI XPMs out of service conditions and native MG9K line troubles on the Core where applicable.

Currently, these service impacting failures can occur in many different points in the Succession networks. Please refer to the following figure.

Succession Networks Failure Points



The ability to identify MG9Ks involved in the ABI configurations and MG9K frames hosting native H.248 lines and their physical location was not easily determined.

This feature will aid in identifying the failure points detectable by the Core by providing necessary and accurate location data. Then using this newly provisioned data to correctly report and identify problem areas in the form of Logs, OMs, and Mapci commands.

In order to provide these new functionalities, the customer will see changes in the following areas:

- operation of Table LTCINV
- operation of Table LGRPINV

Table LTCINV Impacts

The identification of MG9K Gateways and ABI cards involved in ABI configurations is accomplished by provisioning this data in the modified ABI optional field in table LTCINV. For details on what/how this is provisioned, refer to "Table LTCINV Database Schema information" on page 521. No other changes have been made to the table.

Table LGRPINV Impacts

The identification of MG9K Frame and its physical location is accomplished by provisioning this data in the new Location optional field in table LGRPINV. Physical location information is maintained on a SITE/FRAME/SHELF granularity. For details on what/how this is provisioned, refer to "Table LGRPINV Database Scheme information" on page 525. No other changes have been made to the table.

Hardware Requirements or Dependencies

There are no hardware dependencies required to execute this feature.

Software Requirements or Dependencies

This feature requires the Core load to be a Succession load. Specifically Succession release SN07 or later. Also, Succession release SN06.2 with this feature patches applied is also a valid configuration.

Limitations and restrictions

The ABI XPM location data is only be applicable to the XPMs which are datafilled in table LTCINV with the ABI (i.e. EXTDS512) option. Because of this restriction, the ABI XPM location data can only be datafilled after Legacy XPMs have been Upgraded to the ABI configurations.

For MG9K native lines, the SESM provisioning of this MG9K Frame location data will not auto populate the same data in LGRPINV. Therefore manual datafilled of this data in table LGRPINV via the Core is required. There are plans to have this flow through in a future release.

The Gateway Frame location data is optional however, there must be a Logical Group defined on the Core in table LGRPINV to have the possibility to provision this physical location data. MG9K's which have no native lines, MG9Ks configured with ABI XPMs only, have no Logical Group representation in table LGRPINV and therefore have no physical location data available on the Core. The location data for these MG9K's are available on the

MG9K-EM via the Network Element number, part of the newly provided ABI XPM location data, datafilled in table LTCINV. To obtain the location data of the ABI MG9K given the Network Element Number, the craftsperson would take the following steps:

1. Post the peripheral at the PM level of the map and execute the Querypm command. This provides the Network Element number for the MG9000 that host the peripheral.
2. Launch the MG9000 Element Manager.

   The MG9000 Element Manger will open with the Subnet View. This view shows all the MG9000 elements that have been configured for this Call Server. Each MG9000 has a unique Element Number per Call Server. This number is displayed below the Network Element icons in brackets ([ ]).
3. Find the MG9000 with the Network Element number that matches the Network Element number provide by the Querypm command from step 1.
4. Double click on the element to pull up the Element Frame View.
5. From the Element Frame View, under the "Actions" pull-down menu, select "Provision Frame Location Information". This will display the Frame Location View window that contains the desired information.

   Note: The Frame Location information for the MG9K is data that must be entered by the craftsperson manually. It is usually recommended that this information be datafilled when the element is commissioned/discovered in the element manager.

Interactions

The following are the feature interactions for this feature:

- Features which this feature is dependent on:
  - — none
- Features which are dependent on this feature:
  - — A00002746 - ABI XPM Fault Isolation / QueryPM
    This feature will use the ABI XPM MG9K hosting data provisioned by this feature.
- Features which have an interaction with this feature:
  - — A00002704 - MG9K EM Frame Location (Site and Frame Number)
    This interaction is not functional (i.e. the data is not feed to the Core from the 9K) but takes the form of common location data between the two components.

Applicable customer facing sections

Fault Management

- Logs ___X___
- Alarms ___n/a___

Configuration

- Data Schema ___X___
- User Interface ___n/a___
- Element Management ___n/a___
- Security ___n/a___
- Service Order ___n/a___
- Office Parameters ___n/a___

Accounting (includes AMA billing) ___n/a___

Performance (includes operational measurements) ___n/a___

Realtime ___X__

Engineering Information ___X__

Glossary

Term	Description
ABI XPM	An XPM which is provisioned in table LTCINV with the optional attribute EXTDS512. These XPMs are physically connected to MG9K Gateways via a DS512 interface.
Upgraded	A process where existing DMS ENET/JNET based XPMs have been converted to the ABI networks on the same DMS.
Core MG9K Gateways	These MG9K Gateways are represented in Core as Logical Groups with a GRPTYPE of “S”. MG9K Logical Groups are auto-datafilled in Table LGRPINV from SESM Gateway provisioning.

Fault Management for A00002607

This feature does not expect to modify existing logs or create new logs. This feature will, as a positive side effect, correct existing logs SITE data for XPMs involved in ABI Configurations.

The ABI XPM Location component of this feature, which allows for the provisioning of ABI XPMs Site and hosting MG9K information, will have a beneficial impact on some existing logs. These logs are the ones mainly associated with XPM peripherals, PM logs. The impact will take the form of the log containing the correct SITE name for these ABI XPMs. XPMs generally had “HOST” as their Site name.

Configuration for A00002607

Hardware and Software Requirements

The changes provided by this feature will allow the customer to physically identify ABI configured hardware components as well as MG9K frames/shelves hosting only native lines when trouble shooting their network therefore allowing for quick problem resolutions. These Core changes provide:

- ABI XPM Site information and MG9K hosting data
- limited MG9K Frame/Shelf location data for MG9Ks hosting only native lines
- changes to the Mapci, Logs and OM applications to make use of this data

Therefore the following hardware needs to be in place prior to exercising the software provided by this feature. The software is exercised by provisioning the physical location data of these hardware components:

- A typical ABI configuration
- A typical MG9K Gateway configuration

Software Requirements:

- SN06 Succession Core load with this feature patched back

-OR-

- SN07 Succession Core load or later

Initial Configuration

As a provisioning component of the Succession program, much of this functionality performs as designed without the hardware being in place. However, to provision actual physical location data, the provisioning of the configurations mentioned in “Hardware and Software Requirements” should be installed.

Once the hardware is installed and the software is available, provisioning of the physical location data can begin. The ABI location data is provisioned in table LTCINV. The MG9K Frame/Shelf location data for MG9Ks hosting

native lines only is provisioned in table LGRPINV. The steps to perform the provisioning are described in the Data Schema section.

Office/Subnet parameters (OP/SP) (CM & SESM)

Not Applicable.

Upgrade Impact

Dump and Restore

No impact to Dump and Restore mechanisms. This data is preserved via the existing TabXfr mechanism available to all Table Control tables.

Element Management Upgrade

Not applicable.

Data schema (DS) (CM, MIBS, RDB)

New/modified tables, MIBs, or Database Schema

Table/MIB name	NEW/CHANGED/ or DELETED/	Table Control (NEW/ OLD/UNCHANGED)
LTCINV	Changed	Unchanged
LGRPINV	Changed	Unchanged

Table LTCINV Database Schema information

Name: LTCINV

Long Table Name: Line Trunk Controller INVentory

Functional description

Table LTCINV contains the inventory data, except P-side link assignments, for various host peripheral module (XPM) types. This feature will only impact ABI XPM tuples. The impact does not change existing datafill but extends the optional data associated with the ABI (EXTDS512) option. This new optional data will allow the provisioning of the physical XPM location data. Refer to the changed field descriptions section that follows.

Usage sequence and implications (CM Only)

Tables must be datafilled in the following sequence:

- No change to current datafill order.

Size

No change in the maximum number of tuples for table LTCINV.

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
LTCINV	0	210	Memory is automatically allocated in increments of 10 XPMs at a time up to 210

Fields/OIDs

The following table lists fields/OIDs for Table LTCINV.

Table LTCINV changed field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
OPTATTR	Changed	Modified the EXTDS512 refinement, add 3 new subfields	SITE - 4 alpha numerics	SITE_NAME - This is the Site name as datafilled in table Site. There is an existing data dictionary type for SITE. Valid values are verified against entries in table SITE. Example data fill CARY.
			NE_NBR - 0 TO 999	NETWORK_ELEMENT_NO - This is the network element number assigned when the MG9K gateway is added via the MG9K-EM. This requires a new dictionary type. Value of 0 is the NIL value.
			ABI_SLOT - 1 TO 21	SLOT_NO - new dictionary type. Valid values are 2-9 and 14-21, even numbers only. Because the range is 1 TO 21, verification of this value is enforced outside the data dictionary via format aspects.

Datafill example

The following example illustrates the prompting sequence for the new Location data associated with the EXTDS512 option in table LTCINV.

Prompting sequence for new Location fields for option EXTDS512

```
>add lgc 1 7 lgci 0 32 1 D 33 6x02na qli16at pots potsex keyset ksetex $ $ msg6x69 isp +
16 $ northaa sx05aa $ sx05aa $ 0 sxfwaj01
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
>y

OPT_ATTR:
>asdfd
 ***  ERROR  ***
ASDFD
|
TYPE OF OPT_ATTR IS LTCINV_OPT_ATTR
OPT_ATTR:
>asdfd
 ***  ERROR  ***
ASDFD
|
TYPE OF OPT_ATTR IS LTCINV_OPT_ATTR
TYPE                                    IS                                  LTCINV_OPT_ATTR
{CCS7,STRBBF,STRDTRE,STRN5,FSTR2,PCM30,NX64,METER,
                FLS,OC,FDCP,EXTDS512}
OPT_ATTR:
>extds512
SITE:
>cary
NE_NBR:
>12
ABI_SLOT:
>8
IPADDR:
>47 122 133 44
GWC_HOST:
>gwc 99
... << continue with normal datafill for LTCINV >>
```

The following figure shows the changes to the OPTATTR field with the new Location field ranges for the optional refinement EXTDS512.

Range Values for new Location datafill in option EXTDS512

```
>table ltcinv
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: LTCINV
>range optattr
18 OPTATTR          LTCINV_OPT_ATTR_VECTOR
TYPE IS LTCINV_OPT_ATTR_VECTOR VECTOR OF UP TO 12 MULTIPLES WITH
      OPT_ATTR              LTCINV_OPT_ATTR REFINEMENTS:
      {EXTDS512}            MULTIPLE WITH
         SITE               CHAR_VECTOR VECTOR OF UP TO 16 CHAR'S
         NE_NBR             {0 TO 999}
         ABI_SLOT_NBR   ABI_SLOT_RANGE:EVEN NUMBERS {2 TO 8,14 TO 20}
         IPADDR          TABLE OF 4 {0 TO 255}'S
         GWC_HOST          MULTIPLE WITH
            PMTYPE       PM_TYPE
            PMNO         {0 TO 255}
      OTHERWISE             LTCINV_OPT_ATTR_NIL_DATA
```

The following figure provides a view of the successfully added tuple with the new Location data fields for option EXTDS512.

Sample LTCINV Tuples with new Location fields for option EXTDS512

```
>table ltcinv
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: LTCINV
LTCNAME ADNUM FRTYPE FRNO SHPOS FLOOR ROW FRPOS EQPEC LOAD EXECTAB
CSLNKTAB OPTCARD TONESET PROCPEC EXTLINKS E2LOAD OPTATTR PEC6X40 EXTINFO
-----------------------------------------------------------------------------------------------------------------------
LGC 1 1002 LTEI 2 19 1 CC 2 6X02NA QLI17AY1 (POTS POTSEX) $ (4 0)(4 1)(4 2)(4 3) $ (MSG6X69)
$ NORTHAM SX05AA $ SX05AA $ 0 SXFWAE08 (EXTDS512 CARY 12 8 47 122 133 44 GWC 99) $
6X40FA N

SMA2 2 1009 LTE 1 51 2 E 31 MX85AB QLI17AY1 (POTS POTSEX) $ (4 4) (4 5)(4 6) (4 7) $ (UTR6)
(MSGMX76 HOST ) (ISP 4) $ NORTHAM AX74AA AX74AA 0 SXFWAE08
(EXTDS512 GRNR 10 14 47 202 34 22 GWC 50) $ 6X40AC N
```

Table release history update

SN07 Feature A00002607:

Modified field: OPTATTR:

— adding 3 new subfields for the EXTDS512 refinement. See the previous discussion for more information.

Supplementary information

Limitations:

- LTCINV - since these new fields apply to the EXTDS512 option, they can only be datafilled on tuples with the EXTDS512 option.

Translation verification other tools

Table LTCINV does not impact translations. Therefore TABAUDIT is the tool used to verify the contents of table LTCINV. The following figure shows the output from TABAUDIT when it is used to verify LTCINV.

Sample Tabaudit output for Verifying Table LTCINV Datafill

```
>tabaudit
TABAUDIT:
>include ltcinv

>execute
-------------------------------------------------------------------------------
|            TABAUDIT STATUS
-------------------------------------------------------------------------------

The following tables are included:
      table LTCINV (91)

The following tables are excluded:
  From table VERSIONS (0)              to table SERVRINV (90).
  From table MGCINV (92)               to table IPINV (299).
  From table X75INFO (301)             to table INWATNPA (1426).

Please confirm ("YES", "Y", "NO", or "N"):
>yes
Creating TABAUDIT summaryfile: SUMMARY$MAP on SFDEV.
Starting DMS data verification ...
Table LTCINV: New table control.
     Completed tuple checking.
     SUMMARY: Tbl LTCINV: tuples checked 2, passed 2, failed 0.
Data verification is completed.
```

Table LGRPINV Database Scheme information

Name: LGRPINV

Long Table Name: Logical GRouP INVentory

Functional description

Table LGRPINV is where Logical Groups (Lgrps) are provisioned. Generally speaking Logical Groups (one or more) are the Cores representation of Gateways. Specifically, for MG9K Gateways, one Lgrp represents one shelf in a specific MG9K Frame. MG9K Lgrps are Logical Groups with a GroupType of “S”.

This feature will only impact MG9K Lgrps. The impact is to provide a new optional field called LGRPLOC. The optional Location field will contain the physical location of a specific MG9K shelf. Please refer to “ Table LGRPINV Changed field descriptions” on page 526.

Usage sequence and implications (CM Only)

Tables must be datafilled in the following sequence:

- No change to current datafill order.

Size

No change in the maximum number of tuples for table LGRPINV.

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
LGRPINV	0	1000	Memory is automatically allocated in increments of 20 LCDs at a time up to 1000.

Fields/OIDs

The following table lists fields/OIDs for Table LGRPINV.

Table LGRPINV Changed field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
LGRPOPTS	Changed	Added new refinement, LGRPLOC with 6 fields.	FRAME_TYPE	FRAME_NAME - existing data dictionary type. The unique frame type. MG9Ks have a frame type of 'MG9F'.
			FLOOR_POSITION {0 TO 99}	FLOOR_POS - existing data dictionary type. The unique floor with a unique Site (generally a building).
			ROW_POSITION {A,B,C...X,Y,Z,AA, BB,CC...XX,YY,ZZ}	ROW_POS - existing data dictionary type. The unique row within a floor.
			FRAME_POSITION {0 TO 99}	FRAME_POS - existing data dictionary type. The unique frame position within a row.
			SHELF_POSITION {0 TO 77}	SHELF_POS - existing data dictionary type. Traditionally, this is the bolt hole position as measured in inches from the floor up. For MG9K shelves, it will be equal to the Shelf Number as specified in the Lgrp Key. The unique shelf position within a specific frame.

Datafill example

The following example illustrates the prompting sequence for the new optional Location data in table LGRPINV.

Prompting sequence for new option Location datafill

```
>table lgrpinv
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: LGRPINV
>add cary 1 0 gwc 1
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
>y
GRPTYPE:
>S
LGRPOPTS:
>lgrploc
FRAME_TYPE:
>MG9F
FLOOR_POSITION:
>2
ROW_POSITION:
>C
FRAME_POSITION:
>5
SHELF_POSITION:
>0
LGRPOPTS:
>$
```

The following figure shows the changes to the LGRPOPTS field with the new optional Location fields ranges.

Range Values for new optional Location datafill

```
>table lgrpinv
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: LGRPINV
>ran LGRPOPTS
 4 LGRPOPTS        LGRPINV_OPT_ATTR_VECTOR
TYPE IS LGRPINV_OPT_ATTR_VECTOR VECTOR OF UP TO 2 MULTIPLES WITH
      LGRPOPTS             {MTSTAPT,LGRPLOC} REFINEMENTS:
      {MTSTAPT}            MULTIPLE WITH
          SITE_NAME         TABLE OF 4 CHAR'S
          VERT_INFO         VECTOR OF UP TO 8 MULTIPLES WITH
              VERT_NO      {0 TO 1023}
              MTAPTNO      {0 TO 48}
      {LGRPLOC}            MULTIPLE WITH
          FRAME_TYPE           FRAME_NAME
          FLOOR_POSITION     {0 TO 99}
          ROW_POSITION       ROW_POS
          FRAME_POSITION     {0 TO 99}
          SHELF_POSITION     {0 TO 77}
```

The following figure provides a view of a successfully added tuple with the new optional Location data fields.

Sample LGRPINV Tuples with new optional Location datafill

```
>table lgrpinv
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: LGRPINV
pos lg 1 0
GRPNO SRVRNAME GRPTYPE LGRPOPTS
-------------------------------------------------------------
CARY 01 0 GWC 1 S  LGRPLOC MG9F 2 C 5 0 $
```

Table release history update

SN07 Feature A00002607:

Modified field: LGRPOPTS

— adding a new LGRPLOC refinement. See the previous discussion for more information.

Supplementary information

Limitations:

- LGRPINV - the new LGRPLOC optional data should be datafilled against MG9K LGRPs, LGRPs with a GRPTYPE of S and shelf number < 4. This requirement will be enforced by the table control software and if not provided a warning will be issued. For other LGRP types, datafilling of this data is optional.

Translation verification other tools

Table LGRPINV does not impact translations. Therefore TABAUDIT is the tool used to verify the contents of table LGRPINV. The following figure shows the output from TABAUDIT when it is used to verify Table LGRPINV.

Sample Tabaudit output for Verifying LGRPINV Table Datafill

```
>tabaudit
TABAUDIT:
>include lgrpinv

>execute
-------------------------------------------------------------------------------
|            TABAUDIT STATUS
-------------------------------------------------------------------------------

The following tables are included:
table LGRPINV (300)

The following tables are excluded:
  From table VERSIONS (0)              to table SERVRINV (90).
  From table MGCINV (92)               to table IPINV (299).
  From table X75INFO (301)             to table INWATNPA (1426).

Please confirm ("YES", "Y", "NO", or "N"):
>yes
Creating TABAUDIT summaryfile: SUMMARY$MAP on SFDEV.
Starting DMS data verification ...
Table LGRPINV: New table control.
     Completed tuple checking.
     SUMMARY: Tbl LGRPINV: tuples checked 26, passed 26, failed 0.
Data verification is completed.
```

Service Orders (SO) (CM & SESM)

Not Applicable.

Software optionality control (SOC)

Not Applicable.

Element Management

Not Applicable.

Command interface changes

Not Applicable.

Security

Not Applicable.

Configuration Walkthrough

As indicated earlier, there is no change to the provisioning sequence of the tables. There are changes to the prompting sequence within the LTCINV and LGRPINV tables for the new data. Examples of these prompting sequences for each table are provided in the Data Schema section.

Product = CS2000

A00002741 -- Supernode Billing Application Base Real Time Billing Robustness (Succession on DMS)

Excerpts from the Design Description

Purpose

This activity robustifies SBA Base RTB to auto recover from downstream and network connectivity problems once the issues are resolved. This functionality will be optionalized. As well, the activity addresses many other deficiencies tracked by CRs and other means.

Problem Symptoms

Each item of functionality to be considered by this activity is grouped below, along with a summary explanation for the item.

1. Deletion/modification of underlying schedule tuple:

   Problem Description: The billing stream Schedule tuple configuration is shared by both Outbound file transfer and the RTB Destination configuration. If the schedule tuple is removed or certain fields are modified while the corresponding RTB Destination is InSv, the RTB Destination would fail ungracefully.

   Solution Description:

   i. This activity displays a message to the user asking him to OffL and delete the any possible corresponding RTB Destination before modifying/deleting the associated Schedule tuple if the protocol of the tuple is RFTPW.

   ii. Also, RTB will now check for the current schedule tuple every transfer event irrespective of whether failure has occured or not. If an active file is being transferred by RTB, and the schedule tuple is deleted or the protocol changed, the current active file will continue to transfer until it is closed as is the case currently. If another active file is opened, RTB will move to SYSB state as is the behaviour now.

2. Auto Recovery: “Test File transfer” and “Temp File renaming on DPMS”:

   Problem Description: In order for RTB to recover from a user defined maximum number of consecutive outages in connectivity between the SDM and the DPMS, manual intervention was required (i.e. have to BSY/RTS RTB Destination in billmtc) in order to resume real time transfer of future open billing files to the DPMS.

Also, a Temporary open file (with suffix .tmp) exists on the DPMS to collect the billing data sent by RTB. Whenever there was a LAN failure or when SDM/ Downstream processor reboots, this open file was not complete nor properly named. Its corresponding file on the SDM is moved from Open to ClosedNotSent (CNS) directory, and renamed. Thus, when RTB resumed service, a new open file was transferred and thus a new .tmp file was created on the DPMS. Thus there would be two .tmp files at the DPMS.

Solution Description:

i. Enhancements are made to RTB such that after the maximum consecutive number of failures for a Destination, it will move to ISTB state to denote that RTB will initiate an autorecovery process.

When the above is encountered, it then starts a monitoring operation consisting of FTPing a test file (of size 10MB, named as NetworkTest) to the DPMS test file directory, and analysing the response to figure out if the test transfer was successful, or in case of error, if it was due to a network issue or a non-network issue. . Below are the 2 resulting scenarios:

–If it is a non-network issue, RTB will sleep until a new file is open on the the SDM and then resume its INSV state.

–If it is a network issue, RTB will try the operation again until it succeeds 3 consecutive times or until a non-network issue is detected, in which case the previous stated behaviour above for this case is followed.

The location of the test files on the downstream can be configured through RMI (BILLMTC).

ii. Enhancements are made such that whenever RTB resumes operation after an outage, the <filename>.tmp file on the downstream (for the associated stream/destination configuration) will be renamed to <filename>.partial before opening a new .tmp file. The location of this partial file is configurable through RMI (BILLMTC).

Both the test file transfer and partial file renaming functionality are one combined auto-recovery option (which applies to any/all configured RTB Destinations), which can be turned ON of OFF.

If the user sets the option to OFF,-manual intervention will be required to return to service the RTB Destination after the configured maximum # of consecutive network failures occurs**.** In this case, RTB will go to SYSB state, and manual intervention is required to ever get out of this state, as is the behaviour now.

3. Interoperability between RTB and base SBA status:

Problem Description: RTB behaviour is heavily dependant on the status of base SBA resources such as the stream state, and the application status of SBA. RTB fails ungracefully when base SBA stream or application states change.

Solution Description:

i. The RTB Destination will check the underlying stream status before executing the transfer event. If it is not INSV, a designlog and custlog will be raised, and the transfer will not be executed.

ii. Whenever SBA is restarted, RTB will check the previous state for each RTB Destination and will bring the Destination INSV if it was previously INSV or ISTB or SYSB at the time of SBA application shutdown.

Limitations and restrictions

- There already exists a limitation on SBA, which is the following: Multiple schedule tuples must not be configured (across OR within SDMs) sharing the same 'remote destination IP', 'remote directory', 'file format' (DIRP), and 'File_Extension.' If this is not respected, collisions between billing filenames may result. This feature adds more of a limitiation based on the above, which is the following: Multiple schedule tuples must not be configured (across OR within SDMs) sharing the same 'remote destination IP' and 'remote directory', and where there exists at least 1 RTB Destination configuration (on any SDM) based upon one of these underlying schedule tuple configurations. If this is not respected, and the Auto-recovery option is turned ON, then one transfer may remove files owned by another transfer.
- A new limitation exists if the Auto-recovery option is turned ON. Multiple RTB Destinations must not be configured (across OR within SDMs) with the same 'partial file location' OR the same 'test file location' on the DPMS. If this is not respected, collisions between files may result.

Definitions & Abbreviations

Acronym	Expansion
CNS	Closed Not Sent
FTP	File Transfer Protocol
MIB	Management Information Base
RMI	Remote Maintenance Interface
RTB	Real Time Billing
SBA	SuperNode Billing Application
DPMS	Data Processing and ManagementSystem

CM	Computing Module
SDM	SuperNode Data Manager

Product = CS 2000

A00002744 -- SBA: Automatic Recovery File Closure (Succession on DMS)

Description

If the core SBA application is unable to send billing data to the SDM SBA applications, core SBA changes its state to backup mode. In backup mode, the core stores billing data in backup storage. Once communication resumes between the core SBA and SDM SBA, the core SBA will transition from backup mode to recovery mode. During recovery, the core SBA will send the current billing data and the stored backup billing data to the SDM SBA. SDM SBA will open separate files to store the current data and the billing data recovered from backup storage. Once all billing data has been recovered from backup storage, core SBA will transition from recovery mode to normal mode.

For each billing stream configured in SBA, its corresponding billing files can be configured to be rotated based on elapsed time since the file was opened. The crafts person must specify a maximum file size and a maximum number of records for each billing file. In addition to these facilities for file closure, this feature brings in a mechanism to close the recovery file as soon as the SBA core transitions from recovery mode to normal mode, irrespective of the file closure criteria.

Hardware Requirements or Dependencies

None.

Software Requirements or Dependencies

- SuperNode Billing Application (SBA) is installed and InSv.
- Billing configured on the CM.

Limitations and restrictions

None

Interactions

None

Applicable customer facing sections

Existing logs will be retained. No new logs are introduced as part of the feature.

Fault Management

- Logs ___N/A___
- Alarms ___N/A___

Configuration

- Data Schema ___N/A___
- User Interface ___N/A___
- Element Management ___N/A___
- Security ___N/A___
- Service Order ___N/A___
- Office Parameters ___N/A___

Accounting (includes AMA billing) ___N/A___

Performance (includes operational measurements) ___N/A___

Glossary

Term	Description
Automatic Message Accounting	Telcordia specification for accounting records.
Automatic Message Accounting Data Networking System (AMADNS).	System for transferring accounting records from a generating system to application systems. Comprises a Data Server component and a Data Processing and Management System (DPMS) component.
CDR	Call Detail Record
Data Processing and Management System (DPMS)	System for receiving accounting records from Data Servers and processing the records as required for transfer to application systems.
data server	Component that collects accounting records from a generating system.
Digital Multiplex System (DMS)	DMS core Digital telephone switch
Device-Independent Recording Package (DIRP)	file format file format used by SBA to store billing records, based on the DIRP billing file format on the DMS core

Term	Description
File Transfer Protocol (FTP)	application protocol for transferring files via Internet Protocol (IP)
generating system	Component that generates accounting records, such as the DMS core.
Generic Requirements (GR)	Telcordia specification document
Management Information Base (MIB).	In the context of this document, refers to the persistent data repository where SBA configuration information is kept. Individual values stored within the MIB are referred to as MIB values
Non-Computing module Load (NCL)	software load for components other than the DMS core; in the context of this document, software load for the SDM
outbound file transfer	SBA file transfer mode where SBA initiates the transfer of billing files to a downstream FTP server.
recovery file	A file on the SDM in which the SDM SBA saves the billing data recovered from the core SBA backup storage.
Supernode Billing Application (SBA)	Accounting collection data server that resides on the SDM. Implements the Data Server function of an AMADNS environment.
Supernode Data Manager (SDM)	Motorola FX computing node upon which resides Operations, Administration, Maintenance, and Provisioning applications / Fault, Configuration, Accounting, Performance, and Security management applications. SDM xxrefers to a given SDM NCL release, where xx is a two-digit number.
Reset EOS	Message from CM Indicating the end of a session.

Product = CS2000

A00002746 -- ABI XPM Fault Isolation / QUERYPM (UA-AAL1)

Functional Description

This feature provides new functionality which will assist the craftsperson with maintaining XPMs which subtend the MG9K. This new functionality consists of changes to the existing QUERYPM command which is part of the PM level of the MAP.

The QUERYPM command changes consist of:

- Provide SITE name and ABI location information.

- Provide an interface to assist in isolating communication issues between the CM and the ABI XPM over the Succession network.

Hardware Requirements or Dependencies

There are no hardware dependencies for this feature.

Software Requirements or Dependencies

This feature is dependent upon the following features:

- A00002607 - ABI XPM SITE and MG9K Location support.
- A00002146 - MAPCI ABI Link Test & Legacy Comparison.

This feature is not subject to any requirements other than the requirements of the features listed above.

Limitations and restrictions

There are no known limitations nor restrictions as of this writing.

Interactions

This feature directly interacts with the following features:

- A00002607 - ABI XPM SITE and MG9K Location support.
- A00002146 - MAPCI ABI Link Test & Legacy Comparison.

Applicable customer facing sections

Fault Management

Logs	__N/A____
Alarms	__N/A____

Configuration

Data Schema	__N/A____
User Interface	__X____
Element Management	__N/A____
Security	__N/A____
Service Order	__N/A____
Office Parameters	__N/A____

Accounting (includes AMA billing)	__N/A____
Performance (includes operational measurements)	__N/A____

Glossary

Term	Description
ABI XPM	An XPM which is provisioned in table LTCINV with the optional attribute EXTDS512. These XPMs are physically connected to MG9K Gateways via a DS512 interface.

Configuration for A00002746

Hardware and Software Requirements

This feature requires the following features to function:

- A00002607 - ABI XPM SITE and MG9K Location support.
- A00002146 - MAPCI ABI Link Test & Legacy Comparison.

Initial Configuration

An ABI XPM must be datafilled to observe the new functionality provided via the QUERYPM command at the PM level(s) of the MAP.

Command interface changes

QUERYPM MAPCI command

The QUERYPM command is used to query miscellaneous information about the currently posted XPM at the PM level of the MAP. This feature modifies the legacy QUERYPM command as follows:

4. Add additional screen output to the default QUERYPM command (without arguments) which reflects SITE, ABI slot, and network element number information. New output only occurs if the posted XPM is an ABI XPM.
5. Add an additional option to the QUERYPM command, ABICONN, which is used to trigger a looparound message at the ABI XPM for verifying connectivity between the CM and XPM.

Legacy QUERYPM

Figure , on page 538 displays the legacy version of the QUERYPM command and options.

Figure , on page 538 displays the legacy output of the QUERYPM command without arguments.

Legacy MAPCI help QUERYPM command

```
XAC      MS     IOD     Net      PM     CCS     Lns     Trks    Ext     APPL
 ETHR      .       .      LOAD    1 SPM  1   RS    .      10C.R     .      .
   M                              *C*     *C*             *C*
                                  SysB    ManB    OffL    CBsy    ISTb    InSv
  0 Quit          PM                 2       2      11       1      10      20
  2 Post_         LGC                0       0       1       0       1       1
  3 ListSet
  4           lgc     0 InSv  Links_OOS: CSide  0 , PSide  0
  5 Trnsl_    Unit0:   Act   InSv
  6 Tst_      Unit1:   Inact InSv
  7 Bsy_      help querypm
  8 RTS_      QUERYPM: QUERY MISC INFO ABOUT THE PM
  9 OffL      Parms: [<OPTION> {FLT,
 10 LoadPM_                    CNTRS,
 11 Disp_                      FILES,
 12 Next                       CONFIG,
 13 SwAct                      DIAGHIST [<OPTHIST> {DIAG,
 14 QueryPM                                         CARD,
 15 DCH                                             RESET}]}]
 16
 17 PERFORM
 18 ISG
   Nortel
```

Legacy MAPCI QUERYPM command

```
 XAC      MS     IOD     Net      PM     CCS     Lns     Trks    Ext     APPL
ETHR      .       .      LOAD    1 SPM  1   RS    .      10C.R     .      .
  M                              *C*     *C*             *C*
                                 SysB    ManB    OffL    CBsy    ISTb    InSv
 0 Quit          PM                 2       2      11       1      10      20
 2 Post_         LGC                0       0       1       0       1       1
 3 ListSet
 4           LGC     0 InSv  Links_OOS: CSide  0 , PSide  0
 5 Trnsl_    Unit0:   Act   InSv
 6 Tst_      Unit1:   Inact InSv
 7 Bsy_      querypm
 8 RTS_      PM Type: LGC  PM No.: 0  PM Int. No.: 0  Node_No.: 67
 9 OffL      PMs Equipped: 46  Loadname: QLI19BE  EEPRom Load: SXFWAJ01
10 LoadPM_   Warning! Unit 0 is missing patches
11 Disp_     Warning! Unit 1 is missing patches
12 Next      WARM SWACT is supported and available.
13 SwAct     LGC 0 is included in the REX schedule.
14 QueryPM   REX on LGC 0 has not been performed.
15 DCH       Node Status: {OK, FALSE}
16           Unit 0   Act, Status: {OK, FALSE}  ,MtcArb functional
17 PERFORM   Unit 1 Inact, Status: {OK, FALSE}  ,MtcArb functional
18 ISG        Site Flr RPos  Bay_id   Shf  Description    Slot     EqPEC
  Nortel      HOST  01  C31  LTEI 000  04  LGC : 000               6X02NA
```

New QUERYPM

New QUERYPM - HELP OUTPUT

reflects the new output when a “help querypm” is input at the MAP. Note the new ABICONN option.

New QUERYPM Help Output

```
help querypm
QUERYPM: QUERY MISC INFO ABOUT THE PM
Parms: [<OPTION> {FLT,
                  CNTRS,
                  FILES,
                  CONFIG,
                  DIAGHIST [<OPTHIST> {DIAG,
                                       CARD,
                                       RESET}],
                  ABICONN}]
```

New QUERYPM without options - INPUT

No additional input will be required by the craftsperson. The system will determine the output based on provisioning and display the information accordingly.

New QUERYPM without options - OUTPUT

illustrates the additional information output for an ABI XPM when no additional options are provided at the command prompt.

QueryPM (no options) output for ABI XPM

```
>querypm
PM Type: LGC  PM No.: 0  PM Int. No.: 0  Node_No.: 67
PMs Equipped: 47  Loadname: QLI19BE  EEPRom Load: SXFWAJ01
Unit 0 is patched
Unit 1 is patched
WARM SWACT is supported and available.
LGC 0 is included in the REX schedule.
Last REX date was SAT. 2003/06/21 at 02:20:34; PASSED.
Node Status: {OK, FALSE}
Unit 0   Act, Status: {OK, FALSE}  ,MtcArb functional
Unit 1 Inact, Status: {OK, FALSE}  ,MtcArb functional
 Site Flr RPos  Bay_id   Shf  Description   EqPEC
 CARY 01  CC02  LTEI 002 19   LGC : 001     6X02NA
 SITE ABISlots NE
 CARY 4:5      12
```

QUERYPM with ABICONN option - INPUT

Entering “QUERYPM ABICONN” at the MAP will attempt a looparound test at the ABI XPM. Information regarding the results will be displayed at the MAP. Please refer to “ QUERYPM with ABICONN option - OUTPUT” on page 540 for an overview of the possible results which are output at the MAP.

QUERYPM with ABICONN option - OUTPUT

There are a number of nodes in the path between the CM and ABI XPM which are necessary to perform the link looparound. If a failure occurs, the link looparound test will attempt to isolate the issue. Based on success or the point of failure, various messages will be output informing the end user of the status.

“ QUERYPM with ABICONN MAP outputs” on page 540 lists the possible messages output at the MAP when the QUERYPM command using the ABICONN option is input at the MAP. There should be a separate output for each of the messaging paths to the XPM.

QUERYPM with ABICONN MAP outputs

QUERYPM ABICONN
Response: “Connectivity to XPM has been confirmed.” **Meaning:** A successful link looparound test was completed. The CM is communicating with the XPM. **System or user actions:** No actions are required.
Response: “Connectivity check via link # PASSED.” **Meaning:** Connectivity was verified over the specified link. **System or user actions:** None.
Response: “Connectivity check via link # FAILED.” **Meaning:** Connectivity over the specified link could not be verified, or the verification failed. **System or user actions:** Refer to the extra output when this occurs for troubleshooting steps if any.

QUERYPM with ABICONN MAP outputs

QUERYPM ABICONN
Response: “Invalid link state for test.” **Meaning:** The connectivity tests were not run because of the state of the link. **System or user actions:** Retry the test when the links are in a valid state for test.
Response: “Querypm ABICONN has been aborted by higher priority mtc.” **Meaning:** The connectivity test was aborted because the resources were needed by higher priority maintenance. **System or user actions:** Retry the command later.
Response: ’Failed to maintenance open link.’ **Meaning:** The Mtc system was unable to open the link for test purposes. **System or user actions:** Retry the command later.
Response: ’Failed XPM messaging test.’ **Meaning:** The XPM is not messaging properly. **System or user actions:** Troubleshoot the XPM for resolution of the issue.
Response: ’Check connectivity between the ABI and XPM.’ **Meaning:** Communication between the ABI and XPM could not be verified. **System or user actions:** Troubleshoot communications between the ABI and XPM.

QUERYPM with ABICONN MAP outputs

QUERYPM ABICONN
Response: 'Check connectivity between the GWC and ABI.' **Meaning:** Communication between the GWC and ABI could not be verified. **System or user actions:** Troubleshoot communications between the GWC and ABI.
Response: 'Check connectivity between the CM and GWC. ' **Meaning:** Communication between the CM and GWC could not be verified. **System or user actions:** Troubleshoot communications between the CM and GWC.
Response: 'Invalid response - spch #' **Meaning:** This is an invalid response to this test. **System or user actions:** Contact next level of support.
Response: 'MG9K reports VMG is OOS.' **Meaning:** The ABI is reporting the VMG is not INSV. **System or user actions:** Verify VMG status at the Element Manager.
Response: 'MG9K reports Node Mtc is not ready.' **Meaning:** The MG9K is not in a proper state to support the connectivity test. **System or user actions:** Verify the MG9K and ABI status at the Element Manager.

QUERYPM with ABICONN MAP outputs

QUERYPM ABICONN
Response: 'MG9K reports HAL Alarms.' **Meaning:** The test is failing because of faults which are alarmed. **System or user actions:** Verify the ABI status at the Element Manager and clear any critical alarms.
Response: 'MG9K reports no Sync with XPM.' **Meaning:** Clock sync between the XPM and ABI has not been achieved. **System or user actions:** Verify physical connectivity between the ABI and XPM.

Product = CS 2000

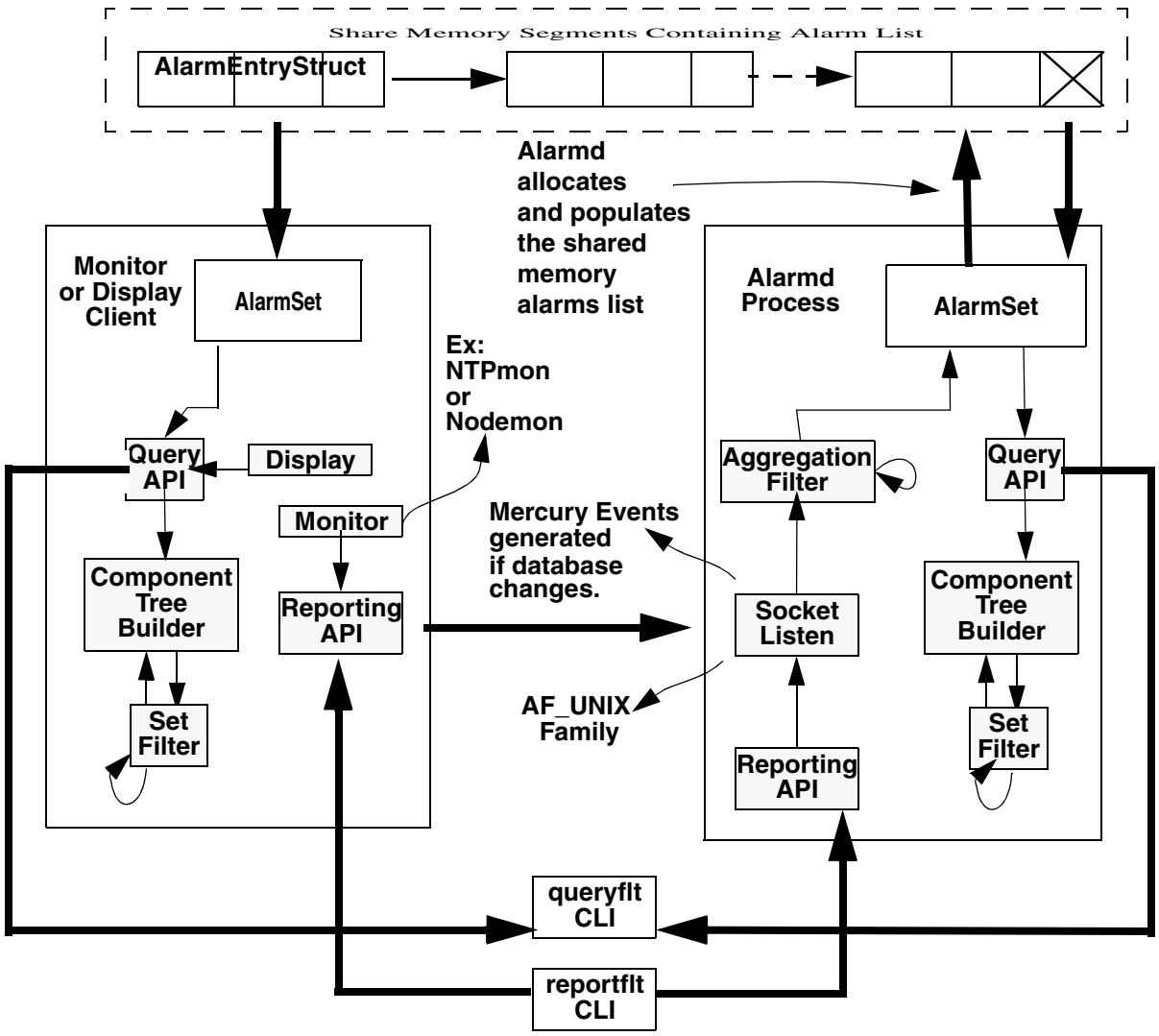
A00002757 -- NSDM Fault Management HA (Succession on DMS)

Functional Description

This feature provides a generic framework for centralizing fault information for the Next Generation SDM (CBM) product and for the SSPFS platform.

The mandate is to collect detailed fault information about components in the CBM cluster, maintain a list of current alarms, summarize the list in a hierarchical fashion, and report this information to clients in the desired fashion.

Alarmd Server/Client Process and Data Flow



User Interfaces

This feature will require changes to the QueryCBM command in the CBMMTC maintenance tool, as well as various Logs commands for respective CBMMTC levels.

Hardware Requirements or Dependencies

SSPFS defined platform.

Software Requirements or Dependencies

A00003617 - SSPFS Alarmd Integration will provide the light control API, and component monitors for this feature.

Limitations and restrictions

N/A

Interactions

A00003617 - SSPFS Alarmd Integration will provide system level monitors that will use the ReportingAPI part of this feature to record any alarms. It will also make use of the Query API in this feature to retrieve alarms stored in the Alarms Database.

A00002164 - The Application Manager (SAM) for HA will use the Reporting API part of this feature to record any alarms. It will also make use of the Query API in this feature to retrieve alarms stored in the Alarms Database.

Applicable customer facing sections

Fault Management

Logs	__x___
Alarms	_____

Configuration

Data Schema	_n/a__
User Interface	__x__
Element Management	_n/a__
Security	_n/a__
Service Order	_n/a__
Office Parameters	_n/a__

Accounting (includes AMA billing)	_n/a__
Performance (includes operational measurements)	_n/a__

Indicate with an X if you are completing the sections of the DDOC listed below. Indicate with “N/A” if these sections do not apply to this functionality.

Realtime	_n/a__
Engineering Information	__x__

Fault Management for A00002757

Fault management strategy

This feature provides functionality to a SSPFS Platform for the aggregation of Alarms into one database. Logs will be generated by the reporting entity when using the *Reporting API* to enter/update/clear alarms in the database.

Fault management tools and utilities

Two command line tools will be available to report and query faults contained in the *Alarm Database*.

The tools are called *queryflt*, and *reportflt*.

Logs

Explanation

Log Title: Report Alarm

Name: Report Alarm Log

Description:

This log is sent when requested by the entity that is reporting an alarm.

Event type: Customer Log

Format

_V2_~I=**CBM**~H=**<hostname>**~A=**<application>**~S=**<seqNum>**~~
<reportName><reportNum> NONE <eventType> <description>
ComponentID: **<componentID>**
Category: **<categoryString>**

Note: The *I=CBM* will be changed to reflect the currently defined network element name.

Field descriptions

Field	Value	Description
hostname	variable	Hostname of the cluster on which the log is being generated.
application	variable	Name of the application for which the alarm is raised.
seqNum	variable	Sequence number of the log being generated.

Field	Value	Description
reportName	variable	The Customer Log report name (e.g.: CBM)
reportNum	variable	The Customer Log report number (e.g.: 300).
alarmLevel	variable	The alarm level for this alarm, one of: Cleared, Warning, Minor, Major, Critical, or Indeterminate.
eventType	variable	The Customer Log event type.
description	variable	Description for this particular alarm. Not describing the problem that happened, but describing what the alarm relates to or represents.
timeStamp	variable	This is the time at which the alarm was raised.
componentID	variable	This field is specified by the application to include the name of the component being alarmed (see definitions in section “Use of component name” for details of how to specify this field).
categoryString	variable	The alarm category for this alarm.
probableCauseStr	variable	Probable Cause information.
specificProblemStr	variable	Further qualifies the probable cause for this alarm.

Action

The action required is dependent on what the particular alarm report is. Any specific action will be described in the *description* field above.

Associated Operational Measurements or Performance Measurements

N/A

Additional information

Explanation

Log Title: Clear Alarm

Name: Clear Alarm Log

Description:

This log will be generated when a client clears an existing alarm in the alarms database managed by Alarmd.

Event type: Customer Log

Format

```
_V2_~I=CBM~H=<hostname>~A=<application>~S=<seqNum>~~
<reportName><reportNum> NONE <eventType> <description>
      ComponentID: <componentID>
      Category: <categoryString>
```

Note: The *I=CBM* will be changed to reflect the currently defined network element name.

Field descriptions

Field	Value	Description
hostname	variable	Hostname of the cluster on which the log is being generated.
application	variable	Name of the application for which the alarm is raised.
seqNum		Sequence number of the log being generated.
reportName	variable	The Customer Log report name (e.g.: CBM)
reportNum	variable	The Customer Log report number (e.g.: 300).
eventType	variable	The Customer Log event type.
description	variable	Description for this particular alarm. Not describing the problem that happened, but describing what the alarm relates to or represents.
componentID	variable	This field is specified by the application to include the name of the component being alarmed (see definitions in section “1.7.4 Use of component name” on page 33 for details of how to specify this field).
categoryString	variable	The alarm category for this alarm.

Action

No action required.

Associated Operational Measurements or Performance Measurements

N/A

Additional information

N/A

Explanation

Log Title: Alarm Summary

Name: Alarm Summary Log

Description:

This log is sent periodically by Alarmd, to summarize the Alarms in the database managed by Alarmd.

Event type: Customer Log

Format

```
_V2_~I=CBM~H=<hostname>
      TimeStamp: <timeStamp>
      Minor: <minorCount>
      Major: <majorCount>
      Critical: <criticalCount>
      Most Recent Minor: <MRMinorComponentID>
      Most Recent Major: <MRMajorComponentID>
      Most Recent Critical: <MRCriticalComponentID>
```

Note: The *I=CBM* will be changed to reflect the currently defined network element name.

Field descriptions

Field	Value	Description
hostname	variable	Hostname of the cluster on which the log is being generated.
timeStamp		
minorCount		
majorCount		
criticalCount		
MRMinorComponentID		
MRMajorComponentID		
MRCriticalComponentID		

Action

N/A

Associated Operational Measurements or Performance Measurements

N/A

Additional information

N/A

Product = CS 2000

A00002760 -- Panther Enhancements for Hybrid Office Support (PT-AAL1, UA-AAL1, Succession on DMS)

Functional Description

Panther tool provides an automatic software load upgrade facility for peripherals like DTC, DMSCP SPMs, SMG4 etc.

While upgrading a particular variant of SPM using panther (e.g. DMSCP) in a hybrid office which has more than one variant of SPMs (e.g. both DMSCP and SMG4), the following problems occur.

- In addition to creating a plan for the desired variant (DMSCP) of SPM, panther has a limitation of creating an upgrade plan for other variants also (e.g. SMG4).
- While executing the plan, craft is unable to retain the loads that were existing in the other variant, since the PLAN forces a change in the load for other variants as well. As a result, the RMs and CEMs of other variants of SPMs in a Hybrid office are loaded with the wrong load which may lead to the outages.

This SN07 activity ensures upgrading of different variants of SPMs with their corresponding loads. This activity is supported only for the offices that have SPMs provisioned in it.

The various functionalities provided as part of this activity are:

- Eight new EXT files, one for each variant of SPM are available for the crafts.
- Blocking of panther upgrade for SPMs in case of no EXT file on the distribution volume. This blocking is done only in the customer site.

Note: However in labs, if there is no EXT file present in the distribution volume, a new prompt is introduced either to continue the upgrade of SPMs or blocking the upgrade for SPMs.

- Modification of the table SPMLDVAL to support SN releases and creation of a new field to determine the variant of SPM. The size of the table SPMLDVAL is also increased from 256 to 2048.
- ONP support to the table SPMLDVAL.
- Modification of FILECOPY command and filecopy report in Panther to copy appropriate loads to the destination volume based on the load information available in the EXT files.
- Modification of filecopy reports to display the variant of SPM.
- Modification of FILECOPY command to support multiple FILECOPY in an upgrade cycle.
- Modification of PMUPGRADE PLAN command to create tasks based on the load information available in the EXT files.
- Enhancement of the CI tool, SPMLDINFO to support all the variants of SPM.
- Modification of the 'QUERYPM FILES' mapci command to display load release information for all variants of SPMs.
- Introduction of additional warning message during manual loading (loadmod and bulkload) of devices of all variants of SPMs.

Note: *Refer to the activity ACT.89007535 - SPM MR Loadname Decoder for more information.*

Modification of table SPMLDVAL to support all the product lines of SPM

The table SPMLDVAL is enhanced to support the load lineup for all the following product lines of SPMs.

- DMSCP - NA
- DMSCP - INTL
- SMG4 - ATM
- SMG4 - IP
- IW - ATM
- IW - IP
- DPT - ATM and
- DPT - IP

Modification of the key of the table

In SN06, this table supports the load lineup for DMSCP class of SPMs only and the tuple format is as shown below.

SP 17 1 0 (CEM71BA) (COH0071) (DL271AZ) (DLC71AZ) (DSP71BA) (OC371AZ) (SYN71AZ) $

In SN07, the key of the table is modified to support all the product lines of SPMs by introducing a new field. The tuple format is given below with the new field in bold.

SP 17 0 0 **SPMNA** (CEM17BU) (DLC17BV) (DL217BT) (DSP17BU) $
SP 17 0 0 **SPMIN** (CST17BS) (DLC17BV) (DL217BT) (DSP17BU) $
SN 06 0 0 **MG4AT** (MG419BR) (ATC19BO) (IED19BO) (OC419BN) $
SN 06 0 0 **MG4IP** (MG419BR) (GEM19BN) $
SN 06 0 0 **IWSAT** (IWS19BP) (ATC19BO) (SYN19BN) $
SN 06 0 0 **IWSIP** (IWS19BP) (GEM19BN) $
SN 06 0 1 **DPTAT** (IWS19BP) (ATC19BO) (DSP19BN (COH0019) $
SN 07 0 1 **DPTIP** (IWS20BA) $

Introduction of ERROR messages during table control operations

During tuple addition, table control checks for the valid combination of load type and product type that are added. The valid combination of the load type and the product type for any tuple are as follows:

- load type: SP and product type: SPMNA and SPMIN.
- load type: SN and product type: MG4AT, MG4IP, IWSAT, IWSIP, DPTAT and DPTIP.

When a tuple with invalid combination of load type and product type is added in table SPMLDVAL, the following error messages are displayed.

```
ERROR: Cannot datafill MG4AT product type for SP loadtype.
       Only SPMNA or SPMIN are valid for the SP loadtype.

ERROR: Cannot datafill MG4IP product type for SP loadtype.
       Only SPMNA or SPMIN are valid for the SP loadtype.

ERROR: Cannot datafill IWSAT product type for SP loadtype.
       Only SPMNA or SPMIN are valid for the SP loadtype.

ERROR: Cannot datafill IWSIP product type for SP loadtype.
       Only SPMNA or SPMIN are valid for the SP loadtype.

ERROR: Cannot datafill DPTAT product type for SP loadtype.
       Only SPMNA or SPMIN are valid for the SP loadtype.

ERROR: Cannot datafill DPTIP product type for SP loadtype.
       Only SPMNA or SPMIN are valid for the SP loadtype.

ERROR: Cannot datafill SPMNA product type for SN loadtype.
       Only MG4AT or MG4IP or IWSAT or IWSIP or DPTAT
       or DPTIP are valid for the SN loadtype.

ERROR: Cannot datafill SPMIN product type for SN loadtype.
       Only MG4AT or MG4IP or IWSAT or IWSIP or DPTAT
       or DPTIP are valid for the SN loadtype.
```

Increasing the size of the table

The size of this table is also increased from 256 to 2048 tuples to support all the product lines of SPMs.

ONP support to the table

In SN06, table SPMLDVAL contains both the INTL and NA DMSCP loads in the same tuple. i.e. One tuple contains CST, CEM, STM and OC3 loads. CEM and OC3 loads are specific to DMSCP NA product whereas CST and STM loads are specific to DMSCP INTL product of SPM.

In SN07, since a new field is introduced to identify the product type of each tuple, such a combination of loads becomes invalid. So, during the transfer of the table SPMLDVAL from release SN06 to SN07, a single tuple with both DMSCP NA and INTL loads is split up into two tuples. The product type of the first tuple is written as SPMNA and contains CEM and OC3 loads. On the other hand, the product type of the second tuple is written as SPMIN and contains CST and STM loads.

EXT File in load tape to datafill SPMLDVAL

With the implementation of this feature, every spectrum (both succession and TDM) load release tape shall contain an EXT file with the load lineup information for different spectrum load releases and this EXT file will be used

to datafill table SPMLDVAL during Panther execution. As a result of this, table SPMLDVAL contain tuples with the loadtype and the device load lineup of various spectrum load releases. In case of offices with no SPMs, there is no impact to the existing panther upgrade behavior.

The EXT file which contains the device load lineup of all the spectrum load releases shall be available through load tape or ESD at the customer site.

The EXT file for DMSCP class of SPMs, **SPMLDEXT** is already in place. Eight new EXT files for different products of SPMs are introduced. The existing SPMLDEXT file will also be used during an upgrade from SN06 to SN07.

- **SPMNAEXT** for DMSCP - NA
- **SPMINEXT** for DMSCP - INTL
- **MG4ATEXT** for SMG4 - ATM
- **MG4IPEXT** for SMG4 - IP
- **IWSATEXT** for IW - ATM
- **IWSIPEXT** for IW - IP
- **DPTATEXT** for DPT - ATM
- **DPTIPEXT** for DPT - IP

These files have details of spectrum load-lineups of all Nortel supported releases. The sample tuples in table SPMLDVAL for the above eight EXT files respectively are shown below:

SP 17 0 0 **SPMNA** CEM17BU DLC17BV DL217BT DSP17BU $
SP 17 0 0 **SPMIN** CST17BS DLC17BV DL217BT DSP17BU $
SN 06 0 0 **MG4AT** MG419BR ATC19BO IED19BO OC419BN $
SN 06 0 0 **MG4IP** MG420BR GEM20BN $
SN 06 0 0 **IWSAT** IWS19BP ATC19BO SYN19BN $
SN 06 0 0 **IWSIP** IWS19BP GEM19BN $
SN 06 0 1 **DPTAT** IWS19BP ATC19BO DSP19BN COH0019 $
SN 07 0 1 **DPTIP** IWS20AB $

The SPMNAEXT and SPMINEXT files shall contain the data starting from load release **SP14.8.1.** The MG4ATEXT, IWSATEXT, IWSIPEXT, DPTATEXT files shall contain the data starting from load release **SN03.1.0** onwards. The MG4IPEXT and DPTIPEXT files shall be empty because these two products are currently not available. A maximum of 292 tuples are available in each of these EXT files.

Modification in filecopy stage

The filecopy command checks the availability of the EXT file in the distribution volume and first executes the EXT file to datafill table SPMLDVAL and then copies the EXT file from the tape (or any other distribution volume) to the destination volume.

1. In case of customer site, the following warning is displayed if the EXT file is not present.

****** WARNING: EXT file to datafill table SPMLDVAL is not available in the distribution volume. SPMs will not be considered for upgrade. If SPMs are required to be upgraded, quit and start pmupgrade again with the EXT file in the distribution volume. If SPMs are not required to be upgraded, continue filecopy.***

- If SPMs are also required to be upgraded, then the craft can quit filecopy at a later stage and start the filecopy again with the proper EXT file in the distribution volume.
- If the SPMs are not required to be upgraded, then the craft can just continue with the upgrade and no loadmapping shall be done for any of the SPM loads.

Note 1: When the above mentioned warning message is displayed,

- no prompt shall be displayed for any of the SPM current loads,
- the SPM current loads shall not be included in the filecopy report and as a result
- SPMs shall not be included in the plan.

Note 2: *In case of designer Lab, the following prompt is displayed if the EXT file is not present.*

****** WARNING : EXT file to datafill table SPMLDVAL is not available in the distribution volume. Do you want to still consider SPMs for upgrade?***
Please confirm ("YES", "Y", "NO", or "N"):

— *In case the craft enters "Yes" or "Y", SPMs will be upgraded without the EXT file. The same customer site behavior is maintained but the crafts shall have the flexibility of running panther upgrade without checking for the EXT file. This can result in upgrade of SPM devices with incorrect loads in a hybrid lab with different product lines of SPM.*

— *In case of "No" or "N", SPMs will not be considered for upgrade and the behavior mentioned above in Note 1 shall occur.*

2. If more than one EXT file of the same type is present in the distribution volume, then the following warning message is displayed.

   WARNING: Multiple possible replacements found on load distribution volume for <extfile> file: <extfile_ver> <extfile_ver> Any replacement EXT file name may be chosen from the distribution volume. If necessary, consult the PM release documentation or contact the next level of support.

   Please enter the replacement file name, Or "Q" (Quit FILECOPY)

   If this message is received, the craft needs to enter the correct EXT file name. In case of incorrect file name the following message is displayed.

   Response is not one of the allowable options.
   Please enter the replacement file name, Or "Q" (Quit FILECOPY)

   The above message will be repeated whenever the user enters a wrong response. If the user enters Q, then it will come out of filecopy phase of Panther.

   Note: *The extfile in the above WARNING message can be any one of the following: SPMNAEXT, SPMINEXT, MG4ATEXT, MG4IPEXT, IWSATEXT, IWSIPEXT, DPTATEXT and DPTIPEXT.*

3. If the EXT file to be processed is already present in the destination volume, then the following message is displayed.

   ***** WARNING: <extfile_ver> file already exists in the destination volume.**

   Note 1: The extfile in the above WARNING message can be any one of the following: *SPMNAEXT, SPMINEXT, MG4ATEXT, MG4IPEXT, IWSATEXT, IWSIPEXT, DPTATEXT and DPTIPEXT.*

   Note 2: All the other existing WARNING messages specific to SPMLDEXT file are applicable for the new EXT files also.

4. During filecopy stage when there is no replacement load in the distribution volume for a particular current load, in SN06, panther prompts the user to enter a new load as follows:

```
*** No replacement found on load distribution volume for DSP17AH load.
Any replacement load name may be chosen from the load distribution
volume. If necessary, consult the PM release documentation or
contact the next level of support.
Please enter the replacement load name, or "S" (Same), or "Q" (Quit FILECOPY)
>
```

In SN07, the "**replacement load name**" option is removed from the above prompt for all current loads (XPM, SPM, ENET...). This is because panther had already checked for any replacement loadname in the distribution volume and found none and so there is no significance of this option. This prompt shall be modified as follows:

```
*** No replacement found on load distribution volume for DSP17AH load.
If necessary, consult the PM release documentation or contact the next level of
support.
Please enter "S" (Same), or "Q" (Quit FILECOPY)
>
```

Note: The loadmapping can also be made using 'SET LOADSELECT' command as follows:

>SET LOADSELECT DSP16AH_010007 DSP17AR_010017

No new restrictions or verifications are done during "SET LOADSELECT" command so that the craft has the flexibility of mapping different loads.

5. Whenever the same current load is present in different product lines of SPMs (NA DMSCP and MG4K ATM) and if there is one EXT file (SPMNAEXT) on the distribution volume, panther shall display, at the most only one prompt for that current load. This prompt is only for the current load for which the EXT file is present. Panther shall not prompt for other product lines of SPMs.

   Also in the filecopy report, the loadmapping is not displayed for all the product lines of SPMs but displayed only for the product for which the EXT file is present. On the other hand, if there were two EXT files (SPMNAEXT and MG4ATEXT) on the distribution volume, panther shall display the prompt twice for the same current load as shown in figure 1 below. If the craft enters DSP17XX for DMSCP NA current load and DSP17YY for MG4K ATM load, then the load file selection report shall be displayed as shown in the following figure.

Multiple possible replacement prompt and load file selection report

```
*** Multiple possible replacements found on load distribution
volume for DSP16XX_010025 DMSCP NA load: DSP17XX_010025 DSP17YY_010025

Any replacement load name may be chosen from the load distribution
volume. If necessary, consult the PM release documentation or
contact the next level of support.
Please enter the replacement load name, or "S" (Same), or "Q" (Quit FILECOPY)

*** Multiple possible replacements found on load distribution
volume for DSP16XX_010025 MG4K ATM load: DSP17XX_010025 DSP17YY_010025

Any replacement load name may be chosen from the load distribution
volume. If necessary, consult the PM release documentation or
contact the next level of support.
Please enter the replacement load name, or "S" (Same), or "Q" (Quit FILECOPY)
```

```
                    LOAD FILE SELECTION REPORT
CURRENT LOAD        PM TYPE     FW TYPE     AUTO-SELECTED FILES    EXCLUDED
------------        -------     ------    ----------------------   --------
DSP16XX_010025       SPMNA                  DSP17XX_010025
DSP16XX_010025       MG4AT                  DSP17YY_010025
```

6. At the end of filecopy stage, two reports are generated to display the loadmapping of the current load and the new loads. The format of the two reports are as shown below.

```
                      LOAD FILE SELECTION REPORT
CURRENT LOAD      FW TYPE        AUTO-SELECTED FILES              EXCLUDED
------------      -------        -------------------              --------
DLC17AQ_010016                   Same Load
DSP17AQ_010016                   DSP17AN_010013
```

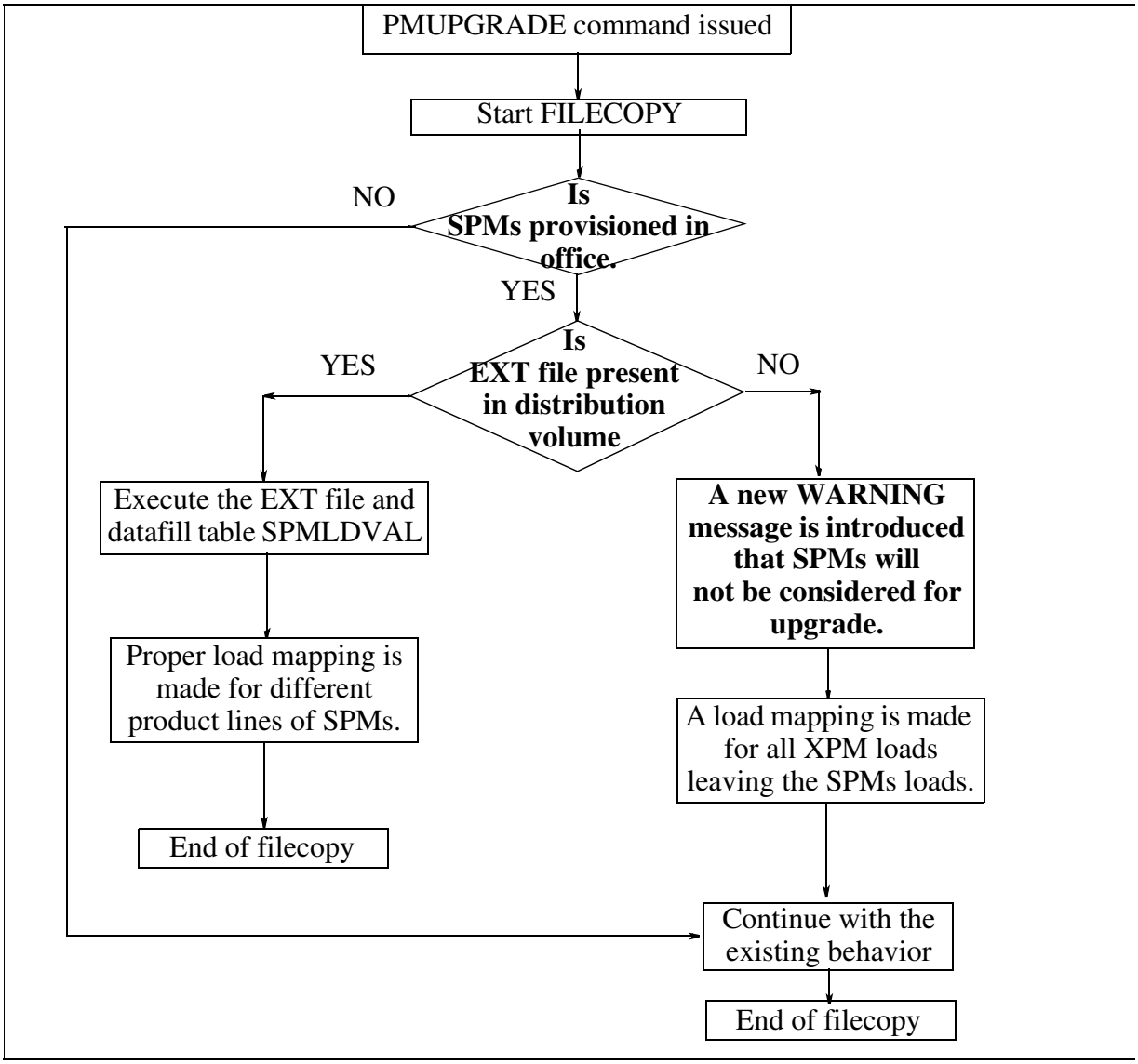
```
                      LOAD FILE COPY REPORT
CURRENT LOAD      FW TYPE        FILE STATUS   AUTO-SELECTED FILES
------------      -------       -------------  -------------------
DLC17AQ_010016                        S        Same Load
DSP17AQ_010016                      C          DSP17AN_010013
```

The format of the two reports is changed to display the product type of the corresponding loadmapping as shown below. For SPM loads, this column shows the SPM variant to which the current load belongs to, whereas for other peripheral loads this column shows None.

```
                    LOAD FILE SELECTION REPORT
CURRENT LOAD       PM TYPE  FW TYPE    AUTO-SELECTED FILES          EXCLUDED
------------       -------  -------    -------------------          --------
DLC17AQ_010016       SPMNA                  Same Load
DSP17AQ_010016       SPMNA                  DSP17AN_010013
DSP17AQ_010016       MG4AT                  Same Load
```

```
                     LOAD FILE COPY REPORT
 CURRENT LOAD      PM TYPE  FW TYPE    FILE STATUS      AUTO-SELECTED FILES
 ------------      -------  -------    -----------      -------------------
 DLC17AQ_010016      SPMNA                   S               Same Load
 DSP17AQ_010016      SPMNA                   C             DSP17AN_010013
 DSP17AQ_010016      MG4AT                   S               Same Load
```

FILECOPY command behavior in customer site



Modification of Planning stage

The planning stage is modified to create tasks based on the SPM product type information of the load mapping. The following figure explains the modified panther upgrade planning stage assuming only one load mapping is present during the filecopy stage. A new field called PM TYPE is added in the task to identify the product type of the task. The modification of planning stage is explained below.

Desired behavior of upgrade plan

```
Suppose there are 8 SPMs in the office as follows.
SPM 1 - DMSCP NA,
SPM 2 - DMSCP INTL,
SPM 3 - SMG4 ATM,
SPM 4 - SMG4 IP,
SPM 5 - IW ATM
SPM 6 - IW IP
SPM 7 - DPT ATM
SPM 8 - DPT IP

Initial Conditions:
The current load of all the DSP RMs(DMSCP+SMG4+IW) is DSP16XX.
The DMSCP NA load tape has DSP71XX load and SPMNAEXT file which is specific to DMSCP
NA product line of SPMs.

Action:
DMSCP NA load tape is inserted, which has DSP71XX load and FILECOPY is executed.
START PLAN is executed followed by DISPLAY PLAN step.

Filecopy report:
      CURRENT LOAD     PM TYPE     FW TYPE        FILE STATUS   AUTO-SELECTED FILES
      DSP16XX_010032    SPMNA                          C          DSP71XX_010036

Plan:
      PMUPGRADE PLAN REPORT
      Upgrade Layer: 1
      -----------------
      TASK 1:
      SITE:
      LOADS:              FROM DSP16XX_010032 TO DSP71XX_010036
      NODES:              SPM 1
      PM TYPE:            SPMNA
      REQUIRES:           none
      LOADED FROM FLASH: NO
      AUTOMATED:                  YES

Result:
The plan is not created for other SPMs though the current load is present in other
product lines of SPMs also.
```

Enhancement of the CI tool - SPMLDINFO

The CI tool SPMLDINFO is used to query the following for the DMSCP class of SPMs only.

- list of device loads for a particular load release,
- spectrum load release name for a given device load and
- list of spectrum load releases running in individual SPMs.

This activity enhances the tool, **'SPMLDINFO'** to support the loads of SMG4 and IW class of SPMs also. There are 3 subcommands for this CI tool which are explained below.

- **Listload:** Displays the device load lineup information for a given spectrum load release name.
- **Listrelease**: Displays the spectrum load release name for a given device loadname.
- **ListspmLoad**: Display the running release load name for the SPMs in the office. Listspmload command has 3 sub-options.
  - — Option '**all**' can be used to list the load release names for all SPMs in the office. If no SPMs are datafilled in the office, then it displays the following warning message and stops execution.
    No SPMs are datafilled in the office.
  - — In the second option, the user can specify a range, say SPM 1 4, in which case, the load release names of all SPMs in the given range is displayed. If an SPM within the specified range is not datafilled, then the following warning message is displayed.
    SPM <spm no> is not datafilled.
  - — If only 1 SPM number is specified, then the command will display the running release load for that SPM. If SPM is datafilled in the office, it displays the datafilled SPM number and relevant data against it. When the entered SPM number is not provisioned, then it displays the following warning message and stops execution.
    SPM No Load Release Name
    ------ ----------------
    SPM <spmno> is not datafilled.

Please refer to the Configuration Document for more information about the CI tool.

Enhancement of 'Querypm files' command

The '**Querypm files**' command displays the running release load name for a DMSCP SPM if the load name is datafilled in table SPMLDVAL. This activity enhances the command 'Querypm files' to display the running release load name for SMG4 and IW class of SPMs also. With this enhancement, querypm files displays the name of the running release load of any variant of SPM towards the end of the command output.

In case the running RM loads in an SMG4 or an IW SPM do not match with any of the load release lineups datafilled in table **SPMLDVAL**, then a warning will be displayed to the craftsperson.

Running MG4K ATM Load Release: Load lineup of this SPM does not match with any of the load releases datafilled in table SPMLDVAL.

If the CEMs/RMs of an SPM are out of service such that the running loads in each of the devices cannot be determined, then it will display the following warning message.

Running IWS ATM Load Release: Unable to contact the devices. The requested data cannot be retrieved.

Please refer to the Configuration Document for more information about QueryPM files enhancement.

Modification of manual upgrade

Loadmod command:

The following WARNING message is displayed in the loadmod command for DMSCP class of SPMs only.

WARNING : Table SPMLDVAL is not datafilled for this loadname. Please add the data in table SPMLDVAL. Do you want to continue without datafilling the table? Please confirm ("YES", "Y", "NO", or "N"):

This activity introduces the above WARNING message in the loadmod and bulkload command for SMG4 & IW/DPT class of SPMs also. The above warning message is displayed when the load file name used for loading is not available in table SPMLDVAL against the product type of the posted SPM.

If the craft enters YES, loadmod shall continue. But the data for this loadname will not be available in table SPMLDVAL for later reference. Entering the data in table SPMLDVAL is mandatory for information retrieval because SPMLDINFO tool gets the required data from this table. The consequences of going ahead without datafilling the table SPMLDVAL are given below:

- The SPMLDINFO tool will not be able to display the load release information for that particular load.
- The Querypm files command will not be able to display the running release load name for that SPM.

However, there would not be any service impact or impact on the loading process even if the user decides to go ahead with the loading process without datafilling table SPMLDVAL.

If the craft enters NO, loadmod command will be aborted and the craft can issue loadmod command after updating table SPMLDVAL.

BULKLOAD command:

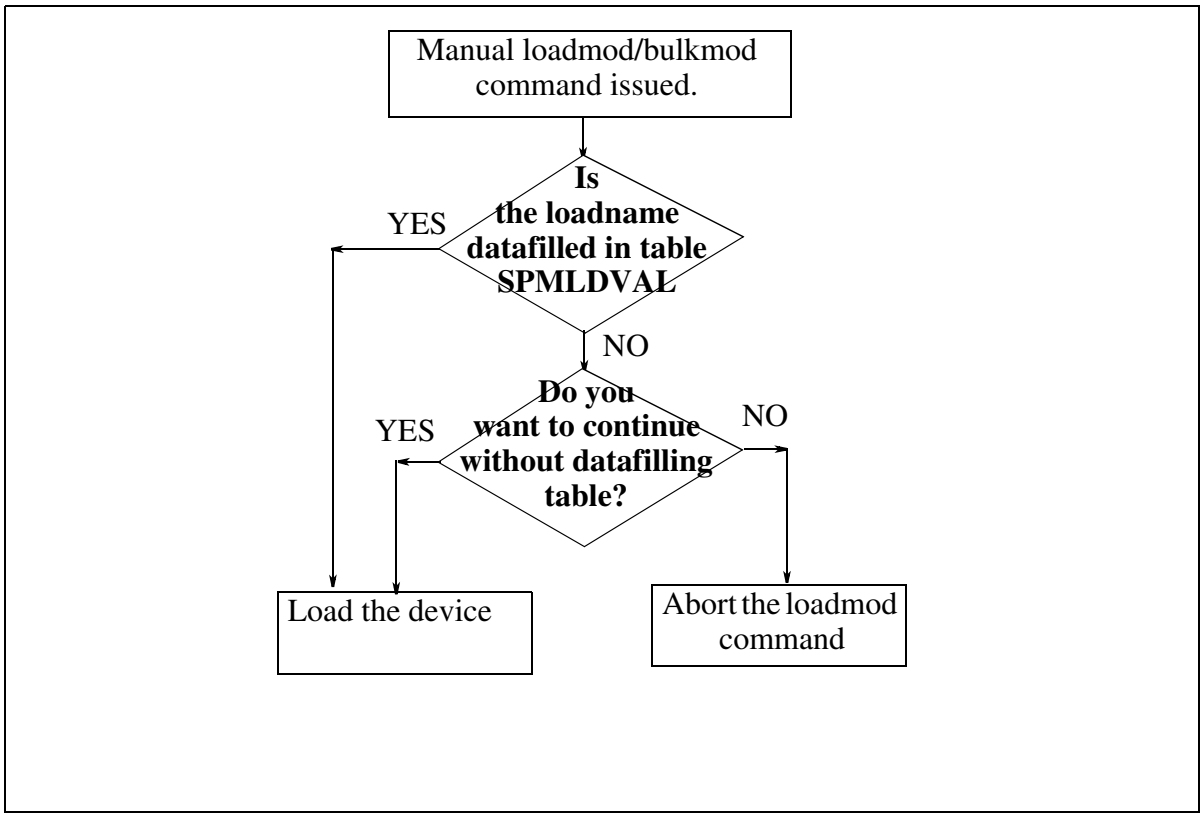
When a number of SPMs of different product types are posted and the bulkload command is performed, the load file name used for loading is checked in table SPMLDVAL against the product types of the posted SPMs. Incase the load file

is present for some products of SPMs and not present for some other products, then the following warning message is displayed with a prompt:

WARNING : The specified loadname is not datafilled in table SPMLDVAL for the following SPMs:
SPM 1 2 3 4
Contact your next level of support before proceeding with upgrade. Do you want to continue without datafilling the table?
Please confirm ("YES", "Y", "NO", or "N"):

The following figure gives the changes in Manual Upgrade procedure for SPM peripheral with the implementation of this feature.

Manual upgrade of DMSCP, SMG4 and IW class of SPMs



Hardware Requirements or Dependencies

None.

Software Requirements or Dependencies

None.

Limitations and restrictions

None.

Interactions

None.

Applicable customer facing sections

Fault Management

- Logs __N/A__
- Alarms __N/A__

Configuration

- Data Schema __N/A__
- User Interface ___X___
- Element Management __N/A__
- Security __N/A__
- Service Order __N/A__
- Office Parameters __N/A__

Accounting (includes AMA billing) __N/A__

Performance (includes operational measurements) __N/A__

Glossary

Term	Description
DMS	Digital Multiplexing Switch
DTC	Digital Trunk Controller
SPM	Spectrum Peripheral Module
RM	Resource Module
CEM	Common Equipment Module
IW	Interworking
SN	Succession Network
CI	Command Interpreter
XPM	Extended Peripheral Module
ESD	Electronic Software Delivery

Term	Description
TDM	Time Division Multiplexing

Configuration for A00002760

Hardware and Software Requirements

The spectrum load tape should contain an EXT file with correct information about all the spectrum load releases which is used to datafill the table SPMLDVAL.

Initial Configuration

None.

Office/Subnet parameters (OP/SP) (CM & SESM)

None.

Upgrade Impact

Dump and Restore

In SN06, table SPMLDVAL contains both the INTL and NA DMSCP loads in the same tuple. i.e. One tuple contains CST, CEM, STM and OC3 loads. Here, CEM and OC3 loads are specific to DMSCP NA product whereas CST and STM loads are specific to DMSCP INTL product of SPM.

In SN07, since a new field is introduced to identify the product type of each tuple, such a combination of loads becomes invalid.

During the dump and restore of table SPMLDVAL from release SN06 to SN07, a single tuple with both DMSCP NA and INTL loads is split up into two tuples. The product type of the first tuple is written as SPMNA and contains CEM and OC3 loads. On the other hand, the product type of the second tuple is written as SPMIN and contains CST and STM loads.

Data schema (DS) (CM, MIBS, RDB)

Modified table

Table/MIB name	NEW/CHANGED/ or DELETED/	Table Control (NEW/OLD/UNCHANGED)
SPMLDVAL	CHANGED	NEW

Table/MIB/Remote Database Schema information

Name: SPMLDVAL

Spectrum Load Name Validation.

Functional description

Table SPMLDVAL is enhanced to store the device load lineups for both TDM and Succession spectrum load releases.

Table SPMLDVAL has a 5 part key. The 5 parts of the key are

- Spectrum family load type indicator.
- General release number.
- Maintenance release number.
- Emergency release number.
- Spectrum family product line type indicator.

The following figure shows some example tuples in table SPMLDVAL.

Example tuples in table SPMLDVAL

```
SP 17 0 0 SPMNA (CEM17BU) (DLC17BV) (DL217BT) (DSP17BU) $
SP 17 0 0 SPMIN (CST17BS) (DLC17BV) (DL217BT) (DSP17BU) $
SN 06 0 0 MG4AT (MG419BR) (ATC19BO) (IED19BO) (OC419BN) $
SN 06 0 0 MG4IP (MG419BR) (GEM19BN) $
SN 06 0 0 IWSAT (IWS19BP) (ATC19BO) (SYN19BN) $
SN 06 0 0 IWSIP (IWS19BP) (GEM19BN) $
SN 06 0 1 DPTAT (IWS19BP) (ATC19BO) (DSP19BN (COH0019) $
SN 07 0 1 DPTIP (IWS20BA) $
```

For a general release, the key subfields ‘maintenance release’ and ‘emergency release’ are datafilled as 0. Similarly for a maintenance release, the key subfield ‘emergency release’ is datafilled as 0.

Note 1: The PPSL loads are considered under the current maintenance release name only. No new tuple is added in the table whenever a PPSL load is released.

Note 2: Whenever a coherent load changes the version in a release the first seven characters remains same and so this change will not be reflected in the table SPMLDVAL. However, a new tuple shall be added in the table with the same coherent load name.

Table SPMLDVAL can be datafilled in the following ways.

- During panther execution, filecopy command copies the EXT file from the tape to the disk volume and run the EXT file to get the table datafilled.

- If tuples need to be added manually, then ADMIN can use RWOK ON option and get write permission for the table.

The following applications retrieve data from table SPMLDVAL.

- CI tool SPMLDINFO gets the load lineup information for different spectrum load releases from table SPMLDVAL.
- QueryPM files command compares the device loads in a SPM with the load lineup of different spectrum load releases datafilled in table SPMLDVAL to find out the running release load for that SPM.

Usage sequence and implications (CM Only)
Current datafill order unchanged.

Size
The Size of this table is increased from 255 to 2048.

Table size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
SPMLDVAL	0	2048	Protected Memory

Fields/OIDs
The following table lists fields for SPMLDVAL.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
PRODUCT_TYPE	New	T_SPMLDVAL_KEY	SPMNA, SPMIN, MG4AT, MG4IP, IWSAT, IWSIP, DPTAT, DPTIP	A new subfield is introduced which defines the product line of the SPM.
LOAD_TYPE	Changed	T_SPMLDVAL_KEY	SP, SN	This subfield supports both SP and SN.

Datafill example
The following example shows sample datafill for table SPMLDVAL.

>lis all

```
TOP
KEY LOAD_LIST
-------------

SP 17 0 0 SPMNA (CEM17BU) (DLC17BV) (DL217BT) (DSP17BU) $
SP 17 0 0 SPMIN (CST17BS) (DLC17BV) (DL217BT) (DSP17BU) $
SN 06 0 0 MG4AT (MG419BR) (ATC19BO) (IED19BO) (OC419BN) $
SN 06 0 0 MG4IP (MG419BR) (GEM19BN) $
SN 06 0 0 IWSAT (IWS19BP) (ATC19BO) (SYN19BN) $
SN 06 0 0 IWSIP (IWS19BP) (GEM19BN) $
SN 06 0 1 DPTAT (IWS19BP) (ATC19BO) (DSP19BN (COH0019) $
SN 07 0 1 DPTIP (IWS20BA) $
BOTTOM
```

Table release history update
Table SPMLDVAL was introduced in CSP release 19.

Supplementary information
The protection level of the table is SYSPROT which prevents the user from add / delete / modify tuples in this table directly. The user needs to enter 'RWOK ON' to get write permission to the table.

Translation verification other tools
Table SPMLDVAL does not use translation verification tools.

Service Orders (SO) (CM & SESM)

Not Applicable.

Software optionality control (SOC)

Not Applicable.

Element Management

Not Applicable.

Command interface changes

Directory: SPMLDINFO

Directory description

- The CI directory was used to display the spectrum load release information for DMSCP class of SPMs only. It is enhanced to enable the craftsperson to display the load release information for all the following product lines of SPMs:
  - — DMSCP - NA
  - — DMSCP - INTL

— SMG4 - ATM

— SMG4 - IP

— IW - ATM

— IW - IP

— DPT - ATM and

— DPT - IP

Accessing directory: SPMLDINFO

Access to directory or MAP level and return to CI

To access SPMLDINFO from the CI environment, enter **SPMLDINFO**.

To return to the CI environment, enter **quit**.

Command: LISTLOAD

Command type: Non-Menu

Command target: All

Command availability: Res

Command description

This command **listload** was used for displaying the load lineup information for a given spectrum load release name. Now, it can be used for displaying the load lineup information for a given SN load release name also. In case of many tuples (many product lineup) with the same release present in the table, then all the load lineups are displayed along with the product line information. See Table 4 for more information.

Command syntax

The command syntax is as shown in the following figure.

: LISTLOAD command syntax

```
SYNTAX : LISTLOAD <load_type> <general_release> <maintenance_release>
                        <emergency_release>
Parms: <load_type> { SP, SN}
       <general_release> {1 TO 99}
       <maintenance_release> {0 TO 9}
       <emergency_release> {0 TO 9}

Parameter Description:
```

load_type :
Enter the type of load. It can take values - SP or SN

general_release :
Enter the milestone release number. It takes values in the range 1 to 99.

maintenance_release :
Enter the maintenance release number. Enter 0 if it is a milestone release. It takes values in the range 0 to 9.

emergency_release :
Enter the emergency release number. Enter 0 if it is a milestone release or maintenance release. It takes values in the range 0 to 9.

Qualifications and warnings

None.

Responses

If the load release name entered is not datafilled in table SPMLDVAL, then the following message is displayed.
This load release is not datafilled in table SPMLDVAL.

Example

The following table shows the output of listload command.

Usage examples for listload command

Description of task:	Display the list of device loads belonging to a particular spectrum load release.

Usage examples for listload command

Command: MAP response:	SPMLDINFO; listload SN 07 3 1 CI: >**SPMLDINFO** SPMLDINFO: >**listload SN 07 3 1** Circuit Pack Load Lineup for MG4K ATM Load Release SN07.3.1: CEM Load : MG420AL DSP Load : DSP20AL DLC Load : DLC20AL ..... Circuit Pack Load Lineup for MG4K IP Load Release SN07.3.1: CEM Load : MG420AL DSP Load : DSP20AL DLC Load : DLC20AL ..... Circuit Pack Load Lineup for IW ATM Load Release SN07.3.1: IWS Load : IWS20AL DSP Load : DSP20AL DLC Load : DLC20AL .....
Command: MAP response:	SPMLDINFO; listload SN 03 1 1 CI: >**SPMLDINFO** SPMLDINFO: >**listload SN 03 1 1** This load release is not datafilled in table SPMLDVAL.

Note: It uses the first 3 characters of the loadname to identify a load type. For example, OC3 for OC315DF, DL2 for DL215AH etc..

Command: LISTRELEASE

Command type: Non-Menu

Command target: All

Command availability: Res

Command description

This command **listrelease** was used only for displaying the spectrum (SP) load releases in which a given device load is included. Now, it is used for displaying the SN load releases also.

Command syntax

The command syntax is as shown in the following figure.

: LISTRELEASE command syntax

```
SYNTAX : listrelease <loadname> STRING
Parms: <load_name>

Parameter Description:
```

load_name :

Enter the device load name. It is a string which can take up to 7 characters.
Ex: MG420CQ, DSP20DO

Qualifications and warnings

None.

Responses

If the circuit pack loadname entered is not 7 character long, then the following warning message is displayed.

***** Warning : Loadname must be 7 characters in length.**

If the circuit pack loadname entered is not datafilled in table SPMLDVAL, then the following message is displayed.
Circuit pack load <load name> is not datafilled in table SPMLDVAL.

Example

The following table shows the output of listrelease command.

Usage examples for listrelease command

Description of task:	Display the list of spectrum load releases in which the given device load is included.
Command: MAP response:	SPMLDINFO; listrelease DLC20AB CI: >**SPMLDINFO** SPMLDINFO: >**listrelease DLC20AB** Circuit pack load DLC20AB is valid in the following load releases. MG4K ATM Load Release SN07.2.1

Usage examples for listrelease command

Command: MAP response:	SPMLDINFO; listrelease MG420 CI: >**SPMLDINFO** SPMLDINFO: >**listrelease MG420** *** Warning : Loadname must be 7 characters in length.
Command: MAP response:	SPMLDINFO; listrelease IWS15CZ CI: >**SPMLDINFO** SPMLDINFO: >**listrelease IWS15CZ** Circuit pack load IWS15CZ is not datafilled in table SPMLDVAL.

Command: LISTSPMLOAD

Command type: Non-Menu

Command target: All

Command availability: Res

Command description

This command **listspmload** is used for displaying the running release load name for all the SPMs in the office. This command has 3 options. Option ‘all’ can be used to list the load release names for all SPMs. In the second option, the user can specify a range, say SPM 1 4, in which case, the load release names of all SPMs in the given range is displayed. In the third option, the user can specify one SPM, in which case, the load release names of that SPM is displayed.

Command syntax

The command syntax is as shown in the following figure:

LISTSPMLOAD command syntax

```
SYNTAX : listspmload
Parms: { All }
       { spm <spm no> <spm no>}

Parameter Description:
```

All:

This option lists the running release loads for all the SPMs.

SPM <spm no> <spm no>:

Specify the range of SPM numbers for which the running load release information is required.

Qualifications and warnings

None.

Responses

If the running device loads in an SPM do not match with any of the load release lineups datafilled in table SPMLDVAL, then a warning is displayed as follows.

SPM <spm no> : Load lineup does not match with any of the load releases datafilled in table SPMLDVAL.

If the CEMs/RMs in the SPM are out of service, then the tool will not be able to get the running loads in the SPM's devices. In that case, the following warning message is displayed.

SPM <spm no> : Unable to contact the devices. The requested data cannot be retrieved.

When option 'all' is specified, then it will check whether at least 1 SPM is datafilled. If not, then it will give the following message and stop execution.

No SPMs are datafilled in the office.

When spm number range is specified, if one of the spm numbers within the range is not datafilled in table MNNODE, then the following warning message is displayed.

SPM <spm no> is not datafilled.

Non-datafilled SPMs will not be displayed in the case of '**all**' option.

Example

The following table shows the output of listspmload command.

Usage examples for listspmload command

Description of task:	Display the list of spectrum load releases running in each of the SPMs in the office.
Command: MAP response:	SPMLDINFO; listspmload all CI: >**SPMLDINFO** SPMLDINFO: >**listspmload all** SPM 1 : MG4K ATM Load Release SN07.3.1 SPM 3 : DMSCP NA Load Release SP20.3.1 SPM 5 : IW ATM Load Release SN07.3.1 SPM 6 : Unable to contact the devices. The requested data cannot be retrieved. SPM 7 : Load lineup does not match with any of the load releases datafilled in table SPMLDVAL
Command: MAP response:	SPMLDINFO; listspmload spm 1 4 >**SPMLDINFO** SPMLDINFO: >**listspmload spm 1 4** SPM 1 : MG4K ATM Load Release SN07.3.1 SPM 2 is not datafilled. SPM 3 : DMSCP NA Load Release SN07.3.1 SPM 4 is not datafilled.
Command: MAP response:	SPMLDINFO; listspmload spm 1 >**SPMLDINFO** SPMLDINFO: >**listspmload spm 1** SPM 1 : MG4K ATM Load Release SN07.3.1

The following table shows the output of listspmload all command, when no SPMs are datafilled in the office.

Usage Examples for listspmload command.

Description of task:	Display the list of spectrum load releases running in each of the SPMs in the office.
Command: MAP response:	SPMLDINFO; listspmload all CI: **>SPMLDINFO** SPMLDINFO: **>listspmload all** No SPMs are datafilled in the office.

Command: QUIT

Command type: Non-Menu

Command target: All

Command availability: Res

Command description

QUIT command is used to quit from SPMLDINFO directory**.**

Command syntax

The command syntax is as shown in the following figure.

QUIT command syntax

```
SYNTAX : QUIT (from within SPMLDINFO directory)
Parms: None.

Parameter Description:

                : Not Applicable.
```

Qualifications and warnings

None.

Responses

When quit command is issued, SPMLDINFO directory is being exited. No warnings or messages are displayed.

Example

The following table shows the output of quit command.

Usage examples for quit command

Description of task:	Quit from SPMLDINFO directory
Command: MAP response:	quit >**SPMLDINFO** SPMLDINFO: >**quit** CI: >

Command: mapci;mtc;pm;post spm <n>; querypm <option>

Command type: Menu

Command target: All

Command availability: Res

Command description

The command **querypm** is used to list information about loads running in the devices of a SPM and to list the faults present in the devices. It has 2 optional parameters 'files' and 'flt' to list different information as mentioned above. Querypm files displays the spectrum load release running on DMSCP class of SPMs only. This feature enhances '**querypm files**' to display the spectrum load release running on any class of SPM.

Command syntax

The command syntax is as shown in the following figure:

QueryPM files command syntax

```
SYNTAX : mapci;mtc;pm;post spm <n>;querypm {<files> or <flt>}
Parms: <files> or <flt>

Parameter Description:

                : Enter <files> to get information about the load files
                  running on the SPM.
                  Enter <flt> to get the faults in the devices.
```

The following sections explain only the ‘files’ option of querypm since this feature does not change ‘flt’ option.

Qualifications and warnings

No new warnings or qualifications.

Responses

With the new enhancement, ‘querypm files’ command displays the running spectrum load release name for the posted SPM irrespective of the variant type. If the posted SPM is MG4K ATM product and the device loads of that SPM do not match with any of the load release lineups datafilled for which the product type is MG4AT in table SPMLDVAL, then the following message is displayed.

Running MG4K ATM Load Release : Load Lineup of this SPM does not match with any of the load releases datafilled in table SPMLDVAL.

If the CEMs/RMs of an SPM are out of service such that the running loads in each of the devices cannot be determined, then it will display the following warning message.

Running MG4K ATM Load Release : Unable to contact the devices. The requested data cannot be retrieved.

Example

The following table shows the changed output of querypm files command.

Usage examples for querypm files command

Description of task:	Display the spectrum load release name running in the SPM in context.
Command: MAP response:	mapci; mtc; pm; post spm 1; querypm files **>mapci nodisp; mtc; pm; post spm 1** SPM: SPM 1 ISTb ATM 0 InSv Act Default Loadname: ATC20AJ Default Filename: ATC20AJ_010009 Running Load: ATC20AJ_010009 Load in Flash: ATC20AJ_010009 ... ... DSP 3 InSv Act Default Loadname: DSP20AJ Default Filename: DSP20AJ_010009 Running Load: DSP20AJ_010009 Load in Flash: DSP20AJ_010009 Running MG4K ATM Load Release : SN07.3.1
Command: MAP response:	mapci;mtc;pm;post spm 4;querypm files **>mapci nodisp; mtc; pm; post spm 4** SPM: **>querypm files** SPM 4 ISTb ATM 0 InSv Act Default Loadname: ATC20AJ Default Filename: ATC20AJ_010009 Running Load: ATC20AJ_010009 Load in Flash: ATC20AJ_010009 ... ... DSP 3 InSv Act Default Loadname: DSP20AJ Default Filename: DSP20AJ_010009 Running Load: DSP20AJ_010009 Load in Flash: DSP20AJ_010009 Running MG4K ATM Load Release : Load Lineup of this SPM does not match with any of the load releases datafilled in table SPMLDVAL.

If the CEMs/RMs of an SPM are out of service such that the running loads in each of the devices cannot be determined, then it will display a warning message. Table 10 shows the output of QueryPM Files command when all the CEMs/RMs are out of service.

: Usage examples for QueryPM files command.

Command:	mapci;mtc;pm;post spm 5; querypm files
MAP response:	**>mapci nodisp; mtc; pm; post spm 5** SPM: **>querypm files** SPM 5 SysB CEM 0 SysB Act Default Loadname: CEM17BC Default Filename: CEM17BC_010028 Running Load: Unable to contact CEM Load in Flash: Unable to contact CEM CEM 1 SysB InAct Default Loadname: CEM17BC Default Filename: CEM17BC_010028 Running Load: Unable to contact CEM Load in Flash: Unable to contact CEM .... DSP 0 CBsy Act Default Loadname: DSP17BC Default Filename: DSP17BC_010028 Running Load: Invalid host node status Load in Flash: Invalid host node status DSP 1 CBsy InAct Default Loadname: DSP17BC Default Filename: DSP17BC_010028 Running Load: Invalid host node status Load in Flash: Invalid host node status Running DMSCP NA Load Release : Unable to contact the devices. The requested data cannot be retrieved.

Security

Not Applicable.

Configuration Walkthrough

Not Applicable.

Product = CS 2000

A00002766 -- Add Extension Registers for AMA OMs (Succession on DMS)

Functional Description

AMA OMs

The ATTAMA OM group now has the maximum limit of 32 registers. Another group will be created to contain the extra extension registers. Only the extension registers for AMANS and AMUNANS will reside in the new ATTAMA2 OM group. The maximum register value for this group is now 32767 before it resets to 0. The extension register will allow capturing the number counter rollovers.

The new extension functionality will be implemented under SOC control. This will allow for controlled customer implementation and also provide the ability to disable the new extension if required.

The following shows the existing ATTAMA group along with the new ATTAMA2 group.

```
ATTAMA
CLASS:   ACTIVE
START:2002/12/24 11:45:00 TUE; STOP: 2002/12/24 11:56:30 TUE;
SLOWSAMPLES:          7 ; FASTSAMPLES:          69 ;
          AMORIGS   AMORIGS2     AMTRMT    AMTRMT2
         AMNOTRMT      AMANS   AMRCSTPD   AMRCSTP2
         AMLTSTPD   AMEDSTPD   AMNASTPD    AMRC411
          AMLT411    AMED411    AMNA411    AMRC555
          AMLT555    AMED555    AMNA555   AMRCTRCR
         AMLTTRCR   AMRCOTHR   AMLTOTHR   AMEDOTHR
         AMNAOTHR   AMRCLONG   AMLTLONG    AMUNANS
          AMRCSST      AMSST    AMDA555    AMDA411


    0            0           0           0           0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0
                 0           0           0           0


ATTAMA2
CLASS:   ACTIVE
START:2002/12/24 11:45:00 TUE; STOP: 2002/12/24 11:56:30 TUE;
SLOWSAMPLES:          7 ; FASTSAMPLES:          69 ;
             AMANS2  AMUNANS2

    0            0           0
```

Hardware Requirements or Dependencies

None

Software Requirements or Dependencies

The capabilities will be under SOC control.

This activity only impacts offices using the Bell Core AMA billing format.

Limitations and restrictions

None

Interactions

The existing OM groups will not be changed. The new groups will contain only new registers. The new OM groups are:

- ATTAMA2

Applicable customer facing sections

Fault Management

Logs	__N/A____
Alarms	__N/A____

Configuration

Data Schema	__N/A____
User Interface	__N/A____
Element Management	__N/A____
Security	__N/A____
Service Order	__N/A____
Office Parameters	__N/A____

Accounting (includes AMA billing)	__N/A____
Performance (includes operational measurements)	___X___

Performance for A00002766

Performance management strategy

This feature provides the new OM group ATTAMA2.

Performance management tools and utilities

None

Performance Measurements (PM), Operational Measurements (OM), and stats

PM, OM, and stats format

N/A

OM Group ATTAMA2 (applies only to DMS)

OM description

OM Group ATTAMA2

The group ATTAMA2 is only pegged when the BAS00023 SOC is ON.

This group is used for register overflows from the OM group ATTAMA.

Release history update

The OM group is being provided new in the UCS20 release.

Registers

OM group registers display on the MAP terminal as follows:

```
ATTAMA2
CLASS:   ACTIVE
START:2002/12/24 11:45:00 TUE; STOP: 2002/12/24 11:56:30 TUE;
SLOWSAMPLES:          7 ; FASTSAMPLES:          69 ;
             AMANS2 AMUNANS2

    0            0           0
```

Group structure

This OM group provides 2 pre-defined tuples.

Associated OM groups

This OM group is used as register overflows for the OM group ATTAMA.

Associated functional groups

None

OM group registers logic flow chart

Refer to the comments in the Associated Register section.

Register (applies only to DMS)

Register description

AMANS2 - overflow for AMANS from group ATTAMA
AMUNANS2 - overflow for AMUNANS from group ATTAMA.

Register release history update

All the registers in this group are new in the UCS20 release.

Associated registers

ATTAMA.AMANS - ATTAMA2.AMANS2
ATTAMA.AMUNANS - ATTAMA2.AMUNAS2

The range of each of these registers is an decimal value of 0 - 32767.

When the ATTAMA register reaches its maximum value of 32767 and overflows, it increments the associated overflow register in group ATTAMA2. The ATTAMA register will then reset to 0 and resume incrementing.

The registers in the group ATTAMA2 indicate the number of times the associated register in group ATTAMA has overflowed. One peg in the ATTAMA2 register indicates 32767 pegs that were handled by the ATTAMA register.

Associated logs

None

Product = CS 2000

A00002822 -- UI Manager (Succession on DMS)

Functional Description

The User Interface Manager provides a user interface for local CBM maintenance, administration and system monitoring. The UI consolidates all of the primary maintenance operations under a single unified program which resembles the CM MAP interface.

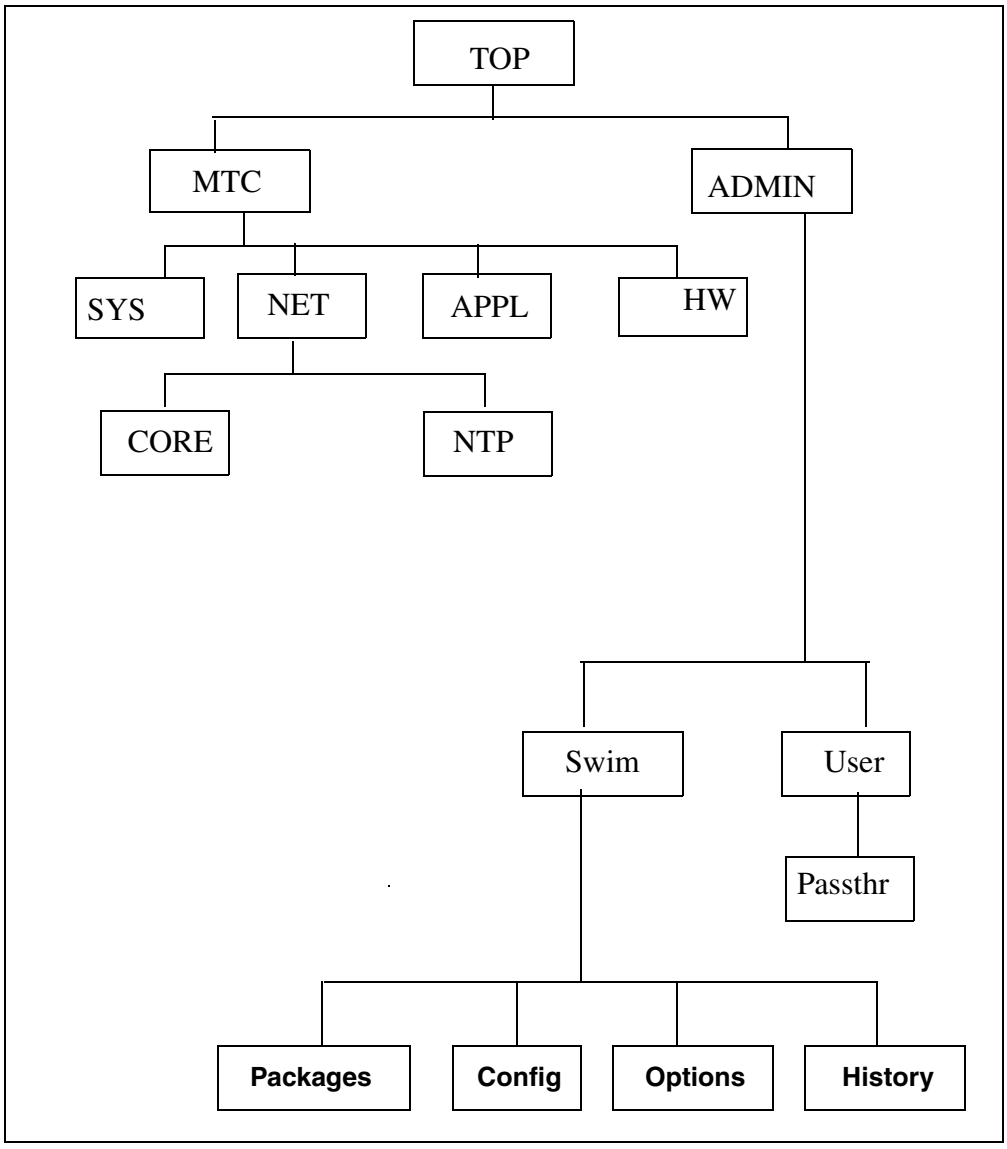
The operations that can be accessed through the UI are divided into two categories; maintenance and system administration. Maintenance provides access and control over the CBM application software. System administration functions include CBM configuration, package installation/removal.

The UI provides input and output to a human operator. When a user selects an operation in the UI, a function contained in the appropriate maintenance subsystem is invoked.

The UI is organized into a system of screens. The screens are organized in a hierarchy, and each screen represents a functional area.

The UI functional structure is shown in the following figure. This is the intended view for CSEN07 (CBM) and is subject to changes as the product evolves.

UI functional structure.



Functionality

The CBM screens are not identical to the MAP screens, but they retain the basic structure and input/output mechanisms as the MAP. Each CBM screen is divided into five areas: alarm banner, command list, output, clock, and input. A typical CBM screen is shown in the following figure.

CBM Main Level Display

```
    CBM       MATE    NET      APPL      SYS    HW    CLLI: SNM2
    ISTB      SysB     .         .         .     .    Host: pcary1rr
      M        M
CBMMtc
 0 Quit
 2 Mtc
 3 Admin
 4
 5
 6
 7
 8
 9
10
11
12
13
14
15
16
17 Help
18 refresh
  root
Time  13:43  >
```

Alarm Banner

The top area (referred as I in the above figure) contains the current screen title and the CBM alarm banner. The alarm banner indicates the node state for the CBM and the state of the major CBM components.This area is updated dynamically, and appears on every CBM screen.

Command List

The area on the left is the CBM command menu (referred as II in the above figure). Commands available at the current level are listed in MAP style and the current level is displayed at the top of the list.

Output

The area on the right is the RMI output window (referred as III in the above figure). The information in this window can be either static or dynamic.

Clock

The CBM clock and current userid are displayed at the bottom left of the screen (referred as IV in the above figure). The clock is updated dynamically.

Input

The single line at the bottom right of the screen is used for CBM input (referred as V in the above figure).

Commands Available at 'All' Levels

The following commands are generally available at each level. The use of and output from these commands is essentially the same. They are:

1. Quit: Quits the current level and moves back to the previous one. You may specify the option ALL in order to exit the CBM from any level.
2. Help: Obtains help specific to the current level. If information on a specific command is desired you may type the command name as an option to get information pertaining to that specific command.
3. Refresh: If the screen display is corrupted, use refresh to force a redraw of the screen.

These commands will not be listed in the screen command descriptions later in this document.

CBM Main Level

The main menu breaks all functions into either the maintenance category, or the system administration category. Additional categories may be added in the future as needed.

There is no default output for this level other than the main banner.

Commands:

1. Mtc: Displays the SDM Maintenance Level (position 2 in the following figure).
2. Admin: Displays the SDM System Administration Level (position 3 in the following figure).

CBM Main Level Display

```
    CBM          MATE     NET      APPL     SYS     HW CLLI: SNM2
    IsTb         SysB      .         .        .      .          Host :pcary1rr
     M            M
CBMMtc
 0 Quit
 2 Mtc
 3 Admin
 4
 5
 6
 7
 8
 9
10
11
12
13
14
15
16 LogQuery
17 Help
18 refresh
  root
Time  13:43  >
```

CBM Maintenance Level:

The maintenance level is the highest level for maintenance related commands.

Commands:

1. Net: Displays the LAN Connectivity Level (position 3 in the following figure).
2. Appl: Displays the Software Application Status Level (position 4 the following figure).
3. Sys: Displays the Operating System s/w Status Level (position 5 in the following figure).
4. Hw: Displays the Hardware Status Level (position 6 in the following figure).

CBM Maintenance Level Display

```
    CBM        MATE     NET      APPL     SYS     HW     CLLI:  SNM2
    IsTb       SysB      .         .       .      .      ISTb   Host: pcary1rr
     M           M
Mtc
 0 Quit
 2
 3 Net
 4 Appl
 5 Sys
 6 Hw
 7
 8
 9
10
11
12
13
14 QueryCBM
15
16
17 Help
18 refresh
  root
Time  13:43  >
```

Net Connectivity Level

The net level shows the status indicator for the core heartbeat and NTP state.The status indicators displayed at this level are updated dynamically.

Commands:

1. Core: Go to core level (position 2 in the following figure).
2. NTP: Go to the NTP level.(position 5 in the following figure).

CBM Net Connectivity Level

```
    CBM        MATE  NET      APPL     SYS     HW      CLLI: SNM2
    IsTB       SysB   .         .        .      .      Host: pcary1rr
     M          M
Net
 0 Quit        Core Heartbeat State: .
 2 Core                NTP State:   .
 3
 4 Logs
 5
 6 NTP
 7
 8
 9
10
11
12
13
14 QueryCBM
15
16
17 Help
18 refresh
  root
Time  13:43  >
```

Core Level

The Core level shows the communication paths to the Core and it also monitors the state of that communication. Figure , on page 592 and Figure , on page 592 show the display for the Ethernet connected CBMs and the OC3 connected CBMs respectively. The command line equivalents of the command are shown in the following table.

Commands:

1. Add: Add a communication path to the Core.
2. Change: Change the values for the given communication path to the Core.
3. Delete: Delete the given communication path to the Core.

Core screen command line equivalents

UI Command	Command line equivalents
Add	No command line equivalents
Change	No command line equivalents
Delete	No command line equivalents

CBM Core Level (Ethernet Connected)

```
    CBM       MATE    NET     APPL     Sys    HW     CLLI: SNM2
    IsTb      SysB     .       .        .      .     Host: pcary1rr
      M         M
Core
 0 Quit       Core
 2           # Communication Path     State  Core Addresses    Node Address
 3           1 VIA ETHernet             .    10.101.8.196      10.101.8.96
 4
 5 Logs
 6
 7
 8
 9
10
11
12
13
14 QueryCBM
15
16
17 Help
18 refresh
  root
Time  13:43  >
```

CBM Core Level (OC3 Connected)

```
    CBM       MATE    NET     APPL     Sys    HW     CLLI: SNM2
    IsTb      SysB     .       .        .      .     Host: pcary1rr
      M         M
Core
 0 Quit       Core
 2           # Communication Path     State  Core Address     Node Address
 3           1 VIA OC3                  .    192.168.101.196 192.168.101.101
 4               link 0: MTC_Open
 5 Logs          link 1: Closed
 6
 7
 8                          Note: link conditions are:
 9                          - Closed
10                          - MTC_Open
11                          - Open
12
13
14 QueryCBM
15
16
17 Help
18 refresh
  root
Time  13:43  >
```

NTP Level

The NTP level will synchronize the system clock. This level allows you to configure NTP daemon to synchronize the system clock with the NTP server(s)/peer(s). There are no command line equivalents commands for the NTP level.

CBM NTP Level

```
    CBM          MATE     NET      APPL     SYS    HW     CLLI: SNM2
    IsTb         SysB      .         .       .     .      Host: pcary1rr
     M            M
NTP
 0 Quit       NTP State: .
 2               Drift: 5.516
 3 Query         Info: NTP is synchronized.
 4 Logs        # Hostname       Str  State  When  Poll   Delay   Offset     Disp
 5             1 zcarh09j        3     +     247   512     3.4      1.0      0.7
 6             2 zcarh09m        2     *     168   512     3.4      3.3      0.2
 7                                          NTP Nodes: 1 to 2 of 2
 8
 9
10
11
12 Up
13 Down
14
15
16
17 Help
18 refresh
  root
Time  13:43  >
```

CBM Software Application Status Level

The Software Application Status Level shows the application status indicators.For each installed application, this level shows the application description and the current state. Application control is available on each of the installed application.

The status indicators displayed at this level are updated dynamically.

Commands:

1. Logs: Display application status logs (position 4 in the following figure).
2. Bsy: Issues a busy command to the application. Busying an application will run the stop script for that application, and will shutdown all associated processes (position 7 in the following figure).The parameter for this command is the application number (far left) or the GROUP keyword, which changes the overall state to ManB. Application that are Offline remain offline. The output for this command is displayed beneath the dynamic information (e.g. bsy 2).

3. RTS: Issues a Return To Service command to the application. Returning an application to service will run the data reformat script for that application, and will initiate all processes associated with that application (position 8 in the following figure). The parameter for this command is the application number (far left) or the GROUP keyword, which changes the overall state to InSv (In Service).The InSv state is represented by a dot ".". The output for this command is displayed beneath the dynamic information.
4. OffL: Issues an Offline command to the application (position 9 in the following figure). The parameter for this command is the application number (far left) or the GROUP keyword, which changes the overall state to Offline. The applications themselves become ManB, and applications that are Offline remain Offline. The output for this command is displayed beneath the dynamic information in the following figure).

CBM APPL Level

```
    CBM        MATE     NET      APPL     SYS     HW     CLLI: SNM2
    ISTB        .        .        .        .      .     Host: pcary1rr
     M          M
Appl
 0 Quit         # Application                                      State
 2              1 Table Access Service                              .
 3              2 OM Delivery                                      OffL
 4 Logs         3 OM Access Service                                ISTb
 5              4 Log Delivery Service                              ManB
 6
 7 Bsy
 8 RTS
 9 OffL
10
11
12 Up
13 Down
14 QueryCBM
15
16
17 Help
18 refresh
  root
Time  13:43  >
```

The command line equivalents of the commands under the appl level are shown in the following table:

APPL screen command line equivalent commands

UI Command	Command line equivalents
Bsy	appctrl --bsy| -b <appname> | groupname>
Rts	appctrl --rts | -r <appname> | groupname>
Offl	appctrl --offl | -o <appname | groupname>
QueryCBM flt	queryflt

UI Command	Command line equivalents
QueryCBM status	queryflt -s
Query flt mate	queryflt -m

CBM System Level

The CBM system level shows the status of operation system software parameters.

Commands:

Logs: Display the last events reported

QUERYCBM <flt, flt mate, status > : Commands are invoked as shown in the preceding table.

CBM SYS Level

```
    CBM        MATE     NET      APPL     SYS     HW     CLLI: SNM2
    IsTb       SysB      .         .        .      .     Host: pcary1rr
    M           M
Sys
 0 Quit
 2
 3
 4 Logs
 5
 6
 7
 8
 9
10
11
12
13
14 QueryCBM
15
16
17 Help
18 refresh
  root
Time  13:43  >
```

CBM Hardware Status Level

The CBM hardware status level shows the hardware status indicators.The status indicators displayed at this level are updated dynamically.

Commands:

Logs: Displays the last event reported.

QueryCBM < flt, flt mate, status >: Commands are invoked as shown in Table "Core screen command line equivalents" on page 591.

CBM Hardware Level

```
    CBM          MATE     NET      APPL     SYS     HW     CLLI: SNM2
    IsTb         SysB      .         .        .      .     Host: pcary1rr
    M             M
Hw
 0 Quit
 2
 3
 4 Logs
 5
 6
 7
 8
 9
10
11
12
13
14 QueryCBM
15
16
17 Help
18 refresh
  root
Time  13:43  >
```

CBM Administration Level

The Admin level is the highest level for system administration commands. The commands available under system administration are dependent on the user id. The root user has full access to all commands. The maint class users are given only a subset of the system administration commands.

Commands:

1. Users: Enter the user administration level (position 4 in the following figure).
2. SWIM: Enter the software inventory management level (position 3 in the following figure).

CBM Admin Level

```
    CBM          MATE      NET      APPL     SYS      HW     CLLI:
    IsTb         SysB       .         .        .       .     Host: pcary1rr
      M           M
Admin
 0 Quit
 2
 3 SWIM
 4 User
 5
 6
 7
 8
 9
10
11
12
13
14
15
16
17 Help
18 refresh
  root
Time  13:43  >
```

SWIM

The swim level of the CBM provides software inventory management.The SWIM level interface will show the product level information and the application status information.

Commands:

1. Packages: Enter the software packages level (position 2 in the following figure).
2. Config: Enter the software configuration level (position 6 in the following figure).
3. Options: Enter the options level (position 7 in the following figure).
4. History: Enter the software history level (position 8 in the following figure).

CBM SWIM Level

```
    CBM         MATE    NET     APPL    SYS     HW    CLLI: SNM2
    IsTb        SysB    .       .       .       .     Host: pcary1rr
     M           M
SWIM
 0 Quit
 2 Packages
 3
 4
 5
 6 Config
 7 Options
 8 History
 9
10
11
12 Up
13 Down
14
15
16
17 Help
18 refresh
  root
Time  13:43  >
```

SWIM Packages Level

This level contains commands to list and remove installed software. It shows the list of packages which exist on the system. The software can be applied or removed from this level for maintenance purposes. The list columns include: a list index number representing the package in each row, the package name, instance or description, the version number which is currently installed, and the package status (APPLIED, PARTIAL or FAILED).The Status column was added to identify if the package has been APPLIED, if there is a NEWer instance (SDM/Nortel software only and mostly for lab environment) or if the package has NOT been APPLIED, no instance on the system. APPLIED packages versions are currently in use. PARTIAL packages are packages that had an error during installation and are only partially installed. PARTIAL and FAILED packages should be removed from the system. The Packages level is updated every 20 seconds or when you use the Refresh command. The Packages level is shown in Figure , on page 599 .

Commands:

1. Apply: Install the selected packages (position 2 in the following figure).
2. Select: Selects a package. A selected package appears highlighted within the software list. A selected entry can be deselected by selecting it again (position 7 in the following figure).
3. Remove: Remove software. This command can be used to remove software that is in any of the APPLIED, PARTIAL or FAILED states (position 8 in the following figure).

4. Search: Search the list for the given text, and reposition the list when a match entry is found (position 14 in the following figure).
5. Filter: Filter the list of software (position 15 in the following figure)
6. View: Toggle between showing the software description, the software package instance and the software package name (position 16 in the following figure).

CBM Packages Level

```
    CBM       MATE      NET      APPL     SYS     HW     CLLI: SNM2
    IsTb      SysB       .        .        .      .     Host: pcary1rr
     M         M
Packages
 0 Quit      Filter: sdm Interactive Mode: OFF
 2 Apply      # Package Description                Version       Status
 3           1 RogueWave SourcePro Libraries      4.0.0.0       APPLIED
 4           2 Platform Utilities                 7.36.9.0      APPLIED
 5           3 Table Access Service               7.36.9.0      APPLIED
 6           4 SDM Billing Application            7.38.8.0      APPLIED
 7 Select
 8 Remove
 9
10
11
12 Up
13 Down
14 Search
15 Filter
16 View
17 Help
18 refresh
  root
Time  13:43  >
```

CBM Apply Level

The Packages Apply level shows a list of packages which exist on the source. The default source is automatically listed when entering the Apply level for the first time. The default source can be changed within the Options level. The list columns include: a list index number representing the package in each row, the package description, instance name or package name The current version listed beside every package is updated every 20 seconds or when you use the Refresh command. The command line equivalents are shown in Table “SWIM screen command line equivalents” on page 600.

Commands:

1. Source: Choose a source directory from which to load packages.
2. Reload: Reload the list of packages from the current source.
3. Select: Selects a package. A selected package appears highlighted within the software list. A selected entry can be deselected by selecting it again.
4. Apply: Apply packages on this CBM

5. Upgrade: Upgrade all packages to the latest versions available on the source.
6. Search: Search the list for the given text, and reposition the list when a match entry is found.
7. Filter: Filter the list of software.
8. View: Toggle between showing the software description, the software package instance and the software package name

CBM Apply Levell

```
    CBM       MATE      NET      APPL     SYS     HW     CLLI: SNM2
    IsTb      SysB       .        .        .      .     Host: pcary1rr
     M         M
Apply
 0 Quit       Source: the directory /data/swd/sdm.
 2            Filter: OFF Interactive Mode: OFF
 3            # Package Name                    Version          Status
 4 Source     1 Table Access Service              7.36.9.0     APPLIED
 5 Reload     2 GNU Debugger                     7.0.1.0       NOT APPLIED
 6                          Packages on the source: 2 to 2 of 2
 7 Select
 8 Apply
 9 Upgrade
10
11
12 Up
13 Down
14 Search
15 Filter
16 View
17 Help
18 refresh
  root
Time  13:43  >
```

SWIM screen command line equivalents

UI Command	Command line equivalents
Apply	pkgadd -d <full path to the package>
Remove	pkgrm <Package name >
Search	pkginfo -c <any matching string >

CBM Config Level

The Config level shows the list of applications which have configuration programs associated with them. Each configuration program can be executed by using the Config command. The Config level is updated every 20 seconds or when you use the Refresh command. The config level is shown in the following figure.

Commands:

1. Select: Selects a package. A selected package appears highlighted within the software list. A selected entry can be deselected by selecting it again.
2. Config: Configure packages
3. Search: Search the list for the given text, and reposition the list when a match entry is found.
4. Filter: Filter the list of software
5. View: Toggle between showing the software description, the software package instance and the software package name.

CBM Config Level

```
    CBM        MATE      NET      APPL     SYS     HW     CLLI: SNM2
    IsTb       SysB       .         .        .      .     Host: pcary1rr
     M          M
Config
 0 Quit          Filter: OFF Interactive Mode: OFF
 2               # Package Description              Status
 3                 1 OM Delivery                    Configured
 4
 5
 6
 7 Select
 8 Config
 9
10
11
12 Up
13 Down
14 Search
15 Filter
16 View
17 Help
18 refresh
  root
Time  13:43  >
```

User

The User level of the CBM provides administration of the CBM maint userid.The command line equivalents of Passthru level are shown in Table “PassThru screen command line equivalents” on page 603.

CBM User Level

```
    CBM       MATE     NET      APPL     SYS     HW     CLLI: SNM2
    IsTb      SysB      .        .        .      .     Host: pcary1rr
     M         M
User
 0 Quit
 2           Maintenance users
 3 PassThru  1 maint
 4
 5
 6
 7
 8
 9
10
11
12
13
14
15
16
17 Help
18 refresh
  root
Time  13:43  >
```

CBM PassThru Level

```
    CBM       MATE     NET      APPL     SYS     HW     CLLI: SNM2
    IsTb      SysB      .        .        .      .     Host: pcary1rr
     M         M
PassThru
 0 Quit
 2              UserName  RealName            Passthru Action           FTP CM
 3
 4
 5
 6
 7
 8
 9
10
11
12 Up
13 Down
14
15
16
17 Help
18 refresh
  root
Time  13:43  >
```

PassThru screen command line equivalents

UI Command	Command line equivalents
Add	passthrucfg -m <username> -a realname=<real name> -a args=<telnet target>
Change	passthrcfg -c <username> -a realname=<new realname> -a args=<new target>
Delete	passthrucfg -d <username>

Hardware Requirements or Dependencies

None

Software Requirements or Dependencies

SDM base software is installed

Limitations and restrictions

None

Interactions

None

Applicable customer facing sections

Fault Management

- Logs __Y____
- Alarms ___Y___

Configuration

- Data Schema _____
- User Interface ___Y___
- Element Management ____NA__
- Security ____NA__
- Service Order ____NA__
- Office Parameters ____NA__

Accounting (includes AMA billing) ____NA__

Performance (includes operational measurements) ____NA_

Indicate with an X if you are completing the sections of the DDOC listed below. Indicate with "N/A" if these sections do not apply to this functionality.

Realtime ___NA___

Engineering Information ___Y___

Glossary

Term	Description
CBM	Core(sucession) and Billing Manager
CM	Computing Module
MAP	Maintenance and Administration Position
UI	User Interface

Product = CS 2000

A00002858 -- SYSB Carrier (Succession on DMS)

Functional Description

Nortel's customers have expressed the desire to have a SysB carrier cause its SPM node to go ISTb under the PM banner. This would provide the telco a visual MAP alert that a carrier outage may be causing multiple trunk failures. Adding this capability would make SPM work like DTC. But most importantly, this feature will reduce the chance of long duration outages when the telco is not aware that a carrier problem is disrupting service. This feature will also reduce the chance of problems during a Panther upgrade since these types of carrier problems can prevent sparing on the OC3.

Feature A59036987 attempted to address this concern by adding the display of S/P/D/d/R under the TRKS banner.

Operation

There will be two new "triggers" that can cause a SPM node to go ISTb under the PM banner:

Trigger 1: Check SysB Carrier on OC3 RM

When one of the OC3's carriers goes SysB, which corresponds to a Bellcore state of OOS-AU-FAF (which is same as OC3 carrier state of IS-UPS-FAF).

FAF is FAcility Failure. Note that this trigger corresponds to “S/P/D/d” in the A59036987 feature. While the carrier is SysB, any of its trunks will be in the CFL condition and not able to bear traffic.

Here’s an example of the existing log that will be seen when a carrier goes SysB:

```
MSH706BM   * CARR511 JUN04 05:46:03 6200 SYSB CARRIER SPM  34
        CKT: 13  CarrName: SPM34_STS1P_1_VT15P_3_DS1P_3
        Carrier: STS1P  1 VT15P 15 DS1P   1
        Previous State: INSV
```

This trigger clears when the carrier is no longer SysB (e.g. CARR510 log when the carrier is RTSed and goes InSv).

For STM-1 international product, the trigger will occur when a STM-1 carrier goes SysB.

Trigger 2: Check RFI Alarm on STS3L Carrier

When one of the OC3’sInSv STS3L carriers has a RFI (Remote Failure Indication) alarm. Such an alarm can be caused by cutting the TX fiber on the OC3. Note that this trigger corresponds to “R” (for Remote alarm) in the A59036987 feature. Since OC3 sparing will not be allowed while the remote alarm condition is present on the line carrier, the OC3 is effectively in an E2 outage condition due to the loss of redundancy.

Here’s an example of the existing log that will be seen when a remote alarm is raised on a line carrier. Note that the carrier data in table MNHSCARR would have to set the RFI alarm as reportable (RFI MN RPT) for this log to be seen.

```
MSH8_03BM   * CARR310 APR18 10:27:41 3204 FLT  CARRIER SPM  41
CKT: 178  CarrName: ATM_STS3L_SPM_41_CKT_178
Carrier: RM     2 OC3S   0 STS3L  0
Failure: RFI      Set
```

If the RFI alarm is set as NRPT (non-reportable) for the carrier, then the log will not be seen but the trigger will still occur. Note that the CI command:

MAPCI;MTC;TRKS;CARRIER;POST {carrier};LISTALM

will always show the presence of the alarm, independent of whether MNHSCARR sets the alarm as RPT or NRPT for the carrier.

This trigger clears when the RFI alarm clears (as reported by a CARR310 “RFI Clear” log).

For STM-1 international product, trigger will occur when a InSv STM1M carrier has a RFI alarm.

MAPCI PM Display

When one of these triggers occur, the new ISTb reason string will appear in the existing SPM300 log that occurs whenever a OC3 RM goes ISTb. See Log section below for details. The severity of this ISTb MAP alarm will be minor, so it won’t appear under the “1 SPM” display below.

Here’s how the MAP’s PM level will appear for the ISTb SPM when one of the above triggers has occurred. Note that the “S” under TRKS is part of an existing feature that indicates a section-level carrier (e.g. OCS3) is SysB.

```
XAC      MS     IOD     Net      PM     CCS     Lns     Trks    Ext     APPL
   .      .       .       .    1 SPM     .       . .     ..S .     .       .

                                  SysB    ManB    OffL    CBsy    ISTb    InSv
  0 Quit          PM                 0       0       0       0       1     177
  2 Post_         SPM                0       0       0       0       1      77
  3 ListSet
  4 ListRes   SPM   20  ISTb  Class: SMG4
  5 Trnsl
  6          Shlf0 SL A Stat  Shlf0 SL A Stat  Shlf1 SL A Stat  Shlf1 SL A Stat
  7          -----  1 - ----  CEM 1  8 A ISTb  -----  1 - ----  -----  8 - ----
  8          -----  2 - ----  OC3 0  9 A ISTb  -----  2 - ----  ALM 0  9 A InSv
  9 OfClk     VSP 0  3 A InSv  OC3 1 10 I InSv  -----  3 - ----  DSP 3 10 I InSv
 10           VSP 1  4 A InSv  VSP 2 11 A InSv  -----  4 - ----  DSP 0 11 A InSv
 11 Disp_     -----  5 - ----  VSP 3 12 A InSv  VSP 6  5 A InSv  DSP 1 12 A InSv
 12 Next      -----  6 - ----  VSP 4 13 A InSv  VSP 7  6 A InSv  DSP 2 13 A InSv
 13 Select_   CEM 0  7 I InSv  VSP 5 14 A InSv  -----  7 - ----  VSP 8 14 I InSv
 14 QueryPM
 15 ListAlm
 16 Clock
 17 SPERFORM
 18 Upgrade_
```

QUERYPM FLT Display

The telco can use this command:

MAPCI;MTC;PM;POST SPM ISTB;QUERYPM FLT REASON

to show what faults caused the SPM node(s) to become ISTb. If one of the SPM’s carriers has gone SysB, then the output will look like this:

>querypm flt reason
OC3 0 ISTb NonCritical faults:
Check SysB Carrier

CEM 0 ISTb NonCritical faults:
Check Carrier on OC3 RM

The “Check SysB Carrier” is a new reason that can cause a OC3 RM to go ISTb, which results in the CEM going ISTb, and hence the node ISTb. The “Check Carrier on OC3 RM” is a new ISTb reason for CEMs that will only occur when one (or both) of our two triggers have occurred.

For the STM1 product, CEM ISTb reason will appear as “Check Carrier on STM RM”.

If the 2nd trigger occurs (i.e. remote alarm on a line carrier), then the output will look like this:

>querypm flt reason
OC3 0 ISTb NonCritical faults:
Check RFI Alarm on STS3L Carrier
CEM 0 ISTb NonCritical faults:
Check Carrier on OC3 RM

The “Check RFI Alarm on STS3L Carrier” is the other new reason that can cause a OC3 RM to go ISTb.

For the STM1 product, the STM ISTb reason will appear as “Check RFI Alarm on STM1M Carrier” and the CEM ISTb reason will appear as “Check Carrier on STM RM”.

Note that our two new “triggers” are the only RM ISTb reasons that can also cause the Node to go ISTb.

LISTALM Display

The LISTALM command for the ISTb SPM will produce this output when one of the triggers has occurred. Note that it just reflects the Minor alarm reason that caused the node to go ISTb.

```
ListAlm: SPM 26  CEM 0
SEVERITY    ALARM       ACTION
-----------------------------
Critical    None
Major       None
Minor       ISTB          RPT
No_Alarm    None
```

Logs

When one of the new triggers occur, the existing CARRxxx log will occur as shown above. In addition, the existing SPM300 log will occur to show the OC3 RM has gone ISTb for one of the new ISTB text reasons. The severity of these SPM300 logs will be non-critical for each new reason.

Note: the maximum length for an ISTb reason string is 64 characters, so we can make the reasons longer if that would help.

Check SysB Carrier

This log will occur if one of the SPM's carriers goes SysB:

```
STEC207AM   *  SPM300 MAY30 15:57:33 4093 TBL  Device Fault Report
          Location    : SPM : 26   OC3 : 0
          Status      : Alarm Raised
          Problem Description: Non Critical
            7A: Check SysB Carrier
          Action      : Refer to NTPs for Alarm Clearing Procedures.
          Cardlist    :
            No Cardlist Available.
```

Check RFI Alarm on STS3L Carrier

This log will occur if one of the SPM's STS3L line carriers receives a RFI external alarm (e.g. due to TX fiber cut). Note that STS3L will be substituted with STM1M on STM1 nodes.

•

```
STEC207AM   *  SPM300 MAY30 15:57:33 4093 TBL  Device Fault Report
          Location    : SPM : 26   OC3 : 0
          Status      : Alarm Raised
          Problem Description: Non Critical
            7A: Check RFI Alarm on STS3L Carrier
          Action      : Refer to NTPs for Alarm Clearing Procedures.
          Cardlist    :
```

For the STM1 product, the 7A string above will instead appear as "Check RFI Alarm on STM1M Carrier".

OC3 ISTb Log

If the OC3 RM was previously InSv when the trigger occurred, then the following SPM500 “Device State Change” log will occur when the OC3 transitions to ISTb. There are no changes to this log. Here’s an example:

```
STEC207AM   *  SPM500 MAY30 15:57:33 4194 INFO Device State Change
                  Location: SPM : 26   OC3 : 0
                  From    : InSv
                  To      : ISTb
```

Node ISTb Log

If the SPM node was previously InSv when the trigger occurred, then the existing NODE500 “Node State Change” log will occur when the SPM node transitions to ISTb. There are no changes to this log. Here’s an example:

```
OLSC_SN06BT CM         * NODE500 JUN04 15:14:16 1000 INFO Node State Change
        Location: SPM 33 Unit 0
        From:     InSv ( Connected, Active )
          To:     ISTb ( Connected, Active )
```

Troubleshooting why SPM Node is ISTb

Determining which carrier caused the SPM Node to go ISTb depends on the type of reason given under QUERYPM FLT REASON:

Check SysB Carrier

Find which SPM is ISTb:

mapci;mtc;pm;post spm istb

then post the SysB carriers on the SPM:

trks;carrier;post spm {spm# from current post set} sysb

Then follow existing troubleshooting procedures for SysB SPM carriers.

Check RFI Alarm on STS3L Carrier

Find which SPM is ISTb:

mapci;mtc;trks;carrier;post spm istb

then post the line carriers on that SPM:

trks;carrier;post spm {spm# from current post set};next

The map will look something like this:

```
XAC       MS      IOD      Net       PM      CCS      Lns      Trks     Ext      APPL
 SysBTh     .      NODLOG     .       1 SPM      .        .      232CCS   3Crit     .
                                      *C*                        *C*      *C*
                CLASS     ML    OS ALRM  SYSB  MANB UNEQ OFFL  CBSY PBSY  INSV
  0 Quit        TRUNKS   176     0   95   201     0    0    0    88    0   746
  2 Post_       HSCARR   203     0    5     3     0    0    0    63    0   753
  3              STS3L
  4             N  CLASS  SITE SPM RM OC3S STS3L CKT STATE  TR MA
  5 Loop_       0  HSCARR HOST  12  0    0     0  89 INSV   .S ..
  6 Tst_        1  HSCARR HOST  12  1    0     0  90 INSV   .. ..
  7 Bsy_        2  HSCARR HOST  12  0    0     0  91 INSV   .. **
  8 RTS_        3  HSCARR HOST  12  1    0     0  92 INSV   .S m.
  9 Offl_
 10             SIZE OF POSTED SET  :  176                   MORE...
 11 Disp_
 12 Next
 13
 14 Detail_
 15 ListAlm_
 16
 17 Perfmon_
 18
```

The faulty line carrier will be the one with an alarm (e.g. “m”) under the “MA” column. Use LISTALM or PERFMON;PPQUERY to confirm the alarm. Then follow existing troubleshooting procedures for clearing alarms on a STS3L carrier. One thing to check for is a cut TX fiber on the OC3.

For the STM1 product, everything is the same except STM1M will appear instead of STS3L (and STM1R will appear instead of OC3S).

Hardware requirements

There are no new hardware dependencies introduced by this feature.

This feature will only work on TDM (legacy) SPM nodes (i.e. SPM and STM1). Anywhere that OC3 RM or STS3L carrier is referred to in this document for SPM, you can substitute STM RM or STM1M carrier when referring to a STM1.

Succession ATM/IP-based nodes (MG4K, IW, LSA, STS1) will **not** support this feature in the initial release.

Software Requirements or Dependencies

There are no new software dependencies introduced by this feature.

The feature will be “off” by default, but can be turned “on” by the customer.

This feature will impact Local CEM and RM loads for the SPM and STM1 products in the SN07/20 release, and will impact the SN07/20 (i.e. SHR20) Core load.

Limitations and restrictions

1. As stated above, the feature is only supported on TDM (legacy) SPM nodes, which includes the STM1.
2. Note that existing feature A59036987 will also show “P” for a ManB line carrier, whereas this new feature ignores any ManB carrier.
3. This feature will be “off” by default. An option will be provided (in Table OFCENG) for the customer to turn the feature “on” for all SPMs in the office. There will be no way to control the feature for individual SPMs. It is strongly recommended that the customer leave the feature “on” so they can avoid any long duration outages due to SPM carrier problems.
4. For the feature to be “on”, the new SN07/20 Core and Local loads must be running. If an upgrade is in progress where the customer is running the new SN07/20 Local loads but still has the pre-SN07/20 Core loads, then the feature will not activate until the new SN07/20 Core load is also running (e.g. after a No Restart SWACT).
5. While this feature is backwards compatible, it will not be forwards compatible when the feature is enabled. For example, telco can run the new SN07/20 Local load with an older Core load as described above in #4 (this is “backwards compatibility”), but telco cannot run the new SN07/20 Core load with an older Local load when the feature is turned “on” in the new Core load (via Table OFCENG). If forward compatibility is needed, the feature must be turned “off” in the new Core load.
6. When the feature is activated or deactivated via Table OFCENG, it will take up to 45 minutes for this change to propagate throughout the system. The user will be warned about this delay time when the change is made. The same amount of delay will be incurred when the telco first upgrades the Core to the new SN07/20 load via NoRestartSWACT.
7. The carrier alarm level in Table MNHSCARR will not have an impact on whether a specific carrier can cause the node to go ISTb. So even if the carrier is set to NRPT (Non-Reportable), if it drops SysB, then it will cause the node to go ISTb. Same with the remote alarm trigger.
8. It only takes a single SysB carrier on the SPM node (including one DS1P or E1P path carrier) to cause the node to go ISTb. Any ManB or OFFL carrier will not cause the node to go ISTb.
9. If both “triggers” are present on the same OC3/STM at the same time, then only the last one reported will be shown when QUERYPM FLT REASON is done. If the last trigger is cleared, then QUERYPM FLT REASON will show the first trigger (until the first trigger is also cleared).

Interactions

This new feature works very similar to the 17/SN04 A59036987 feature that reports “S/P/D/d” under TRKS banner for a SysB carrier and “R” for a line carrier with a remote alarm. There are **no** interactions between them. Note that “S/P/D/d/R” will continue to be displayed under the TRKS banner.

With both features operating concurrently, the telco will have more info available on the MAP display to isolate the carrier issue *if* there is only *one* node ISTb. If the PM banner shows “1 SPM”, then the telco will know this extra info by examining the right-most letter under the TRKS banner display:

1. “**S**”: telco will know that a SysB section carrier (OC3S, STM1R) has caused the SPM to go ISTb.
2. “**P**”: telco will know that a SysB line carrier (STS3L, STM1M) has caused the SPM to go ISTb. If “P” appears and there is no ISTb SPM, then we know there is a ManB line carrier on one of the SPMs. This ManB line carrier will prevent OC3 sparing so the SPM has a E2 loss of redundancy.
3. “**D**”: telco will know that a higher-level path carrier (STS1P, DS3P, VC4P) going SysB has caused the SPM to go ISTb.
4. “**d**”: telco will know that a lower-level path carrier (DS1P, VT15, VC12P, E1P, E1L) going SysB has caused the SPM to go ISTb.
5. “**R**”: telco will know that a InSv line carrier (STS3L, STM1M) with remote RFI alarm has caused the SPM to go ISTb.

The TRKS letters above (“S/P/D/d/R”) are shown in their priority order of precedence. This means that if a “S” and “D” fault exist concurrently, then the “S” precedes the “D” so only “S” is shown.

If *more than one* SPM is ISTb, then the telco will still know the highest level carrier severity, but won’t know which SPM it is on. For example, a “2 SPM” under PM banner and a “S” under TRKS banner means one SPM has a “S” fault and the other SPM has “S” or lower fault.

Applicable customer facing sections

Fault Management

Logs	___X__
Alarms	__N/A_

Configuration

Data Schema	__N/A_
User Interface	___X__
Element Management	__N/A_

Security	__N/A_
Service Order	__N/A_
Office Parameters	__X_
Accounting (includes AMA billing)	__N/A_
Performance (includes operational measurements)	__N/A_

Indicate with an X if you are completing the sections of the DDOC listed below. Indicate with “N/A” if these sections do not apply to this functionality.

Realtime	___X__
Engineering Information	__N/A_

Fault Management for A00002858

Fault management strategy

The purpose of the “SPM Node ISTb for Carrier Outage” feature is to mark an SPM as ISTb so an indicator appears under the PM Map banner whenever one of these carrier faults appear:

1. Any of the SPMs carriers goes SysB.
2. Any of the SPM’s line carriers (STS3L or STM1M) has an RFI (Remote Failure Indicator) alarm.

The new steps for resolving these faults will be integrated into the existing Succession fault management documentation for troubleshooting SPM ISTb faults.

Note that the Functional Description section of this A00002858 feature provides an easier to follow format for troubleshooting these faults. The Configuration section documents the changes to the QUERYPM FLT REASON command. This Fault Management section documents changes to the impacted logs.

Fault management tools and utilities

No new tools. Existing tools used are MAPCI and LOGUTIL.

Logs

There are no new logs introduced by this feature, but some existing logs will act as triggers to cause the SPM node to go ISTb on the MAP, and there will be some modifications to existing logs.

CARR511 for SPM carrier going SysB

The CARR511 log is the first of the two new triggers than can cause the SPM node to get ISTb under the PM banner of the MAP display.

Explanation

Log Title: CARR511

Name: SYSB CARRIER SPM

Description: Generated when an SPM carrier changes state to SysB.

Event type: minor

Format

Existing log with no changes, so just showing an example:

```
MSH706BM   * CARR511 JUN04 05:46:03 6200 SYSB CARRIER SPM  34
        CKT: 13  CarrName: SPM34_STS1P_1_VT15P_3_DS1P_3
        Carrier: STS1P  1 VT15P 15 DS1P   1
        Previous State: INSV
```

Action

Follow the standard procedures for maintenance of a SysB SPM carrier.

Associated Operational Measurements or Performance Measurements

None

Additional information

CARR511 is generated when one of the OC3's carriers goes SysB, which corresponds to a Bellcore state of OOS-AU-FAF (which is same as OC3 carrier state of IS-UPS-FAF). FAF is FAcility Failure. While the carrier is SysB, any of its trunks will be in the CFL condition and not able to bear traffic.

For STM-1 international product, this log will occur when a STM-1 carrier goes SysB.

CARR310 for SPM line carrier raising RFI alarm

The CARR310 log is the second of the two new triggers than can cause the SPM node to get ISTb under the PM banner of the MAP display.

Explanation

Log Title: CARR310

Name: FLT CARRIER SPM

Description: Generated when an SPM line carrier (STS3L or STM1M) raises an RFI (Remote Fault Indicator) alarm.

Event type: minor

Format

Existing log with no changes, so just showing an example:

```
MSH8_03BM   * CARR310 APR18 10:27:41 3204 FLT  CARRIER SPM  41
CKT: 178  CarrName: ATM_STS3L_SPM_41_CKT_178
Carrier: RM     2 OC3S   0 STS3L  0
Failure: RFI      Set
```

Action

Follow the standard procedures for maintenance of a SPM carrier fault.

Associated Operational Measurements or Performance Measurements

None

Additional information

The CARR310 log above is generated when one of the OC3'sInSv STS3L carriers has a RFI (Remote Failure Indication) alarm. Such an alarm can be caused by cutting the TX fiber on the OC3. Note that this trigger corresponds to "R" (for Remote alarm) in the A59036987 feature. Since OC3 sparing will not be allowed while the remote alarm condition is present on the line carrier, the OC3 is effectively in an E2 outage condition due to the loss of redundancy.

If the RFI alarm is set as NRPT (non-reportable) for the carrier in Table MNHSCARR, then the log will not be seen but the trigger will still occur. Note that the CI command:

MAPCI;MTC;TRKS;CARRIER;POST {carrier};LISTALM

will always show the presence of the alarm, independent of whether MNHSCARR sets the alarm as RPT or NRPT for the carrier.

This trigger/log clears when the RFI alarm clears (as reported by a CARR310 "RFI Clear" log).

For STM-1 international product, trigger will occur when a InSv STM1M carrier has a RFI alarm.

SPM300 for SPM carrier going SysB

The existing SPM300 log will occur for a new reason: a OC3 carrier going SysB. The SPM300 log shows why a OC3 RM went ISTb.

Explanation

Log Title: SPM300

Name: Device Fault Report / Check SysB Carrier

Description: generated when an OC3 has no SysB carriers and one of its carriers goes SysB.

Event type: minor

Format

Existing log that now has a new text reason beside the “7A” row:

```
STEC207AM   *  SPM300 MAY30 15:57:33 4093 TBL  Device Fault Report
          Location    : SPM : 26   OC3 : 0
          Status      : Alarm Raised
          Problem Description: Non Critical
            7A: Check SysB Carrier
          Action      : Refer to NTPs for Alarm Clearing Procedures.
          Cardlist    :
            No Cardlist Available.
```

Action

See troubleshooting chapter of OPTFN section for how to determine which carrier caused this log to occur.

Associated Operational Measurements or Performance Measurements

None

Additional information

None

SPM300 for RFI Alarm on STS3L Carrier

The existing SPM300 log will occur for a new reason: RFI alarm occurring on a STS3L carrier. The SPM300 log shows why a OC3 RM went ISTb.

Explanation

Log Title: SPM300

Name: Device Fault Report / Check RFI Alarm on STS3L Carrier

Description: generated when a STS3L carrier experiences an RFI alarm.

Event type: minor

Format

Existing log that now has a new text reason beside the “7A” row:

```
STEC207AM   *  SPM300 MAY30 15:57:33 4093 TBL  Device Fault Report
          Location    : SPM : 26   OC3 : 0
          Status      : Alarm Raised
          Problem Description: Non Critical
            7A: Check RFI Alarm on STS3L Carrier
          Action      : Refer to NTPs for Alarm Clearing Procedures.
          Cardlist    :
```

Action

See troubleshooting chapter of OPTFN section for how to determine which carrier caused this log to occur.

Associated Operational Measurements or Performance Measurements

None

Additional information

None

Alarms

There are no new or changed alarms for this feature.

Related documentation

None

Configuration for A00002858

Hardware and Software Requirements

Just need SN07/20 release or later in the Core and SPMs.

Initial Configuration

At the CI prompt:

ENGWRITE ON

TABLE OFCENG

POS SPM_NODE_ISTB_FOR_CARRIER_OUTAGE

Office/Subnet parameters (OP/SP) (CM & SESM)

Introducing OFCENG office parameter SPM_NODE_ISTB_FOR_CARRIER_OUTAGE in the CM.

New/modified office/subnet parameters

Parm table	Parameter name	NEW/CHANGED/DELETED/RELOCATED	Domain (CM or Subnet Management
OFCENG	SPM_NODE_ISTB_FOR_CARRIER_OUTAGE	NEW	CM

Parameter information

SPM_NODE_ISTB_FOR_CARRIER_OUTAGE

SPM Node ISTb under PM Map banner for carrier outage

Functional description

This parameter controls taking a SPM or STM-1 node ISTb under the PM Map banner whenever one of its carriers has an outage. The carrier outage can be 1) whenever any of the SPM's carriers goes SysB, or 2) whenever one of the SPM's line carriers (STS3L or STM1M) has a RFI (Remote Failure Indicator) alarm.

When the parameter is enabled ("Y"), any SPM carrier outage will cause an indicator under the PM banner that a SPM node has gone ISTb. When the parameter is disabled ("N"), carrier outages will never cause a SPM node to go ISTb.

The parameter is only supported on TDM Legacy nodes (SPM and STM-1), and has no impact on Succession nodes (MG4K, LSA, IW, STS-1).

Provisioning rules

Range information

Minimum	Maximum	Default
N	Y	N It is strongly recommended that this parameter be enabled (“Y”) so the telco craftperson will be alerted at the Map to any carrier outages that can disrupt service.

Activation
Activation is immediate; no restart or manual action is required.

When the parameter is changed to “Y” to enable the feature, these warning messages will be seen:

WARNING: If pre-20 Local loads are running on Legacy SPM/STM

while this parm is YES, then carrier outages may occur.

WARNING: Activation takes up to 45 minutes to complete.

The first warning insures that user does not enable the feature when the local software to support it is not available. For the feature to work when enabled, the Core and Local must be running version 20 or later. If the Local is running 19 or earlier, then carrier outages can occur when the feature is enabled.

The second warning indicates that it can take up to 45 minutes for the change to be propagated to every SPM node, and the current SPM carrier outage status reflected under the Map PM banner.

Dependencies
None

Consequences
N/A

Verification
The only way to test this parameter is working is to turn it on, cause an outage, and confirm the Map reflects the outage. Since service would be disrupted, this is not recommended.

Memory requirements
No memory impact.

Parameter release history update
Added SPM_NODE_ISTB_FOR_CARRIER_OUTAGE parameter to Table OFCENG to control taking SPM node ISTb in the MAP whenever one of the SPM carriers has an outage.

Upgrade Impact

Dump and Restore

No impact.

Element Management Upgrade

No impact.

Data schema (DS) (CM, MIBS, RDB)

No impact.

Service Orders (SO) (CM & SESM)

No impact.

Element Management

No impact.

Command interface changes

Two new ISTb reasons were added to the output of the existing QUERYPM FLT REASON command.

See the OPTFN section of this feature for good examples of how this command is used.

Directory: MAPCI;MTC;PM;POST SPM [spm#]

Directory description
PM is an existing MAP level.

Accessing directory: MAPCI;MTC;PM;POST SPM [spm#]

Access to directory or MAP level and return to CI
Example of how to access and quit the PM Map level for SPM 10:

mapci;mtc;pm;post spm 10

quit mapci

Command: QUERYPM FLT REASON

Command type: Listed MENU

Command target: All

Command availability: RES

Command description

The QUERYPM FLT REASON will show the reason an SPM is in the ISTb or SysB state. This feature adds the following new ISTb reasons:

Check SysB Carrier - non-critical fault that indicates the OC3 (or STM) RM has a carrier in the SysB state.

Check RFI Alarm on STS3L Carrier - non-critical fault that indicates the STS3L carrier on the OC3 (which OC3 specified below) has a RFI alarm.

Check Carrier on OC3 RM - non-critical fault that indicates a carrier on this OC3 has one of the two faults listed above.

Command syntax

QUERYPM command parameters and variables

Command	Parameters and variables
QUERYPM	existing
Parameters and variables	Description
FLT REASON	existing

Qualifications and warnings

None

Responses

There are two possible new responses for the QUERYPM FLT REASON command. Each is a status message visible on “All” systems.

Check SysB Carrier

>querypm flt reason
OC3 0 ISTb NonCritical faults:
Check SysB Carrier
CEM 0 ISTb NonCritical faults:
Check Carrier on OC3 RM

If this is the international STM-1 product, substitute “OC3” above with “STM”.

This ISTb status output indicates that one of the carriers on the OC3 (or STM) is in a SysB state.

Check RFI Alarm on STS3L Carrier

>querypm flt reason
OC3 0 ISTb NonCritical faults:
Check RFI Alarm on STS3L Carrier
CEM 0 ISTb NonCritical faults:
Check Carrier on OC3 RM

If this is the international STM-1 product, substitute “OC3” above with “STM” and “STS3L” with “STM1M”.

This ISTb status output indicates that one of the STS3L (or STM1M) carriers on the OC3 (or STM) has an RFI (Remote Fault Indicator) alarm.

MAP outputs with associated meanings and actions

Command: QUERYPM FLT REASON
RESPONSE: Check SysB Carrier **Meaning:** one of the carriers on the OC3 has gone SysB. **System or user actions:** see Troubleshooting chapter of the OPTFN section.
RESPONSE: Check RFI Alarm on STS3L Carrier **Meaning:** one of the STS3L carriers on the OC3 has an RFI alarm. **System or user actions:** see Troubleshooting chapter of the OPTFN section.

Example

See OPTFN section of this feature for examples of each scenario when these new responses can occur, and what the telco response should be in each case.

Security

No impact.

Configuration Walkthrough

Other than upgrading to the new SN07/20 release, no further action is required to provision this feature. The new SPM_NODE_ISTB_FOR_CARRIER_OUTAGE office parameter will be “on” by default, so this feature will start working right away.

Product = CS 2000

A00002901 -- Meet-Me Conference Enhancement (Succession on DMS)

Functional Description

Existing Meet-Me Conference allows users to have a conference call without the conference setup time required with most other conferencing features. A directory number and a time is given to all conferees before the conference takes place. The conferees dial the directory number at the chosen time and are entered into the conference. This enables the conferees to quickly get on with the conference.

The user begins a Meet-Me conference by dialing the designated Meet-Me number. The maximum number of participants for a given conference is established in datafill and is associated with the customer group by the SUPERCNF option in table CUSTHEAD. As of BCS-25 it is datafillable whether the first caller must be a member of the Meridian Digital Centrex (MDC) customer group family. In either case if the first caller is a trunk it must have disconnect supervision. Note that other participants in the conference do not necessarily have to be members of the MDC customer group or have disconnect supervision if they are on incoming trunks. Other participants may always access the conference locally or from remote locations over all types of incoming trunk facilities if the datafill in table MMCONF allows them. The first caller receives audible ringing tone until the arrival of the second caller. The conference begins with the arrival of the second caller to the Meet-Me number. Each new participant to arrive on the bridge is announced with an audible confirmation tone to all the current participants. For each customer group, the number of 6-port conference circuits required by Meet-Me Conference are allocated for a customer group in table CUSTENG, option CONF6C.

But in the existing Meet-Me Conference feature, there is no security protection function provided to the conference. If a conference is reserved and datafilled in table MMCONF, anyone who knows the conference bridge DN can dial this DN and start a conference. Also, when a conference is in progress, anyone can enter the conference if he/she knows the conference DN and the conference is not being locked by other conferees. This leak makes the conference unsafe. Because of the limitation of associating the maximum number of 6-port conference circuits to customer group, the number of conference that can be reserved in one customer group is restricted too.

To resolve above limitations and leaks, this feature provides an Enhanced Meet-Me Conference with security protection and other functionalities.

Feature Requirement

Enhanced Meet-Me Conference service on CS2Kc provides a conference bridge which conference participants can enter by dialing a specific DN.

Conference is divided into 2 types: scheduled or timeless. A scheduled conference is the conference that predetermines conference date/time, conference elapsed time so that only within the reserved period of time could the conference be started. Scheduled conference has two sub-type: periodicity and non-periodicity conference type. The user can specify a scheduled conference as a periodically effective reserved conference, what means this conference is reserved with start date/time and elapsed time and the reservation can become effective daily/weekly/monthly. If the scheduled conference is reserved as non-periodicity, the reservation will get effective only once. With timeless conference, the conference DN is reserved timeless. Conference can be started whenever it is needed.

Conference participants are classified into 2 categories: chair-person and invited participants. Chair-person is the conference organizer, only one chair-person exists in one conference. Invited participants are the others invited to join the conference. The number of invited participants can be up to (N-1) per conference where N is the maximum number of conferees allowed in one conference session, it can be from 3 to 30. The chair-person and the invited participants are not necessarily subscribers from CS2Kc. The chair-person and the invited participants can dial into the conference from a IBN line and a CISUP/CTUP/SIP-T trunk.

Conference is secured by assigning conference password for all participants and chair-person. The chair-person and invited participants will have different passwords. The different passwords are the only means to distinguish the roles of chair-person and invited participants while conferees set up their calls to conference. These two password can not be the same. They are datafilled by the operator, and they are visible to operator. Please refer to section 2.2.3 for detail description.

It is optional for the conference organizer whether to let the conference starts without a chair-person. If so, the conference is allowed to start only after the chair-person arrives the conference. Otherwise, the conference can start when any conferee arrives.

In the case that the conference must start after the chair-person arrives, all invited participants arrives the conference before the chair-person will be given an announcement to declare that the chair-person has not arrived and the conference has not started. After that, the invited participants will be given music and placed on hold. When the chair-person arrives, the on-hold participants will be placed into the conference.

In the case that allows the participants enter no matter whether chair-person has arrived, the situation is simpler. When a conferee arrives (if this is a timeless conference or it is in the reserved time of a schedule conference), just place him/her into the conference.

All conferees can have the conference through the conference bridge. In the progress of conference, if a new conferee enters the conference, all online conferees will hear a short ringing tone for announcing the arrival. Another short ringing tone will provide to the existing conferees if a conferee has disconnected. After at least two conferees have arrived and been placed into, the conference can really start.

Another option is given based on the status of the chair-person. The conference organizer can choose whether the conference will go on after the chair-person has disconnected while the conference is being reserved. If this option is set to TRUE, the conference can continue after the chair-person has disconnected from the conference. If this option is set to FALSE, the conference will end while the chair-person drops off even though there are still other conferees online.

For scheduled conference, System should play alarm tone or announcement to participants when time is expired before N minutes. (N is provisionable, e.g N=5 minutes.)

Every call into the conference DN should be mutual control or calling-party control. If a conference participant drops off, the corresponding conference port is automatically released.

Once the Enhanced Meet-Me Conference service is provisioned, it is available to the conference participants at any time, until the service provision is removed. However, the service provision can NOT be removed while the conference is still on.

Conference Provision

Enhanced Meet-Me Conference can be provisioned in a new table EMMCDATA with these aspects:

- Conference bridge DN
- Conference reservation type -- timeless, scheduled or periodicity conference
- Conference Date, Start Time, Elapsed Time. (If the conference type is timeless, this provision information is disable)
- Max number of ports available for the conference
- Invited participant password
- Chair-person password

- Quick start option: whether to allow the conference start if the chair-person has not entered
- ID of the Greeting to conference participants: operator can datafill a default greeting for each conference. If the customer has specific requirement for the greeting, and if software and hardware resource are enough, the operator can datafill a specific greeting for the customer. But this functionality is not guaranteed.
- Audio group number for playing music.
- System should play alarm tone to participants when time is expired before N minutes. N can be provisionable. (If the conference type is timeless, this provision information is disable.)
- Allow_to_continue option: whether to allow the conference to continue after the chair-person drops off
- Billing option: whether to generate a specific billing record for the conference

The provision capability is provided by a table EMMCDATA. The operator can datafill this table for each reserved conference session. The datafill examples of scheduled conference and timeless conference are shown below:

Datafill Example of Table EMMCDATA

```
TABLE: EMMCDATA
LKEY RESERVE SIZE CHRPSWD PARTPSWD QUICK GREETING AUDIOGRP ENDALARM CONTINUE BILLING
----------------------------------------------------------------------
28 801 9998 TIMELESS 6 111111 222222 Y EMMC1 AUDIO12 6 N N
28 801 9996 SCHEDULE NONPERIOD 2003 12 11 08:00 120 6 111111 222222 N EMMC1
AUDIO12 5 N N
28 801 9995 SCHEDULE DAILY 2003 12 02 19:00 300 6 111111 222222 N EMMC1
AUDIO12 6 N N
28 801 9994 SCHEDULE WEEKLY 2003 08 14 20:30 240 6 111111 222222 N EMMC1
AUDIO12 5 N N
```

Note: The key filed LKEY is composed of SNPA, OFCCODE and STNCODE (which form the bridge DN). The filed RESERVE denotes the reservation type of the conference.

The first tuple shows an example of timeless conference with bridge DN 28 8019998. The user can start a conference at any time from this bridge DN. The timeless conference type is denoted in the filed RESERVE with “TIMELESS“.

The second tuple of in this example is a scheduled conference which provides a conference bridge DN 28 8019996. This conference can support up to six conferees to arrives. It starts at 8:00 am on Dec. 11, 2003 and carries through

for 120 minutes. The schedule information is denoted by the field RESERVE with “SCHEDLED NONPERIOD 2003 12 11 08:00 60“. During this period of time, anyone with correct password can enter the conference if the number of the online conferees has not exceeded conference size (in this example, it is 6). This conference session allows the conference to start before the chair-person arrives. It will play a greeting (denoted by EMMCOMPA) to all conferees when they arrives. It allows the conference continue after chair-person disconnects from conference and it will generate a separate billing record for this conference session. Field ENDALLARM denotes that five minutes before the expired time of this conference (10:00 am), an alarm tone will be given to remind the conferees.

The third tuple is also a scheduled conference and it is reserved for periodically used. It is denoted in filed RESERVE with “SCHEDLED DAILY 2003 12 02 10:00 300“. The users can use this conference bridge at 19:00 for 5 hours each day from Dec. 02, 2003 until this tuple is removed by the operator.

The size of this table is up to 8192.

When datafilling a tuple in table EMMCDATA, a corresponding tuple is datafilled in table DNINV to make this feature can be triggered via dialling the conference bridge DN. A new feature name EMMC is defined for this feature. Figure , on page 627 shows an example of traver from a line 82220008 to bridge DN 8015555 (the second conference datafilled in Figure , on page 626).

Traver Example of Triggering Enhanced Meet-Me Conference Feature

```
>traver l 8010008 8019000 b
TABLE IBNLINES
HOST 00 0 00 08 0 DT STN IBN 8010008 CSGRPTA 0 2 28 (FNT) $
TABLE DNATTRS
TUPLE NOT FOUND
TABLE DNGRPS
TUPLE NOT FOUND
TABLE IBNFEAT
TUPLE NOT FOUND
TABLE CUSTSTN
TUPLE NOT FOUND
TABLE OFCVAR
AIN_OFFICE_TRIGGRP NIL
INAP Origination Attempt TDP:  no subscribed trigger.
INAP Info Collected TDP:  no subscribed trigger.
```

```
TABLE NCOS
CSGRPTA 2 0 0 CSXLTA ( ACR Y)$
TABLE CUSTHEAD: CUSTGRP, PRELIMXLA, CUSTXLA, FEATXLA, VACTRMT, AND DIGCOL
CSGRPTA NXLA CSXLTA FEATXLA 0 CSDIG
TABLE DIGCOL
CSDIG 8 POTS N
TABLE IBNXLA: XLANAME CSXLTA
TUPLE NOT FOUND
Default from table XLANAME:
CSXLTA
    (NET N N 0 N NDGT N Y GEN (LATTR CSXLTA 842_NPRT_2 NLCA_NILLA_2) $ $)$ F
TABLE DIGCOL
NDGT specified: digits collected individually
TABLE LINEATTR
CSXLTA IBN NONE NT 1 0 NILSFC 0 PX CSXLTA NIL 00 CSXLTA CS_NIL $
LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
TABLE XLAPLAN
842_NPRT_2 NSCR 842 NPRT NONE N $ $
TABLE RATEAREA
NLCA_NILLA_2 NLCA NIL NILLATA $
TABLE PXHEAD
CSXLTA SDFLT NODFOP NOCON F
THE DIGITS USED TO INDEX THE NEXT TABLE ARE:                    8019000
TABLE PXCODE
CSXLTA 801 801 CONT ( MM 7 7) ( CLASS NATL) ( XLT OFC CSTERMTA) ( LNET NATL1) ( MZONE 1)$
TABLE OFCHEAD
CSTERMTA SDFLT NODFOP NOCON F
THE DIGITS USED TO INDEX THE NEXT TABLE ARE:                    8019000
TABLE OFCCODE
CSTERMTA 801 801 RTE ( MM 3 9) ( DEST 801) ( CLASS LCL) ( LNET NATL1) ( MZONE 1)$
TABLE: OFCRTE
KEY: CSTERMTA  801
 . T OFRT 801
 .  . TABLE OFRT
 .  .  801 T IBNRTE 801
 .  .  . TABLE IBNRTE
 .  .  .  801 DN 28 801 N 0 4
 .  .  .  . TABLE TOFCNAME
```

```
 .  .  .  . 28 801 $
 .  .  .  . TABLE DNINV
 .  .  .  . 28 801 9000 FEAT EMMC 28 801 9000
TABLE DNFEAT
TUPLE NOT FOUND
 .  .  .  . TABLE DNATTRS
 .  .  .  . TUPLE NOT FOUND
 .  .  .  . TABLE DNGRPS
 .  .  .  . TUPLE NOT FOUND
 .  .  . EXIT TABLE IBNRTE
 .  . EXIT TABLE OFRT
EXIT TABLE OFCRTE
INAP Info Analyzed TDP:  no subscribed trigger.
INAP Route Select Failure TDP:  no subscribed trigger.
INAP Termination Attempt TDP:  no subscribed trigger.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 FEATURE               288019000                    ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 BUSY

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

Conference Processing

The conference should be protected to prevent any accidental or malicious invader. This function is implemented by assigning conference password for all invited participants and specific chair-person password. During dialling phase, after dialling conference bridge DN, all conferees (invited participants and chair-person) are required to input passwords. Only the ones having inputted correct passwords are guaranteed to enter the conference. Conferees are guided by prompt and announcements when they dialling password. Conferees need input password once in dialling process if a correct password is inputted. Their roles are identified by passwords.

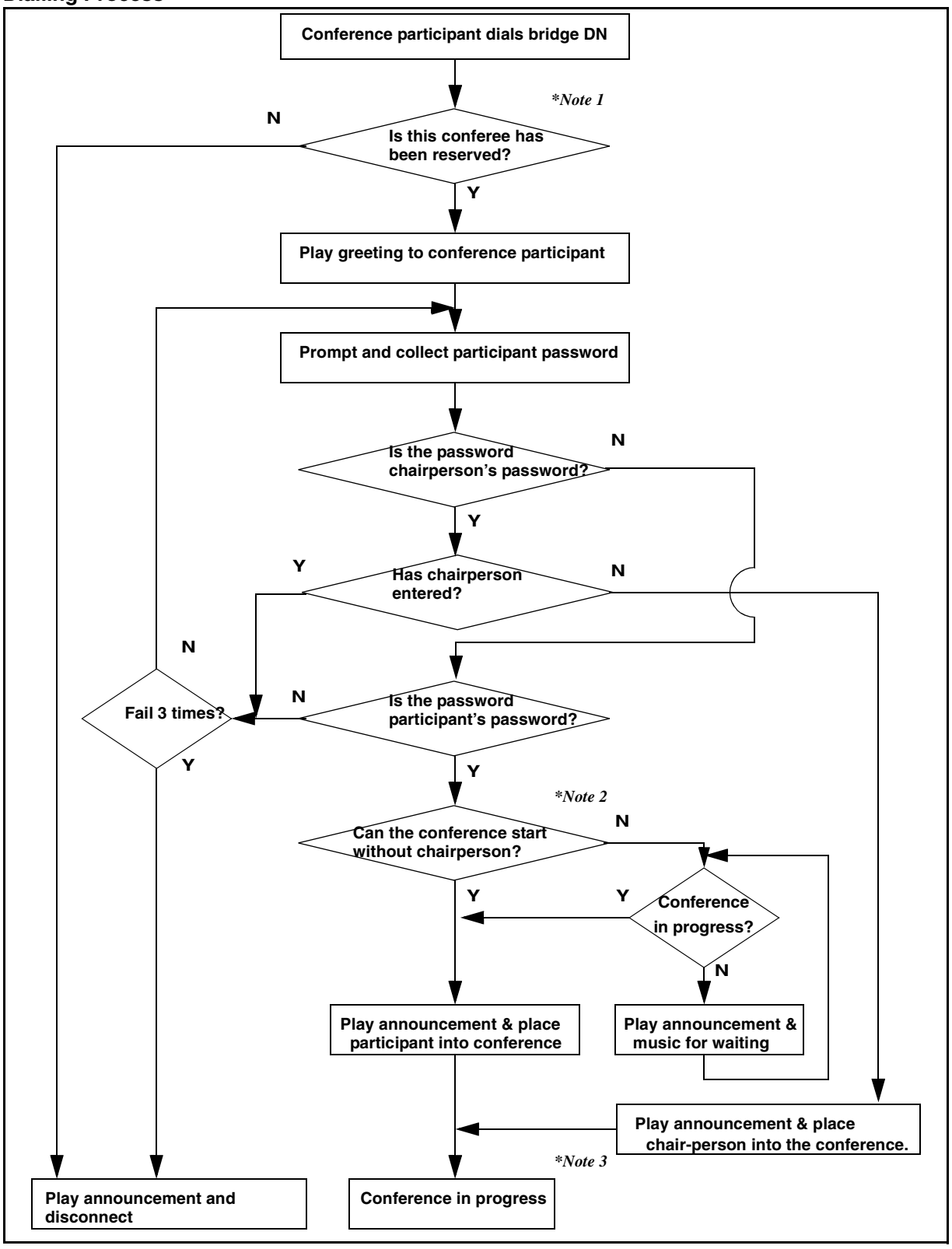
During the dialling process, some announcement are provided to guide the user how to execute following steps. The user can bypass the announcement by directly dialling any key. These announcements are:

- Greeting to welcome the user arrives the conference. This greeting can be datafilled on a per conference basis. So different conference may have different greeting.
- Prompt for collecting conferee's password.
- Prompt for reminding the user has inputted wrong password and to input again.
- Prompt for welcoming the chair-person enters the conference.
- Prompt for welcoming an invited participant enters the conference.
- Prompt for welcoming an invited participant but to place this participant on hold because the chair-person has not entered.
- Prompt for reminding the user has made some error and will be disconnected from the conference.

With the scheduled conference type, before N minutes to the end time (N is datafilled in field ENDALARM in table EMMCDATA), an announcement will play to all participants that the conference will end in N minutes.

The dialling conference DN and password process are shown in the following figure.

Dialling Process



Note: 1. If the conference type is scheduled and the dialling date/time is within the reserved conference start date/time and elapsed time, or the conference type is timeless, we think that the conference has been reserved.

Note: 2. Whether a conference can start without a chair-person is controlled by datafilling a quick start option for each conference session.

Note: 3. Under following two circumstance, we think that the conference is in progress: I. The chair-person has entered the conference. II. If the conference session has quick start option, an invited participant is the first conferee and is allowed to entered the conference.

After the conferee gets through the password verification and enters the conference, a conference port is allocated for this conferee. He/She will occupy one port of 6-port conference circuit mounted of CTM/MTM on TDM side or a member of UAS on IP side. The hardware resource will not be freed until the conferee drops off. If the conference reaches the maximum allowed size specified in table EMMCDATA, further call attempts will receive busy treatment. Until a conferee disconnects and thereby provides a vacant port on the conference, further user is allowed to enter. If the conference is under maximum size but it is unable to attach hardware resource, the user will receive NOSC treatment.

During conference processing, each new participant arriving on the bridge is announced with an audible confirmation tone to all the current participants. Similarly, A burst of dial tone is provided each time a conferee leaves the conference. When all conferees are dropped from the conference, all the conference circuits are freed. It is datafillable whether the conference will end after the chair-person disconnects.

For scheduled conference, an alarm tone will be played to all participants when elapsed time will be expired in N minutes. N is a number that When the predetermined elapsed time expires, the conference ends and all conferees (chair-person and invited participants) disconnect from the conference. For the timeless conference, the conference can keep on till all conferees drop off, no elapsed time limitation.

Conference Billing

When the billing option is datafilled, a billing record is generated for each session of the conference, and only one record is generated.

The billing record includes the following:

- Conference start date/time: the time that the first participant enters the conference if quick start option is set to TRUE, or when the chair-person is placed into the conference if quick start option is set to FALSE.

- Conference end time: the time all the participants have dropped off
- Conference port usage: the maximum number of ports used during the conference session. This is not the conference allowed size datafilled in the table, but the maximum actual used ports in conference progress.
- Conference bridge DN

According to different datafill of field QUICK in table EMMCDATA for different conference, conference start date/time have different definitions. If this field is set to TRUE, which means the conference can start without the chair-person entering, conference start date/time record the date and time when the first conferee enters the conference, no matter this conferee is a chair-person or an invited participant. If this field is set to FALSE, which means the conference can only start after the chair-person enters, conference start date/time record the date and time when the chair-person enters the conference.

Conference end time always records the time when the last conferee drops off from the conference.

A conference session denotes the period of time from conference start time to conference end time. In a scheduled conference, if all conferees drops off, it is considered that this conference session has completed. If the time hasn't expired, any user can still start the conference. But it will be thought as a new conference session. For each conference session, only one billing record is generated. And the billing record is only associated with this conference session.

Conference port usage records the maximum number of ports used during a conference session, i.e. the maximum number of online conferees at the same time during a conference session.

Conference bridge DN should also appear in the billing record.

One thing should be noticed, the control of generated billing record is per conference base, but not per conference session base. That means the field BILLING in table EMMCDATA can only control the generation of the billing record to the conference datafilled in the same tuple. If this conference has multi conference sessions, all sessions will (or will not) generate the billing records according to the filed BILLING.

An ama log will be generated as the billing record for each conference session. This ama log contains a structure code (the structure code can be selected from x0510, x0511, x0512, x0513 or x0514) and a module code (612) to record billing information. MC612 is appended to the structure code. The conference bridge DN is stored in the structure code, the other information are stored in the module code. One ama log is to be generated for one conference session.

The following figure is an example of a billing record, the module code 612 is appended to the structure code 40514.

An Example of Billing Record of a Conference Session

```
>calldump full
*
 HEX ID:                              AA
 STRUCTURE CODE:                      40514C
 CALL CODE:                           006C        STATION PAID
 SENSOR TYPE:                         036C        DMS 100F
 SENSOR ID:                           0250250C
 REC OFFICE TYPE:                     036C        DMS 100F
 REC OFFICE ID:                       0250250C
 DATE:                                30827C      AUGUST 27, 2003
 TIMING IND:
     TIMING GUARD FLAG                0           UNUSED
     SHORT CLD PARTY OFF-HOOK IND     0           UNUSED
     LONG DUR/SERV PTY CAPABILITY IND 0           UNUSED
     UNUSED                           0
     UNUSED                           0C
 STUDY IND:
     STUDY TYPE A                     0           UNUSED
     STUDY TYPE B                     2           NETWORK COMPLETION
     STUDY TYPE C                     0           UNUSED
     TEST CALL IND                    0           UNUSED
     UNUSED                           0
     ORIG/TERM NANP NUM IND           0           UNUSED
     OPERATOR SERV IND                0C          UNUSED
 CLD PTY OFF-HK:                      0C          CLD OFF-HOOK DETECTED
 SERVICE OBSERVED:                    0C          NONE
 OPER ACTION:                         0C          ANI, CUSTOMER DIALED CALL
 SERVICE FEATURE:                     000C        OTHER
 SIG DIGITS NEXT FIELD:               010C
 ORIG OPEN DIGITS 1:                  FFFFFFFFFF
 ORIG OPEN DIGITS 2:                  FFFFFFFFFF
 ORIGINATING CHARGE INFO:             FFFF
 DOMESTIC/INTL INDICATOR:             1C          DOMESTIC
 SIG DIGITS NEXT FIELD:               007C
 EXT TERM OPEN DIGITS 1:              000000008015555C
 EXT TERM OPEN DIGITS 2:              FFFFFFFFFFFFFFFF
 CONNECT TIME:                        1707089C    17:07:08.9
 ELAPSED TIME:                        000000026C 000000:02.6
 COMPLETION INDICATOR:                001C        COMPLETED: ANSWERED
 MODULE CODE:                         612C        EMMC
GENERIC DIGITS STRING 1:             308271706128000C
 GENERIC DIGITS STRING 2:            308271707086003C
MODULE CODE:                         000C       FINAL MODULE
```

The conference bridge DN is stored in the filed ‘EXT TERM OPEN DIGITS 1’ as 000000008015555c. In the module code 612 appended to the structure code, filed ‘GENERIC DIGITS STRING 1’ records the conference start date/time: 17:06:12.8 on Aug., 27, 2003. Field ‘GENERIC DIGITS STRING

2’ records the conference end date/time: 17:07:08.6 on Aug., 27, 2003 and the maximum ports used during this conference session: 3 ports.

Hardware Requirements or Dependencies

This feature uses conference circuits provide by six-party conference card on TDM side or UAS on IP side to implement conference bridge.

Software Requirements or Dependencies

N/A

Limitations and restrictions

- All changes to the conference bridge DN and other information should be done through table EMMCDATA. Any other method of changing the DN is not supported.
- The hardware resource in the switch is not guaranteed enough to support all reserved conference at the same time. If a large conference is supported by a UAS on CS2Kc, it is not possible to guarantee with absolute certainty that sufficient UAS ports will always be available to allow additional persons to join the conference. If an additional person tries to join a large conference at a time when a UAS port is not available, the system provides treatment (a reorder tone) to the user and leaves the existing conference intact. Same thing will happen on TDM side.
- Touch tone commands should be provided to the chair-person and invited participants to implement specific control to the conference. To provide touch tone commands, DTMF tone must be able to be detected during talking phase in a call. But implementing DTMF tone detection needs a lot of development effort, so touch tome commands functionality will leave as a potential function of this feature in the future.
- When a subscriber is being included in an Enhanced Meet-Me Conference, all flash activation/deactivation feature is forbidden.
- Multiple Appearance Directory Number (MADN) is forbidden while a subscriber is being included in the conference.

Interactions

- If these features have been activated (Three Way Call, Attendant Console, Station Controlled conference, Preset Conference, Directed Call Pickup, Call Forward, Simring) on a subscriber, it is not allowed to terminate on Enhanced Meet-Me Conference bridge DN.
- If a conferee has the call forward busy (CFB) feature, calls to the conferee are forwarded during the conference.
- 3-way call and call waiting will be disable if a user is in conference progress.

- When a subscriber is being included in an Enhanced Meet-Me Conference, feature Calling Number Delivery Blocking (CNDB), Calling Number Blocking (CNB), Calling Name and Number Blocking (CNNB) is allowed.

Applicable customer facing sections

Fault Management

Logs __N/A__

Alarms __N/A__

Configuration

Data Schema __X___

User Interface __N/A__

Element Management __N/A__

Security __N/A__

Service Order __N/A__

Office Parameters __N/A__

Accounting (includes AMA billing) __X___

Performance (includes operational measurements) __N/A__

Indicate with an X if you are completing the sections of the DDOC listed below. Indicate with "N/A" if these sections do not apply to this functionality.

Realtime __N/A__

Engineering Information __N/A__

Glossary

Term	Description
DN	Directory Number
EMMC	Enhanced Meet-Me Conference
UAS	Universal Access Server

Reference

a. AMA Formatter User's Guide

b. BR0781FN - Call Forwarding Remote Activation

Appendix

Datafill Example of UAS

To achieve proper audio node maintenance, the CM needs to know the number of conference and announcement terminals supported to allow this to be dynamically modified when needed.

```
TABLE SERVSINV
SRVSNAME SRVRNAME NUMTERMS OPTIONS
---------------------------------
AUD 1 GWC 96 2048 (3PORT 30) (6PORT 30) (ANNC 100) $


TABLE CLLI
CLLI ADNUM TRKGRSIZ ADMININF
----------------------------
UASCF6P 219 30 UAS_6_CONFERENCE
```

Example of Datafilling Conference Circuit on TDM Side

Enhanced Meet-Me Conference is based on six-way conferences. The example for datafilling conference circuit with a CTM card on TDM side is shown below:

```
TABLE CLLI
CLLI ADNUM TRKGRSIZ ADMININF
----------------------------
CF6P 110 20 6_CONF



TABLE PADDATA
PADKEY PAD1TO2 PAD2TO1
----------------------
CONF CONF 0 0



TABLE TMINV
TMNM FRTYPE FRNO SHPOS FLOOR ROW FRPOS LKDATA EQPEC LOAD EXECS SCTMLOC
-----------------------------------------------------------------------
CTM 0 TME 0 32 1 BB 0 0 10 6 0 1X81AA MTMKA02 MTMEX SINGLE_CARD MTM 1 10
```

```
TABLE CONF6PR
CNFCKTNO EXTRKNM TMTYPE TMNO TMCKTNO CARDCODE PADGRP
-------------------------------------------------
0 0 CTM 0 24 1X81AA CONF
```

Datafill Example of Announcements

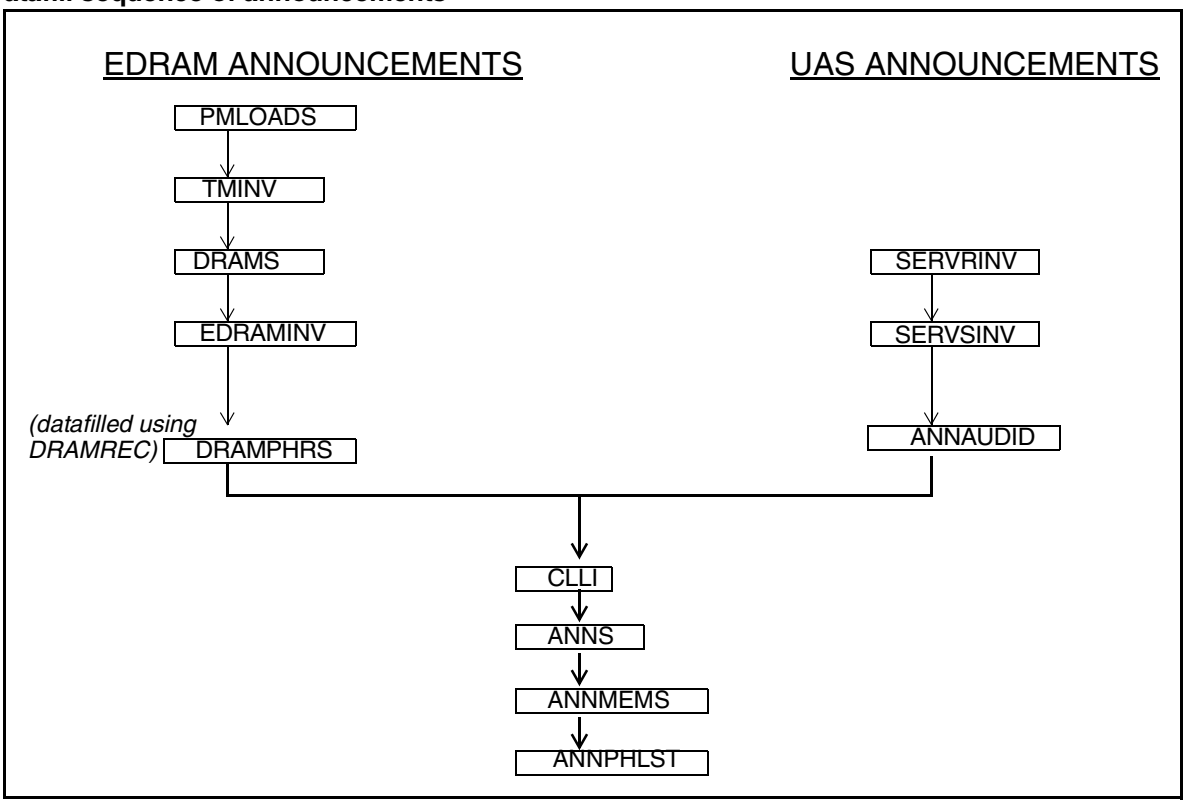
The datafill sequence for announcements is different on TDM side and IP side. The following example shows the datafill sequence with EDRAM announcements (TDM side) and UAS announcements (IP side).

```
TABLE ANNAUDID                                  %% Only for UAS announcements
PHRASEKY AUDID
--------------
EMMCGREE1 1210
EMMCPSWD  1211
EMMCREINPUT 1213
EMMCCHAIR 1214
EMMCINVITED 1215
EMMCERROR 1216
EMMCHELD 1217

TABLE DRAMPHRS                                  %% Only for EDRAM announcements
DRAM PHRSNAME PHRASENO BLOCK LENGTH RECORDED
-------------------------------------------
0 EMMCEGREE 25 2 6 Y N 11
0 EMMCPSWD 26 2 5 Y N 17
0 EMMCREINPUT 27 2 5 Y N 22
0 EMMCCHAIR 28 2 3 Y N 27
0 EMMCINVITED 29 3 6 Y N 5
0 EMMCERROR 30 3 4 Y N 11
0 EMMCHELD 31 3 5 Y N 16


TABLE CLLI
CLLI ADNUM TRKGRSIZ ADMININF
----------------------------
EMMCDEFAULT 345 10 EMMC_DEFAULT_GREETING
EMMCANN 478 10 EMMC_ANNOUNCEMENT
```

```
TABLE ANNS
CLLI ANNARCH TRAFSNO CYTIME MAXCYC DATA
---------------------------------------
EMMCDEFAULT NETWK 0 10 2 STND Y 30
EMMCANN NETWK 0 3 1 EMMC 10


TABLE ANNMEMS
ANNMEM HDWTYPE CARD MEMINFO
---------------------------
EMMCDEFAULT 0 UAS AUD 0 AUD 0                    %% This is for UAS announcements
EMMCDEFAUTL 1 DRAM DRA (1 DTM 1 1)               %% This is for EDRAM announcements
EMMCANN 0 DRAM DRA (0 DTM 2 1)                   %% This is for EDRAM announcements
EMMCANN 1 UAS AUD 0 AUD 1                        %% This is for UAS announcements

TABLE ANNPHLST
ANNPHKEY PHSLIST
----------------
EMMCDEFAULT 1 (EMMCEGREE) $                      %% for EDRAM announcements
EMMCDEFAULT 0 (EMMCGREE1) $                      %% for UAS announcements
EMMCANN 1 (LANGUAGE 1) (EMMCPSWD) $
EMMCANN 2 (LANGUAGE 1) (EMMCREINPUT) $
EMMCANN 3 (LANGUAGE 1) (EMMCCHAIR) $
EMMCANN 4 (LANGUAGE 1) (EMMCINVITED) $
EMMCANN 5 (LANGUAGE 1) (EMMCERROR) $
EMMCANN 6 (LANGUAGE 1) (EMMCHELD) $
```

The datafill above that is not designated specific for EDRAM or UAS announcements is for both types.

Datafill sequence of announcements



Datafill Example of Music

The music playing for the held participant is defined with a new audio group, the datafill example is shown below:

```
TABLE AUDIO

AUDIOKEY ROUTES

---------------

AUDIO10 EMMC (MUSIC MUSIC1 0)
```

Configuration for A00002901

Hardware and Software Requirements

NA

Initial Configuration

NA

Office/Subnet parameters (OP/SP) (CM & SESM)

NA

Upgrade Impact

NA

Data schema (DS) (CM, MIBS, RDB)

New/modified tables, MIBs, or Database Schema

Table/MIB name	NEW/CHANGED/ or DELETED/	Table Control (NEW/ OLD/UNCHANGED)
EMMCDATA	NEW	NEW

Table/MIB/Remote Database Schema information

Name: EMMCDATA

Functional description
This table is used for Enhanced Meet-Me Conference provisioning.

Usage sequence and implications (CM Only)
N/A.

Size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
EMMCDATA	0	8192	

Fields/OIDs
The following table lists fields/OIDs for EMMCDATA.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
LKEY	New		see subfields	EMMC table Key, this field consists of subfields SNPA, OFCCODE and STNCODE
		SNPA	serving_numbering_plan_area	area code of a DN
		OFCCODE	ofccode_digit_register	office code of a DN
		STNCODE	stncode_digit_register	station code of a DN

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
RESERVE	New		see subfields	The reservation type of the conference: timeless or schedule.
		RESERVED	SCHEDULE or TIMELESS	Selector. If the conference is reserved for the user to have a conference at any time, then enter TIMELESS and datafill no refinement is this field. If the conference is reserved for the user to have conference only at specific time, then enter SCHEDULE and datafill refinements SCHEDULE, STARTDAT, STARTTIM and ELAPSED.
SIZE	New	N/A.	numeric {3 TO 30}	Conference size. Specify the maximum allowed conferees in this conference.
CHAIPSWD	New	N/A.	6 digits code	Chair-person's password. Enter the 6 digit length password.
PARTPSWD	New	N/A.	6 digits code	Invited Participant's password. Enter the 6 digit length password. This password can not be the same as the one of chair-person's.
QUICKST	New	N/A.	Y or N (boolean)	Quick Start option. If the conference can start without the chair-person, enter Y. With this datafill, all participants enter before the chair-person will be placed on hold. If the conference must start with the chair-person entering, then enter N.
GREETING	New	N/A.	alphanumeric {a maximum of 16 characters}	Enter the CLLI name of the announcement defined for the greeting of this conference.
AUDIOGRP	New	N/A.	audio group	Enter the audio group name of the music which will be played while an invited participant is to be held.
ENDALARM	New	N/A.	{1 TO 10}	numeric range

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
CONTINUE	New	N/A.	Y or N (boolean)	Continue option. Enter Y if the conference can continue after the chair-person leaves. If the conference should drop after the chair-person leaves, Enter N.
BILLING	New	N/A.	Y or N (boolean)	Billing option. Enter Y for generating conference specific AMA log. Enter N for no specific AMA log generation.

RESERVED = SCHEDULE

If the entry in subfield is SCHEDULE, datafill refinement as described below.

Table field descriptions when RESERVED = SCHEDULE

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
		SCHEDULE	DAILY, WEEKLY, MONTHLY or NONPERIOD	Scheduled type of the conference. This field denotes the scheduled type of the conference being reserved. If the conference is reserved to be used during a specific time for each day, enter DAILY. If the conference is reserved to be used during a specific time and is able to be used on one day of each week, enter WEEKLY. If the conference is reserved to be used during a specific time and is able to be used on one day of each month, enter MONTHLY. If the conference is reserved to be used during a specific time and is only for once, enter NONPERIOD.
		STARTDAT	yyyymmdd	Conference start date. Enter the start date of this conference (year, month and day).
		STARTTIM	hhmm	Conference start time. Enter the start time of this conference (hours and minutes).

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
		ELAPSED	1 to 9999	Conference elapsed time. Enter the predefined elapsed time of this conference (in minutes).

Datafill example
The following example shows sample datafill for table EMMCDATA.

```
TABLE: EMMCDATA

LKEY RESERVE SIZE CHRPSWD PARTPSWD QUICK GREETING AUDIOGRP ENDALARM CONTINUE BILLING

---------------------------------------------------------------------

131 830 1000 SCHEDULE NONPERIOD 20030810 0930 60 6 111111 222222 Y EMMCOMPA AUDIO10 5
Y N

131 801 5555 TIMELESS 10 111111 222222 N EMMCOMPB AUDIO10 0 Y Y

131 830 2000 SCHEDULE DAILY 20030810 1130 60 6 111111 222222 Y EMMCOMPA AUDIO10 5 Y Y
```

Table release history update
New table EMMCDATA is added.

Supplementary information
N/A.

Translation verification other tools
N/A.

Product = CS 2000

A00002960 -- Originator Identification Screening (Succession on DMS)

Functional Description

This feature allows customers to block call terminations to certain ISUP EANT trunks when the Charge Number (CN) or Calling Party Number (CPN) identifiers are not available. The intent of this new functionality is to allow only calls with one of the originating identifiers to complete over certain ISUP EANT trunks. All other calls will advance to the next trunk in the route list.

Please refer to the following sections for additional information:

- “SOC Control: UTRS0011” on page 645
- “Table TRKOPTS: ORIGIDSCR” on page 645.
- “Call Processing” on page 645

SOC Control: UTRS0011

The new SOC order code UTRS0011, UCS Orig ID Screen, is introduced by this feature. When UTRS0011 is IDLE calls will not be blocked on any ISUP EANT trunks when the CPN or CN is not present. The new ORIGIDSCR option in Table TRKOPTS can be datafilled when SOC is IDLE. When UTRS0011 is ON certain calls can be blocked. For more information see “Call Processing” on page 645.

The functionality introduced by this feature has been patched in older releases under password activated patch ATM51. During ONP processes UTRS0011 will have STATE set to ‘ON’ if the old side has patch ATM51 applied and activated. Otherwise, the SOC is set to IDLE.

Table TRKOPTS: ORIGIDSCR

A new trunk group option, ORIGIDSCR, is introduced in Table TRKOPTS for ISUP EANT trunks only. This allows the customer to specify which ISUP EANT trunks perform originator identification screening. For more information see “Call Processing” on page 645.

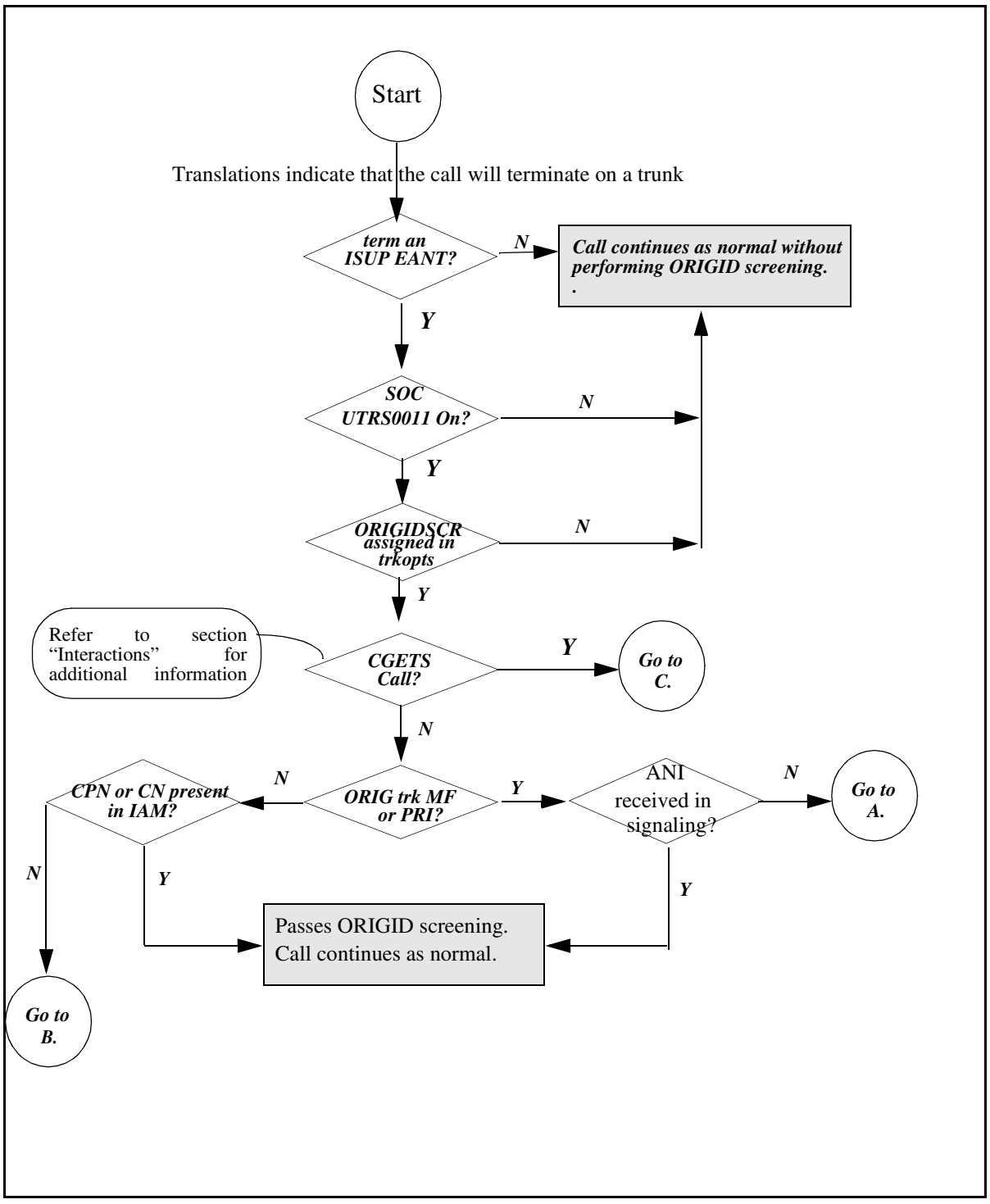
Table TRKOPTS Examples

```
TABLE: TRKOPTS
 ----------------------
TRK1 ORIGIDSCR ORIGIDSCR

When an attempt to add ORIGIDSCR to a trunk other than EANT type or an MF
EANT trunk the following error message is generated by table control:
TABLE: TRKOPTS
 ----------------------
*** ERROR - ORIGIDSCR can only be assigned to EANT ISUP trunks.

When an attempt to add ORIGIDSCR to an incoming trunk the following error
message is generated by table control:
TABLE: TRKOPTS
 ----------------------
*** ERROR - ORIGIDSCR can not be assigned to Incoming trunks.
```

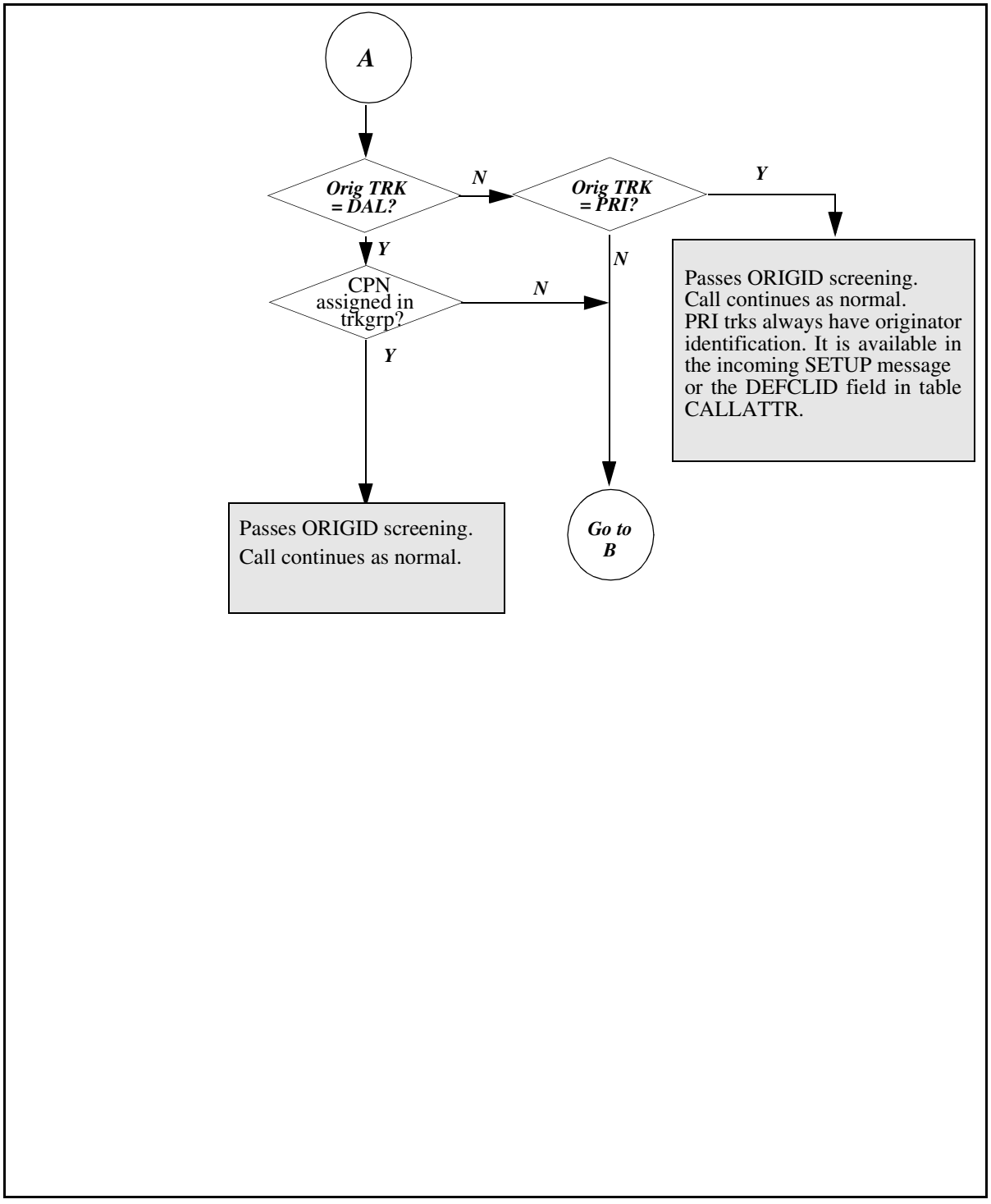
Call Processing

Call processing is enhanced to block call terminations on ISUP EANT trunks when ORIGIDSCR is assigned in Table TRKOPTS if the CN or CPN is not available from the incoming signaling or originator datafill. This feature is also controlled by SOC UTRS0011. Starting on page 646 is a detailed flow chart that describes the behavior of this feature.

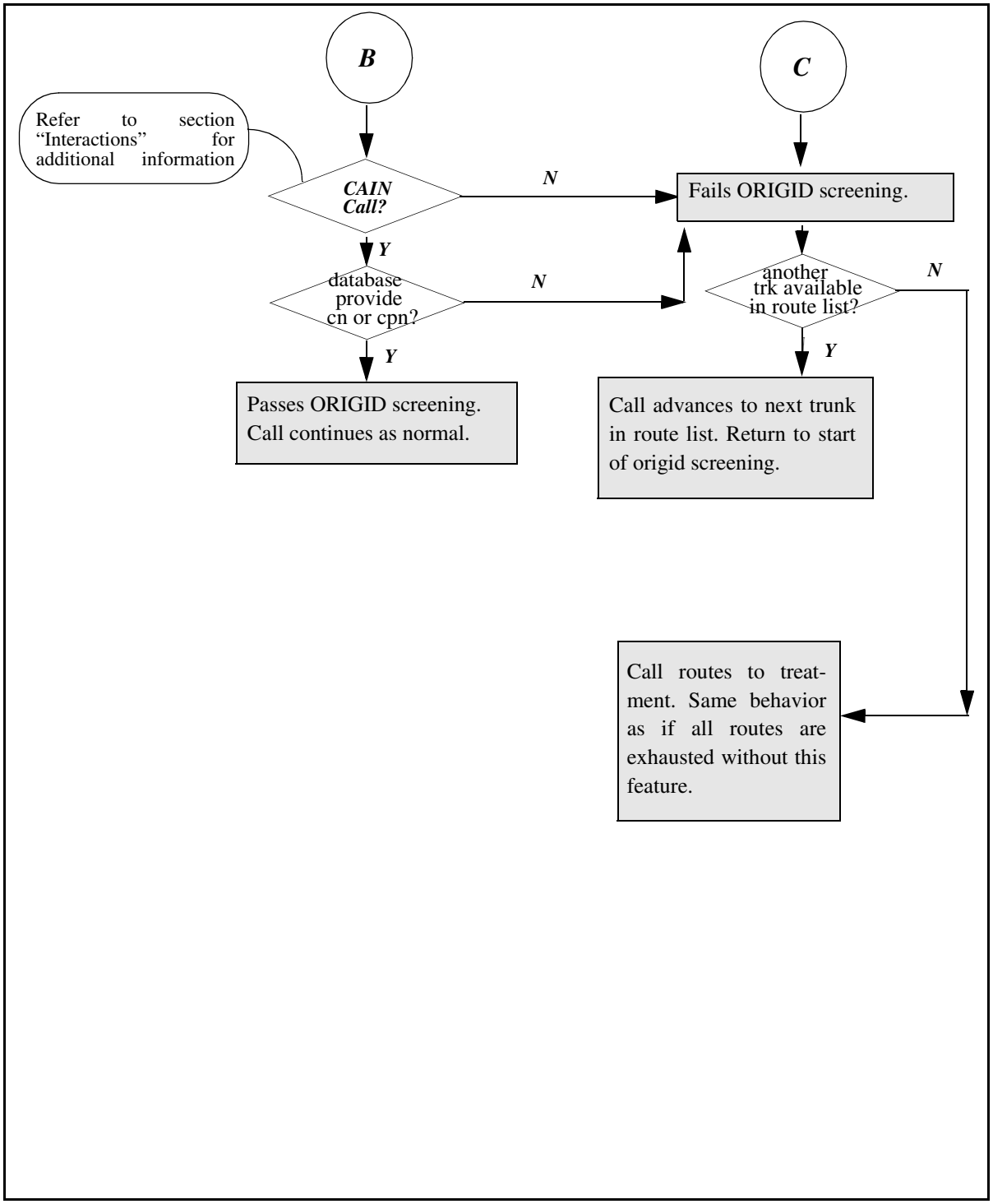
Originator Identification Screening Flow Chart



Originator Identification Screening Flow Chart - PART A



Originator Identification Screening Flow Chart - PART B



Hardware Requirements or Dependencies

None.

Software Requirements or Dependencies

None.

Limitations and restrictions

The new option ORIGIDSCR in Table TRKOPTS can only be assigned to 2w or outgoing ISUP EANT trunks. ORIGIDSCR can not be assigned to incoming ISUP EANT trunks.

This feature does not support interaction with Dynamically Controlled Routing (DCR.).

Interactions

Blocking of ANI delivery

This feature only considers if the CPN or CN is available from the incoming signaling or originator datafill. It does not consider if the originator or terminator has blocked delivery of this information in datafill. Therefore, the blocking of information has no impact on this feature. It is possible for originator screening to pass but the outgoing IAM to not contain CN or CPN because of one of the blocking features. Examples are:

Table RTEATTR	Datafill in Table RTEATTR can block sending out CPN, CN, and other parameters. It can also include CPN, CN, or other parameters.
IMT trunks: Table TRKGRP	Datafill in Table TRKGRP for IMT trunks can block sending out the CPN or CN with field CPIXFER.
EANT trunks: Table TRKGRP	Datafill in Table TRKGRP for EANT trunks can block sending out the CPN or CN with option TMANIDLV.
Tables ANISCUSP & UNIPROF	Datafill in both tables can block sending out the CPN or CN with field ANIDELV.

CAIN

CAIN calls can receive a CPN or CN from the SCP. If CPN and CN are not available from the incoming trunk then CAIN calls must check if the database supplied them.

Assume that SOC UTRS0011 is ON and the route determined by CAIN translations provides two possible trunks, TRK1 and TRK2. Only TRK1 has

the new ORIGIDSCR option assigned in Table TRKOPTS which is discussed in “Table TRKOPTS: ORIGIDSCR” on page 645. Neither incoming signalling nor the originator datafill provided the CPN or CN but CPN or CN was supplied by the database so the call can terminate on TRK1. If the CAIN database had not supplied CN or CPN the call would route advance to TRK2.

CGETS

This feature does not support the termination of CGETS calls on trunks with ORIGIDSCR assigned. If a CGETS call attempts to route over a trunk that has this feature activated it will always route advance.

Applicable customer facing sections

Fault Management	
Logs	___N/A___
Alarms	___N/A___
Configuration	
Data Schema	___X___
User Interface	___N/A___
Element Management	___N/A__
Security	___N/A__
Service Order	___N/A___
Office Parameters	___N/A___
Accounting (includes AMA billing)	___N/A__
Performance (includes operational measurements)	___N/A___
Realtime	___X___
Engineering Information	___X__

Glossary

ANI	Automatic Number Identification
CAIN	Carrier Advanced Intelligent Network
CGETS	Carrier Government Emergency Telecommunications System
CPN	Calling Party Number parameter of IAM
CN	Charge Number parameter of IAM

DAL	Dedicated Access Line
DCR	Dynamically Controlled Routing
EAEO	Equal Access End Office
EANT	Equal Access Network Trunk
IAM	Initial Address Message of the SS7 signalling
ISUP	Integrated Services digital network User Part
MF	Multi-Frequency
PRI	Primary Rate Interface
SOC	Software Optionality Control

Configuration for A00002960

Hardware and Software Requirements

In order to perform originator identification screening SOC UTRS0011 must be ON and the terminating ISUP EANT trunk must have ORIGIDSCR assigned in Table TRKOPTS.

Initial Configuration

This feature only impacts calls that terminate on ISUP EANT trunk.

Office/Subnet parameters (OP/SP) (CM & SESM)

N/A

Upgrade Impact

Dump and Restore

No special steps are required.

Element Management Upgrade

N/A

Data schema (DS) (CM, MIBS, RDB)

New/modified tables, MIBs, or Database Schema

Table/MIB name	NEW/CHANGED/ or DELETED/	Table Control (NEW/ OLD/UNCHANGED)
TRKOPTS	Changed	New

Table/MIB/Remote Database Schema information

Name: TRKOPTS

TRunK OPTionS

Functional description

A new trunk group option, ORIGIDSCR, is introduced in Table TRKOPTS for ISUP EANT trunks only. This allows the customer to specify which ISUP EANT trunks perform originator identification screening introduced by this feature.

Usage sequence and implications (CM Only)

Tables must be datafilled in the following sequence:

Current datafill order unchanged.

Size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
TRKOPTS	0	131072	Dynamically Allocated

Fields/OIDs

The following table lists fields/OIDs for TRKOPTS impacted by this feature.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
OPTION	Changed	Refinement	ORIGIDSCR refinement is added	New option is ORIGinator IDentificaton SCreening.

Datafill example

The following example shows sample datafill for table TRKOPTS.

Table TRKOPTS Examples

TABLE: TRKOPTS

TRK1 ORIGIDSCR ORIGIDSCR

When an attempt to add ORIGIDSCR to a trunk other than EANT type or an MF EANT trunk the following error message is generated by table control:
TABLE: TRKOPTS

*** ERROR - ORIGIDSCR can only be assigned to EANT ISUP trunks.

When an attempt to add ORIGIDSCR to an incoming trunk the following error message is generated by table control:
TABLE: TRKOPTS

*** ERROR - ORIGIDSCR can not be assigned to Incoming trunks.

Table release history update
Added option ORIIDSCR option for ISUP EANT trunks. This allows the customer to specify which ISUP EANT trunks perform originator identification screening.

Supplementary information
None

Translation verification other tools
Table TRKOPTS is not diplayed in TRAVER.

Service Orders (SO) (CM & SESM)

N/A

Software optionality control (SOC)

SOC

SOC option name:	UCS ORIG ID SCREEN
SOC option title:	Yes
SOC option control type:	usage
New SOC option?	Yes
SOC option order code	UTRS0011
Option defined in DRU:	UCS

SOC

Affected products:	SN07

Element Management

N/A

Command interface changes

N/A

Security

N/A

Configuration Walkthrough

In order to perform originator identification screening SOC UTRS0011 must be ON and the terminating ISUP EANT trunk must have ORIGIDSCR assigned in Table TRKOPTS.

Product = CS 2000

A00002966 -- Base Re-architecture Phase 2 (Succession on DMS)

Functional Description (FN)

The feature is a follow-up to Base Re-architecture Phase 1 which re-architected the SDM platform software to decouple the AIX specific software from the common base software and port it from AIX compiler to open sourced GCC compiler. The common base software can be compiled across multi-platforms, such as AIX, Sun, and be used by SDM and CBM products.

The following major functions are expected to be ported from the SDM to the CBM in the feature:

- **Passthru users using SSH/telnet:** this functionality enables customers to access the Core/CM by logining the CBM through telnet/SSH client software. The user will be automatically forwarded to the Core/CM or the destination configured for the user. No command can be initiated on the CBM by passthru class users. The user interface for managing the passthru users is described in the FN of the feature A00002822 - User Interface Manager for CBM.
- **Restrict shell for maint class users:** all maint class users on the CBM are using the restrict shell to meet security requirement. It uses pretty much the same mechanism as in the SDM except that unix standard man pages are used instead of SDM-own fashioned help command. The user interface for

managing the maint class users is described in the FN of the feature A00002822 - User Interface Manager for CBM.

- **Cbmgather tool:** an equivalent platgather tool, which is called cbmgather, is developed on the CBM. The difference from platgather is that the cbmgather doesn't collect the platform specific information, such as splitmode related log, FXgather, etc.

In addition to the porting work, the following new enhancements to the SDM or/and the CBM are expected to be completed in the feature:

- Add querytape subcommand in the apply level of sdmmtc for the SDM to retrieve the version information from the specified tape. It has the following syntax:

  querytape <dat0 | dat1 >

  dat0: tape drive in the domain 0

  dat1: tape drive in the domain 1

  The help information can be obtained through the help subcommand in the apply level.

- Add a new option to platgather/cbmgather to specify number of days' logs to be collected in order to accommodate some special need when the entire custlog and designlog files are expected to be collected. The new option looks like as follows:

  platgather -n <# of days' log> for the SDM

  cbmgather -n <# of days' log> for the CBM

  Where the number ranges from 1 to 7.

- Provide the capability for the passthru users themselves to change their own passwords for the SDM and the CBM. The functionality is requested from our customers and will eliminate the need of administrative users to change the passwords for the passthur users when they want.

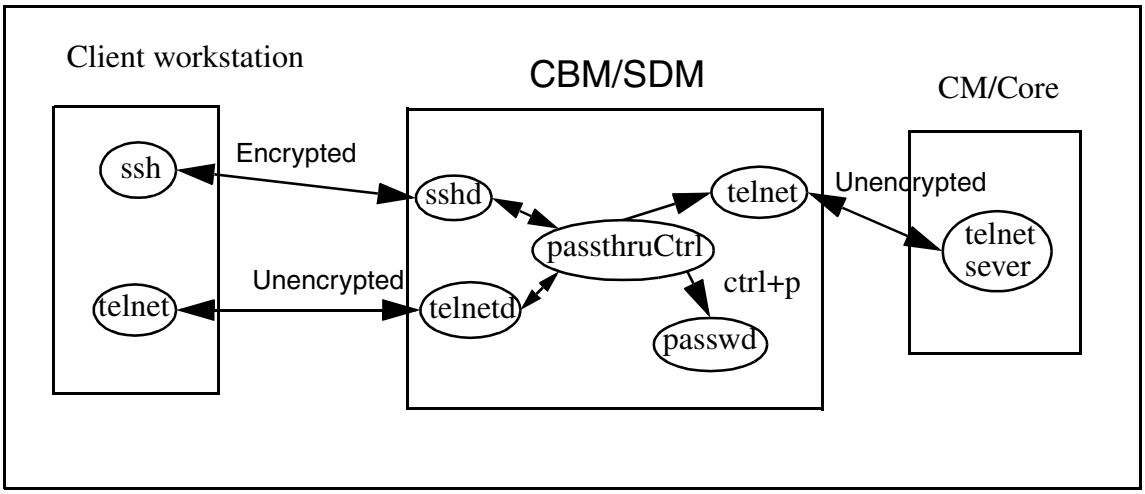
  The following figure shows how the passthru users work on the CBM/SDM.

Functional behavior diagram for passthru users using telnet/ssh

- List, add, change and modify the passthru users through the command line tool - passthru.

Hardware Requirements or Dependencies

SSPFS platform hardware and FX



Software Requirements or Dependencies

SSPFS platform software and SDM

Limitations and restrictions

Passthru users don't support the slicing on the CBM in the current release

Interactions

NA

Applicable customer facing sections

Fault Management

- Logs __N/A____
- Alarms __N/A____

Configuration

- Data Schema __N/A____
- User Interface __N/A____
- Element Management __N/A____
- Security __N/A____
- Service Order __N/A____
- Office Parameters __N/A____

Accounting (includes AMA billing) __N/A____

Performance (includes operational measurements) __N/A____

Glossary

Term	Description
CBM	Core and Billing Manager
CM	Computing Module
SDM	Supernode Data Manager

Product = CS2000

A00002979 -- Panther Electronic Software Delivery (Succession on DMS)

Functional Description

The PMUPGRADE DMS tool is part of the PANTHER initiative to automate the peripheral module (PM) software upgrade process for DMS switches. PM software upgrades are tedious and time consuming for Nortel customers, usually performed over several off-hour maintenance shifts. PANTHER's goals with respect to the PM software upgrade process are to:

- simplify
- reduce interval
- reduce cost
- improve quality

The purpose of this feature (Feature Number: A00002979) is to update and verify the unreleased CSP10 feature SD0910 so that it is able to be safely released and sustained in the current TDM and Succession environments. This is necessary to ensure the proper working of this feature with the new products and functionality that have been introduced since SD0910 was originally developed (e.g. SPM, XA-Core, etc.)

The purpose of the original CSP10 feature SD0910 was to supplement the PMUPGRADE tool for the electronic delivery of PM upgrade files to the DMS switch. Electronic software delivery (ESD) will contribute to interval and cost reduction of the PM upgrade process. This will allow Nortel customers to deploy new services and conform to changing regulatory requirements in a timely fashion and at a reasonable cost.

The PM upgrade process consists of three phases:

- administration of the new PM upgrade release files (PM load files, PM patch files, and the PM patch cross-reference file) by the PMUPGRADE tool
- production of a recommended PM upgrade plan by the PMUPGRADE tool
- execution of this upgrade plan by the SWUPGRADE PM tool

Feature SD0910 was designed to supplement the PMUPGRADE tool to support the electronic delivery of new PM upgrade files to the DMS switch during the file administration phase of the PM upgrade. The PMUPGRADE design component which deals with physical DMS volumes and files is extended to handle connections to remote FTP volumes. The traditional tape delivery of PM upgrade files remains fully supported by PMUPGRADE. Electronic software delivery helps reduce the need for site access to the DMS switch by customer personnel during the PM upgrade process. This promotes remote activation and supervision of the PM upgrade process.

Feature Limitations

Panther does not handle electronic software delivery of DMS-Core load files. Only PM loads and patches are handled by Panther. However, it is possible to manually transfer DMS-Core load files via FTP when initiating the file transfer from the DMS.

Secure File Transfer (SFT - NTP 297-5051-304 “SuperNode Data Manager Secure File Transfer User Guide” for more information) is currently not supported to transfer files between the DMS-Core and SDM when the file transfer is initiated from the DMS-Core. Therefore, in order for Panther ESD to access the SDM remote FTP volumes, the SDM will need to support normal or anonymous FTP protocol.

Hardware Requirements or Dependencies

None

Software Requirements or Dependencies

None

Limitations and restrictions

The electronic software delivery capabilities provided to PANTHER by features SD0910 and A00002979 is only supported on DMS switches which have TCP/IP connectivity via a SDM.

Interactions

None.

Applicable customer facing sections

Fault Management

Logs _____

Alarms _____

Configuration

Data Schema _____

User Interface __X___

Element Management _____

Security _____

Service Order _____

Office Parameters _____

Accounting (includes AMA billing) _____

Performance (includes operational measurements) _____

Glossary

Term	Description
CSP	Communications Services Platform
DMS	Digital Multiplexing System
ESD	Electronic Software Delivery
FTP	File Transfer Protocol
PANTHER	PM upgrade automation initiative
PM	Peripheral Module
PMUPGRADE	DMS tool for PM upgrade automation (file administration and upgrade planning phases)
SDM	SuperNode Data Manager
SPM	Spectrum Peripheral Module
SWUPGRADE PM	DMS tool for PM upgrade automation (upgrade execution phase).
TDM	Time Division Multiplexing
XA-Core	Extended Architecture Core

Configuration for A00002979

Hardware and Software Requirements

Initial Configuration

Office/Subnet parameters (OP/SP) (CM & SESM)

Upgrade Impact

Data schema (DS) (CM, MIBS, RDB)

Service Orders (SO) (CM & SESM)

Software optionality control (SOC)

Element Management

Command interface changes

Directory: PMUPGDIR

Directory description

The PMUPGRADE CI allows users to prepare and plan for the upgrade of peripherals in the office.

Accessing directory: PMUPGDIR

Access to directory or MAP level and return to CI

To access PMUPGDIR from the CI environment, enter >PMUPGRADE

To return to the CI environment, enter >quit

Command: SET

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

The LOADDISTRIB and PATCHDISTRIB options of the SET command are extended to support electronic software delivery via FTP as described below.

A complete description of the SET command can be found in the "Commands" subsection of the "Overview of automated update process" section of the following NTP:

North American DMS-100 Peripheral Module Software Release Document, NTP 297-8981-599

Command syntax

SET command parameters and variables

Command	Parameters and variables
SET	<Set options> <new values>
Parameters and variables	**Description**
<Set options>	LOADDISTRIB: The source of the load files to be copied. PATCHDISTRIB: The source of the patch files to be copied.
<new values>	ftp://<SDM_IP_address><directory_location>

Qualifications and warnings

None.

Responses

The LOADDISTRIB and PATCHDISTRIB options of the SET command will allow the crafts person to specify remote FTP volumes as PM load and patch distribution volumes.

The name of a **remote FTP volume** looks like:

```
ftp://<SDM_IP_address><directory_location>
```

where **<SDM_IP_address>** designates the IP address of the SDM containing the PM upgrade files to be copied, and **<directory_location>** designates where on the SDM the PM upgrade files are stored.

SET LOADDISTRIB and PATCHDISTRIB

MAP outputs with associated meanings and actions

Command
>**SET LOADDISTRIB 'ftp://<SDM_IP_address_1><directory_location_1>'** The current PMUPGRADE settings are: **Load File Distribution: ftp://<SDM_IP_address_1><directory_location_1>** Load File Destination: S00DPMLOADS **Patch File Distribution: S00T** ISN Patch Destination: SFDEV XPM Patch Destination: SFDEV Confirmation: ON IncludeLoads: ExcludeLoads: >**SET PATCHDISTRIB 'ftp://<SDM_IP_address_2><directory_location_2>'** The current PMUPGRADE settings are: **Load File Distribution: ftp://<SDM_IP_address_1><directory_location_1>** Load File Destination: S00DPMLOADS **Patch File Distribution: ftp://<SDM_IP_address_2><directory_location_2>** ISN Patch Destination: SFDEV XPM Patch Destination: SFDEV Confirmation: ON IncludeLoads: ExcludeLoads: **Meaning:** The crafts person has requested PMUPGRADE to set the load distribution volume and patch distribution volume to be remote FTP volumes. System or user actions: PMUPGRADE sets the load distribution volume and patch distribution volume as requested, and displays the new settings. **Note**: Because of DMS command interpreter restrictions, the remote FTP volumes must be enclosed in single quotes as shown in the example above.

Example

Usage examples for SET command

Description of task	The crafts person request PMUPGRADE to set the load distribution volume and patch distribution volume to be remote FTP volumes.

Usage examples for SET command

Command: MAP response:	>**SET LOADDISTRIB 'ftp://10.1.2.3/NA08/pm-loads'** The current PMUPGRADE settings are: **Load File Distribution: ftp://10.1.2.3/NA08/pm-loads** Load File Destination: S00DPMLOADS **Patch File Distribution: S00T** ISN Patch Destination: SFDEV XPM Patch Destination: SFDEV Confirmation: ON IncludeLoads: ExcludeLoads: >**SET PATCHDISTRIB 'ftp://10.1.2.3/NA08/pm-patches'** The current PMUPGRADE settings are: **Load File Distribution: ftp://10.1.2.3/NA08/pm-loads** Load File Destination: S00DPMLOADS **Patch File Distribution: ftp://10.1.2.3/NA08/pm-patches** ISN Patch Destination: SFDEV XPM Patch Destination: SFDEV Confirmation: ON IncludeLoads: ExcludeLoads

Command: START

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

The FILECOPY phase of the START command is extended to support electronic software delivery via FTP as described below.

A complete description of the START command can be found in the "Commands" subsection of the "Overview of automated update process" section of the following NTP:
North American DMS-100 Peripheral Module Software Release Document, NTP 297-8981-599

Command syntax

START command parameters and variables

Command	Parameters and variables
START	<Start phases>

START command parameters and variables

Command	Parameters and variables
Parameters and variables	**Description**
<Start phases>	FILECOPY: Will copy load files and patches required to upgrade the peripherals on the switch.

Qualifications and warnings

None.

Responses

Remote FTP volume login

MAP outputs with associated meanings and actions

Command
>START FILECOPY **Please enter the username and password for the remote FTP volume:** **ftp://<IP_address_1><directory_location_1>** **Username? <username_1>** **Password? <password_1>** **Please enter the username and password for the remote FTP volume:** **ftp://<IP_address_2><directory_location_2>** **Username? <username_2>** **Password? <password_2>** **Meaning:** The crafts person has requested PMUPGRADE to begin the FILECOPY phase of the PM upgrade process. The FILECOPY phase of the START command will allow the crafts person to copy PM load and patch files from remote FTP volumes to the destination volumes on the DMS switch. **System or user actions:** Because the load distribution volume and patch distribution volume are remote FTP volumes, PMUPGRADE prompts the crafts person to supply usernames and passwords. The crafts person enters the usernames and passwords for the remote FTP volumes. Notes: Up to two retries will be provided by PMUPGRADE for the username and password prompts in case the original supplied values are not valid.

Example

Usage examples for START command

Description of task:	
Command: MAP response:	>START FILECOPY **Please enter the username and password for the remote FTP volume:** **ftp://10.1.2.3/NA08/pm-loads** **Username? nortel-esd** **Password? <password>** **Please enter the username and password for the remote FTP volume:** **ftp://10.1.2.3/NA08/pm-patches** **Username? nortel-esd** **Password? <password>**

Security

Configuration Walkthrough

Product = CS 2000

A00003073 -- SimRing Deny Redirection (SRDR) (Succession on DMS)

Functional Description (FN)

SimRing is a terminating end office feature. It resides in the Pilot DN's terminating end office and allows a user defined group of up to five DNs to be alerted simultaneously when a specific member (pilot DN) of this group is called. The SimRing group is comprised of a single Pilot DN (PDN) and up to 4 Non-Pilot Member DNs (NPMDNs or MDNs). The first alerted DN that answers the call is connected to the calling party, and the other alerted DNs are released.

This feature, SimRing Deny Redirection (SRDR), enhances SimRing by providing an optional method to allow a SimRing call to forward based only on the Pilot DN's call forwarding options. The NPMDNs are not allowed to

forward the call. Without this option the NPMDNs behavior is unchanged, i.e., they are allowed to forward based on the call forwarding options on the NPMDN.

Hardware Requirements or Dependencies

No new hardware dependencies are introduced by this feature.

Software Requirements or Dependencies

Redirection Framework.

Limitations and restrictions

1. The NPMDN's terminating switch must not forward a call which has been marked as having been previously forwarded five (5) times.

   This feature relies on the terminating switch of the NPMDN to adhere to the following standards by not forwarding a call which has already been forwarded five times.

   — GR-586-CORE, *LSSGR: Call Forwarding Subfeatures (FSD 01-02-1450)*

   3.1.1.2.A *Subfeature Construction and Assignment* CFDA: The sequential forwarding limit is five.

   — TR-NWT-000972, *Call Forwarding Subfeatures: Switching System Requirements Using Signaling System No. 7 (SS7)*

   3.1.1.4.D *Sequential Forwarding* Within the SS7 network or tandem SS7 networks the total number of all (intra and inter-switch) forwardings for each call should be limited. A count of the number of sequential forwardings is kept in the Redirection Counter field in the Redirection Information parameter.

   3.1.3.1 *Sequential Forwarding Limit Reached* When the call ... has already been forwarded five times which is the sequential CF limit ... the call should not be forwarded...

2. SRDR is not compatible with a NPMDN terminating end office that uses any overflow or redirection that ignores the redirection/sequential-forwarding counter (for example RCF).

3. SRDR is not compatible with any SCP query/response which results in the modification of the redirection count.

   For example, after the PDN-NPMDN call leg leaves the PDN's office, it is possible for an SSP (i.e., a tandem office in the network or the NPMDN's terminating office) to query an SCP and receive a message, analyze_route for example, with instructions for the SSP to reset the redirection count.

4. For inter-office PDN-NPMDN call legs, SRDR is supported when the connection between the Pilot DN's office and the NPMDN's office is ISUP all the way, PRI all the way, or ISUP/PRI interworking. It is not supported for any other network topology.
5. For inter-office PDN-NPMDN call legs, the existing office parm REDIRECTION_FRAMEWORK in table OFCVAR must be set to Y.
6. SRDR is not compatible with AIN, i.e. if AIN trigger is added to the NPMDN member calls to the pilot of the SimRing will be forwarded even though the SRDR is set to "N".
7. SRDR is not compatible with the following features when NPMDN and forwarded to DN are in the same office:
   - RCF (Remote Call Forwarding)
   - LOD (Line Overflow to Directory number)
   - LOR (Line Overflow to Route)
   - SCMP (Series Completion)
   - DNH (Directory Number Hunt)
   - KSH (Key Short Hunt)

Interactions

1. For the PDN-NPMDN leg, when member_dn_redir_allowed is set to NO, the call is made to look as if five redirections have taken place. Therefore, subsequent AIN queries on the PDN-NPMDN leg will include redirection parameters.
2. For calling number delivery, the EBS NPMDN will display the pilot DN and No Ans Fwd as the redirecting DN/reason when the pilot and NPMDN are in the same customer group but in separate offices connected over an ISUP IBN trunk.
3. If the Simring Redirection bool is set to 'NO' on a Simring group that has member DNs that route via ISUP/PRI trunk to a business set agent capable of displaying a REASON, then that set will display a REASON of Call Forward Don't Answer along with the calling party ID. With the Simring Redirection bool set to 'YES' the display of the terminating business set will not display a REASON of Call Forward Don't Answer.

Applicable customer facing sections

Fault Management

Logs ____n/a__

Alarms ____n/a__

Configuration

Data Schema	____x__
User Interface	____n/a__
Element Management	____n/a__
Security	____n/a__
Service Order	____x__
Office Parameters	____n/a__
Accounting (includes AMA billing)	____n/a__
Performance (includes operational measurements)	____n/a__
Realtime	___x___
Engineering Information	___x__

Glossary

Term	Description
DNH	Directory Number Hunt
EBS	Electronic Business Set
KSH	Key Short Hunt
LOD	Line Overflow to Directory number
LOR	Line Overflow to Route
MDN	Member Directory Number
NPMDN	Non Pilot Member Directory Number
PDN	Pilot Directory Number
RCF	Remote Call Forwarding
SCMP	Series Completion
SCP	Service Control Point
SimRing	Simultaneous Ringing
SRDR	SimRing Deny Redirection feature
SSP	Service Switching Point

Configuration for A00003073

Hardware and Software Requirements

SimRing Deny Redirection feature requires Redirection Framework.

No new hardware is required.

Initial Configuration

Set existing redirection_framework office parm to Y.

```
TABLE: OFCVAR
PARMNAME PARMVAL
----------------
REDIRECTION_FRAMEWORK Y
```

Office/Subnet parameters (OP/SP) (CM & SESM)

No office parameter is added or modified by this feature.

Upgrade Impact

Dump and Restore

Reformat Procs will be written to deal with table KSETFEAT and IBNFEAT changes during ONP. The new added field (REDIRECTION) will have the default value of “ALLOWED”. This will ensure that the existing SimRing feature in the switch will work the same as before.

Element Management Upgrade

N/A

Data schema (DS) (CM, MIBS, RDB)

New/modified tables, MIBs, or Database Schema

Table/MIB name	NEW/CHANGED/ or DELETED/	Table Control (NEW/ OLD/UNCHANGED)
IBNFEAT	changed	unchanged
KSETFEAT	changed	unchanged

Table/MIB/Remote Database Schema information

Name: IBNFEAT

Functional description

This feature adds a Redirection subfield to the SimRing line option datafilled in table IBNFEAT. When this option has a value of Not_allowed on a SimRing pilot DN then the resultant NPMDN legs are not allowed to call forward.

Usage sequence and implications (CM Only)

Current datafill order unchanged.

Size

Current table size is unchanged.

Fields/OIDs

The following table lists the new subfield for SimRing line option in IBNFEAT.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
Redirection	NEW	none	allowed /not_allowed	SimRing Deny Redirection Allowed assigned to this subfield of simring group option indicates that NPMDN terminators with active call forwarding are allowed to redirect calls. Not_Allowed assigned to this subfield of simring group option indicates that NPMDN terminators are not allowed to call forward.

Datafill example

The following example shows sample datafill for table IBNFEAT line option SimRing.

```
TABLE: IBNFEAT
>
>list
LEN DNNO DF FEATURE DATA
------------------------
HOST 01 0 00 00 0 SIMRING SIMRING 0 ACT FALSE $
>cha
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
>y
FEATURE: SIMRING
>
GRPKEY: 0
>
STATE: ACT
>
REDIRECTION: ALLOWED
>not_allowed
PIN: $
>
TUPLE TO BE CHANGED:
HOST 01 0 00 00 0 SIMRING SIMRING 0 ACT NOT_ALLOWED $
```

Table release history update
A subfield, Redirection, added to the SimRing group option.

Supplementary information
None.

Translation verification other tools
Not applicable.

Name: KSETFEAT

Functional description
This feature adds an Redirection subfield to the SimRing line option datafilled in table KSETFEAT. When this option has a value of Not_allowed on a SimRing pilot DN then the resultant NPMDN legs are not allowed to call forward.

Usage sequence and implications (CM Only)
Current datafill order unchanged.

Size
There is no change to the table size.

Fields/OIDs

The following table lists fields/OIDs for KSETFEAT.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
Redirection	NEW	none	allowed /not_allowed	SimRing Deny Redirection Allowed assigned to this subfield of simring group option indicates that NPMDN terminators with active call forwarding are allowed to redirect calls. Not_Allowed assigned to this subfield of simring group option indicates that NPMDN terminators are not allowed to call forward.

Datafill example

The following example shows sample datafill for table KSETFEAT line option SimRing.

```
TABLE: KSETFEAT
>list
FEATKEY FEATURE KVAR
--------------------
ISDN 1 1 SIMRING SIMRING 1 ACT ALLOWED $
>cha
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
>y
FEATURE: SIMRING
>
GRPKEY: 1
>
STATE: ACT
>
REDIRECTION: ALLOWED
>not_allowed
PIN: $
>
TUPLE TO BE CHANGED:
ISDN 1 1 SIMRING SIMRING 1 ACT NOT_ALLOWED $
```

Table release history update
A subfield, SRDR, added to the SimRing group option.

Supplementary information
None.

Translation verification other tools
Not applicable.

Service Orders (SO) (CM & SESM)

Service order change details

LCC and options

New commands

This activity adds a new option “REDIRECTION” to the existing SimRing group commands. The commands that can be used to datafill SimRing are the standard ADO, DEO, CHF, EST, ADD, and DEL commands. The following table describes what the new prompt is for each of the ServOrd commands.

Command	Prompting
ADO	• **Redirection** • PIN
DEO	• No new prompt
CHF	• state • **Redirection** • PIN
EST	• NPMDNs • State • **Redirection** • PIN
ADD	• No new prompt
DEL	• No new prompt

How service order commands are presented

No new commands added

ExampleCommand prompts

The system prompts for EST and CHF commands are shown in order of their appearance.

How service order options are presented

Description

For SimRing, EST and CHF commands are changed in order to have the new “REDIRECTION” option. Other than that crafts person will not see any other changes.

Example

Example of the EST command in prompt mode

```
>est
SONUMBER:    NOW   3  7 16 AM
>
GROUPTYPE:
>simring
SIMRING_PILOT_LEN_OR_DN:
>6213510
SIMRING_MEMBER_DN:
>6213511
SIMRING_MEMBER_DN:
>$
SIMR_STATE: INACT
>act
REDIRECTION:
>allowed
SIMR_PIN:
>123
COMMAND AS ENTERED:
EST NOW 3 7 16 AM SIMRING 6213510 ( 6213511 ) $ ACT ALLOWED 123
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
>y
MACHINES ARE OUT OF SYNC, SERVICE ORDERS NOT ALLOWED
JOURNAL FILE IS INACTIVE, SERVICE ORDERS NOT ALLOWED
SHOULD ORDER BE DONE ANYWAY? (Y OR N)
>y
```

Example of the EST command in no-prompt mode

```
est $ simring 6213510 6213511 $ act allowed 123 y y
```

Example of the CHF command in prompt mode

```
>chf
SONUMBER:    NOW   3  7 16 AM
>
DN_OR_LEN:
>6213510
OPTION:
>simring
SIMR_STATE: INACT
>act
REDIRECTION:
>allowed
SIMR_PIN:
>123
OPTION:
>$
COMMAND AS ENTERED:
CHF NOW 3 7 16 AM 6213510 ( SIMRING ACT ALLOWED 123 ) $
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
COMMAND AS ENTERED:
EST NOW 3 7 16 AM SIMRING 6213510 ( 6213511 ) $ ACT ALLOWED 123
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
>y
MACHINES ARE OUT OF SYNC, SERVICE ORDERS NOT ALLOWED
JOURNAL FILE IS INACTIVE, SERVICE ORDERS NOT ALLOWED
SHOULD ORDER BE DONE ANYWAY? (Y OR N)
>y
```

Example of the CHF command in prompt mode

chf $ 6213510 simring **allowed** 123 $ yy

Option prompts

System prompts for Redirection field of SimRing option

Prompt	Valid input	Description	Areas affected by prompt
REDIRECTION	ALLOWED	NPMDN with active call forwarding are allowed to redirect calls.	This change only affects NPMDNs with active call forwarding (CFA, CFD, CFB)
	NOT_ALLOWED	NPMDN with active call forwarding are not allowed to forward calls.	

Line class code compatibility

No change to SimRing option / LCC compatibility.

Redirection compatibility to LCC

Line class code	Compatible?
N/A	
1FR-1MR	Yes/No

Assignability

Redirection option is SimRing group option.

Option prerequisites

Redirection option is part of the SimRing group option and can not be added to any lines.

Notes

n/a

Feature identification

n/a

SERVORD+ Exceptions

n/a

Software optionality control (SOC)

No new SOC is introduced by this feature.

Element Management

Not applicable.

Command interface changes

Command: QSIMR

This feature modifies the display of QSIMR. It adds an indication that Redirection is allowed/not allowed on the SimRing group.

Security

This feature does not impact security.

Configuration Walkthrough

See " Service Orders (SO) (CM & SESM)" on page 674 for configuration details.

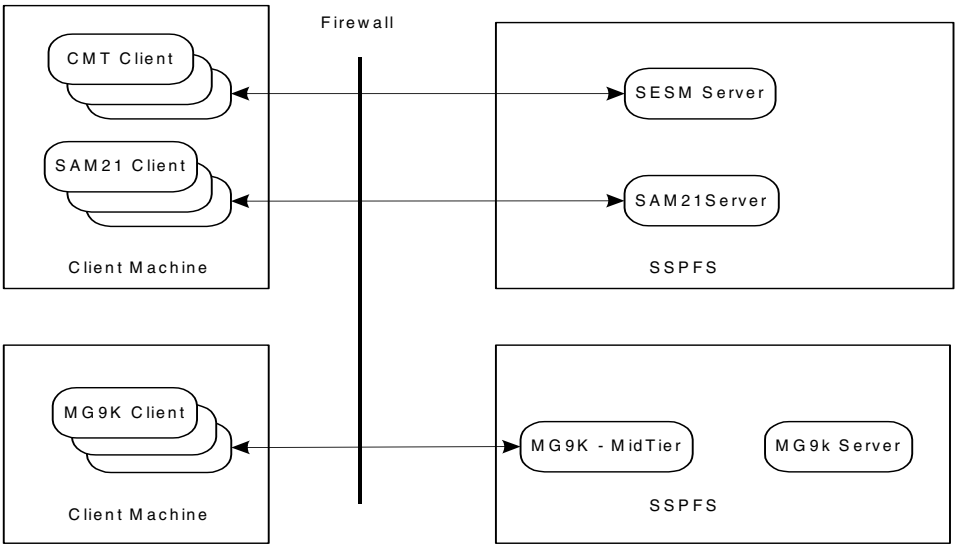
Product = CS 2000

A00003454 -- Secure and Firewall Compatible CS2M and UE9KEM Client GUI Communication (UA-AAL1)

Functional Description

The primary purpose for this feature is to facilitate firewall protection for traffic for the Succession OAM&P GUI Client/Server communication, the Succession GUI's will work even with the addition of a firewall in the customer network. Along with sending the data through a firewall, the data will also be encrypted.

Purpose of A00003454



This was done with the addition of a SOCKS proxy on the client and server machines. The Succession GUI's will send all messages to a SOCKS proxy listening on a specific port on the client machine. The client SOCKS proxy will send all the messages to a SOCKS proxy listening on a specific port on the server machine.

There are two things that have customer impact.

1. Configuring the client and server ports.
2. Starting, stopping, and getting the status of the SOCKS proxy on the server machine.

The applications that are covered with this activity include the CMT, SAM21 EM, and MG9K EM GUI's.

Configuration

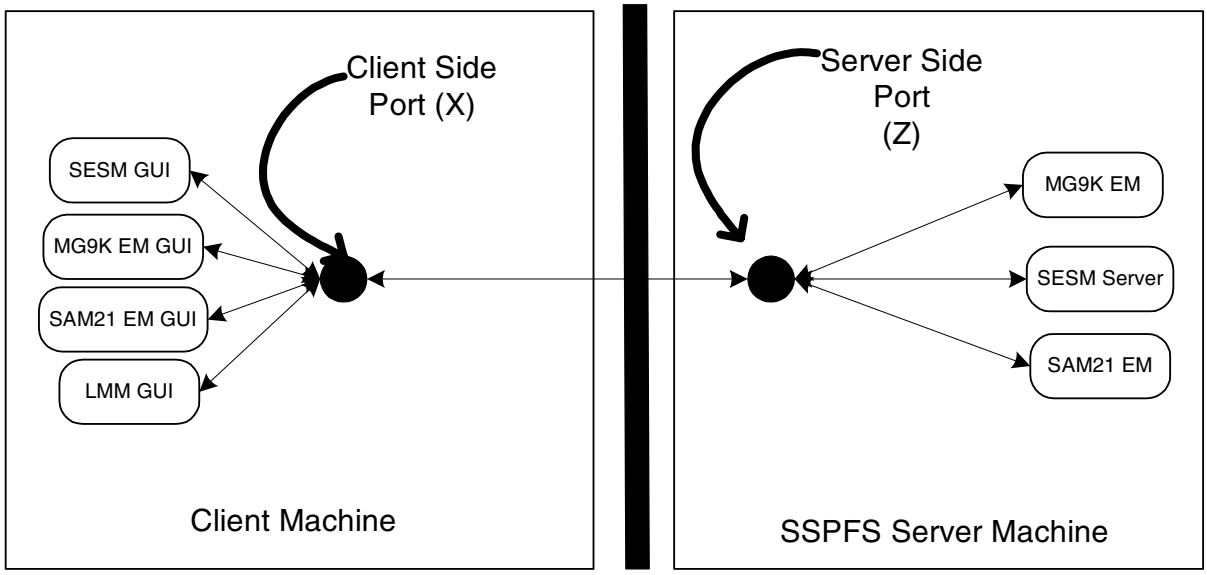
There is one changed command the customer will use to configure this feature, the *cli* command. The function that will be added is to configure the port and to list the currently used ports.

- A port on the SSPFS server machine used to receive all requests from clients.
- A port on the client machine that concentrates all requests from the client to the server.
- A port on the client machine to receive all the requests from the Succession GUI applications.

The following figure depicts the ports configured. Each of the ports has a default value. If the default value is acceptible, it is not necessary to configure

the ports with the cli command. If the default value is not the value required, the cli command is used to change these ports.

Ports configured



FIREWALL

The port configuration takes place on each SSPFS server the SOCKS software is used on. The SSPFS machines that would require configuration are those that contain the GUI's covered by this feature.

As shown, the Server Side Port, referenced as Z will be configured using the *cli* command. This is the port that requests from all client machines will be concentrated to. If a firewall is in place, the Server Side port Z must be opened to allow these messages through. The default value for this port is 10080. It is recommended that port 10080 is used, but if it is necessary to change, the software on the server machine will ensure there are no port collisions on the SSPFS machine by verifying that the port is not in file /etc/services. All SSPFS server machines must configure this to the same value.

The Client Side port, referenced as X will also be configured using the *cli* command. Upon startup of the client machines, the Succession GUI will connect to that port. This port is an internal port used only on the client machine. There is no firewall configuration necessary. All SSPFS machines must be configured to the same value. The default value for this port is 10080 and may be configured to a different value.

Consistent configuration of ports

The ports configured through the offices must be configured consistently across all offices in the network. If the ports are not configured consistently, the GUI's will not function correctly. See the troubleshooting section for information on incorrect behavior.

Port conflicts on server side

The ports on the server side will be added to the file /etc/services. If the port is already bound into /etc/services, the configuration will not be allowed. The list of ports in /etc/services is not exhaustive, and the customer should know the site-specific configuration of the SSPFS ports.

Note that in the MG9K case, the database host machine (as defined in the DB_HOST variable) must be upgraded to SN07 before the MG9K Midtier.

Start and Stop of server component

There is a new command added to start, stop, and restart the server side component that is listening on the Server Side port.

If the *cli* command is used to change the Server Side Port, the change takes effect immediately, as the the SOCKS server on the SSPFS machine is restarted.

Impacts to restarting SOCKS server

If the server side component is reconfigured or restarted, the clients GUI's covered by this feature will need to be restarted. Also, the following servers on the SSPFS where the SOCKS proxy is restarted will need to be restarted as well.

- MG9K Mid-Tier
- SAM21 EM
- Notification Service
- SESMService
- NPM
- PSE

Starting and stopping the SOCKS process using *servman*

The command servman will be use to start, stop, and query the status of the SOCKS server.

If the SOCKS server is stopped and then started, the Succession servers running on the same SSPFS machine will need to be restarted. The GUI clients that are active and communicating with the server will also need to be restarted.

Starting the SOCKS server

```
servstart SOCKS

SOCKS server successfully started

If servstart SOCKS does not work the following error
will be displayed.

The SOCKS server could not be started due to the port
<port number> is already in use. Verify the port is
not configured for another use.
```

Stopping the SOCKS server

```
servstop SOCKS

SOCKS server successfully stopped
```

Querying the SOCKS server

```
servquery -status -group SOCKS -v

SOCKS server RUNNING
```

If the SOCKS server is not running the result will be:

```
SOCKS server STOPPED
```

Hardware Requirements or Dependencies

There are no new hardware requirements added with the introduction of this feature.

Software Requirements or Dependencies

There are no new software requirements or dependencies added by this feature.

Limitations and restrictions

The Client Side ports as shown in Figure on page 681 must be free for the Succession GUI's shown to operate.

The Server Side port as shown in Figure on page 681 must be opened on a firewall that supports stateful packet inspection.

Reconfiguration of Server Side port requires server side Socks Proxy restart, EM restart, and client application restart.

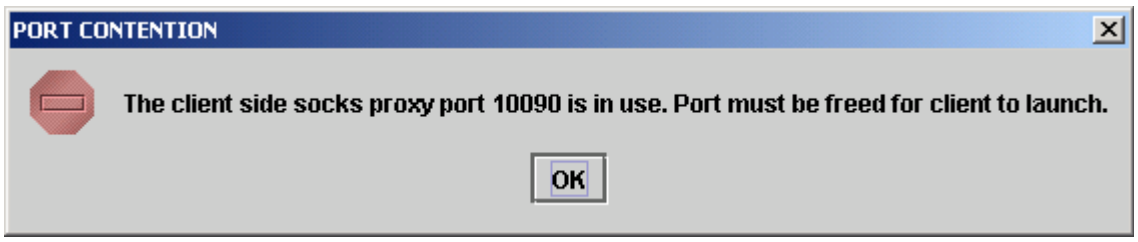
Troubleshooting

At times, there may be configuration errors which cause port contention on the client machine or servers configured with different ports. In both these cases a failure by the client to launch or connect will be encountered.

Client Port Binding Error

If the port on the client machine is already bound to another process then the client GUI will fail to start. If the port is already bound to another process, and the client will not start successfully, the following dialog to show there is a problem with a port contention:

Dialog specifying port contention upon startup on the client machine



The solution to this is to free the port in the client machine. Depending upon what type of client machine used, the solution will differ. Closing the application will free the port.

Server Configuration Errors

If there are server side configuration differences between offices there will be a failure of the GUI to connect to the server machine. If office A is configured for the server to listen on port 10080, and office B is configured for the server to listen on port 10090. If there are only GUI's launched to communicate with either office A or office B, there will be no problems. If GUI's are launched to communicate with both office A and B, then there will be a failure to communicate with one of the offices. The GUI that is launched to communicate with one office, say office A will work. If there are other GUI's launched to communicate with office A, those will also work. If there is a GUI launched to communicate with office B, those communications will fail.

The recourse to solving this problem is to verify if there is in fact a configuration error. If there is a configuration error, there are two ways to get the GUI's to launch correctly.

Re-Launch GUI's

If the GUI to server B, as described in the previous section needs to be launched, and the desire is to not reconfigure the server, the GUI's launched that are communicating with office A need to be closed.

After all the GUI's have been closed, re-launch the GUI to office B.

Re-Configure server

Reconfiguring the server is the best solution to this problem. Configure all the server side ports to the same value on all offices. Please see the CN section to determine how to reconfigure the server side ports.

Server side SOCKS Proxy not running

If the Socks Proxy is not running on the server side, the following dialog will be displayed.

Dialog specifying server side socks proxy is not running

Interactions

Launch sequence

When launching a Succession GUI, the succession GUI outline will launch and a new dialog will be shown. This dialog is shown so the user knows that the Client Side Socks Proxy is being launched.

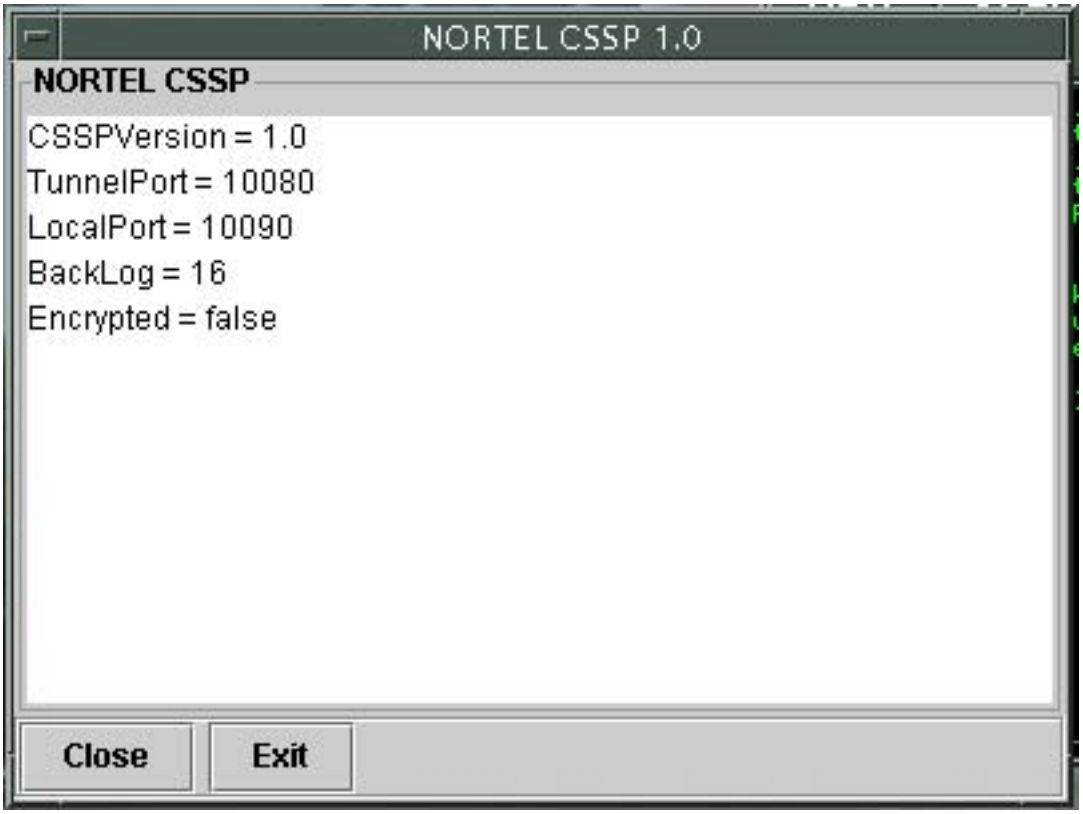
Dialog shown when Client Socks Proxy is being launched

When launching an application after starting this feature, the user will be prompted to allow a new Java Web Start application unrestricted access to the client machine, prior to launching a Succession GUI as follows:

Added Security Warning dialog when starting Succession GUI's

The client side SOCKS proxy has a small GUI that automatically opens up at the start of the first client application on the client machine. The GUI will automatically minimise itself, but may be opened to see parameters of the connection. The client side SOCKS proxy may be terminated also from this GUI by hitting the 'Exit' button. Note that hitting the 'Close' button only re-minimises the GUI; it does not terminate the client side SOCKS proxy. Note that the parameters cannot be changed; they are shown for reference only. The following figure shows an example of the GUI.

Nortel Client Side SOCKS Proxy GUI



Configuration for A00003454

Hardware and Software Requirements

There are no special hardware or software requirements.

Configuration

The initial configuration of this package is completed as part of the installation.

Following is an example of getting to the SOCKS configuration using *cli*. All following examples will presume the SOCKS configuration was successfully navigated to.

Starting the SOCKS configuration

```
>/opt/nortel/NTsocks/cli

Command Line Interface

 1 - View
```

```
 2 - Configuration
 3 - Other

 X - exit

select - 2



Configuration
 1 - NTP Configuration
 2 - Apache Proxy Configuration
 3 - DCE Configuration
 4 - OAMP Application Configuration
 5 - CORBA Configuration
 6 - IP Configuration
 7 - DNS Configuration
 8 - Syslog Configuration
 9 - Database Configuration
10 - NFS Configuration
11 - Bootp Configuration
12 - Restricted Shell Configuration
13 - Succession Element Configuration
14 - chg_tz (Change Timezone)
15 - login_session_timeout (Login Session Timeout
Configuration)
16 - snmp_poller (SNMP Poller Configuration)

 X - exit

select - 13
```

```
Succession Element Configuration
1 - SAM21EM Application Configuration
2 - NPM Application Configuration
3 - PSE Application Configuration
4 - OMPUSH Application Configuration
5 - SOCKS Configuration

 X - exit

select - 5



SOCKS Configuration
1 - SOCKS configuration tool
select - 1


The changes of the server side port is a disruptive
action. If the server side port is changed, the SOCKS
server and all dependant applications must be
restarted.
SOCKS ports in all offices must be configured the
same.  Misconfiguration will cause EMS clients to not
function.
Proceed with caution.
```

Successful configuration of the SOCKS ports using default values.

```
Enter the port the Server side SOCKS Proxy will
listen on. Value must be
within [1025 - 65535]. default value 10080.
Current value 10080[?,q]
```

```
Is port 10080 acceptable? [y] [y,n,?,q] y
```

```
Enter the port the Client side SOCKS Proxy will
listen to client requests. Value must be
within [1025 - 65535]. default value 10080.
Current value 10080.[?,q]

Is port 10080 acceptable? [y] [y,n,?,q] y
Ports Successfully configured
```

Entering a non-default value for both the server and client ports.

```
Enter the port the Server side SOCKS Proxy will
listen on. Value must be
within [1025 - 65535]. default value 10080.
Current value 10080 [?,q] 2334

Is port 2334 acceptable? [y] [y,n,?,q] y

Configuring the SOCKS server side port requires a
restart of the SOCKS server and all dependent
applications, are you sure you want to change the
configuration? [y] [y,n,?,q] y

The SOCKS server and dependent applications must be
restarted to take effect.

Enter the port the Client side SOCKS Proxy will
listen to client requests. Value must be
within [1025 - 65535]. default value 10080 [?,q] 3445
```

```
Is port 3445 acceptable? [y] [y,n,?,q] y


Clients already running Succession GUI's must be
restarted to use this new port, are you sure you want
to change the configuration? [y] [y,n,?,q] y

Ports Successfully Configured
```

Entering invalid port ranges for both server and client ports

```
Enter the port the Server side SOCKS Proxy will
listen on. Value must be

within [1025 - 65535]. default value 10080 [?,q] 111


Invalid entry:Value must be within [1025 - 65535]


Enter the port the Server side SOCKS Proxy will
listen on. Value must be

within [1025 - 65535]. default value 10080 [?,q]
65555


Invalid entry:Value must be within [1025 - 65535]


Enter the port the Server side SOCKS Proxy will
listen on. Value must be

within [1025 - 65535]. default value 10080 [?,q]
45544



Is port 45544 acceptable? [y] [y,n,?,q] y



Configuring the SOCKS server side port requires a
restart of the SOCKS server and all dependent
```

```
applications, are you sure you want to change the
configuration? [y] [y,n,?,q] y


The SOCKS server and dependent applications must be
restarted to take effect.



Enter the port the Client side SOCKS Proxy will
listen to client requests. Value must be

within [1025 - 65535]. default value 10080 [?,q] 111


Invalid entry:Value must be within [1025 - 65535]


Enter the port the Client side SOCKS Proxy will
listen to client requests. Value must be

within [1025 - 65535]. default value 10080 [?,q]
555555


Invalid entry:Value must be within [1025 - 65535]


Enter the port the Client side SOCKS Proxy will
listen to client requests. Value must be

within [1025 - 65535]. default value 10080 [?,q] 4536



Is port 4536 acceptable? [y] [y,n,?,q] y


Clients already running Succession GUI's must be
restarted to use this new port, are you sure you want
to change the configuration? [y] [y,n,?,q] y

Ports Successfully Configured
```

Product = CS2000

A00003459 -- GWC Lifecycle: SSC & Application Datasync Support (UA-AAL1)

Functional Description

This activity covers a part of the SSC re-architecture work. It has four main design components:

- Add new alarm for succession SYSB line.
- Generate a new log when the above alarm is raised/cleared.
- Add a new pm sublevel for LGRP and
- Raise alarm when there are LGRPs in SYSB state.

New alarm for SYSB lines

This alarm will only be supplied to Succession office. The class of the alarm (MINOR, MAJOR, or CRITICAL) will be displayed in the system status display area under the header Lns of the mapci display (i.e. under Lns header of mapci;mtc). Here is the map window:

```
XAC       MS      IOD      Net       PM      CCS      Lns      Trks     Ext      APPL
 .        .        .        .         .        .     LGRP       .        .        .
                                                     *C*

   MTC
  0 Quit
  2
  3 MTCNA
  4 SRSTATUS
  5 BERP
  6 CAPACITY
  7
  8
  9 XAC
 10 MS
 11 IOD
 12 Net
 13 PM
 14 CCS
 15 Lns
 16 Trks
 17 Ext
 18 APPL
   YD
 Time  10:56  >
```

Currently, the alarm for Lns has four types: CUT, DF, HAZ, PSPD. Accordingly, the alarm is displayed using the following characters for the combination of alarms of the same severity:

{ 1}: ‘CUT ’
{ 2}: One of the following diagnostic failure alarms: ‘Diag’, ‘Fac ‘, ‘SDiag’, ...

{ 3}: ‘CT DF’
{ 4}: ‘HZD ’
{ 5}: ‘HZ CT’
{ 6}: ‘HZ DF’
{ 7}: ‘H C D’
{ 8}: ‘PSPD ’
{ 9}: ‘CT PS’
{10}: ‘PS DF’
{11}: ‘C P D’
{12}: ‘HZ PS’
{13}: ‘H C P’
{14}: ‘H P D’
{15}: ‘HCPD ’

With the new addition of SYSB alarm, the following character display will be used to indicate the multiple alarms occuring at a given time:

New alarm display

	CUT	DF	HAZ	PSPD	SYSB
‘SYSB ‘					X
‘CT SB’	X				X
‘DF SB’		X			X
‘CD SB’	X	X			X
‘HZ SB’			X		X
‘CH SB’	X		X		X
‘DH SB’		X	X		X
‘CDHSB’	X	X	X		X
‘PS SB’				X	X
‘CP SB’	X			X	X
‘DP SB’		X		X	X
‘CDPSB’	X	X		X	X
‘HP SB’			X	X	X
‘CHPSB’	X		X	X	X
‘DHPSB’		X	X	X	X
‘CDHPS’	X	X	X	X	X

The alarm will only be applied to succession lines (excluding ABI) in the entire office. The severity of the alarm is based on the alarm thresholds, which are set independently. A new office parameter **SYSBALARM** will be created in table OFCVAR. The new office parameter will have a default value {10, 20, 30} which will be set at IPL time and will survive all restarts.

AlmStat at the LTP level will be changed to display and modify the threshold of SYSBALARM. The new display of this command without parameter will look like the following:

```
OFFICE TOTALS

             OFFICE LINE FAILURE TOTALS

                          OFFICE   OFFICE OFFICE OFFICE
                          CURRENT  MINOR  MAJOR  CRITICAL
 Ext   Diag Fail   (D)     1       10     20      30
 Facility Fault    (F)     0       10     20      30
 Short Diag Fail   (S)     0       10     20      30
 Needs Ext  Diag   (N)     0       10     20      30
 Set Missing    (MSET)     0       10     20      30
 Card Missing (MCARD)     7       100    150     200
 Shower Queue (QUEUE)     0       100    150     200
 Major ICMOLINE(IMAJ)     0       100    150     200
 Minor ICMOLINE(IMIN)     0       100    150     200
 Loop Sig Set  (LSET)     0       100    150     200
 Loop Sig Card(LCARD)     0       100    150     200
 TCM sync loss     (T)    0       100    150     200
 Loop Performance (P)     0       100    150     200
 Major CPERROR (CMAJ)     0       5      10      15
 Minor CPERROR (CMIN)     0       5      10      15
 Major RapidMSG(OMAJ)     0       10     20      30
 Minor RapidMSG(OMIN)     0       10     20      30
 Utility Card      (U)    0       100    150     200
 State = PLO    (PSPD)    6       10     20      30
 State = HAZ (HAZARD)     0       0      1       10
 State = SYSB (SYSB)      6       10     20      30

......
```

where 6 in this example is the total number of SysB lgrp lines in the office.

Use the following command to change the SYSB threshold:

AlmStat SYSB minor_value major_value critical_value

The input values must be in ascending order, or the command will be rejected. User could also change the threshold via table OFCVAR, but a warning will be displayed on the MAP: “WARNING: This parameter should only be changed using the ALMSTAT command at the LTP”.

This alarm can be disabled by changing the threshold to (0 0 0) via table control on table ofcvar. Again, a warning message will be displayed for this action.

New log for SYSB line alarm

A new log LINE 811 will be generated when the alarm is raised or cleared. The format of the log will be as below:

RTP7 *** LINE 811 DEC01 17:45:14 2000 THR LNS ALARM
Category: Communications
Cause: thresholdCrossed
Severity: CRITICAL
ThresholdID: SYSB_LINES

RTP7 ** LINE 811 DEC01 17:45:14 2000 THR LNS ALARM
Category: Communications
Cause: thresholdCrossed
Severity: MAJOR
ThresholdID: SYSB_LINES

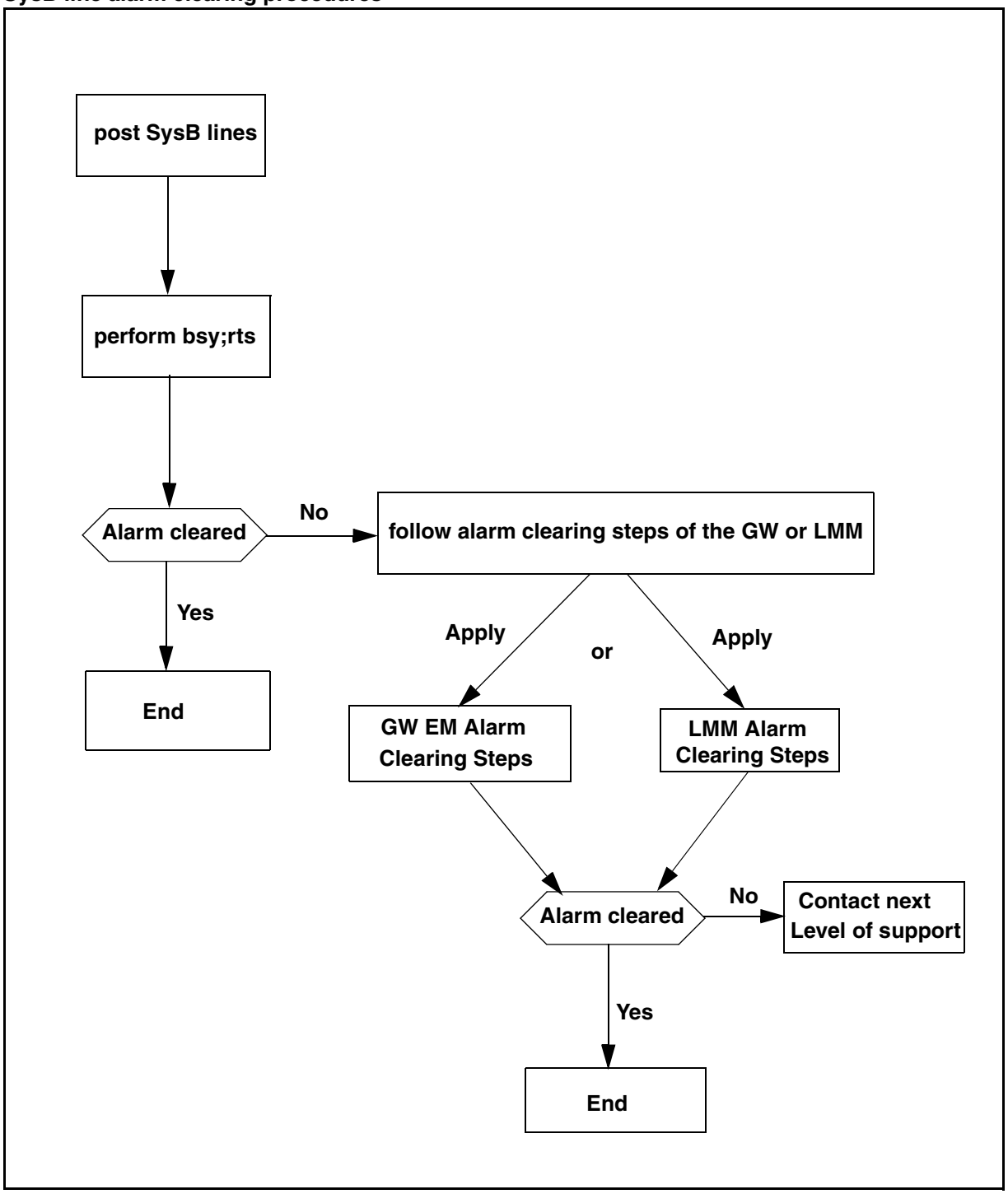
RTP7 * LINE 811 DEC01 17:45:14 2000 THR LNS ALARM
Category: Communications
Cause: thresholdCrossed
Severity: MINOR
ThresholdID: SYSB_LINES

RTP7 LINE 811 DEC01 17:45:14 2000 THR LNS ALARM
Category: Communications
Cause: thresholdCrossed
Severity: CLEAR
ThresholdID: SYSB_LINES

SysB lns alarm clearing procedures

Please refer to the summary flowchart depicted in the following figure to clear the SysB Lns alarm:

SysB line alarm clearing procedures



Note: For MG9K, the alarm clearing procedures are documented in A00005016.

LGRP maintenance

This feature will provide a new lgrp maintenance support on the core. The following lists the work items to be done:

- lgrp pm map interface support to allow user to post lgrp nodes and perform maintenance action against the posted lgrp node
- lgrp SysB alarm support
- support for new lgrp map maintenance commands: bsy, rts, offl and QueryPM

New pm map level for lgrp

User will be able to post LGRP under the PM maintenance level. The map window is very similar to other LCDs:

```
  XAC       MS      IOD      Net       PM      CCS      Lns      Trks     Ext      APPL
   .        .        .        .      2lgrp     .        .        .        .        .
                                      *C*
LGRP                                 SysB     ManB     OffL     CBsy     ISTb     InSv
 0 Quit           PM                    4        0        0        0        0        0
 2 Post_          LGRP                  2        0        0        0        0        0
 3 Listset
 4             LGRP: LG   00 0       SysB       Links_OOS:  Cside  0
 5
 6             POST:
 7 Bsy
 8 Rts
 9 OffL
10
11 Disp_
12 Next
13
14 QueryPM
15
16
17
18
   YD
Time  09:05  Pref>
```

The state of the posted lgrp will be displayed, so does the total numbers of LGRPs in each state.

Command Bsy, Rts, and Offl can only be issued for the large node lgrp (i.e. only for a lgrp of S type).

Bsy command

Command Bsy will send a man_bsy message to GWC. The map will wait for an ACK from gwc with 5 second timer. Upon receiving man_bsy message, GWC will disable the heartbeat between MG9K and GWC, and send an man_bsy_ack message back to the core. Upon receiving the ACK, Bsy

command will kill all the calls and change the node state to ManB. If timeout occurs, the core will send bsy force request to gwc and change the node state to ManB.

Bsy nowait command will also be supported. This command does the same thing as Bsy command but user gets the prompt back immediately.

This command can only be issued on a node state of OFFLINE, SYSTEM BUSY, or INSERVICE.

Rts command

Command Rts will send man_rts message to gwc and wait for an ACK. Upon receiving man_rts message from the core, gwc will reenable the heartbeat between MG9K and GWC, and send man_rts_ack (if service-change-disconnected message is received from MG9K) back to the core.

If man_rts_ack message is received, the map process will handle it as tid-idle message is received (i.e. change the state to Insv and send down the line state table to gwc, etc). Map display will be updated accordingly.

If 90-second timeout occurs, a “TIMEOUT ON WAIT FOR REPLY FROM GWC” message will be displayed on the map and no state change will occur.

Rts force command will do the same thing as Rts, except that it does not wait but immediately change the node state to SysB.

Rts nowait command allows the user to get the prompt back immediately.

Rts force nowait command does the same thing as Rts force.

Rts command can only be issued on a ManB state.

Offl command

Command Offl will take the lgrp posted to unequipped state. It can only issued from ManB state.

> ***Note:*** The lgrp node state will be set to OFFL (like most of the PM nodes are) after the node provisioning. User will need to perform manual action in order to bring the node into service.

QueryPM command

Command QueryPM will show the posted LGRP node data information:

```
  XAC       MS      IOD      Net       PM      CCS      Lns      Trks     Ext      APPL
   .         .        .        .     2lgrp      .        .        .       .         .
                                     *C*
LGRP                                 SysB     ManB     OffL     CBsy     ISTb     InSv
 0 Quit           PM                    4        0        0        0        0        0
```

```
 2 Post_        LGRP                2       0       0      0       0       0
 3 Listset
 4           LGRP: LG   01 0      SysB      Links_OOS:  Cside  0
 5
 6           QueryPM
 7 Bsy       PM Type: LGRP  PM No: 81  Int. No: 1  HOSTNN: 72
 8 Rts       Cside Host Name: GWC  6
 9 OffL      Cside Host IP:  172.16.112.56
10           FrmType   Flr   RowPos   FrmPos   ShlfPos
11 Disp_     MG9F        2     ZZ       3        0
12 Next
13
14 QueryPM
15
16
17
18
  YD
Time  09:12  Pref>
```

New pm alarm for LGRP

The new alarm will be displayed under the PM banner and will be raised when there are LGRP nodes that are in SysB (machine busy).

The severity of this alarm will follow the rule of existing PM alarms: If the number of SysB lgrp exceeds 10 percent of the total pm in the office of all types, set the alarm class to CRITICAL. Otherwise, set the alarm to MAJOR if there is at least one SysB lgrp. The alarm will be cleared only when the state of all lgrp nodes is changed to other state (via Bsy or Offl command).

lgrp alarm clearing procedures

The most common reason of lgrp sysb alarm is due to OOS (Out of Service) of MG9K or due to state mismatch between the lgrp node in the core and the MG9K VMG the lgrp represents. User should use the alarm clearing procedure in A00005015 as the guide for clearing the alarm. If none of them clears the sysb alarm in the core, call GNPS for next level support.

Hardware Requirements or Dependencies

N/A

Software Requirements or Dependencies

N/A

Limitations and restrictions

N/A

Interactions

N/A

Applicable customer facing sections

Fault Management

- Logs __X____
- Alarms __X____

Configuration

- Data Schema __X____
- User Interface __X____
- Element Management _____
- Security _____
- Service Order _____
- Office Parameters __X____

Accounting (includes AMA billing) _____

Performance (includes operational measurements) _____

Glossary

Term	Description
New term	Definition
LMM	Line Maintenance Manager
GW	Gateway

References

1. “New VMG Out of Service Alarm”, A00005016MG9000_FM.fm
2. “CS2000 Line Test for MG9000 Lines” A00001888 in FMDOC

Configuration for A00003459

Hardware and Software Requirements

N/A

Initial Configuration

N/A

Office/Subnet parameters (OP/SP) (CM & SESM)

New/modified office/subnet parameters

Parm table	Parameter name	NEW/ CHANGED/ DELETED/ RELOCATED	Domain (CM or Subnet Management
OFCVAR	SYSBALARM	NEW	CM

Parameter information

SYSBALARM

System Busy Line Alarm

Functional description

Provides thresholds for sysb line alarm. It has three values: minor_threshold, major_threshold, critical_threshold. The unit of the threshold is Lines. Lns alarm under mapci;mtc will be updated when there is a threshold crossing over the threshold.

Provisioning rules

The default value of SYSBALARM is {10, 20, 30}. It can be changed via mapci;mtc;lns;ltp;almStat command:

AlmStat SYSB minor_value major_value critical_value.

To disable the alarm, user needs to use table OFCVAR change command to set the threshold values to {0, 0, 0}. User cannot use AlmStat command to disable the alarm.

Memory requirements

No memory impact.

Upgrade Impact

N/A

Data schema (DS) (CM, MIBS, RDB)

N/A

Service Orders (SO) (CM & SESM)

N/A

Software optionality control (SOC)

N/A

Element Management

N/A

Command interface changes

Directory: LGRP

Directory description

LGRP can be posted under mapci;mtc;pm level. This directory will display the lgrp name, state info. User can also Bsy, Rts, Offl, and QueryPM the lgrp node.

Accessing directory: mapci;,mtc;pm

Access to directory or MAP level and return to CI

To access lgrp CO10 20 0, type

mapci;mtc;pm;post lgrp CO10 20 0

Command: Bsy

Command type: Listed MENU

Command target: SUPERNODE

Command description

To change the lgrp state to ManB.

Command syntax

This command takes no parameter.

Qualifications and warnings

None

Responses

MAP outputs with associated meanings and actions

Command
<RESPONSE>: The state of the lgrp posted will be changed to ManB **System or user actions:** Example: bsy **Meaning:** To busy out the posted lgrp node **System or user actions:** If response is received from gwc, the lgrp state is changed to ManB and ‘Bsy is successful’ is displayed on the map. Otherwise, no state change will occur and “TIMEOUT ON WAIT FOR REPLY FROM GWC” message will be displayed on the map.

Command: Bsy force

Command type: Listed MENU

Command target: SUPERNODE

Command description

To change the lgrp state to ManB immediately.

Command syntax

Qualifications and warnings

None

Responses

MAP outputs with associated meanings and actions

Command
<RESPONSE>: The state of the lgrp posted will be changed to ManB **System or user actions:** Example: bsy nowait **Meaning:** To busy out the posted lgrp node while getting the CI prompt back immediately **System or user actions:** The lgrp state is changed to ManB and user gets the prompt back immediately.

Command: Offl

Command type: Listed MENU

Command target: SUPERNODE

Command availability:

Command description

To change the lgrp state to Offl.

Command syntax

This command takes no parameter.

Responses

MAP outputs with associated meanings and actions

Command
<RESPONSE>: The state of the lgrp posted will be changed to Offl **System or user actions:** Example: Offl **Meaning:** To Offl the posted lgrp node **System or user actions:** The lgrp state is changed to Offl and 'Offl is successful' is displayed on the map.

Command: Rts

Command type: Listed MENU

Command target: SUPERNODE

Command availability:

Command description

To change the lgrp state to Insv. It sends a message to GWC to activate the messaging between GWC and MG9K. Upon receiving the service-change-disconnected message from MG9K, GWC will send a message to the core. The state of the lgrp involved will then be changed to InSv.

Command syntax

user can issue rts, rts force, rts nowait, and rts force nowait. rts nowait allows the user to get the CI prompt back immediately. rts force also allows the user to get the CI prompt back immediately, but it sets the lgrp node state to SysB.

Command: Rts force

Command type: Listed MENU

Command target: SUPERNODE

Command availability:

Command description

To try to change the lgrp state to Insv without waiting for response from GWC. man-rts-mtc message will be sent to GWC. The state of the lgrp posted will be changed to SysB initially and will stay if no response is received from GWC.

It GWC responds to the lgrp_man_rts after it receives the service-change-disconnected message from MG9K, The core will change the lgrp node state to InSv from SysB and all the map will be updated.

Command: QueryPm

Command type: Listed MENU

Command target: SUPERNODE

Command availability:

Command description

To display the LGRP node data information.

Command syntax

This command takes no parameter.

Responses

MAP outputs with associated meanings and actions

Command
<RESPONSE>: The state of the lgrp posted will be changed to SysB **System or user actions:** Example: Rts **Meaning:** To Rtsthe posted lgrp node **System or user actions:** The lgrp state is changed to SysB and 'Rts is successful' is displayed on the map.

Security

N/A

Configuration Walkthrough

N/A

Product = CS2000

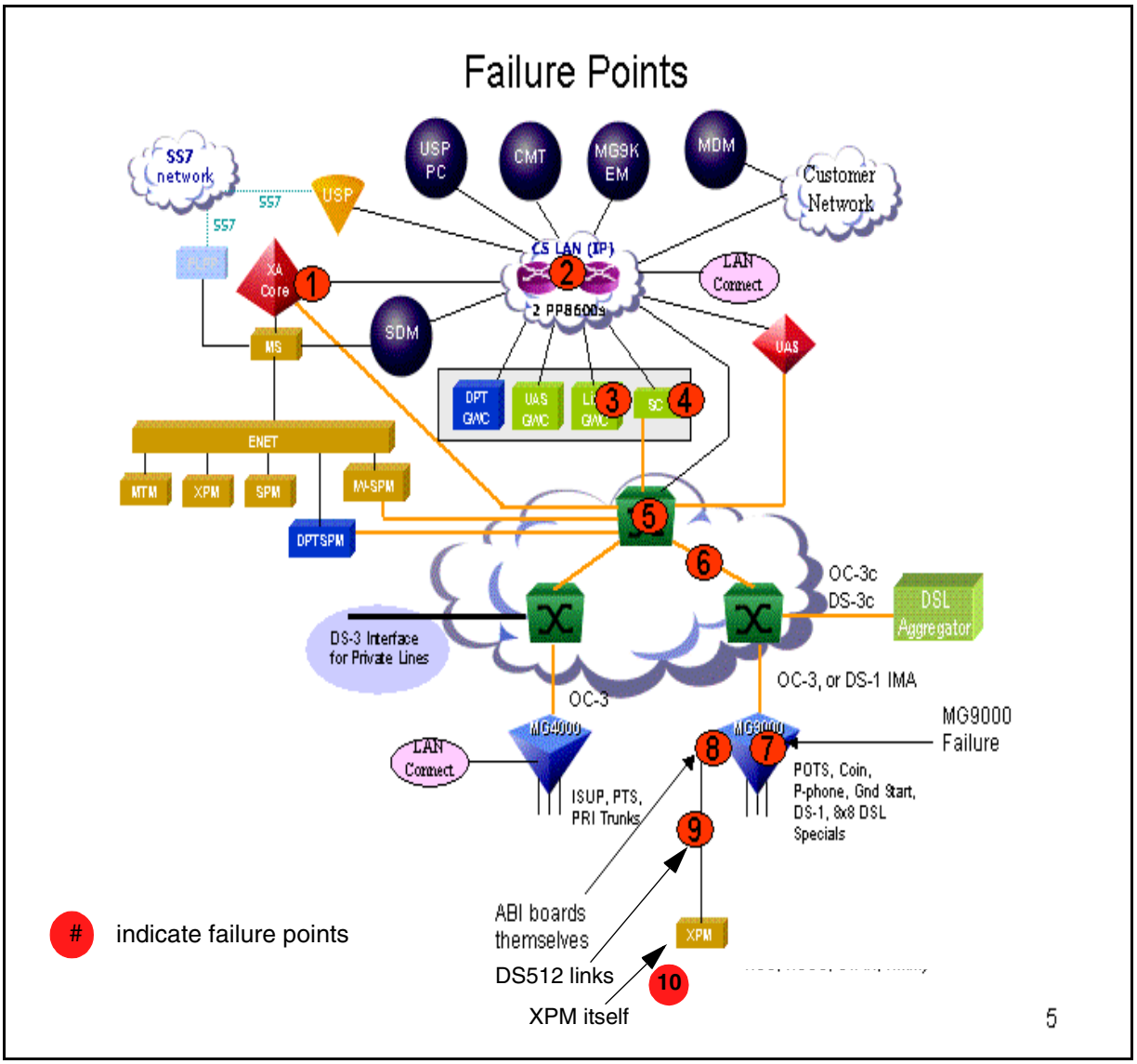
A00003486 -- Gateway Location information (UA-AAL1)

Functional Description

The purpose of this feature is to provide physical location data for MG9K gateways which host only ABI XPMs to aid in the determination and ultimately the resolution of ABI XPM and line troubles on the Core where applicable.

Currently, these service-impacting failures can occur in many different points in the Succession networks. Please refer to the following figure.

Succession Networks Failure Points



The ability to identify MG9Ks involved in the ABI configurations and their lines and their physical location was not easily determined.

This feature will aid in identifying the failure points detectable by the Core by providing necessary and accurate location data. Then using this newly provisioned data to correctly report and identify problem areas in the form of Logs, OMs, and Mapci commands.

In order to provide these new functionalities, the customer will see changes in the following areas:

- operation of Table LTCINV
- introduction of new Table GATWYINV
- display of the QueryPM command for ABI XPMs

Table LTCINV

The impact to this table consists of moving most of the ABI gateway information out of the EXTDS512 option and replacing it with a key to the ABI gateway information provisioned in table GATWYINV. For details on what/how this is provisioned, refer to "Table LTCINV Database Schema information" on page 712.

Table GATWYINV

This is a new table on the Core designed to house gateway related information. The term gateway in this context has a flexible meaning. Gateway could refer to the physical gateway, where the hardware and call processing entity are the same. Gateway could also refer to a logical gateway, where the hardware contains many call processing entities each of which are considered a gateway. Therefore the meaning you choose depends on the construction of the "gateway".

For our more experienced DMS customers, provisioning of "gateways" in this table does not result in node creation, even though the name "INV" might suggest otherwise. Therefore the maintenance and management of the gateway is still performed from the Element Manager.

For details on what/how this table is provisioned, refer to "Table GATWYINV Database Schema Information" on page 716.

ABI QueryPM

The impact to this command is a change in the amount of data displayed as a result of issuing the command. The command itself has not changed. For details on how this functionality has changed, refer to "Map Level: QUERYPM MAPCI command" on page 721.

Hardware Requirements or Dependencies

There is no hardware dependencies required to execute this feature.

Software Requirements or Dependencies

This feature requires the Core load to be a Succession load. Specifically Succession release SN07 or later.

Limitations and restrictions

The new GATWYINV table will not have flow through provisioning in this release. There are plans to have flow through for this table in a future release.

For our more experienced DMS customers, provisioning of “gateways” in this table does not result in node creation, even though the name “INV” might suggest otherwise. Therefore the maintenance and management of the gateway is still performed from the Element Manager.

As is the current functionality today, flow through provisioning for this ABI Gateway and its corresponding location information is not available in this release. There are plans to have this ABI gateway data flow through in the future.

Although the new GATWYINV table is being designed for many different types of Gateways, for this initial SN07 release, only ABI gateways are allowed to be provisioned.

As is the currently functionality today of table LTCINV, the ability to change the hosting GWC once provisioned in the new GATWYINV table is not allowed.

Interactions

The following are the feature interactions for this feature:

- Features which this feature is dependent on:
  - — none
- Features which are dependent on this feature:
  - — A00004430 - ATM SVC ATM606 logs

    This feature possibly will need access to the Location information to format logs accurately.
- Features which have an interaction with this feature:
  - — A00003490 - Network Change and ABI XPM Migration

    This feature plans to allow change to GWC host and ABI IP address data. This data will be moving to the new GATWYINV table and this functionality will have to be addressed from the new table.
  - — A00002380 - ABI ESA Logs

This feature is possibly changing the Mapci levels for ABI. This may impact ABI QueryPM and ABI Link Mtc which is being impacted by this feature.

Applicable customer facing sections

Fault Management

- Logs ___n/a___
- Alarms ___n/a___

Configuration

- Data Schema ___X___
- User Interface ___X___
- Element Management ___n/a___
- Security ___n/a___
- Service Order ___n/a___
- Office Parameters ___n/a___

Accounting (includes AMA billing) ___n/a___

Performance (includes operational measurements) ___n/a___

Real-time ___X__

Engineering Information ___X__

Glossary

Term	Description
VMG	Virtual Media Gateway - this is a logical representation of a gateway.
ABI XPM	An XPM which is provisioned in table LTCINV with the optional attribute EXTDS512. These XPMs are physically connected to MG9K Gateways via a DS512 interface.

Configuration A00003486

Hardware and Software Requirements

The changes provided by this feature will allow the customer to physically identify ABI configured hardware components hosting ABI lines from the Core when trouble shooting their network. This enables quick problem resolutions. These Core changes provide:

- MG9K Frame/Shelf physical location data for MG9Ks hosting ABI lines
- Changes to the Mapci QueryPM application to make use of this data

Therefore the following hardware needs to be in place prior to exercising the software provided by this feature. The software is exercised by provisioning the physical location data of these hardware components:

- A typical ABI configuration

Software Requirements:

- SN07 Succession Core load or later

Initial Configuration

As a provisioning component of the Succession program, much of this functionality performs as designed without the hardware being in place. However, to provision actual physical location data, the provisioning of the configurations mentioned in section should be installed.

Once the hardware is installed and the software is available, provisioning of the physical location data can begin. The ABI Gateway and its location data is provisioned in table GATWYINV. This is a new table as of SN07. The steps to perform the provisioning are described in section “ Data schema (DS) (CM, MIBS, RDB)” on page 712.

Office/Subnet parameters (OP/SP) (CM & SESM)

Not Applicable.

Upgrade Impact

Dump and Restore

Table GATWYINV will use the existing data transfer “TabXfr” mechanism available to all Table Control tables to preserve its data during an upgrade. Because this is a new table as of SN07, there will be no data to preserve.

Due to the changes to table LTCINV for the ABI XPM tuples, data preservation for these tuples will occur when upgrading from any prior release which could contain ABI XPM datafill (SN05 or later) to the SN07 release. This means entries will be created in table GATWYINV when processing table LTCINV to preserve the ABI XPM datafill. Because the new GATWYINV table has much more configuration information available than what is provisioned against the ABI XPMs, much of the data will be defaulted. Therefore, once the upgrade is complete, the customer is expected to modify the newly created data in table GATWYINV to provide more accurate information than could possibly be provided during the upgrade.

Element Management Upgrade

Not applicable.

Data schema (DS) (CM, MIBS, RDB)

New/modified tables, MIBs, or Database Schema

Table/MIB name	NEW/CHANGED/ or DELETED/	Table Control (NEW/ OLD/UNCHANGED)
LTCINV	Changed	Unchanged
GATWYINV	New	New Table Control

Table LTCINV Database Schema information

Name: LTCINV

Long Table Name: Line Trunk Controller INVentory

Functional description

Table LTCINV contains the inventory data, except P-side link assignments, for various host peripheral module (XPM) types. This feature will only impact ABI XPM tuples. The change impacts the datafill associated with the ABI (EXTDS512) option. The change is to move most of the option datafill to table GATWYINV and replace the data with a key to the ABI gateway. Please refer to " Table LTCINV changed field descriptions" on page 713.

Usage sequence and implications (CM Only)

Tables must be datafilled in the following sequence:

1. Table SERVRINV - GWC datafill, no change
2. Table SERVSINV - AUD datafill, no change
3. Table GATWYINV - New table, Gateway datafill. Dependencies on both SERVRINV and SERVSINV.
4. Table LTCINV - Dependency on GATWYINV for ABI XPM tuples
5. Table SERVCONN - ATM server connection datafill, no change

Size

No change in the maximum number of tuples for table LTCINV.

Table LTCINV size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
LTCINV	0	210	Memory is automatically allocated in increments of 10 XPMs at a time up to a maximum of 210 tuples.

Fields

The following table lists impacted fields for Table LTCINV.

Table LTCINV changed field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
OPTATTR	Changed	Modified the EXTDS512 refinement, add 1 new subfield and deleted 4 existing subfields	GTWY_HOST (added)	New field, This field contains the data which points to an entry in the new GATWYINV table. Made up of two sub-fields: GWTYPE GW_TYPE GWNO {0 TO 1023}
			NE_NBR (deleted)	GW_NETWORK_ELEMENT_NUMBER_RANGE - This field is deleted. The data is now available in table GATWYINV.
			ABI_SLOT_NBR (deleted)	ABI_SLOT_RANGE - This field is deleted. The data is now available in table GATWYINV.
			IPADDR (deleted)	TABLE OF 4 {0 TO 255}'s - This field is deleted. The data is now available in table GATWYINV.
			GWC_HOST (deleted)	Made up of two sub-fields: PMTYPE PM_TYPE PMNO {0 TO 255} - This field is deleted. The data is now available in table GATWYINV.

Datafill example

The following example illustrates the changed prompting sequence for the EXTDS512 option in table LTCINV.

Prompting sequence for the modified option EXTDS512

```
>add lgc 1 7 lgci 0 32 1 D 33 6x02na qli16at pots potsex keyset ksetex $ $ msg6x69 isp +
16 $ northaa sx05aa $ sx05aa $ 0 sxfwaj01
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
>y

OPT_ATTR:
>asdfd
 ***  ERROR  ***
ASDFD
|
TYPE OF OPT_ATTR IS LTCINV_OPT_ATTR
OPT_ATTR:
>asdfd
 ***  ERROR  ***
ASDFD
|
TYPE OF OPT_ATTR IS LTCINV_OPT_ATTR
TYPE IS LTCINV_OPT_ATTR {CCS7,STRBBF,STRDTRE,STRN5,FSTR2,PCM30,NX64,METER,
                         FLS,OC,FDCP,EXTDS512}
OPT_ATTR:
>extds512
SITE:
>cary
>GTWY_HOST
>ABI 5
>$
PEC6X40:
>6X40FA

... << continue with normal datafill for LTCINV >>
```

The following figure shows the changes to the OPTATTR field with the new gateway field ranges for the optional refinement EXTDS512.

Range Values for new Gateway PM datafill in option EXTDS512

```
>table ltcinv
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: LTCINV
>range optattr
18 OPTATTR           LTCINV_OPT_ATTR_VECTOR
TYPE IS LTCINV_OPT_ATTR_VECTOR VECTOR OF UP TO 12 MULTIPLES WITH
        OPT_ATTR               LTCINV_OPT_ATTR REFINEMENTS:
        {EXTDS512}             MULTIPLE WITH
            SITE                 CHAR_VECTOR VECTOR OF UP TO 16 CHAR'S
            GTWY_HOST            GW_KEY  MULTIPLE WITH
                  GWTYPE         GW_TYPE
                  GWNO            {0 TO 1023}
        OTHERWISE             LTCINV_OPT_ATTR_NIL_DATA
```

The following figure provides a view of the successfully added tuple with the new Gateway data fields for option EXTDS512.

Sample LTCINV Tuples with new Gateway fields for option EXTDS512

```
>table ltcinv
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: LTCINV
LTCNAME ADNUM FRTYPE FRNO SHPOS FLOOR ROW FRPOS EQPEC LOAD EXECTAB CSLNKTAB OPTCARD
TONESET PROCPEC EXTLINKS E2LOAD OPTATTR PEC6X40 EXTINFO
-------------------------------------------------------------------------------
LGC 1 1002 LTEI 2 19 1 CC 2 6X02NA QLI17AY1 (POTS POTSEX) $ (4 0)(4 1)(4 2)(4 3) $
(MSG6X69) $ NORTHAM SX05AA $ SX05AA $ 0 SXFWAE08 (EXTDS512 CARY ABI 5) $ 6X40FA N

SMA2 2 1009 LTE 1 51 2 E 31 MX85AB QLI17AY1 (POTS POTSEX) $ (4 4) (4 5)(4 6) (4 7) $
(UTR6) (MSGMX76 HOST ) (ISP 4) $ NORTHAM AX74AA AX74AA 0 SXFWAE08
(EXTDS512 GRNR ABI 120) $ 6X40AC N
```

Table release history update

SN07 Feature A00003486: Available in the Core with the SN07 or later release.

Modified field: OPTATTR:

— add 1 new subfield for the EXTDS512 refinement and deleted 4 existing subfields for the EXTDS512 refinement. For more information see “Table LTCINV changed field descriptions” on page 713.

Supplementary information

Limitations:

- LTCINV - since the impacted fields apply to ABI XPMs, they can only be datafilled on tuples with the EXTDS512 option.

ONP Upgrade to SN07:

— During the upgrade to SN07, tuples will be auto populated in table GWCINV. This is required to preserved any existing datafill in table LTCINV for tuples with the EXTDS512 option. There will be new fields which will be assigned a nil value, refer to GW 0006 Figure on page 720. It is expected that the user will correct this to more accurate data after the ONP is completed.

Translation verification other tools

Table LTCINV does not impact translations. Therefore TABAUDIT is the tool used to verify the contents of table LTCINV. The following figure shows the output from TABAUDIT when it is used to verify LTCINV.

Sample Tabaudit output for Verifying Table LTCINV Datafill

```
>tabaudit
TABAUDIT:
>include ltcinv

>execute
------------------------------------------------------------------------------
|               TABAUDIT STATUS
------------------------------------------------------------------------------

The following tables are included:
       table LTCINV (91)

The following tables are excluded:
  From table VERSIONS (0)                  to table SERVRINV (90).
  From table MGCINV (92)                   to table IPINV (299).
  From table X75INFO (301)                 to table INWATNPA (1426).

Please confirm ("YES", "Y", "NO", or "N"):
>yes
Creating TABAUDIT summaryfile: SUMMARY$MAP on SFDEV.
Starting DMS data verification ...
Table LTCINV: New table control.
      Completed tuple checking.
      SUMMARY: Tbl LTCINV: tuples checked 2, passed 2, failed 0.
Data verification is completed.
```

Table GATWYINV Database Schema Information

Name: GATWYINV

Long Table Name: Gateway Inventory

Functional Description

Table GATWYINV is where gateway configuration information is provisioned. Provisioning gateways in this table does not allocate IOUI nodes of any kind. For this release, this table contains configuration information only (no nodes) involving gateways. The term “gateway” could either mean a physical gateway or logical gateway, it depends on the actual “gateway” in question.

Usage sequence and implications (CM Only)

Tables must be datafilled in the following sequence:

1. Table SERVRINV - GWC datafill, no change
2. Table SERVSINV - AUD datafill, no change
3. Table GATWYINV - New table, Gateway datafill. Dependencies on both SERVRINV and SERVSINV.
4. Table LTCINV - Dependency on GATWYINV for ABI XPM tuples

Size

The maximum number of tuples is 32767 for this table GATWYINV. Currently limited to 1024 (0-1023) for only ABI gateways for SN07.

Table size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
GATWYINV	0	32767	Memory is automatically allocated in increments of 32 tuples at a time up to 32767. The multiple of 32 allows for an exact allocation of store to accommodate the maximum number of tuples.

Fields

Table GATWYINV new field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
GTWYPMNO	New	2 Subfields:		Two part Key:
		GWTYPE	GW_TYPE - only valid SN07 value is “ABI”.	GW_TYPE - This is the type of the gateway as defined on the Core.
		GWNO	GW_NO - {0 - 1023} - any valid number in this range.	GW_NO - This is the unique external number of the gateway.
GTWYPRFL	New	n/a	An enumerated list of gateway profiles consisting of Alpha-numeric Characters. Examples:MG9KITP, MG9KABI, PVG. only valid SN07 value is MG9KABI.	The name of the profile for the gateway. The profile provides a way to assign a finer level of granularity (as opposed to GW_TYPE) to specify specific gateway behaviors.
GTWYNAME	New	n/a	32 Alphanumeric characters.	The name of the gateway, could be upper and lower characters with special characters.
GTWYADDR	New	n/a	IPADDR Table of 4 {0 TO 255}	The IP address of the gateway. For this release this could be either the Callp address or Mtce address.(aka CIPOA address)
GTWYCSPM	New	3 Subfields: SITE_ID	4 Alphanumerics	SITE_ID: The physical Site of the Hosting Gateway Controller. Site name must be defined in table SITE. The only valid value for SN07 is HOST.
		PMT	PM_TYPE - any valid PM type.	PM_TYPE - This is a valid PM type of the cside host XPM. This could be any valid PM type but generally will be a GWC.
		EXT_PMNO	{0 TO 255} - any valid number in this range.	PMNO - The unique external number of the cside host Gateway Controller.

Table GATWYINV new field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
GTWYOPTS	New	Refinement GTWYLOC with 8 fields.	GTWY_SITE (4 alpha numerics)	SITE_NAME: The physical site of the gateway. Valid values are verified against entries in table SITE. Example datafill 'CARY'.
			FRAME_TYPE	FRAME_NAME - existing data dictionary type. The unique frame type. Example datafill, MG9Ks have a frame type of 'MG9F'.
			FRAME_NUMBER {0 - 511}	FRAME - existing data dictionary type. The unique number given to a frame within an Office.
			FLOOR_POSITION {0 TO 99}	FLOOR_POS - existing data dictionary type. The unique floor with a unique Site (generally a building).
			ROW_POSITION {A,B,C...X,Y,Z,AA, BB,CC...XX,YY,ZZ}	ROW_POS - existing data dictionary type. The unique row within a floor.
			FRAME_POSITION {0 TO 99}	FRAME_POS - existing data dictionary type. The unique frame position within a row.
			SHELF_POSITION {0 TO 77}	SHELF_POS - existing data dictionary type. Traditionally, this is the bolt hole position as measured in inches from the floor up. For MG9K shelves, it should be equal to the Shelf Number as specified in the Lgrp Key. The unique shelf position within a specific frame.
			GW_CARD_SLOT_NBR {0-50}	SLOT_NO - existing data dictionary type. This is the slot number for a card. The SN07 use if for the ABI card slot.

Table GATWYINV new field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
GTWYOPTS (continued...)	New	ELMGR with 1 field.	GTWY_NE_NBR {0-999}	GW_NETWORK_ELEMENT_NUMBER_RANGE - existing data dictionary type. This is the network element number assigned when the gateway is added via the MG9K-EM. 0 is the NIL value.

Datafill Example

The following figure provides a view of a successfully added tuples with the location and element manager options. Note that other gateway types other than ABI are shown, this is just example data. Only ABI gateways are supported in SN07.

Sample GATWYINV Tuples with Options

```
>table gatwyinv
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: GATWYINV
GTWYPMNO     GTWYPRFL  GTWYNAME      GTWYADDR      GTWYCSPM              GTWYOPTS
-------------------------------------------------------------------------------------
GW 0         MG9KITP   CARY-000-0-0 47 142 14 65  GWC 15 (GTWYLOC CARY MG9F 15  2  C  3  0
0)  (ELMGR 43)  $

GW 6         MG9KITP   AUTO_DISC     192 2 45 87   GWC 10 (GTWYLOC APEX MG9F  0  0  ZZ  99
77 8)  (ELMGR 32)  $

ABI 9        MG9KABI   EXPM10        192 1 23 184  GWC 15 (GTWYLOC APEX MG9F 12  3  C    2
0 18)  (ELMGR 61)  $

GW 15        PVGPRF    PVGGW-5       147 142 172 45 GWC 20 (GTWYLOC GRNS OTHR  5  1  E    4
0   0)  $

GW 4         CICMPRF   CICM-10       148 124 67 34   GWC 16 (GTWYLOC WKFT OTHR 4   1  B  7
0  6)   $
```

Table release history update

Release SN07, feature A00003486: Initial release of this new table GATWYINV.

Supplementary information
ONP Upgrade to SN07:

— During the upgrade to SN07, tuples will be auto populated in table GWCINV. This is required to preserved any existing datafill in table LTCINV for tuples with the EXTDS512 option. There will be new fields which will be assigned a nil value, refer to GW 0006 Figure on page 720. It is expected that the user will correct this to more accurate data after the ONP is completed.

Translation verification other tools
Table GATWYINV does not impact translations. TABAUDIT is the tool used to verify the contents of table GATWYINV. Examples will be provided once the new table is functioning.

Service Orders (SO) (CM & SESM)

Not Applicable.

Software optionality control (SOC)

Not Applicable.

Element Management

Not Applicable.

Command interface changes

Map Level: QUERYPM MAPCI command

The QUERYPM command is used to query miscellaneous information about the currently posted XPM at the PM level of the MAP. This feature modifies the legacy QUERYPM command by displaying an additional screen to the default QUERYPM command (without arguments) which reflects the following ABI MG9K:

- Site
- Floor
- Row Position
- Frame Position
- Frame Type
- Frame Number
- Shelf Number
- ABI Slots
- Network Element Number
- ABI card IP address

Note: New output only occurs if the posted XPM is an ABI XPM.

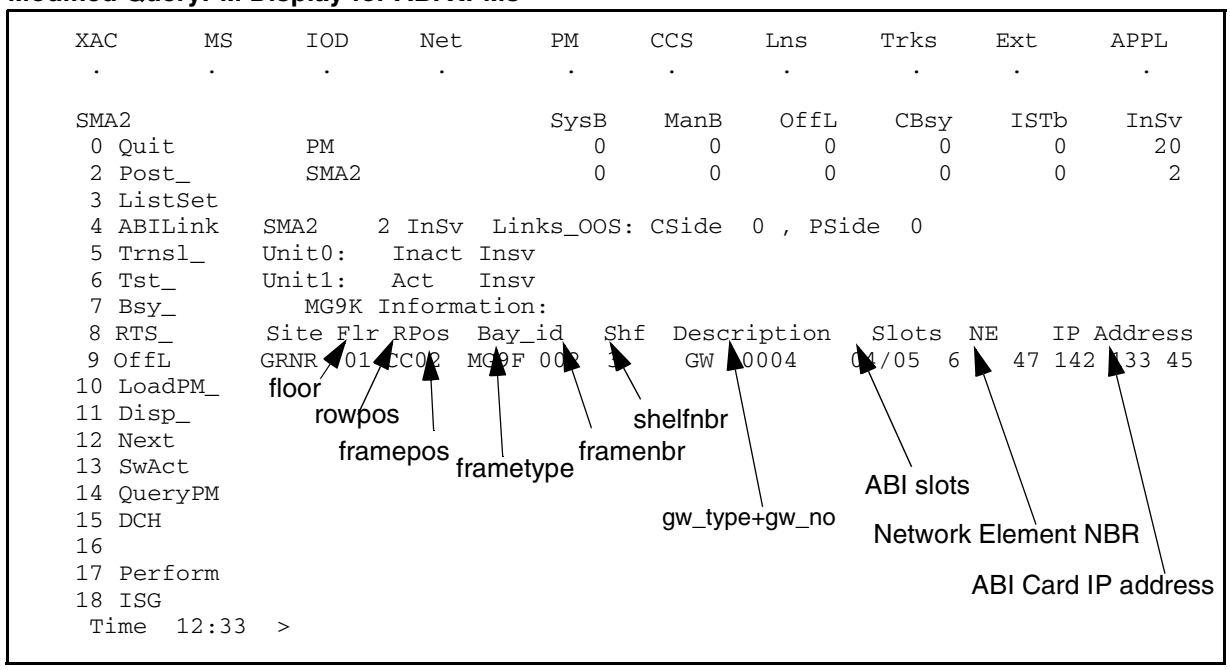
Current QUERYPM for ABI XPM

Current QueryPM Display for ABI XPMs

```
XAC      MS      IOD      Net      PM      CCS      Lns      Trks     Ext      APPL
  .       .       .        .       .       .        .        .        .         .

LGC                                SysB     ManB     OffL     CBsy     ISTb     InSv
 0 Quit          PM                   0        0        0        0        0       20
 2 Post_         LGC                  0        0        0        0        0        2
 3 ListSet
 4 ABILink   LGC     1 InSv  Links_OOS: CSide  0 , PSide  0
 5 Trnsl_    Unit0:  Inact  Insv
 6 Tst_      Unit1:  Act    Insv
 7 Bsy_       SITE  ABISlots   NE
 8 RTS_       GRNR   04/05      6
 9 OffL
10 LoadPM_
11 Disp_
12 Next
13 SwAct
14 QueryPM
15
16
17 Perform
18
  TEAM01
Time  03:47  >
```

Modified QUERYPM for ABI XPM

Modified QueryPM Display for ABI XPMs



Accessing directory: LGCDIR

Access to directory or MAP level and return to CI

To access the LGCDIR from the CI environment, enter:

>mapci;mtc;pm;post <<XPM #>>;querypm

To return to the CI environment, enter quit mapci.

Command: <command name>

Not Applicable.

Security

Not Applicable.

Configuration Walkthrough

Not Applicable.

SN07 Feature Deltas

Product = CS 2000

A00003487 -- Tri-modal Provisioning, Logs and OMs (UA-AAL1)

Functional Description

Note that this Functional Description covers all the SN07 Trimodal Call Server Features:

- a00003488: TriModal Call Signaling and Connectivity
- a00003662: TriModal Call Server Bridge Maintenance
- a00003509: TriModal Support for Lawful Intercept
- a00003947: TriModal Logs and OMs
- a00003948: TriModal GWC EM

Description

Existing Functionality

Prior to SN07, the CS2000 call server had very limited knowledge about the packet bearer network. Only a single packet bearer network was supported along with the legacy ENET bearer network. Individual agents were associated with a bearer network based upon the connectivity of the node that hosted the agent. For example, a trunk member that was assigned to a DTC would be associated with the legacy ENET bearer network. A trunk member that was assigned to either a GWC or an MG4K would be associated with the packet bearer network. Since both the GWC and the MG4K tag their hosted agents as ‘packet bearer network’, the core connectivity cannot distinguish between the various types of packet bearer networks are available (i.e., IP, AAL1, AAL2). This is the basis for the CS2000 call server restriction that it can only support a single packet bearer network prior to SN07.

Feature Functionality

In the SN07 release, work is being started in the CS2000 Call Server to support multiple bearer networks. These bearer networks include both the legacy ENET bearer network and up to seven additional packet bearer networks.

In the SN07 release, a bearer network framework is implemented but full integration of all possible supported configurations will not be supported in this release. In SN07, the focus will be on supporting three bearer networks[1]:

- ENET
- AAL1 packet network
- IP packet network

The main focus in SN07 is to support a Universal Access (UA)- AAL1 and a Universal Access (UA) - IP configuration with a single CS2000 Call Server. In addition, there are requirements to support some limited Carrier Hosted Services (CHS) functionality as well (i.e., H.323 and Media Call Server 5200 (MCS5200).

Interworking between the UA-AAL1 and UA-IP configurations in a multi-bearer network configuration is supported in SN07. However, interworking with the CHS agents is limited in SN07. In SN07, there is no support for interworking between the H.323 gateway (using a Media Portal) and the IP IW SPM. For this reason, a loop around trunk, hosted by a PVG on the CHS bearer network and hosted by a PVG in the UA IP bearer network or an MG4K in the UA AAL1 bearer network or an SPM/DTC in the ENET network, must be used to provide connectivity between the H.323 GW and all other agents on the CS2000 Call Server.

The following list provides a view of the limitations associated with H.323 calls in this configuration:

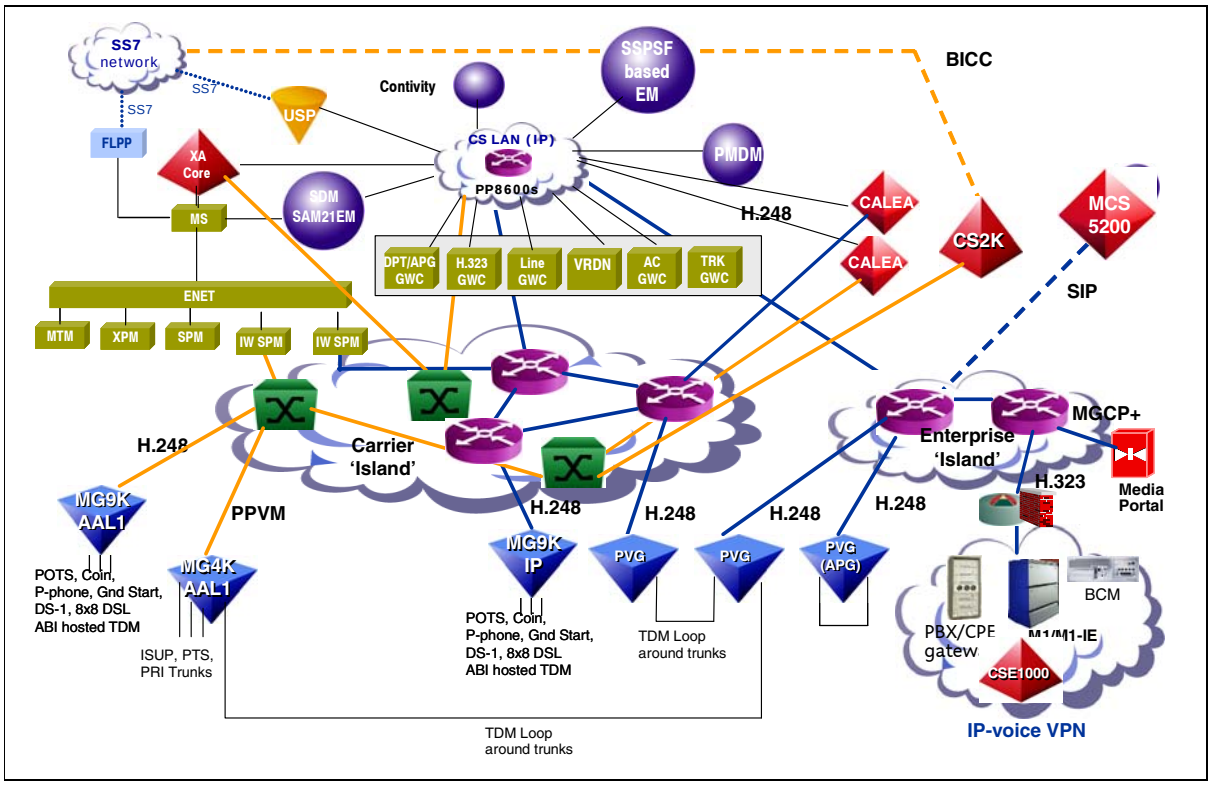
- Multiple billing records generated - A call from am H.323 agent to an MG9000 AAL1 native line would be represented as two calls in the CS2000 call server, each generating its own billing record.
- H.323 agent access to announcements - Since there is no announcements accessible to the CHS IP network (i.e., no IP IW bridge supported), announcements cannot be played to the H.323 agent. Any CS2000 Call Server services will not be able to use announcements and any treatments will have to be configured to ‘release with cause’ and the announcement would be provided by the enterprise bearer network.

1. AAL2 packet networks are not going to be tested in a multi-bearer network configuration, but there is nothing to block this type of bearer network from being configured.

- H.323 agent access to conferencing - Since there is no conference circuits accessible to the CHS IP network (i.e., no IP IW bridge supported), conferencing services cannot be supported to the H.323 agent.
- H.323 agent access to test trunk facilities - Since there is no test trunk circuits accessible to the CHS IP network (i.e., no IP IW bridge supported), trunk tests cannot be supported to the H.323 gateway.

A diagram of the network topology is shown in the following figure.

SN07 supported multi-bearer network topology



In SN07, the following gateways and packet agents are supported in the multi-bearer network configuration.

Gateways and packet agents supported in SN07

Bearer Network	Gateway	Agents
ENET	None[a]	supported SN07 legacy peripherals which includes both lines and trunk

Gateways and packet agents supported in SN07

Bearer Network	Gateway	Agents
ATM AAL1 (UA)	MG4000	ISUP trunks PTS trunks PRI trunks BICC DPT trunks
	GWC[b]	BICC DPT trunks
	MG9000	POTS lines Pphone lines Coin lines Ground Start lines
	MG9000 with ABI	supported SN07 ABI peripherals which includes both lines and trunk
	DPT SPM	BICC DPT trunks
IP (UA)	PVG (for loop-around trunk access only for support of H.323)	ISUP trunks PRI trunks
	MG9000	POTS lines Pphone lines Coin lines Ground Start lines
	MG9000 with ABI	supported SN07 ABI peripherals which includes both lines and trunk
IP (CHS)	PVG (for loop-around trunk access only for support of H.323)	ISUP trunks PRI trunks
	GWC[c]	SIP-T DPT trunks
	H.323 GWs (Cisco, Westel, BCM, M1)	PRI trunks

a. There are no ‘gateways’ support on the ENET. However, there is a list of supported legacy peripherals for Succession Call Servers. This list remains unchanged by this feature.

b. Not a true bearer gateway. This is included to illustrate the support for BICC DPT trunk.

c. Not a true bearer gateway. This is included to illustrate the support for SIP-T DPT trunk support.

Connectivity between the supported bearer networks is accomplished by using IW SPM bridges. The CS2000 Call Server is modified to allow support of both the ATM AAL1 based IW SPM and the IP based IW SPM at the same time. Prior to SN07, the CS2000 Call Server could only support one type of IW SPM. A single IW bridge pool was supported. In SN07, support for multiple bridge pools is introduced.

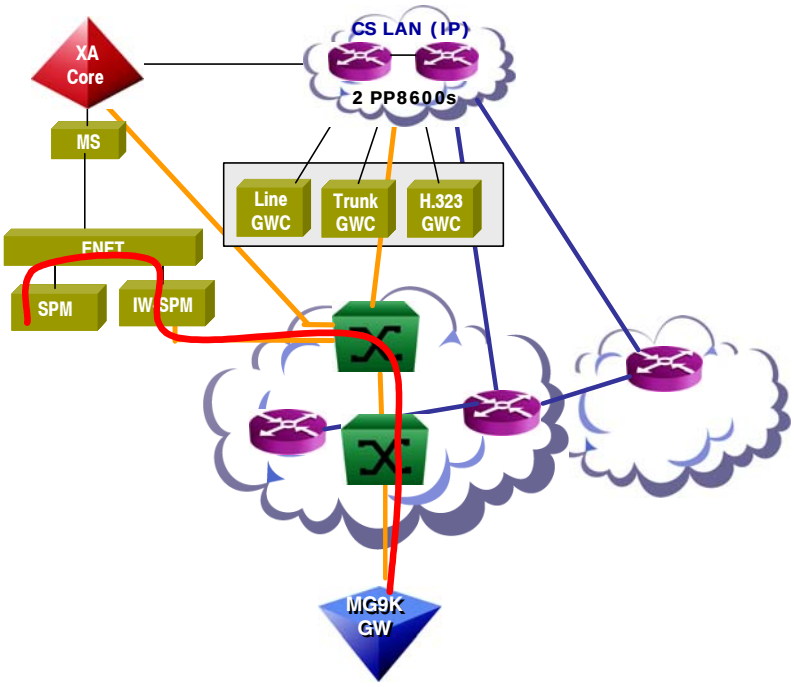
Control is given to the Succession customer to configure how the supported bearer networks in the CS2000 Call Server connect to each other. This is controlled by provisioning the types of interworking bridges needed to connect one bearer network to another. The interworking bridges available in SN07 are the following:

- IW SPM AAL1 - connects an AAL1 bearer network to the ENET
- IW SPM IP - connects an IP bearer network to the ENET

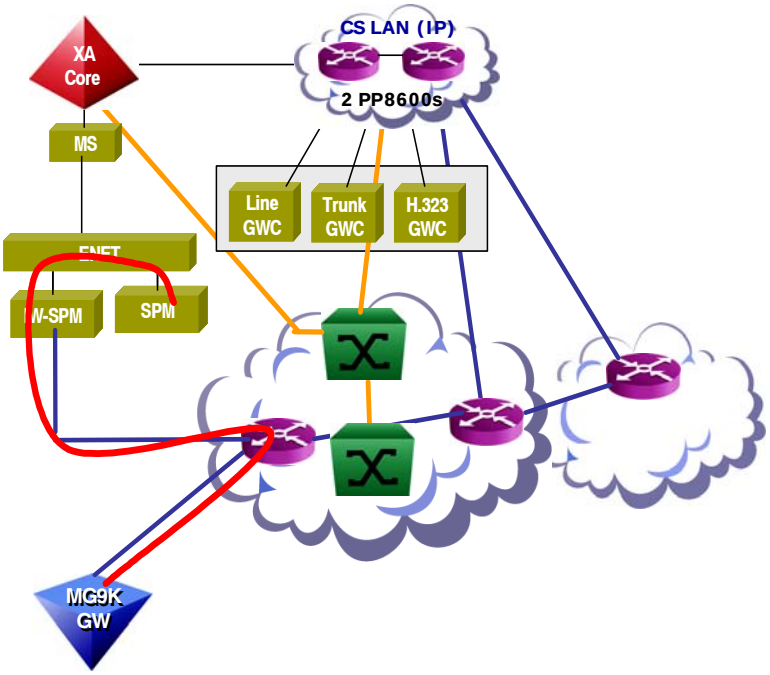
Prior to SN07, Succession configurations used the IW SPM AAL1 to connect an AAL1 bearer network to the ENET and used the IW SPM IP to connect an IP bearer network to the ENET. This is still supported in SN07 with multi-bearer network support. In this multi-bearer network configuration, a connection between an AAL1 bearer network and an IP bearer network will use two IW bridges (i.e., 1 IW SPM AAL1 and 1 IW SPM IP using the ENET to connect the two packet bearer networks). The following figures illustrate the connection topologies[2].

2. Note that these figures are logical representations and are not meant to imply physical connectivity of the bearer networks.

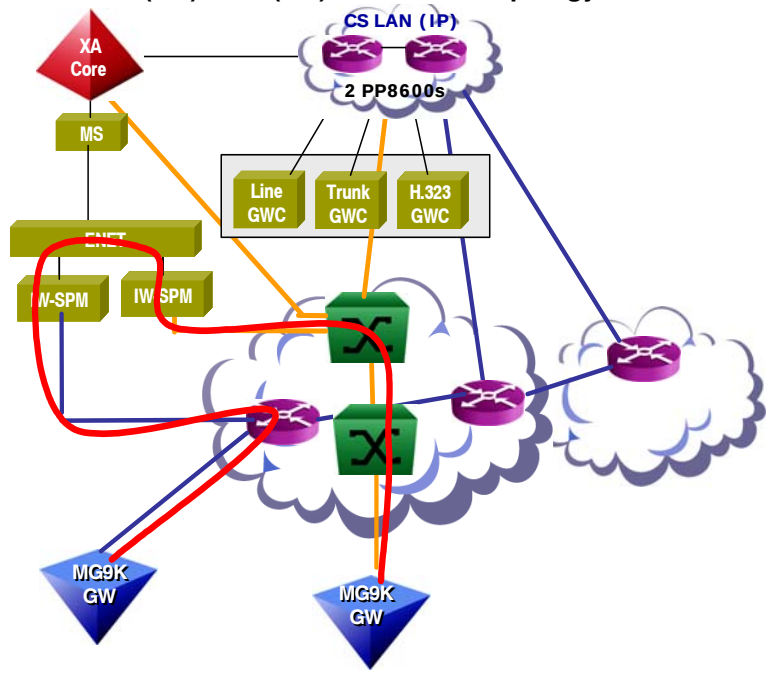
ATM AAL1 (UA) to ENET connection topology



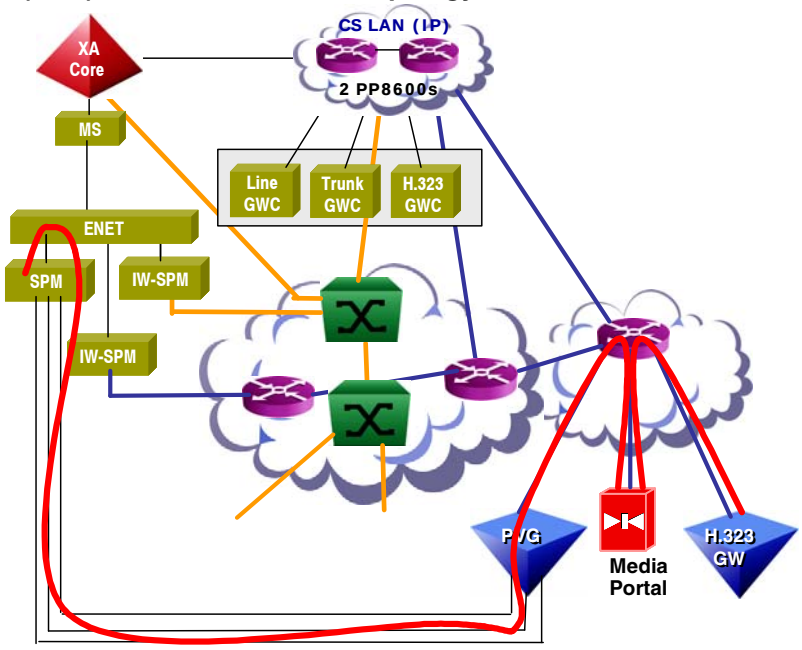
IP (UA) to ENET connection topology



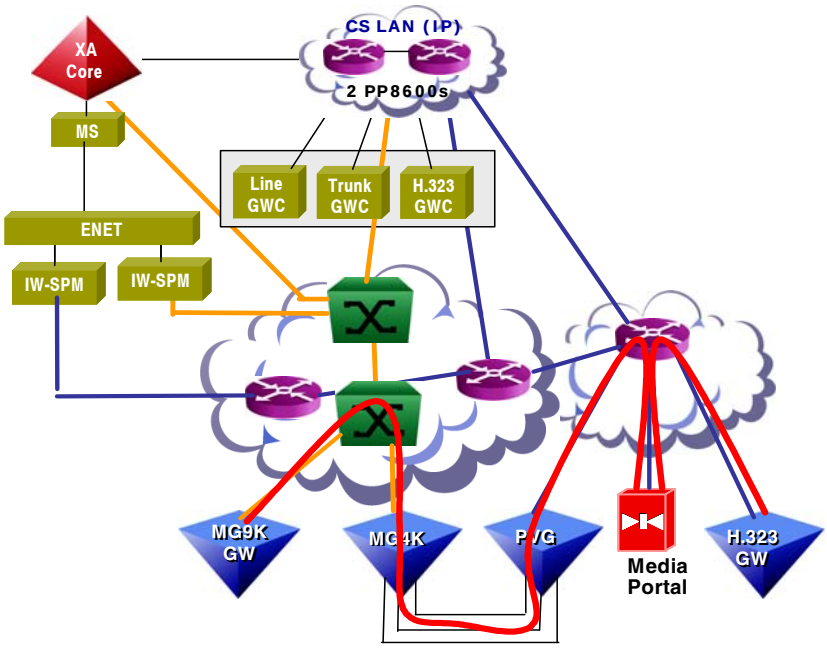
ATM AAL1 (UA) to IP (UA) connection topology



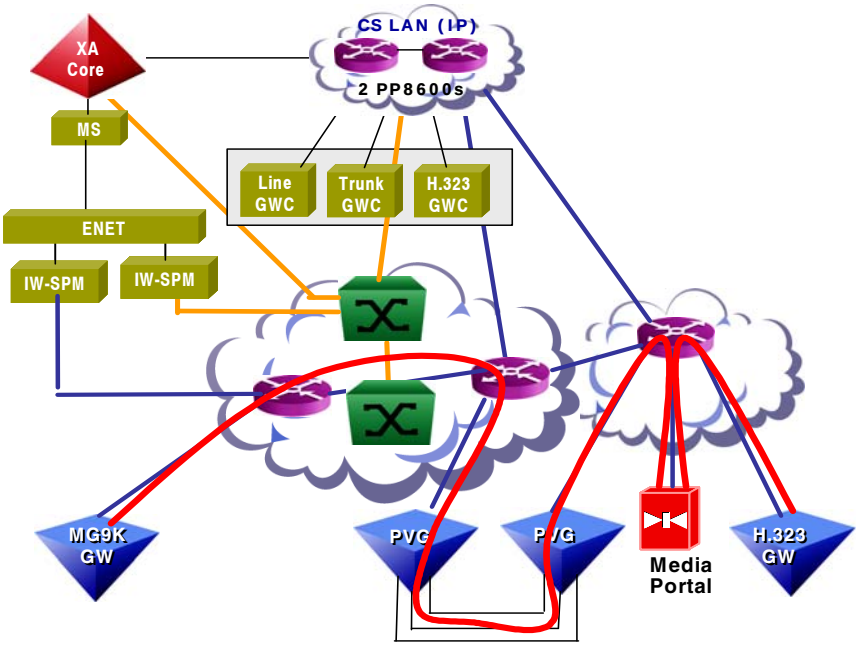
IP (CHS) to ENET connection topology



IP (CHS) to ATM AAL1 (UA) connection topology



IP (CHS) to IP (UA) connection topology



The following areas will be addressed in more detail in the following sections:

- Bearer network and connectivity provisioning
- Multiple bearer network support in the GWC EM
- Core connectivity connection management
- IW Bridge management
- OAMP changes on the CS2000 Call Server
- Lawful Intercept
- Service circuit support
- Groups with members in multiple bearer networks
- Trunk selection (like network selection)
- DPT (BICC and SIP-T) interworking including audible ringing support
- Translations and Routing changes
- USP messaging
- ECAN across multiple bearer networks
- Voice quality
- ONP
- Capacity

Bearer network and connectivity provisioning

The purpose of the provisioning changes are to allow bearer networks to be defined and associated to individual agents. Once this is accomplished, there are rules created that define which bearer networks can connect to each other and how that connection is accomplished.

When the CS2000 Call Server is requested to make a connection between two endpoints, it needs to know the bearer network associated with each endpoint. If this model were followed for provisioning, then each line and trunk member datafill would have to include an indication of the bearer network. This level of provisioning is cumbersome and very repetitive in most cases. For this reason, a hierarchical model is used in SN07. An assumption is made that a node (either an SPM node or a line/trunk GWC) supports one and only one bearer network. This allows the bearer network to be associated with the node and then this information is applicable to all the endpoints associated with that node. In other words, the bearer network for the endpoint is derived from the bearer network of the node that hosts the endpoint. Note that endpoints that are hosted on legacy peripherals which are then hosted on MG9000 ABI, will derive their bearer network from the GWC that hosts the MG9000 ABI.

There is one exception to the above behavior and it is in the area of DPT trunk support. Given the dynamic endpoint association that is made between the hosting node and the DPT trunk member, GWCs configured as DPT GWCs will not have an associated bearer network at the node level. The bearer network is associated with the DPT trunk group. The DPT endpoint obtains its associated bearer network from the DPT trunk group that is associated to it on a call-by-call basis.

The following provisioning changes are made by this activity:

- Bearer network definition
- Bearer network node association
- Bearer network DPT trunk group association
- IW bridge pool definition
- IW bridge pool assignment
- Bearer network connectivity

Bearer network definition

A new table is introduced (Table BEARNETS) that defines the bearer network and the bearer fabric associated with this bearer network. The key to the table is a bearer network index. This index is needed to make it easy to change the bearer network name (i.e., without having to delete and re-add the entry). Index 0 is always reserved for the ENET tuple, if it exists.

The OPTIONS field in this table identifies an optional bearer network characteristics. In SN07, the following options are supported:

- Default packet network - specifies the default packet bearer network in the office. This is used during the ONP process as well as an endpoint bearer network designation if a node-based bearer network cannot be determined.

Table BEARNETS supports up to eight bearer networks in the CS2000 Call Server. Refer to the Configuration section for more details on Table BEARNETS.

Table BEARNETS example datafill

```
TABLE: BEARNETS
NETIDX BNETNAME     DISPLAY FABRIC OPTIONS
-----------------------------------------
NET 0  TDM_ENET     ENET    ENET   $
NET 1  NET_AAL1     ATM     AAL1   (PACKET_NETWORK_DEFAULT)$
NET 2  NET_IP       IP      IP     $
NET 3  NET_AAL2     AAL2    AAL2   $
```

Bearer network node association

Association of the bearer network is done at the node level in the CS2000 Call Server. In order to minimize table changes and to provide minimal impact to DMS legacy offices, legacy peripheral nodes do not require an explicit association to the 'ENET' bearer network. This will be assumed in within the CS2000 Call Server.

However, any node that hosts packet bearer network endpoints requires that the bearer network be associated with the node. This is applicable to the following nodes:

- GWC (Table SERVRINV) - GWCs host many types of endpoints: lines and trunks)
- MG4K (Table MNNODE)
- DPT SPM (Table MNNODE)

Table SERVRINV is modified to include a new field BEARNETS. This field lists all the supported bearer networks associated with the GWC. In SN07, only one entry for this field is supported, which would always be marked as the default=Y. This information is populated by the GWC Element Manager when a GWC is defined in SN07. Refer to the Configuration section for more details on Table SERVRINV.

Table SERVRINV example datafill

```
TABLE: SERVRINV
SERVRNAME SERVRADDR SERVREXEC SERVRTONE BEARNETS SERVROPTS
-----------------------------------------------------------
GWC 0     IP  47 192 48 24 (POTS POTSEX)  (KEYSET  KSETEX)  $
NORTHAA (NET_AAL1 Y) $ $
```

Table MNNODE is modified for 'SMG4' class of SPMs (i.e., MG4Ks) to include a new field BEARNETS. This field lists all the supported bearer networks associated with the MG4K. In SN07, only one entry for this field is supported, which would always be marked as the default=Y. Refer to the Configuration section for more details on Table MNNODE.

Table MNNODE example datafill - MG4K

```
TABLE: MNNODE
NODEKEY ALIAS     NODEINFO
-------------------------------------------------
SPM  1              SPM_1          SMG4    0    SYNC    LINE    50
(COT 60)  (DTMF 60)  (ECAN 60) (TONESYN 60) (MF 60) $ (SYSB CR
RPT)  (MANB MJ RPT)  (ISTB MN RPT)  (SYSBNA CR RPT)(MANBNA MJ
RPT)  (COTLOW MN RPT)  (DTMFLOW MN RPT)(ECANLOW MN RPT)  (MFLOW
MN RPT)  (CMRLOW MN RPT)(TONESLOW MN RPT)  (SMG4CN MJ RPT)
(PATCHFAIL MJ RPT)(ATMBCN CR RPT)  (STE3HLD MJ RPT)  (STE3HLD24
CR RPT)(SMCHLD MF RPT)  (SMCHLD24 CR RPT)  (SPMSRMNTD MN RPT)
(LOCUR MJ RPT)  (TMCFAIL CR RPT) $ $ Y 2016 $ N N ATM (NET_AAL1
Y) $
```

Table MNNODE is modified for ‘IW’ class of SPMs whose DPT_INFO indicates a DPT SPM (i.e., DPT SPMs) to include a new field BEARNETS. This field lists all the supported bearer networks associated with the DPT SPM. In SN07, only one entry for this field is supported, which would always be marked as the default=Y. Refer to the Configuration section for more details on Table MNNODE.

Table MNNODE example datafill - DPT SPM

```
TABLE: MNNODE
NODEKEY ALIAS     NODEINFO
-------------------------------------------------
SPM 1   SPM_1   IW   1   SYNCH   INTERNAL   15   (DTMF 60)  (ECAN
60) (TONESYN 60) $ (SYSB CR RPT)  (MANB MJ RPT)  (ISTB MN RPT)
(SYSBNA CR RPT)(MANBNA MJ RPT)  (DTMFLOW MN RPT)  (ECANLOW MN RPT)
(TONESLOW MN RPT)  (PATCHFAIL MJ RPT)  (ATMBCN CR RPT)(SMCHLD MF
RPT)  (SMCHLD24 CR RPT)  $ DPT_ONLY  (NET_AAL1 Y) $
(SPMECIDX 0)$
```

Bearer network DPT trunk group association

DPT trunk groups require an association to the bearer network. Changes are made to Table TRKOPTS where the DPT trunk groups are defined. As part of this change, it was decided to change the option used to indicate a DPT trunk group. The DPT application is removed from the DYNAMIC option. A new DPT option is created to define a DPT trunk group. This new option contains a field to designate the associated bearer network. Other application users for the DYNAMIC option remain unchanged. Refer to the Configuration section for more details on Table TRKOPTS.

Table TRKOPTS example datafill

```
TABLE: TRKOPTS
OPTKEY          OPTINFO
----------------------------------------
DPTTRK DPT      DPT BICC NET_AAL1 1
SIPTRK DPT      DPT SIPT NET_IP N MGC2 PROF MGCTWO Y
OCTRK  DYNAMIC  DYNAMIC ISUP IP IP OC
```

IW bridge pool definition

A framework is needed to allow multiple bridge pools to be defined in the CS2000 Call Server. This framework is intended to support any type of bridge that may be used to connect two bearer networks together.

In SN07, there is only one bridge type supported, the core-managed IW SPM bridge. In defining a bridge pool of this type, the two bearer networks that this bridge can connect together are specified. Other types of bridges may require additional information to be defined.

The bridge pool name is first defined in Table CLLI. Note that the number of members in the CLLI is not applicable to the bridge pool. New table NETBRDGE is created to define the bridge pool and its type. Refer to the Configuration section for more details on Table NETBRDGE.

Table CLLI and Table NETBRDGE example datafill

```
TABLE CLLI
CLLI          ADNUM   TRKGSIZ                    ADMININF
-----------------------------------------------------
ENET_TO_AAL1  321     0       ENET_TO_AAL1_BRIDGE_POOL
ENET_TO_IP    322     0       ENET_TO_IP_BRIDGE_POOL

TABLE: NETBRDGE
BRDGCLLI      TYPE        DISPLAY BEARNETS
----------------------------------------
ENET_TO_AAL1  CORE_BRDGE  E_A1    (TDM_ENET NET_AAL1) $
ENET_TO_IP    CORE_BRDGE  E_IP    (TDM_ENET NET_IP)   $
```

IW bridge pool assignment

Once a bridge pool has been defined, the individual IW SPM bridge nodes needs to be associated with a bridge pool. Table MNNODE is modified for 'IW' class of SPMs whose DPT_INFO indicates an IW SPM (i.e., not a DPT SPM) to include a new field BRDGCILLI. This field lists all the supported bridge pools associated with the IW SPM. In SN07, only one entry for this field is supported. Refer to the Configuration section for more details on Table MNNODE.

Table MNNODE example datafill - IW SPM

```
TABLE: MNNODE
NODEKEY ALIAS NODEINFO
-------------------------------------------------
SPM  1 SPM_1  IW   1   SYNCH   INTERNAL   15   (DTMF 60)  (ECAN
60) (TONESYN 60) $(SYSB CR RPT)  (MANB MJ RPT) (DTMFLOW MN RPT)
(ECANLOW MN RPT)(TONESLOW MN RPT)  (PATCHFAIL MJ RPT)  (ATMBCN
CR RPT)(SMCHLD MF RPT)  (SMCHLD24 CR RPT)  $ BRDG_ONLY
(ENET_TO_AAL1) $ (SPMECIDX 0)$
```

Bearer network connectivity

Now that the bearer networks have been defined and the bridge pools have been defined, the next step is to define the connectivity rules between the bearer networks. An assumption is made that a connection between two endpoints on the same bearer network will always be allowed to proceed. The rules being discussed here apply only to a connection request made between two endpoints that are associated with different bearer networks. These rules answer the following questions:

- Can a bearer network connect to another bearer network?
- What bridge pool or bridge pools are used to support a connection between two bearer networks?
- With trunk groups that support members in multiple bearer networks, what order, within trunk group member selection, should the bearer networks be attempted?

Two new tables are created to allow the customer to provide answers to these questions. Table NETPATH provides a set of bridge pool combinations. These can be thought of as ‘connectivity routes’ and assist in answering the second question posed above. Note that it is possible to create a NETPATH entry that contains more than one bridge pool which would instruct connectivity to obtain multiple bridges for the connection. Note that this is also possible to create a NETPATH entry that contains no bridge pools which would instruct connectivity to allow the connection to proceed with no bridges needed.[3]

Table NET2NET allows the customer define which bearer networks connect to other bearer networks, the order that trunk group member selection uses and what ‘connectivity route’ should be used (i.e., points to an entry in Table NETPATH). If there are no connecting networks specified in Table NET2NET, then a connection request from that bearer network to any other bearer network will be denied. Refer to “Trunk selection (like network selection)” on page 760 for more information on using the bearer network ordering in Table NET2NET.

3. The customer may use this option when there are two bearer networks that have the same fabric. No bridge is needed to connect the two bearer networks.

Refer to the Configuration section for more information on Tables NETPATH and NET2NET.

Table NETPATH example datafill

```
TABLE: NETPATH
PATHIDX       NETBRDGE
----------------------------------------
  0                          $
  1           (ENET_TO_AAL1)  $
  2           (ENET_TO_IP)    $
  3   (ENET_TO_AAL1) (ENET_TO_IP)$
```

Table NET2NET example datafill

```
TABLE: NET2NET
BNETNAME             CONNETS
-------------------------------------------------
  TDM_ENET         (NET_AAL1 1)    (NET_IP 2)    $
  NET_AAL1         (TDM_ENET 1)    (NET_IP 3)    $
  NET_IP           (NET_AAL1 3),   (TDM_ENET 2)  $
```

Multiple bearer network support in the GWC EM

As described in the previous section, the bearer network needs to be associated with the GWC. New GWCs are added using the GWC Element Manager (EM). Information input using the GWC EM GUIs is then automatically updated in CS2000 Call Server tables (such as Table SERVRINV).

Prior to SN07, the GWC EM supported only one packet network. Characteristics about that packet bearer network were defined and associated with all the GWCs in the office.

In SN07, changes are made to the GWC EM to support multiple bearer networks. These changes involve the following:

- Support the provisioning of multiple bearer network codec profiles.
  - — Display bearer network codec profile on GWC-EM GUI.
  - — Add bearer network codec profile from GWC-EM GUI.
  - — Delete bearer network codec profile from GWC-EM GUI.
  - — Change bearer network codec profile from GWC-EM GUI.
- Support the specification of a bearer network and a bearer network codec profile for each GWC.
  - — Display the bearer network and network codec profile of each GWC on GWC-EM GUI.

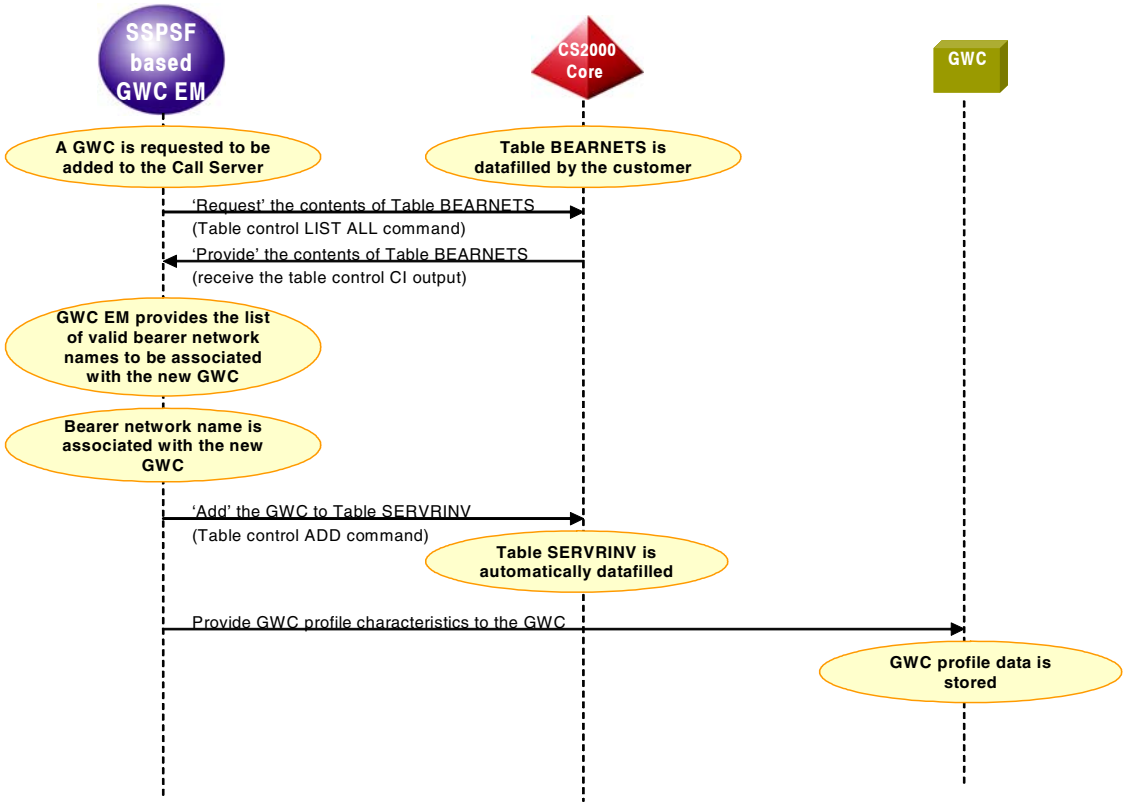
— Associate the bearer network and network codec profile with one GWC when adding GWC node from GWC-EM GUI.

— Change the associated bearer network codec profile of one GWC node from GWC-EM GUI.

- Support population of the selected bearer network in the CS2000 Call Server table SERVRINV

The following figure illustrates the steps involved in flowing the data from the GWC EM to the CS2000 Call Server. Refer to the Configuration section for more information on the GWC EM GUI screens that are available in SN07.

GWC EM flow through provisioning for bearer network



Core connectivity connection management

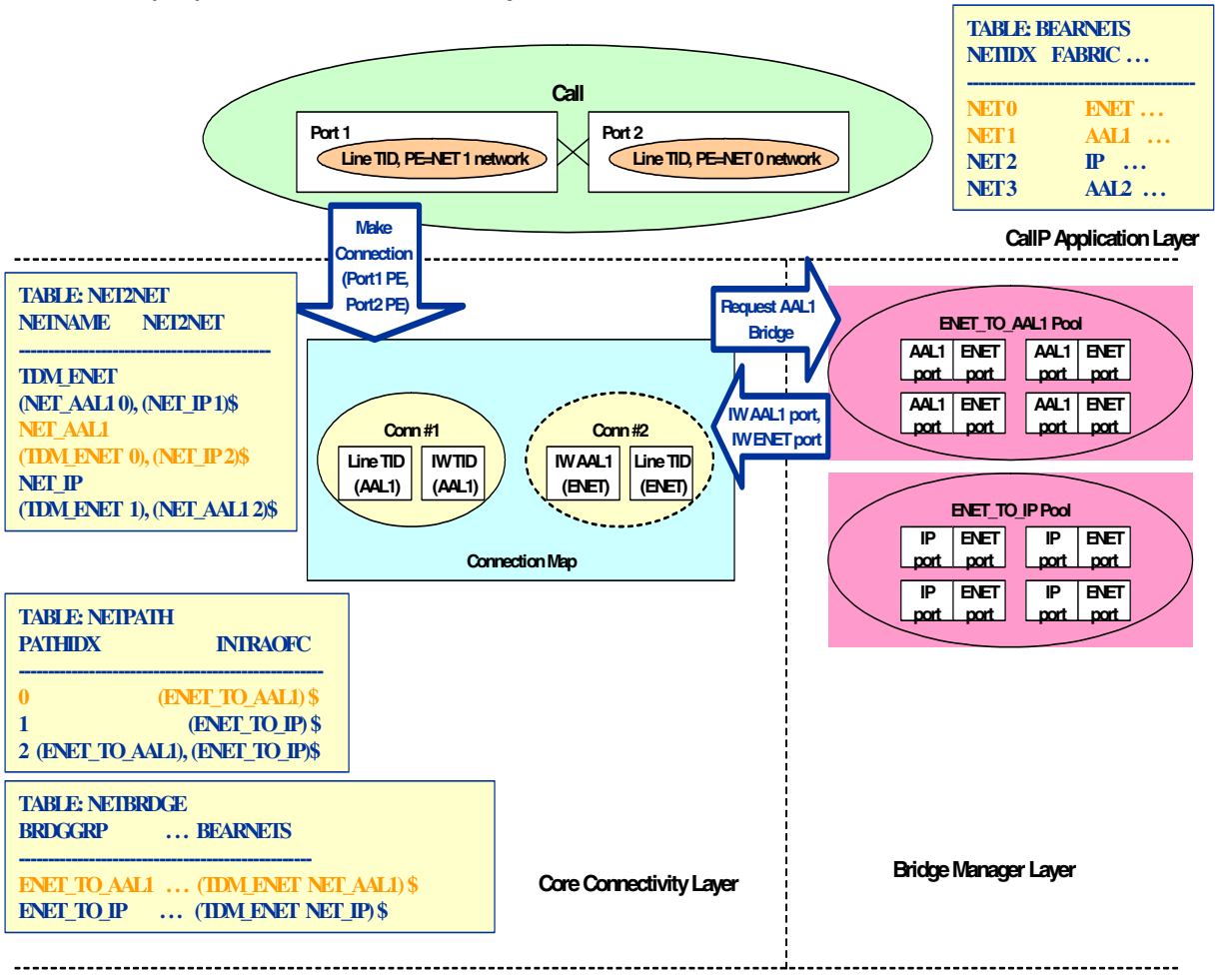
Core connectivity is a function in the CS2000 Call Server that handles connection requests that are made from the CallP and Services applications. Prior to SN07, core connectivity processed requests to make a connection between endpoints. Endpoints were designated as being 'internal' (i.e., connected to the ENET) or 'external' (i.e., connected to the packet bearer

network). Core connectivity knew that if a request was made to connect and 'internal' endpoint to an 'external' endpoint, then an IW bridge was needed. It would request a bridge from the office-wide IW bridge pool.

In SN07, core connectivity is changed to support multiple bearer networks and multiple bridge pools. Rather than making assumptions that a bridge from a bridge pool is needed to make a connection, core connectivity references tables NET2NET and NETPATH when a connection between two unlike bearer networks is requested. If these tables indicate that a connection should not be made, then core connectivity denies the connection request to the CallP application. The CallP application would then route the call to a Network Blocking (NBLH) treatment causing the call to not be completed.

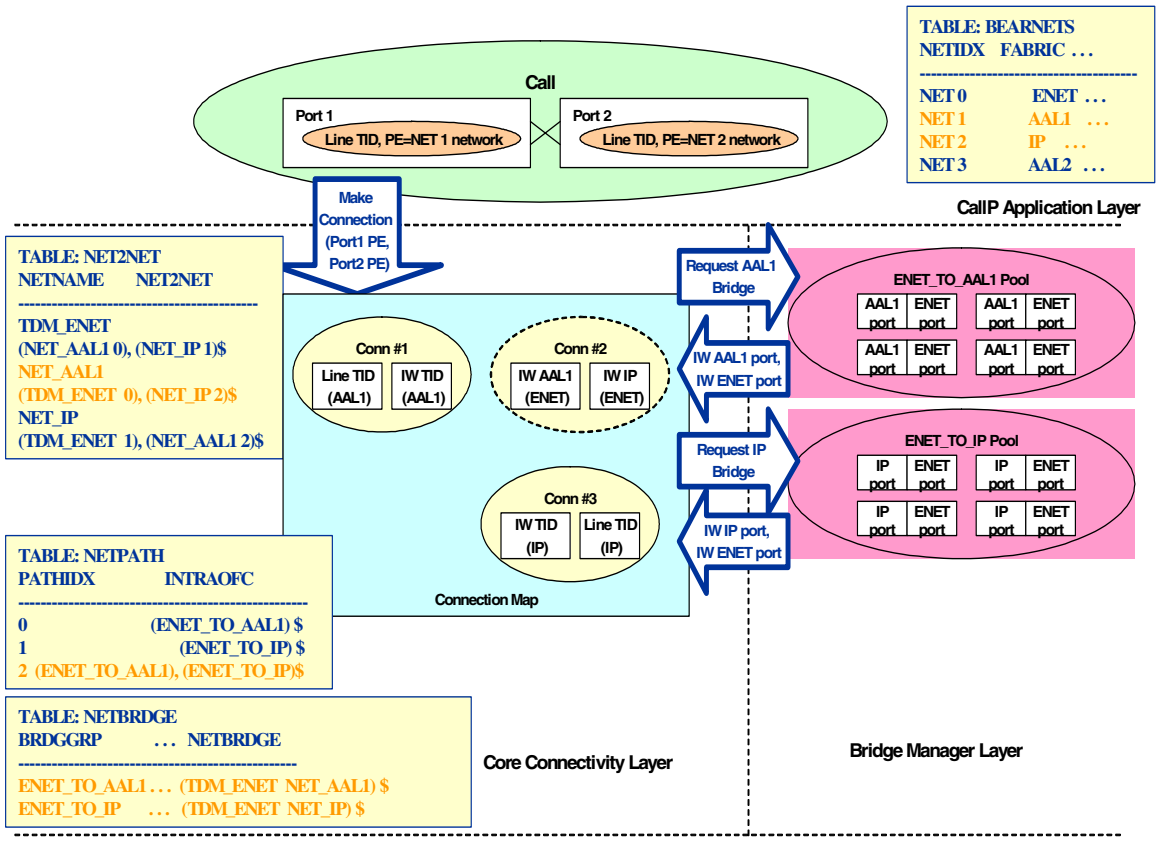
The following figures provide examples on how core connectivity uses the datafill to process a connection request from the CallP application.

ATM AAL1 (UA) to ENET connection request

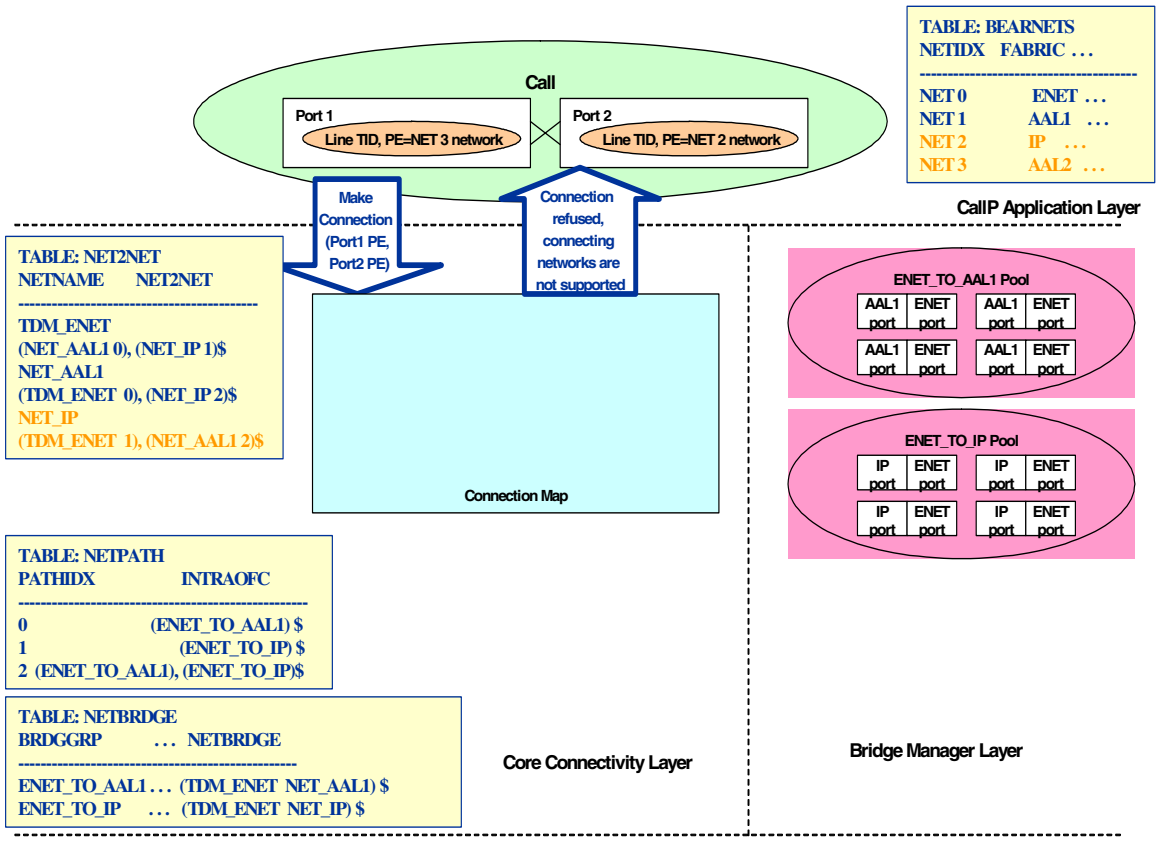


IP (UA) to ENET connection request

ATM AAL1 (UA) to IP (UA) connection request



ATM AAL2 to IP (UA) connection request



Core connectivity supports a set of connection operations. All of the possible connection requests that the CallP application may request in support of the services supported on the CS2000 Call Server map to one of these connection operations.

- Make a connection
- Break a connection
- Hold a connection
- Restore a connection
- Move a connection

These connection operations can be performed multiple times on a single call depending upon the services that are invoked. Each time a connection operation is performed, the connectivity datafill is consulted to determine how the connection map should be modified. IW bridges may be added or removed to maintain the most optimized connection topology for the call.

The following is an example of a 3-way call. The originating line (A) is on the AAL1 bearer network. The first terminating line (B) is on the IP bearer network and the second terminating line (C) is on the ENET network.

Example 3-way call

Step	Description	Connectivity Operation	Connection Map
1	'A' calls 'B'	Make connection	Connection 1 : active • 'A' endpoint (NET_AAL1) • Bridge #1 endpoint (NET_AAL1) Connection 2 : active • 'B' endpoint (NET_IP) • Bridge # 2 endpoint (NET_IP) Connection 3 : active • Bridge #1 endpoint (ENET) • Bridge #2 endpoint (ENET)
2	'A' flashes and puts 'B' on hold	Hold connection	Connection 1 : held • 'A' endpoint (NET_AAL1) • Bridge #1 endpoint (NET_AAL1) Connection 2 : held • TO endpoint (NET_IP) • Bridge # 2 endpoint (NET_IP) Connection 3 : freed • Bridge #1 endpoint (ENET) • Bridge #2 endpoint (ENET)
3	'A' calls 'C'	Move connection	Connection 1 : active • 'A' endpoint (NET_AAL1) • Bridge #1 endpoint (NET_AAL1) Connection 2 : held • TO endpoint (NET_IP) • Bridge # 2 endpoint (NET_IP) Connection 4: active • Bridge #1 endpoint (ENET) • 'C' endpoint (ENET)

Example 3-way call

Step	Description	Connectivity Operation	Connection Map
4	'A' flashes and connects to 'B' and 'C'. A conference circuit is obtained on the MTM.	Move connection	Connection 1 : active • 'A' endpoint (NET_AAL1) • Bridge #1 endpoint (NET_AAL1) Connection 2 : active • TO endpoint (NET_IP) • Bridge # 2 endpoint (NET_IP) Connection 4: freed • Bridge #1 endpoint (ENET) • 'C' endpoint (ENET) Connection 5: active • Bridge #1 endpoint (ENET) • CF3P(0) endpoint (ENET) Connection 6: active • Bridge #2 endpoint (ENET) • CF3P(1) endpoint (ENET) Connection 7: active • 'C' endpoint (ENET) • CF3P(2) endpoint (ENET)
5	All parties disconnect	Break connection	Connection 1 : freed • 'A' endpoint (NET_AAL1) • Bridge #1 endpoint (NET_AAL1) Connection 2 : freed • TO endpoint (NET_IP) • Bridge # 2 endpoint (NET_IP) Connection 5: freed • Bridge #1 endpoint (ENET) • CF3P(0) endpoint (ENET) Connection 6: freed • Bridge #2 endpoint (ENET) • CF3P(1) endpoint (ENET) Connection 7: freed • 'C' endpoint (ENET) • CF3P(2) endpoint (ENET)

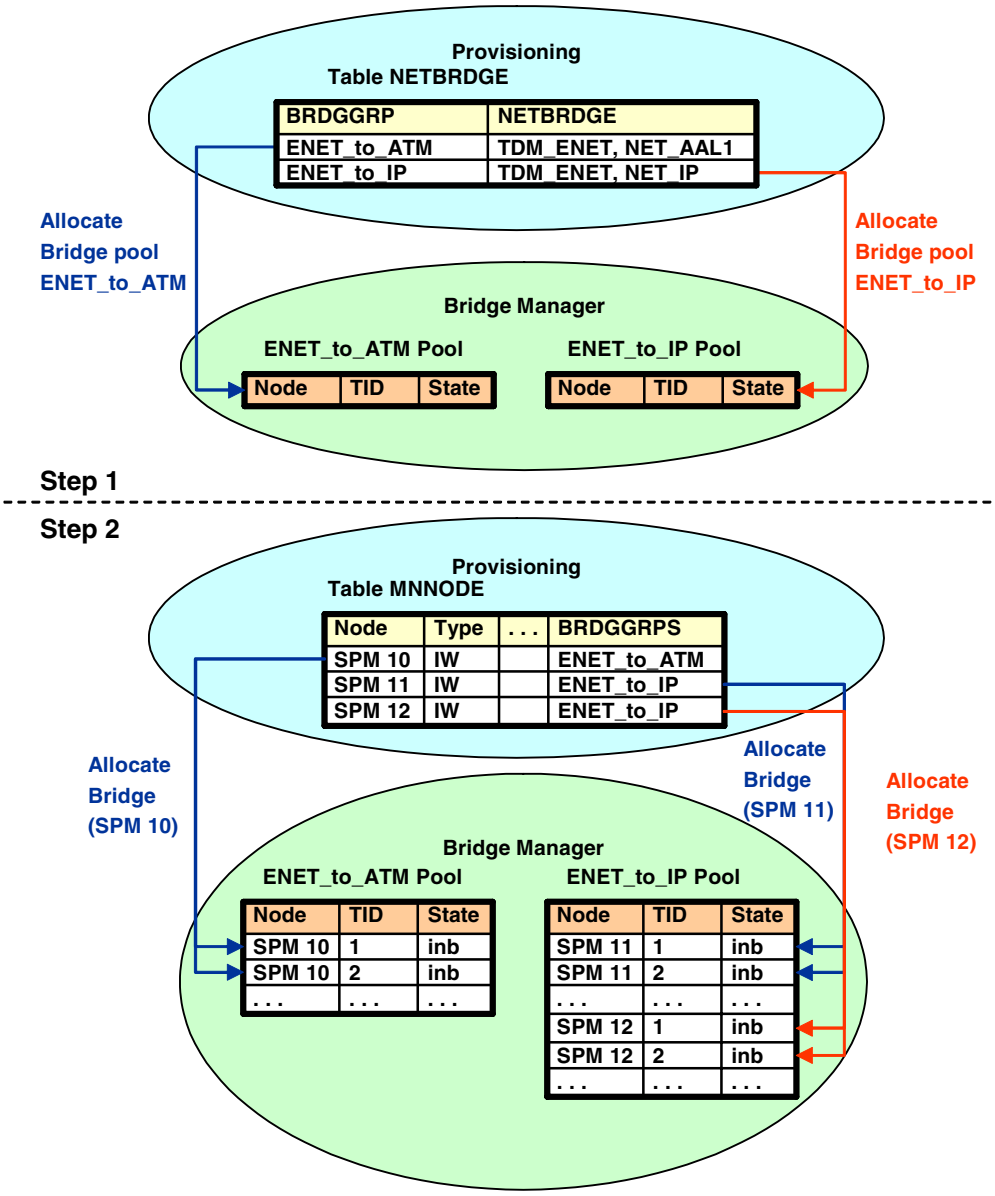
IW Bridge management

IW bridge management is a function in the CS2000 Call Server that manages the pool of IW SPM bridges. Prior to SN07, a single, office-wide pool of available IW bridges was managed by this utility. Each IW bridge node is composed of four groups of 504 bridge endpoints each. When an IW bridge

node was provisioned in Table MNNODE, a set of four groups of 504 endpoints were added to the bridge pool. As the group of 504 endpoints was brought into service, these endpoints became available for Core Connectivity to use. The bridge manager function interfaced with maintenance and Core Connectivity to manage the set of available IW bridge endpoints in the office.

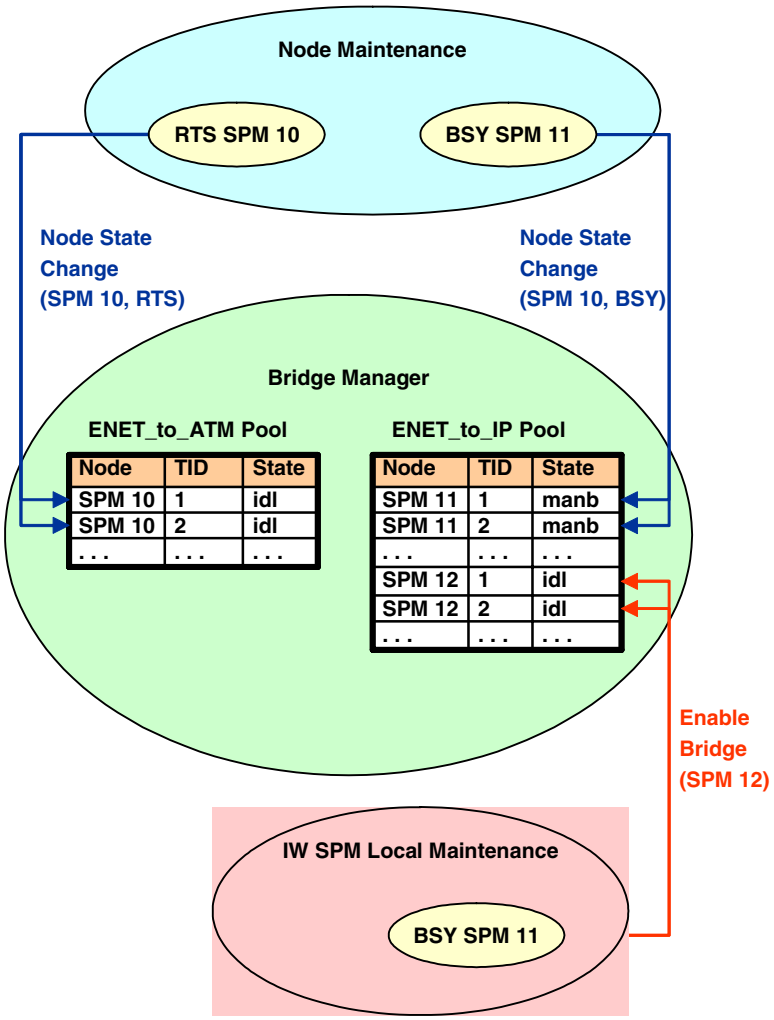
In SN07, the office-wide, single bridge pool is changed to support multiple bridge pools in a single CS2000 Call Server. A bridge pool is created when it is datafilled in Table NETBRDGE and the first IW SPM node is defined in that bridge pool in Table MNNODE. Additional individual IW bridge nodes are added (still in the 4 groups of 504 endpoints each) as they are provisioned in Table MNNODE against the newly created bridge pool.

IW bridge pool creation



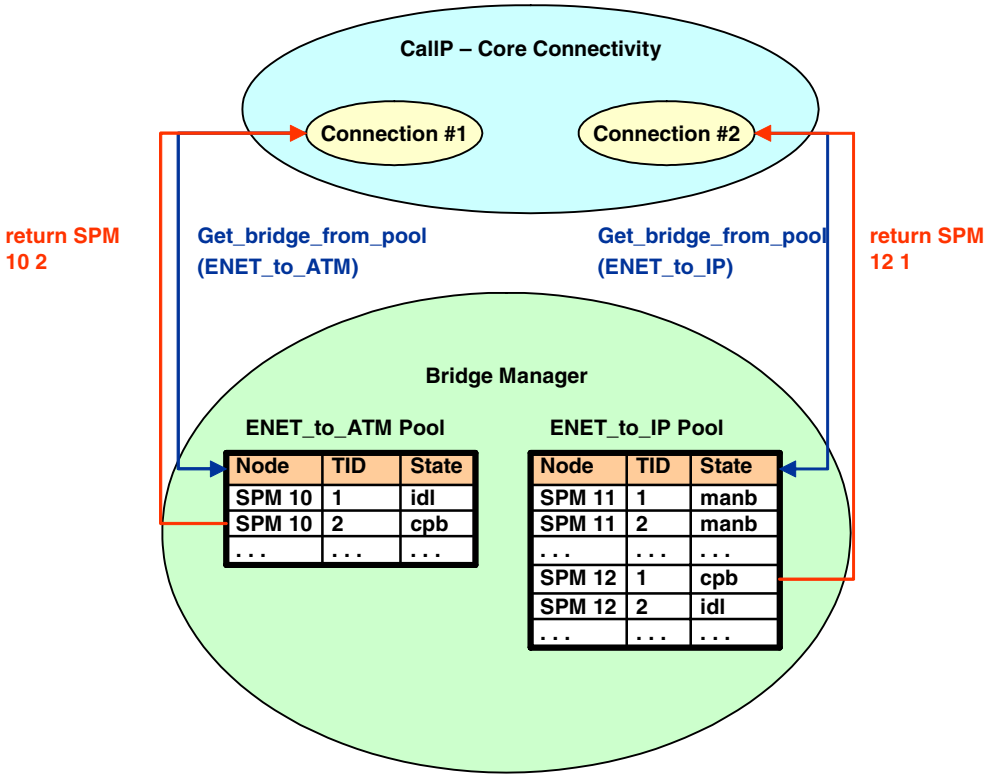
Once the bridge pools are created through provisioning, the individual IW bridge nodes are brought into service. This causes the nodes in the associated bridge pool to become available for use.

IW bridge maintenance



With idle IW bridge endpoints available in their associated bridge pools, the Bridge Manager can respond to requests from Core Connectivity to get a bridge. If more that one bridge is needed for a connection request, the Core Connectivity makes a request for each bridge needed.

IW bridge request



OAM changes on the CS2000 Call Server

OAM changes associated with the support of multiple bearer networks are limited in SN07. It is recognized that many additional requirements should be implemented and will be addressed in a future release.

In SN07, this feature does address the following areas:

- IW bridge OAM
- Trunk group OAM
- DPT OAM
- Office-wide usage OAM

Since many of these changes have impacts to customer OSSMINE interfaces, the activation of these changes is controlled by a new office parameter, MULTINET_DISPLAY_ACTIVE. Setting this parameter to ‘Y’ allows these changes to be visible. Setting this parameter to ‘N’ hides these changes. Note that this parameter does not impact the ability to support call connections between multiple bearer networks.

IW bridge OAM

In SN07 with the support of multiple bridge pools, changes are made to the IWBM 800 series logs. These logs are generated to monitor the usage thresholding of the bridge pools in the office. When office parameter MULTINET_DISPLAY_ACTIVE is set to 'Y', then a new information line is output indicating the associated bridge pool that is causing the generation of the log. Refer to the Fault Management section of the document for more information.

IWBM 800 log example

```
RTP7  **  IWBM800 SEP17  12:16:55  6600  1st Threshold Exceeded
          The number of interworking bridges in use has
          exceeded 70 percent of all bridges in the pool.
           Total number of IW bridges:  2016
           Number of available IW bridges: <NN>
           Bridge Pool: <bridge pool CLLI from Table NETBRDGE>
```

In addition to the modified IWBM 800 logs, the existing OM group IWBM is modified to provide a set of registers for each bridge pool that is defined in Table NETBRDGE. In addition to the registers that were present in the OM group prior to SN07, additional call type usage registers are added. IWBM contains registers to monitor the following usage information:

- Number of attempts to get a bridge from the associated pool
- Number of failures to get a bridge from the associated pool
- Number of get bridge aborts from the associated pool
- Number of attempts to free a bridge from the associated pool
- Number of failures to free a bridge from the associated pool
- Number of free bridge aborts from the associated pool
- Indicates when the number of 'in use' bridges exceeds 70% of the total bridges in the associated pool
- Indicates when the number of 'in use' bridges exceeds 90% of the total bridges in the associated pool
- Indicates when the number of 'in use' bridges falls below 65% of the total bridges in the associated pool
- Indicates when the number of 'in use' bridges falls below 85% of the total bridges in the associated pool
- Number of times a bridge from the associated pool was used to connect to a test facility

- Number of times a bridge from the associated pool was used to connect to an announcement or conference facility
- Number of times a bridge from the associated pool was used to connect to a line
- Number of times a bridge from the associated pool was used to connect to a trunk

Refer to the Performance Management section of the document for more details.

Note that the value of MULTINET_DISPLAY_ACTIVE office parameter does not impact the availability of this OM group. It is always available in SN07.

Trunk group OAM

With support for multiple bearer networks, a trunk group can be configured to have members is multiple bearer networks. The existing TRK and TRNK2 OM groups only provide data on a per trunk group basis. When office parameter MULTINET_DISPLAY_ACTIVE is set to 'Y', then new OM groups (TRK2NET1 and TRK2NET2) are created to provide a per trunk group and per bearer network view of the trunk group usage.

OM group TRK2NET1 contains a subset of the registers that existing OM group TRK contains. It contains registers to monitor the following usage information:

- Automatic congestion control
- Invalid or no automatic number identification (ANI)
- Number of calls answered
- Automatic number identification (ANI) office failure
- Number of successful connections
- Network management reroutes
- Glare
- Answer messages sent and received on incoming trunks
- Answer messages sent and received usage on incoming trunks
- Total incoming attempts
- Incoming failures
- Invalid authorization code
- Maintenance busy usage
- Maximum busy circuits

- Total outgoing attempts
- No answer on trunk (timed out)
- Number of overflows, all trunks busy
- Answer messages sent and received on outgoing trunks
- Outgoing failures
- Outgoing matching failures
- Pre-route abandons
- System busy usage
- Number of tandem calls
- Total usage
- Traffic busy usage

OM group TRK2NET2 contains a subset of the registers that existing OM group TRNK2 contains. It contains registers to monitor the following usage information:

- Number of calls answered (extension from TRK2NET1)
- Number of successful connections (extension from TRK2NET1)
- Network management reroutes (extension from TRK2NET1)
- Total incoming attempts (extension from TRK2NET1)
- Total outgoing attempts (extension from TRK2NET1)
- System busy usage (extension from TRK2NET1)
- Number of tandem calls (extension from TRK2NET1)
- Total usage (extension from TRK2NET1)
- Traffic busy usage (extension from TRK2NET1)

DPT OAM

In providing support for multiple bearer networks, a requirement to support both BICC and SIP-T DPT protocols in the same office was also requested. Prior to SN07, the DPT OM groups did not indicate the associated DPT protocol.

In SN07, when office parameter MULTINET_DISPLAY_ACTIVE is set to ‘Y’, then the following changes are made:

- Provide an office-wide, per-protocol DPT performance summary
- Provide a per-DPT node, per-protocol DPT performance summary

A new OM group (DPTOFCP) is created to provide an office-wide, per-DPT protocol performance summary. This group is modeled after the DPTOFC OM group and contains the same set of registers. Two DPT protocols are supported: BICC and SIP-T. The following registers are included per protocol:

- Get DPT terminal attempts
- Get DPT terminal failures
- Get DPT optimized terminal failures
- DPT terminal usage
- DPT terminal usage high water mark
- DPT port depletion

Changes are made to the existing DPTNODE OM group. This OM group provides a per-DPT node performance summary. In SN07, each DPT node can only support one DPT protocol. For example, a DPT capable MG4K node can only support BICC. DPT GWC nodes can support either BICC or SIP-T but not at the same time. When MULTINET_DISPLAY_ACTIVE is set to 'Y', additional information is added to the DPTNODE OM group to display the following additional information:

- DPT protocol
- For SPM-type nodes, the associated bearer network and SPM node type are also displayed[4]

Office-wide usage OAM

With support for multiple bearer networks, it is a requirement to be able to monitor the performance of the traffic over each bearer network. The existing OFZ and OFZ2 OM groups only provide an office-wide view. When office parameter MULTINET_DISPLAY_ACTIVE is set to 'Y', then new OM groups (OFZ2NET1 and OFZ2NET2) are created to provide a per bearer network view of office traffic.

OM group OFZ2NET1 contains the same set of registers that existing OM group OFZ contains. It contains registers to monitor the following traffic information for each bearer network defined in Table BEARNETS:

- Incoming trunk subscriber abandoned calls
- Incoming trunk switch abandoned calls
- Incoming trunk calls routed to an announcement
- Incoming trunk calls routed to a tone
- Incoming trunk calls to lock-out

4. DPT GWCs are considered bearer independent, so the associated bearer network is not included for DPT GWCs.

- Incoming trunk calls to outgoing trunk calls
- Incoming trunk calls to terminating line calls
- Lines manual busy
- Number of incoming trunk calls
- Number of originating line calls
- Originating line switch abandoned calls
- Originating line calls routed to an announcement
- Originating line calls to lock-out
- Originating line calls to outgoing trunk calls
- Originating line calls routed to a tone
- Originating line calls to terminating line calls
- Outgoing trunk match failures
- Outgoing trunk network attempts
- Outgoing trunk original seize failures
- Outgoing trunk retrial match failures
- Outgoing trunk retrial seize failures
- Terminating line blocked
- Terminating line match failures
- Terminating line network attempts

OM group OFZ2NET2 contains the same set of registers that existing OM group OFZ2 contains. It contains registers to monitor the following traffic information for each bearer network defined in Table BEARNETS:

- No circuits available on business network trunks
- No circuits available on inward dial trunks
- No circuits available on intermachine trunks
- No circuits available on intertoll trunks
- No circuits available on local tandem trunks
- No circuits available on offnet trunks
- No circuits available on connect trunks
- No circuits available on toll completing trunks
- No circuits available on circuit trunks
- No circuits available on all other trunks

- Calls routed to GNCT treatment
- Switch originated partial dial calls
- Switch originated calls to permanent signal treatment

Lawful Intercept

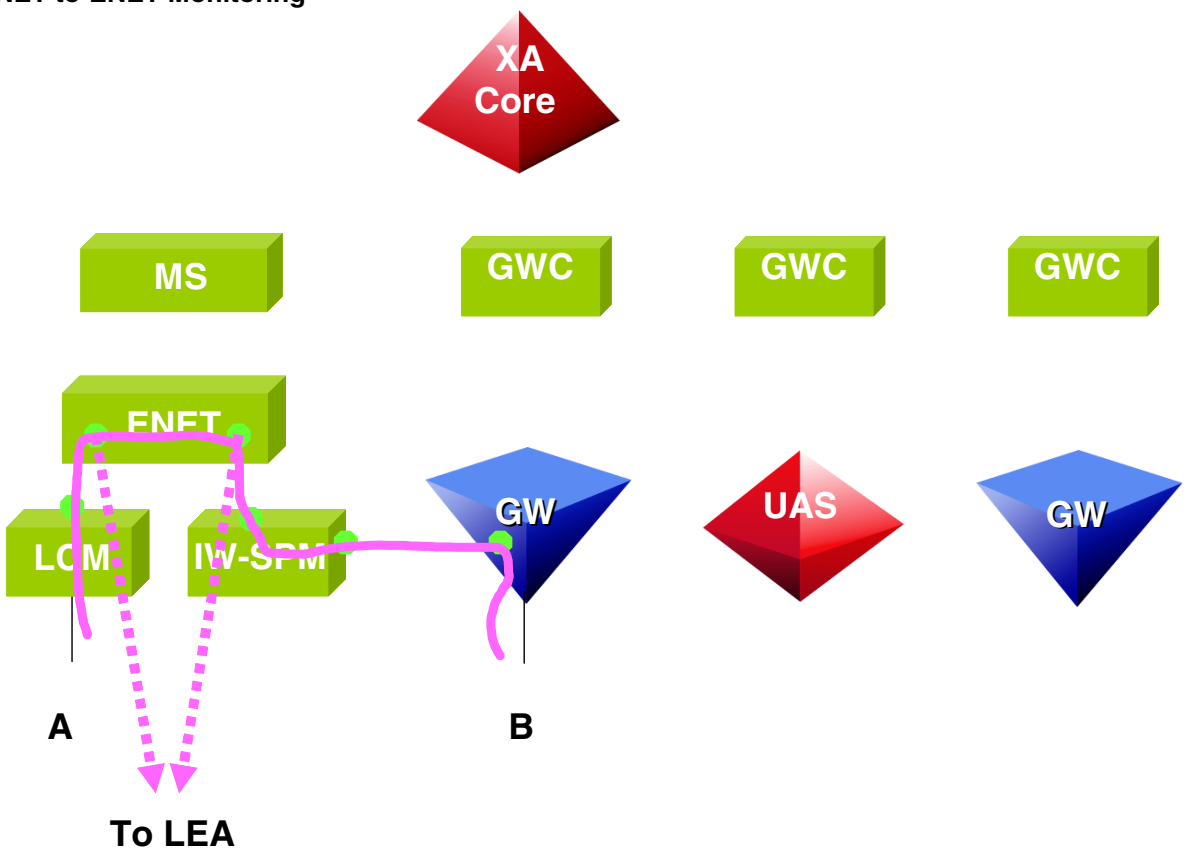
Lawful Interception is the ability to perform call monitoring on selected agents. Call monitoring includes:

- Call Data monitoring - reporting details about monitored calls (e.g. time of the call, dialled digits, parties involved, etc.)
- Call Content monitoring - delivery of both sides of a monitored conversation to law enforcement

With support for multiple bearer network in a single CS2000 Call Server, lawful intercept must provide the ability to do Call Content monitoring on all required call types and all supported bearer connections. Previous to SN07, Call content monitoring was supported for the following call types:

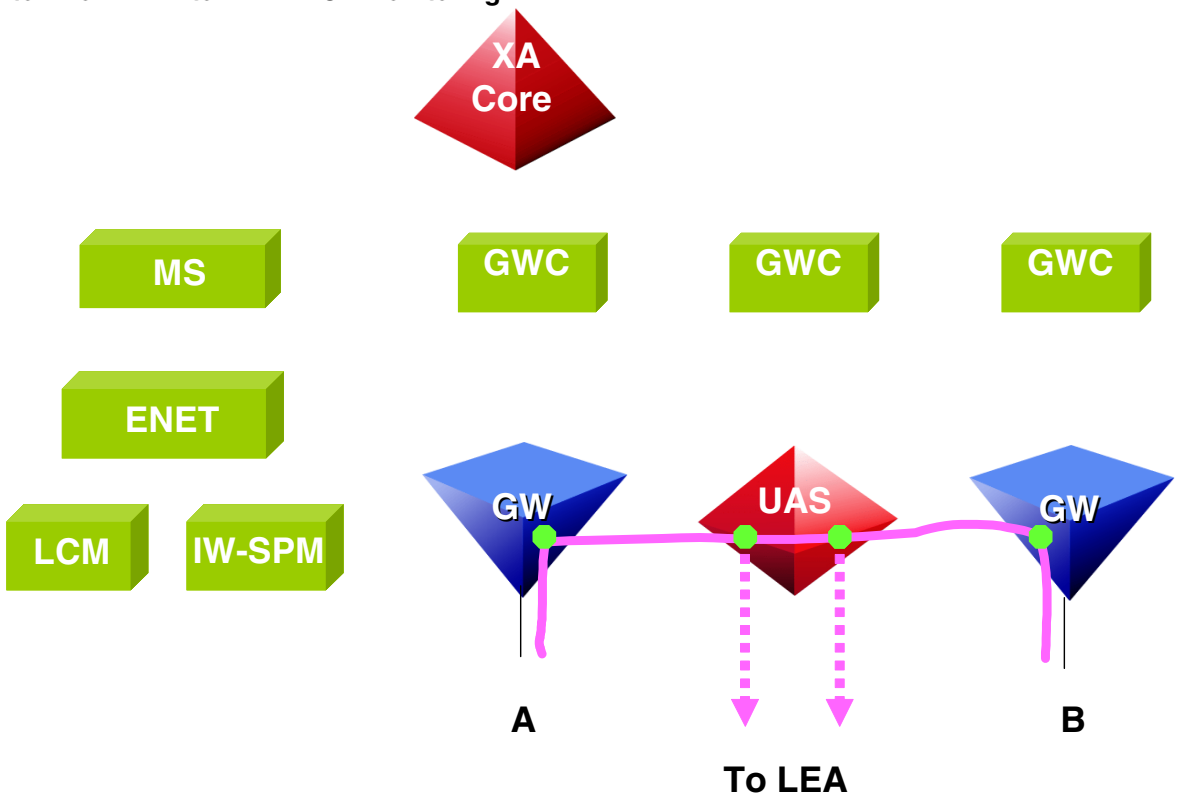
- ENET-to-ENET: replicas are attached to the primary ENET pathends which broadcast the transmit of each endpoint (legacy monitoring)

ENET-to-ENET Monitoring



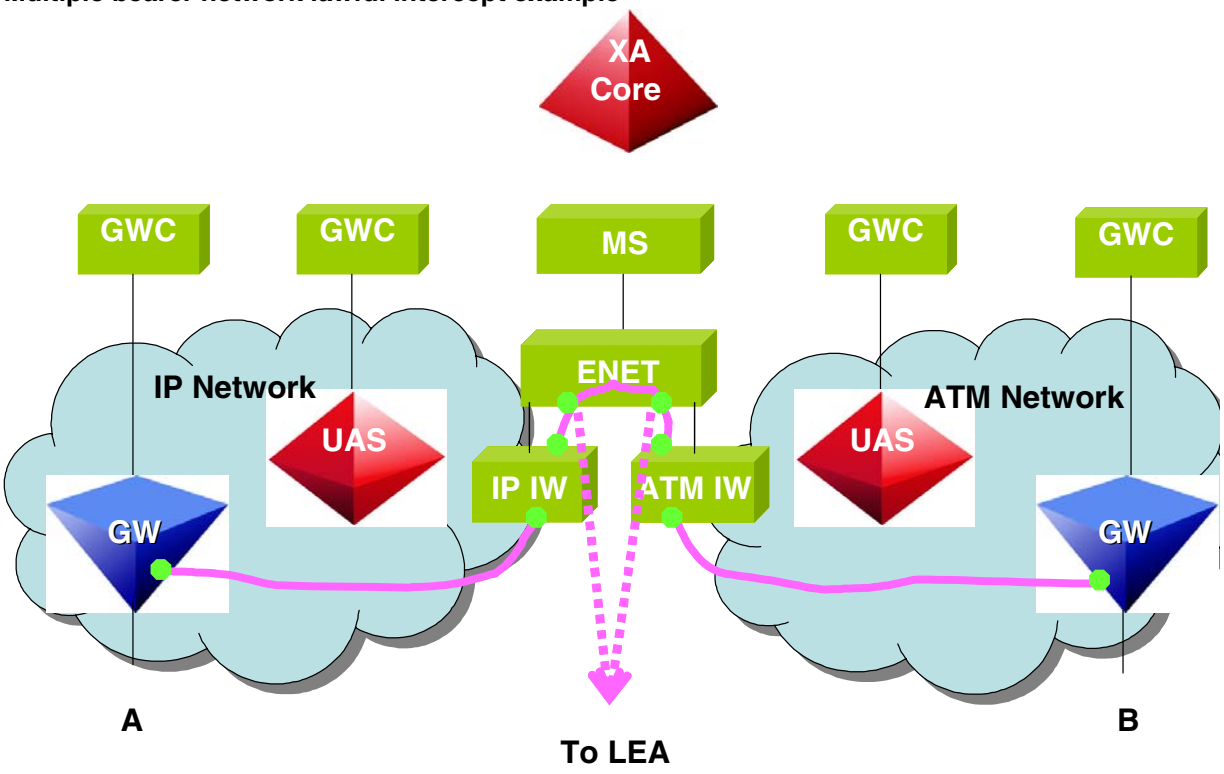
- IP-to-IP: primary call is tandemed through a Centralized Replicator (CR) to which replicas are attached. This functionality is known as Bearer Channel Tandeming (BCT).
- AAL1-to-AAL1: when BCT is active, the same strategy is used as in IP-to-IP calls. If not, then broadcast connections are attempted. This works for Packet Trunking - AAL1 solutions where the only AAL1-to-AAL1 calls involve MG4Ks which support broadcast connections.

IP-to-IP or AAL1-to-AAL1 BCT Monitoring



In SN07, there are no impacts to the replication models that are used to lawful intercept. Since the connection model for supporting a packet bearer network 1 to packet bearer network 2 connection involves using 2 IW SPM bridges, lawful intercept will used the ENET-to-ENET model to perform replication. Also, there is no impact to the connections made to the Law Enforcement Agency (LEA). A single interface is supported for all the replication methods. Refer to the following figure for an example connection with lawful intercept.

Multiple bearer network lawful intercept example



In summary, this means that in a CS2000 Call Server that supports three bearer networks (ENET, AAL1 and IP), that the following replication points will be used:

- ENET
  - — for ENET-to-ENET calls
  - — for AAL1-to-IP calls
  - — for ENET-to-AAL1 calls
  - — for ENET-to-IP calls
- UAS IP
  - — for IP-to-IP calls
- UAS AAL1
  - — for AAL1-to-AAL1 calls[5]

Service circuit support

Service circuits include specialized components needed to support the following:

5. If the call involves only 2 MG4Ks, then the UAS is not needed (MG4Ks can broadcast the bearer path). But if an MG9K is involved, then the UAS is required.

- Announcements
- Conferencing
- Line and trunk test facilities

Each Succession configuration provides support for these service circuits in different ways. The following table provides a view of how these components are supported prior to SN07.

Pre-SN07 service circuit support

Succession Configuration	Service Circuit Type	Service Circuit Support
PT-AAL1	announcements	ENET-based MTM
	conferencing	ENET-based MTM
	line/trunk test facilities	ENET-based MTM
UA-AAL1	announcements	ENET-based MTM
	conferencing	ENET-based MTM
	line/trunk test facilities	ENET-based MTM
PT-IP (XA Core)	announcements	ENET-based MTM and/or UAS (IP)[a]
	conferencing	ENET-based MTM and/or UAS (IP)[b]
	line/trunk test facilities	ENET-based MTM
PT-IP (CS2Kc)	announcements	UAS (IP or AAL2)
	conferencing	UAS (IP or AAL2)
	line/trunk test facilities	UAS (IP or AAL2) with Sage box
UA-IP (XA Core)	announcements	ENET-based MTM and/or UAS (IP)
	conferencing	ENET-based MTM and/or UAS (IP)
	line/trunk test facilities	ENET-based MTM
UA -IP (CS2Kc)	announcements	UAS (IP)
	conferencing	UAS (IP)
	trunk test facilities	UAS with Sage box
	line test facilities	AccessCare

a. Directed terminations for announcements is used if both platforms are present. ENET originating agents use the announcements on the MTM and IP originated agents use announcements on the UAS.

b. Directed terminations for conferencing is used if both platforms are present. ENET requesting agents use the conference ports on the MTM and IP requesting agents use conference ports on the UAS.

In SN07, in order to support multiple bearer networks and multiple service circuit platforms, then the director terminations function would have to be changed to take into account multiple packet bearer networks. This work is not being done in SN07. This means that only a single platform for providing announcements, conferencing and test facilities is supported in a multiple packet bearer network configuration. Since full service circuit functionality is provided when using the MTM as the platform, this is the configuration that is supported. This means that all packet bearer networks must allow connectivity to the ENET network in order to obtain announcements, conference ports and test facilities. If this network connectivity is not in place, then services that requires these facilities will fail.

Groups with members in multiple bearer networks

The CS2000 Call Server maintains line group types and trunk group types. These groups are comprised of individual members. Here are some examples of these groups:

- Centrex customer group
- Hunt group
- MADN group
- Trunk group

There is no restriction in place to require that all the members of the line group types be associated with a single bearer network. For example, a hunt group can have members in all supported bearer networks. There are connectivity implications to consider in the case. In order to ensure seamless group functionality among all its members, then the associated bearer networks must be able to connect to each other (i.e., Table NET2NET must indicate connectivity between the bearer networks). If connectivity is not fully supported, then some group services may fail.

There is no restriction in place to require that all the members of a trunk group be associated with a single bearer network. Refer to the next section for more details on like network selection for trunk groups.

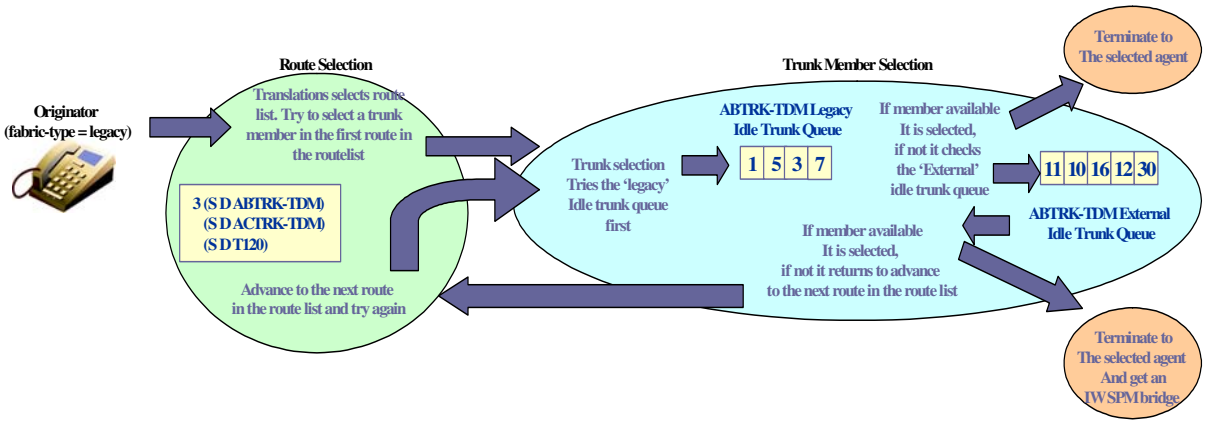
Trunk selection (like network selection)

Prior to SN07, the CS2000 Call Server tried to optimize bearer network connections by trying to select a trunk member whose bearer network matched the bearer network of the originating agent. Since there were only two bearer networks supported (‘internal’ and ‘external’), the trunk selection utility internally maintained an idle trunk queue for each of the two bearer networks. When a request was made to select a trunk member, the trunk selection utility would determine the bearer network of the originating agent and then traverse the ‘matching’ bearer network’s idle trunk queue looking for an available trunk member. If a member was found, it would be selected and returned to CallP

which would then request that a connection be made to that selected member (note that this connection would not require an interworking bridge).

If it did not find a member, it would search the ‘other’ bearer network’s idle trunk queue looking for an available trunk member. If a member was found, it would be selected and returned to CallP which would then request that a connection be made to that selected member (note that this connection would require an interworking bridge). If both queues are checked and no available member can be found, then the request is returned with an indication that the call should advance to the next route in the route list.

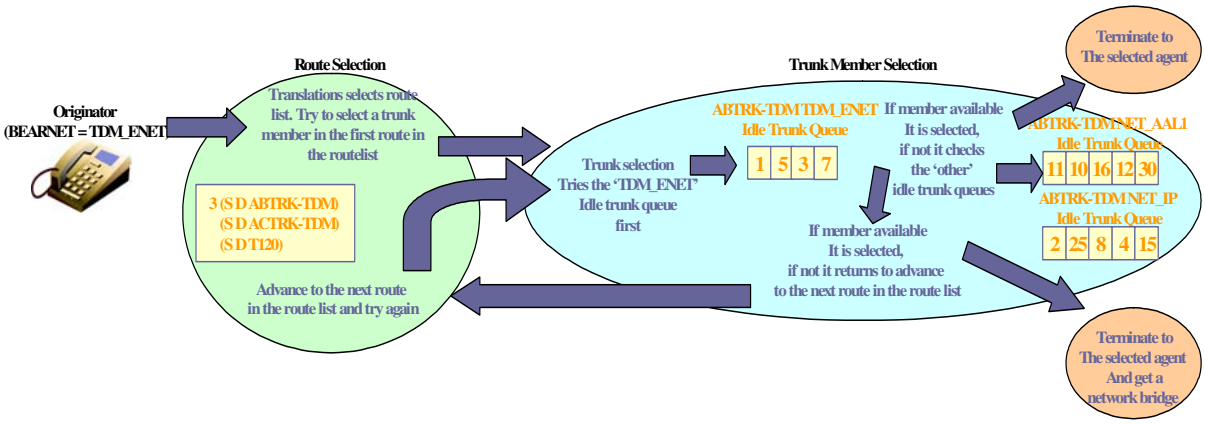
Pre-SN07 like bearer network selection



In SN07, the trunk selection utility is changed to support multiple bearer networks (i.e., more that two). When a request was made to select a trunk member, the trunk selection utility determines the bearer network of the originating agent and then traverses the ‘matching’ bearer network’s idle trunk queue looking for an available trunk member. If a member was found, it would be selected and returned to CallP which would then request that a connection be made to that selected member (note that this connection would not require an interworking bridge).

If it did not find a member, it would search the ‘next’ bearer network’s idle trunk queue looking for an available trunk member. The ‘next’ bearer network is determined by the order that the connecting bearer networks are datafilled in Table NET2NET. If a member was found, it would be selected and returned to CallP which would then request that a connection be made to that selected member (note that this connection would require an interworking bridge). If it did not find a member, it would continue searching it’s idle trunk queues in the Table NET2NET bearer network order until it either found an available member or exhausted all of its bearer networks. If all bearer networks are exhausted, then the request is returned with an indication that the call should advance to the next route in the route list.

SN07 like bearer network selection



The following is an example trunk selection request.

- Originating agent's bearer network = NET_AAL1
- Table NET2NET datafill
  - NET_AAL1 -> (TDM_ENET 0) (NET_IP 2)
- Terminating trunk group has members in all three bearer networks

The following is the order that the trunk selection utility will try to find an available trunk member:

1. Trunk group members in the NET_AAL1 bearer network
   - This is first because this is the originator's bearer network.
2. Trunk group members in the TDM_ENET bearer network
   - This is second because it is the first entry in Table NET2NET.
3. Trunk group members in the NET_IP bearer network
   - This is third because this is the second entry in Table NET2NET.

DPT (BICC and SIP-T) interworking including audible ringing support

Providing support for both BICC and SIP-T DPT protocols in the same CS2000 Call Server impacts the following areas:

- DPT terminal selection
- DPT audible ringing support

DPT terminal selection

The algorithm for determining which node to host a DPT trunk call differs for BICC and SIP-T. Now that both are supported in the same CS2000 Call Server, this feature must ensure that both function properly.

Changes are needed for the BICC DPT terminal selection algorithms to make sure the bearer network of the hosting DPT capable node matches the bearer network of the DPT trunk group that was selected in translations.

The following table defines the algorithms for each protocol.

DPT protocol algorithms

DPT Protocol	Direction	Algorithm
SIP-T	outgoing	CS2000 Call Server selects the next available GWC node that is provisioned to support SIP-T (Tables SERVRINV and SERVSINV). Note that the bearer network of the DPT trunk group does not factor into the selection process.
SIP-T	incoming	The VRDN GWC selects the next available GWC node that is provisioned to support SIP-T (Tables SERVRINV and SERVSINV). The VRDN GWC builds it list of available SIP-T GWCs because the SIP-T GWCs register with it. BICC GWCs do not register with the VRDN GWC.
BICC	outgoing	CS2000 Call Server tries to put the DPT trunk on the most optimized BICC DPT capable node. BICC DPT capable nodes include the following: • BICC GWCs (bearer network independent) • MG4Ks (with an associated bearer network) • DPT SPMs (with an associated bearer network) If the originating agent is on the MG9K, then a BICC GWC is selected. Note that the bearer network of the DPT trunk group does not factor into the selection process because BICC GWCs can support any bearer network. If the originating agent is on the MG4K, then that same MG4K is selected provided the bearer network of the DPT trunk group matches the bearer network of the MG4K. If the bearer network of the DPT trunk group does not match the bearer network of that same MG4K, then terminal selection will try the BICC GWC (since it is bearer network independent) first, then it will try to get another MG4K that does support the DPT trunk group's bearer network. If the originating agent is on a legacy peripheral, then the DPT SPM is selected (if present) provided the bearer network of the DPT trunk group matches the bearer network of the DPT SPM. If the bearer network of the DPT trunk group does not match the bearer network of any DPT SPM in the office, then terminal selection will try the BICC GWC (since it is bearer network independent) first, then it will try to get any MG4K that does support the DPT trunk group's bearer network.

DPT protocol algorithms

DPT Protocol	Direction	Algorithm
BICC	incoming	Prior to SN07, the CS2000 Call Server attempts to initially put the DPT terminal on an MG4K for message normalization and then will move it to the most optimized location based upon what agent the call terminates to. The reason for doing this was to provide a hosting node that had the ability to play tones and collect digits in the case where a service was invoked prior to digit translations and line/trunk termination. In SN07, the CS2000 Call Server continues to place the DPT terminal on an MG4K or DPT SPM for normalization. However, this MG4K/DPT SPM's associated bearer network must now match the bearer network of the incoming BICC DPT trunk group. If no match can be found, then the call is sent to a BICC GWC to be normalized. Note that this leaves no place to support tones and digit collection for those services that may be invoked prior to agent termination. Once the DPT call is normalized, the CS2000 Call Server attempts to optimize the location of the DPT context based on the terminating agent in the call. If the terminating agent is on an MG9K, then the DPT context is moved to a BICC GWC. Note that the bearer network of the BICC DPT trunk group does not factor into the optimization process because BICC GWCs can support any bearer network. If the terminating agent is on an MG4K, then the DPT context will be moved to that MG4K provided the bearer network of the terminating agent's MG4K matches the bearer network of the BICC DPT trunk group. If it does not match, then the DPT context remains where it is (i.e., where it was normalized). If the terminating agent is on a legacy peripheral, then the DPT context will be moved to a DPT SPM (if present) provided the bearer network of the DPT SPM matches the bearer network of the BICC DPT trunk group. If a DPT SPM cannot be found, then the DPT context is moved to a BICC GWC and an IW SPM bridge from the associated bridge pool is used to connect the bearer network of the DPT trunk group and the legacy peripheral. If a BICC GWC is not present, then the call remains where it is (i.e., where is was normalized) and an IW SPM bridge from the associated bridge pool is used.

DPT audible ringing support

The means for providing audible ringing on egress DPT trunk calls differs based upon the DPT protocol being used. Now that both protocols are support in the same CS2000 Call Server, care is taken to ensure that audible ringing functions properly is all scenarios, including bearer network interworking scenarios.

On an incoming DPT SIP-T trunk call where the DPT SIP-T trunk is asked to apply audible ringing, the DPT SIP-T trunk uses Remote Bearer Control (RBC) to ask the originating call server to apply the audible ringing tone on its

behalf. On an incoming DPT BICC trunk, the DPT BICC trunk uses Bearer Channel Proxy - No-Anchor (BCP-NA) to ask the terminating gateway to apply audible ringing back towards the originating call server. The following table illustrates the scenarios and how audible is applied.

DPT audible ringing scenarios

Originating Agent	Terminating DPT Agent	How audible ringing is applied
Line (TDM_ENET)	DPT BICC (NET_AAL1)	Not in the CS2000 Call Server. Audible ringing is applied in the next call server.
Trunk (TDM_ENET)	DPT BICC (NET_AAL1)	Not in the CS2000 Call Server. Audible ringing is applied in the next call server.
Line (NET_AAL1)	DPT BICC (NET_AAL1)	Not in the CS2000 Call Server. Audible ringing is applied in the next call server.
Trunk (NET_AAL1)	DPT BICC (NET_AAL1)	Not in the CS2000 Call Server. Audible ringing is applied in the next call server.
Line (NET_IP)	DPT BICC (NET_AAL1)	Not in the CS2000 Call Server. Audible ringing is applied in the next call server.
Trunk (NET_IP)	DPT BICC (NET_AAL1)	Not in the CS2000 Call Server. Audible ringing is applied in the next call server.
Line (TDM_ENET)	DPT SIP-T (NET_IP)	RBC request may be received. Audible ringing is applied on the IP IW SPM towards the ENET
Trunk (TDM_ENET)	DPT SIP-T (NET_IP)	RBC request may be received. Audible ringing is applied on the IP IW SPM towards the ENET
Line (NET_AAL1)	DPT SIP-T (NET_IP)	RBC request may be received. Audible ringing is applied on the IP IW SPM towards the ENET
Trunk (NET_AAL1)	DPT SIP-T (NET_IP)	RBC request may be received. Audible ringing is applied on the IP IW SPM towards the ENET
Line (NET_IP)	DPT SIP-T (NET_IP)	RBC request may be received. Audible ringing is applied on the Line GW towards the line agent
Trunk (NET_IP)	DPT SIP-T (NET_IP)	RBC request may be received. Audible ringing is applied on the Trunk GW towards the trunk agent
DPT BICC (NET_AAL1)	Line (TDM_ENET)	BCP-NA used to ask the AAL1 IW SPM to apply audible ringing towards the AAL1 network
DPT BICC (NET_AAL1)	Trunk (TDM_ENET)	Not in the CS2000 Call Server. Audible ringing is applied in the next call server.
DPT BICC (NET_AAL1)	Line (NET_AAL1)	BCP-NA used to ask the MG9K to apply audible ringing towards the AAL1 network
DPT BICC (NET_AAL1)	Trunk (NET_AAL1)	Not in the CS2000 Call Server. Audible ringing is applied in the next call server.

DPT audible ringing scenarios

Originating Agent	Terminating DPT Agent	How audible ringing is applied
DPT BICC (NET_AAL1)	Line (NET_IP)	BCP-NA used to ask the AAL1 IW SPM to apply audible ringing towards the AAL1 network
DPT BICC (NET_AAL1)	Trunk (NET_IP)	Not in the CS2000 Call Server. Audible ringing is applied in the next call server.
DPT SIP-T (NET_IP)	Line (TDM_ENET)	BCP-NA used to ask the IP IW SPM to apply audible ringing towards the IP network. If it cannot accommodate the request, the RBC is used to ask the originating call server to play audible ringing.
DPT SIP-T (NET_IP)	Trunk (TDM_ENET)	Not in the CS2000 Call Server. Audible ringing is applied in the next call server.
DPT SIP-T (NET_IP)	Line (NET_AAL1)	BCP-NA used to ask the IP IW SPM to apply audible ringing towards the IP network. If it cannot accommodate the request, the RBC is used to ask the originating call server to play audible ringing.
DPT SIP-T (NET_IP)	Trunk (NET_AAL1)	Not in the CS2000 Call Server. Audible ringing is applied in the next call server.
DPT SIP-T (NET_IP)	Line (NET_IP)	BCP-NA used to ask the line gateway to apply audible ringing towards the IP network. If it cannot accommodate the request, the RBC is used to ask the originating call server to play audible ringing.
DPT SIP-T (NET_IP)	Trunk (NET_IP)	Not in the CS2000 Call Server. Audible ringing is applied in the next call server.
DPT BICC (NET_AAL1)	DPT SIP-T (NET_IP)	RBC request may be received. Audible ringing is applied on the IP IW SPM towards the ENET
DPT SIP-T (NET_IP)	DPT BICC (NET_AAL1)	Not in the CS2000 Call Server. Audible ringing is applied in the next call server.

Translations and Routing changes

With support for multiple bearer networks, there is an assumption that calls should remains on the same bearer network as much as possible. Given this assumption, the following changes are made in SN07:

- Routing based upon the bearer network
- TRAVER modifications to support multiple bearer networks

Routing based upon the bearer network

Prior to SN07, the CND/NOT PKT conditional route selector allowed the customer to force routing between the ENET and the packet bearer network. In SN07, this selector is replaced by two new conditional route selectors:

- CND/NOT FABRIC

- CND/NOT BEARNET

The FABRIC conditional route selector replaces the PKT conditional route selector. During translations and routing, the fabric of the originating agent's bearer network is examined and determines the next route in the route list. This allows the customer to explicitly keep a call on a particular bearer network fabric. During the ONP to SN07, the FABRIC selector replaces any PKT selectors found.

The BEARNET conditional route selector is new in SN07. During translations and routing, the originating agent's bearer network is examined and determines the next route in the route list. This allows the customer to explicitly keep a call on a particular bearer network.

Refer to the Configuration section of the document for additional information.

Conditional routing example datafill

```
TABLE: OFRT
-----------------------------------------------------------
100 (CND FABRIC ENET ST 200) (CND FABRIC AAL1 ST 201)
    (CND FABRIC IP ST 202) $
101 (CND BEARNET TDM_ENET ST 200) (CND BEARNET NET_AAL1 ST 201)
    (CND BEARNET NET_IP ST 202) $
```

TRAVER modifications to support multiple bearer networks

In order to support the new conditional route selectors described above, changes are needed in TRAVER to provide the correct route selection. In SN07, TRAVER needs to determine either the fabric or the bearer network of the originating agent.

If the originating agent is a line, then TRAVER will identify the fabric or bearer network and apply that knowledge to any FABRIC or BEARNET conditional route selectors that it finds.

If the originating agent is a trunk group, then TRAVER cannot automatically identify the fabric or the bearer network information. This is because this designation is not made at the trunk group level but is made at trunk member level. Therefore, changes are made to TRAVER to allow either a trunk member to be specified explicitly or to specify the bearer network to use for the originating trunk group. The existing TRAVER option TRKMEM is modified to include the determination of the associated bearer network. A new option, BEARNET, as added to support the bearer network designation for a trunk group[6].

Refer to the Configuration section of the document for additional information.

6. TRAVER determines the fabric based upon the associated bearer network.

USP messaging

In SN07, the USP is an optional component. When it is present, it provides the connection from the CS2000 Call Server to the SS7 network. ISUP signaling messages and TCAP transaction messages traverse through the USP interface.

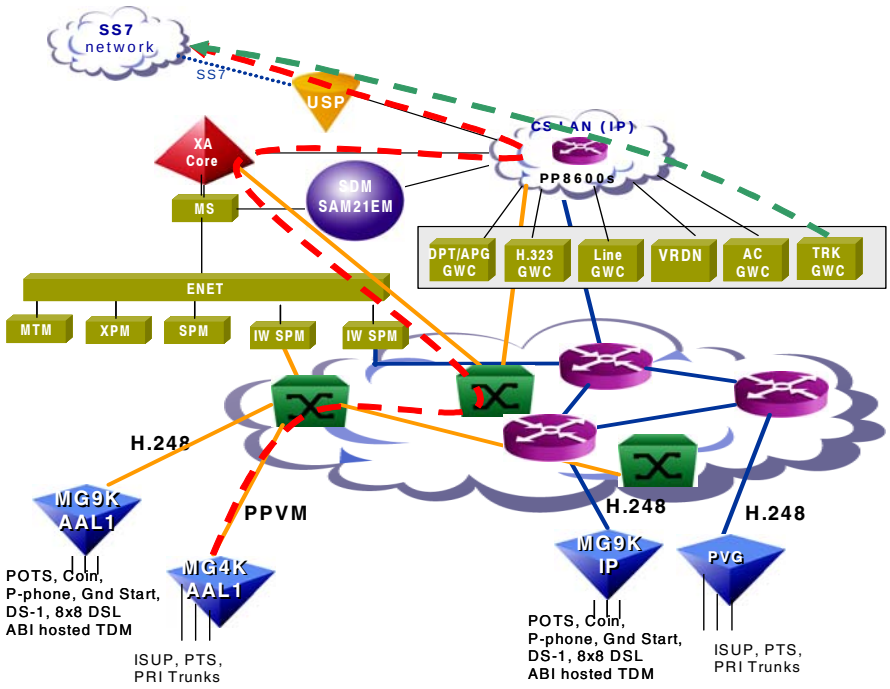
TCAP transaction messages are always generated by the CS2000 Call Server. However, ISUP signaling messages are generated from the ISUP trunk peripherals. The path that the ISUP message takes to get to the USP varies based upon the type of trunk peripheral.

USP messaging path for ISUP signaling messages

ISUP trunk peripheral	USP messaging path
GWC	GWC -> CS LAN -> USP
MG4K (AAL1)	MG4K -> AAL1 bearer network -> CS2000 -> CS LAN -> USP
DPT SPM (AAL1)	DPT SPM -> CS2000 -> CS LAN -> USP
legacy peripheral	Legacy peripheral -> CS2000 -> CS LAN -> USP

The USP supports multiple messaging paths and defines them on a per node basis.

USP messaging paths



ECAN across multiple bearer networks

Echo cancellation (ECAN) can be applied differently in each bearer network. In an IP bearer network, the packet latency is generally large enough to require 100% ECAN. ECAN is only turned off if an individual call requires that it be turned off (i.e., FAX call).

In an AAL1 bearer network, the packet latency may not be large enough to require ECAN. ECAN in the AAL1 network is generally expensive hardware to purchase and would like to be avoided, if possible. The existing office parameter, ECAN_EDGE_STRATEGY, determines the ECAN strategy used for the AAL1 networks.

Refer to feature A00004046: Echo Cancellation Support for TriModal Call Server 2000 for more information on ECAN.

Voice quality

In supporting the connections between packet bearer networks using multiple IW bridges, the voice quality may experience some degradation. The area of concern is in packet latency and delay.

Latency and delay are concerned with how long it takes for a packet of voice to transit the bearer network(s) from end to end. Generally, there is a budget of 150 ms given to a packet. If the delay increases past 150 ms, then the possibility of the end subscribers talking over top of each other increases. The following factors effect the latency and delay that a packet experiences:

- packetization rate and jitter buffer
- transcoding delay
- ECAN
- IP routers
- overall distance travelled

The following tables provides a few examples of latency.

MG9K IP to MG9K AAL1 call analysis

MG9K IP to MG9K AAL1 call analysis	10 ms packetization	20 ms packetization
MG9K IP packetization	10	20
Leg 3 router hops, assume 3 routers	3	3
IP IW SPM jitter buffer	30	60
ENET	1	1
AAL1 IW packetization	6	6

MG9K IP to MG9K AAL1 call analysis

MG9K IP to MG9K AAL1 call analysis	10 ms packetization	20 ms packetization
MG9K AAL1 jitter buffer	2	2
Total latency	52	92

H.323 to MG9K call analysis

H.323 to MG9K AAL1 call analysis	10 ms packetization	20 ms packetization
H.323 packetization	10	20
Leg 1 router hops (1 ms per router) assume worst case, 5 routers	5	5
Media Portal (1 ms assumed)	1	1
Leg 2 router hops, assume 1 router	1	1
PVG jitter buffer (3 x packetization rate)	30	60
PVG transcoding (G.729 to TDM)	5	5
PVG packetization	10	20
Leg 3 router hops, assume 3 routers	3	3
IP IW SPM jitter buffer	30	60
ENET	1	1
AAL1 IW packetization	6	6
MG9K AAL1 jitter buffer	2	2
Total latency	104	184

ONP

Due to the nature of the changes made to the connectivity function in the CS2000 Call Server, they are applicable to all Succession configurations in SN07, regardless of how many bearer networks are supported. In order to preserve call processing over the ONP, the provisioning of Tables BEARNETS, NETBRDGE, NETPATH and NET2NET must be accomplished during the table transfer.

Refer to the Configuration section for more details on the ONP procedures.

Capacity

In general, there are no changes to the capacity parameters for a CS2000 Call Server that supports multiple bearer networks. The total number of endpoints (i.e., lines and trunks) supported remains unchanged. The BHCA capacity of the call server remains unchanged.

The only capacity change is the number of IW SPM bridge nodes supported in a single office. Prior to SN07, there was a limit of 14 IW SPM bridge nodes supported in an office. In SN07, this limit is removed. The limitation that the CS2000 Call Server can support only 78 SPM nodes of any type is the only remaining capacity limitation for IW SPM nodes. In other words, all the SPM nodes in the office must sum to less that (or equal to) 78 nodes. This includes all the legacy SPMs, MG4Ks, DPT SPMs and IW SPMs in the office.

Hardware Requirements or Dependencies

In SN07, the following gateways and packet agents are supported in the multi-bearer network configuration.

Gateways and packet agents supported in SN07

Bearer Network	Gateway	Agents
ENET	None[a]	supported SN07 legacy peripherals which includes both lines and trunk
ATM AAL1 (UA)	MG4000	ISUP trunks PTS trunks PRI trunks BICC DPT trunks
	GWC[b]	BICC DPT trunks
	MG9000	POTS lines Pphone lines Coin lines Ground Start lines
	MG9000 with ABI	supported SN07 ABI peripherals which includes both lines and trunk
	DPT SPM	BICC DPT trunks

Gateways and packet agents supported in SN07

Bearer Network	Gateway	Agents
IP (UA)	PVG (for loop-around trunk access only for support of H.323)	ISUP trunks PRI trunks
	MG9000	POTS lines Pphone lines Coin lines Ground Start lines
	MG9000 with ABI	supported SN07 ABI peripherals which includes both lines and trunk
IP (CHS)	PVG (for loop-around trunk access only for support of H.323)	ISUP trunks PRI trunks
	GWC[c]	SIP-T DPT trunks
	H.323 GWs (Cisco, Westel, BCM, M1)	PRI trunks

a. There are no ‘gateways’ support on the ENET. However, there is a list of supported legacy peripherals for Succession Call Servers. This list remains unchanged by this feature.
b. Not a true bearer gateway. This is included to illustrate the support for BICC DPT trunk support.
c. Not a true bearer gateway. This is included to illustrate the support for SIP-T DPT trunk support.

Software Requirements or Dependencies

This feature requires SN07 North America XA-CORE load or later.

Limitations and restrictions

In SN07, only one bearer network entry will be supported in table SERVRINV and it will be restricted to the default network because SESM will only support a single bearer network per GWC.

In SN07, an IW bridge will be restricted to a single bridge pool.

In SN07, only one bearer network entry will be supported for DPT SPM and it will be required to be the default network.

In SN07, only one bearer network entry will be supported for MG4K and it will be required to be the default network.

In SN07, the DPT trunk groups datafilled in table TRKOPTS will be restricted to a single network protocol.

In SN07, networks must be configured with full inter-connectivity in table NET2NET.

Customer groups may contain agents from various bearer networks, but all agents within a customer group must be fully inter-connected via NET2NET.

The maximum size of the table BEARNETS will be 8 tuples.

The maximum size of the table NETBRDGE shall be 64 tuples.

The following list provides a view of the limitations associated with H.323 calls in this configuration:

- Multiple billing records generated - A call from am H.323 agent to an MG9000 AAL1 native line would be represented as two calls in the CS2000 call server, each generating its own billing record.
- H.323 agent access to announcements - Since there is no announcements accessible to the CHS IP network (i.e., no IP IW bridge supported), announcements cannot be played to the H.323 agent. Any CS2000 Call Server services will not be able to use announcements and any treatments will have to be configured to ‘release with cause’ and the announcement would be provided by the enterprise bearer network.
- H.323 agent access to conferencing - Since there is no conference circuits accessible to the CHS IP network (i.e., no IP IW bridge supported), conferencing services cannot be supported to the H.323 agent.
- H.323 agent access to test trunk facilities - Since there is no test trunk circuits accessible to the CHS IP network (i.e., no IP IW bridge supported), trunk tests cannot be supported to the H.323 gateway.

In a multiple packet bearer network configuration, it is expected that the service circuits (i.e., announcements, conference ports and test facilities) be accessed on the MTM (via the ENET).

E911 is a regulatory service that requires all lines to have access to a PSAP. This feature introduces a means to block connectivity between agents that are on different bearer networks. Care should be taken when engineering the office to ensure that all lines have connectivity access to an E911 PSAP. Line PSAPs are not supported.

Operator services is a regulatory service that requires all lines to have access to an operator. This feature introduces a means to block connectivity between agents that are on different bearer networks. Care should be taken when

engineering the office to ensure that all lines have connectivity access to operator services access points.

Hyper-PRI is not supported for packet-based agents. Multiple fabrics are not supported within a PRI group.

SIP-T is supported on a single IP network only, as the APG resource selection is not supported across multiple bearer fabrics.

This feature does not support in-service line/trunk migrations or cutovers from one bearer network to another bearer network.

This feature does not support in-service node migrations or cutovers from one bearer network to another bearer network.

Interactions

N/A

Applicable customer facing sections

Fault Management

Logs	___X__
Alarms	_____

Configuration

Data Schema	___X___
User Interface	___X___
Element Management	___X__
Security	_____
Service Order	__n/a_
Office Parameters	___X__

Accounting (includes AMA billing)	__n/a_
Performance (includes operational measurements)	___X___

Indicate with an X if you are completing the sections of the DDOC listed below. Indicate with “N/A” if these sections do not apply to this functionality.

Real-time	___X___
Engineering Information	____X__

Glossary

Term	Explanation
AAL1	ATM Adaptation Layer 1
AAL2	ATM Adaptation Layer 2
ABI	Access Bridging Interface
ATM	Asynchronous Transfer Mode
BICC	Bearer Independent Call Control
CODEC	Coder DECoder
CS2K	Call Server 2000
CS2K - MT	Communication Server 20000 Management Tool
DPT	Dynamic Packet Trunk
DPT-SPM	Interworking SPM (ENET interface on the c-side, packet network on the p-side)
ECAN	Echo Cancellation
ENET	Enhanced Network
GUI	Graphic User Interface
GW	GateWay
GWC	GateWay Controller
GWC-EM	Gateway Controller Element Manager
H.323	ITU-T “umbrella” standard for multimedia communications.
IDL	Interface Definition Language
IP	Internet Protocol
IW	Interworking
IW-SPM	Interworking SPM (ENET interface on c-side, packet network on p-side)
JNET	Junctored Network
LGRP	Logical Group
MG4K	Media Gateway 4000 - SPM capable of supporting TDM trunks and DPTs. External network only, no ENET.
MSH	Multi-Service Hub Layer
NA	North America

NV	Network View
OSSDI	Operations Support System DAta Interface
SESM	Succession Element Sub-element Manager
SHR	SHaRed Layer
SIP-T	Session Initiated Protocol - Trunking
SMG4	SPM Media Gateway 4000
SNMP	Simple Network Management Protocol
SPM	Spectrum Peripheral Module
TDM	Time Division Multiplexing
TL	Telecom Layer
TRKOPTS	TRunK OPTionS

Fault Management for A00003487

Fault management strategy

Fault management tools and utilities

Logs IWBM 800

Explanation

Log Title: IWBM 800

Name: Interworking Bridge Manager Pool Logs

Description: Log report IWBM800 indicates that the number of available IW bridges exceeds the first threshold (70%) when attempting to retrieve an IW-bridge ID from the IW bridge manager.

Event type: Unchanged

Format

Since it is possible to have multiple IW bridge pools in a single call server, a new line of information is included in the IWBM800 log. This new information is only visible when the Office Parameter

MULTINET_DISPLAY_ACTIVE is set to 'Y'. This thresholding log will be monitored and generated for each bridge pool defined in Table NETBRDGE.

Enhanced IWBM 800 Log

```
RTP7  **  IWBM800 SEP17  12:16:55  6600  1st Threshold Exceeded
          The number of interworking bridges in use has
          exceeded 70 percent of all bridges in the pool.
           Total number of IW bridges:  2016
           Number of available IW bridges: <NN>
           Bridge Pool: <bridge pool CLLI from Table NETBRDGE>
```

Field descriptions

Field descriptions

Field	Value	Description
Number of available IW bridges	unchanged	unchanged
Bridge Pool	CLLI	Bridge pool name as datafilled in Tale NETBRDGE

Action

This log report requires no action.

Associated Operational Measurements or Performance Measurements

New OM group IWBMNODE can be used to determine individual IW bridge node usage. To determine bridge pool usage, the per-node usage counts would have to be summed.

Additional information

This log report requires no additional information.

Logs IWBM 801

Explanation

Log Title: IWBM 801

Name: Interworking Bridge Manager Pool Logs

Description: Log report IWBM801 indicates that the number of available IW bridges falls to less than 65% of bridges in the pool in use. This log always occurs after IWBM800.

Event type: Unchanged

Format

Since it is possible to have multiple IW bridge pools in a single call server, a new line of information is included in the IWBM801 log. This new information is only visible when the Office Parameter MULTINET_DISPLAY_ACTIVE is set to 'Y'. This thresholding log will be monitored and generated for each bridge pool defined in Table NETBRDGE.

Enhanced IWBM 801 Log

```
RTP7  **  IWBM801 SEP17  12:16:55  6600 1st Threshold Cleared
      The number of interworking bridges in use has
      fallen below 65 percent of all bridges in the pool.
            Total number of IW bridges:  2016
            Number of available IW bridges: <NN>
            Bridge Pool: <bridge pool CLLI from Table NETBRDGE>
```

Field descriptions

Field descriptions

Field	Value	Description
Number of available IW bridges	unchanged	unchanged
Bridge Pool	CLLI	Bridge pool name as datafilled in Tale NETBRDGE

Action

This log report requires no action.

Associated Operational Measurements or Performance Measurements

New OM group IWBMNODE can be used to determine individual IW bridge node usage. To determine bridge pool usage, the per-node usage counts would have to be summed.

Additional information

This log report requires no additional information.

Logs IWBM 802

Explanation

Log Title: IWBM 802

Name: Interworking Bridge Manager Pool Logs

Description: Log report IWBM802 indicates that the number of available IW bridges exceeds the second threshold (90%) when attempting to retrieve an IW-bridge ID from the IW bridge manager.

Event type: Unchanged

Format

Since it is possible to have multiple IW bridge pools in a single call server, a new line of information is included in the IWBM802 log. This new information is only visible when the Office Parameter MULTINET_DISPLAY_ACTIVE is set to 'Y'. This thresholding log will be monitored and generated for each bridge pool defined in Table NETBRDGE.

Enhanced IWBM 802 Log

```
RTP7  **  IWBM802 SEP17  12:16:55  6600 2nd Threshold Exceeded
      The number of interworking bridges in use has
      exceeded 90percent of all bridges in the pool.
            Total number of IW bridges:  2016
            Number of available IW bridges: <NN>
            Bridge Pool: <bridge pool CLLI from Table NETBRDGE>
```

Field descriptions

Field descriptions

Field	Value	Description
Number of available IW bridges	unchanged	unchanged
Bridge Pool	CLLI	Bridge pool name as datafilled in Tale NETBRDGE

Action

This log report requires no action.

Associated Operational Measurements or Performance Measurements

New OM group IWBMNODE can be used to determine individual IW bridge node usage. To determine bridge pool usage, the per-node usage counts would have to be summed.

Additional information

This log report requires no additional information.

Logs IWBM 803

Explanation

Log Title: IWBM 803

Name: Interworking Bridge Manager Pool Logs

Description: Log report IWBM803 indicates that the number of available IW bridges falls to less than 85% of bridges in the pool in use. This log always occurs after IWBM802.

Event type: Unchanged

Format

Since it is possible to have multiple IW bridge pools in a single call server, a new line of information is included in the IWBM803 log. This new information is only visible when the Office Parameter MULTINET_DISPLAY_ACTIVE is set to 'Y'. This thresholding log will be monitored and generated for each bridge pool defined in Table NETBRDGE.

Enhanced IWBM 803 Log

```
RTP7  **  IWBM803 SEP17  12:16:55  6600 2nd Threshold Cleared
      The number of interworking bridges in use has
      fallen below 85 percent of all bridges in the pool.
            Total number of IW bridges:  2016
            Number of available IW bridges: <NN>
            Bridge Pool: <bridge pool CLLI from Table NETBRDGE>
```

Field descriptions

Field descriptions

Field	Value	Description
Number of available IW bridges	unchanged	unchanged
Bridge Pool	CLLI	Bridge pool name as datafilled in Tale NETBRDGE

Action

This log report requires no action.

Associated Operational Measurements or Performance Measurements

New OM group IWBMNODE can be used to determine individual IW bridge node usage. To determine bridge pool usage, the per-node usage counts would have to be summed.

Additional information

This log report requires no additional information.

XNET 600 Series logs (new)

The XNET 600 series logs provide information on external packet network bearer connection problems. Three new logs are created:

XNET605

Explanation

Bearer Networks Cannot connect

This log indicates that the bearer networks of the two parties in a connection attempt are not permitted to inter-connect, based on datafill in table NET2NET.

Format

XNET605 Log Example

```
RTP7    XNET605  MAY17  12:16:55  9600 INFO Bearer Networks Cannot Connect
        From Agent              : VOIP 42 2 04 00      DN 6137204200
        From Bearer Network:  IP_PRIMARY
        To      Bearer Network: AAL1_SECONDARY
        Bearer Network Translations resulted in no interconnect
        Check Table NET2NET, NETPATH and NETBRDGE
```

Field descriptions

The ‘From Agent’ line indicates the source party of the connection request. This can be in many forms:

- a LEN and DN,
- a Trunk Group name and member number
- a PM type and PM number,
- a Node number and TID (terminal id) when an appropriate device type and device id cannot be determined
- or an “Unavailable” indication when the conection source was an ENET hosted party, but that party can no longer be determined.

The ‘From Bearer Network’ line indicates the bearer network name, as datafilled in table BEARNETS, of the source party . The ‘To Bearer Network’ line indicates the bearer network name, as datafilled in table BEARNETS, of the connection destination party.

Action

The telco should determine whether the identified bearer networks are permitted to interconnect. If so, the appropriate datafill should be added to tables NET2NET, and if necessary NETPATH and NETBRDGE. If the bearer networks are not permitted to connect, the telco can:

a. if possible, change DN translations so that the originator can no longer dial the terminator, but will receive a treatment of some type,

b. use the EXTLOGCI command to disable the XNET605 log (see section)

c. use LOGUTIL to SUPPRESS the XNET 605 log

d. do nothing, the log will continue to print when two parties on the specified bearer networks attempt to dial one another.

Associated Operational Measurements or Performance Measurements

Additional Information

XNET606

Explanation

XNET606 - PKT Pathend Has NIL Bearer Net ID

This log indicates a software or provisioning problem in the switch, in that an appropriate bearer network could not be determined through provisioned data for a particular party in a connection attempt.

Format

XNET 606 Log Example

```
RTP7    XNET606  MAY17  12:16:55  9600 INFO PKT Pathend Has NIL Bearer Net ID
        Path   - Node: LGRP   07    Tid:  124
        Agent - VOIP 42 2 04 00     DN 6137204200
        Contact Product Support
```

Field descriptions

- The ‘Path’ line indicates the node at the network connection point, this can be in two forms:
- a PM name and number, and a channel or TID id,
- a node number, and a channel or TID id, when the PM name and number cannot be determined from the node number

The ‘Agent’ line identifies the suspect party, this can be in several forms:

- a LEN and DN,
- a Trunk Group name and member number
- or a Node number and TID (terminal id) when an appropriate device type and device id cannot be determined

Action

The telco should report this log to appropriate Nortel Product Support.

Associated Operational Measurements or Performance Measurements

Additional Information

The telco can:

- use the EXTLOGCI command to disable the XNET606 log (see section)
- use LOGUTIL to SUPPRESS the XNET 605 log
- do nothing, the log will continue to print when the suspect party attempts to place calls

XNET607

Explanation

XNET607 - IW Bridge Not Available

This log indicates that an IW SPM interworking bridge was not available for the connection request, either because

- of a bridge exhaust condition on one of the bridge pools involved in the connection request,
- bridges are not inservice, or provisioned for one of the bridge pools involved with the connection request

Format

XNET 607 Log Example

```
RTP7    XNET607  MAY17  12:16:55  9600 INFO IW Bridge Not Available
        Bridge Pool       : ENET_TO_IP
        From Agent        : VOIP 42 2 04 00      DN 6137204200
        From Bearer Network:  IP_PRIMARY
        To      Bearer Network: AAL1_SECONDARY
```

Field descriptions

The ‘Bridge Pool’ line indicates the name of the bridge pool, as specified in table NETBRDGE, that has the ‘trouble’ condition. The ‘From Agent’ line indicates the source party of the connection request. This can be in many forms:

- a LEN and DN,
- a Trunk Group name and member number
- a PM type and PM number,

- a Node number and TID (terminal id) when an appropriate device type and device id cannot be determined
- or an “Unavailable” indication when the conection source was an ENET hosted party, but that party can no longer be determined.

The ‘From Bearer Network’ line indicates the bearer network name, as datafilled in table BEARNETS, of the source party. The ‘To Bearer Network’ line indicates the bearer network name, as datafilled in table BEARNETS, of the connection destination party.

Action

The telco can:

- check for IWBM602 logs indicating a bridge exhaust condition,
- verify that the bridge pool identified in the log is provisioned on an SPM in table MNNODE,
- verify that the bridges in the bridge pool identified in the log are in-service.
- use the EXTLOGCI command to disable the XNET607 log (see section)
- use LOGUTIL to SUPPRESS the XNET 607 log

Associated Operational Measurements or Performance Measurements

Additional Information

EXTLOGCI Tool

The EXTLOGCI tool is an existing CI command that controls the XNET series of logs. By using the ENABLE and DISABLE commands, the user can control the production of XNET logs. The XNET 605, 606 and 607 logs are automatically enabled on all restarts.

Related documentation

N/A

Configuration for A00003487

Hardware and Software Requirements

Hardware

No additional hardware is required in order to upgrade to a load capable of supporting multiple packet networks (support limited to IP interworking with AAL1 for SN07). All existing TDM/Packet configurations will continue to be supported, including:

- UA-AAL1
- PT-AAL1
- Ultralite AAL1
- UA-IP
- PT-IP
- PT-IP Compact (includes AAL2 via the PVG)
- AAL2 Wireless

In addition, the following new office configuration is supported:

- UA-AAL1/IP

New hardware will be required for the addition of the second packet network.

Software

The software reconfiguration to use the new networking tables (BEARNETS, NETBRDGE, NETPATH, NET2NET) will occur automatically to include default datafill dictated by the value of a new office parameter. This parameter, PRE_SN07_DUMPSIDE_PACKET_FABRIC, must be set by the engineering team and applied to the office prior to the table transfer.

SESM will align with the standard SESM requirements.

In order to provision a second packet network, the customer will have to provision the new network, any bridging resources for that network, and the connectivity supported between the networks via the bridging resource paths.

Initial Configuration.

Office parameters

NETWORK_ACTIVE

The network_active office parameter will be set to EXTENET when upgraded to the SN07 Succession load, even if it had been previously set to ENET.

If it had been set to JNET, the value will remain as JNET. In these offices, there will be no default network datafill in the new network tables.

> ***Note:*** If the value of the network_active office parameter is set to JNET, the packet connectivity function is not available.

PRE_SN07_DUMPSIDE_PACKET_FABRIC

Will be set to one of {UNDEF[7], NONE, AAL1, AAL2, IP}. Once the ONP is complete, there is no need to change this office parameter.

MULTINET_DISPLAY_ACTIVE = 'N'

The display control for the new OMs and Logs introduced by this activity is initially off.

New Network Tables - initial datafill

The examples that follow are the default tuples that will be in the new network tables after the ONP is complete. Note that the initial value of the NET 1 FABRIC field will be determined by the new office parameter PRE_SN07_DUMPSIDE_PACKET_FABRIC.

The following examples show the post TABXFER views of the new table data for the various "from" office network configurations.

JNET only on from side (JNET)

```
TABLE BEARNETS:
NETIDX  NETNAME         DISPLAY         FABRIC          OPTIONS
-------------------------------------------------------------------

TABLE CLLI:
CLLI            ADNUM           TRKGRSIZ                ADMININF
-------------------------------------------------------------------

TABLE NETBRDGE
BRDGCLLI        BRDGTYPE        DISPLAY                 ADMININF
-------------------------------------------------------------------

TABLE NETPATH
PATHIDX                 NETPATH
-------------------------------------

TABLE NET2NET
BNETNAME                CONNNETS
-------------------------------------

Note: If JNET, then the network_active = JNET, and packet networks are not supported
at all.
```

7. Should be set to something other than UNDEF by the engineering team prior to table transfer. UNDEF will be an error condition if the network_active = EXTENET.

ENET only on from side (ENET)

```
TABLE BEARNETS:
NETIDX  NETNAME          DISPLAY          FABRIC           OPTIONS
-------------------------------------------------------------------
NET 0   TDM_ENET         ENET             ENET         $

TABLE CLLI:
CLLI             ADNUM           TRKGRSIZ                 ADMININF
-------------------------------------------------------------------

TABLE NETBRDGE
BRDGCLLI         BRDGTYPE        DISPLAY                  ADMININF
-------------------------------------------------------------------

TABLE NETPATH
PATHIDX                  NETPATH
-------------------------------------
0                        $

TABLE NET2NET
BNETNAME                 CONNNETS
-------------------------------------
TDM_ENET              $
```

ENET & AAL1 on from side (UA-AAL1 & PT-AAL1)

```
TABLE BEARNETS:
NETIDX  NETNAME         DISPLAY         FABRIC          OPTIONS
-------------------------------------------------------------------
NET 0   TDM_ENET        ENET            ENET        $
NET 1   NET_AAL1        ATM             AAL1           (PACKET_NETWORK_DEFAULT) $

TABLE CLLI:
CLLI            ADNUM           TRKGRSIZ                ADMININF
-------------------------------------------------------------------
ENET_TO_AAL1    725             0                       ENET_TO_AAL1_BRIDGE_POOL

TABLE NETBRDGE
BRDGCLLI        BRDGTYPE        DISPLAY                 ADMININF
-------------------------------------------------------------------
ENET_TO_AAL1    CORE_BRDG       E_A1                    (TDM_ENET NET_AAL1) $

TABLE NETPATH
PATHIDX                 NETPATH
-------------------------------------
0                       $
1                       (ENET_TO_AAL1) $

TABLE NET2NET
BNETNAME                CONNNETS
-------------------------------------
TDM_ENET                (NET_AAL1 1) $
NET_AAL1                (TDM_ENET 1) $
```

AAL1 on from side (Ultralite-AAL1)

```
TABLE BEARNETS:
NETIDX  NETNAME          DISPLAY          FABRIC           OPTIONS
-------------------------------------------------------------------
NET 0   TDM_ENET         ENET             ENET         $
NET 1   NET_AAL1         ATM              AAL1             (PACKET_NETWORK_DEFAULT) $

TABLE CLLI:
CLLI             ADNUM            TRKGRSIZ                 ADMININF
-------------------------------------------------------------------

TABLE NETBRDGE
BRDGCLLI         BRDGTYPE         DISPLAY                  ADMININF
-------------------------------------------------------------------

TABLE NETPATH
PATHIDX                  NETPATH
-------------------------------------
0                        $

TABLE NET2NET
BNETNAME                 CONNNETS
-------------------------------------
TDM_ENET                 $
NET_AAL1                 $
```

ENET & IP on from side (UA-IP and PT-IP)

```
TABLE BEARNETS
NETIDX  NETNAME         DISPLAY         FABRIC          OPTIONS
-------------------------------------------------------------------
NET 0   TDM_ENET        ENET            ENET       $
NET 1    NET_IP          IP              IP        (PACKET_NETWORK_DEFAULT) $


TABLE CLLI
CLLI            ADNUM           TRKGRSIZ                ADMININF
-------------------------------------------------------------------
ENET_TO_IP      725             0                       ENET_TO_IP_BRIDGE_POOL

TABLE NETBRDGE
BRDGCLLI        BRDGTYPE        DISPLAY                 ADMININF
-------------------------------------------------------------------
ENET_TO_IP      CORE_BRDG       E_IP                     (TDM_ENET NET_IP) $

TABLE NETPATH
PATHIDX                 NETPATH
-------------------------------------
0                       $
1                       (ENET_TO_IP) $

TABLE NET2NET
BNETNAME                CONNNETS
-------------------------------------
TDM_ENET                (NET_IP 1) $
NET_IP                  (TDM_ENET 1) $
```

IP on from side (PT-IP Compact)

```
TABLE BEARNETS
NETIDX  NETNAME         DISPLAY         FABRIC          OPTIONS
-------------------------------------------------------------------
NET 1   NET_IP          IP              IP             (PACKET_NETWORK_DEFAULT) $


TABLE CLLI
CLLI            ADNUM           TRKGRSIZ                ADMININF
-------------------------------------------------------------------

TABLE NETBRDGE
BRDGCLLI        BRDGTYPE        DISPLAY                 ADMININF
-------------------------------------------------------------------

TABLE NETPATH
PATHIDX                 NETPATH
-------------------------------------
0                       $

TABLE NET2NET
BNETNAME                CONNNETS
-------------------------------------
NET_IP                  $
```

New fields in existing tables

MNNODE

- IW SPM: will include new field BRDGCLLI set to key of only entry in table NETBRDGE.
- IW DPT: will include a new field BEARNETS set to (<name of NET 1> Y) $.
- MG4K: will include a new field BEARNETS set to (NET_AAL1 Y) $

  Note: NET 1 reflects the previously existing packet network as datafilled in table BEARNETS.

TRKOPTS

- DPT tuples will be pulled out of the DYNAMIC option as an application type and moved into its own option area.
- DPT tuples will contain a new BEARNETS field, that will contain (<name of NET 1> Y) $
- SIPT DPT tuples contain a new selector named NGSS. This selector indicates if the trunk group uses the new Next Generation Session Server (NGSS) for SIP architecture implemented by activities A00003933. The values of this field is either ‘Y’ or ‘N’.

  Note: NET 1 reflects the previously existing packet network as datafilled in table BEARNETS.

SERVRINV

- Will contain a new BEARNETS field, which will be set to:

  — (<name of NET 1> Y) $ if GWC is not a DPT GWC

  — $ if a DPT GWC

  Note: NET 1 reflects the previously existing packet network as datafilled in table BEARNETS.

Routing tables: CND/NOT PKT selector

The existing CND/NOT PKT routing selector will be converted to CND/NOT FABRIC in all of the applicable routing tables.

SESM

Each non DPT GWC provisioned will have a network codec profile associated with it, using the existing network codec profile that is configured for the office.

DPT GWCs will not have a network codec profile associated with them.

Office/Subnet parameters (OP/SP) (CM & SESM)

New/modified office/subnet parameters

New or modified parameter

Parm table	Parameter name	NEW/CHANGED/ DELETED/ RELOCATED	Domain (CM or Subnet Management
OFCOPT	network_active	Unchanged	CM
OFCVAR	multinet_display_active	New	CM
OFCSTD	pre_sn07_dumpside_packet_fabric	New	CM

Parameter information

OFCOPT::NETWORK_ACTIVE

- The parameter itself is not really changing in SN07. It will simply be used to aid in the detection of an upgrade to a Succession call server capable of supporting multiple packet networks.
- As of SN04, any ENET offices upgrading to a packet capable Succession load will have this office parameter converted to EXTENET automatically during the upgrade.
- The value EXTENET is now expanded to include the ability to support multiple packet networks.
- The use of the network tables (BEARNETS, NETBRDGE, NETPATH, and NET2NET) is enforced in connectivity for interworking the various networks, even when only a single packet network exists.

Functional description
This parameter controls various aspects of call processing, most importantly the network connectivity capabilities that are supported by the system.

Provisioning rules
For JNET call processing, set the value of this parameter to JNET.

For Succession (single or multiple packet networks), the value should be set to EXTENET. “Succession” includes all cases where the load is packet capable, such that it includes the MSH DRU. This includes offices that currently only have an ENET provisioned.

Range information
Unchanged.

Activation
Unchanged.

Dependencies
No additional dependencies.

Consequences
Unchanged.

Verification
Not applicable.

Memory requirements
No memory impact.

Parameter release history update
Office parm value EXTENET now implies that the software can support multiple packet networks.

Note: The current SN06 NTP documentation does not reflect that this parameter will be changed on an ONP to EXTENET, if the from side is currently set at “ENET” and the to load contains the MSH DRU. The update that does this was submitted in TL16.

OFCVAR::MULTINET_DISPLAY_ACTIVE

Multiple Networks Display Active

Functional description
This is a new office parameter associated with Succession Call Server that activates the new and changed OMs and logs. This allows the customer the flexibility of enabling multiple packet networks (likely for testing purposes only) prior to having the back-office system (i.e., OSS systems) ready to support the new OMs and log fields. This is an Y/N type parameter. This parameter would be part of OFCVAR table. The default would be set to ‘N’.

This parameter does not control the display of the IWBM per bridge pool OMs.

Provisioning rules
This office parameter cannot be turned on unless NETWORK_ACTIVE = EXTENET.

There are no restrictions for setting it to ‘N’.

Behavior when the parameter is set to ‘Y’

- Change from ‘N’ to ‘Y’ using table control.

— The tuples in the new OM groups TRK2NET1, TRK2NET2, OFZ2NET1, OFZ2NET2 and DPTOFCP are created (if non-existent) displayed.

— Pegging of the OM group registers in TRK2NET1, TRK2NET2, OFZ2NET1, OFZ2NET2 and DPTOFCP is started.

— The signaling type for the DPT node tuple in the DPTNODE OM group is displayed. The bearer network is also displayed for DPTNODE OMs if the DPT node is SPM based. The bearer network will not be displayed for GWC hosted DPT.

— The display of the bridge pool in IWBM 800 series of LOGS is enabled.

Behavior when the parameter is set to 'N'

- Change from 'Y' to 'N' using table control

— A warning message would be displayed "All OM and LOGs data pertaining to multiple bearer networks on this call server will be lost.".

— The tuples in the new OM groups would not be displayed.

— The signaling type and bearer network for the DPT node tuple in the DPTNODE OM group would not be displayed.

— All the counters for the registers of the new OM groups would be set to zero.

— The counters of the registers of the new OM groups would not be pegged.

— The display of bridge pool in IWBM 800 series of LOGS would be disabled.

— The OMSHOW command would display the OM groups TRK2NET1, TRK2NET2, OFZ2NET1, OFZ2NET2 and DPTOFCP and its fields. However the tuples of these OM groups is not be displayed.

Range information

Minimum	Maximum	Default
Y/N	Y/N	N

Activation
Immediate

Dependencies
This parameter cannot be set to Y unless NETWORK_ACTIVE = EXTENET.

Consequences
Setting this parameter to Y will result in new OM tuples and log fields to be displayed. This could adversely affect downstream OOS systems that have not yet been upgraded to handle this additional data.

Verification
To verify that the MULTINET Display is active and OM groups are created, use the CI command OMSHOW DPTOFCP. This command should display the OM group files and its tuples.

Memory requirements
The new OM groups will be created at IPL time, but the tuples will not be created/displayed until the office parameter is set to Y.

- For the OM groups DPTOFCP, OFZ2NET1 and OFZ2NET2 the tuples would be created but not displayed.
- For the OM TRK2NET1 and TRK2NET2, the tuples would not be created and would be created when the office parameter "MULTINET_DISPLAY_ACTIVE" is set to Y for the first time.

Parameter release history update
New in SN07.

OFCSTD::PRE_SN07_DUMPSIDE_PACKET_FABRIC
SN07 Dumpside Packet Fabric prior to Succession MULTINET upgrade.

Functional description
This office parameter is set by the Nortel engineering team in an office parm changes flat file prior to the night of ONP. It is to be applied after the transfer of the office parameters and prior to the TABXFER.

The purpose of the parameter is to identify the FABRIC type of the single packet fabric supported on the from side prior to the upgrade, in order for the proper network tuples to be created in tables BEARNETS, CLLI, NETBRDGE, NETPATH, and NET2NET, as well as allow the new network related fields in tables MNNODE, TRKOPTS, and SERVRINV to be assigned the proper default values.

It is very important that this parameter be set correctly.

Provisioning rules
This parameter has the following range: {UNDEF, NONE, AAL1, AAL2, IP}. It will be defaulted to UNDEF at IPL in a Succession load, and NONE if in a non-Succession load. It should be set to one of the other values (not UNDEF) on all upgrades to Succession loads. Although present in non Succession loads, it does not need to be set for these loads. Once an office is already on an SN07 or later load, it does not need to be set again.

A warning will be output on all changes except “UNDEF” to one of the other values that this parameter impacts the automatic creation of the network data on ONP, and should be changed with care.

Once a packet tuple is provisioned in table BEARNETS, changes will not be allowed.

In order to properly set the value, datafill will be required from the dump side from the following tables: MNNODE, MNCKTPAK, SERVRINV, TRKOPTS, LGRPINV.

Explanation of parameter values:

- UNDEF: Default value at IPL. Indicates that the engineering team has not looked at the data.
- NONE: The engineering team has analyzed the from side data and detected that no packet nodes are provisioned. Indications that a packet node existed would include:
  - MNNODE: IW SPM, DPM SPM, or MG4K SPMs are provisioned.
  - SERVRINV: any tuple provisioned.
  - Although one could argue that datafill in tables SERVSINV or LGRPINV also indicates a packet node, it cannot be added without a GWC first.
- AAL1: The from side packet datafill contained one of the following:
  - MNNODE contained an SMG4 (MG4K).
  - MNNODE IW or DPT SPM whose circuit card in table MNCKTPAK is ATM RM.
- AAL2:
  - Cannot be detected based on table datafill. Hopefully the engineering team knows if the PVG is using AAL2 or IP/AAL5.
- IP:
  - MNNODE IW or DPT SPM whose circuit card in table MNCKTPAK is GEM RM.
  - Table LGRPINV contains tuples whose GRPTYPE field is ‘M’ or ‘C’. indicating IAD devices or CICM.
  - The parm should also be set to IP if dumpside was using IP/AAL5. This will not be distinguished as a separate bearer network.

Range information

Minimum	Maximum	Default
{UNDEF, NONE, AAL1, AAL2, IP}	{UNDEF, NONE, AAL1, AAL2, IP}	ENET - if load does not contain the MSH DRU UNDEF - if load contains MSH DRU.

Activation

Not applicable. This office parameter is only used during the TABXFER of data to a new load. It should be set to the correct fabric PRIOR to the night of ONP, and not changed thereafter. It is not used by call processing.

Dependencies

The following tables rely on the proper provisioning of this parameter:

- BEARNETS
- NETBRDGE
- NETPATH
- NET2NET
- MNNODE
- TRKOPTS
- SERVRINV

Consequences

- There are no consequences of incorrect provisioning if there are no packet nodes currently supported at the site. If the parameter is set to a packet fabric in a site that does not have a packet network, then network tuples will automatically be created in tables BEARNETS, NETBRDGE, NETPATH, NET2NET.
- If a packet network was supported, and the parameter is provisioned incorrectly, tuple transfer errors could occur in the following tables:
  - TABXFER data errors in MNNODE, TRKOPTS, SERVRINV.
- For an SN07 to SN07 lab upgrade, where the new tables suddenly appear in the load:
  - The ONP will not detect this scenario as a multinet upgrade. Instead, the network tables will appear in the load first, and the lab primes will be notified of the change. They will be required to go to a website and download/apply a DMOPRO file for the type of lab they are working in that contains the default data. In a following load, the dependent

fields will be added to the existing tables, and type reformats will pick up the default datafill.

Verification
Not applicable.

Memory requirements
Minimal. Just need to store the fabric type in a protected variable. Does not control the allocation of any additional memory.

Parameter release history update
New in SN07.

Upgrade Impact

Dump and Restore

Callp functionality should not be affected over an upgrade from pre-SN07 to post-SN07. In order to maintain this, the new/changed tables need to be datafilled over the ONP. It is required that this upgrade has minimum impact to the customer. Aside from the traditional issues with type specific reformats, we have the additional issue of determining what the FABRIC type was on the from side, in order to properly create default tuples in the new network tables. Since call processing will start depending on this data to make inter-network connections, it is vital that this data is correct after the transfer is ONP.

Once the data transfer is complete, the goal is to have the correct network representation for the currently configured networks, such that only new network information is required for when the customer wishes to add additional networks.

The ONP strategy must handle the following information:

Office Parameters

- OFCOPT::NETWORK_ACTIVE - If ENET, convert to EXTENET, and ensure that appropriate datafill is created to handle the existing networks.
- OFCVAR::MULTINET_DISPLAY_ACTIVE - Ensure the new office parameter is defaulted to ‘N’.
- OFCSTD::PRE_SN07_DUMPSIDE_PACKET_FABRIC: the new office parameter *must be set by the upgrade engineering team* to indicate the default packet fabric on the from side network. This is set in a flat file that is applied after the office parameters have been transferred and before the tables are transferred. The engineering team is responsible for setting the correct values, and the application team is responsible for applying the changes at the proper point. Note that this is simply a new parameter included in the existing office parameter process. No changes are required to the process. This parameter applies only to alternative 1.

ONP Creation of Default Network Tuples

Tuples will be created automatically during the TABXFER via post data move procedures for the following tables. For more information see “New Network Tables - initial datafill” on page 787.

- BEARNETS
  - — Create a NET 0 tuple representing the ENET if ENET is present.
  - — Create an appropriate NET 1 tuple representing the existing packet network. The FABRIC should be set to either AAL1, AAL2, or IP as appropriate.
- CLLI
  - — Create the appropriate CLLI used as the index to table NETBRDGE.
- NETBRDGE
  - — If there is both an ENET and a packet network defined, a bridge pool will be automatically created in table NETBRDGE for it.
- NETPATH
  - — Path 0 will be created as $. This is the nilpath, indicating that 2 networks can be interconnected without a bridge.
  - — If there are two networks defined, create a path using the bridge pool from NETBRDGE, assuming that bridges exist and that the bridgepool can connect them.
- NET2NET
  - — For each network in table BEARNETS, create a tuple in NET2NET.
  - — If there are multiple networks (both an ENET and a packet network), assume that both the ENET and the packet network can be connected to the other using the path index containing the bridge pool defined in table NETPATH.
  - — Ensure that the NET 1 packet network detected is assigned the PACKET_NETWORK_DEFAULT option.

  Note: It is possible that an upgrade can occur in offices that have both an ENET and a packet network, but no interworking bridge nodes defined. In this case, the default datafill will still be created, but there will be no IW SPM nodes assigned to the bridge pool, so the interconnections defined in table NET2NET will not work. It is assumed that since this is an upgrade from a working office, that translations would prevent such attempts from occurring.

Initialization of new fields in existing tables

- MNNODE:

— IW SPM: Initialize the new BRDGCLLI field to the single bridge group defined in table NETBRDGE.

— DPT SPM: Initialize the new BEARNETS field to the NET 1 BNETNAME, and mark is as the default network for the node.

— MG4K: Initialize the new BEARNETS field to the NET 1 BNETNAME, and mark is as the default network for the node.

- TRKOPTS:

— Initialize the new BEARNETS field to the NET 1 BNETNAME, and mark is as the default network for the DPT trunk group.

— Initialize the new NGSS field, on SIPT trunks, to 'N'.

- SERVRINV:

— If not a DPT GWC, initialize the new BEARNETS field to the NET 1 BNETNAME, and mark is as the default network for the GWC.

— If this is a DPT GWC, initialize the new BEARNETS field to $.

Type reformats on existing tables

- TRKOPTS: Remove DPT trunk groups as an application under the DYNAMIC trunk option, and create a DPT trunk option.
- OFRn, IBNRTn, HNPACONT::RTEREF, FNPACONT::RTEREF:

— Convert the CND PKT conditional selector to CND FABRIC in all of the applicable routing tables.

Element Management Upgrade

Data schema (DS) (CM, MIBS, RDB)

New/modified tables, MIBs, or Database Schema

New or modified tables

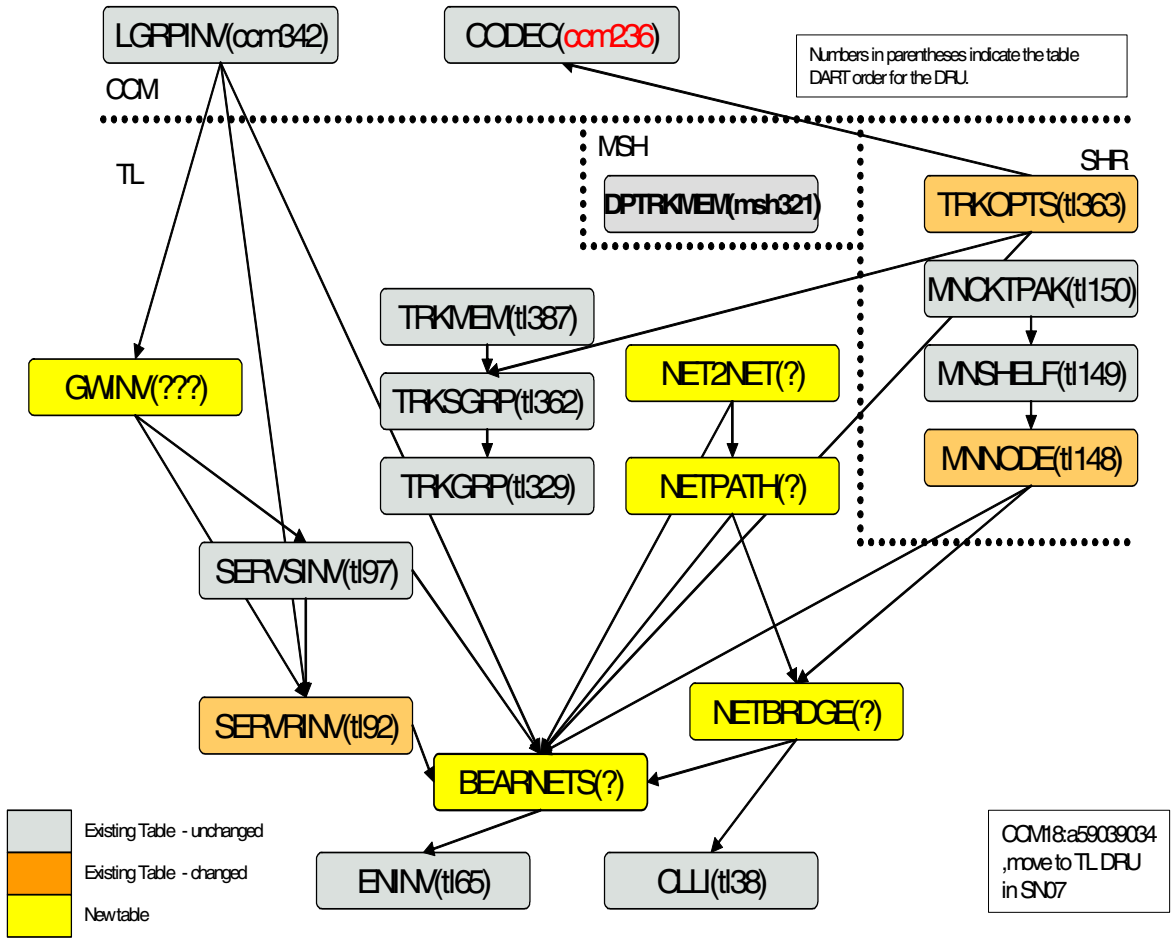
Table/MIB name	NEW/ CHANGED/ or DELETED/	Table Control (NEW/ OLD/UNCHANGED)
Core Tables:		
BEARNETS	NEW	NEW
NETBRDGE	NEW	NEW
NETPATH	NEW	NEW
NET2NET	NEW	NEW

New or modified tables

Table/MIB name	NEW/ CHANGED/ or DELETED/	Table Control (NEW/ OLD/UNCHANGED)
MNNODE	Changed	Unchanged
SERVRINV	Changed	Unchanged
SERVSINV	Changed	Unchanged.
TRKOPTS	Changed	Unchanged
MNCKTPAK	n/a	Unchanged
OFRn	Changed	Unchanged
IBNRTn	Changed	Unchanged
HNPACONT:RTEREF	Changed	Unchanged
FNPACONT:RTEREF	Changed	Unchanged
SESM/GWCEM		
GWC_NETWORK_CODEC_PROFILE	New	New
GWC_NETWORK_RECOMMENDED_CODEC_SETTING	New	Old
GWCNode	Changed	New
GATEWAYPROFILE	Changed	Old

Table/MIB/Remote Database Schema information

Core Table Dependencies



Core Table BEARNETS

Bearer networks

Functional description

On a Succession Call Server, this table identifies the bearer networks supported by the server and the network options that apply to the packet networks.

The overall default packet network for the office is determined by the assignment of the packet_network_default option to a single tuple in the table. If no packet network is detected in the provisioning hierarchy for a packet agent, this default packet network will be used.

Refer to the functional description section for table NET2NET for a full description of how the new network tables are used.

Usage sequence and implications (CM Only)
Tables must be datafilled in the following sequence:

ENINV

BEARNETS

NETBRDGE, NET2NET, MNNODE, SERVRINV, TRKOPTS

Size

Table size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
BEARNETS	0	8	Memory not allocated unless tuples are provisioned. (Required if NETWORK_ACTIVE = EXTENET).

Fields/OIDs
The following table lists fields for BEARNETS.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
NETIDX	New	No	0-7	Key to the table. Will be displayed as “NET 0” - “NET 7”.
BNETNAME	New	No	Vector of up to 32 characters.	Identifies the name of the bearer network.This will be used in other tables to reference the associated bearer network and its characteristics. Making the name a field of the tuple rather than the index allows the customer to make name changes to the networks defined. The 32 character name of the network must be unique across the table.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
DISPLAY	New	No	Vector of up to 4 characters.	Identifies the a 4 character string that will be used to display the bearer network on the MAP screens. It is recommended that this be a unique string across the bearer networks, but this will not be implemented in the table control. Use of non-unique names will diminish the usefulness of MAPCI displays which use this field.
FABRIC	New	No	ENET, AAL1, AAL2, IP	Identifies the bearer network fabric type.
OPTIONS	New	Refinements	Vector of {pkt_network_default}	Vector of options against the bearer network.
pkt_network_default	New	OPTIONS refinement (not a field)	n/a	Indicates that this tuple is the packet bearer network default for the office. Primarily used in initializing dependant tables during an ONP. Restrictions: Only one tuple in the table can have this option.

Datafill example

The following example shows sample datafill for table BEARNETS.

```
TABLE: BEARNETS
NETIDX NETNAME      DISPLAY FABRIC OPTIONS
----------------------------------------
NET 0  TDM_ENET     ENET    ENET   $
NET 1  NET_AAL1     ATM     AAL1   (PKT_NETWORK_DEFAULT)$
NET 2  NET_IP       IP      IP     $
NET 3  NET_AAL2     AAL2    AAL2   $
```

Table release history update

New in SN07.

Supplementary information
Table BEARNETS, along with tables NETBRDGE, NETPATH, and NET2NET) is required to be provisioned in all Succession sites supporting bridged calls from a TDM network to a packet network.

When using the FINDREF tool on table BEARNETS, it is necessary to encapsulate the key field within single parentheses. For example:

FINDREF BEARNETS ‘NET 1’

On an ONP, this table will be automatically provisioned with both TDM and packet networks tuples where they exist.

— If the from side datafill contained an ENET, the NET 0 tuple from the datafill example will be automatically provisioned.

— If the from side supported packet nodes (as indicated by the setting of the PRE_SN07_DUMPSIDE_NETWORK_FABRIC), the NET 1 tuple will be provisioned and marked as the PKT_NETWORK_DEFAULT.

BEARNETS Provisioning Restrictions

Field	Provisioning Restrictions
NETIDX	• Additions of packet networks to the table will not be allowed unless the NETWORK_ACTIVE = EXTENET. • Adding a tuple in table BEARNETS will automatically create a tuple in table NET2NET with $. • Cannot delete a BEARNETS tuple unless the NET2NET entry contains a $and that tuple is the only reference. It is a counted tuple type.
BNETNAME	• Must be unique in table. • Changes to the BNETNAME will be reflected immediately in logs, OMs, etc. • Should only contain alphanumeric and underscore characters.
DISPLAY	• No restrictions, but recommend that this field be unique in the table. Use of non-unique names will diminish the usefulness of MAPCI displays which use this field.
FABRIC	• Only 1 ENET tuple is allowed. • ENET tuple can only be added if ENET exists. • ENET tuple cannot be deleted if ENET exists. • Adds of UNDEF tuples are not allowed. • Changes are not allowed.

BEARNETS Provisioning Restrictions

Field	Provisioning Restrictions
OPTION pkt_network_default	• The first packet network added must be the default. • Only one tuple may have this option assigned. If the option is added to another tuple, it will be removed from the first. • Cannot be added if FABRIC = ENET. • Cannot be deleted from a tuple, except by adding to another tuple. • Can only delete the network default tuple if it is the only remaining packet network tuple.

Refer to the supplementary information for table NET2NET for additional information.

Translation verification other tools

BEARNETS does not use translation verification tools. The Bearer Network (BNETNAME field) and Bearer Fabric (FABRIC field) are used to perform translation verification for Trunk Groups in the Trimodal configuration.

Core Table NETBRDGE

Network bridging resources.

Functional description

This table defines the network bridging resources for interconnecting networks. Bridges provide the ability to connect one network to another without regard to the call type. Bridges typically have two connectivity endpoints, one for each of the networks that it interconnects.

Refer to the functional description section for table NET2NET for a full description of how the new network tables are used.

Usage sequence and implications (CM Only)

Tables must be datafilled in the following sequence:

CLLI, BEARNETS

NETBRDGE

NETPATH, NET2NET, MNNODE

Size

Table size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
NETBRDGE	0	64	Refer to the EI section.

Fields/OIDs

The following table lists fields/OIDs for NETBRDGE.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
BRDGCLLI	New	No	CLLI common_language_name	Identifies the name of the bridge resource group.
BRDGTYPE	New	No	CORE_BRDG	The type of the bridging resource. For SN07, this is limited to core bridges, but could be expanded in the future.
DISPLAY	New	No	Vector of up to 4 characters	Identifies the a 4 character string that will be used to display the bearer network on the MAP screens. We recommend that this be a unique string across the bearer networks, but this will not be implemented in the table control. Use of non-unique names will diminish the usefulness of MAPCI displays which use this field.
BEARNETS	New	Structure	BNETNAME, BNETNAME	Identifies the two networks that can be bridged with this bridging resource group.

Datafill example

The following example shows sample datafill for table NETBRDGE.

```
TABLE: NETBRDGE
BRDGCLLI       TYPE         DISPLAY BEARNETS
------------------x-------------------------
ENET_TO_AAL1   CORE_BRDG    E_A1    TDM_ENET NET_AAL1
ENET_TO_IP     CORE_BRDG    E_IP    TDM_ENET NET_IP
```

Table release history update

New in SN07.

Supplementary information

NETBRDGE Provisioning Restrictions

Field	Provisioning Restrictions
BRDGCLLI	• Common_language_name provisioned in table CLLI. • Counted tuple type. Deletions are not allowed if referenced by another table.
BRDGTYPE	• Only allowable value in SN07 is {CORE_BRDG}. • Cannot change.
DISPLAY	• Recommended, but not enforced, to be unique. • No change restrictions. • Use of non-unique names will diminish the usefulness of MAPCI displays which use this field.
BEARNETS	• The two network names provided must be provisioned in table BEARNETS. • The two network names must be different. • Changes to the BEARNETS field is allowed only if the tuple is not referenced by another table.

Since the BRDGCLLI is the key to this table, it cannot be changed through the table control interfaces. BRDGCLLI names can be changed for this table using the CI command RENAMECLLI. The name change will then be reflected in all tables, OM, and logs that reference the particular bridge CLLI.

Translation verification other tools

NETBRDGE does not use translation verification tools.

Core Table NETPATH

Interconnecting network path.

Functional description

Tuples in this table identify the list of bridging resource groups (the bridge path) that can be used to interconnect two networks. In SN07, two bridges are required to connect an AAL1 agent and an IP agent, so the path consists of a bridge resource from each of those NETBRDGEs.

Refer to the functional description section for table NET2NET for a full description of how the new network tables are used.

Usage sequence and implications (CM Only)

Tables must be datafilled in the following sequence:

NETBRDGE

NETPATH

NET2NET

Size

Table size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
NETPATH	0	256	Refer to the EI section of this document.

Fields/OIDs

The following table lists fields/OIDs for NETPATH.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
PATHIDX	New	New	0 to 255	The key to the table.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
NETBRDGE	New	New	Vector of BRDGCLLI	A list of the bridge pools that are required to go from one network to another. Bridge CLLIs must be listed in the order of the traversal required, without regard to the direction of the traversal (forward or backward).

Datafill example

The following example shows sample datafill for table NETPATH

```
TABLE: NETPATH
PATHIDX        NETBRDGE
----------------------------------------
  0                              $
  1             (ENET_TO_AAL1)   $
  2             (ENET_TO_IP)     $
  3    (ENET_TO_AAL1) (ENET_TO_IP)$
```

Table release history update

New table in SN07.

Supplementary information

The following tuple will be created automatically for all Succession offices:

0 $

This will indicate the “nil path” that can be used in table NET2NET to indicate that two networks can be directed connected without the use of bridging resources.

NETPATH Provisioning Restrictions

Field	Provisioning Restrictions
PATHIDX	• Counted tuple. Deletions not allowed if referenced by another table. • PATHIDX = 0 is reserved for connections between packet networks of the same fabric which do not require an IW bridge for connectivity.
NETBRDGE	• The same bridge pool should not be in the list more than once. • Limit of 2 bridge pools in SN07. • Order of the bridge pools should be maintained. • Changes are allowed, and take effect immediately for all NET2NET tuples provisioned with this path. • The bridge pools must be listed in the order they will be traversed to go from one network to the other. The pools can be listed in either the forward or reverse direction.

Note: Allowing the NETBRDGE field to be changed allows this user to deload a particular IW SPM by creating another PATH with another NETBRDGE pool of the same type and assigning the desired SPMs to it. The CI tool IWBMCI:DBL can be used to validate when the deloaded SPM is no longer in use.

Translation verification other tools

NETPATH does not use translation verification tools.

Core Table NET2NET

Network interconnection.

Functional description

Tuples in this table define the allowable interconnections between networks, and the network path used to interconnect them.

Call processing will assume that any agents on the same network can be connected with one another.

Once the normal translations have occurred, a request will be made to connectivity to connect the agents.

- If the agents are on the same network, the connection request will proceed.
- If the agents are provisioned on separate networks, connectivity will check table NET2NET to see if the connection is allowed.
  - — If the two networks are provisioned as connecting in the table, the NETPATH and associated bridge resources will be retrieved and the

connection request will continue. If there are no idle members in the bridge groups, the connection request will then fail.

— If the two networks are not provisioned as connecting in the table, the connection request will fail immediately.

- In SN07, no mechanism is provided for choosing an alternate bridging path if the bridging resources are unavailable in the provisioned path.

Usage sequence and implications (CM Only)
Tables must be datafilled in the following sequence:

BEARNETS, NETPATH

NET2NET

Size

Table size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
NET2NET	0	7	Allocated upon first tuple entry.

Fields/OIDs
The following table lists fields/OIDs for NET2NET.

Each CONNNETS vector entry consists of:

- NET2NET - the interconnecting network
- NETPATH - reference to tuple in table NETPATH defining the path by which the two networks interconnect.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
BNETNAME	New	No	BNETNAME defined in table BEARNETS	Identifies the name of the bearer network. Must be datafilled in Table BEARNETS first.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
CONNNETS	New	No	Vector of connectin g_network	Identifies a list of other bearer networks that are allowed to interconnect to this bearer network.
NET2NET	New	Field of connecting _network	BNETNA ME provisione d in table BEARNE TS	The interworking bearer network. Must be provisioned in Table BEARNETS first.
NETPATH	New	Field of connecting _network	Key to table NETPATH 0 - 255	Index into Table NETPATH.

Datafill example

The following example shows sample datafill for table NET2NET.

ENET/AAL1/IP NET2NET Datafill

```
TABLE BEARNETS
NETIDX  NETNAME    DISPLAY     FABRIC    OPTIONS
-------------------------------------------------
NET 0   TDM_ENET   ENET        ENET      $
NET 1   NET_ATM    ATM         AAL1      $
NET 2   NET_IP     IP          IP        $

TABLE CLLI
-------------------------------------------------
CLLI          ADNUM   TRKGRPSIZ    ADMININF
ENET_TO_IP    725     0            ENET_TO_IP_BRIDGE_POOL
ENET_TO_AAL1 724      0            ENET_TO_AAL1_BRIDGE_POOL

TABLE NETBRDGE
-------------------------------------------------
BRDGCLLI      BRDGTYPE     DISPLAY       BEARNETS
ENET_TO_AAL1  CORE_BRDG    E_A1         (TDM_ENET NET_AAL1) $
ENET_TO_IP    CORE_BRDG    E_IP          (TDM_ENET NET_IP) $

TABLE NETPATH
-------------------------------------------------
PATHIDX          NETPATH
0               $
1              (ENET_TO_AAL1) $
2              (ENET_TO_IP) $
3              (ENET_TO_AAL1) (ENET_TO_IP) $

TABLE NET2NET
-------------------------------------------------
BNETNAME        CONNNETS
TDM_ENET        (NET_AAL1 1) (NET_IP 2) $
NET_AAL1        (TDM_ENET 1) (NET_IP 3) $
NET_IP          (NET_AAL1 3) (TDM_ENET 2) $
```

Enterprise/Carrier Datafill

```
TABLE BEARNETS
NETIDX  NETNAME    DISPLAY     FABRIC    OPTIONS
-----------------------------------------------
NET 0   TDM_ENET   ENET        ENET      $
NET 1   NET_ATM    ATM         AAL1      $
NET 2   NET_IP     IP          IP        $
NET 3   NET_IPE    IPE         IP        $

TABLE CLLI
-------------------------------------------------
CLLI          ADNUM   TRKGRPSIZ    ADMININF
ENET_TO_IP    725     0            ENET_TO_IP_BRIDGE_POOL
ENET_TO_AAL1 724      0            ENET_TO_AAL1_BRIDGE_POOL

TABLE NETBRDGE
-------------------------------------------------
BRDGCLLI      BRDGTYPE     DISPLAY       BEARNETS
ENET_TO_AAL1  CORE_BRDG    E_A1          (TDM_ENET NET_AAL1) $
ENET_TO_IP    CORE_BRDG    E_IP          (TDM_ENET NET_IP) $

TABLE NETPATH
-------------------------------------------------
PATHIDX          NETPATH
  0                        $
  1           (ENET_TO_AAL1)  $
  2           (ENET_TO_IP)    $
  3   (ENET_TO_AAL1) (ENET_TO_IP)$

TABLE NET2NET
-------------------------------------------------
BNETNAME        CONNNETS
  TDM_ENET        (NET_AAL1 1)    (NET_IP 2)    $
  NET_AAL1        (TDM_ENET 1)    (NET_IP 3)    $
  NET_IP          (NET_AAL1 3)   (TDM_ENET 2)   $
  NET_IPE         $
```

Note that NET_IPE does not connect to NET_IP, even though they have the same FABRIC.

This is the SN07 configuration example to support Carrier Hosted Services (i.e. H.323 and Media Call Server 5200) via PVG looparounds.

Different Networks, same Fabric

```
TABLE BEARNETS
NETIDX  NETNAME    DISPLAY     FABRIC    OPTIONS
-----------------------------------------------
NET 0   TDM_ENET   ENET        ENET      $
NET 1   NET_ATM    ATM         AAL1      $
NET 2   NET_IP     IP          IP        $
NET 3   NET_IPE    IPE         IP        $

TABLE CLLI
-----------------------------------------------
CLLI          ADNUM   TRKGRPSIZ    ADMININF
ENET_TO_IP    725     0            ENET_TO_IP_BRIDGE_POOL
ENET_TO_AAL1  724     0            ENET_TO_AAL1_BRIDGE_POOL

TABLE NETBRDGE
-----------------------------------------------
BRDGCLLI      BRDGTYPE     DISPLAY       BEARNETS
ENET_TO_AAL1  CORE_BRDG    E_A1          (TDM_ENET NET_AAL1) $
ENET_TO_IP    CORE_BRDG    E_IP          (TDM_ENET NET_IP) $

TABLE NETPATH
-----------------------------------------------
PATHIDX          NETPATH
  0                        $
  1           (ENET_TO_AAL1)  $
  2           (ENET_TO_IP)    $
  3   (ENET_TO_AAL1) (ENET_TO_IP)$

TABLE NET2NET
-----------------------------------------------
BNETNAME        CONNNETS
  TDM_ENET        (NET_AAL1 1)    (NET_IP 2)    $
  NET_AAL1        (TDM_ENET 1)    (NET_IP 3)    $
  NET_IP          (NET_AAL1 3)   (TDM_ENET 2) (NET_IPE 0)$
  NET_IPE         (NET_IP 0)         $
```

To interconnect two different networks on the same fabric, define a NETPATH that requires no bridges, and put entries in NET2NET using that path.

Table release history update

New in SN07.

Supplementary information

- NET2NET tuples will automatically be created with CONNNETS = $ whenever new networks are added to table BEARNETS.
- On an ONP, the interconnecting networks should be provisioned with the appropriate bridges automatically.

NET2NET Provisioning Restrictions

Field	Provisioning Restrictions
BNETNAME	• Deletions are not allowed from this table. • User may change the tuple to the point that CONNNETS = $. Tuple deletions will be handled via table BEARNETS, and allowed only if CONNNETS = $.
CONNNETS	• Networks that connect only with themselves will have CONNNETS = $. All provisioned networks in table BEARNETS will be represented in this table. • The order of the entries is used during trunk member selection as the network preference order for trunk members when a member that is on the originating agent's network is not available. The most efficient path is recommended to be provisioned first. • Adding a connecting network to a tuple should also add the connection to the tuple for the other network. This addition will be added to the end of the CONNNETS list of that tuple. • Deleting a connecting network from a tuple will also delete the interconnection from the connecting network's tuple. • Changes to NET2NET tuples will take effect immediately upon the change for all new connection requests. Used should be warned when removing an existing interconnection ability.
CONNNETS: NET2NET	• Valid BNETNAME from table BEARNETS. • Should not be the same as the key for the tuple. It is understood that a network can connect to itself. • A given network should appear in the connecting network list only once. • Changing the order will change the order of trunk member selection based on the network of the originating agent.
CONNNETS: NETPATH	• A valid PATHIDX from table NETPATH. • Path changes take effect immediately for new connection requests. Existing connections will continue with the old path until the connection has been released. • If NETPATH = 0 is specified, verify that the network FABRIC for both the BNETNAME network and the NET2NET network are on the same fabric. • Verify that once the starting end of the path is chosen based on the BNETNAME network, the path can then be traced in the appropriate direction to reach the CONNNETS network.

Translation verification other tools
NET2NET does not use translation verification tools.

Core Table MNNODE

Maintenance node table used to provision Spectrum nodes.

Functional description
Unchanged.

Usage sequence and implications (CM Only)
Tables must be datafilled in the following sequence:

All existing dependencies, plus BEARNETS, NETBRDGE

MNNODE

All existing dependant tables.

Size

Table size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
MNNODE	Unchanged	Unchanged	Refer to the EI section of this document.

Fields/OIDs
The following table lists fields/OIDs for MNNODE.

The following nodes provisioned in table MNNODE are impacted by these changes:

- Interworking bridges (NODEKEY=IW, DPT_INFO = BRDG_ONLY)
- DPT SPM (NODEKEY = IW, DPT_INFO = DPT_ONLY)
- MG4K (NODEKEY = SMG4)

Each of the applicable node type change is broken into its own table below.

Table field descriptions for IW Bridges

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
NODEKEY	Unchanged	Unchanged	Unchanged	Unchanged
ALIAS	Unchanged	Unchanged	Unchanged	Unchanged

Table field descriptions for IW Bridges

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
NODEINFO	Changed	IW refinement		Changes below impact the IW refinement of CLASS.
CLASS	Unchanged	IW refinement	Unchanged	The IW refinement is changed.
FLOOR	Unchanged	Unchanged	Unchanged	Unchanged
CLKMODE	Unchanged	Unchanged	Unchanged	Unchanged
CLKREF	Unchanged	Unchanged	Unchanged	Unchanged
LEDTIMER	Unchanged	Unchanged	Unchanged	Unchanged
RSRUTLIM	Unchanged	Unchanged	Unchanged	Unchanged
ALRMCTRL	Unchanged	Unchanged	Unchanged	Unchanged
DPT_INFO	Changed	Changed	**BRDG_ONLY**	Refinements created based on this field.
BRDGCLLI	**New**	**New subfield when DPT_INFO = BRDG_ONLY**	**List of BRDGCLLI (common_language_identifier) provisioned in table NETBRDGE**	**List of the supported bridge groups the bridges belong to.**
OPTIONS	Unchanged	Unchanged	Unchanged	Unchanged

Table field descriptions for DPT SPM

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
NODEKEY	Unchanged	Unchanged	Unchanged	Unchanged
ALIAS	Unchanged	Unchanged	Unchanged	Unchanged
NODEINFO	Changed	IW refinement		Changes below impact the IW refinement of CLASS.
CLASS	Unchanged	IW refinement	Unchanged	The IW refinement is changed.
FLOOR	Unchanged	Unchanged	Unchanged	Unchanged
CLKMODE	Unchanged	Unchanged	Unchanged	Unchanged
CLKREF	Unchanged	Unchanged	Unchanged	Unchanged
LEDTIMER	Unchanged	Unchanged	Unchanged	Unchanged

Table field descriptions for DPT SPM

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
RSRUTLIM	Unchanged	Unchanged	Unchanged	Unchanged
ALRMCTRL	Unchanged	Unchanged	Unchanged	Unchanged
DPT_INFO	Changed	Unchanged	**DPT_ONLY**	Refinements created based on this field.
BEARNETS	**New**	**New subfield when DPT_INFO = DPT_ONLY**	**Vector of (BNETNAME and DEFAULT)**	**List of the networks to which the DPT TIDs belong and whether or not the network should be considered the default network for the node.** **In SN07, only 1 network can be added, and it will be the default.**
BNETNAME	**New**	**Subfield of BEARNETS.**	**BNETNAME provisioned in table BEARNETS.**	**Name of the bearer network from table BEARNETS.**
DEFAULT	**New**	**Subfield of BEARNETS**	**{Y, N}**	**Indicates whether the particular bearer network is the default network**
OPTIONS	Unchanged	Unchanged	Unchanged	Unchanged

Table field descriptions for MG4K

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
NODEKEY	Unchanged	Unchanged	Unchanged	Unchanged
ALIAS	Unchanged	Unchanged	Unchanged	Unchanged
NODEINFO	Changed	SMG4 refinement		Changes below impact the IW refinement of CLASS.
CLASS	Unchanged	SMG4 refinement	Unchanged	The SMG4refinement is changed.
FLOOR	Unchanged	Unchanged	Unchanged	Unchanged
CLKMODE	Unchanged	Unchanged	Unchanged	Unchanged
CLKREF	Unchanged	Unchanged	Unchanged	Unchanged
LEDTIMER	Unchanged	Unchanged	Unchanged	Unchanged
RSRUTLIM	Unchanged	Unchanged	Unchanged	Unchanged
ALRMCTRL	Unchanged	Unchanged	Unchanged	Unchanged

Table field descriptions for MG4K

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
EXECTAB	Unchanged	Unchanged	Unchanged	Unchanged
DPT	Unchanged	Unchanged	Unchanged	Unchanged
DPT_NUM_REQ	Unchanged	Unchanged	Unchanged	Unchanged
SLINK_THRESHOLD_DATA	Unchanged	Unchanged	Unchanged	Unchanged
BOOTP_SUPPRESS	Unchanged	Unchanged	Unchanged	Unchanged
REMOTE	Unchanged	Unchanged	Unchanged	Unchanged
SGFABRIC	**New**	**New subfield when CLASS = SMG4**	**{ATM, IP}**	**The type of fabric used to carry control signaling to/from the SPM. The values must be consistent with the fabric of the Bearer Network supported by the SPM.**
BEARNETS	**New**	**New subfield when CLASS = SMG4**	**Vector of (BNETNAME and DEFAULT)**	**List of the networks to which the DPT TIDs belong and whether or not the network should be considered the default network for the node.** **In SN07, only 1 network can be added, and it will be the default.**
BNETNAME	**New**	**Subfield of BEARNETS**	**BNETNAME provisioned in table BEARNETS.**	**Name of the bearer network from table BEARNETS.**
DEFAULT	**New**	**Subfield of BEARNETS**	**{Y, N}**	**Indicates whether the particular bearer network is the default network**

Datafill example

The following examples show sample datafill for the affected nodetypes in table MNNODE.

Example Datafill - IW SPM

```
TABLE: MNNODE
NODEKEY ALIAS NODEINFO
-------------------------------------------------
SPM  1 SPM_1  IW   1   SYNCH   INTERNAL   15   (DTMF 60)  (ECAN
60) (TONESYN 60) $(SYSB CR RPT)  (MANB MJ RPT) (DTMFLOW MN RPT)
(ECANLOW MN RPT)(TONESLOW MN RPT)  (PATCHFAIL MJ RPT)  (ATMBCN
CR RPT)(SMCHLD MF RPT)  (SMCHLD24 CR RPT)  $ BRDG_ONLY
(ENET_TO_AAL1) $ (SPMECIDX 0)$
```

Example Datafill - DPT SPM

```
TABLE: MNNODE
NODEKEY ALIAS     NODEINFO
-------------------------------------------------
SPM 1   SPM_1   IW   1   SYNCH   INTERNAL   15   (DTMF 60)  (ECAN
60) (TONESYN 60) $ (SYSB CR RPT)  (MANB MJ RPT)  (ISTB MN RPT)
(SYSBNA CR RPT)(MANBNA MJ RPT)  (DTMFLOW MN RPT)  (ECANLOW MN RPT)
(TONESLOW MN RPT)  (PATCHFAIL MJ RPT)  (ATMBCN CR RPT)(SMCHLD MF
RPT)  (SMCHLD24 CR RPT)  $DPT_ONLY  (NET_AAL1 Y) $
(SPMECIDX 0)$
```

Example Datafill - MG4K

```
TABLE: MNNODE
NODEKEY ALIAS     NODEINFO
-------------------------------------------------
SPM  1              SPM_1          SMG4   0   SYNC   LINE   50
(COT 60)  (DTMF 60)  (ECAN 60) (TONESYN 60) (MF 60) $ (SYSB CR
RPT)  (MANB MJ RPT)  (ISTB MN RPT)  (SYSBNA CR RPT)(MANBNA MJ
RPT)  (COTLOW MN RPT)  (DTMFLOW MN RPT)(ECANLOW MN RPT)  (MFLOW
MN RPT)  (CMRLOW MN RPT)(TONESLOW MN RPT)  (SMG4CN MJ RPT)
(PATCHFAIL MJ RPT)(ATMBCN CR RPT)  (STE3HLD MJ RPT)  (STE3HLD24
CR RPT)(SMCHLD MF RPT)  (SMCHLD24 CR RPT)  (SPMSRMNTD MN RPT)
(LOCUR MJ RPT)  (TMCFAIL CR RPT) $ $ Y 2016 $ N N ATM (NET_AAL1
Y) $
```

Table release history update

In SN07, The following mandatory fields were added:

- BEARNETS field added to IW DPT_ONLY and SMG4 nodes to indicate the bearer network associated with the node.
- BRDGCLLI field added to IW BRDG_ONLY nodes to indicate the list of bridge groups the particular SPM node contributes to.

Supplementary information

- As of SN07, in order for interworking bridges to be utilized, the BRDGCLLI for the IW must be included in a NETPATH used to interconnect two networks in table BEARNETS.
- Terminations to DPT will dynamically match the network of the DPT SPM to the network provisioned against the terminating trunk group in table TRKOPTS to properly select a DPT “terminal” on the correct network.

MNNODE IW bridg_only Provisioning Restrictions

Field	Provisioning Restrictions
BRDGCLLI	• Must be provisioned as a single entry in SN07. Cannot have either a nil vector or more than one provisioned. • Ensure the CLLI entered is a bridge clli. • Do not allow BRDGCLLIs where the NETBRDGE packet network fabric is not IP or AAL1. AAL2 is currently not supported by SPM nodes. • Changes are allowed only if the IW is OOS (MANB or OFFL). • On changes, compare the packet fabrics for the networks bridged by the BRDGCLLI. If the fabrics are different, then this means the network cards must be changed as well. Network cards should be removed prior to changing the BRDGCLLI, so a check is made that no network cards are provisioned if the packet fabrics that are bridged are different.

MNNODE IW dpt_only Provisioning Restrictions

Field	Provisioning Restrictions
BEARNETS - vector of {BNETNAME, DEFAULT}	• Must have a single entry and it must be marked as the default. • The network entered must be provisioned in table BEARNETS. • The network entered must be a packet network with an IP or AAL1 fabric. • For changes, the SPM must be OFFL and all DPT carriers must be INB. (from DPTTRM, post spm <spm_no>, bsy, bsy inb). • If the network fabric is changing, then the network cards must be removed before the change is allowed.

MNNODE SMG4 Provisioning Restrictions

Field	Provisioning Restrictions
BEARNETS	• Must have a single entry and it must be marked as the default. • The network entered must be provisioned in table BEARNETS. • The network entered must be a packet network. • For changes, the SPM must be OFFL and all carriers must be INB. If DPT, then from DPTTRM, post <spm no>, bsy, bsy inb. If not DPT, then from TTP, post d spm <spm_no>, bsy all, bsy inb all. • If the network fabric is changing, then the network cards must be removed before the change is allowed.

Generally, if the packet fabric for the IW is changing (whether a bridge or trunk members), then the following process must be followed to change the BEARNETS or BRDGCLLI provisioned:

- OFFL the SPM and bsy INB all carriers.
- Remove the network cards via table MNCKTPAK.
- Change the MNNODE BEARNETS or BRDGCLLI information.
- Add the correct circuit packs to MNCKTPAK (will be verified against the MNNODE datafill).
- RTS the SPM node.

Translation verification other tools

MNNODE does not use translation verification tools.

Core Table MNCKTPAK

Management Network Node Table

No semantic changes have been made to this table.

Additional validation checking has been added for when the GWM RM and ATM RM card provisioning, to ensure that the network implies by the card agrees with the bearer network provisioned against the node.

Supplementary information

MNCKTPAK Provisioning Restrictions

Field	Provisioning Restrictions
CPKINFO - GEM card	• If SPM is IW brdg_only, ensure that at least one IP network is supported by the BRDGCLLI assigned. • If the SPM is either IW dpt_only or SMG4 (MG4K), ensure that the BEARNETS fabric provisioned in table MNNODE is IP.
CPKINFO - ATM card	• If SPM is IW brdg_only, ensure that at least one AAL1 network is supported by the BRDGCLLI assigned. • If the SPM is either IW dpt_only or SMG4 (MG4K), ensure that the BEARNETS fabric provisioned in table MNNODE is AAL1.

Core Table SERVRINV

Server Inventory

Functional description

A new field, BEARNETS is added to the SERVRINV table to indicate the bearer networks of the packet nodes it controls. For SN07, there will be a limit of one bearer network per gateway controller, and it will be the default.

In addition, DPT GWCs should not be provisioned with a bearer network, as it is a signalling only network element.

Usage sequence and implications (CM Only)

The following provisioning dependencies is added:

BEARNETS

SERVRINV

Size

Table size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
SERVRINV	Unchanged	Unchanged	tbd

Fields/OIDs

The following table lists fields/OIDs for SERVRINV.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
SERVRNAME	Unchanged	Unchanged	Unchanged	Unchanged
SERVRADDR	Unchanged	Unchanged	Unchanged	Unchanged
SERVREXEC	Unchanged	Unchanged	Unchanged	Unchanged
SERVRTONE	Unchanged	Unchanged	Unchanged	Unchanged
BEARNETS	**New**	**New**	**Vector of (BNETNAME and DEFAULT)**	**List of the networks to which the DPT TIDs belong and whether or not the network should be considered the default network for the node.** **In SN07, only 1 network can be added, and it will be the default.** **DPT GWC's should not be provisioned with a bearer network. Enter $.**
BNETNAME	**New**	**Subfield of BEARNETS.**	**BNETNAME provisioned in table BEARNETS.**	**Name of the bearer network from table BEARNETS.**
DEFAULT	**New**	**Subfield of BEARNETS**	**{Y, N}**	**Indicates whether the particular bearer network is the default network**
SERVROPTS	Unchanged	Unchanged	Unchanged	Unchanged

Datafill example

The following example shows sample datafill for table SERVRINV.

Example Datafill

```
TABLE: SERVRINV
SERVRNAME SERVRADDR SERVREXEC SERVRTONE BEARNETS SERVROPTS
-----------------------------------------------------------
GWC 0     IP  47 192 48 24 (POTS POTSEX)  (KEYSET  KSETEX)  $
NORTHAA (NET_IP Y) $ $
```

Table release history update
Added BEARNETS field in SN07.

Supplementary information

- SERVRINV is the bearer network provisioning point for the following nodes, if the BEARNETS field contains a default network. If the GWC does not have a BEARNETS entry, the office default (the tuple in table BEARNETS with the default_packet_network option assigned) will be taken as the bearer network for the following agents.
  - IP trunking gateways (PVG, Audiocodes)
  - Logical groups
  - ABI lines and trunks
  - H.323 & Media Call Server 5200
  - UAS (for CALEA)
- DPT GWCs do not have a bearer network provisioning against them, as the DPT TIDs against the GWC do not have associated hardware. If a network is provisioned against DPT GWC, it will have no effect on call processing. DPT trunk groups get their bearer network from table TRKOPTS.
- It is assumed that SERVRINV will be provisioned via SESM, which will ensure that a default bearer network is added for non-DPT GWCs, and that no bearer network will be added to DPT GWCs. A warning message is output to the user when provisioning changes are made to SERVRINV warning of potential data corruption. This warning message already exists.

SERVRINV Provisioning Restrictions

Field	Provisioning Restrictions
BEARNETS - vector of {BNETNAME, DEFAULT{	• BEARNETS does not apply if the GWC is a DPT GWC. • If a nil entry is added for a non-DPT GWC, the bearer network will be taken from the office default provisioned in table BEARNETS as the pkt_default_network. • Entry must either be assigned a “$” or a single BNETNAME marked as the default. • Changes require that the GWC be OOS (MANB or OFFL). • Non-DPT trunks must be BSY INB prior to change. • Allow changes to a non-nil BEARNETS field only if not DPT in SERVSINV. Allow deletion of BEARNETS entry only if DPT.

Translation verification other tools
SERVRINV does not use translation verification tools.

Core Table SERVSINV

Server Subtending Inventory

Table unchanged by this activity. Only additional provisioning consistency checks are added for use during an ONP.

Supplementary information

DPT terminal groups are signalling only, and do not have any physical hardware associated. The DPT trunk group, via provisioning in table TRKOPTS, contains the bearer network information, and DPT "terminals" can be associated with any bearer network provisioned against the trunk group, as long as the signalling type matches.

When transferring table data during an ONP for table SERVRINV, it is not known if the GWC is a DPT GWC, so the BEARNETS will be automatically set to the bearer network default. Therefore, the write procedure for table SERVSINV will be hooked to check whether or not a multinet upgrade is in progress for DPT GWCs (SIPT or BICC) and if it is, it will delete the BEARNETS entry for its host GWC.

Core Table TRKOPTS

Trunk Options.

Functional description

Unchanged.

Usage sequence and implications (CM Only)

The following dependency is added to the existing provisioning order:

BEARNETS

TRKOPTS

Size

Table size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
TRKOPTS	Unchanged	Unchanged	Refer to EI section.

Fields/OIDs

The following table lists fields/OIDs for TRKOPTS.

```
>range
 1 OPTKEY             TRKOPTS_KEY
 2 OPTINFO            TRKOPTS_OPTINFO_VAR_AREA
LOGICAL TUPLE TYPE: TRKOPTS_LOGICAL_TUPLE
>range 2
 2 OPTINFO            TRKOPTS_OPTINFO_VAR_AREA
TYPE IS TRKOPTS_OPTINFO_VAR_AREA      MULTIPLE WITH
        OPTION                        TRKOPTS_OPTION REFINEMENTS:
{DYNAMIC}                             MULTIPLE WITH
      SIGNALING                       {ISUP,BICC,SIPT}
      SIGNALING_NETWORK               {IP,SS7,STRK}
      BEARER_NETWORK                  {IP,ATM,STRK}
      APPLICATION                     {OC,POS,DPT,RAS,SIPBCPT,STRK}
{DPT}                                 MULTIPLE WITH
      PROTOCOL                        {BICC,SIPT}
      BEARNETS                        {NETNAMES}
      PROTOCOL                        REFINEMENTS:
      {SIPT}                          MULTIPLE WITH
            NGSS                      MULTIPLE WITH
                NGSS_SELECTOR         {N,Y} REFINEMENTS:
                {Y}                   MULTIPLE WITH
                    INTER_DOMAIN     {N,Y}
                {N}                   MULTIPLE WITH
                    DEST_MGCNAME      MGCINV_KEY
                    TPROFILE          TPROFILE_KEY
                    ALT_HOST_MGCNAME  VECTOR OF UP TO 32 CHAR'S
                    INTER_DOMAIN      {N,Y}
      {BICC}                          MULTIPLE WITH
            CAPABILITY_SET            {1 TO 2}
```

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
OPTKEY	Unchanged	No	Unchanged	Unchanged
OPTINFO	**Changed**	**No**	**Add DPT to list of valid OPTIONs**	**Add DPT to list of valid OPTIONs**
OPTION	**Changed**	**Selector subfield of OPTINFO**	**DYNAMIC**	**Added new DPT option and refinement.**
SIGNALING	**Changed**	**Subfield of DYNAMIC option**	**Changed**	**ISUPPLUS renamed to BICC**
SIGNALING_NETWORK	Unchanged	Subfield of DYNAMIC option	Unchanged	Unchanged

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
BEARER_NETWORK	Unchanged	Subfield of DYNAMIC option	Unchanged	Unchanged
APPLICATION	**Changed**	**Subfield of DYNAMIC option**	**{OC, POS, RAS, SPBCPT, STRK}**	**DPT Removed from valid entry range. Should now be provisioned as a DPT option.**
OPTION	**Changed**	**Selector subfield of OPTINFO**	**DPT**	**Remove DPT from list of valid APPLICATIONs**
PROTOCOL	**New**	**Subfield of DPT option**	**{BICC, SIPT}**	**The DPT signalling protocol.**
BEARER_NETWORK	**New**	**Subfield of DPT option**	**BNETNAME from table BEARNETS**	**The BNETNAME of a bearer network provisioned in table BEARNETS.**
PROTOCOL	**New**	**Subfield of DPT option**	**SIPT**	**Subfields when protocol = SIPT.**
NGSS	**NEW**	**Subfield of SIPT protocol**	**{N,Y}**	**Identifies if the new NGSS SIP architecture is being used**
DEST_MGCNAME	**New**	**Subfield of NGSS 'N' selector**	**MGCINV_KEY**	**Enter the Media Gateway Controller (MGC) name from table MGCINV.**
TPROFILE	**New**	**Subfield of NGSS 'N' selector**	**TPROFILE_NAME**	**Enter the telephony profile name from table TELEPROF.**
ALT_HOST_MGCNAME	**New**	**Subfield of NGSS 'N' selector**	**Vector of up to 32 chars.**	**Enter an alternative Media Gateway Controller (MGC) name.**

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
INTER_DOMAIN	**New**	**Subfield of NGSS 'N' and NGSS 'Y' selector**	**N, Y**	**Indicates if the SIP-T trunks are inter-domain or intra-domain (between Nortel Networks equipment in the same addressable range).**
PROTOCOL	**New**	**Subfield of DPT option**	**BICC**	**Subfields when protocol = BICC (old ISUPPLUS)**
CAPABILITY_SET	**New**	**Subfield of BICC protocol**	**{1 to 2}**	**This represents the BICC capability set (CS). If the remote switch (other side of the DPT trunk) is unable to supoort CS2 then datafill the CAPABILITY_SET as 1. If the remote switch can support CS2 then datafill CAPABILITY_SET as 2.**

Datafill example

The following example shows sample datafill for table TRKOPTS.

Example Datafill

```
TABLE: TRKOPTS
OPTKEY          OPTINFO
----------------------------------------
DPTTRK DPT      DPT BICC NET_AAL1 1
SIPTRK DPT      DPT SIPT NET_IP N MGC2 PROF MGCTWO Y
OCTRK  DYNAMIC  DYNAMIC ISUP IP IP OC $
```

Table release history update

- DPT is removed from APPLICATION field under the DYNAMIC option.
- DPT is added as a new OPTION.
- NGSS is added as a new selector field under the SIPT protocol

Supplementary information

The signaling network field is not required for DPT. The signaling protocol implies the signaling network: BICC implies SS7, and SIPT implies IP.

The bearer_fabric provisioned for DPT in table TRKOPTS indicates the bearer fabric for a specific DPT trunk group, and a given DPT trunk group can only have one bearer fabric.

GWC DPT trunk “agents” (provisioned in table SERVSINV) will be associated with the DPT trunk group during call processing based on the signaling protocol only. Bearer fabric is not provisioned against DPT GWCs in table SERVRINV.

SPM DPT trunk “agents” (provisioned in table MNNODE) will be associated with the DPT trunk group during call processing based on both the signaling protocol and the bearer network provisioned in table MNNODE.

The new NGSS (New Generation Session Server) selector identifies the SIP architecture used by the trunk group. When the new NGSS architecture is selected only INTER_DOMAIN data is necessary. However, when NGSS is not selected, the fields previously under the Dynamic tuple are required.

TRKOPTS Provisioning Restrictions

Field	Provisioning Restrictions
BEARNETS	• BNETNAME must be provisioned in table BEARNETS. • Ensure compatibility of the signalling type with the fabric type of the bearer network. • Changes are allowed without restriction and will take effect immediately. Trunk members that are currently call processing will retain their existing network until the call is terminated.
PROTOCOL	• Changes to the protocol field are not allowed for DPT.

Translation verification other tools
N/A

Core Tables OFRT, OFR2, OFR3, OFR4
Office Routing Tables

Same change applies to each

Functional description
Unchanged.

New CND/NOT selector condition of BEARNET, to allow conditional routing based on the originator’s bearer network.

Changed the name of the PKT conditional selector to FABRIC, and increased the allowable FABRIC range from {ENET} to {ENET, AAL1, AAL2, IP}.

Usage sequence and implications (CM Only)

Tables must be datafilled in the following sequence:

BEARNETS

OFRT

Size

Not Changed

Table size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
OFRT	unchanged	unchanged	unchanged
OFR2	unchanged	unchanged	unchanged
OFR3	unchanged	unchanged	unchanged
OFR4	unchanged	unchanged	unchanged

Fields/OIDs

The following table lists fields/OIDs for OFRT, OFR2, OFR3, OFR4.

If CND/NOT condition is FABRIC, will be prompted for FABSEL.

If CND/NOT condition is BEARNET, will be prompted for BEARNETSEL.

OFRn Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
RTE	Unchanged			
RTESEL	Unchanged			
CNDSEL	Changed	Yes	ALWAYS,RND,SNPA,EA,TOD,MIGRATE,NARS,COSMAP,NRR,SITE,CALLCHR,INTERLATA,~~**PKT,**~~TOPEAALT,TOPEAXFR,TOPEACLS,STS,**FABRIC,BEARNET**	Conditional Selector based on Bearer FABRIC and Network.
NOTSEL	Changed	Yes	ALWAYS,RND,SNPA,EA,TOD,MIGRATE,NARS,COSMAP,NRR,SITE,CALLCHR,INTERLATA,~~**PKT**~~,TOPEAALT,TOPEAXFR,TOPEACLS,STS,**FABRIC,BEARNET**	NOT Selector based on Bearer FABRIC and Network

OFRn Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
FABSEL	Changed.	No	ENET, AAL1, AAL2, IP	Fabrics defined in table BEARNETS
BEARNETSEL	NEW	No	Network Name	BNETNAME values provisioned in Table BEARNETS

Datafill example

The following examples shows sample datafill for table OFRT.

CND BEARNET

```
TABLE OFRT
POS 99
100 (CND BEARNET DFLTTDM ST 901)
(CND BEARNET DFLTIP ST 902)
(CND BEARNET DFLTATM ST 903) $ $
```

Figure 1 CND FABRIC Selector Criteria ENET, IP and ATM

```
TABLE OFRT
POS 100
100 (CND FABRIC ENET ST 901)
   (CND FABRIC IP ST 902)
   (CND FABRIC AAL1 ST 903)
   (CND FABRIC AAL2 ST 904) $ $
```

Table release history update

— CND/NOT PKT selector renamed to “FABRIC” and enhanced to support AAL1, AAL2 and IP fabrics.

— New BEARNET CND/NOT selector to support criteria checking based on network name of the originating agent.

Supplementary information

The above mentioned changes are applicable to all the routing tables OFR2, OFR3, OFR4, IBNRTE, IBNRT2, IBNRT3, IBNRT4 and HNPACONT$RTEREF that have CND and NOT bound in as the route selector.

The bearer network of the originator can be provisioned in one of the following tables: MNNODE, SERVRINV, or TRKOPTS (for DPT).

Translation verification other tools

The following example shows the output from Traver when it is used to verify OFRT.

Traver example: with BEARNET Option

```
>traver tr S1S3ITISUP bearnet net_aal1 7905210227 b
TABLE TRKGRP
S1S3ITISUP IT 0 NPDGP NCRT 2W NIL MIDL 613 INC NSCR 613 613 000 N N $
TABLE OFCVAR
AIN_OFFICE_TRIGGRP NIL
TABLE STDPRTCT
INC ( 1) ( 0) 1
 . SUBTABLE STDPRT
WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE
BILLING.  CALL TYPE DEFAULT IS NP.  PLEASE REFER TO
DOCUMENTATION.
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   N NP 0 NA
 . SUBTABLE AMAPRT
 . KEY NOT FOUND
 . DEFAULT VALUE IS:   NONE OVRNONE  N
TABLE HNPACONT
613 Y 881 2 ( 75) ( 1) ( 0) ( 0) 1 $
 . SUBTABLE HNPACODE
 . 790 790 FRTE 790
 . SUBTABLE RTEREF
 .  790 CND BEARNET TDM_ENET ST 814
 .  . SAME TABLE
 .  .  814 N D S3S1ITPTS 3 807 N
 .  . EXIT SAME TABLE
 .     CND BEARNET NET_AAL1 ST 807
 .  . SAME TABLE
 .  .  807 N D S1S3ITPTS 3 N N
 .  . EXIT SAME TABLE
 .     CND BEARNET NET_IP ST 804
 .  . SAME TABLE
 .  .  804 N D S1S3ITISUP 3 N N
 .  . EXIT SAME TABLE
 . EXIT TABLE RTEREF
EXIT TABLE HNPACONT
LNP Info: Called DN is not resident.
LNP Info: HNPA results are used.
AIN Info Collected TDP: no subscribed trigger.
AIN Info Analyzed TDP: no subscribed trigger.

+++ TRAVER: SUCCESSFUL CALL TRACE +++


DIGIT TRANSLATION ROUTES

1 S1S3ITPTS             5210227                      ST

TREATMENT ROUTES.  TREATMENT IS: GNCT
1 ATB

+++ TRAVER: SUCCESSFUL CALL TRACE +++
```

Core Tables IBNRTn (IBNRTE, IBNRT2, IBNRT3, IBNRT4)

IBN Routing Table

Functional description

Unchanged

Usage sequence and implications (CM Only)

Tables must be datafilled in the following sequence:

BEARNETS

IBNRTE, IBNRT2, IBNRT3, IBNRT4

Size

Table size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
IBNRTE	Unchanged	Unchanged	Unchanged
IBNRT2	Unchanged	Unchanged	Unchanged
IBNRT3	Unchanged	Unchanged	Unchanged
IBNRT4	Unchanged	Unchanged	Unchanged

Fields/OIDs

The following table lists fields/OIDs for OFRT, OFR2, OFR3, OFR4.

If CND/NOT condition is FABRIC, will be prompted for FABSEL.

If CND/NOT condition is BEARNET, will be prompted for BEARNETSEL.

IBNRTn Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
RTE	Unchanged			
RTESEL	Unchanged			

IBNRTn Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
CNDSEL	Changed	Yes	ALWAYS,RND,SNPA,EA,TOD,MIGRATE,NARS,COSMAP,NRR,SITE,CALLCHR,INTERLATA,~~**PKT,**~~TOPEAALT,TOPEAXFR,TOPEACLS,STS,**FABRIC,BEARNET**	Conditional Selector based on Bearer FABRIC and Network.
NOTSEL	Changed	Yes	ALWAYS,RND,SNPA,EA,TOD,MIGRATE,NARS,COSMAP,NRR,SITE,CALLCHR,INTERLATA,~~**PKT**~~,TOPEAALT,TOPEAXFR,TOPEACLS,STS,**FABRIC,BEARNET**	NOT Selector based on Bearer FABRIC and Network
PKTSEL	Changed.	No	ENET, AAL1, AAL2, IP	Fabrics defined in table BEARNETS
BEARNETSEL	NEW	No	Network Name	NTWKNAME values provisioned in Table BEARNETS

Datafill example
Similar to the above examples.

Table release history update

— CND/NOT PKT selector renamed to “FABRIC” and enhanced to support AAL1, AAL2 and IP fabrics.

— New BEARNET CND/NOT selector to support criteria checking based on network name of the originating agent.

Supplementary information
The bearer network of the originator can be provisioned in one of the following tables: MNNODE, SERVRINV, or TRKOPTS (for DPT).

Translation verification other tools
Refer to TRAVER information under table OFRT.

Core Tables HNPACONT::RTEREF and FNPACONT::RTEREF

Subtable Route Reference from the Home Numbering Plan Area

Subtable Route Reference from the Foreign Numbering Plan Area

Changes are the same as for OFRn and IBNRTn.

Functional description
Refer to OFRn.

Usage sequence and implications (CM Only)
Tables must be datafilled in the following sequence:

BEARNETS

HNPACONT::RTEREF & FNPACONT::RTEREF (order between these is unchanged)

Size

Table size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
HNPACONT::RTEREF	Unchanged	Unchanged	Unchanged
FNPACONT::RTEREF	Unchanged	Unchanged	Unchanged

Fields/OIDs
Same changes as table OFRn.

Datafill example
Refer to table OFRn.

Table release history update

— CND/NOT PKT selector renamed to “FABRIC” and enhanced to support AAL1, AAL2 and IP fabrics.

— New BEARNET CND/NOT selector to support criteria checking based on network name of the originating agent.

Supplementary information
The bearer network of the originator can be provisioned in one of the following tables: MNNODE, SERVRINV, or TRKOPTS (for DPT).

Translation verification other tools
Refer to OFRn.

GWC_NETWORK_CODEC_PROFILE

Functional description
This new table is used to store network codec profiles that are created by the customer. The profiles will be used when the customer adds a GWC node.

Fields
The following table lists fields of this table.

Table field descriptions

Field	New/ Changed	Entry	Explanation and action
profilename	New	VARCHAR 2(32)	The name of the profile. It is not allow to be NULL. This field is the primary key of this table.
bearerpath	New	NUMBER	Indicates the bearer network fabric type. Refer to table “BEARERPATH_MAP“. The default value is “0”.
defaultcodec	New	NUMBER	Indicate the default codec. Refer to table “CODEC_MAP“. The default value is “0”.
preferredcodec	New	NUMBER	Indicate the preferred codec. Refer to table “CODEC_MAP“. The default value is “0”.
alternativecodec	New	NUMBER	Indicate the alternative codec. Refer to table “CODEC_MAP“. The default value is “0”.
packetizationinteger	New	NUMBER	Indicate the packetization rate. Refer to table “PACKETIZATION_MAP“. The default value is “0”.
t38	New	NUM-BER(1)	Indicate whether the T38 setting is enabled. Available values are “0” and “1”. Number “0” indicates disabled, number “1” indicates enabled. The default value is “0”.
rfc2833	New	NUM-BER(1)	Indicate whether the RFC2833 setting is enabled. Available values are “0” and “1”. Number “0” indicates disabled, number “1” indicates enabled. The default value is “0”.
comfortnoise	New	NUM-BER(1)	Indicate whether the comfort noise setting is enabled. Available values are “0” and “1”. Number “0” indicates disabled, number “1” indicates enabled. The default value is “0”.
bearertypedefault	New	CHAR(1)	Indicate whether this profile is a default profile. Available values are “Y” and “N”. Char “Y” indicates this profile is default profile for this bearer network type, char “N” indicates this profile is not the default one. This field can not be NULL. The default value is “N”. Please note that there will be up to 1 default profile every bearer network fabric type.
networkdefault	New	CHAR(1)	Indicate whether this profile is network default profile. Available values are “Y” and “N”. Char “Y” indicates this profile is the default profile in network, char “N” indicates this profile is not the default one. This field can not be NULL. The default value is “N”. Please note that there will be up to 1 network default profile totally.

GWCPROFILE

Functional description

This table is used to store attributes of Gateway Controller profile. One new field will be added into this table, which is used to indicate whether network instance is needed to be associated to this GWC or not.

Fields

The following table lists the new field of this table.

Table field descriptions

Field	New/ Changed	Entry	Explanation and action
BEARER_INSTANCE_REQUIRED	New	CHAR(1)	Indicate whether network instance is needed to be associated to this GWC or not. Available values are “Y” and “N”. Char “Y” indicates need, char “N” indicates not need. The default value is “Y”. This field can not be NULL.

GATEWAYPROFILE

Functional description

This table is used to store attributes of Gateway profile. One new field will be added into this table, which is used to enhance the fabric type check when customer associate gateway to GWC node. Please refer to DID document for details.

Fields

The following table lists fields of this table.

Table field descriptions

Field	New/ Changed	Entry	Explanation and action
BEARER_FABRIC_RESTRICTION_LIST	New	Embedded table of “RestrictList_NT” type	The Name of this field is: Bearer fabric restriction list. This field can be NULL. This field would list the bearer fabrics to which the gateway is restricted. In most cases, this list will be empty and there will be no restriction. But for some special gateway (e.g. MG9000IP and ATM versions), the values would be provided.

Service Orders (SO) (CM & SESM)

Not applicable.

Software optionality control (SOC)

Not applicable.

Element Management

Prior to SN07, the SESM server could support only one bearer network fabric type (IP/AAL1/AAL2) at one time. As of SN07, each GWC will be associated with a bearer network instance, which defines the associated bearer network fabric type. This information will be provided by the customer as they add the GWC through the GWC-EM. In addition to the bearer fabric instance, GWC-EM will allow the customer to define multiple network codec "profiles" in the system and will allow the customer to select the desired profile as they add the GWC to the network.

New/modified GUIs

New or modified GUIs

GUI name	NEW, CHANGED, or DELETED
GWC-EM	Changed

GUI information

GWC-EM GUI
Gateway Controller Element Manager Graphical User Interface

Functional description
The GWC-EM database will be changed to include a new MIB table: GET_NETWORK_CODEC_PROFILE.

The following functionality is added to the GWC-EM:

1. Support the provisioning of multiple network codec profiles.
   - — Display network codec profile on GWC-EM GUI.
   - — Add network codec profile from GWC-EM GUI.
   - — Delete network codec profile from GWC-EM GUI.
   - — Change network codec profile from GWC-EM GUI.
2. Support the specification of a bearer network fabric instance and a network codec profile for each GWC.
   - — Display bearer network fabric instance and network codec profile of each GWC on GWC-EM GUI.
   - — Associate bearer network fabric instance and network codec profile with one GWC when adding GWC node from GWC-EM GUI.

— Change the associated network codec profile of one GWC node from GWC-EM GUI.

GUI usage and implications
GUIs must be used in the following sequence:

Current datafill order unchanged.

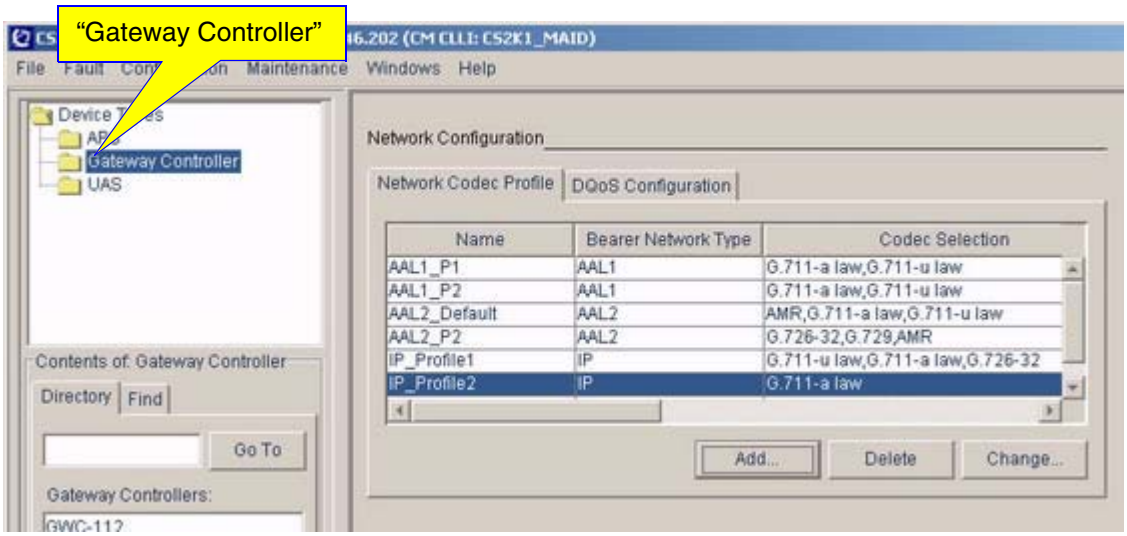
GUI size

New or modified GUIs

Abbreviated GUI name	Minimum instances	Maximum instances	Information on memory
GWC-EM	Unchanged	Unchanged	Unchanged

Usage Example: Display network codec profile
When customer click the “Gateway Controller” type from the device type tree at the left side, all network codec profiles will be displayed on the right side. (Please refer to “ Network codec profile display panel”.)

Network codec profile display panel



All existing codec profiles will be displayed in a table, each profile includes following parameters:

Parameters of network codec profile

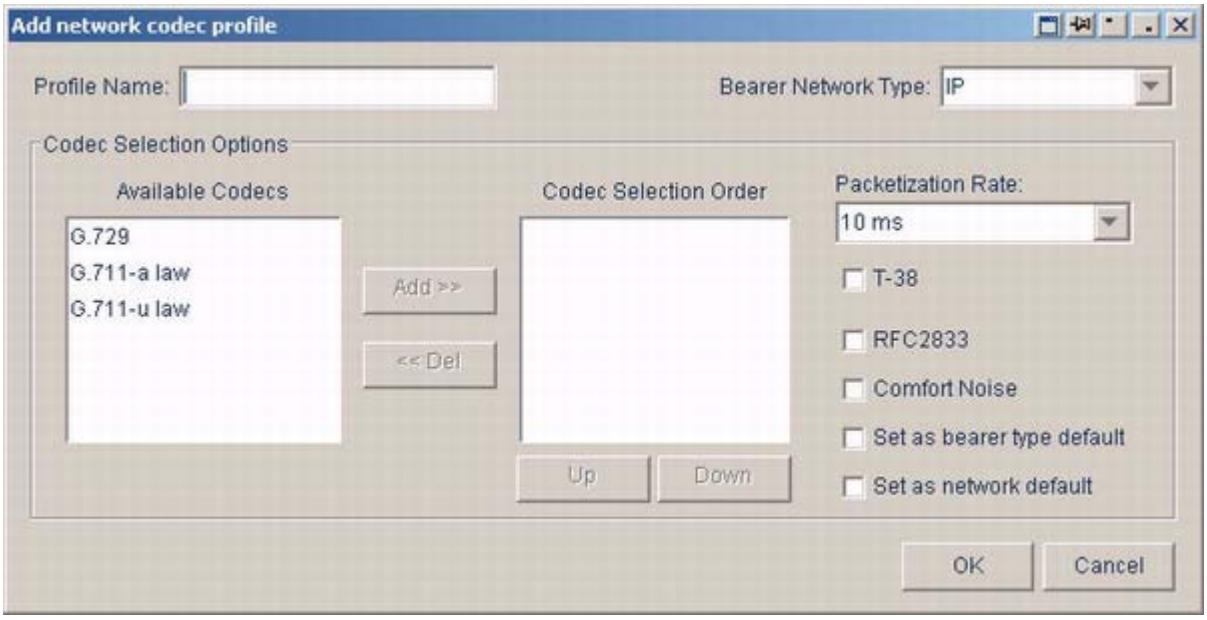
Parameter name	Description	Notes
Name	The name of the profile.	

Parameter name	Description	Notes
Bearer Network Type	Indicates the bearer network fabric type.	
Codec Selection	Indicate the codecs used in this profile.	
Packetization rate	Indicate the packetization rate.	For IP bearer type only.
T-38	Indicate whether the T38 setting is enabled.	For IP bearer type only.
RFC2833	Indicate whether the RFC2833 setting is enabled.	For IP bearer type only.
Comfort noise	Indicate whether the comfort noise setting is enabled.	For IP bearer type only.
Default Profile	Indicate whether this profile is a default profile. Please note that there will be up to 1 default profile every bear network fabric type.	

Usage Example: Add network codec profile

Customer will be able to add one new network codec profile just by clicking the “Add” button, then a dialog “Add network codec profile” will be popped up. (Please refer to the following figure.)

Add network codec profile dialog



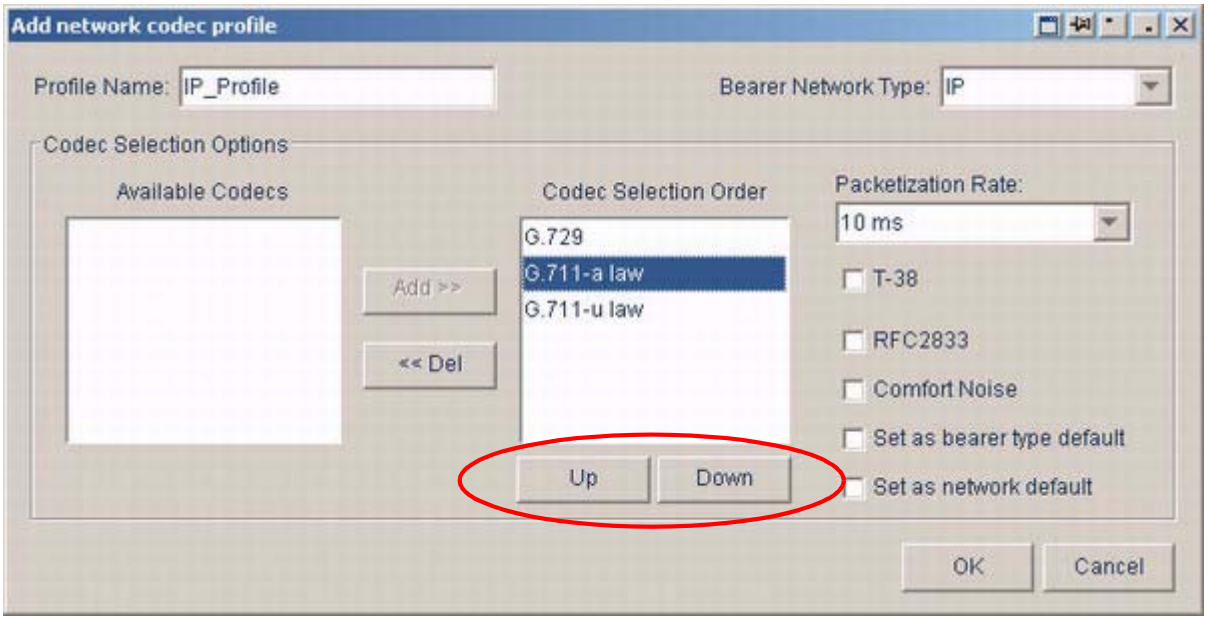
When customer select a bearer network type from the droplist box, the corresponding available codecs will be displayed below in the left list box. The available codec list may be different for different bearer network type.

Please note that the codec selecting is different from SN06 version. Customer won't select different codec for “Compression codec”, “Default codec” and “Alternative Codec” one by one. The available codecs will be listed at left side,

customer should be able to select them just by highlighting codec item and clicking the “Add >>” button. Then the selected codec will be added into codec selection. Contrarily, customer could delete some codec from the selection by highlighting the codec item and clicking the button “<< Del”.

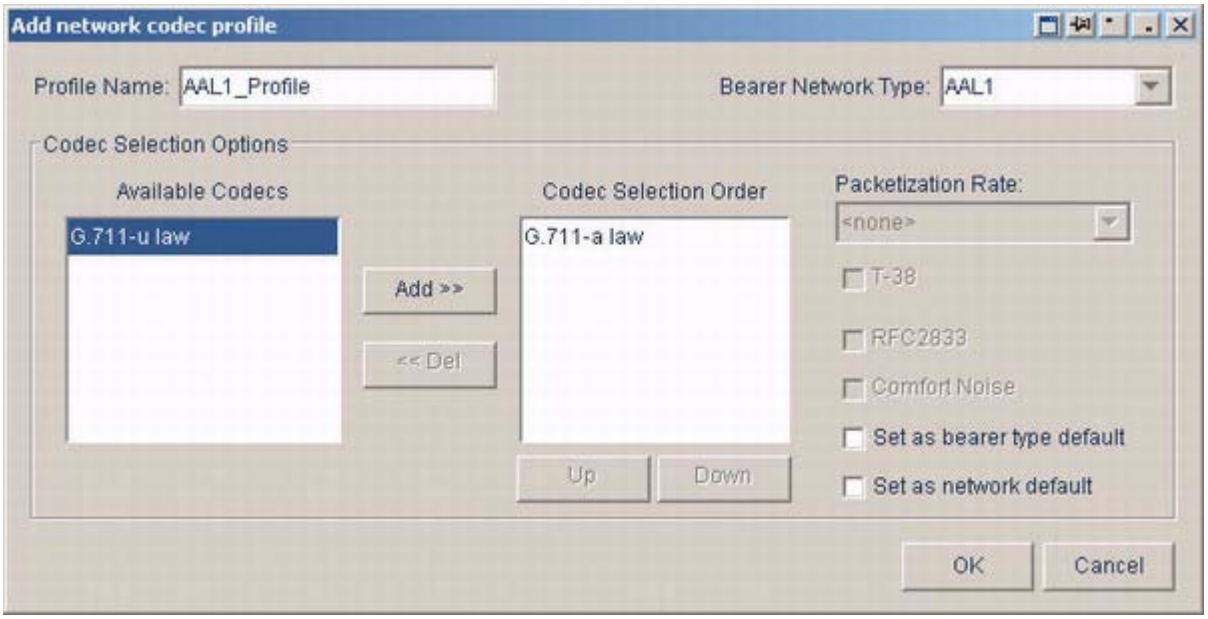
In the codec selection, the order of the codec determines how the device will treat them. For example, the first one will be mapped to “Compression codec”, the second one will be mapped to “Default Codec”, and the last one will be mapped to “Alternative Codec”. Additional, customer could change the order of codecs by highlighting the codec item and clicking the “Up” and “Down” buttons.

Change the order of codecs in the selection



Please note that parameters “Packetization Rate” and LCO options (T38, RFC2833, and Comfort Noise) are settings for IP bearer type only. If customer select “AAL1” or “AAL2” as the bearer network fabric type, these settings will be disabled.

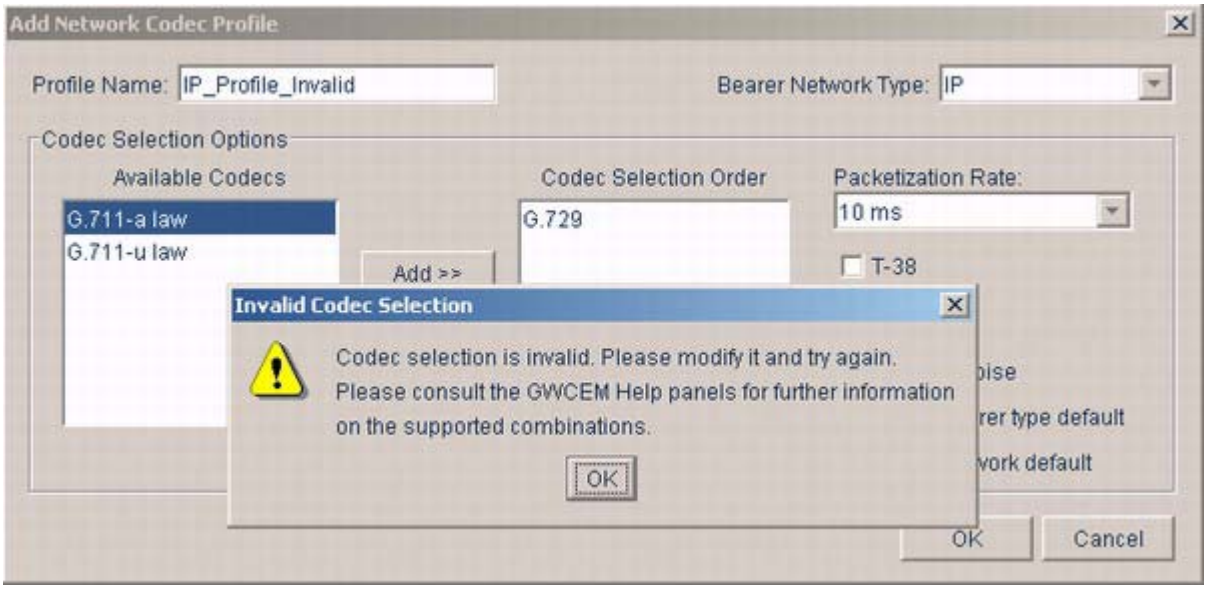
Select “AAL1” as the bearer network fabric type



Customers will be able to use the recommended codec setting by clicking the button “Recommended Codec Setting”, then the recommended setting will be restored into the dialog. Note that the recommended codec setting will be different for different bearer network type.

If customers select an invalid codec selection, alert dialog will be popped up. (Please refer to the following figure.)

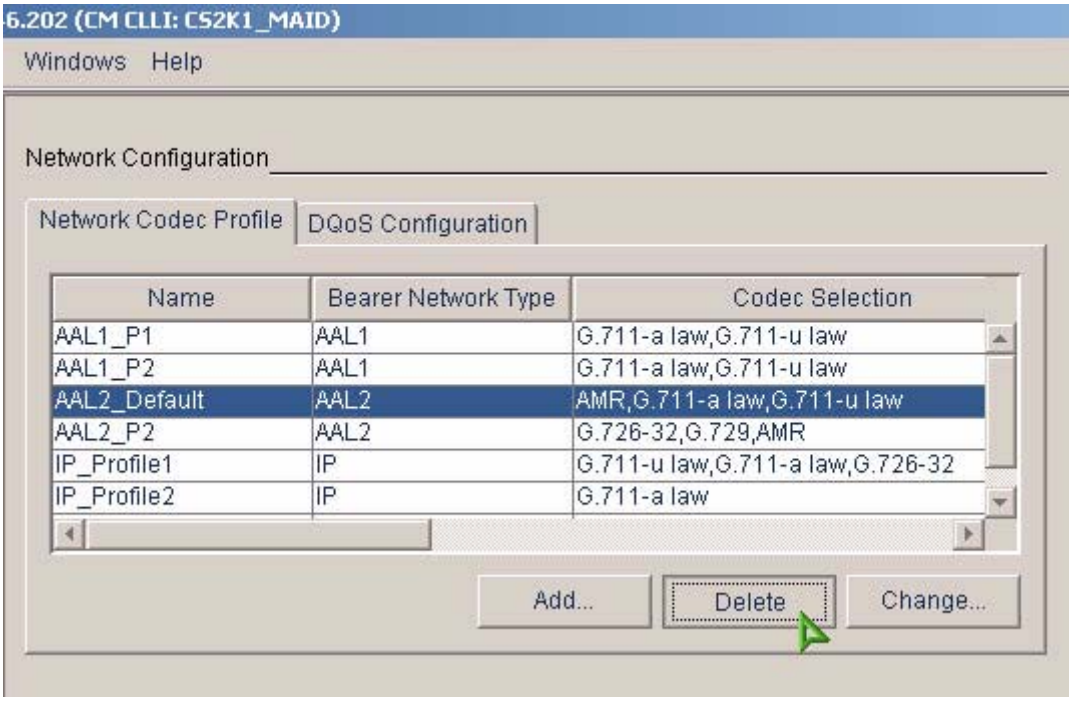
Alert dialog for invalid codec selection



Usage Example: Delete network codec profile

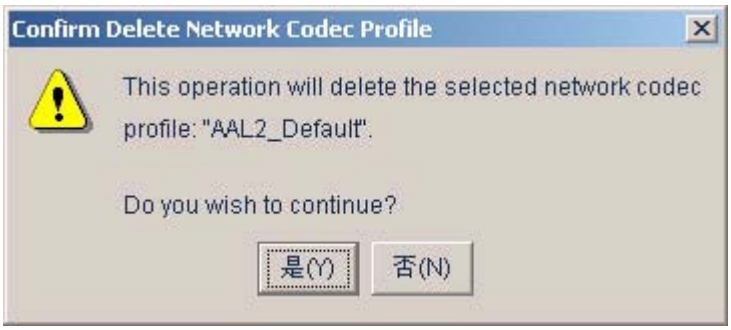
Customer will be able to delete one existing network codec profile just by highlighting the profile row from the table, and click the “Delete” button. (Please refer to the following figure.)

Delete existing network codec profile



Once customers click the “Delete” button, one confirmation dialog will be popped up.

Delete network codec profile confirmation dialog

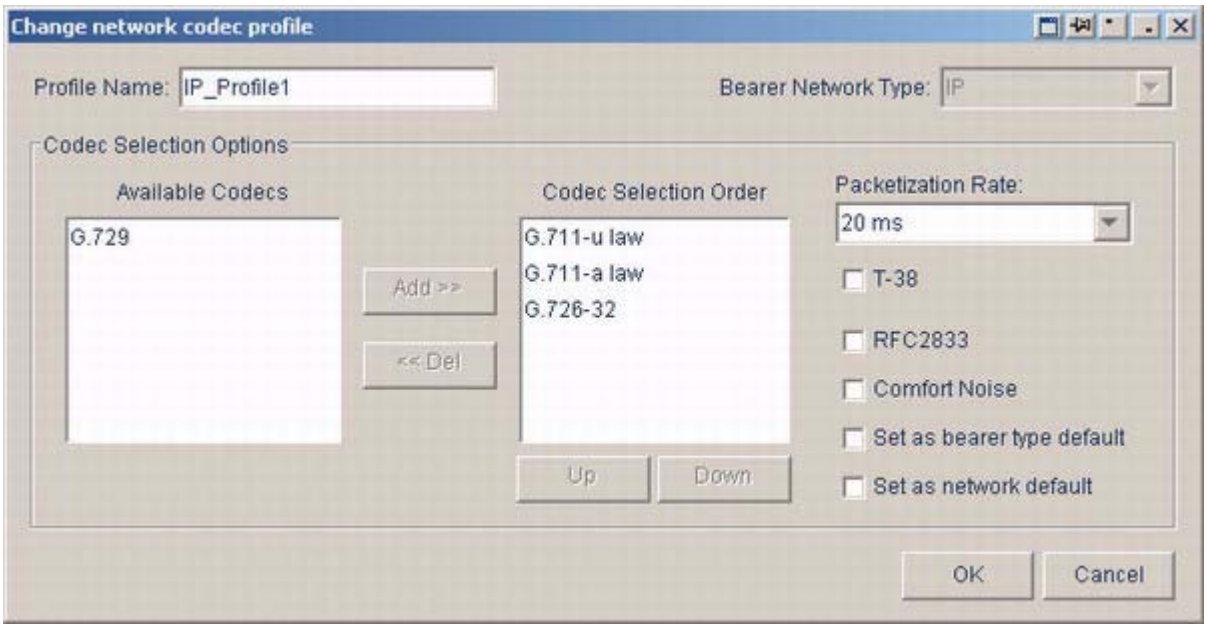


The operation result will be displayed in a pop-up dialog, and the codec profile table will be updated according to the result. Please note that if any GWC is using this profile, the delete operation will be failed.

Usage Example: Change network codec profile

Customers will be able to change one existing network codec profile just by highlighting the profile row from the table, and clicking the “Change” button. Then the dialog “Change network codec profile” will be popped up. All parameters of the profile will be filled in the dialog. (Please refer to the following figure.)

Change existing network codec profile

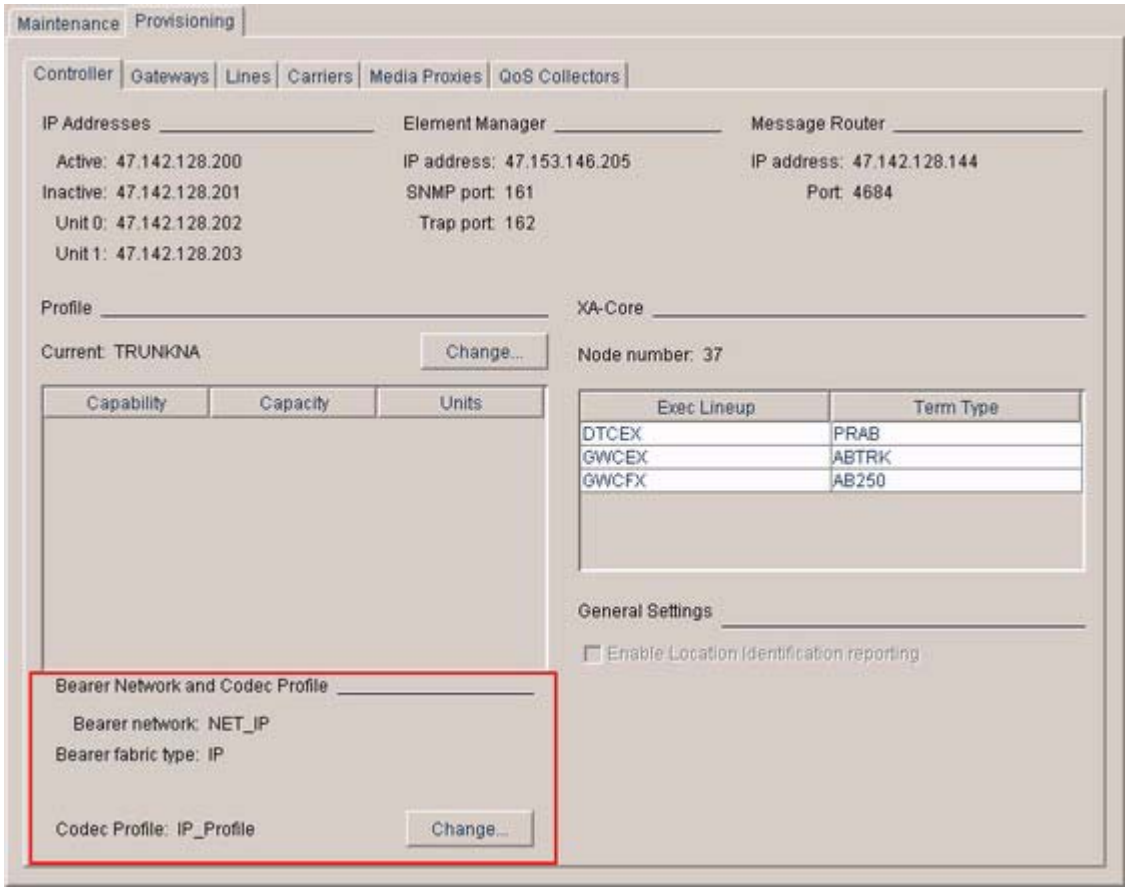


Note that the bearer network type of the profile is not allowed to be changed. Please refer to section “Usage Example: Add network codec profile” on page 844 for how to change other parameters. Once the profile was updated successfully, these parameters will be updated into all GWCs using this profile.

Usage Example: Display GWC node

A new section will be added to the GWC provisioning panel to indicate the bearer network and codec profile configuration for the selected GWC.

Display GWC node



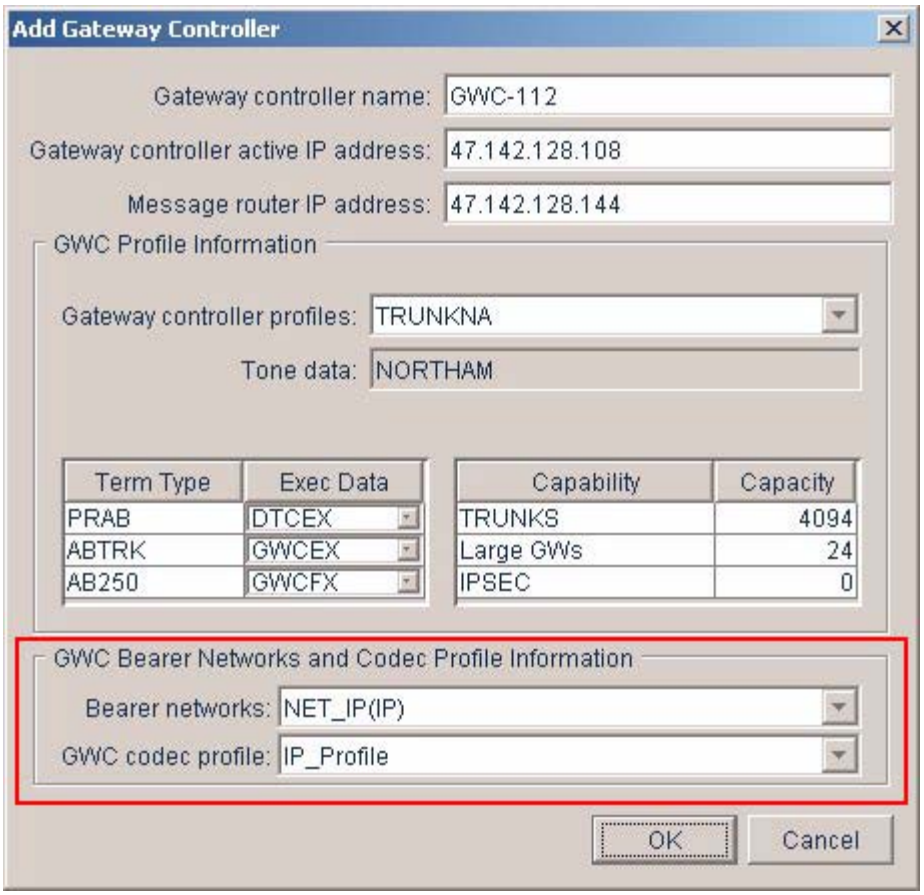
The new section includes two parts, one is bearer network area and another is codec profile area. A “Change...” button will be added to the right of the codec profile fields to allow customer to change the codec configuration for the GWC.

This information will be displayed on the GUI with other GWC’s information together while customer select a GWC from the GWC device list tree.

Usage Example: Add GWC node

Two new list boxes will be added to the “Add GWC Node” dialog to allow customers to select a specific bearer network instance and codec profile while a GWC is adding to the system.

Add GWC node

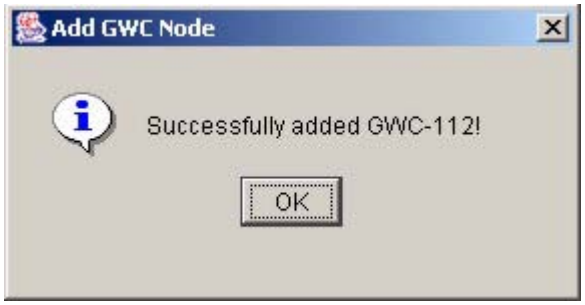


One of these two new boxes contains the bearer network list, another contains the codec profile list. The codec profile list must match the bearer network, that means, if customers select a bearer network instance belonging to “IP” bearer type, then the codec profile box will only contain the names of “IP” codec profiles; if customer select a “AAL1” bearer network instance, the codec profile box will be changed to only contain the “AAL1” codec profile names.

And if customers leave the codec profile box not selected, a default codec profile based on the bearer network type will be selected automatically.

Once the addition operation has been performed successfully, a dialog like the following will be pushed to the customer to indicate that the GWC was added to the system without errors.

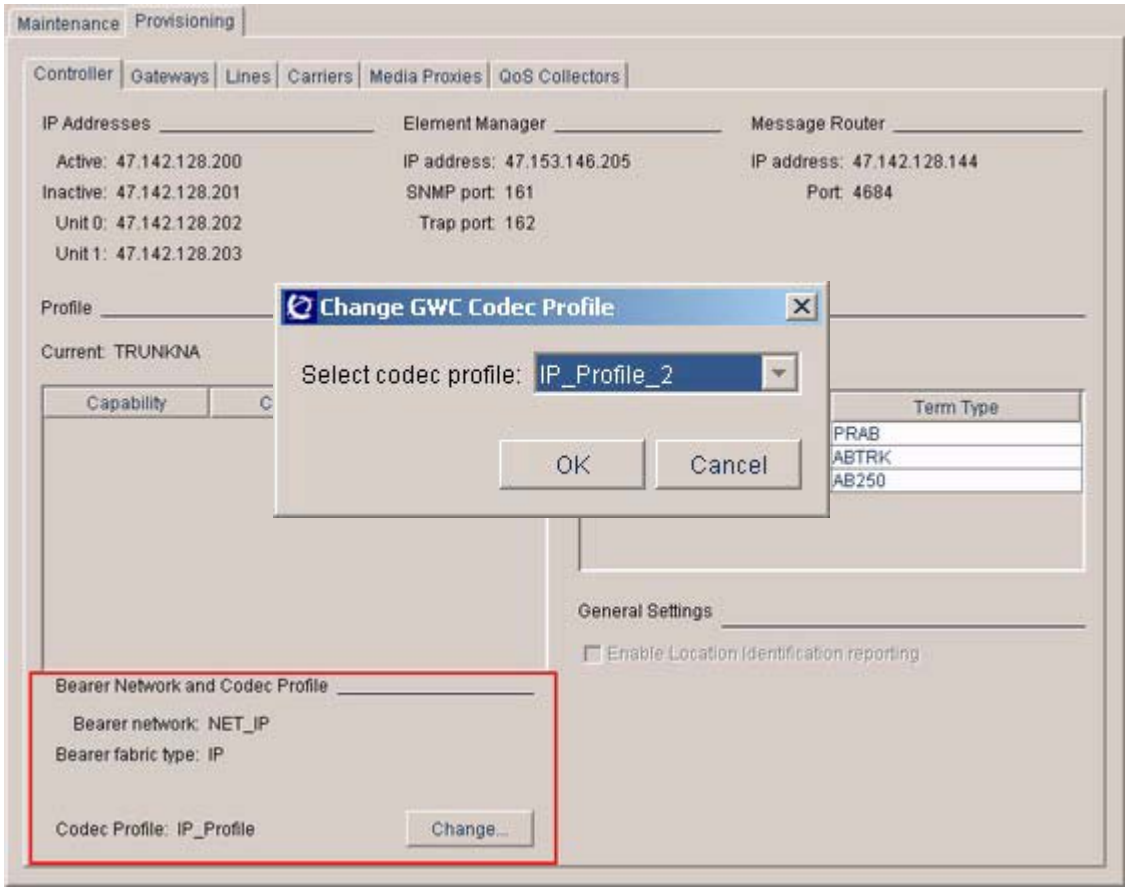
Add GWC node result dialog



Usage Example: Change GWC network codec profile

When customers click the "Change..." button on the right of the codec profile fields on the GWC provisioning panel, a "Change Codec Configuration" dialog will be created like the following figure.

Change GWC's network codec profile



From this dialog, customers can select a different codec profile for the specific GWC even after the GWC has been provisioned already and a dialog with

successful information will be displayed for customers if the operation has been performed without errors. Otherwise, a error message will be returned to the customers.

GUI release history update

1. Support the provisioning of multiple network codec profiles.
   - — Display network codec profile on GWC-EM GUI.
   - — Add network codec profile from GWC-EM GUI.
   - — Delete network codec profile from GWC-EM GUI.
   - — Change network codec profile from GWC-EM GUI.
2. Support the specification of a bearer network fabric instance and a network codec profile for each GWC.
   - — Display bearer network fabric instance and network codec profile of each GWC on GWC-EM GUI.
   - — Associate bearer network fabric instance and network codec profile with one GWC when adding GWC node from GWC-EM GUI.
   - — Change the associated network codec profile of one GWC node from GWC-EM GUI.

Supplementary information

Command interface changes

Directory: TRAVER

Directory description

TRAnslations VERification.

Accessing directory: TRAVER

Access to directory or MAP level and return to CI

CI> TRAVER <traver options>

Traver is a single command interface rather than an environment that is entered. You are automatically returned to the CI level after execution of the command.

Command: TRAVER TR

Command type: unchanged

Command target: unchanged

Command availability: unchanged

Command description

Traver an originating trunk based with the digits provided. The originating trunk (TRAVER TR) command is changed as follows:

When encountering a CND FABRIC or CND BEARNET selector in the translations route, three options are created for determining the originator's bearer fabric or network in order to determine how to interpret the CND route selection.

- TRKMEM option: The fabric or network of the member specified will be used.
- NEW BEARNET option: Allows the user to specify the bearer network (32 char vector identifying a BNETNAME provisioned in table BEARNETS) of the specified trunk group.
- If none of the above options is specified, the TDM network will be assumed for the specified trunk group for non-DPT trunk groups.
- For DPT trunk groups, where none of the above options is specified, the bearer fabric or network will be obtained from table TRKOPTS.

Command syntax

<CommandName> command parameters and variables

Command	Parameters and variables
TRAVER **TR**	Next par is: <CLLI> STRING Enter: <CLLI> [<CLLIOPT>] [<MBGOPTS>] [<TRIGOPT>] **[<TRKMEM>] [<BEARNET>]** <DIGITS OR N FOR NO DIGITS> [<CDNIE>] [<NSF>] [<TNSIE>] [<OSAIE>] [<BC>] [<SR>] [<PI>] [<TRI>] [<NETINFO>] [<FINFO>] [<RPOAP>] [<RPOAS>] [<NOA>] [<AIN_OPTIONS>] [<AIN_INFO>] [<SCAIIN>]
Parameters and variables	Description
[<TRKMEM>}	Existing option. Input is unchanged. Will now be used to obtain the bearer network and bearer fabric to be used when making conditional translations decisions CND FABRIC or CND BEARNET.

<CommandName> command parameters and variables

Command	Parameters and variables
[<BEARNET>]	New option. Allows user to specify the bearer network (up to 32 character BNETNAME provisioned in table BEARNETS) to use as the originating bearer network. This will also imply the FABRIC, since the FABRIC is a field in table BEARNETS. Both of these will be used when making conditional routing decisions based on FABRIC or BEARNET (CND selectors). The network specified will be used, even if the trunk group does not have members on that network.

Qualifications and warnings

- Non-DPT trunk groups can have members that are spread across the various networks. During call processing, an effort will be made to match the originator's network to a trunk member of a like network. Traver will not be enhanced to show this selection process.
- Line group originations (e.g.: HUNT, MDN, ACD) will use the network fabric of the originating member of the group to determine the network fabric.
- If the FABRIC or BEARNET option is used to specify the bearer network information of a trunk group, this information will be used in TRAVER to determine the routing, even if the trunk group does not have members in that network. This allows users to test the translations before adding members, but also allows for verification to pass when during call processing it could actually fail.

Responses

Undefined BEARNET specified

Since the user will be prompted for a 32 character string rather than a list of tuples provisioned in table BEARNET, an invalid entry should be met with a response indicating where to look for the valid information.

MAP outputs with associated meanings and actions

Command TRAVER TR <trunk group CLLI> <digits> BEARNET <BNETNAME>
<RESPONSE>: <description> **Meaning:** The BEARNET name entered does not exist in table BEARNETS. **System or user actions:** Choose a BNETNAME of out table BEARNETS.
<RESPONSE>: <description> **Meaning:** **System or user actions:**

Example of TRKMEM option

Usage examples for TRAVER TR command with TRKMEM option

Description of task:	traver tr S1S3ITISUP trkmem 1 7905210227 b
Description of task	Verify the translations for originating trunk group S1S3ITISUP dialing '7905210227' where the network and fabric used in the CND BEARNET conditional selectors will be obtained from the specified trunk member data.
Command: MAP response:	NOTE: Trunk member specified is a TDM_ENET trunk >traver tr S1S3ITISUP trkmem 1 7905210227 b TABLE TRKGRP S1S3ITISUP IT 0 NPDGP NCRT 2W NIL MIDL 613 INC NSCR 613 613 000 N N $ TABLE OFCVAR AIN_OFFICE_TRIGGRP NIL TABLE STDPRTCT INC (1) (0) 1 . SUBTABLE STDPRT WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO DOCUMENTATION. . KEY NOT FOUND . DEFAULT VALUE IS: N NP 0 NA . SUBTABLE AMAPRT . KEY NOT FOUND . DEFAULT VALUE IS: NONE OVRNONE N TABLE HNPACONT 613 Y 881 2 (75) (1) (0) (0) 1 $. SUBTABLE HNPACODE . 790 790 FRTE 790 . SUBTABLE RTEREF . 790 CND BEARNET TDM_ENET ST 814 . . SAME TABLE . . 814 N D S3S1ITPTS 3 807 N . . EXIT SAME TABLE . CND BEARNET NET_AAL1 ST 807 . . SAME TABLE . . 807 N D S1S3ITPTS 3 N N . . EXIT SAME TABLE . CND BEARNET NET_IP ST 804 . . SAME TABLE . . 804 N D S1S3ITISUP 3 N N . . EXIT SAME TABLE . EXIT TABLE RTEREF EXIT TABLE HNPACONT LNP Info: Called DN is not resident. LNP Info: HNPA results are used. AIN Info Collected TDP: no subscribed trigger. AIN Info Analyzed TDP: no subscribed trigger. +++ TRAVER: SUCCESSFUL CALL TRACE +++ DIGIT TRANSLATION ROUTES 1 S3S1ITPTS 8075210227 ST TREATMENT ROUTES. TREATMENT IS: GNCT 1 ATB +++ TRAVER: SUCCESSFUL CALL TRACE +++

Usage examples for TRAVER TR command with BEARNET option

Description of task:	traver tr S1S3ITISUP bearnet net_aal1 7905210227 b
Description of task	Verify the translations for originating trunk group S1S3ITISUP dialing '7905210227' where the network and fabric used in the CND BEARNET conditional selectors will be obtained from the specified bearer network data.
Command: MAP response:	>traver tr S1S3ITISUP bearnet net_aal1 7905210227 b TABLE TRKGRP S1S3ITISUP IT 0 NPDGP NCRT 2W NIL MIDL 613 INC NSCR 613 613 000 N N $ TABLE OFCVAR AIN_OFFICE_TRIGGRP NIL TABLE STDPRTCT INC (1) (0) 1 . SUBTABLE STDPRT WARNING: CHANGES IN TABLE STDPRT MAY ALTER OFFICE BILLING. CALL TYPE DEFAULT IS NP. PLEASE REFER TO DOCUMENTATION. . KEY NOT FOUND . DEFAULT VALUE IS: N NP 0 NA . SUBTABLE AMAPRT . KEY NOT FOUND . DEFAULT VALUE IS: NONE OVRNONE N TABLE HNPACONT 613 Y 881 2 (75) (1) (0) (0) 1 $. SUBTABLE HNPACODE . 790 790 FRTE 790 . SUBTABLE RTEREF . 790 CND BEARNET TDM_ENET ST 814 . . SAME TABLE . . 814 N D S3S1ITPTS 3 807 N . . EXIT SAME TABLE . CND BEARNET NET_AAL1 ST 807 . . SAME TABLE . . 807 N D S1S3ITPTS 3 N N . . EXIT SAME TABLE . CND BEARNET NET_IP ST 804 . . SAME TABLE . . 804 N D S1S3ITISUP 3 N N . . EXIT SAME TABLE . EXIT TABLE RTEREF EXIT TABLE HNPACONT LNP Info: Called DN is not resident. LNP Info: HNPA results are used. AIN Info Collected TDP: no subscribed trigger. AIN Info Analyzed TDP: no subscribed trigger. +++ TRAVER: SUCCESSFUL CALL TRACE +++ DIGIT TRANSLATION ROUTES 1 S1S3ITPTS 5210227 ST TREATMENT ROUTES. TREATMENT IS: GNCT 1 ATB +++ TRAVER: SUCCESSFUL CALL TRACE +++

Security

Not appicable.

Configuration Walkthrough

NA

Performance Management for A00003487

Performance management strategy

Trimodal Call Server provides support for multiple bearer networks in a single CS2K Call Server. In order to monitor the performance of the call server, additional OMs are needed. These new OMs provide per-bearer network performance metric collection that will enable the customer management system to monitor the performance of the call server as a whole as well as the individual bearer networks.

Performance management tools and utilities

No change

Performance Measurements (PM), Operational Measurements (OM), and stats

The following is a list of the new and changed OM groups for the Trimodal Call Server feature:

- DPTNODE (changed)
- DPTOFCP (new)
- IWBM (changed)
- OFZ2NET1 (new)
- OFZ2NET2 (new)
- TRK2NET1 (new)
- TRK2NET2 (new)

PM, OM, and stats format

DPTNODE OM Group

OM description

DPTNODE OM group measures the DPT performance for each DPT capable node. The group contains registers that maintain DPT terminal usage and failure counts.

Release history update

The DPTNODE OM group is being modified in SN07 to add additional information to the OM tuples. The registers are unchanged and the pegging of the registers are unchanged.

The addition of this new information is controlled by the value of a new SN07 office parameter, MULTINET_DISPLAY_ACTIVE. If this parameter is set to 'Y', then the new information is displayed. If the parameter is set to 'N', then the DPTNODE OM group appears as it did prior to SN07.

Registers

DPTNODE OM group registers display on the MAP terminal as follows:

DPTNODE OM Group Display

```
>omshow dptnode active

DPTNODE

CLASS: ACTIVE
START:2003/09/23 09:05:00  TUE;  STOP:  2003/09/23  09:09:52  Tue;
SLOWSAMPLES:        3  ;   FASTSAMPLES:          29 ;

   INFO (DPT_PM_INFO)
            DPTGTAT       DPTGTAT2      DPTGTFL       DPTGTFLO
            DPTUSAG       DPTUSAG2      DPTHWT

0
   GWC  3    93 BICC
            0             0             0             0
            0             0             0

1
   GWC   4   94 SIPT
            0             0             0             0
            0             0             0

2
   SPM    1   70 NET 2 NET_AAL1 BICC SMG4
            0             0             0             0
            0             0             0
3
   SPM    2   71 NET 0 ENET_TO_AAL1_DPT   BICC     DPT
            0             0             0             0
            0             0             0
```

Group structure

DPTNODE OM group provides 1 tuple(s) for each GWC or SPM node that is capable of hosting a DPT call.

Key field: Unchanged

Info field: DPT_PM_INFO

For GWC nodes, the info field contains the DPT protocol (BICC or SIP-T) associated with the GWC as data filled in the SERVSINV table.

For MG 4000 and DPT SPM nodes, the info field contains the associated bearer network, the DPT protocol (BICC), and the SPM node type (SMG4 or DPT). The bearer network is comprised of the Network ID and Name as data filled in the BEARNETS table and linked to the SPM-based node through the MNNODE table. The DPT protocol will always be BICC because SPM nodes do not support SIP-T protocol in SN07. The SPM node type is either SMG4 (for MG4Ks) or DPT (for DPT SPMs). This information is derived from the node type found in Table MNNODE.

Associated OM groups

Unchanged.

Associated functional groups

The following functional groups are associated with DPTNODE OM group: Unchanged

Associated functionality codes

Functionality codes associated with OM group

Functionality	Code
Dynamic Packet Trunks	

OM group registers logic flow chart

Unchanged.

Register DPTGTAT

Register description

Get Terminal Attempts (DPTGTAT) registers a peg for each attempt to get a DPT terminal on the associated node.

Register release history update

Register is unchanged in SN07.

Associated registers
DPTGTAT2 (an extension register for DPTGTAT)

Associated logs
Unchanged.

Register DPTGTFL

Register description
Get Terminal Failures (DPTGTFL) registers a peg for each failed attempt to get an un-optimized DPT terminal on the associated node.

Register release history update
Register is unchanged in SN07.

Associated registers
None.

Associated logs
Unchanged.

Register DPTGTFLO

Register description
Get Terminal Failures Optimized (DPTGFLO) registers a peg for each failed attempt to get an optimized DPT terminal on the associated node.

Register release history update
Register is unchanged in SN07.

Associated registers
None.

Associated logs
Unchanged.

Register DPTUSAG

Register description
DPT Terminal Usage (DPTUSAG) registers a count of the total usage within a transfer period. Usage is pegged by the number of terminals in Call Processing Busy (CPB) or Call Processing Deload (CPD) state at a sampling that occurs every 100 seconds.

Register release history update
Register is unchanged in SN07.

Associated registers
DPTUSAG2 (extension register for DPTUSAG)

Associated logs
Unchanged.

Register DPTHWT

Register description
DPT Terminals usage High Water (DPHWTR) registers a count of the terminal usage high water mark within a transfer period. The high water mark is equivalent to the following:

- (inservice DPT terminals) - (free DPT terminals)

Free DPT terminals represent inservice terminals in the free queue that are eligible for call processing. The high water mark is calculated every 10 seconds. The register updates if the value from the current calculation is greater than the previous value kept in the register for that transfer period.

Register release history update
Register is unchanged in SN07.

Associated registers
None.

Associated logs
Unchanged.

DPTOFCP OM Group

OM description
DPTOFCP OM Group measures the performance of the supported dynamic packet trunk protocols for the office. The two supported protocols are BICC and SIP-T.

Release history update
DPTOFCP OM group is new in SN07.

The addition of this new DPTOFCP OM group is controlled by the value of a new SN07 office parameter, MULTINET_DISPLAY_ACTIVE. If this parameter is set to ‘Y’, then the new DPTOFCP OM group is displayed. If the parameter is set to ‘N’, then the DPTOFCP OM group is not displayed.

Registers
DPTOFCP OM group registers display on the MAP terminal as follows:

DPTOFCP OM Group Display

```
>omshow dptofcp active

DPTOFCP

CLASS: ACTIVE
START:2003/09/23 09:05:00  TUE;  STOP:  2003/09/23  09:09:52  Tue;
SLOWSAMPLES:        3  ;   FASTSAMPLES:          29 ;

   INFO (DPT_PROTOCOL_INFO)
            DPGTATT       DPGTATT2      DPGETFL       DPGETFL2
            DPUSAGE       DPTUSAG2      DPOTFLO       DPOTFLO2
            DPHWTR        DPHWTR2       DPRTDPL       DPRTDPL2

0
   BICC
            0             0             0             0
            0             0             0             0
            0             0             0             0

1
   SIPT
            0             0             0             0
            0             0             0             0
            0             0             0             0
```

Group structure

DPTOFCP OM group provides 1 tuple(s) for each DPT protocol that is active in the office.

Key field: DPT_PROTOCOL_TYPE {BICC, SIP-T}

Info field: DPTOFCP_SIG_INFO

Identifies the protocol being used in the office.

Associated OM groups

DPTOFC OM group gives an overall office-wide DPT performance measurement. DPTNODE OM group provides a per-DPT capable node performance view.

Associated functional groups

The following functional groups are associated with DPTNODE OM group:

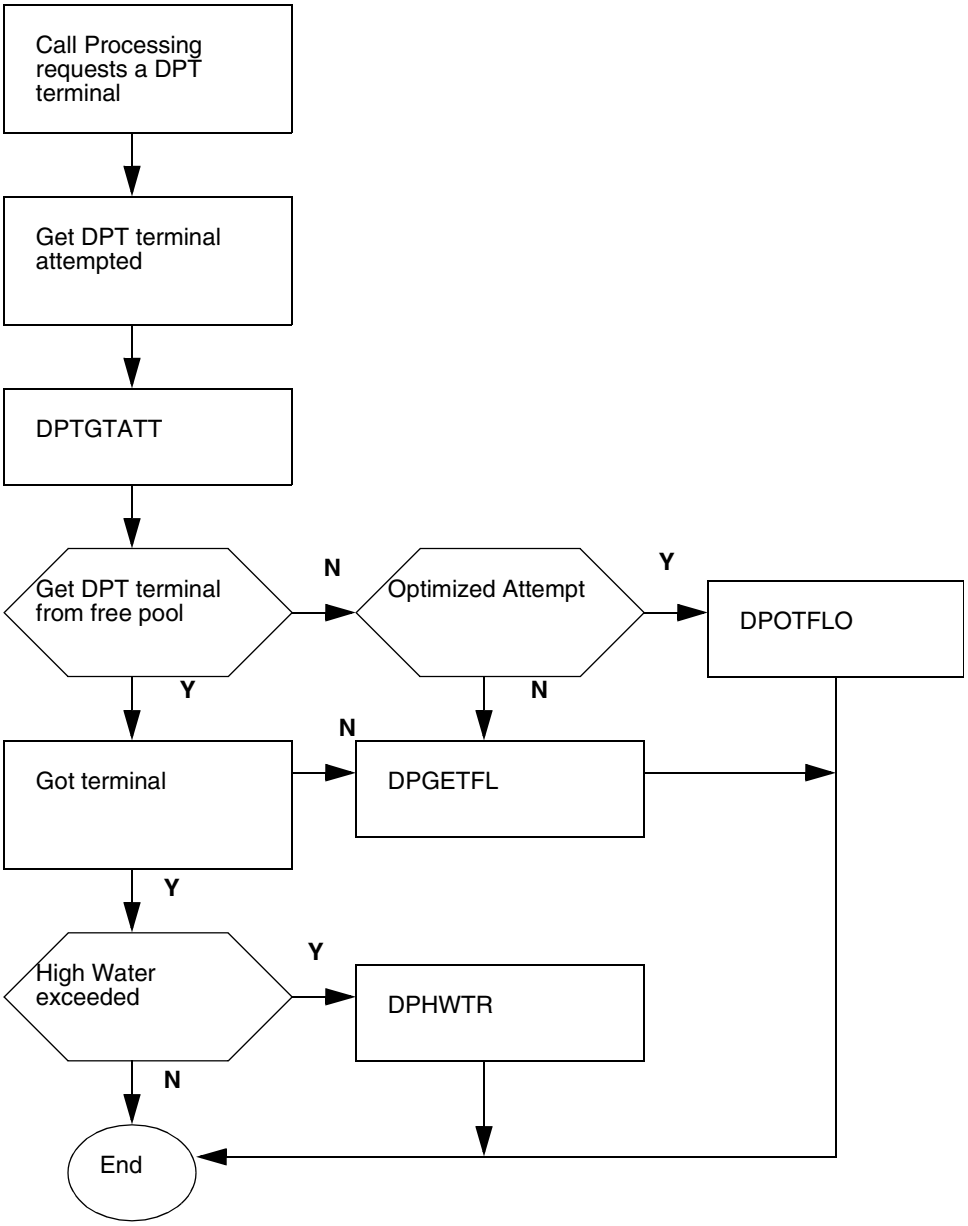
- Dynamic Packet Trunks

Associated functionality codes

Functionality codes associated with OM group

Functionality	Code
Dynamic Packet Trunks	

DPTOFCP OM group registers logic flow chart



Register DPGTATT

Register description
Get Terminal Attempts (DPGTATT) registers a peg for each attempt to get a DPT terminal on the associated protocol.

Register release history update
Register is new in SN07.

Associated registers
DPGTATT2 (an extension register for DPGTATT)

Associated logs
None.

Register DPGETFL

Register description
Get Terminal Failures (DPGETFL) registers a peg for each failed attempt to get an un-optimized DPT terminal on the associated protocol.

Register release history update
Register is new in SN07.

Associated registers
DPGETFL2 (an extension register for DPGETFL).

Associated logs
None.

Register DPOTFLO

Register description
Get Terminal Failures Optimized (DPOTFLO) registers a peg for each failed attempt to get an optimized DPT terminal on the associated protocol. Pegs to DPOTFLO are benign and do not require corrective action.

Register release history update
Register is new in SN07.

Associated registers
DPOTFLO2 (an extension register for DPOTFLO).

Associated logs
None.

Register DPUSAGE

Register description
DPT Terminal Usage (DPUSAGE) registers a count of the total usage within a transfer period. Usage is pegged by the number of terminals in Call Processing Busy (CPB) or Call Processing Deload (CPD) state at a sampling that occurs every 100 seconds.

Register release history update
Register is new in SN07.

Associated registers
DPUSAGE2 (extension register for DPUSAGE)

Associated logs
None.

Register DPHWTR

Register description
DPT Terminals usage High Water (DPHWTR) registers a count of the terminal usage high water mark within a transfer period. The high water mark is equivalent to the following:

- (inservice DPT terminals) - (free DPT terminals)

Free DPT terminals represent inservice terminals in the free queue that are eligible for call processing. The high water mark is calculated every 10 seconds. The register updates if the value from the current calculation is greater than the previous value kept in the register for that transfer period.

Register release history update
Register is new in SN07.

Associated registers
DPHWTR2 (an extension register for DPHWTR).

Associated logs
None.

Register DPRTDPL

Register description
DPT Port Depletion (DPRTDPL) registers the number of attempts to get a DPT terminal that failed due to port depletion (i.e., exceeding the DPT_MAX_PORT office parameter value).

Register release history update
Register is new in SN07.

Associated registers
DPRTDPL2 (an extension register for DPRTDPL).

Associated logs
None.

IWBM OM Group

OM description

IWBM OM Group is modified to count different events on the specific bridge pools that are defined in the call server.

Release history update

IWBM OM group is changed in SN07.

Registers

IWBM OM group registers display on the MAP terminal as follows:

IWBM OM Group Display

```
>omshow iwbm active

IWBM

CLASS: ACTIVE
START:2003/09/23 09:05:00  TUE;  STOP:  2003/09/23  09:09:52  Tue;
SLOWSAMPLES:        3  ;   FASTSAMPLES:          29 ;

   INFO (IWBM_POOL_INFO)
            IWGBATT      IWGBATT2     IWGBFAIL     IWGBABRT
            IWFBATT      IWFBATT2     IWFBFAIL     IWFBABRT
            IWONSET1     IWONSET2     IWABATE1     IWABATE2
            IWBTLTST     IWBCNFAN

0
            ENET_TO_ATM
            0            0            0            0
            0            0            0            0
            0            0            0            0
            0            0            0            0

1
            ENET_TO_IP
            0            0            0            0
            0            0            0            0
            0            0            0            0
            0            0            0            0
```

Group structure

IWBM OM group provides 1 tuple(s) for each IW SPM bridge pool that is active in the office.

Key field: IW SPM bridge pools

Info field: BEARER_NETBRIDGE_CLLI

- Associated bridge pool name (i.e., ‘ENET_TO_IP’). This bridge pool name is defined in Table CLLI and Table NETBRDGE. Each IW SPM bridge node is associated with a bridge pool in Table MNNODE.

Associated OM groups

None.

Associated functional groups

The following functional groups are associated with IWBM OM group:

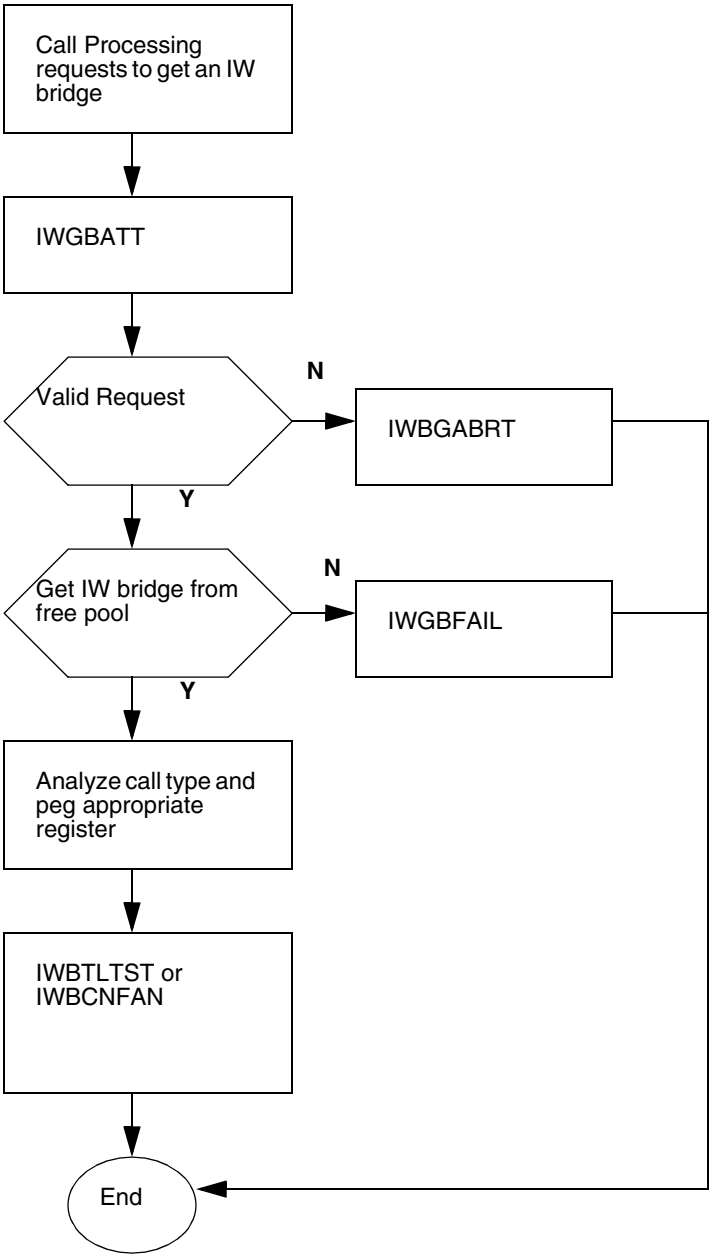
- IW SPM Bridges

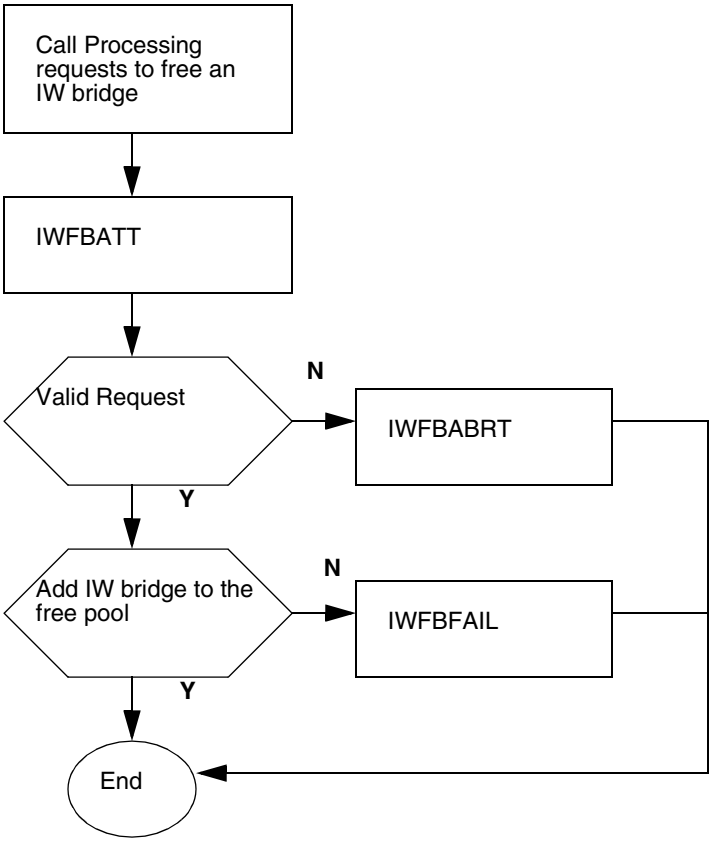
Associated functionality codes

Functionality codes associated with OM group

Functionality	Code
IW SPM Bridges	

IWBM OM group registers logic flow chart





Register IWGBATT

Register description

IW Get Bridge Attempts (IWGBATT) registers a peg for each attempt to get an IW SPM bridge port on the associated IW SPM bridge node.

Register release history update

Register is changed in SN07.

Associated registers

IWGBATT2 (an extension register for IWGBATT)

Associated logs

None.

Register IWGBFAIL

Register description
IW Get Bridge Failure (IWGBFAIL) registers a peg when a get bridge attempt fails as a result of queue failure. The normal cause of a queue failure is that all bridges are busy on the associated node.

Register release history update
Register is changed in SN07.

Associated registers
None.

Associated logs
None.

Register IWGBABRT

Register description
IW Get Bridge Aborted (IWGBABRT) registers a peg when a get bridge attempt aborts the system as a result of incorrect data in the request.

Register release history update
Register is changed in SN07.

Associated registers
None.

Associated logs
None.

Register IWFBATT

Register description
IW Free Bridge Attempts (IWFBATT) registers a peg when a attempt is made to free an IW SPM bridge from an associated call. When an interworked call ends, the system makes a free bridge attempt.

Register release history update
Register is changed in SN07.

Associated registers
IWFBATT2 (extension register for IWFBATT)

Associated logs
None.

Register IWFBFAIL

Register description
IW Free Bridge Failure (IWFBFAIL) registers a peg when a free bridge attempt fails.

Register release history update
Register is changed in SN07.

Associated registers
None.

Associated logs
None.

Register IWFBABRT

Register description
IW Free Bridge Aborted (IWGBABRT) registers a peg when a free bridge attempt aborts the system as a result of incorrect data in the request.

Register release history update
Register is changed in SN07.

Associated registers
None.

Associated logs
None.

Register IWBTLTST

Register description
IW Bridge for Trunk and Line Testing (IWBTLTST) registers a peg every time an IW bridge is used for a packet agent's access to trunk and/or line test facilities present on the ENET (i.e., MTM test circuits).

Register release history update
Register is changed in SN07.

Associated registers
None.

Associated logs
None.

Register IWONSET1

Register description
IW Bridge Onset 1 (IWONSET1) indicates that the number of in use IW bridges exceeds 70% of the associated bridge pool. The system pegs this register when the number of in use bridges in the pool reaches 70%. The system must peg register IWABATE1 before pegging IWONSET1 again.

Register release history update
Register is changed in SN07.

Associated registers
IWABATE1. The system must peg register IWABATE1 before pegging IWONSET1 again.

Associated logs
None.

Register IWONSET2

Register description
IW Bridge Onset 2 (IWONSET2) indicates that the number of in use IW bridges exceeds 90% of the associated bridge pool. The system pegs this register when the number of in use bridges in the pool reaches 90%. The system must peg register IWABATE2 before pegging IWONSET2 again.

Register release history update
Register is changed in SN07.

Associated registers
IWABATE2. The system must peg register IWABATE2 before pegging IWONSET2 again.

Associated logs
None.

Register IWABATE1

Register description
IW Bridge Abate 1 (IWABATE1) indicates that the total number of IW bridges in use is less than 65% of the associated bridge pool. The system pegs this register after pegging register IWONSET1 and then crosses the 65% threshold. The system must peg register IWONSET1 again before it pegs this register a second time.

Register release history update
Register is changed in SN07.

Associated registers
IWONSET1. The system pegs this register after pegging register IWONSET1 and then crosses the 65% threshold. The system must peg register IWONSET1 again before it pegs this register a second time.

Associated logs
None.

Register IWABATE2

Register description
IW Bridge Abate 2 (IWABATE2) indicates that the total number of IW bridges in use is less than 85% of the associated bridge pool. The system pegs this register after pegging register IWONSET2 and then crosses the 85% threshold. The system must peg register IWONSET2 again before it pegs this register a second time.

Register release history update
Register is changed in SN07.

Associated registers
IWONSET2. The system pegs this register after pegging register IWONSET2 and then crosses the 65% threshold. The system must peg register IWONSET2 again before it pegs this register a second time.

Associated logs
None.

Register IWBCNFAN

Register description
IW Bridge for Conference and Announcement Usage (IWBCNFAN) registers a peg every time an IW bridge is used for a packet agent's access to conference or announcement facilities present on the ENET (i.e., MTM service circuits).

Register release history update
Register is new in SN07.

Associated registers
None.

Associated logs
None.

OFZ2NET1 OM Group

OM description

OM group Office to Network Group 1 (OFZ2NET1) provides traffic analysis information for each bearer network. Using primary route scoring, the group counts calls for the intended destination rather than for the terminating destination.

OFZ2NET1records the structure of traffic that arrives at an office on a particular bearer network, the first routing, and the routing of outgoing traffic. A call routes to a tone or announcement if:

- the tone or announcement is the intended destination of the call.
- an error condition occurs that includes a tone or announcement as a part of the call treatment.

  Note: The a treatment routes the call to another tone or announcement, OFZ2NET1 counts only the first tone or announcement.

OM groups OFZ and OFZ2 provide traffic analysis information office wide. OFZ2NET1 and OFZ2NET2 provide similar traffic analyses with further refinement on a per-bearer network basis for an office.

New office parameter MULTINET_DISPLAY_ACTIVE must be set to *Y* before the system can display OFZ2NET1.

The following table contains the registers that count incoming calls. The register TRKORIG counts each incoming call on the bearer network. One of the following registers counts each incoming call:

- ICANN
- ICLKT
- NICOG
- ICTRM
- ICTONE
- ICABNC
- ICABNM
- TRKORIG

The count depends on if the source of the call is a line or a trunk.

Incoming calls

Register	Intended destination	Routing
NICOG(2)	trunk	trunk
ICTRM(2)	line	line
ICANN	trunk, line, announcement	announcement
ICTONE	trunk, line, tone	tone
ICLKT	trunk, line	lockout
ICABNC	trunk, line	customer abandon
ICABNM	trunk, line	machine abandon
TRKORIG(2)	all	all

The following table contains a list of registers that count originating calls. Register LINEUSG counts each originating call. One register from registers LINEANN, LINELKT, LINEOG, LINETRM, LINETONE and LINEABDN counts each originating call. The system routes a call to an intended destination. The intended destination of the call is either a tone or an announcement. The system routes a call if an error condition is present. The error condition must include a tone or announcement as part of its treatment. If a treatment routes the call to another tone or announcement, the OFZ2NET1 only counts the first tone or announcement.

Originating calls

Register	Intended designation	Routing
LINEOG(2)	trunk	trunk
LINETRM(2)	line	line
LINEANN	trunk, line, announcement	announcement
LINETONE	trunk, line, tone	tone
LINELKT	trunk, line	lockout
LINEABDN	trunk, line	abandon
LINEUSG(2)	trunk, line	all

The following table contains registers that count terminating calls on the associated bearer network. Register TRMLNAT counts each terminating call.

Registers TRMMCHFL and TRMBLCK count calls on a blocked network. LNMBSYPC counts lines that are made manually busy.

Terminating calls

Register	Event
TRMMCHFL	Network Blockage Heavy Traffic (NBLH) or Network Blockage Normal Traffic (NBLN)
TRMBLCK	Network Blockage Normal Traffic (NBLN)
LNMBSYPC	line manual busy
TRMLNAT(2)	all outgoing traffic

Release history update

OFZ2NET1 OM group is new in SN07.

All the registers are output in offices where the OFFICETYPEs are OFF100, OFFCOMB, OFFCOMBLWW, OFFCOMBTOPS, OFF250IBN, OFF100OESD, or OFFCOMBOESD.

The following registers are output in offices where the OFFICETYPEs are OFF200, OFF200TOPS, OFF200300, 0FF250, OFF300, or OFF200OESD:

Registers ICANN, ICLKT, NICOG, NICOG2, ICTONE, TRKORIG, TRKORIG2, OGNWAT, OGNWAT2, OGMFL, OGTRMFL, OGOSF, OGROSF, ICABNM, and ICABNC.

Registers

OFZ2NET1 OM group registers display on the MAP terminal as follows:

OFZ2NET1 OM Group Display

```
>omshow ofz2net1 active
OFZ2NET1
CLASS: ACTIVE
START:2003/09/23 09:05:00  TUE;  STOP:  2003/09/23  09:09:52  Tue;
SLOWSAMPLES:        3  ;  FASTSAMPLES:          29 ;
   INFO (OM2OFZ2NET1INFO)
          ICANN          ICLKT          NICOG          NICOG2
          ICTONE         TRKORIG        TRKORIG2       OGNWAT
          OGNWAT2        OGMFL          OGTRMFL        OGOSF
          OGROSF         ICABNM         ICABNC         LINEANN
          LINELKT        LINEOG         LINEOG2        LINETRM
          LINETRM2       LINETONE       LINEUSG        LINEUSG2
          ICTRM          ICTRM2         TRMLNAT        TRMLNAT2
          TRMMCHFL       TRMBLCK        LNMBSYPC       LINEABDN
0
     NET 0 TDM_ENET
          0              0              0              0
          0              0              0              0
          0              0              0              0
          0              0              0              0
          0              0              0              0
          0              0              0              0
          0              0              0              0
          0              0              0              0
1
     NET 1 NET_AAL1
          0              0              0              0
          0              0              0              0
          0              0              0              0
          0              0              0              0
          0              0              0              0
          0              0              0              0
          0              0              0              0
          0              0              0              0
2
     NET 2 NET_IP
          0              0              0              0
          0              0              0              0
          0              0              0              0
          0              0              0              0
          0              0              0              0
          0              0              0              0
          0              0              0              0
          0              0              0              0
```

Office parameter OFFICETYPE in table OFCSTD controls the generation of the registers for OFZ2NET1.

The validity of a OFZ2NET2 register in an officetype is given in the following table

OFZ2NET1 OM registers

Register	Present In Officetype
ICANN	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww, nooffice
ICLKT	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww, nooffice
NICOG	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww, nooffice
NICOG2	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww, nooffice
ICTONE	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww, nooffice
TRKORIG	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww, nooffice
TRKORIG2	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww, nooffice
OGNWAT	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww, nooffice
OGNWAT2	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww, nooffice
OGMFL	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww, nooffice
OGTRMFL	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww, nooffice
OGOSF	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww, nooffice

Register	Present In Officetype
OGROSF	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww, nooffice
ICABNM	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww, nooffice
ICABNC	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww, nooffice
LINEANN	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww
LINELKT	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww
LINEOG	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww
LINEOG2	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww
LINETRM	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww
LINETRM2	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww
LINETONE	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww
LINEUSG	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww
LINEUSG2	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww
ICTRM	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww
ICTRM2	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww

Register	Present In Officetype
TRMLNAT	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww
TRMLNAT2	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww
TRMMCHFL	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww
TRMBLCK	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww
LNMBSYPC	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww
LINEABDN	off100, offcomb, offcombtops, off100scp, off100oesd, offcomboesd, off250ibn, offeadas, offcombitops, offmtx100i, off500, offcomblww

Group structure

OFZ2NET1 OM group provides 1 tuple(s) for each bearer network datafilled in Table BEARNETS. The group structure is dependent upon the office type of the call server.

Key field: Bearer network ID

Info field: OM2OFZ2NET1INFO

- Bearer network ID (i.e., ‘NET 0’)
- Bearer network name (i.e., ‘TDM_ENET’)

Associated OM groups

OM group OFZ gives an overall office-wide traffic performance measurement.

Associated functional groups

The following functional groups are associated with OFZ2NET1 OM group:

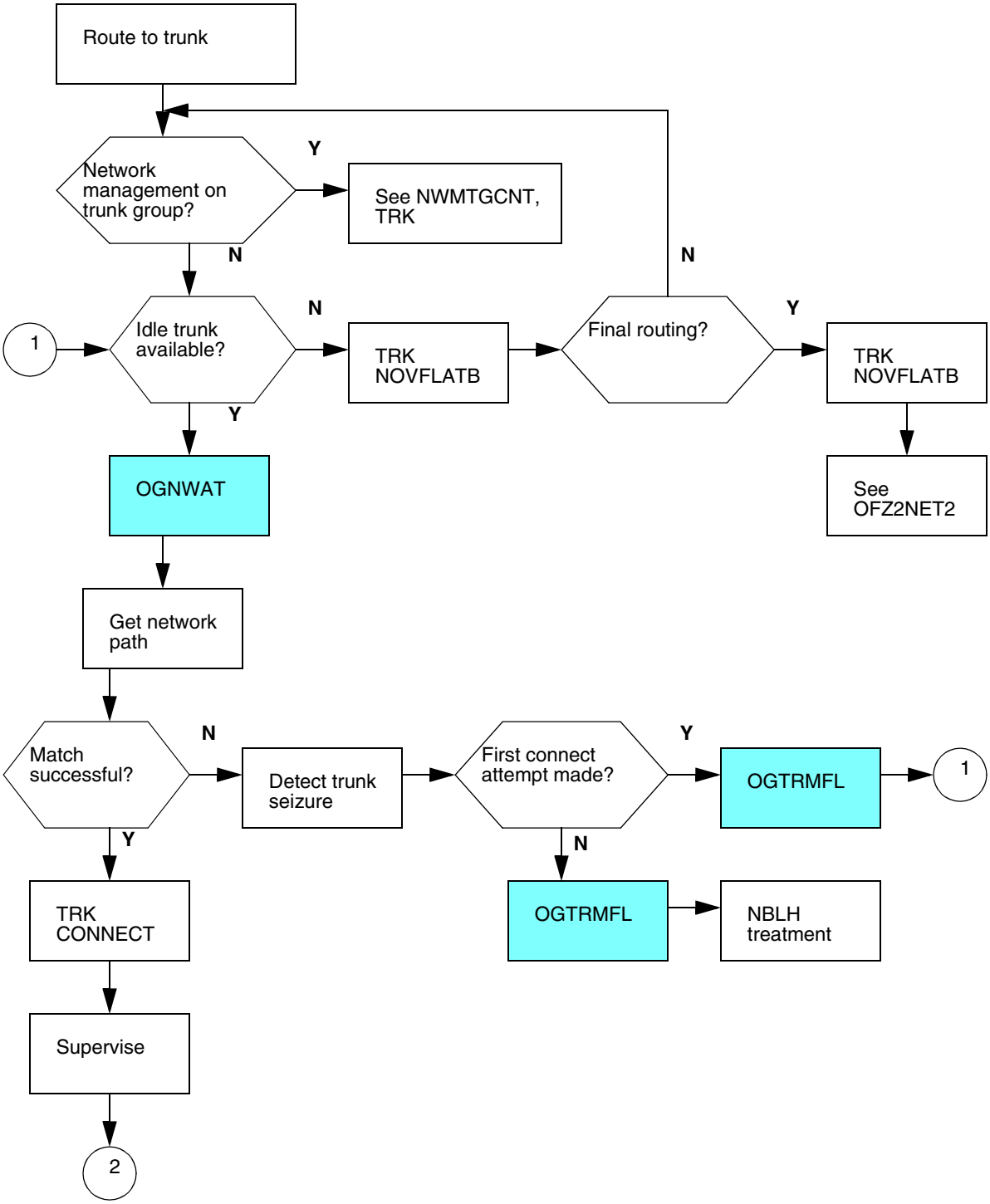
- Succession North America
- Succession International

Associated functionality codes

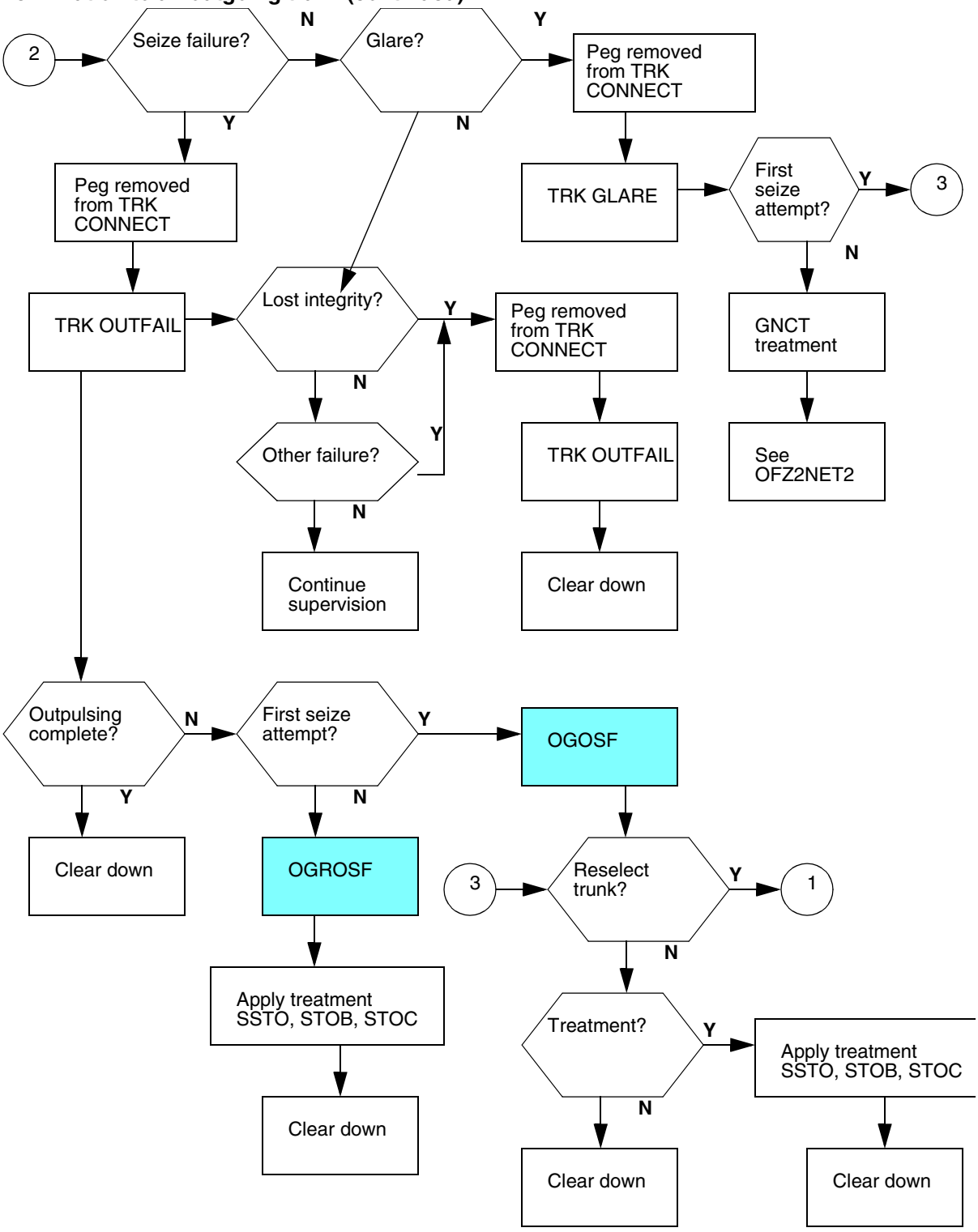
None

OFZ2NET1 OM group registers logic flow chart

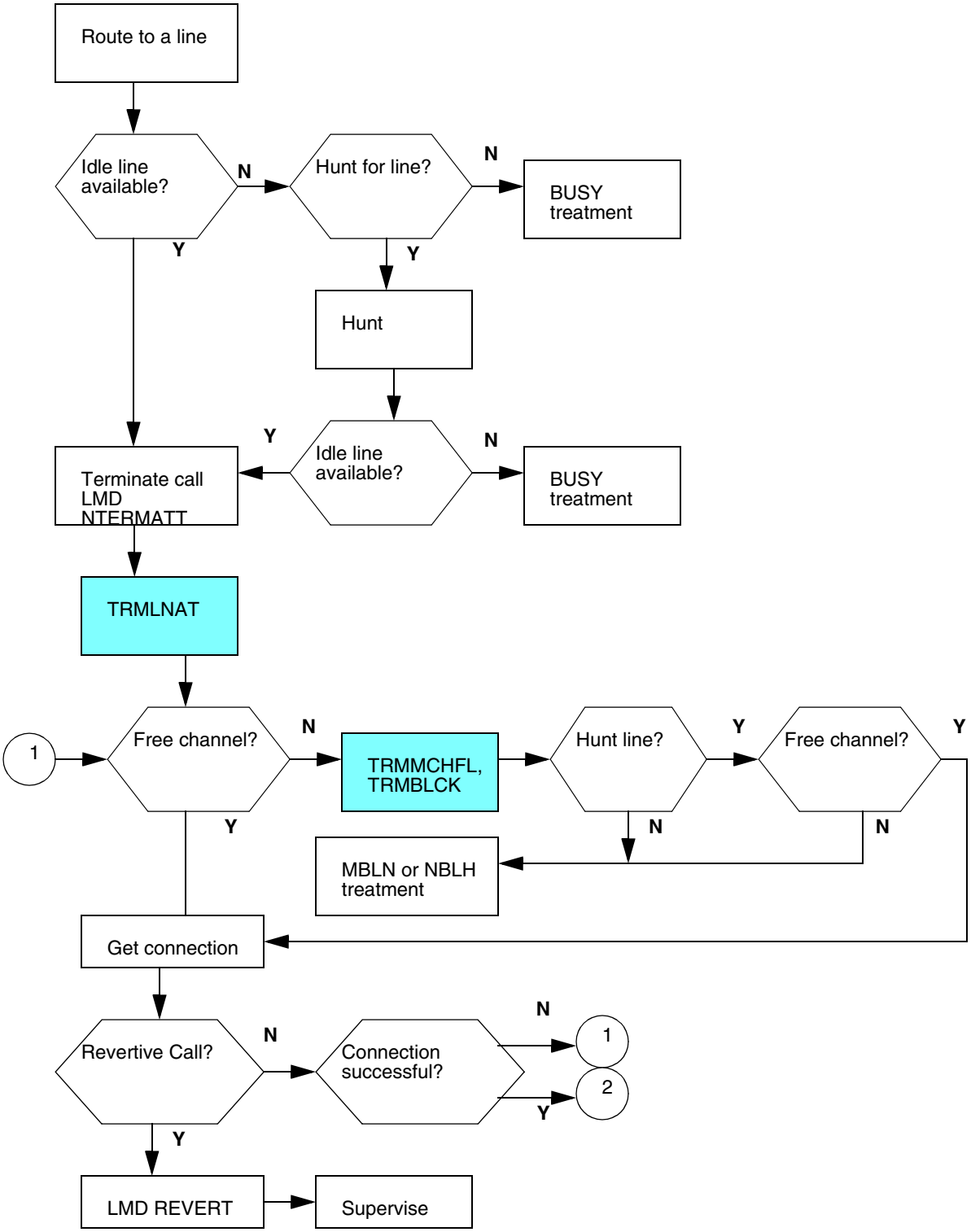
Termination to an outgoing trunk



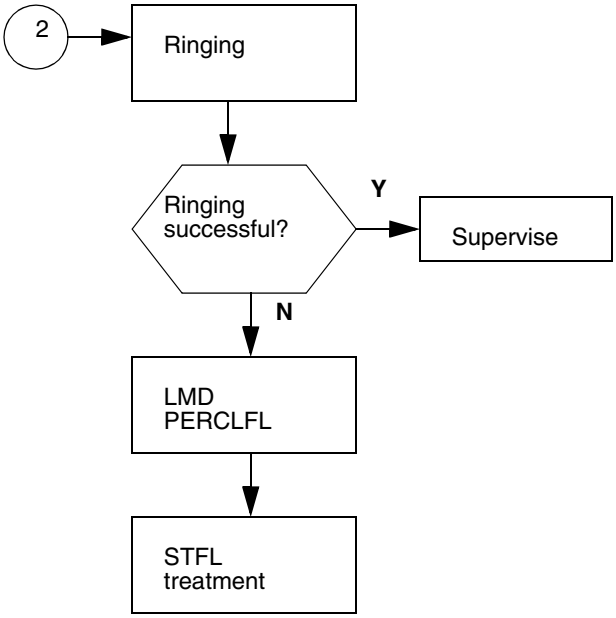
Termination to an outgoing trunk (continued)



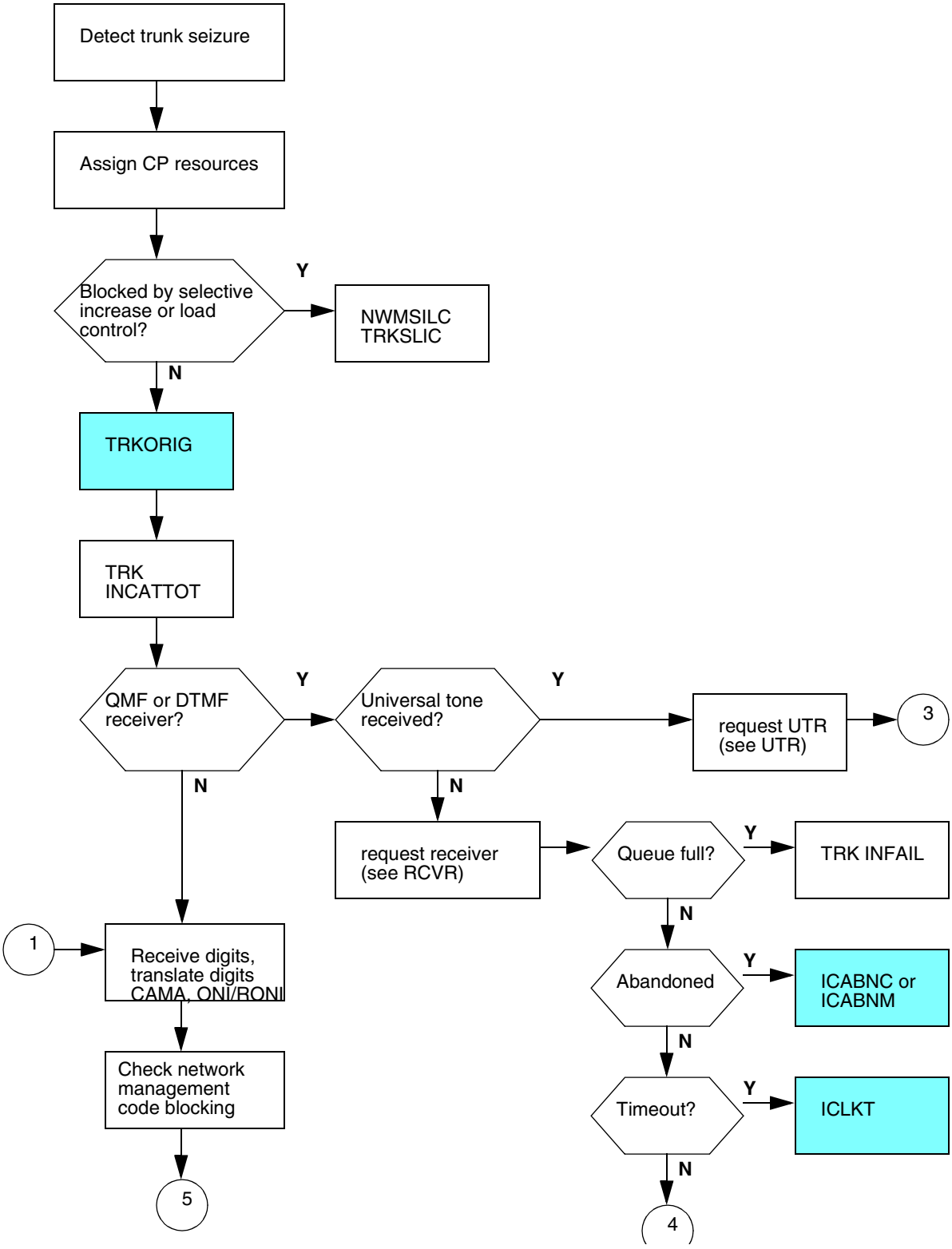
Termination to a line



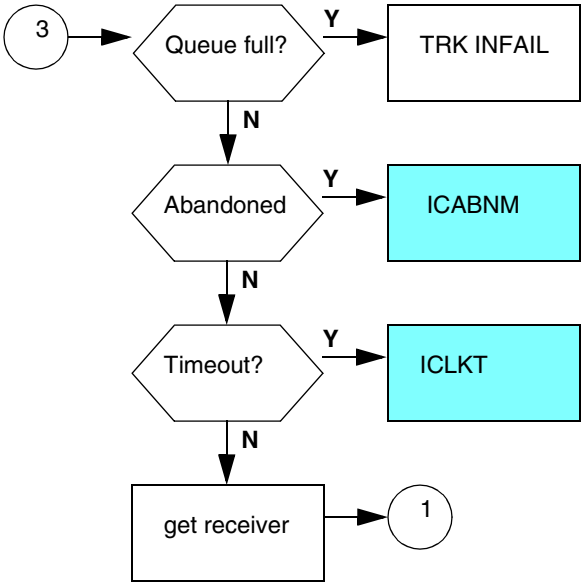
Termination to a line (continued)

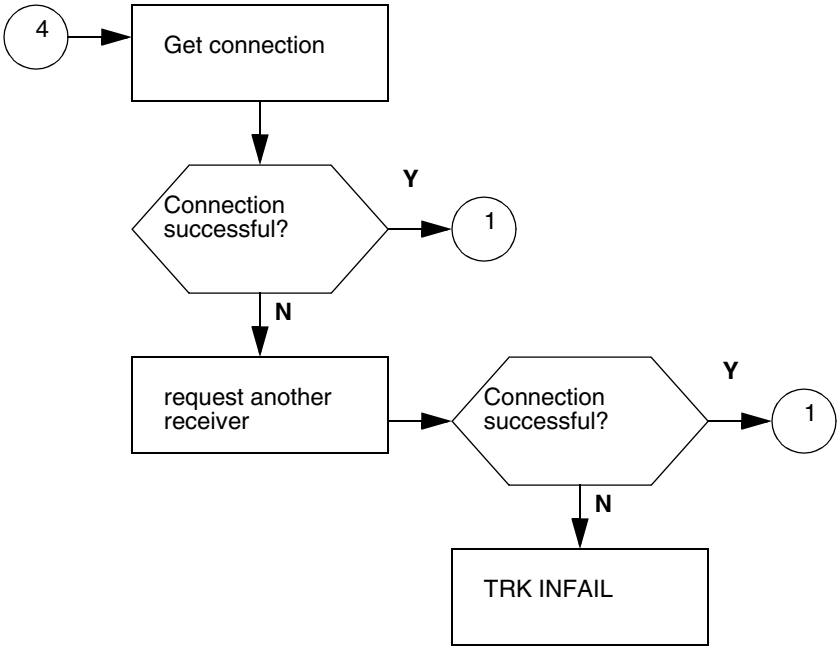


Origination from a trunk

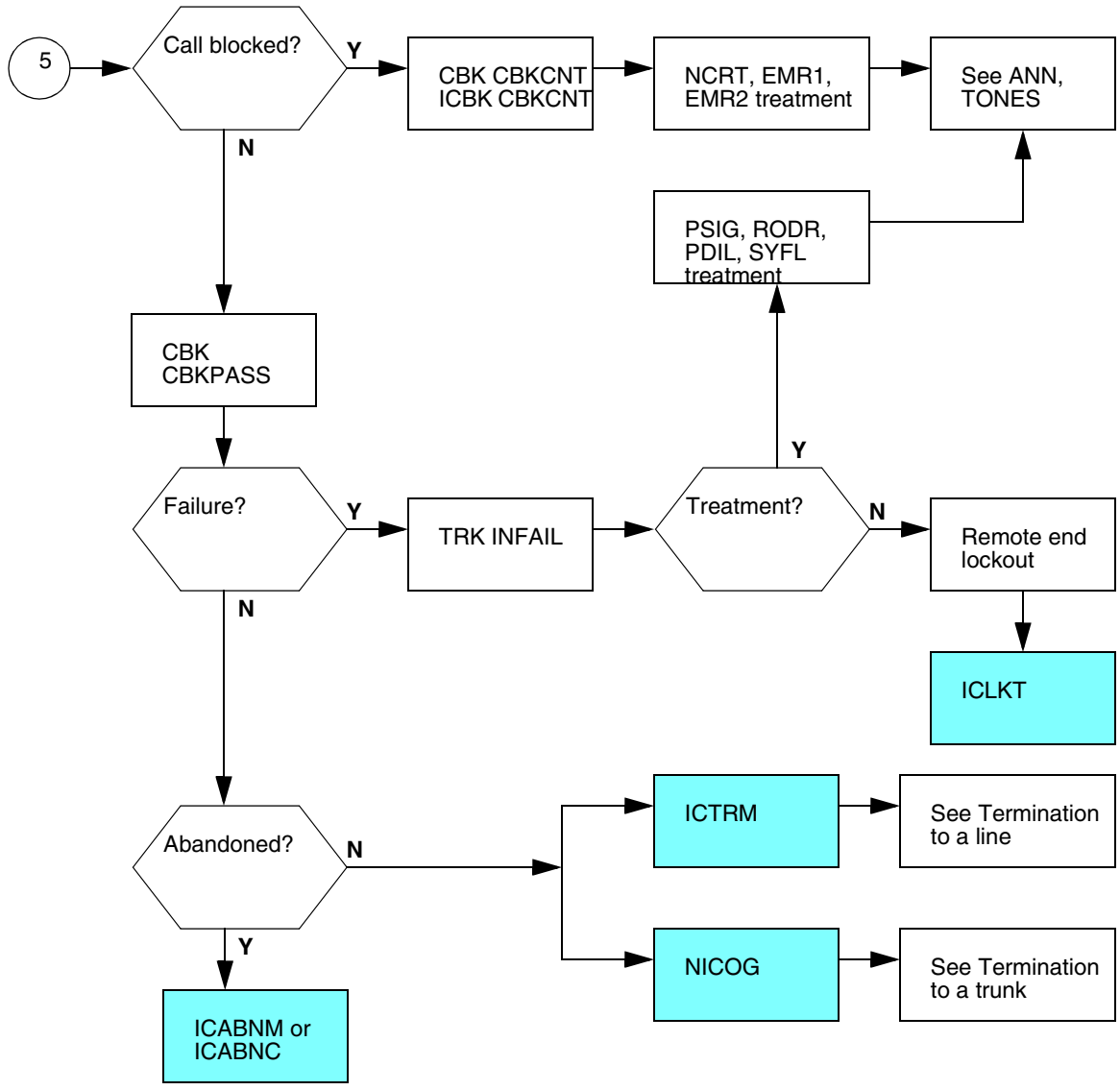


Origination from a trunk (continued)

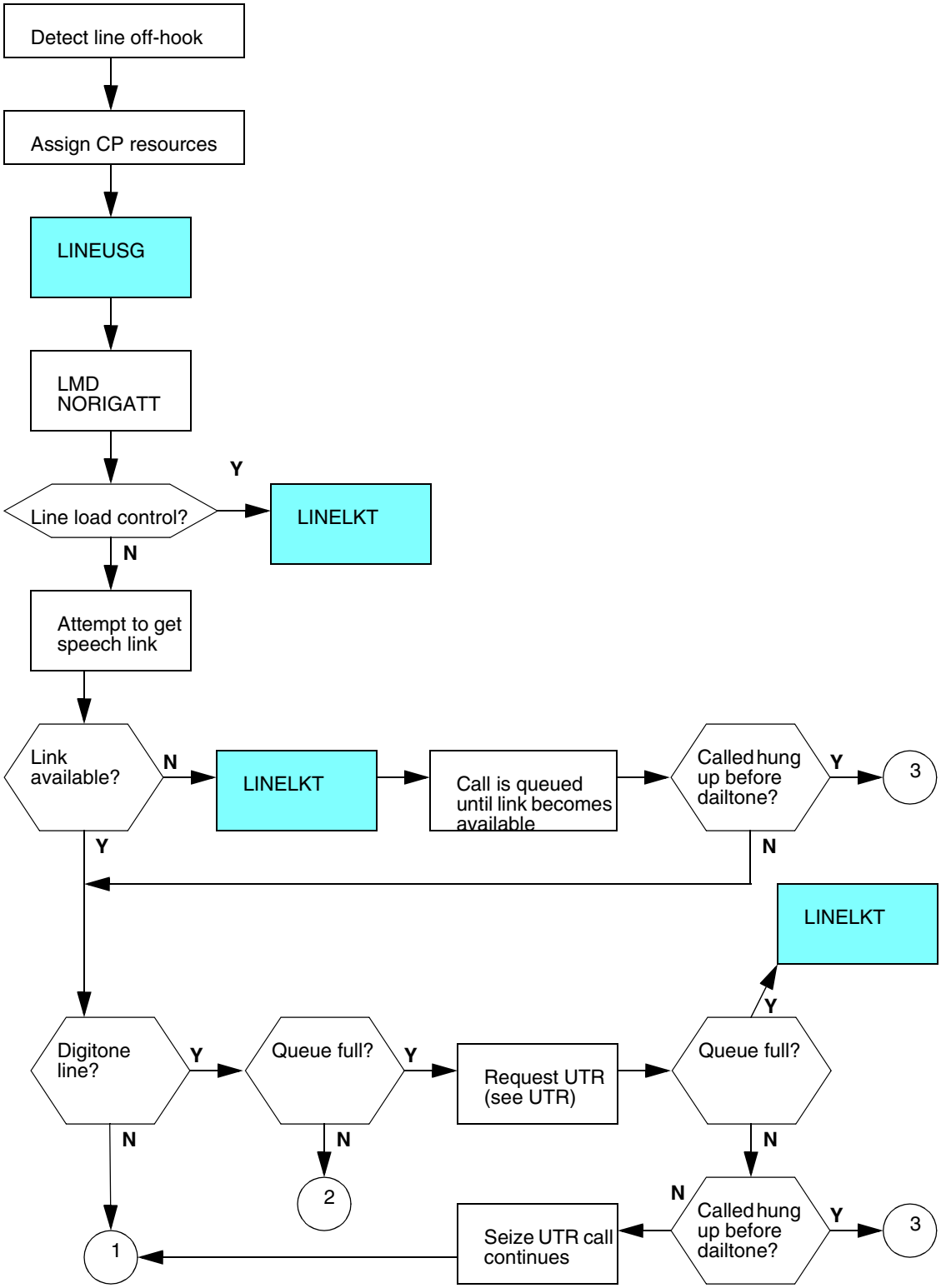




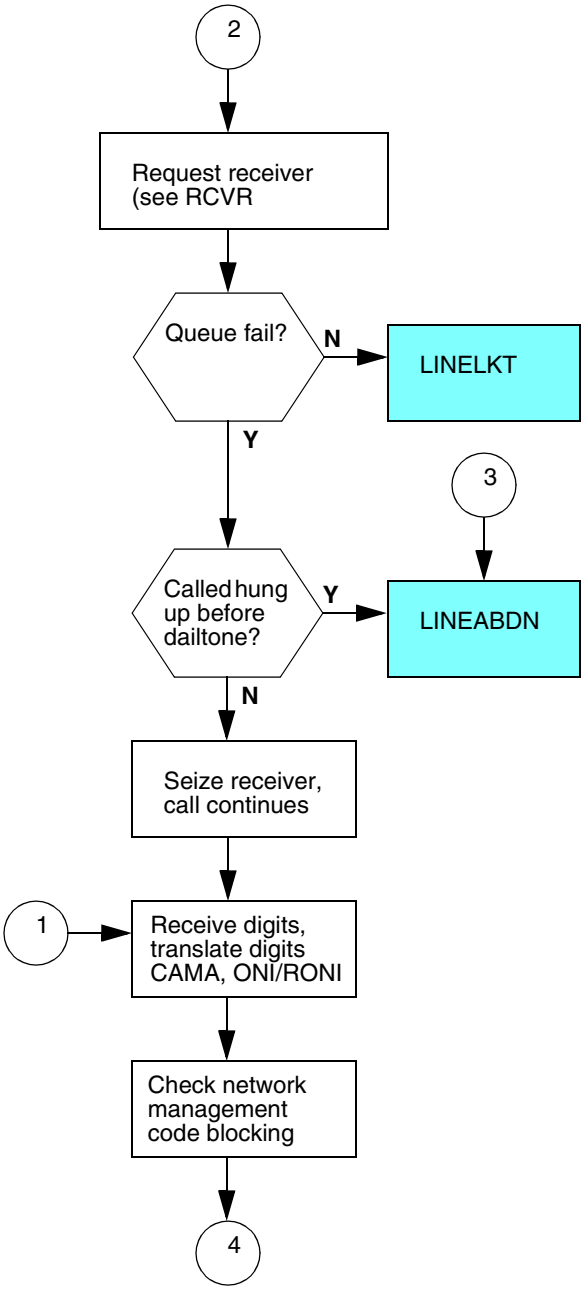
Origination from a trunk (continued)



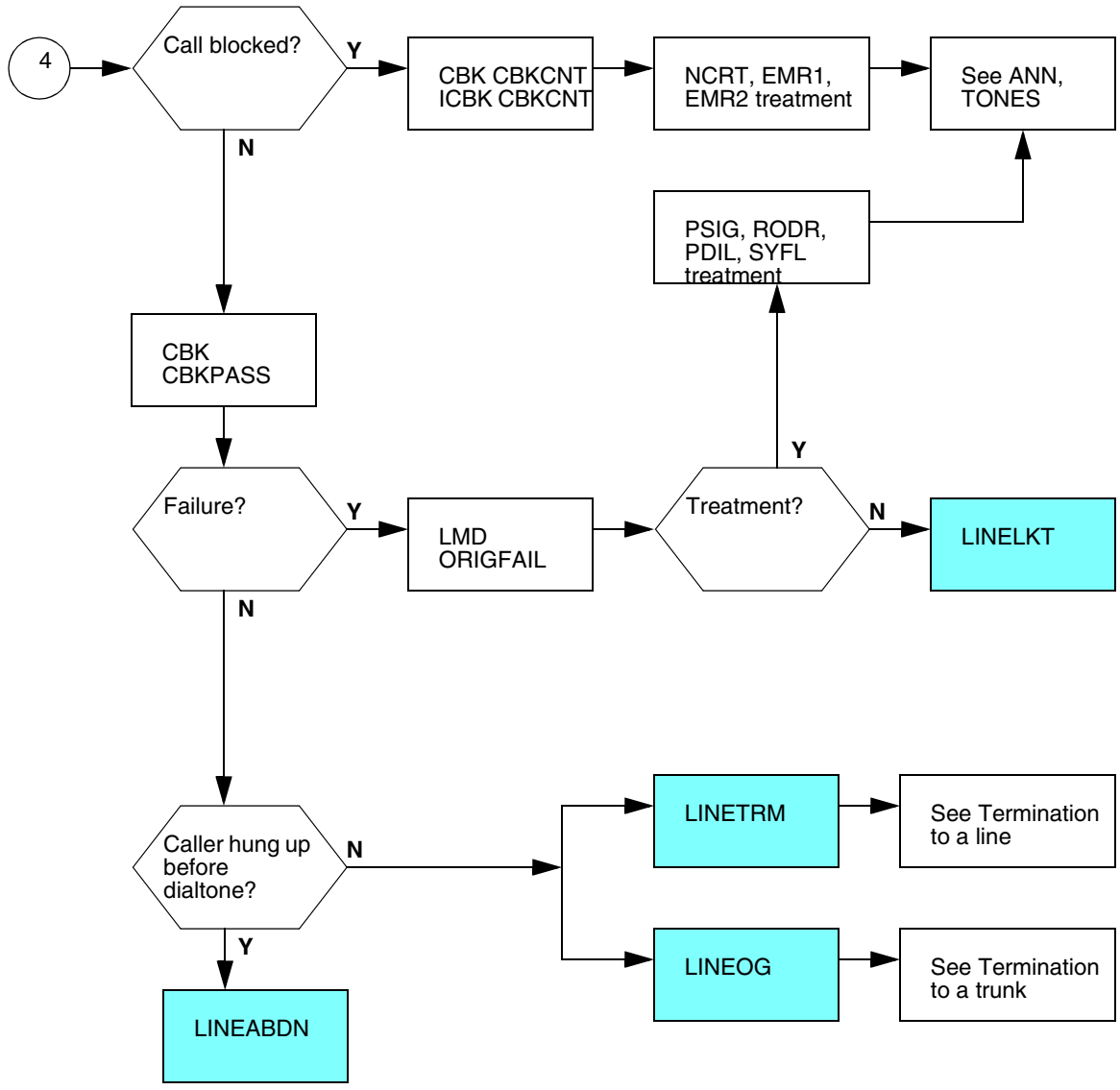
Origination from a line



Origination from a line (continued)



Origination from a line (continued)



Register ICABNC

Register description

Incoming Calls Abandoned (ICABNC) counts incoming calls on the associated bearer network that the subscriber abandons before processing. These calls do not require treatment.

Register release history update

Register is new in SN07.

Associated registers
Register ICABNM counts incoming calls on the associated bearer network that the machine abandons.

Associated logs
The system generates TRK114 when the system cannot determine the destination of an incoming call during DP reception.

The system generates TRK116 when the system cannot determine the destination of an incoming call during MF reception.

The system generates TRK162 is the outpulsing of either a trunk-to-trunk or line-to-trunk call encounters trouble. These calls use DTMF signaling.

Register ICABNM

Register description
Incoming Calls Abandoned (ICABNM) counts incoming calls on the associated bearer network that the machine abandons before processing. The machine abandons a call when a call times out at the upstream office while waiting for a receiver. The machine also abandons a call when there is an equipment problem.

Register release history update
Register is new in SN07.

Associated registers
Register ICABNC counts incoming calls on the associated bearer network that the subscriber abandons.

Associated logs
The system generates TRK114 when the system cannot determine the destination of an incoming call during DP reception.

The system generates TRK116 when the system cannot determine the destination of an incoming call during MF reception.

The system generates TRK162 is the outpulsing of either a trunk-to-trunk or line-to-trunk call encounters trouble. These calls use DTMF signaling.

Register ICANN

Register description
Incoming Call to an Announcement (ICANN) register counts incoming calls on the associated bearer network that the system routes to an announcement.

The announcement is the result of a treatment applied during origination, or the intended result of the call. Register ICANN counts the call before it

attempts to get a network connection. Register ICANN counts calls that the system routes to a treatment that routes the call to an announcement. The register only counts these calls one time.

Register release history update
Register is new in SN07.

Associated registers
Register LINEANN counts originating calls that the system routes to an announcement.

Associated logs
The system generates TRK138 when the system routes a call to a treatment after the call is call processing busy.

Register ICLKT

Register description
Incoming Calls to Lockout (ICLKT) counts incoming calls that fail and that the system routes to lockout. The call fails for one of the following reasons:

- The incoming trunk loses its true identity
- The system cannot connect the call to a tone or announcement
- A forced release initiates manually
- A forced release initiates because call processing requests a delay (CP_WAITDENY count the call)

Register release history update
Register is new in SN07.

Associated registers
None.

Associated logs
The system generates TRK111 if the system encounters a problem or assigns a treatment during a trunk-to-trunk call.

The system generates TRK113 when the call processing of a trunk-to-trunk call encounters a problem.

The system generates TRK123 when the node hosting the trunk member sends the wrong message to the core. The system generates TRK123 several times when a problem is present in one of the following elements:

- the originating trunk
- the terminating trunk

Register NICOG

Register description
Incoming to Outgoing (NICOG) counts incoming calls on the associated bearer network from the following agents:

- trunks
- preset conferences
- originating test lines

Register release history update
Register is new in SN07.

Associated registers
NICOG2 register (extension register for NICOG).

Associated logs
None.

Register ICTONE

Register description
Incoming Call to Tone (ICTONE) counts oncoming calls on the associated bearer network that the system routes to a tone.

The tone is the result of a treatment applies during origination, or the tone is the intended result of the call. Register ICTONE counts the call before it attempts to find a network connection. Register ICTONE count a call that the system routes to a tone one time.

Register release history update
Register is new in SN07.

Associated registers
Register LINETONE counts originating calls on the associated bearer network that the system routes to a tone.

Associated logs
The system generates TRK138 when the system routes a call to a treatment after the call is call processing busy.

Register ICTRM

Register description
Incoming to Terminating (ICTRM) counts incoming calls on the associated bearer network that the system routes to a line.

Register release history update
Register is new in SN07.

Associated registers
Register ICTRM2 (extension register for ICTRM).

Associated logs
None.

Register LNMBSYPC

Register description
Line Manual Busy Peg Count (LNMBSYPC) counts lines on the associated bearer network that are manual busy.

Every POTS line is pegged by one when transitioning to a manual busy state. Pegging of each PPhone/PSET/DATA/ISDN line depends upon number of virtual identifiers (VIDs) associated with that line, and may be more than once, when made manual busy by maintenance action such as the BSY command at the LTP MAPCI level.

Register release history update
Register is new in SN07.

Associated registers
None.

Associated logs
None.

Register TRKORIG

Register description
Number of Incoming Calls (TRKORIG) counts incoming calls on the associated bearer network that the core recognizes. The intended destination of the call is a line, trunk, announcement or tone. Register TRKORIG counts calls after a call control block and a call process are obtained. The register may count the calls before all incoming digits are received.

Register release history update
Register is new in SN07.

Associated registers
Register TRKORIG counts each incoming call. A peg in this register should have a corresponding peg in one of the following registers as the destination is determined:

- Register ICABNC (counts the call if the subscriber abandons the call)

- Register ICABNM (counts the call if the core abandons the call
- Register ICANN (counts the call if the destination is an announcement)
- Register ICLKT (counts the call if the call locks out)
- Register NICOG (counts the call if the destination is a trunk)
- Register ICTRM (counts the call if the destination is a line)
- Register ICTONE (counts the call if the destination is a tone)

Register TRKORIG2 (extension register for TRKORIG).

Associated logs
None.

Register LINEUSG

Register description
Number of Originating Calls (LINEUSG) counts originating call on the associated bearer network that the core recognizes.

After a call condense block and a call process are obtained, LINEUSG counts a call. Register LINEUSG counts the call before dialing is set up. LINEUSG can count a single call at least once. The call is only a single call from the point of view of the caller. The system counts a three-way call when the flashing switch hook recognizes a correct feature origination signal. The feature origination signal is for the flashing line.

Register release history update
Register is new in SN07.

Associated registers
Register LINEUSG counts each originating call. A peg in this register should have a corresponding peg in one of the following registers as the destination is determined:

- Register LINEABDN (counts the call if the call abandons)
- Register LINEANN (counts the call if the destination is an announcement)
- Register LINELKT (counts the call if the call locks out)
- Register LINEOG (counts the call if the destination is a trunk)
- Register LINETRM (counts the call if the destination is a line)
- Register LINETONE (counts the call if the destination is a tone)

Register LINEUSG2 (extension register for LINEUSG).

Associated logs
None.

Register LINEABDN

Register description
Originating Calls Abandoned (LINEABDN) counts originating calls on the associated bearer network that the system abandons before the system routes the calls to a trunk, line or treatment.

Register release history update
Register is new in SN07.

Associated registers
None.

Associated logs
The system generates LINE106 if the system cannot determine a call destination during dial pulse reception on a line.

The system generates LINE108 if the digitone reception on a lines encounters a problem.

Register LINEANN

Register description
Originating Calls to Announcement (LINEANN) counts originating calls on the associated bearer network that the system routes to an announcement.

The announcement can be the result of a treatment during origination, or the intended result of the call. The system counts the call in LINEANN before an attempt to find a network connection occurs.

Register release history update
Register is new in SN07.

Associated registers
The system counts ICANN incoming calls that the system routes to an announcement.

Associated logs
The system generates LINE138 if the system routes a call to a treatment after it is call processing busy.

Register LINELKT

Register description

Originating Calls to Lockout (LINELKT) counts originating calls on the associated bearer network that fail on the intended destination that the system routes to lock out. The register counts these calls when the calls do not connect. Register LINELKT also counts the calls when the system does not routes the call to a treatment. The call fails for one of the following reasons:

- line load control (line is dead)
- a speech link is not available (call is queued until a speech link becomes available and is the caller remains off-hook that call can be successful, but LINELKT only pegs one time)
- A digitone receiver, or one of a network connection to a digitone receiver is not available (if caller remains off-hook, the call clears when the problem is successful, but LINELKT only pegs one time)

Register release history update

Register is new in SN07.

Associated registers

None.

Associated logs

The system generates LINE104, LINE105, LINE109, or LINE204 is call processing encounters a problem.

The system generates NET130 if the system cannot find a network path.

The system generates OM2200 if a threshold condition exceeds the limit.

Register LINEOG

Register description

Originating Calls to Outgoing (LINEOG) counts originating calls on the associated bearer network that the system routes to a trunk or a test facility.

Register release history update

Register is new in SN07.

Associated registers

Register LINEOG2 (extension register for LINEOG).

Associated logs

None.

Register LINETONE

Register description
Originating Calls to Tone (LINETONE) counts originating calls on the associated bearer network that the system routes to a tone.

Register LINETONE counts the call before it attempts to find a network connection. The tone is either the result of a treatment, or the intended result of the call. Register LINETONE counts calls that the system routes to a treatment that routes the call to a tone. Register LINETONE only counts the call one time.

Register release history update
Register is new in SN07.

Associated registers
Register ICTONE counts incoming calls that the system routes to a tone.

Associated logs
The system generates LINE138 is the system routes a call to a treatment after it is call processing busy.

Register LINETRM

Register description
Originating Calls to Terminating (LINETRM) counts originating calls on the associated bearer network that the system routes to a line. Register LINETRM counts the call if a line is available or is not available.

Register release history update
Register is new in SN07.

Associated registers
Register LINETRM2 (extension register for LINETRM).

Associated logs
None.

Register OGMFL

Register description
Outgoing Match Failures (OGMFL) counts calls on the associated bearer network that fail to find a network path to a selected outgoing or test trunk on the first attempt. A second attempt occurs to find an idle trunk and a network path.

Register release history update
Register is new in SN07.

Associated registers
Register OGTRMFL counts the second trial match failures.

Associated logs
The system generates NET130 if the system cannot find a network path.

Register OGNWAT

Register description
Outgoing Network Attempts (OGNWAT) counts incoming and outgoing calls on the associated bearer network that are intended for an exact outgoing or test trunk.

A single call can use two or more network paths to different ports for the service circuit. For example, connection by a conference circuit requires more that one network path.

Register release history update
Register is new in SN07.

Associated registers
Register OGNWAT2 (extension register for OGNWAT).

Associated logs
None.

Register OGOSF

Register description
Outgoing Original Seize Failures (OGOSF) counts calls on the associated bearer network that fail to seize an outgoing trunk on the first attempt after network paths are acquired. A second attempt occurs to find an idle trunk and a network path, and to seize the trunk. One of the following conditions causes a failure:

- a reversed trunk
- failure to receive a known start-dial
- not planned stop-dial
- time-out before expected stop-dial
- CCS7 errors

Register release history update
Register is new in SN07.

Associated registers
Register OGROSF counts calls on the associated bearer network that fail on the second attempt to seize an outgoing trunk.

Associated logs
The system generates TRK113 is the call processing of a trunk-to-trunk call encounters a problem.

The system generates TRK121 is the system does not receive an acknowledgement wink from the far-end equipment. The wink indicates that it is ready to receive digits. The digits are received during outpulsing on an outgoing trunk.

The system generates TRK162 if the outpulsing of either a trunk-to-trunk or line-to-trunk call encounters a problem. The line-to-trunk calls use DTMF signaling.

The system generates C7UP111 when an outgoing ISUP call attempt fails.

Register OGTRMFL

Register description
Outgoing Retrial Match Failures (OGTRMFL) counts calls on the associated bearer network that fail on the second attempt to find a network path to a selected outgoing or test trunk.

Register release history update
Register is new in SN07.

Associated registers
Register OGMFL counts the first trial match failures.

Associated logs
None.

Register OGROSF

Register description
Outgoing Retrial Seize Failures (OGROSF) counts calls on the associated bearer network that fail on the second attempt to seize an outgoing trunk. This attempt occurs after the network paths have been acquired. One of the following conditions causes a failure:

- a reversed trunk
- failure to receive a known start-dial
- not planned stop-dial
- time-out before expected stop-dial

- CCS7 errors

The system disconnects the call after the second failure and the call receives start signal time-out (SSTO) treatment. An equal access call receives signal timely BOC (STOB) or signal time-out IC/INC (STOC) treatment.

The system increments OGROSF when a second attempt occurs to run a continuity test (COT) for an outgoing ISUP trunk. The second attempt occurs if the first COT attempt fails.

Register release history update
Register is new in SN07.

Associated registers
Register OGOSF counts the first seize failures.

Associated logs
The system generates TRK113 is the call processing of a trunk-to-trunk call encounters a problem.

The system generates TRK121 is the system does not receive an acknowledgement wink from the far-end equipment. The wink indicates that it is ready to receive digits. The digits are received during outpulsing on an outgoing trunk.

The system generates TRK162 if the outpulsing of either a trunk-to-trunk or line-to-trunk call encounters a problem. The line-to-trunk calls use DTMF signaling.

The system generates C7UP111 when an outgoing ISUP call attempt fails.

Register TRMBLCK

Register description
Terminating Blocks (TRMBLCK) counts attempts to obtain a voice path to a terminating lines on the associated bearer network that fail. This failure occurs when no free channel is present between the host network and the terminating line.

The system counts more that one failed attempt if part of a hunt group directs the call.

The system also counts each attempt in OFZ2NET1 registers TRMMCHFL and TRMLNAT.

If no alternate line is available, the system routes the call to network blockage normal traffic (NBLN) treatment.

Register release history update
Register is new in SN07.

Associated registers
None.

Associated logs
The system generates NET130 if the system cannot find a network path.

The system generates LINE138 or TRK138 when the system routes a call to a treatment after the call is call processing busy.

Register TRMMCHFL

Register description
Terminating Match Failures (TRMMCHFL) counts calls on the associated bearer network that fail to find a network path to terminating line.

The system counts more that one failed attempt if the call goes to a part of a hunt group.

Failure in the path search sequence can occur is the host switch network cannot obtain a path. It the network cannot find an alternate path, the system routes the call to a network blockage heavy traffic (NBLH) treatment.

Failure in the path search sequence can occur in the final cause of failure is failure to obtain a free channel on a link between the host switch network and the terminating line. Registers TRMBLCK and TRMLNAT also count failures to obtain a free channel.

If no alternate path is available, the system routes the call to network blockage normal traffic (MBLN) treatment.

Register release history update
Register is new in SN07.

Associated registers
None.

Associated logs
The system generates NET130 if the system cannot find a network path.

The system generates LINE138 or TRK138 when the system routes a call to a treatment after the call is call processing busy.

Register TRMLNAT

Register description

Terminating Network Attempts (TRMLNAT) counts attempts to find a voice path on the associated bearer network to terminating line. The complete path includes the following elements:

- a segment through the network
- a channel on the link between the line module and the network
- a matching channel on the line shelf

Register TRMLNAT counts a call only for each attempt. The calls count each attempt, whether is succeeds or fails.

Register release history update
Register is new in SN07.

Associated registers
Register TRMLNAT2 (extension register for TRMLNAT). Register TRMBLCK counts attempts to obtain a voice path to a terminating lines on the associated bearer network that fail. Register TRMMCHFL counts calls on the associated bearer network that fail to find a network path to terminating line.

Associated logs
None.

OFZ2NET2 OM Group

OM description

OFZ2NET2 OM Group provides information for traffic analysis per bearer network. The OM group is modeled after group OFZ2. The OFZ2NET2 OM group counts calls that the system routes to generalized no circuit treatment (GNCT). The system routes a call to GNCT when a trunk group is the last route in the route list and all trunks are busy.

OFZ2NET2 registers with the prefix *NCKT* count the number of calls by the trunk type or call type routed to GNCT for outgoing trunks or for the outgoing side of two-way trunks. Register names correspond to an entry in field No Circuit Class (NCCLS) which is datafilled for each trunk defined in table TRKGRP. The other registers are as described in the following sections.

Office parameter OFFICETYPE in table OFCSTD controls the generation of the registers for OFZ2NET2.

The following office types apply to OFZ2NET2:

- OFF100 Local
- OFFCOMB Combined local/toll
- OFFCOMBTOPS Combined local/toll with TOPS
- OFF200 Toll
- OFF200TOPS Toll with TOPS
- OFF200300 Combined gateway/toll
- OFF300 Gateway
- OFF250 DMS-250
- OFF250IBN DMS-250/SL-100
- OFF100OESD Austrian local
- OFF200OESD Austrian toll
- OFFCOMBOESD Austrian combined local/toll

Release history update

OFZ2NET2 OM group is new in SN07.

The addition of this new OFZ2NET2 OM group is controlled by the value of a new SN07 office parameter, MULTINET_DISPLAY_ACTIVE. If this parameter is set to ‘Y’, then the new OFZ2NET2 OM group is displayed. If the parameter is set to ‘N’, then the OFZ2NET2 OM group is not displayed.

Registers

OFZ2NET2 OM group registers display on the MAP terminal as follows:

OFZ2NET2 OM Group Display

```
>omshow ofz2net2 active
OFZ2NET2

CLASS: ACTIVE
START:2003/09/23 09:05:00  TUE;  STOP:  2003/09/23  09:09:52  Tue;
SLOWSAMPLES:        3  ;   FASTSAMPLES:          29 ;

   INFO (OM2OFZ2NET1INFO)
            NCKTIT          NCKTTC          NCKTLT          NCKTBN
            NCKTID          NCKTOSC         NCKTOT          NCKTRT
            NCKTIM          NCKTON          NCKTOF          MDPSIG
            MDPD            DPTRC           DPTRC2

0
NET 0 TDM_ENET
                0               0               0               0
                0               0               0               0
                0               0               0               0
                0               0               0
1
NET 1 NET_AAL1
                0               0               0               0
                0               0               0               0
                0               0               0               0
                0               0               0
2
NET 2 NET_IP
                0               0               0               0
                0               0               0               0
                0               0               0               0
                0               0               0
```

Group structure

OFZ2NET2 OM group provides 1 tuple(s) for each bearer network datafilled in Table BEARNETS

Key field: Bearer network ID

Info field: OM2OFZ2NET1INFO

- Bearer network ID (i.e., ‘NET 0’)
- Bearer network name (i.e., ‘TDM_ENET’)

Associated OM groups

OFZ2 OM group gives an overall office-wide traffic performance measurement.

Associated functional groups

The following functional groups are associated with OFZ2NET2 OM group:

- Succession North America
- Succession International

OFZ2NET2 OM group registers logic flow chart

Register NCKTBN

Register description

No circuit business network trunks (NCKTBN) counts calls on the associated bearer network that the system routes to generalized no circuit treatment (GNCT). The system routes the calls to GNCT because Meridian Digital Centrex (MDC) trunk is not available.

Register release history update

Register is new in SN07.

Associated registers

None.

Associated logs

The system generates ATB100 when the system routes again a call that the system blocks. The system blocks the call when the call attempts to seize a specified numbering plan area (NPA) The system can also block a call that attempts to seize a trunk to a specified central office (CO).

The system generates LINE138 if the system routes a call to treatment after the call was call processing busy.

The system generates TRK138 if the system routes a call to treatment after the call was call processing busy.

Register NCKTID

Register description

No circuit inward dial trunks (NCKTID) counts calls on the associated bearer network that the system routes to generalized no circuit treatment (GNCT). The system routes a call to GNCT when a direct inward dial or direct outward dial trunk is not available.

Register release history update

Register is new in SN07.

Associated registers
None.

Associated logs
The system generates ATB100 when the system routes again a call that the system blocks. The system blocks the call when the call attempts to seize a specified numbering plan area (NPA) The system can also block a call that attempts to seize a trunk to a specified central office (CO).

The system generates LINE138 if the system routes a call to treatment after the call was call processing busy.

The system generates TRK138 if the system routes a call to treatment after the call was call processing busy.

Register NCKTIM

Register description
No circuit intermachine trunks (NCKTIM) counts calls on the associated bearer network that the system routes to generalized no circuit treatment (GNCT). The system routes the calls to GNCT because a circuit intermachine trunk is not available.

Register release history update
Register is new in SN07.

Associated registers
None.

Associated logs
The system generates ATB100 when the system routes again a call that the system blocks. The system blocks the call when the call attempts to seize a specified numbering plan area (NPA) The system can also block a call that attempts to seize a trunk to a specified central office (CO).

The system generates LINE138 if the system routes a call to treatment after the call was call processing busy.

The system generates TRK138 if the system routes a call to treatment after the call was call processing busy.

Register NCKTIT

Register description
No circuit intertoll trunks (NCKTIT) counts calls on the associated bearer network that the system routes to generalized no circuit treatment (GNCT). The system routes the calls to GNCT because an intertoll trunk is not available.

Register release history update
Register is new in SN07.

Associated registers
None.

Associated logs
The system generates ATB100 when the system routes again a call that the system blocks. The system blocks the call when the call attempts to seize a specified numbering plan area (NPA) The system can also block a call that attempts to seize a trunk to a specified central office (CO).

The system generates LINE138 if the system routes a call to treatment after the call was call processing busy.

The system generates TRK138 if the system routes a call to treatment after the call was call processing busy.

Register NCKTLT

Register description
No circuit local tandem trunks (NCKTLT) counts calls on the associated bearer network that the system routes to generalized no circuit treatment (GNCT). The system routes the calls to GNCT because a local tandem trunk is not available.

Register release history update
Register is new in SN07.

Associated registers
None.

Associated logs
The system generates ATB100 when the system routes again a call that the system blocks. The system blocks the call when the call attempts to seize a specified numbering plan area (NPA) The system can also block a call that attempts to seize a trunk to a specified central office (CO).

The system generates LINE138 if the system routes a call to treatment after the call was call processing busy.

The system generates TRK138 if the system routes a call to treatment after the call was call processing busy.

Register NCKTOF

Register description
No circuit offnet trunks (NCKTOF) counts calls on the associated bearer network that the system routes to generalized no circuit treatment (GNCT). The system routes the calls to GNCT because an offnet or direct dial trunk is not available.

Register release history update
Register is new in SN07.

Associated registers
None.

Associated logs
The system generates ATB100 when the system routes again a call that the system blocks. The system blocks the call when the call attempts to seize a specified numbering plan area (NPA) The system can also block a call that attempts to seize a trunk to a specified central office (CO).

The system generates LINE138 if the system routes a call to treatment after the call was call processing busy.

The system generates TRK138 if the system routes a call to treatment after the call was call processing busy.

Register NCKTON

Register description
No circuit connect trunks (NCKTON) counts calls on the associated bearer network that the system routes to generalized no circuit treatment (GNCT). The system routes the calls to GNCT because a dedicated access or mobile telephone exchange trunk is not available.

Register release history update
Register is new in SN07.

Associated registers
None.

Associated logs
The system generates ATB100 when the system routes again a call that the system blocks. The system blocks the call when the call attempts to seize a specified numbering plan area (NPA) The system can also block a call that attempts to seize a trunk to a specified central office (CO).

The system generates LINE138 if the system routes a call to treatment after the call was call processing busy.

The system generates TRK138 if the system routes a call to treatment after the call was call processing busy.

Register NCKTOT

Register description
No circuit other trunk (NCKTOT) counts calls on the associated bearer network that the system routes to generalized no circuit treatment (GNCT). The system routes the calls to GNCT because one of the following types of trunk is not available:

- test line
- test desk
- maintenance trunks
- AV101

Register release history update
Register is new in SN07.

Associated registers
None.

Associated logs
The system generates ATB100 when the system routes again a call that the system blocks. The system blocks the call when the call attempts to seize a specified numbering plan area (NPA) The system can also block a call that attempts to seize a trunk to a specified central office (CO).

The system generates LINE138 if the system routes a call to treatment after the call was call processing busy.

The system generates TRK138 if the system routes a call to treatment after the call was call processing busy.

Register NCKTRT

Register description
No circuit trunks (NCKTRT) counts calls on the associated bearer network that the system routes to generalized no circuit treatment (GNCT). The system routes the calls to GNCT because one of the following types of trunk is not available:

- 0+/0- tandem to TOPS
- outgoing to AMR2 or CAMA
- outgoing local
- recording completing outgoing

- TOPS outgoing

Register release history update
Register is new in SN07.

Associated registers
None.

Associated logs
The system generates ATB100 when the system routes again a call that the system blocks. The system blocks the call when the call attempts to seize a specified numbering plan area (NPA) The system can also block a call that attempts to seize a trunk to a specified central office (CO).

The system generates LINE138 if the system routes a call to treatment after the call was call processing busy.

The system generates TRK138 if the system routes a call to treatment after the call was call processing busy.

Register NCKTTC

Register description
No circuit toll completing trunks (NCKTTC) counts calls on the associated bearer network that the system routes to generalized no circuit treatment (GNCT). The system routes the calls to GNCT because a toll completing trunk is not available.

Register release history update
Register is new in SN07.

Associated registers
None.

Associated logs
The system generates ATB100 when the system routes again a call that the system blocks. The system blocks the call when the call attempts to seize a specified numbering plan area (NPA) The system can also block a call that attempts to seize a trunk to a specified central office (CO).

The system generates LINE138 if the system routes a call to treatment after the call was call processing busy.

The system generates TRK138 if the system routes a call to treatment after the call was call processing busy.

Register NCKTOSC

Register description
No service circuit trunks (NCKTOSC) counts calls on the associated bearer network that the system routes to generalized no circuit treatment (GNCT). The system routes the call because automatic number announcement or automatic intercept trunk is not available.

Register release history update
Register is new in SN07.

Associated registers
None.

Associated logs
The system generates ATB100 when the system routes again a call that the system blocks. The system blocks the call when the call attempts to seize a specified numbering plan area (NPA) The system can also block a call that attempts to seize a trunk to a specified central office (CO).

The system generates LINE138 if the system routes a call to treatment after the call was call processing busy.

The system generates TRK138 if the system routes a call to treatment after the call was call processing busy.

Register MDPD

Register description
Machine dialed partial dials (MDPD) counts machine-dialed calls on the associated bearer network that the system routes to partial dial treatment.

Register release history update
Register is new in SN07.

Associated registers
None.

Associated logs
The system generates TRK114 if the system cannot determine call destination during dial pulse (DP) reception for an incoming call.

The system generates TRK116 if the system cannot determine call destination during multi-frequency (MF) reception for an incoming call.

The system generates TRK138 if the system routes a call to treatment after the call was call processing busy.

The system generates TRK182 when the system cannot determine call destination of an incoming call because the system had problems during Digitone reception.

Register MDPSIG

Register description
Machine dialed permanent signal (MDPSIG) counts machine-dialed calls on the associated bearer network that the system routes to permanent signal treatment.

Register release history update
Register is new in SN07.

Associated registers
None.

Associated logs
The system generates TRK115 when the system cannot determine call destination. The system was not able to determine call destination because the system had problems during dial pulse (DP) reception for an incoming call.

The system generates TRK117 when the system cannot determine call destination. The system was not able to determine call destination because system had problems during multi-frequency (MF) reception for an incoming call.

The system generates TRK138 if the system routes a call to treatment after the call was call processing busy.

The system generates TRK183 when a permanent signal problem occurs. The problem occurs because the system had problems during Digitone reception of an incoming call.

Register DPTRC

Register description
DPT Reservation Control (DPTRC) counts the number of DPT terminal requests that are blocked due to DPT bandwidth reservation.

Register release history update
Register is new in SN07.

Associated registers
Register DPTRC2 is an extension register for DPTRC.

Associated logs
None.

TRK2NET1 OM Group

OM description

TRK2NET1 OM Group provides information for per trunk group traffic analysis per bearer network. The OM group is modeled after group TRK. The TRK2NET1 OM group provides information on trunk traffic for each trunk group. The registers in TRK2NET1 count the following:

- routing attempts
- seizure attempts
- seize failures
- total trunk use
- busy state use

OM groups TRK and TRNK2 provide traffic data summaries on a per-trunk group basis for all trunk groups in an office. TRK2NET1 and TRK2NET2 provide similar traffic data summaries with further refinement on a per-bearer network basis for each trunk group for all trunks groups in an office.

Release history update

TRK2NET1 OM group is new in SN07.

The addition of this new TRK2NET1 OM group is controlled by the value of a new SN07 office parameter, MULTINET_DISPLAY_ACTIVE. If this parameter is set to ‘Y’, then the new TRK2NET1 OM group is displayed. If the parameter is set to ‘N’, then the TRK2NET1 OM group is not displayed.

Registers

TRK2NET1 OM group registers display on the MAP terminal as follows:

TRK2NET1 OM Group Display

```
>omshow trk2net1 active 'TRI1ITOGS7 NET 0'

TRK2NET1

CLASS: ACTIVE
START:2004/09/28 16:00:00 TUE; STOP: 2004/09/28 16:28:28 TUE;
SLOWSAMPLES:       18 ; FASTSAMPLES:       171 ;

     INFO (TRK2NET1_INFO)
       INCAATT   PRERTEA1    NINFAIL     NATMPT
       NVFLATB     GLARE1     OUTFL     TRFCU
        SBSYU     MBSYU   TRKNWBLK     CNCTAT
       TNDMATT   ANIOFCFL      NANF    TOTBSYU
       NANSWER   INVATHCD     MAXBSY    NACCCNG
       NOANSWR

   91
       TRI1ITOGS7 NET 0 ENET  379 OG     2     2
           0        0        0        0
           0        0        0        0
           0        0        0        0
           0        0        0        0
           0        0        0        0
           0

>omshow trk2net1 active 'TRI1ITOGS7 NET 1'

TRK2NET1

CLASS: ACTIVE
START:2004/09/28 16:00:00 TUE; STOP: 2004/09/28 16:25:29 TUE;
SLOWSAMPLES:       16 ; FASTSAMPLES:       153 ;

     INFO (TRK2NET1_INFO)
       INCAATT   PRERTEA1    NINFAIL     NATMPT
       NVFLATB     GLARE1     OUTFL     TRFCU
        SBSYU     MBSYU   TRKNWBLK     CNCTAT
       TNDMATT   ANIOFCFL      NANF    TOTBSYU
       NANSWER   INVATHCD     MAXBSY    NACCCNG
       NOANSWR

   92
       TRI1ITOGS7 NET 1 AAL1  379 OG     2     2
            0        0        0        0
           0        0        0        0
           0        0        0        0
           0        0        0        0
           0        0        0        0
           0
```

```
>omshow trk2net1 active 'TRI1ITOGS7 NET 2'

TRK2NET1

CLASS: ACTIVE
START:2004/09/28 16:00:00 TUE; STOP: 2004/09/28 16:26:40 TUE;
SLOWSAMPLES:       16 ; FASTSAMPLES:       160 ;

     INFO (TRK2NET1_INFO)
       INCAATT   PRERTEA1    NINFAIL     NATMPT
       NVFLATB     GLARE1      OUTFL      TRFCU
        SBSYU      MBSYU   TRKNWBLK     CNCTAT
       TNDMATT   ANIOFCFL       NANF    TOTBSYU
       NANSWER   INVATHCD     MAXBSY    NACCCNG
       NOANSWR

   90
       TRI1ITOGS7 NET 2 IP    379 OG     2     2
           0        0        0        0
           0        0        0        0
           0        0        0        0
           0        0        0        0
           0        0        0        0
           0
```

Group structure

TRK2NET1 OM group provides 1 tuple(s) for each trunk group and each bearer network that the trunk group has members provisioned in.

Key field: None

Info field: OM2TRKINFO

- CLLI
- bearer network ID (i.e., ‘NET 0’)
- bearer network name (i.e., ‘TDM_ENET’)
- trunk group direction. (i.e., ‘IC—incoming trunk, OG—outgoing trunk, 2W—two-way trunk’)
- total number of trunk circuits in the group in the associated bearer network (i.e., ‘20’)
- number of trunk circuits in the associated bearer network available for service at the end of the reporting period. (i.e., ‘19’)

The office parameter OFFICETYPE in table OFCSTD specifies the type of office. The value of OFFICETYPE controls the generation of TRK2NET1 registers. Correct entries for OFFICETYPE appear below:

- OFF100 Local

- OFF1000ESD Australian local
- OFFCOMB Combined local/toll
- OFFCOMBLWW Combined local/toll with wireless
- OFFCOMBTOPS Combined local/toll with traffic operator position system (TOPS)
- OFF200 Toll
- OFF2000ESD Australian toll
- OFF200TOPS Toll with TOPS
- OFF200300 Combned gateway/toll
- OFF250 DMS-250
- OFF250IBN DMS-250/SL-100
- OFF300 Gateway
- OFF500 DMS-500

The office type parameters appear in table OFCSTD.

The validity of a TRK2NET1 register in an officetype is given in the following table

TRK2NET1 OM Group Registers

Register	Present In Officetypes
INCAATT	off100, off200, offcomb, offcombitops, off200tops, offcombtops, off250, off250ibn, offmtx100i, off500, offcomblww, off300, off200avon, offtollavon, off100scp , off100oesd, off200oesd, offcomboesd, offcomb300, nooffice
PRERTEA1	off100, off200, offcomb, offcombitops, off200tops, offcombtops, off250, off250ibn, offmtx100i, off500, offcomblww, off300, off200avon, offtollavon, off100scp , off100oesd, off200oesd, offcomboesd, offcomb300, nooffice
NINFAIL	off100, off200, offcomb, offcombitops, off200tops, offcombtops, off250, off250ibn, offmtx100i, off500, offcomblww, off300, off200avon, offtollavon, off100scp , off100oesd, off200oesd, offcomboesd, offcomb300, nooffice
NATMPT	off100, off200, offcomb, offcombitops, off200tops, offcombtops, off250, off250ibn, offmtx100i, off500, offcomblww, off300, off200avon, offtollavon, off100scp , off100oesd, off200oesd, offcomboesd, offcomb300, nooffice
NVFLATB	off100, off200, offcomb, offcombitops, off200tops, offcombtops, off250, off250ibn, offmtx100i, off500, offcomblww, off300, off200avon, offtollavon, off100scp , off100oesd, off200oesd, offcomboesd, offcomb300, nooffice

Register	Present In Officetypes
GLARE1	off100, off200, offcomb, offcombitops, off200tops, offcombtops, off250, off250ibn, offmtx100i, off500, offcomblww, off300, off200avon, offtollavon, off100scp , off100oesd, off200oesd, offcomboesd, offcomb300, nooffice
OUTFL	off100, off200, offcomb, offcombitops, off200tops, offcombtops, off250, off250ibn, offmtx100i, off500, offcomblww, off300, off200avon, offtollavon, off100scp , off100oesd, off200oesd, offcomboesd, offcomb300, nooffice
CADEFLD	off100, off200, offcomb, offcombitops, off200tops, offcombtops, off250, off250ibn, offmtx100i, off500, offcomblww, off300, off200avon, offtollavon, off100scp , off100oesd, off200oesd, offcomboesd, offcomb300, nooffice
TRFCU	off100, off200, offcomb, offcombitops, off200tops, offcombtops, off250, off250ibn, offmtx100i, off500, offcomblww, off300, off200avon, offtollavon, off100scp , off100oesd, off200oesd, offcomboesd,offcomb300,nooffice
SBSYU	off100, off200, offcomb, offcombitops, off200tops, offcombtops, off250, off250ibn, offmtx100i, off500, offcomblww, off300, off200avon, offtollavon, off100scp , off100oesd, off200oesd, offcomboesd,offcomb300,nooffice
MBSYU	off100, off200, offcomb, offcombitops, off200tops, offcombtops, off250, off250ibn, offmtx100i, off500, offcomblww, off300, off200avon, offtollavon, off100scp , off100oesd, off200oesd, offcomboesd,offcomb300,nooffice
TRKNWBLK	off100, off200, offcomb, offcombitops, off200tops, offcombtops, off250, off250ibn, offmtx100i, off500, offcomblww, off300, off200avon, offtollavon, off100scp , off100oesd, off200oesd, offcomboesd,offcomb300,nooffice
CNCTAT	off100, off200, offcomb, offcombitops, off200tops, offcombtops, off250, off250ibn, offmtx100i, off500, offcomblww, off300, off200avon, offtollavon, off100scp , off100oesd, off200oesd, offcomboesd,offcomb300,nooffice
TNDMATT	off100, off200, offcomb, offcombitops, off200tops, offcombtops, off250, off250ibn, offmtx100i, off500, offcomblww, off300, offtollavon, off100scp, off100oesd, off200oesd, offcomboesd,offcomb300,nooffice
ANIOFCFL	off100, off200, offcomb, offcombitops, off200tops, offcombtops , off200tops, offcombtops, off500, offcomblww, offcomb300, offtollavon,nooffice
NANF	off100, off200, offcomb, offcombitops, off200tops, offcombtops, off200tops, offcombtops, off500, offcomblww, offcomb300, offtollavon,nooffice

Register	Present In Officetypes
TOTBSYU	off100, off200, offcomb, offcombitops, off200tops, offcombtops, off250, off250ibn, offmtx100i, off500, offcomblww, offcomb300, offtollavon, off100oesd, off200oesd, offcomboesd, nooffice
NANSWER	off100, off200, offcomb, offcombitops, off200tops, offcombtops, off250, off250ibn, offmtx100i, off300, offcomb300, off100oesd, off200oesd, offcomboesd, nooffice
NACCCNG	off100, off200, offcomb, offcombitops, off200tops, offcombtops, off250, off250ibn, offmtx100i, off500, offcomblww, nooffice
NOANSWR	off100, off200, offcomb, offcombitops, off200tops, offcombtops, off250, off250ibn, offmtx100i, off500, offcomblww, nooffice
NINANSWR	off100, off200, offcomb, offcombitops, off200tops, offcombtops, nooffice
OUTANSWR	off100, off200, offcomb, offcombitops, off200tops, offcombtops, nooffic
ANSUFIN	off100, off200, offcomb, offcombitops, off200tops, offcombtops, nooffice
INVATHCD	off250, off250ibn, offmtx100i,off500, offcomblww, offcomb300
MAXBSY	off250, off250ibn, offmtx100i,off500, offcomblww, offcomb300

Associated OM groups

OM groups TRK/TRNK2 provide information about traffic data summaries on a per-trunk group basis for all trunk groups in an office.

OM group TRK2NET2 provides information for per-trunk group traffic analysis per bearer network. It contains extension registers for registers found in OM Group TRK2NET1.

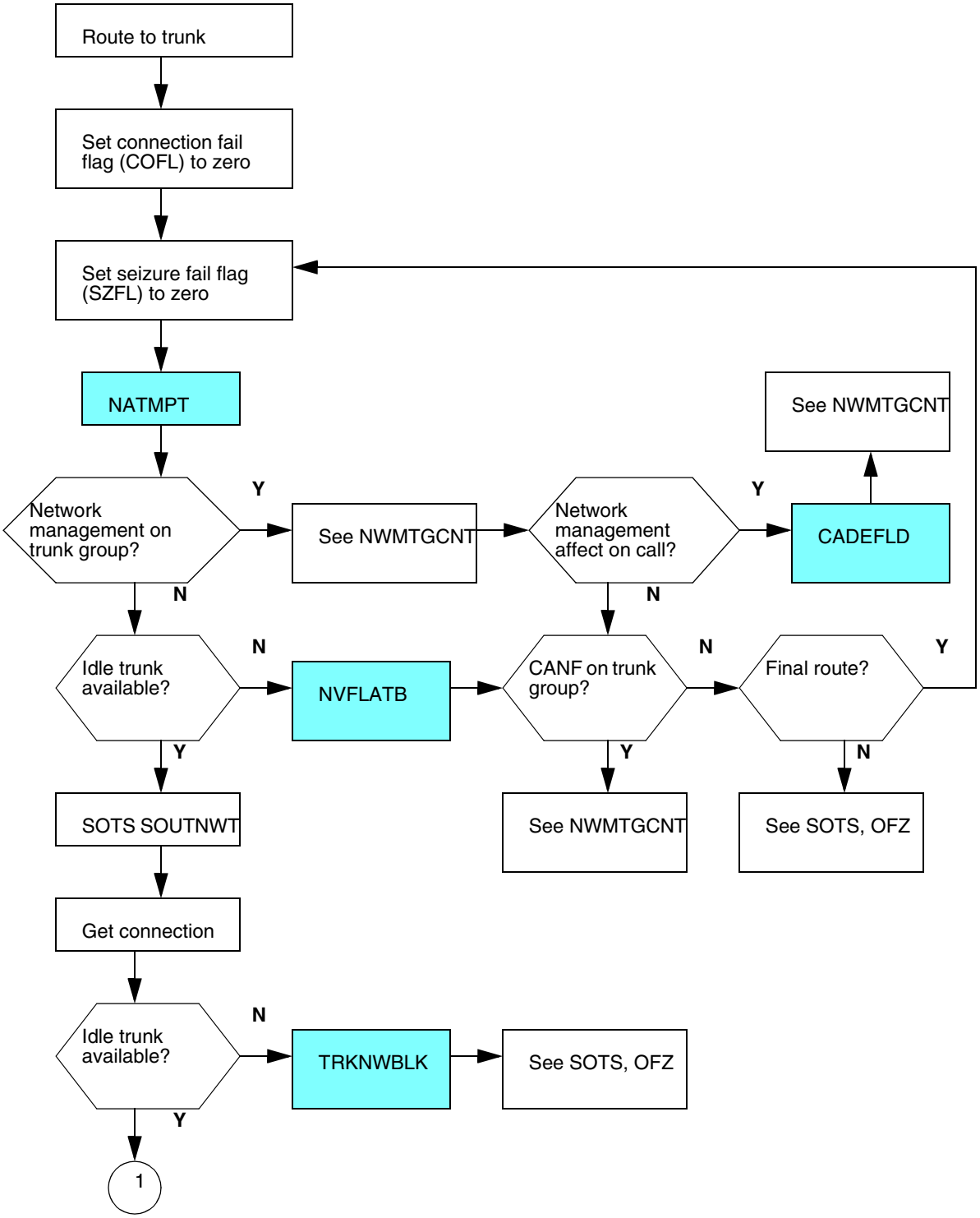
Associated functional groups

The following functional groups are associated with TRK2NET1 OM group:

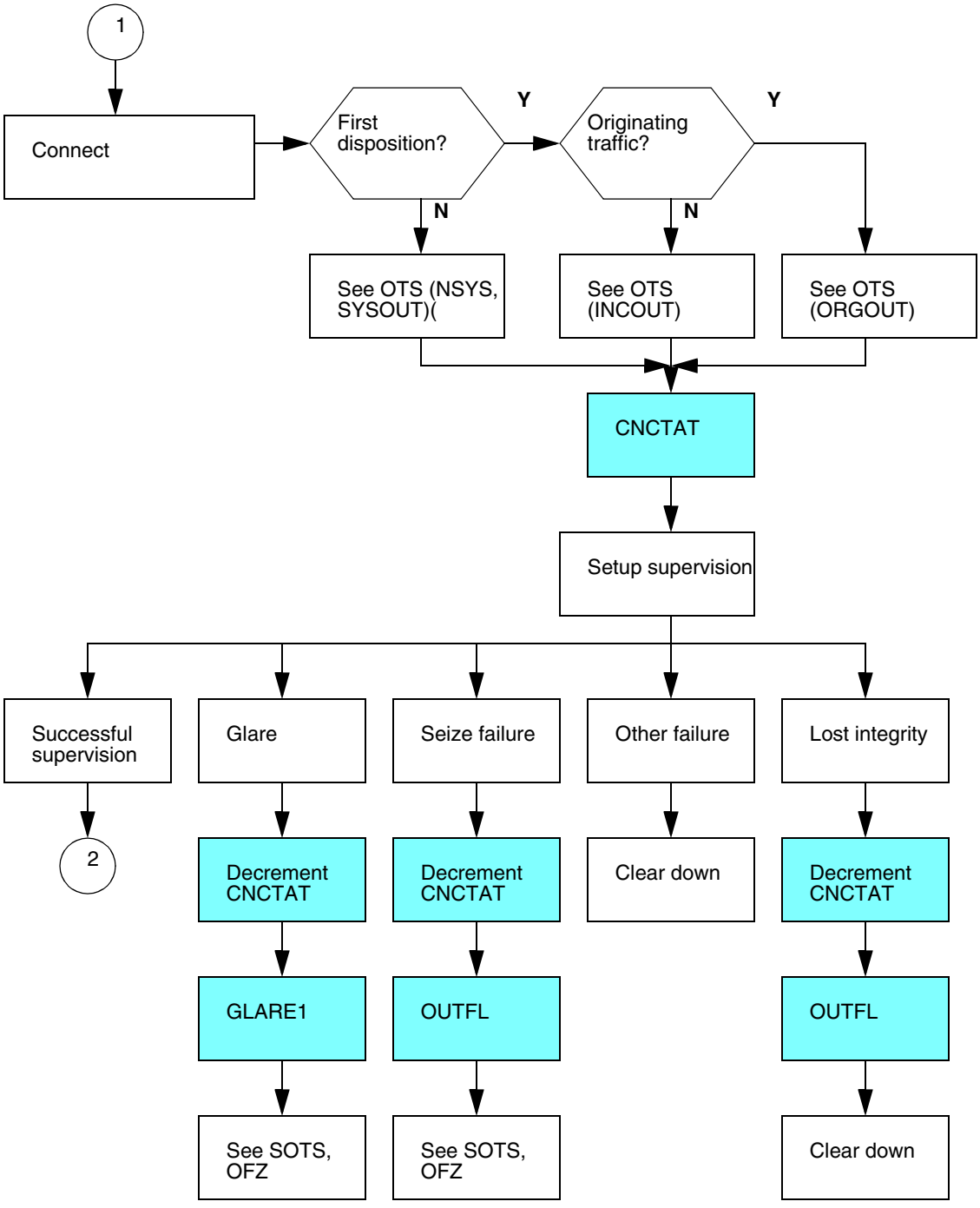
- Succession North America
- Succession International

TRK2NET1 OM group registers logic flow chart

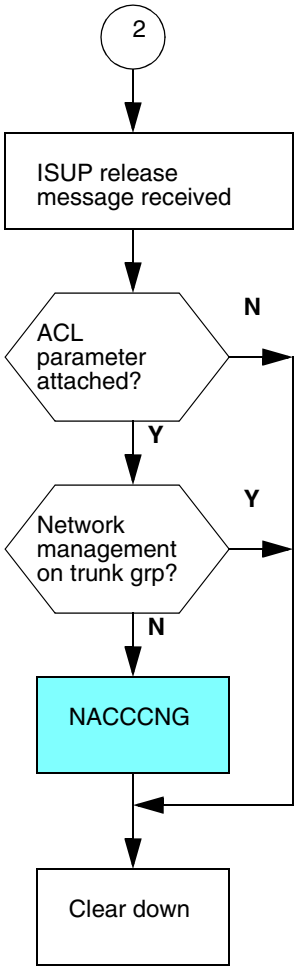
Termination to an outgoing trunk



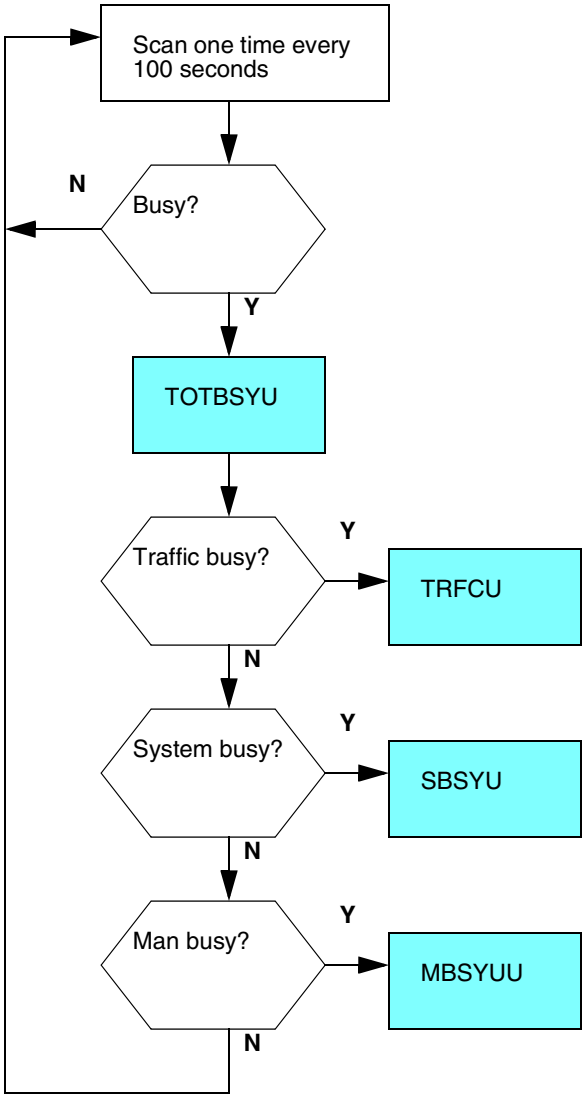
Termination to an outgoing trunk (continued)



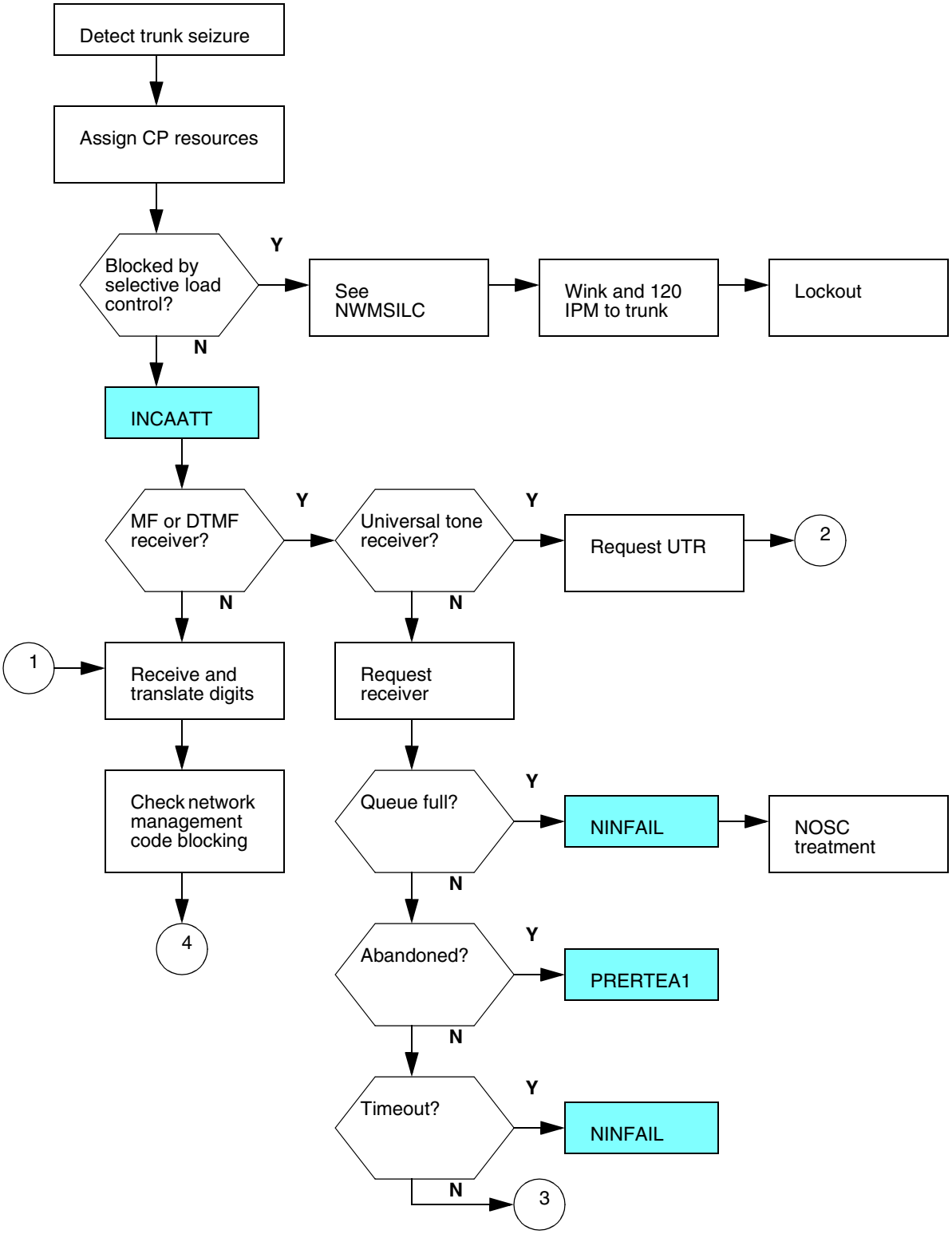
Termination to an outgoing trunk (continued)



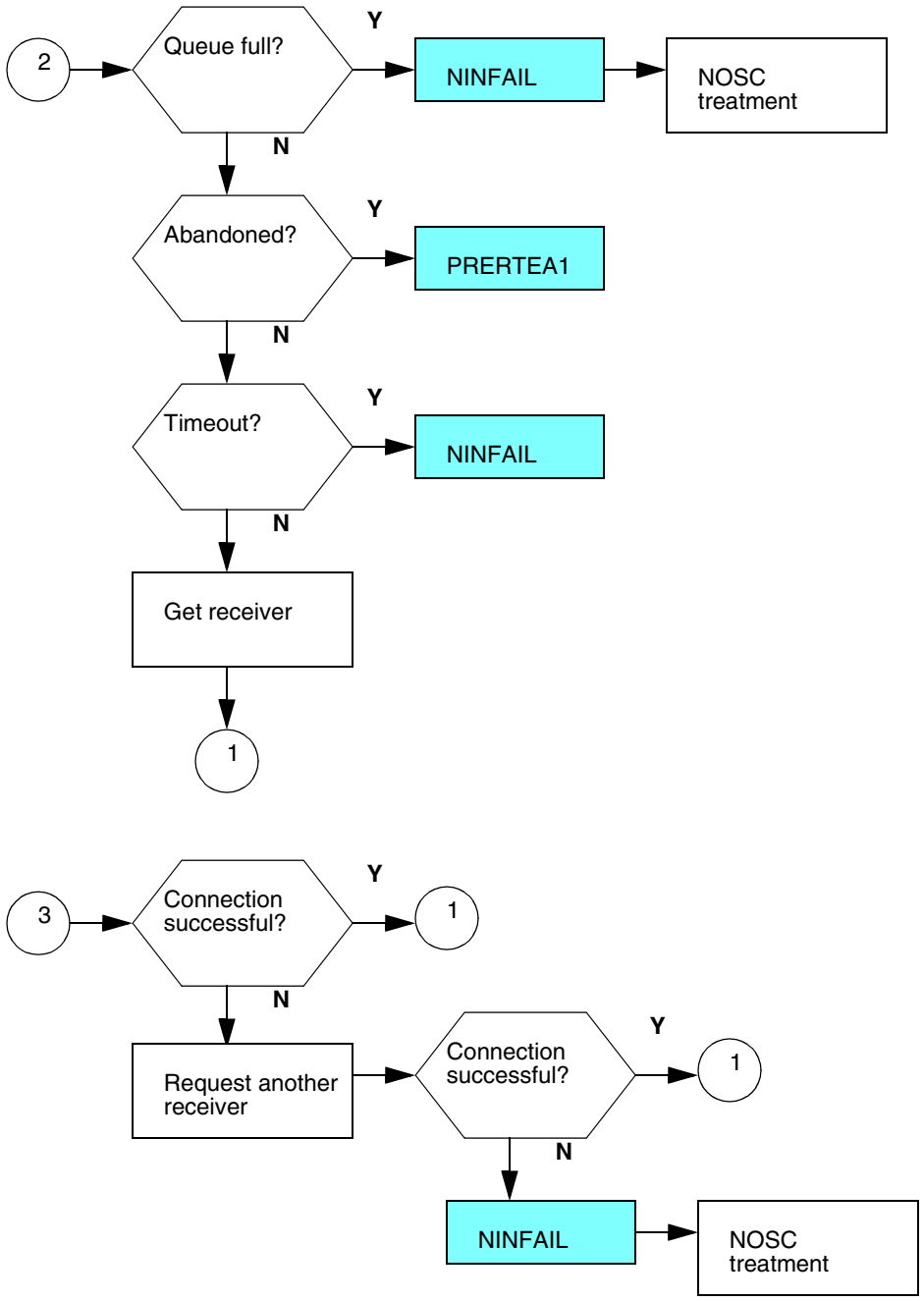
Trunk group busy usage registers



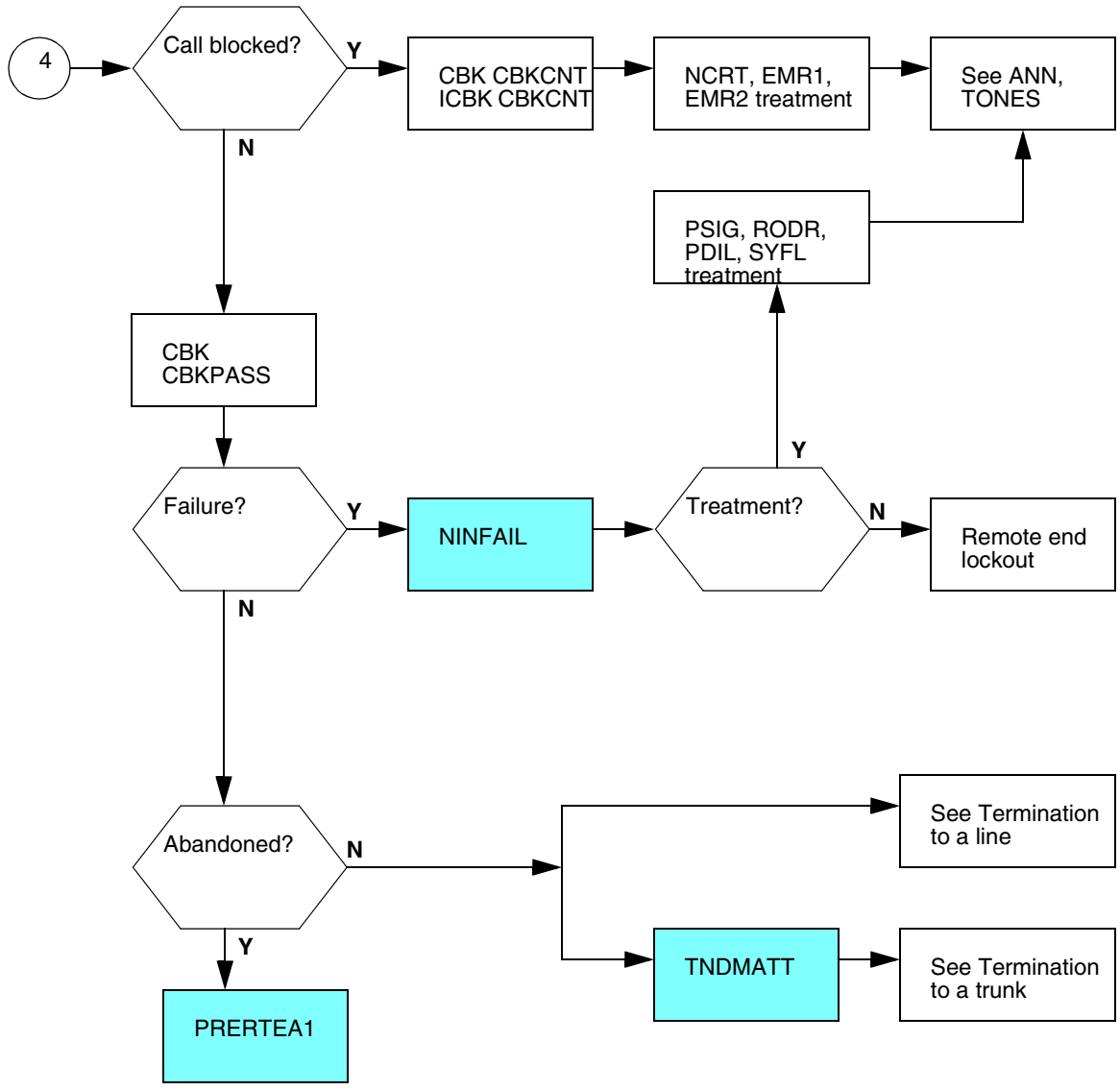
Origination from a trunk



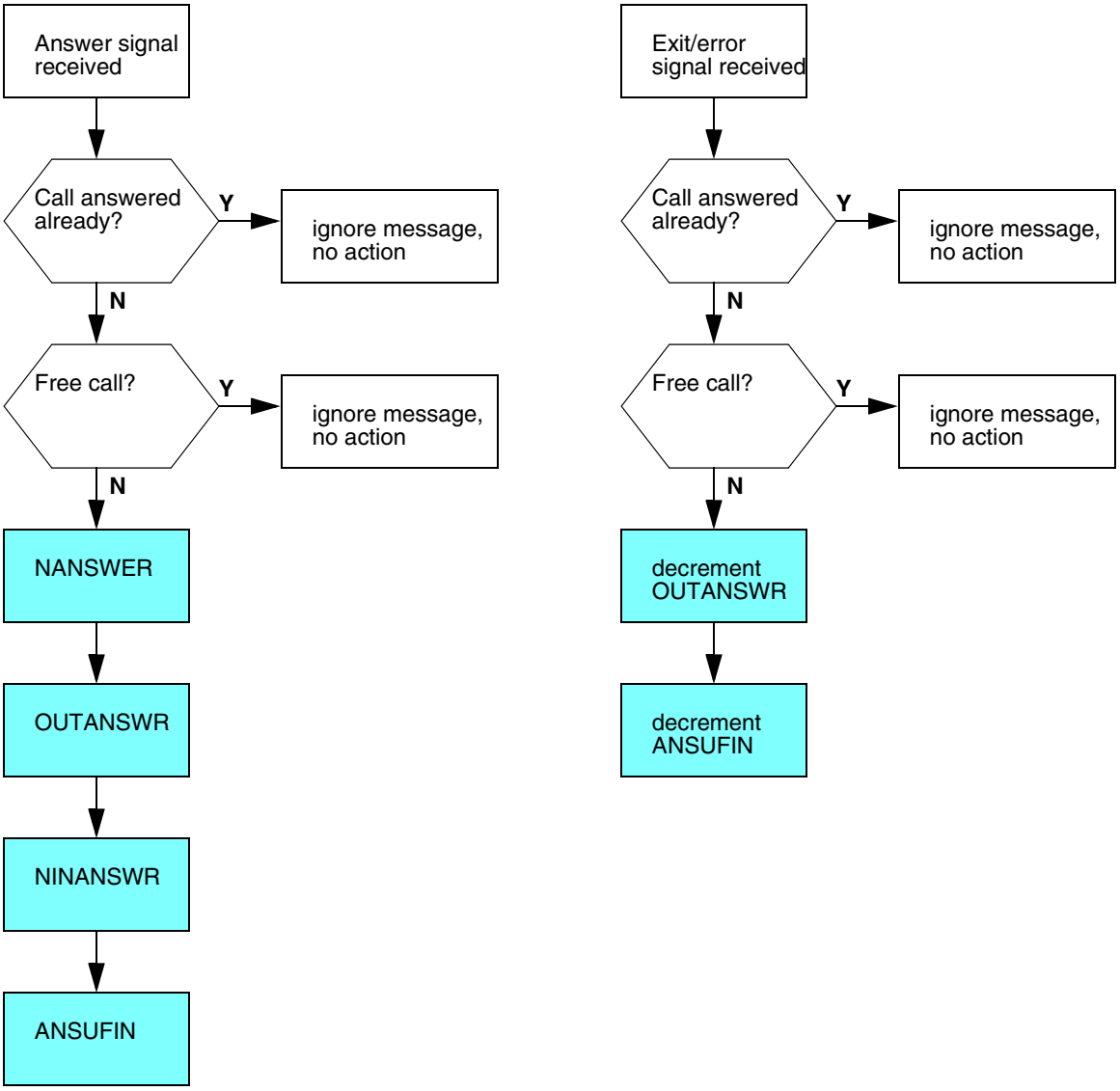
Origination from a trunk (continued)



Origination from a trunk (continued)



Trunk group answered calls



Register NACCCNG

Register description

Automatic congestion control (NACCCNG) counts the number of times that a trunk group enters Automatic Congestion Control (ACC) congestion.

Register release history update

Register is new in SN07.

Associated registers

TRK_ACCCONG.

Associated logs
None.

Register NANF

Register description
Invalid or no automatic number identification (ANI) signals (NANF) counts incoming centralized-automatic message accounting (CAMA) or TOPS calls for which:

- the system receives invalid ANI signaling
- the system did not receive ANI signaling
- the numbering plan area code (N0/1X) or the central office code (NNX) of the calling number for the incoming trunk group is not correct Register ANF increases when the system attaches the necessary receiver to the call.

Register release history update
Register is new in SN07.

Associated registers
TRK_ANF.

Associated logs
The system generates TRK120 when the call server or the intervening operator encounters problems. Problems can occur during operator number identification (ONI) spill for an incoming call over a CAMA trunk. The system cannot determine the call origination address.

Register NANSWER

Register description
Answer supervisions (NANSWER) count all line/trunk to trunk answered calls. This register is the answer register for the outgoing trunk.

Register release history update
Register is new in SN07.

Associated registers
TRK_ANSWER.

Associated logs
None.

Register INVATHCD

Register description
INVATHCD counts authorization codes that are not correct. The register is pegged against the CLLI and bearer network of the originator.

Register release history update
Register is new in SN07.

Associated registers
TRK_INVAUTH.

Associated logs
None.

Register MAXBSY

Register description
MAXBSY scans the trunk group and pegs the counter if the number of busy circuits exceeds the maximum number that the system recorded earlier.

Note: MAXBSY will always be set to zero for DPT trunks.

Register release history update
Register is new in SN07.

Associated registers
TRK_MAXBU.

Associated logs
None.

Register ANIOFCFL

Register description
Automatic number identification (ANI) office failure (ANOOFCFL) counts incoming calls for which the originating office detects an ANI failure. Failure can be detected despite correct key pulse and signaling terminal control signals. The missing information digits, missing category code or the complete lack of digits indicates an ANI failure.

Register release history update
Register is new in SN07.

Associated registers
TRK_AOF.

Associated logs
Register TRK118 generates when the system encounters trouble during ANI spill for an incoming call. In this example, the system cannot determine call originating address.

Register TRK119 generates when an operator keys in the originating station number identification and releases the call. The operator releases the call because the system encounters trouble with DMS ANI.

Register CNCTAT

Register description
Successful connections (CNCTAT) counts outgoing seizure attempts on the trunk group that appear to result in successful connection.

Register CNCTAT increases before the system knows if the seizure is successful. The count reduces by 1 (decreases) if an indication of glare or seize failure is received. This register generates for all correct office types.

Register release history update
Register is new in SN07.

Associated registers

- Register GLARE1 increases when the system drops an earlier selected trunk. The system drops the trunk because the peripheral module detects an origination before it can seize the trunk.
- TRK_CONNECT

Extension registers
CNCTAT2.

Associated logs
None.

Register GLARE1

Register description
Glare (GLARE1) increases when the system drops a trunk that the system selects at an earlier time. The system drops this trunk because the PM detects an origination before the PM can seize the trunk. The operating company gives information that indicates that outgoing calls give way to simultaneous incoming calls (glare).

The system attempts a new selection. If the system encounters glare again, the system routes the call to generalized no-circuit (GNCT) treatment. Register GLARE1 increases again.

Register release history update
Register is new in SN07.

Associated registers

- Register CNCTAT counts outgoing seizure attempts on the trunk group that result in connections.
- Register OUTFL counts errors on an outgoing trunk after an attempt to seize the trunk.
- TRK_GLARE

Associated logs
The system generates log TRK113 if the system encounters problems during call processing of a trunk-to-trunk call. The system generates TRK121 if the call server does not receive an acknowledgement wink from the far-end equipment. An acknowledgement wink indicates that the far-end equipment is ready to receive digits.

Register NINANSWR

Register description
Answer messages sent and received on incoming trunk (NINANSWR) counts the answered calls for incoming traffic for each incoming or two-way trunk.

This register is not pegged in the current load.

Register release history update
Register is new in SN07.

Associated registers
TRK_INANSWER.

Associated logs
None.

Register ANSUFIN

Register description
Answer messages received and sent usage on incoming trunk (ANSUFIN) is a usage register that shows the number of answered calls on incoming trunk calls. This register measures traffic in the answered state for each incoming or two-way trunk. The register measures the occupancy in Erlangs.

The value of register ANSUFIN increases every 100 seconds according to the number of trunks occupied with answered calls.

This register is not pegged in the current load.

Register release history update
Register is new in SN07.

Associated registers
TRK_INANSU.

Associated logs
None.

Register INCAATT

Register description
Incoming attempts total (INCAATT) counts incoming seizures on a trunk group, including seizures that fail or that the system abandons before routing.

Register release history update
Register is new in SN07.

Associated registers
TRK_INCATOT.

Associated logs
None.

Register NINFAIL

Register description
Incoming failures (NINFAIL) increases when any one of the following events occurs on a trunk that has originated a call or appears to have originated a call:

- permanent signal
- partial dial time-outs and false starts
- bad digits, including bad signaling terminal (ST) digit
- any originations on one-way outgoing trunks
- lost integrity on the network path while connected to a service circuit or to another trunk before answer
- failure to attach a receiver after two attempts
- receiver queue overflow
- receiver queue wait time-out
- failure to time-out after 30 s while waiting for a multi frequency receiver
- progress message of a type not expected in the current call environment
- force-release before connection

These events can indicate a need for maintenance action. These events can result in call failure if a call was in progress.

Register release history update
Register is new in SN07.

Associated registers
TRK_INFAIL.

Associated logs
The system generates TRK111 if a trunk-to-trunk call encounters problems or if the system routes the call to a treatment.

The system generates log TRK114 if the system cannot determine the call destination during dial pulse (DP) reception for an incoming call.

The system generates log TRK115 if the system cannot determine the call destination during DP reception for an incoming call.

The system generates log TRK116 if the system cannot determine call destination during multi frequency (MF) reception for an incoming call.

The system generates log TRK117 if the system cannot determine call destination during MF reception for an incoming call.

The system generates log TRK138 if the system routes a call to a treatment after being call processing busy.

The system generates log TRK182 if the system cannot determine call destination during Digitone (DT) reception for an incoming call.

The system generates log TRK183 if a permanent signal problem occurs when an incoming call encounters problems during DT reception.

The system generates log TRK213 when the system encounters problems on a trunk.

Register MBSYU

Register description
Maintenance busy usage (MBSYU) is a usage register. Every 100 seconds the system scans the trunk group. This register records if a trunk is in one of the following states:

- manual busy
- seized
- network management busy

Register release history update
Register is new in SN07.

Associated registers
TRK_MBU.

Associated logs
None.

Register NATMPT

Register description
Number of attempts (NATMPT) increases when the system routes an outgoing call to a trunk group.

Register NATMPT increases before network management controls increase. This register increases before an idle trunk and a network connection to the trunk are available.

Register release history update
Register is new in SN07.

Associated registers
TRK_NATTMPT.

Extension reigisters
NATMPT2.

Associated logs
None.

Register NOANSWR

Register description
No Answer on trunk [Timed out] (NOANSWR) is a peg register which counts the number of times a call has been taken down after a specified time-out value has been reached, as part of Black Box Fraud prevention (BBFP). The time-out value is implemented on a trunk-group basis and can be set to either one, two, three, four, or five minute intervals. Upon expiration of the timer, the NOANSWR register is pegged.

NOANSWR functionality is activated and deactivated via the DLYFWDXMT option datafill of table TRKOPTS on a trunk-group basis. Register NOANSWR is pegged when the black box fraud timer or DLYFWDXMT timer expires before an answer supervision signal is received. The time-out value is datafilled in table TRKOPTS.

Register release history update
Register is new in SN07.

Associated registers
TRK_NOANSWER.

Associated logs
Log TRK610 is generated each time the NOANSWR register is pegged.

Register NVFLATB

Register description
Number of overflows, all trunks busy (NVFALTB) increases when a call with access to the trunk group overflows the group. The system routes the call because an idle trunk is not available. A call can access the same group more than one time. Overflow can occur only one time. Overflow occurs if the system cannot use the first trunk because of seize fail, glare or network blockage. Register NVFLATB increases when the system cannot find an idle trunk on the first or any of the following access attempts.

Register release history update
Register is new in SN07.

Associated registers
TRK_NOVFLATB.

Associated logs
The system generates ATB100 when the system blocks an attempt to seize a trunk to a specified numbering plan area or central office. The system advances the call to another route.

Register OUTANSWR

Register description
Answer message received and sent usage on an outgoing trunk (OUTANSWR) is a usage register that shows the number of answered calls on outgoing trunk calls. This register measures traffic in the answered state for each outgoing or two-way trunk. The register measures the occupancy in Erlangs.

The value of register OUTANSWR increases every 100 seconds according to the number of trunks occupied with answered calls.

This register is not pegged in the current load.

Register release history update
Register is new in SN07.

Associated registers
TRK_OUTANSU.

Associated logs
None.

Register OUTFL

Register description
Outgoing failures (OUTFL) counts attempts to seize an outgoing trunk in the trunk group that fail because of following:

- signaling problems
- loss of accuracy
- outgoing failures
- seizure failures

The system releases the trunk. The system performs a maximum of two attempts to seize a trunk. The system counts each failed attempt in OUTFL. If a second attempt to seize a trunk fails, the system routes the call to treatment.

The system can generate a log message. Generation of a log message depends on the cause of the failure.

The system generates register OUTFL for office types that are correct.

Register release history update
Register is new in SN07.

Associated registers
Register CNCTAT counts outgoing seizure attempts on the trunk group that result in connections.

Register GLARE1 increases when the system drops a trunk that the system selects at an earlier time. The system drops the trunk because the PM detected an origination. The PM detects an origination before the PM seizes the trunk.

TRK_OUTFAIL.

Associated logs
The system generates TRK113 if the system encounters problems during call processing of a trunk-to-trunk call.

The system generates TRK121 if the DMS does not receive an acknowledgement wink from the far-end equipment. The acknowledgement wink indicates that the equipment is ready to receive digits.

The system generates TRK122 if the central control detects a loss of accuracy on both planes of the trunk equipment.

The system generates TRK162 if the system encounters problems during outpulsing of a trunk-to-trunk or line-to-trunk call. The call uses dual-tone multi frequency (DTMF) signaling.

The system generates TRK213 if the system encounters problems on a trunk.

Register TRKNWBLK

Register description
Outgoing matching failure (TRKNWBLK) counts attempts to find a path from an incoming trunk or originating line to a selected trunk that failed. Failure occurs as a result of network blockage.

If the system blocks an outgoing call, the call again attempts to select a trunk. If the system blocks this attempt, TRKNWBLK counts the call again. The system routes the call to NBLH treatment.

Register release history update
Register is new in SN07.

Associated registers
TRK_OUTMTCHF.

Associated logs
The system generates NET130 if the system cannot find a network path.

Register PRERTEA1

Register description
Preroute abandon (PRERTEA1) counts incoming attempts the system abandons before the system can complete routing.

Register release history update
Register is new in SN07.

Associated registers
TRK_PRERTEAB.

Associated logs
The system generates register TRK113 if the system encounters problems during call processing of a trunk-to-trunk call.

The system generates TRK116 if the system cannot determine the call destination during multi frequency reception for an incoming call.

Register SBSYU

Register description

System busy usage (SBSYU) is a usage register. Every 100 seconds the system scans the trunk group. This register records if a trunk is in one of the following states:

- remote busy
- peripheral module busy
- system busy
- carrier fail
- deloaded

Register release history update

Register is new in SN07.

Associated registers

TRK_SBU.

Extension registers

SBSYU2.

Associated logs

The system generates TRK106 if a self-test on trunk equipment fails.

The system generates TRK109 when a self-test on a DS-1 facility fails.

Register TNDMATT

Register description

Tandem (TNDMATT) counts incoming calls on a trunk group that first routes to an outgoing trunk group. Register TNDMATT increases before the system determines if the outgoing trunk group is busy, or if a junctor path is available.

Register release history update

Register is new in SN07.

Associated registers

TRK_TANDEM.

Extension registers

TNDMATT2.

Associated logs

None.

Register TOTBSYU

Register description
Total usage (TOTBSYU) is a usage register. Every 100 seconds the system scans the trunk group and register TOTU records if any trunk in the group is busy.

Register release history update
Register is new in SN07.

Associated registers
The following registers are associated with TOTBSYU:

- MBYSU, SBSYU, TRFCU
  TOTBSYU = MBSYU + SBSYU + TRFCU
- TRK_TOTU (U.S. and Australia only)
  TRK_TOTU = the sum of all the TOTBSYU for all bearer networks in the trunk group

Extension registers
TOTBSYU2.

Associated logs
None.

Register TRFCU

Register description
Traffic busy usage (TRFCU) is a usage register. Every 100 seconds the system scans the trunk group. This register records if a trunk in the group is in one of the following states:

- call processing busy (TK_CP_BUSY)
- call processing busy deload (TK_CP_BUSY_DELOAD)
- lockout (TK_LOCKOUT)

Register release history update
Register is new in SN07.

Associated registers
TRK_TRU.

Extension registers
TRK_TRU.

Associated logs
None.

TRK2NET2 OM Group

OM description

TRK2NET2 OM Group provides information for per-trunk group traffic analysis per bearer network. It contains extension registers for registers found in OM Group TRK2NET1.

Release history update

TRK2NET2 OM group is new in SN07.

The addition of this new TRK2NET2 OM group is controlled by the value of a new SN07 office parameter, MULTINET_DISPLAY_ACTIVE. If this parameter is set to ‘Y’, then the new TRK2NET2 OM group is displayed. If the parameter is set to ‘N’, then the TRK2NET2 OM group is not displayed.

Registers

TRK2NET2 OM group registers display on the MAP terminal as follows:

TRK2NET2 OM Group Display

```
>omshow trk2net2 active 'TRI1ITOGS7 NET 0'

TRK2NET2

CLASS: ACTIVE
START:2004/09/28 16:30:00 TUE; STOP: 2004/09/28 16:49:22 TUE;
SLOWSAMPLES:       12 ; FASTSAMPLES:       116 ;

     INFO (TRK2NET1_INFO)
      INCAATT2   NATMPT2    TRFCU2    SBSYU2
       CNCTAT2   TNDMATT2   TOTBSYU2   NANSWER2

  91
      TRI1ITOGS7 NET 0 ENET  379 OG     2     2
          0        0        0        0
          0        0        0        0

>omshow trk2net2 active 'TRI1ITOGS7 NET 1'

TRK2NET2

CLASS: ACTIVE
START:2004/09/28 16:30:00 TUE; STOP: 2004/09/28 16:50:28 TUE;
SLOWSAMPLES:       13 ; FASTSAMPLES:       123 ;

     INFO (TRK2NET1_INFO)
      INCAATT2   NATMPT2    TRFCU2    SBSYU2
       CNCTAT2   TNDMATT2   TOTBSYU2   NANSWER2

  92
      TRI1ITOGS7 NET 1 AAL1  379 OG     2     2
          0        0        0        0
          0        0        0        0

>omshow trk2net2 active 'TRI1ITOGS7 NET 2'

TRK2NET2

CLASS: ACTIVE
START:2004/09/28 16:30:00 TUE; STOP: 2004/09/28 16:50:38 TUE;
SLOWSAMPLES:       13 ; FASTSAMPLES:       124 ;

     INFO (TRK2NET1_INFO)
      INCAATT2   NATMPT2    TRFCU2    SBSYU2
       CNCTAT2   TNDMATT2   TOTBSYU2   NANSWER2

  90
      TRI1ITOGS7 NET 2 IP    379 OG     2     2
          0        0        0        0
          0        0        0        0
```

Group structure

TRK2NET2 OM group provides 1 tuple(s) for each trunk group and each bearer network that the trunk group has members provisioned in.

Key field: None

Info field: OM2TRKINFO

- CLLI
- bearer network ID (i.e., ‘NET 0’)
- bearer network name (i.e., ‘TDM_ENET’)
- trunk group direction. (i.e., ‘IC—incoming trunk, OG—outgoing trunk, 2W—two-way trunk’)
- total number of trunk circuits in the group in the associated bearer network (i.e., ‘20’)
- number of trunk circuits in the associated bearer network available for service at the end of the reporting period. (i.e., ‘19’)

The office parameter OFFICETYPE in table OFCSTD specifies the type of office. The value of OFFICETYPE controls the generation of TRK2NET2 registers. Correct entries for OFFICETYPE appear below:

- OFF100 Local
- OFF1000ESD Australian local
- OFFCOMB Combined local/toll
- OFFCOMBLWW Combined local/toll with wireless
- OFFCOMBTOPS Combined local/toll with traffic operator position system (TOPS)
- OFF200 Toll
- OFF2000ESD Australian toll
- OFF200TOPS Toll with TOPS
- OFF200300 Combned gateway/toll
- OFF250 DMS-250
- OFF250IBN DMS-250/SL-100
- OFF300 Gateway
- OFF500 DMS-500

The office type parameters appear in table OFCSTD.

Associated OM groups

The TRK2NET1 OM group provides the primary registers. The registers found in TRK2NET2 are pegged only if the registers in TRK2NET1 overflow.

Associated functional groups

The following functional groups are associated with TRK2NET2 OM group:

- Succession North America
- Succession International

TRK2NET2 OM group registers logic flow chart

Refer to TRK2NET1 for register flow charts.

Register NANSWER2

Register description

NANSWER2 counts all line/trunk-to-trunk answered calls, and is the answer register for the outgoing trunk. The register is present in the following office types: OFF100, OFF200, OFFCOMB, OFFCOMBITOPS,OFF250, OFF250IBN, OFFMTX100I,OFF500, OFFCOMBLWW, OFF300, OFFCOMB300, OFF100OESD,OFF200OESD,OFFCOMBOESD.

Register release history update

Register is new in SN07.

Associated registers

TRK2NET1_NANSWER

TRNK2_ANSWER2

Associated logs

None.

Register CNCTAT2

Register description

CNCTAT2 counts outgoing seizure attempts on the trunk group that appear to result in successful connection. The register increases before the system recognizes whether the seizure is successful. A glare or seize failure decreases the count by 1.

CNCTAT2 is present in the following office types: OFF100, OFF200, OFFCOMB, OFFCOMBITOPS, OFF250, OFF250IBN, OFFMTX100I, OFF500, OFFCOMBLWW, OFF300, OFFCOMB300, OFF200AVON, OFF100SCP,OFF100OESD, OFF200OESD, OFFCOMBOESD, NOOFFICE.

Register release history update

Register is new in SN07.

Associated registers

TRK2NET1_CNCTAT

TRNKS2_CONNECT2

Associated logs
None.

Register INCAATT2

Register description
INCAATT2 counts incoming seizures on a trunk group, including seizures that fail or that the system abandons before routing.

The register is present in the following office types: OFF100, OFF200, OFFCOMB, OFFCOMBITOPS, OFF250, OFF250IBN, OFFMTX100I, OFF500, OFFCOMBLWW, OFF300, OFFCOMB300, OFF200AVON, OFF100SCP,OFF100OESD, OFF200OESD, OFFCOMBOESD, NOOFFICE.

Register release history update
Register is new in SN07.

Associated registers
TRK2NET1_INCAATT

TRNK2_INCATOT2

Associated logs
None.

Register NATMPT2

Register description
NATMPT2 counts the number of system attempts to route an outgoing call to a trunk group. The register increases before an idle trunk and a network connection to the trunk are available.

The register is present in the following office types: OFF100, OFF200, OFFCOMB, OFFCOMBITOPS, OFF250, OFF250IBN, OFFMTX100I, OFF500, OFFCOMBLWW, OFF300, OFFCOMB300, OFF200AVON, OFF100SCP,OFF100OESD, OFF200OESD, OFFCOMBOESD, NOOFFICE.

Register release history update
Register is new in SN07.

Associated registers
TRK2NET1 OM_INATMPT

TRNK2_NATTMPT2

Associated logs
None.

Register SBSYU2

Register description
System busy usage (SBSYU2) is a usage register. Every 100 seconds the system scans the trunk group. This register records if a trunk is in one of the following states:

- remote busy
- peripheral module busy
- system busy
- carrier fail
- deloaded

The register is present in the following office types: OFF100, OFF200, OFFCOMB, OFFCOMBITOPS, OFF250, OFF250IBN, OFFMTX100I, OFF500, OFFCOMBLWW, OFF300, OFFCOMB300, OFF200AVON, OFF100SCP,OFF100OESD, OFF200OESD, OFFCOMBOESD, NOOFFICE.

Register release history update
Register is new in SN07.

Associated registers
TRK2NET1_SBSYU

TRNK2_SBU2

Associated logs
The system generates TRK106 if a self-test on trunk equipment fails.

The system generates TRK109 when a self-test on a DS-1 facility fails.

Register TNDMATT2

Register description
Tandem (TNDMATT2) counts incoming calls on a trunk group that first routes to an outgoing trunk group. Register TNDMATT2 increases before the system determines if the outgoing trunk group is busy, or if a junctor path is available.

The register is present in the following office types: OFF100, OFF200, OFFCOMB, OFFCOMBITOPS, OFF250, OFF250IBN, OFFMTX100I, OFF500, OFFCOMBLWW, OFF300, OFFCOMB300, OFF100SCP, OFF100OESD, OFF200OESD, OFFCOMBOESD, NOOFFICE.

Register release history update
Register is new in SN07.

Associated registers
TRK2NET1_TNDMATT

TRNK2_TANDEM2

Associated logs
None.

Register TOTBSYU2

Register description
Total usage (TOTBSYU2) is a usage register. Every 100 seconds the system scans the trunk group and register TOTBSYU2 records if any trunk in the group is busy.

The register is present in the following office types: OFF100, OFF200, OFFCOMB, OFFCOMBITOPS, OFF250, OFF250IBN, OFFMTX100I, OFF500, OFFCOMBLWW, OFFCOMB300, OFF100OESD, OFF200OESD, OFFCOMBOESD, NOOFFICE.

Register release history update
Register is new in SN07.

Associated registers
TRK2NET1_TOTBSYU

TRNK2_TOTU2 (U. S. and Australia only). This register is calculated as the sum of all of the TOTBSYU2 for all bearer networks in the trunk group.

Associated logs
None.

Register TRFCU2

Register description
Traffic busy usage (TRFCU2) is a usage register. Every 100 seconds the system scans the trunk group. This register records if a trunk in the group is in one of the following states:

- call processing busy (TK_CP_BUSY)
- call processing busy deload (TK_CP_BUSY_DELOAD)
- lockout (TK_LOCKOUT)

The register is present in the following office types: OFF100, OFF200, OFFCOMB, OFFCOMBITOPS, OFF250, OFF250IBN, OFFMTX100I, OFF500, OFFCOMBLWW, OFF300, OFFCOMB300, OFF200AVON, OFF100SCP,OFF100OESD, OFF200OESD, OFFCOMBOESD, NOOFFICE.

Register release history update
Register is new in SN07.

Associated registers
TRK2NET1_TRFCU

TRNK2_TRU2

Associated logs
None.

SN07 Feature Deltas

Product = CS 2000

A00003490 -- Network Change Upgrade Tools (UA-AAL1)

Functional Description

This feature provides the ability:

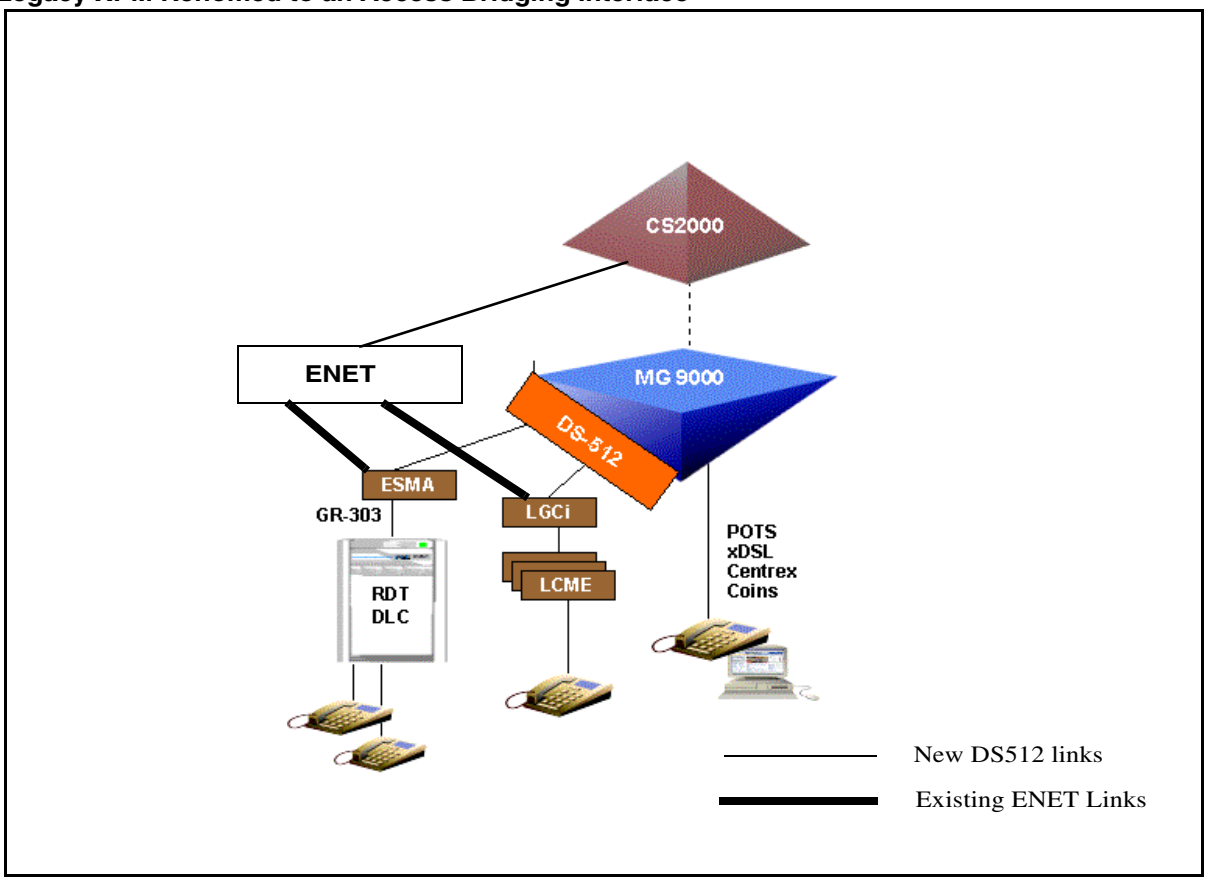
- to change the network fabric for a TDM based XPM from Enet/Jnet to DS512 interface
- restrict the use of this change only during the XPM rehome procedures

Currently, legacy XPMs are connected to either a ENET or JNET network. Rehome of the legacy XPMs to the ABI configuration is accomplished by connecting the XPM to the DS512 interface in a MG9000 gateway. The DS512 serves as the interface between the TDM links to the XPM and the OC3 interface coming out of the MG9000 and into the ATM network. Please refer to " Legacy XPM Rehomed to an Access Bridging Interface" on page 952.

The ability to perform a network interface change has the following benefits:

- simplifies the ABI XPM rehome methods and procedures
- in some instances, this may be the only way to change to an ABI network interface. Offices with a fully configured network cannot datafill a "fake" XPM because there is no free network links

Legacy XPM Rehomed to an Access Bridging Interface



The ability to change the network interface via the table control change operation is only available during the XPM rehome activity. To control the activation of the table control change operation, the installation personnel utilizes the TASTOOLCI and ABIREHOME CI tools. Please refer to “ Command interface changes” on page 958 for detailed command information. This table control operation is merely one piece of the overall installation and rehome process. For the complete installation process, please refer to Installation Method 72-1682 XPM to MG9000 DS-512 Rehome. For a complete list of restrictions associated with the table control network change functionality, please refer to “ Limitations and restrictions” on page 954.

Optionally, a secondary capability to rehome an ABI XPM to a different GWC, or to supply a different IP address, will also be provided. This provides the Central Office with the ability to manage GWC performance (load leveling) by re-distributing resources to other GWCs without having to perform a delete/add of associated configuration datafill. The ability to rehome an ABI XPM to a different GWC is accomplished by performing a tuple change operation in table LTCINV. For a complete list of restrictions and associated with the ABI XPM rehome operation, please refer to “ Limitations and restrictions” on page 954.

In order to provide these new functionalities described above, the customer will see changes in the following areas:

- operation of table LTCINV
- operation of TASTOOLCI including new ABIREHOME CI tool

Table LTCINV Impacts

Table LTCINV changes consist of modifications to the original SN05 ABI XPM tuple change operation restrictions. No other changes have been made to the table. For a complete list of the current ABI XPM tuple operation restrictions, please refer to " Limitations and restrictions" on page 954.

TASTOOLCI Impacts and new ABIREHOME CI Tool

Two new commands have been added to the TASTOOLCI command, which is password protected. Both of these commands were added in the SN06 release.

- SET_ABI_REHOME_STATUS
- QUERY_ABI_REHOME_STATUS

In addition, a new CI directory has been created to contain commands specific to the rehoming process. This directory will contain only the following commands in SN06:

- DISP_LINK_CHANNEL_MAP/DLC
- DISP_LINK_INFO/DLI
- SET_LINK_CHANNELS_IDLE/SLC

In SN06.2/SN07 the below mentioned commands have been added to the ABIREHOME tool.

- Rehome query commands
  - QUERY_IMPACTED_NODES/QIN: This command is used to display all the nodes currently marked as impacted.
  - FIND_AFFECTED_NODES/FAN: This command is used to display all the nodes impacted by rehome of given XPM node.
  - SHOW_NODE_STATUS / SNS: This command displays the current status, through ABI rehome, of a specified node, or all rehoming nodes.
- INVASIVE rehome commands
  - SET_AFFECTED_NODES/SAN: This command is used to set the protected rehome bit for each node impacted by rehoming the given XPM.

- CLEAR_AFFECTED_NODES/CAN: This command is used to clear the protected rehome bit for each node impacted by rehoming the given XPM.
- MARK_DS512_LINK_VERIFIED/VER512: This command sets the DS512 Link Verified bit for the specified node.
- ADJUST_FRAME_SYNC/AFS - This command is used to adjust the frame sync on the ABI cards to sync to the inactive XPM unit.
- SEND_GWC_STATIC_DATA/GWCSD - This command is used to send a limited static data update request to GWCs with new or deleted ABI XPMs.
- ABORT_GWC_STATIC_DATA/ABORT_GWCSD - This command is used to send a limited static data update request to UNDO the recent GWC static data updates.

Hardware Requirements or Dependencies

While this feature does allow for the change to the network interface for an existing XPM, it does not require that the hardware be present in order to perform this operation.

Software Requirements or Dependencies

This feature does require the Core load to be a Succession load. The Succession load contains the MSH DRU. The MSH DRU is where key software resides for this feature functionality.

Limitations and restrictions

It was thought to be beneficial to list the ABI XPM provisioning limitations and restrictions which existed before and after this feature.

Prior to SN06, the following limitations and restrictions existed for provisioning ABI XPMs:

- Each LTCINV tuple is restricted to only ENET-based CSLNKTAB datafill or the EXTDS512 optional attribute, but not both. There can be multiple tuples of the type, but each tuple is either ENET-based CSLNKTAB or has the EXTDS512 attribute.
- The DS512 interface provisioning only supports XPM types of LGC and SMA2. Attempting to datafill other XPM types will result in the tuple failing verification.
- The ability to change the derived CSLINKs are not allowed.
- The ability to change the Host GWC of the external XPM is not allowed.
- The ability to change the device from being ENET to External DS512-based or vise-versa is not allowed.

- Performing the TRNSL commands which use the C-side links: “TRNSL C”, “TRNSL MSG C”, and “TRNSL EMSG C” redirect the craftsperson to the MG9000 Element Manager. The MG9000 Element Manager is where the C-side links for these ABI XPMs are maintained. These C-side links of these ABI XPMs are not maintained in the Core.

With the SN07 release or the patch for this feature present in SN06, this feature and associated feature A00001847 now brings the following limitations and restrictions to provisioning of ABI XPMs:

- This feature does not provide in service rehome of the XPM to the ABI networks. This table control change capability is but a step in the overall rehome installation method.
- This feature is not supported over an ONP and therefore should not be performed while an ONP is in progress. Please check installation methods for details.
- Each LTCINV tuple is restricted to only ENET-based CSLNKTAB datafill or the EXTDS512 optional attribute, but not both. There can be multiple tuples of the type, but each tuple is either ENET-based CSLNKTAB or has the EXTDS512 attribute.
- The following peripherals will be allowed to have the EXTDS512 optional attribute assign to them:
  - LGC/LGCI
  - LTC/LTCI
  - SMS
  - SMA2
- The ability to change (add/delete/change) the derived CSLINKs are not allowed
- The ability to change the Host GWC of the ABI XPM is allowed to be changed under the following conditions:
  - the ABI XPM being rehomed must be ManBsy/Offline
- The ability to change the XPM from being ENET to External DS512-based or vise-versa is allowed under the following conditions:
  - the network change is performed on the Inactive side of the XA-Core
  - the network change can only be performed if the ABI XPM rehome is in progress
  - The Cside Links on the XPM under going the network change must be in a Offline, Unequipped or in a ManBsy state
  - The XPM under going the network change must be in a Offline or Node ManBsy state

- Performing the TRNSL commands which use the C-side links: “TRNSL C”, “TRNSL MSG C”, and “TRNSL EMSG C” will display the correct translate information as well as a message directing the craftsperson to the MG9000 Element Manager. The MG9000 Element Manager is where the C-side links for these ABI XPMs are maintained. These C-side links of these ABI XPMs are not maintained in the Core.

Interactions

This feature introduces the capability to change network interfaces for existing XPMs via a table control change operation during the rehome process. It is designed to have no impact on existing XPMs that will not be rehomed.

Applicable customer facing sections

Fault Management

Logs	___X___
Alarms	___n/a___

Configuration

Data Schema	___X__
User Interface	___X___
Element Management	___n/a___
Security	___n/a___
Service Order	___n/a___
Office Parameters	___n/a___

Accounting (includes AMA billing)	___n/a___
Performance (includes operational measurements)	___n/a___

Glossary

Term	Description
Rehome	Moving of XPMs from one network to another network. More specifically from the ENET to the ABI or vice-versa Also, Moving of subtending devices from one XPM to another XPM. In the case of an ABI configuration, the XPM is considered a subtending device to the GWC.
ABI XPM	An XPM which is provisioned in table LTCINV with the optional attribute EXTDS512

Term	Description
network change	When the network interface type of an XPM is changed via the Table Control Change operation in Table LTCINV.

Configuration for A00003490

Hardware and Software Requirements

The purpose of this feature is to rehome existing ENET/JNET XPMs to the ABI DS-512 interface off MG 9000.

Therefore the following hardware is required:

- An available LGCI , SMA2, LGC, LTC, LTCI, SMS
- GWCs that will be hosting XPMs need to be configured and datafilled in table SERVRINV
- DS-512 Interface cards should be installed in the appropriate MG 9000 Gateways and their base IP address known.

Because this feature is a part of the larger installation method to rehome XPMs to the ABI configuration, please refer to the Installation Method 72-1682 "XPM to MG 9000 DS-512 Rehome" for a complete list of required hardware to perform the rehome.

Software requirements:

- SN06 Succession Core load with this feature patched back

-OR-

- SN07 or later Succession Core load

Initial Configuration

This feature, when enabled, provides the ability to rehome an existing ENET/JNET XPM by changing its data in table LTCINV. The ability to rehome XPMs involves turning on the rehome capability via the TASTOOLCI tool and splitting the Core. This is but one step of an overall process to rehome the ENET/JNET based XPMs. For the complete process, please refer to Installation Method 72-1682 "XPM to MG 9000 DS-512 Rehome."

Office/Subnet parameters (OP/SP) (CM & SESM)

Not Applicable.

Upgrade Impact

No Impact.

Data schema (DS) (CM, MIBS, RDB)

This feature does not introduce any new tables, fields, or field values in any table. It permits, when enabled, the ability to rehome an existing ENET/JNET XPM by *changing* its data in table LTCINV (rather than having to delete and re-add the tuple).

In order to provide this *change* capability, some limitations and restrictions have been modified. Please refer to " Limitations and restrictions" on page 954 in the Functional description section for a complete list of limitations and restrictions.

Service Orders (SO) (CM & SESM)

Not Applicable.

Software optionality control (SOC)

Not Applicable.

Element Management

Not Applicable.

Command interface changes

Directory: TASTOOLCI (changed)

Two new commands added:

- SET_ABI_REHOME_STATUS
- QUERY_ABI_REHOME_STATUS

Directory description

This CI command directory is password protected and exists for use by TAS (Technical Assistance) personnel in various upgrade scenarios which involve splitting the switch and using the SWACT functionality to enable behavior.

Accessing directory: TASTOOLCI

Access to directory or MAP level and return to CI

To access TASTOOLCI from the CI environment, enter "tastoolci" from the command interface.

To return to the CI environment, enter "quit".

Directory: ABIREHOME (new)

Commands:

- DISP_LINK_CHANNEL_MAP/DLC

- DISP_LINK_INFO/DLI
- SET_LINK_CHANNELS_IDLE/SLC
- QUERY_ABI_REHOME_STATUS/QRS
- QUERY_IMPACTED_NODES/QIN
- FIND_AFFECTED_NODES/FAN
- DISP_IOUI_ROUTE_DATA/DRD
- SET_AFFECTED_NODES/SAN
- CLEAR_AFFECTED_NODES/CAN
- ADJUST_FRAME_SYNC/AFS
- SEND_GWC_STATIC_DATA/ GWCSD
- ABORT_GWC_STATIC_DATA/ ABORT_GWCSD

Directory description

This CI command directory is used for ABI rehome specific commands once the functionality has been enabled via the TASTOOLCI SET_ABI_REHOME_STATUS ON command has been issued.

Accessing directory: ABIREHOME

Access to directory or MAP level and return to CI

To access ABIREHOME from the CI environment, enter “abirehome” from the command interface.

To return to the CI environment, enter “quit”.

Command: TASTOOLCI: SET_ABI_REHOME_STATUS

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

This command is used as a part of Installation Method 72-1682 "XPM to MG 9000 DS-512 Rehome" to enable the ability to rehome an XPM from ENET/JNET C-side links to an ABI DS-512 off of an MG 9000.

This command allows TAS personnel the ability to control the rehome status in an office. If affects both an overall control boolean and the initialization of per node rehome status data. In addition, this command enables the ability to position on the XPM’s tuple in table LTCINV and execute a CHA, as opposed to deleting and re-adding the tuple.

Command syntax

<CommandName> command parameters and variables

Command	Parameters and variables
SET_ABI_REHOME_STATUS	<STATUS> {ON, OFF, SUSPEND, RESUME}
Parameters and variables	Description
ON	Sets the control bool to TRUE and initializes all node rehome data to default values.
OFF	Sets the control bool to FALSE and initializes all node rehome data to default values.
SUSPEND	Sets the control bool to FALSE, leaving the per node rehome data as is.
RESUME	Sets the control bool to TRUE, leaving the per node rehome data as is.

Qualifications and warnings

In all cases, a warning message will be output to user that this command enables highly dangerous functionality and should be used by experienced personnel only, giving the user the option to quit.

In all cases, the current status of the rehome (ON, OFF, SUSPENDED) will be displayed prior to any parameter specific messages.

Responses

SET_ABI_REHOME_STATUS responses

MAP outputs with associated meanings and actions

SET_ABI_REHOME_STATUS
This command is intended for use during the rehoming of XPMs to an ABI interface on an MG 9000. It enables highly dangerous functionality that should only be executed as directed by the installation method. This command should be used by qualified and experienced personnel ONLY in conjunction with IM. Do you wish to proceed? **Meaning:** Output regardless of status entered. This response warns the user that this command could result in an outage and that it should be executed by experienced personnel only. **System or user actions:** If the user is not qualified to proceed, he should enter NO and the command will exit at this point.

MAP outputs with associated meanings and actions

SET_ABI_REHOME_STATUS
Current ABI Rehome State is: {ON, OFF, SUSPENDED} **Meaning:** Output regardless of status entered. If ON, the rehome process has been enabled. If OFF, the rehome process has been disabled, and all node rehome data is currently at default values. If SUSPENDED, a rehome was begun, and interrupted by the user. In this state, the control bool is FALSE, but there could be node rehome data that is not at default values. **System or user actions:** None. This is for informational purposes.
ABI Rehome state is already ON. Rehome data not impacted.. **Meaning:** The user is attempting to turn ON the rehome status when it is already ON. **System or user actions:** None. This is for informational purposes.
Continuing with this command will cause all existing node rehome data to be lost. Consider using RESUME instead. Do you wish to continue? continue=no ‘SET_REHOME_STATUS command aborted by user.’ **Meaning:** The user is attempting to turn ON the rehome status when it is currently SUSPENDED. If there is an per node rehome data, it will be re initialized to default values. **System or user actions:** The user has an opportunity to abort the command, at which point they will receive the continue=no response.
Command Successful. ABI Rehome has been turned ON. **Meaning:** The ABI Rehome status has been turned ON and all per node rehome data has been initialized to default values. **System or user actions:** None.
Failed to enable ABI Rehome. Please check for swerrs. **Meaning:** The command to enable the ABI rehome has failed for some reason. **System or user actions:** Use the QUERY_ABI_REHOME_STATUS to determine current status and if any part is ON, use the SET_ABI_REHOME_STATUS to turn OFF.
ABI Rehome state is already OFF. Rehome data not impacted. **Meaning:** The user is attempting to turn OFF the ABI rehome status when it is already OFF. **System or user actions:** None.
Continuing with this command will cause all existing node rehome data to be lost. Do you wish to continue? continue=no ‘SET_REHOME_STATUS command aborted by user. **Meaning:** The user is attempting to turn OFF the ABI tool when it is currently ON or SUSPENDED. This could cause a loss of the per node rehome data. **System or user actions:** Opportunity to abort, in which case user gets the continue = no output.

MAP outputs with associated meanings and actions

SET_ABI_REHOME_STATUS
ABI Rehome has been turned OFF. **Meaning:** The control bool has been turned OFF, and per node rehome data initialized to default values. **System or user actions:** None - informational only.
Failed to disable the ABI Rehome. Please check for swerrs. **Meaning:** The attempt to turn OFF the ABI rehome state has failed. **System or user actions:** Should not occur. Indicates a problem.
Cannot SUSPEND - ABI Rehome is not ON. **Meaning:** The user is attempting to SUSPEND the rehome status when it is not ON. **System or user actions:** None - informational only.
ABI Rehome has been SUSPENDED. **Meaning:** The control bool has been turned OFF, and per node rehome data was left intact. **System or user actions:** None - informational only.
Failed to suspend ABI Rehome. Please check for swerrs. **Meaning:** The attempt to suspend the ABI rehome state has failed. **System or user actions:** Should not occur. Indicates a problem.
Cannot RESUME - ABI Rehome is not SUSPENDED. **Meaning:** RESUME only makes sense when the rehome state was suspended. No data has been impacted. **System or user actions:** None - informational only.
ABI Rehome has been RESUMED. **Meaning:** The control bool has been turned ON, and per node rehome data was left intact. **System or user actions:** None - informational only.
Failed to resume ABI Rehome. Please check for swerrs. **Meaning:** The attempt to resume the ABI rehome state has failed. **System or user actions:** Should not occur. Indicates a problem.

Example

Usage examples for SET_ABI_REHOME_STATUS command

Description of task:	

Usage examples for SET_ABI_REHOME_STATUS command

SET_ABI_REHOME_STATUS ON	This command is intended for use during the rehoming of XPMs to an ABI interface on an MG 9000. It enables highly dangerous functionality that should only be executed as directed by the installation method. This command should be used by qualified and experienced personnel ONLY in conjunction with IM. Do you wish to proceed? Current ABI Rehome State is: SUSPENDED Continuing with this command will cause all existing node rehome data to be lost. Consider using RESUME instead. Do you wish to continue? >N SET_REHOME_STATUS command aborted by user.
SET_ABI_REHOME_STATUS OFF	This command is intended for use during the rehoming of XPMs to an ABI interface on an MG 9000. It enables highly dangerous functionality that should only be executed as directed by the installation method. This command should be used by qualified and experienced personnel ONLY in conjunction with IM. Do you wish to proceed? Current ABI Rehome State is: ON Continuing with this command will cause all existing node rehome data to be lost. Do you wish to continue? Y 'ABI Rehome has been turned OFF.
SET_ABI_REHOME_STATUS SUSPEND	This command is intended for use during the rehoming of XPMs to an ABI interface on an MG 9000. It enables highly dangerous functionality that should only be executed as directed by the installation method. This command should be used by qualified and experienced personnel ONLY in conjunction with IM. Do you wish to proceed? Current ABI Rehome State is: ON ABI Rehome has been SUSPENDED.
SET_ABI_REHOME_STATUS RESUME	This command is intended for use during the rehoming of XPMs to an ABI interface on an MG 9000. It enables highly dangerous functionality that should only be executed as directed by the installation method. This command should be used by qualified and experienced personnel ONLY in conjunction with IM. Do you wish to proceed? Current ABI Rehome State is: SUSPENDED ABI migration has been RESUMED.

Command: TASTOOLCI: QUERY_ABI_REHOME_STATUS

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

This command is used to display the current state of the ABI Rehome.

Command syntax

<CommandName> command parameters and variables

Command	Parameters and variables
QUERY_ABI_REHOME_STATUS	none

Qualifications and warnings

None.

Responses

QUERY_ABI_REHOME_STATUS responses

MAP outputs with associated meanings and actions

QUERY_ABI_REHOME_STATUS
Current ABI Rehome State is: {ON, OFF, SUSPENDED} **Meaning:** Output regardless of status entered. If ON, the rehome process has been enabled. If OFF, the rehome process has been disabled, and all node rehome data is currently at default values. If SUSPENDED, a rehome was begun, and interrupted by the user. In this state, the control bool is FALSE, but there could be node rehome data that is not at default values. **System or user actions:** None. This is for informational purposes.
ABI XPM Rehome Control Enabled: {TRUE, FALSE} **Meaning:** Displays the state of the control bool that enables the table control and ABIREHOME CI tool functionality. **System or user actions:** None. This is for informational purposes.
There are nodes which have been marked as rehomed. Please use the ABIREHOME CI tool for additional information. **Meaning:** There are nodes which have been marked as impacted, using SET_ABI_REHOME_STATE with ON or OFF will clear the per node rehome data. **System or user actions:** None. This is for informational purposes.

MAP outputs with associated meanings and actions

QUERY_ABI_REHOME_STATUS
There are no nodes marked as impacted. **Meaning:** There are no nodes which have rehome data associated with them. The rehome state can be turned ON or OFF without impacting any existing data. **System or user actions:** None. This is for informational purposes.

Example

Usage examples for QUERY_ABI_REHOME_STATUS command

Description of task:	
QUERY_ABI_REHOME_STATUS	ABI XPM Rehome Control Enabled: TRUE Current ABI Rehome State is: ON There are no nodes marked as impacted.

Command: ABIREHOME: DISP_LINK_CHANNEL_MAP

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

This command is used as a part of Installation Method 72-1682 "XPM to MG 9000 DS-512 Rehome"to enable the ability to rehome an XPM from ENET/JNET C-side links to an ABI DS-512 off of an MG 9000.

Command syntax

<CommandName> command parameters and variables

Command	Parameters and variables
DISP_LINK_CHANNEL_MAP or DLC	node Node number of the XPM. Node number can be found by performing QueryPM while the XPM is POSTed at the map.
Parameters and variables	Description
node	<XPM_NODE> {0 to 4095}

Qualifications and warnings

None.

Responses

DISP_LINK_CHANNEL_MAP responses

MAP outputs with associated meanings and actions

DISP_LINK_CHANNEL_MAP

```
ABIREHOME:
>dlc 68
Node Number:   68
Number of cside links:   16
     Link Information:
     LN: Link Number   LT: Link Type   FC: Free Channel
     LN    LT         FC       Link Channel Map (0 to 31)
                               0=busy, 1=idle
     ------------------------------------------------------------
      0    Duplex      Y       01111111111111110111111111111111
      1    Duplex      Y       01111111111111110111111111111111
      2    Duplex      Y       01111111111111110111111111111111
      3    Duplex      Y       01111111111111110111111111111111
      4    Duplex      Y       01111111111111110111111111111111
      5    Duplex      Y       01111111111111110111111111111111
      6    Duplex      Y       01111111111111110111111111111111
      7    Duplex      Y       01111111111111110111111111111111
      8    Duplex      Y       01111111111111110111111111111111
      9    Duplex      Y       01111111111111110111111111111111
     10    Duplex      Y       01111111111111110111111111111111
     11    Duplex      Y       01111111111111110111111111111111
     12    Duplex      Y       01111111111111110111111111111111
     13    Duplex      Y       01111111111111110111111111111111
     14    Duplex      Y       01111111111111110111111111111111
     15    Duplex      Y       00000111111111110111111111111111
```

Meaning: Displays the link_chnl_map for the XPM. 0=busy, 1=idle. Messaging links show busy.

System or user actions: None. Information purposes only.

Example

Usage examples for DISP_LINK_CHANNEL_MAP command

Description of task:	
dlc 68	Node Number: 68 Number of cside links: 16 Link Information: LN: Link Number LT: Link Type FC: Free Channel LN LT FC Link Channel Map (0 to 31) 0=busy, 1=idle --- 0 Duplex Y 01111111111111101111111111111111 1 Duplex Y 01111111111111101111111111111111 2 Duplex Y 01111111111111101111111111111111 3 Duplex Y 01111111111111101111111111111111 4 Duplex Y 01111111111111101111111111111111 5 Duplex Y 01111111111111101111111111111111 6 Duplex Y 01111111111111101111111111111111 7 Duplex Y 01111111111111101111111111111111 8 Duplex Y 01111111111111101111111111111111 9 Duplex Y 01111111111111101111111111111111 10 Duplex Y 01111111111111101111111111111111 11 Duplex Y 01111111111111101111111111111111 12 Duplex Y 01111111111111101111111111111111 13 Duplex Y 01111111111111101111111111111111 14 Duplex Y 01111111111111101111111111111111 15 Duplex Y 00000111111111101111111111111111

Command: ABIREHOME: DISP_LINK_INFO

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

This command is used as a part of Installation Method 72-1682 "XPM to MG 9000 DS-512 Rehome" to enable the ability to rehome an XPM from ENET/JNET C-side links to an ABI DS-512 off of an MG 9000.

Command syntax

DISP_LINK_INFO command parameters and variables

Command	Parameters and variables
DISP_LINK_INFO or DLI	node Node number of the XPM. Node number can be found by performing QueryPM while the XPM is POSTed at the map.
Parameters and variables	Description
node	<NODE_NUMBER> {0 to 4095}

Qualifications and warnings

None.

Responses

DISP_LINK_INFO responses

MAP outputs with associated meanings and actions

DISP_LINK_INFO

```
node 68:  LTC_NODE  SMA2 1,  node status:  status=sysb, cs=FALSE
cside links:
   0: node=  41, cap=MS-, port=   0; host=ok    port    0: ls=ok   cs=N ps=Y
   1: node=  41, cap=MS-, port=   1; host=ok    port    1: ls=ok   cs=N ps=Y
   2: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
   3: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
   4: node=  41, cap=MS-, port=   2; host=ok    port    2: ls=ok   cs=N ps=Y
   5: node=  41, cap=MS-, port=   3; host=ok    port    3: ls=ok   cs=N ps=Y
   6: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
   7: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
   8: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
   9: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
  10: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
  11: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
  12: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
  13: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
  14: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
  15: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
  16: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
  17: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
  18: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
  19: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
  20: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
  21: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
  22: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
  23: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
  24: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
  25: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
  26: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
  27: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
  28: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
  29: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
  30: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
  31: node=  41, cap=-S-, port=4095; host=ok    port 4095: ls=ok   cs=N ps=N
pside links:
   0:   node=  77, cap=MS-, port=   0, ls=offl,clos cs=Y ps=Y;  psn: manb
   1:   node=  77, cap=MS-, port=   1, ls=offl,clos cs=Y ps=Y;  psn: manb
   2:   node=  77, cap=-S-, port=   2, ls=offl,clos cs=Y ps=Y;  psn: manb
   3:   node=  77, cap=-S-, port=   3, ls=offl,clos cs=Y ps=Y;  psn: manb
```

Meaning: Displays information about both the cside and pside links for an XPM.

System or user actions: None. Informational only.

Example

Usage examples for DISP_LINK_INFO

Description of task:	
DISP_LINK_INFO 68	node 68: LTC_NODE SMA2 1, node status: status=sysb, cs=FALSE cside links: 0: node= 41, cap=MS-, port= 0; host=ok port 0: ls=ok cs=N ps=Y 1: node= 41, cap=MS-, port= 1; host=ok port 1: ls=ok cs=N ps=Y 2: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 3: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 4: node= 41, cap=MS-, port= 2; host=ok port 2: ls=ok cs=N ps=Y 5: node= 41, cap=MS-, port= 3; host=ok port 3: ls=ok cs=N ps=Y 6: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 7: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 8: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 9: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 10: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 11: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 12: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 13: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 14: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 15: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 16: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 17: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 18: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 19: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 20: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 21: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 22: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 23: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 24: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 25: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 26: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 27: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 28: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 29: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 30: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N 31: node= 41, cap=-S-, port=4095; host=ok port 4095: ls=ok cs=N ps=N pside links: 0: node= 77, cap=MS-, port= 0, ls=offl,clos cs=Y ps=Y; psn: manb 1: node= 77, cap=MS-, port= 1, ls=offl,clos cs=Y ps=Y; psn: manb 2: node= 77, cap=-S-, port= 2, ls=offl,clos cs=Y ps=Y; psn: manb 3: node= 77, cap=-S-, port= 3, ls=offl,clos cs=Y ps=Y; psn: manb

Command: ABIREHOME:SET_LINK_CHANNEL_MAP

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

This command is used as a part of Installation Method 72-1682 "XPM to MG 9000 DS-512 Rehome" to enable the ability to rehome an XPM from ENET/JNET C-side links to an ABI DS-512 off of an MG 9000.

This command allows the user to reset the link_chnl_map for an XPM. This command is invasive and dangerous, and should be used by qualified personnel only following the instructions in IM 72-1682.

Command syntax

SET_LINK_CHANNEL_MAP command parameters and variables

Command	Parameters and variables
SET_LINK_CHANNEL_MAP or SLC	node Node number of the XPM. Node number can be found by performing QueryPM while the XPM is POSTed at the map.
Parameters and variables	Description
node	<XPM_NODE> {0 to 4095}

Qualifications and warnings

None.

Responses

SET_LINK_CHANNEL_MAP responses

MAP outputs with associated meanings and actions

SET_LINK_CHANNEL_MAP
This command must be enabled by TAS. Please refer to IM 72-1682. **Meaning:** The control bool to enable the command has not been turned on. **System or user actions:** Go into TASTOOLCI and use command SET_REHOME_STATUS ON to turn on the tool. Password required.
Node number is not a supported XPM. **Meaning:** The command is ended because the node number entered is not a node number of a valid XPM that can exist off of an ABI interface. The node number can be either ABI connected or ENET/JNET connected, but must be ABLE to be ABI connected. **System or user actions:** Get the right node number and reenter the command. The PMIST NODENO command can be used to get the correct node number.
Current IO format is: External **Meaning:** The node is currently provisioned as a packet node off of an ABI interface. **System or user actions:** None. Informational purposes.
Current IO format is: Internal **Meaning:** The node is currently provisioned as a tdm node off of an ENET/JNET. **System or user actions:** None. Informational purposes.

MAP outputs with associated meanings and actions

SET_LINK_CHANNEL_MAP
This command can be service impacting. Do you wish to continue? If continue=no: SLC command aborted by user. **Meaning:** Resetting the link channel map is dangerous if used improperly. This is the last chance to change your mind. **System or user actions:** Enter desire to continue.
Links/Channels have been reset for node <node number>. **Meaning:** The command was successful. **System or user actions:** None, but user can choose to use DLC to verify results.
Trouble resetting links/channels on node <node number>. **Meaning:** Something was wrong and the link channel map could not be reset. **System or user actions:** Look for swerrs and report problem. Use DLC to display current values.

Example

Usage examples for SET_LINK_CHANNEL_MAP command

Description of task:	
SET_LINK_CHANNEL_MAP 68	Current IO format is: External This command can be service impacting. Do you wish to continue? Yes Links/Channels have been reset for node 68.

Command: ABIREHOME: QUERY_ABI_REHOME_STATUS

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

This command is used to display the current state of the ABI Rehome. It is a clone of the TASTOOLCI command of the same name, and placed here for convenience.

Command syntax

<CommandName> command parameters and variables

Command	Parameters and variables
QUERY_ABI_REHOME_STATUS or QRS	n/a
Parameters and variables	Description
n/a	

Qualifications and warnings

None.

Responses

QUERY_ABI_REHOME_STATUS responses

MAP outputs with associated meanings and actions

QUERY_ABI_REHOME_STATUS
`Displays the status of the ABI Migration control structures.` **Meaning:** Help associated with command. **System or user actions:** Informational purposes only.
Current ABI Rehome State is: {ON, OFF, SUSPENDED} **Meaning:** Output regardless of status entered. If ON, the rehome process has been enabled. If OFF, the rehome process has been disabled, and all node rehome data is currently at default values. If SUSPENDED, a rehome was begun, and interrupted by the user. In this state, the control bool is FALSE, but there could be node rehome data that is not at default values. **System or user actions:** None. This is for informational purposes.
ABI XPM Rehome Control Enabled: {TRUE, FALSE} **Meaning:** Displays the state of the control bool that enables the table control and ABIREHOME CI tool functionality. **System or user actions:** None. This is for informational purposes.

MAP outputs with associated meanings and actions

QUERY_ABI_REHOME_STATUS
There are nodes which have been marked as rehomed. Please use the ABIREHOME CI tool for additional information. **Meaning:** There are nodes which have been marked as impacted, using SET_ABI_REHOME_STATE with ON or OFF will clear the per node rehome data. **System or user actions:** None. This is for informational purposes.
There are no nodes marked as impacted. **Meaning:** There are no nodes which have rehome data associated with them. The rehome state can be turned ON or OFF without impacting any existing data. **System or user actions:** None. This is for informational purposes.

Example

Usage examples for QUERY_ABI_REHOME_STATUS command

Description of task:	
QUERY_ABI_REHOME_STATUS	ABI XPM Rehome Control Enabled: TRUE Current ABI Rehome State is: ON There are no nodes marked as impacted.

Command: ABIREHOME: QUERY_IMPACTED_NODES/QIN

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

This command is used as a part of Installation Method 72-1682 "XPM to MG 9000 DS-512 Rehome" to enable the ability to rehome an XPM from ENET/JNET C-side links to an ABI DS-512 off of an MG 9000.

Query impacted nodes will display all nodes that have been marked as impacted by the rehome.

Command syntax

QUERY_IMPACTED_NODES command parameters and variables

Command	Parameters and variables
QUERY_IMPACTED_NODES or QIN	n/a
Parameters and variables	Description
n/a	

Qualifications and warnings

None.

Responses

QUERY_IMPACTED_NODES responses

MAP outputs with associated meanings and actions

QUERY_IMPACTED_NODES
`Displays all nodes currently marked as impacted in the rehome node data.` **Meaning:** Help associated with command. **System or user actions:** Informational purposes only.
`There are no nodes marked as impacted.` **Meaning:** No nodes have been marked as impacted. **System or user actions:** Informational purposes only.

`Impacted Nodes`
`--------------`
`69: LTC_NODE SMA2 1`
`77: IDT_NODE IDT 5`
 	
Meaning: Node numbers 69 and 77 have been marked as impacted, and will be treated as rehomed during a NRS (norestartswact).
 	
System or user actions: Informational purposes.

Example

Usage examples for command QUERY_IMPACTED_NODES

Description of task:	
QIN	Impacted Nodes -------------- 69: LTC_NODE SMA2 1 77: IDT_NODE IDT 5

Command: FIND_AFFECTED_NODES/FAN

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

This command is used as a part of Installation Method 72-1682 "XPM to MG 9000 DS-512 Rehome" to enable the ability to rehome an XPM from ENET/JNET C-side links to an ABI DS-512 off of an MG 9000.

Given a node number of an XPM, this command will show all nodes that would be impacted by a rehome of that XPM, by recursively searching its p-side links.

Command syntax

command parameters and variables

Command	Parameters and variables
FIND_AFFECTED_NODES or FAN	node Node number of the XPM. Node number can be found by performing QueryPM while the XPM is POSTed at the map.
Parameters and variables	Description
node	<XPM_NODE> {0 to 4095}

Qualifications and warnings

None.

Responses

FIND_AFFECTED_NODES/FAN responses

MAP outputs with associated meanings and actions

FIND_AFFECTED_NODES/FAN
FIND_AFFECTED_NODES: Displays the affected nodes for given XPM node --- Syntax: FIND_AFFECTED_NODES node or FAN node Parameters: node Node number of the XPM Parms: <XPM_NODE> {0 TO 4095} Meaning: Help associated with command. **System or user actions:** Informational purposes only.
Node number is not a supported XPM. **Meaning:** The node number provided is not an XPM that can be supported from an ABI interface. The command will work whether the XPM is currently on an ENET/JNET interface or off of an ABI interface, but the XPM type must be able to be supported on either interface. **System or user actions:** Informational purposes.
Given node: --- Node 69: LTC_NODE SMA2 1 Subtending nodes: --- Node 77: IDT_NODE IDT 5 **Meaning:** For the given XPM number, display the node type and device information for each subtending nodes. Nodes which subtend a node are shown indented under that node. **System or user actions:** Informational purposes only.

Example

Usage examples for command FIND_AFFECTED_NODES/FAN

Description of task:	
FIND_AFFECTED_NODES or FAN	Given node: ---------- Node 69: LTC_NODE SMA2 1 Subtending nodes: ---------- Node 77: IDT_NODE IDT 5

Command: ABIREHOME: DISP_IOUI_ROUTE_DATA/DRD

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

This command is used as a part of Installation Method 72-1682 "XPM to MG 9000 DS-512 Rehome" to enable the ability to rehome an XPM from ENET/JNET C-side links to an ABI DS-512 off of an MG 9000.

Displays the current IOUI routing data associated with the given node.

Command syntax

DISP_IOUI_ROUTE_DATA/DRD command parameters and variables

Command	Parameters and variables
DISP_IOUI_ROUTE_DATA or DRD	node Node number of the XPM. Node number can be found by performing QueryPM while the XPM is POSTed at the map.
Parameters and variables	Description
node	<NODE> {0 to 4095}

Qualifications and warnings

None.

Responses

DISP_IOUI_ROUTE_DATA/DRD responses

MAP outputs with associated meanings and actions

DISP_IOUI_ROUTE_DATA/DRD
DISP_IOUI_ROUTE_DATA: Displays the IOUI Route Data for given node --- Syntax: DISP_IOUI_ROUTE_DATA node or DRD node Parameters: node Node number Parms: <NODE> {0 TO 4095} Meaning: Help associated with command. **System or user actions:** Informational purposes only.
Node undefined. **Meaning:** The given node is undefined. **System or user actions:** Try the command again with a valid node number.
Node 69: LTC_NODE SMA2 1 node_data3 info: msg_format: jts mts network: external is_ip_host: N IPaddress (of GWC): 47.142.106.64 dest_port: 4683 dms_msg_route: network: external is_ip_host: N IPaddress (of GWC): 47.142.106.64 dest_port: 4683 **Meaning:** Shows the current values of the internal data structures relating to the IOUI routing data when the node provided is a packet node. This is the data that is impacted by the NRS procedures, and will be different on the active and inactive sides when a node has been rehomed. **System or user actions:** Informational and debug purposes only.

MAP outputs with associated meanings and actions

DISP_IOUI_ROUTE_DATA/DRD

```
DISP_IOUI_ROUTE_DATA:  Displays the IOUI Route Data for given node
------------------------------------------------------------------
Syntax: DISP_IOUI_ROUTE_DATA node
        or
        DRD node


Parameters:  node     Node number
Parms: <NODE> {0 TO 4095}
```

Meaning: Help associated with command.

System or user actions: Informational purposes only.

```
Node   47:  LTC_NODE  DTC 0
   node_data3 info:
      msg_format:    jts mts
      network:       internal
   dms_msg_route:
      network:       internal
```

Meaning: Shows the current values of the internal data structures relating to the IOUI routing data when the node provided is a TDM node. This is the data that is impacted by the NRS procedures, and will be different on the active and inactive sides when a node has been rehomed.

System or user actions: Informational and debug purposes only.

Example

Usage examples for command

Description of task:	
drd 69	Node 69: LTC_NODE SMA2 1 node_data3 info: msg_format: jts mts network: external is_ip_host: N IPaddress (of GWC): 47.142.106.64 dest_port: 4683 dms_msg_route: network: external is_ip_host: N IPaddress (of GWC): 47.142.106.64 dest_port: 4683
drd 47	Node 47: LTC_NODE DTC 0 node_data3 info: msg_format: jts mts network: internal dms_msg_route: network: internal

Command: ABIREHOME: SET_AFFECTED_NODES/SAN

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

This command is used as a part of Installation Method 72-1682 "XPM to MG 9000 DS-512 Rehome" to enable the ability to rehome an XPM from ENET/JNET C-side links to an ABI DS-512 off of an MG 9000.

Given the node number of the rehomed XPM, sets the impacted node table bits for the XPM and all of its subtending nodes, found by recursively searching its p-side links.

Command syntax

command parameters and variables

Command	Parameters and variables
SET_AFFECTED_NODES or SAN	node Node number of the XPM. Node number can be found by performing QueryPM while the XPM is POSTed at the map.
Parameters and variables	Description
node	<XPM_NODE> {0 to 4095}

Qualifications and warnings

None.

Responses

responses

MAP outputs with associated meanings and actions

SET_AFFECTED_NODES/SAN
SET_AFFECTED_NODES: Sets the rehome node bits for all nodes the are impacted by rehoming the given XPM, including its subtending nodes. Nodes must be marked as impacted on the INACTIVE processor element. Protected command for ABI Rehomes. --- Syntax: SET_AFFECTED_NODES node Parameters: node Node number of XPM Parms: <XPM_NODE> {0 TO 4095} **Meaning:** Help info for command. **System or user actions:** Informational purposes only.
This command must be enabled by TAS via the TASTOOLCI SET_ABI_REHOME_STATUS command. Please refer to the installation method. **Meaning:** This is a protected command that must be enabled via TASTOOLCI. **System or user actions:** Use the TASTOOLCI SET_ABI_REHOME_STATUS ON (or RESUME) command to enable the ABI rehome functionality.
Node number is not a supported XPM. **Meaning:** The node number entered cannot be homed off of an ABI interface, and is therefore not a valid XPM for this command. **System or user actions:** Enter the correct node number of the rehomed XPM.
This command will SET the impacted node table bools for this XPM and all of its subtending nodes. Do you wish to continue? **Meaning:** Warning that using this command will set triggers that will impact the behavior of a NRS. **System or user actions:** Enter the correct response.
SAN command aborted by user. **Meaning:** Response indicating the command was aborted by the user and no action was taken. **System or user actions:** Informational purposes only.

MAP outputs with associated meanings and actions

SET_AFFECTED_NODES/SAN
SET_AFFECTED_NODES: Sets the rehome node bits for all nodes the are impacted by rehoming the given XPM, including its subtending nodes. Nodes must be marked as impacted on the INACTIVE processor element. Protected command for ABI Rehomes. --- Syntax: SET_AFFECTED_NODES node Parameters: node Node number of XPM Parms: <XPM_NODE> {0 TO 4095} **Meaning:** Help info for command. **System or user actions:** Informational purposes only.
Node 69: LTC_NODE SMA2 1 Set affected nodes PASSED. Use FIND_AFFECTED_NODES/FAN to see the nodes impacted. **Meaning:** Displays the XPM node provided, shows that the command passed, and suggests using the FAN command to see what nodes were impacted. **System or user actions:**
Set affected nodes FAILED. Check for swerrs and traps. **Meaning:** Indicates a problem with the software. Contact Nortel for support. **System or user actions:** Use the FAN command to see what nodes were likely impacted and compare to the QIN (impacted nodes) output. User should refer to the installation method to determine how to proceed.

Example

Usage examples for command SET_AFFECTED_NODES

Description of task:	
SAN 69	This command will SET the impacted node table bools for this XPM and all of its subtending nodes. Do you wish to continue? Please confirm ("YES", "Y", "NO", or "N"): >Y Node 69: LTC_NODE SMA2 1 Set affected nodes PASSED. Use FIND_AFFECTED_NODES/FAN to see the nodes impacted.

Command: ABIREHOME: CLEAR_AFFECTED_NODES/SAN

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

This command is used as a part of Installation Method 72-1682 "XPM to MG 9000 DS-512 Rehome" to enable the ability to rehome an XPM from ENET/JNET C-side links to an ABI DS-512 off of an MG 9000.

Given the node number of the rehomed XPM, clears the impacted node table bits for the XPM and all of its subtending nodes, found by recursively searching its p-side links.

Command syntax

command parameters and variables

Command	Parameters and variables
CLEAR_AFFECTED_NODES or CAN	node Node number of the XPM. Node number can be found by performing QueryPM while the XPM is POSTed at the map.
Parameters and variables	Description
node	<XPM_NODE> {0 to 4095}

Qualifications and warnings

None.

Responses

CLEAR_AFFECTED_NODES responses

MAP outputs with associated meanings and actions

CLEAR_AFFECTED_NODES

```
CLEAR_AFFECTED_NODES:  Sets the rehome node bits for all nodes
                       the are impacted by rehoming the given XPM,
                       including its subtending nodes.
                       Protected command for ABI Rehomes.
-------------------------------------------------------------
Syntax: CLEAR_AFFECTED_NODES node

Parameters:  node     Node number of XPM

Parms: <XPM_NODE> {0 TO 4095}
```

Meaning: Help associated with command.

System or user actions: Informational purposes only.

This command must be enabled by TAS via the TASTOOLCI SET_ABI_REHOME_STATUS command. Please refer to the installation method.

Meaning: The ABI REHOME installation method has not been enabled. TAS must enable the process via the TASTOOLCI SET_ABI_REHOME_STATUS (ON or RESUME) commands before proceeding.

System or user actions: If user wishes to proceed with the command, TAS will have to enable the tool.

MAP outputs with associated meanings and actions

CLEAR_AFFECTED_NODES
CLEAR_AFFECTED_NODES: Sets the rehome node bits for all nodes the are impacted by rehoming the given XPM, including its subtending nodes. Protected command for ABI Rehomes. --- Syntax: CLEAR_AFFECTED_NODES node Parameters: node Node number of XPM Parms: <XPM_NODE> {0 TO 4095} **Meaning:** Help associated with command. **System or user actions:** Informational purposes only.
This command will CLEAR the impacted node table bools for this XPM and all of its subtending nodes. Do you wish to continue? **Meaning:** Warning that using this command will set triggers that will impact the behavior of a NRS. **System or user actions:** Enter the correct response.
CAN command aborted by user. **Meaning:** Command was aborted by the user and no action has been taken. **System or user actions:** Informational purposes only.
Node 69: LTC_NODE SMA2 1 Clear affected nodes PASSED. Use FIND_AFFECTED_NODES to see the nodes impacted. **Meaning:** The impacted node bools have been cleared for this XPM and all of its subtending nodes. To see the nodes affected, use the FAN command. To see the current list of impacted nodes, use the QIN command. This command can be used to clear the impacted node table if it was inadventantly set via the SAN command. **System or user actions:** Informational purposes.
Clear affected nodes FAILED. Check for swerrs and traps. **Meaning:**Indicates a problem with the software. Contact Nortel for support. **System or user actions:** Use the FAN command to see what nodes were likely impacted and compare to the QIN (impacted nodes) output. User should refer to the installation method to determine how to proceed.

MAP outputs with associated meanings and actions

CLEAR_AFFECTED_NODES
CLEAR_AFFECTED_NODES: Sets the rehome node bits for all nodes the are impacted by rehoming the given XPM, including its subtending nodes. Protected command for ABI Rehomes. --- Syntax: CLEAR_AFFECTED_NODES node Parameters: node Node number of XPM Parms: <XPM_NODE> {0 TO 4095} **Meaning:** Help associated with command. **System or user actions:** Informational purposes only.
Meaning: . **System or user actions:**
Meaning: **System or user actions:**

Example

Usage examples for command

Description of task:	
CAN 69	>can 69 This command will CLEAR the impacted node table bools for this XPM and all of its subtending nodes. Do you wish to continue? Please confirm ("YES", "Y", "NO", or "N"): >Y Node 69: LTC_NODE SMA2 1 Clear affected nodes PASSED. Use FIND_AFFECTED_NODES to see the nodes impacted.

Command: ABIREHOME: ADJUST_FRAME_SYNC/AFS

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

This command is used as a part of Installation Method 72-1639 “XPM - ABI Link Verification” to enable the ability to rehome an XPM from ENET/JNET C-side links to an ABI DS-512 off of an MG 9000.

Given the node number of the XPM to be rehomed, this command will cause the ABI cards to adjust their frame sync to that of the inactive XPM unit. This is one step in the process of verifying the DS-512 fiber connection of the XPM before the actual rehome occurs.

Command syntax

command parameters and variables

Command	Parameters and variables
ADJUST_FRAME_SYNC or AFS	node Node number of the XPM. Node number can be found by performing QueryPM while the XPM is POSTed at the map.
Parameters and variables	Description
node	<XPM_NODE> {0 to 4095}

Qualifications and warnings

None.

Responses

ADJUST_FRAME_SYNC responses

MAP outputs with associated meanings and actions

ADJUST_FRAME_SYNC
ADJUST_FRAME_SYNC: Sets the rehome node bits for all nodes the are impacted by rehoming the given XPM, including its subtending nodes. Protected command for ABI Rehomes. ---------- Syntax: ADJUST_FRAME_SYNC node Parameters: node Node number of XPM Parms: <XPM_NODE> {0 TO 4095} **Meaning:** Help associated with command. **System or user actions:** Informational purposes only.
This command must be enabled by TAS via the TASTOOLCI SET_ABI_REHOME_STATUS command. Please refer to the installation method. **Meaning:** The ABI REHOME installation method has not been enabled. TAS must enable the process via the TASTOOLCI SET_ABI_REHOME_STATUS (ON or RESUME) commands before proceeding. **System or user actions:** If user wishes to proceed with the command, TAS will have to enable the tool.

MAP outputs with associated meanings and actions

ADJUST_FRAME_SYNC

```
ADJUST_FRAME_SYNC:  Sets the rehome node bits for all nodes
                     the are impacted by rehoming the given XPM,
                     including its subtending nodes.
                     Protected command for ABI Rehomes.
-----------------------------------------------------------------
Syntax: ADJUST_FRAME_SYNC node

Parameters:  node     Node number of XPM

Parms: <XPM_NODE> {0 TO 4095}
```

Meaning: Help associated with command.

System or user actions: Informational purposes only.

This command will RESET the frame sync on the ABI cards.Both ABI cards must be locked and unlocked to recover from this condition.

Do you wish to continue?

Meaning: Adjust the frame sync on the ABI cards to sync to the inactive XPM unit.

System or user actions: Enter the correct response.

AFS command aborted by user.

Meaning: Command was aborted by the user and no action has been taken.

System or user actions: Informational purposes only.

Meaning: .

System or user actions:

Pass result

Meaning:

System or user actions: Informational purposes.

No reply received from ABI. Adjust Frame Sync FAILED. Check for swerrs and traps.

Meaning: Indicates a problem with the software. Contact Nortel for support.

System or user actions: Use the FAN command to see what nodes were likely impacted and compare to the QIN (impacted nodes) output. User should refer to the installation method to determine how to proceed.

Example

Table 1 Usage examples for command

Description of task:	
AFS 69	>afs 103 Node 103: LTC_NODE SMA2 7 (SMA2 7) This command will RESET the frame sync on the ABI cards. Both ABI cards must be locked and unlocked to recover from this condition. Do you wish to continue? Please confirm ("YES", "Y", "NO", or "N"): >y

Command: ABIREHOME: SEND_GWC_STATIC_DATA/GWCSD

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

This command is used as a part of Installation Method 72-1682 "XPM to MG 9000 DS-512 Rehome" to enable the ability to rehome an XPM from ENET/JNET C-side links to an ABI DS-512 off of an MG 9000.

Given the node number of the rehomed XPM, clears the impacted node table bits for the XPM and all of its subtending nodes, found by recursively searching its p-side links.

Command syntax

command parameters and variables

Command	Parameters and variables
SEND_GWC_STATIC_DATA or GWCSD	n/a

Qualifications and warnings

None.

Responses

SEND_GWC_STATIC_DATA responses

MAP outputs with associated meanings and actions

SEND_GWC_STATIC_DATA
SEND_GWC_STATIC_DATA: Sets the rehome node bits for all nodes the are impacted by rehoming the given XPM, including its subtending nodes. Protected command for ABI Rehomes. --- Syntax: SEND_GWC_STATIC_DATA Parms: none **Meaning:** Help associated with command. **System or user actions:** Informational purposes only.
This command must be enabled by TAS via the TASTOOLCI SET_ABI_REHOME_STATUS command. Please refer to the installation method. **Meaning:** The ABI REHOME installation method has not been enabled. TAS must enable the process via the TASTOOLCI SET_ABI_REHOME_STATUS (ON or RESUME) commands before proceeding. **System or user actions:** If user wishes to proceed with the command, TAS will have to enable the tool.
This command will send limited static data updates to the GWCs affected by the XPM Rehomes. Do you wish to continue? **Meaning:** Command to send the static data from the XACore to the GWC after a NoRestartSwact. **System or user actions:** Enter the correct response.
GWCSD command aborted by user. **Meaning:** Command was aborted by the user and no action has been taken. **System or user actions:** Informational purposes only.

Example

Usage examples for command

Description of task:	
GWCSD	>gwcsd This command will send limited static data updates to the GWCs affected by the XPM Rehomes. Do you wish to continue? Please confirm ("YES", "Y", "NO", or "N"): >y >

Command: ABIREHOME: ABORT_GWC_STATIC_DATA/ABORT_GWCSD

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

This command is used as a part of Installation Method 72-1682 "XPM to MG 9000 DS-512 Rehome" to enable the ability to rehome an XPM from ENET/JNET C-side links to an ABI DS-512 off of an MG 9000.

Given the node number of the rehomed XPM, clears the impacted node table bits for the XPM and all of its subtending nodes, found by recursively searching its p-side links.

Command syntax

command parameters and variables

Command	Parameters and variables
ABORT_GWC_STATIC_DATA or ABORT_GWCSD	n/a

Qualifications and warnings

None.

Responses

ABORT_GWC_STATIC_DATA responses

MAP outputs with associated meanings and actions

ABORT_GWC_STATIC_DATA
SEND_GWC_STATIC_DATA: Sets the rehome node bits for all nodes the are impacted by rehoming the given XPM, including its subtending nodes. Protected command for ABI Rehomes. --- Syntax: SEND_GWC_STATIC_DATA Parms: none **Meaning:** Help associated with command. **System or user actions:** Informational purposes only.
This command must be enabled by TAS via the TASTOOLCI SET_ABI_REHOME_STATUS command. Please refer to the installation method. **Meaning:** The ABI REHOME installation method has not been enabled. TAS must enable the process via the TASTOOLCI SET_ABI_REHOME_STATUS (ON or RESUME) commands before proceeding. **System or user actions:** If user wishes to proceed with the command, TAS will have to enable the tool.
This command will UNDO the limited static data updates which have been previously sent to the GWCs affected by the XPM Rehomes. This command should only be used in conjunction with XACore AbortSwact. Do you wish to continue? **Meaning:** This command will UNDO the limited static data updates which have been previously sent to the GWCs affected by the XPM Rehomes. **System or user actions:** Enter the correct response.
ABORT_GWCSD command aborted by user. **Meaning:** Command was aborted by the user and no action has been taken. **System or user actions:** Informational purposes only.

Example

Usage examples for command

Description of task:	
ABORT_GWCSD	This command will UNDO the limited static data updates which have been previously sent to the GWCs affected by the XPM Rehomes. This command should only be used in conjunction with XACore AbortSwact. Do you wish to continue? Please confirm ("YES", "Y", "NO", or "N"): >y >

Security

Not Applicable.

Configuration Walkthrough

Walkthrough XPM Rehome to ABI Networks

This feature is a step in the overall Installation Method 72-1682 "XPM to MG 9000 DS-512 Rehome." This feature provides the functionality to change an XPM from ENET C-side links to DS-512 ABI links. The use of this feature is restricted and must be activated by appropriate Nortel personnel. A general sequence of events follow however, for full details please refer to the Installation method mentioned above.

1. Enter the TASTOOLCI tool and use command ‘set_abi_rehome_status on’ to enable the table control functionality.
2. Split the Core
3. On Inactive Core, Busy and Offline the XPM to be rehomed
4. On Inactive Core, position on the XPM to be rehomed via Table LTCINV
5. Change the tuple by removing the C-side links ($) and adding the optional parameter EXTDS512. Please refer to “ Before and After rehome view of the XPM in table LTCINV” on page 997.
6. Repeat steps 4 and 5 for each XPM to be rehomed

7. Provision/create the VMG on the ABI board via the MG9K-EM
8. Enable the VMG via the MG9K-EM
9. On Active Core, Busy and Offline the rehomed XPM

   Note: Call-P Outage Starts
10. Move fibers and following the steps in the installation method, perform the NoRestartSwact to activate the table control changes.
11. On newly Active Core, Busy and RTS the XPM(s)

Before and After rehome view of the XPM in table LTCINV

Before view of the LGC tuple with ENET links and no EXTDS512 option.

```
TABLE: LTCINV
LTCNAME ADNUM FRTYPE FRNO SHPOS FLOOR ROW FRPOS EQPEC LOAD EXECTAB CSLNKTAB
OPTCARD TONESET PROCPEC EXTLINKS E2LOAD OPTATTR PEC6X40 EXTINFO
----------------------------------------------------------------------------------------------------------------------
LGC 1 1001 LTEI 2 18 1 CC 2 6X02NA QLI19AZ (POTS POTSEX) (KEYSET KSETEX) $ (0 12 1 0)
(0 12 1 1) (0 12 1 2) (0 12 1 3) (0 12 1 4)(0 12 1 5) (0 12 1 6) (0 12 1 7) (0 12 1 8) (0 12 1 9) (0 12 1 10)
(0 12 1 11) (0 12 1 12) (0 12 1 13) (0 12 1 14) (0 12 1 15) $ (UTR15 ) (MSG6X69 ) (CMR13 CMR10A)
(ISP 16) $ NORTHAM SX05AA $ SX05AA $ 0 SXFWAE08 $ 6X40FB N
```

After view of the LGC tuple after the change operation has rehomed the XPM to the ABI DS-512 interface. The XPM now has ABI links (derived by the system, user entered a “$”) and the EXTDS512 options.

```
TABLE: LTCINV
LTCNAME ADNUM FRTYPE FRNO SHPOS FLOOR ROW FRPOS EQPEC LOAD EXECTAB CSLNKTAB
OPTCARD TONESET PROCPEC EXTLINKS E2LOAD OPTATTR PEC6X40 EXTINFO
----------------------------------------------------------------------------------------------------------------------
LGC 20 1021 LTEI 2 19 1 CC 2 6X02NA QLI17AY1 (POTS POTSEX) $ (4 0) (4 1) (4 2) (4 3) $
(MSG6X69 ) $ NORTHAM SX05AA $ SX05AA $ 0 SXFWAE08 (EXTDS512 47 142 23 24 GWC 9) $ 6X40FA N
```

Walkthrough ABI XPM Rehost to another GWC

The ability to rehost (move) an ABI XPM from one hosting GWC to another GWC is independent from the XPM rehome operation. A general sequence of the steps to rehost ABI XPMs follows:

1. Busy and Offline the XPM to be rehosted
2. On the MG9K, Busy (lock) the VMG on the ABI via the MG9K-EM
3. In Table LTCINV, position on the XPM tuple to be rehosted
4. Change the hosting GWC in the EXTDS512 optional attribute, field 18 OPTATTR. Ensure static data sent, removing XPM from currently hosting GWC and adding XPM to the newly hosting GWC.

   Note: XPM can only be moved to a GWC in the same SAM21 shelf.
5. On the MG9K, change the VMG provisioning on the ABI board pointing to the newly hosting GWC via MG9K-EM.
6. Unlock the VMG on the ABI board via the MG9K-EM

7. Busy and RTS the rehosted XPM

Before and After view of the Rehosted ABI XPM

Before view of the LGC tuple with XPM hosted on GWC 2.

TABLE: LTCINV
LTCNAME ADNUM FRTYPE FRNO SHPOS FLOOR ROW FRPOS EQPEC LOAD EXECTAB CSLNKTAB
OPTCARD TONESET PROCPEC EXTLINKS E2LOAD OPTATTR PEC6X40 EXTINFO

LGC 20 1021 LTEI 2 19 1 CC 2 6X02NA QLI17AY1 (POTS POTSEX) $ (4 0) (4 1) (4 2) (4 3) $
(MSG6X69) $ NORTHAM SX05AA $ SX05AA $ 0 SXFWAE08 **(EXTDS512 47 142 23 24 GWC 2)** $ 6X40FA N

After view of the LGC tuple now rehosted on GWC 7

TABLE: LTCINV
LTCNAME ADNUM FRTYPE FRNO SHPOS FLOOR ROW FRPOS EQPEC LOAD EXECTAB CSLNKTAB
OPTCARD TONESET PROCPEC EXTLINKS E2LOAD OPTATTR PEC6X40 EXTINFO

LGC 20 1021 LTEI 2 19 1 CC 2 6X02NA QLI17AY1 (POTS POTSEX) $ (4 0) (4 1) (4 2) (4 3) $
(MSG6X69) $ NORTHAM SX05AA $ SX05AA $ 0 SXFWAE08 **(EXTDS512 47 142 23 24 GWC 7)** $ 6X40FA N

Product = CS 2000

A00003604 -- OC3 Channelized Support (UA-AAL1)

This new feature will allow the user to provision the carrier (only for SONET and not for SDH) in “Channelized” mode in addition to the previously existing functionality.

Carrier Provisioning Page

This page is used by the user for provisioning the carrier. It is invoked by selecting the DCC card and clicking on the “Carrier à Provisioning” option listed in the Menu. A message “Please select Signal Type and Payload Width for Provisioning the carrier” is displayed to the user.

This page is divided in two sections. Section one contains “Signal Type”, “Payload Width”, “Host Name”, “Line Coding”, “Line Type”, “Query” button and “Submit” button. And the second section contains the details about the STS1 paths.

Initially, the page comes up with only the first section. Only the “Signal Type” field in this section is enabled. The first two figures that follow show the Carrier Provisioning page with only the first section. “Carrier Provision Screen having “Payload Width” as “OC3”” on page 1002 shows the Carrier Provisioning page with both the sections.

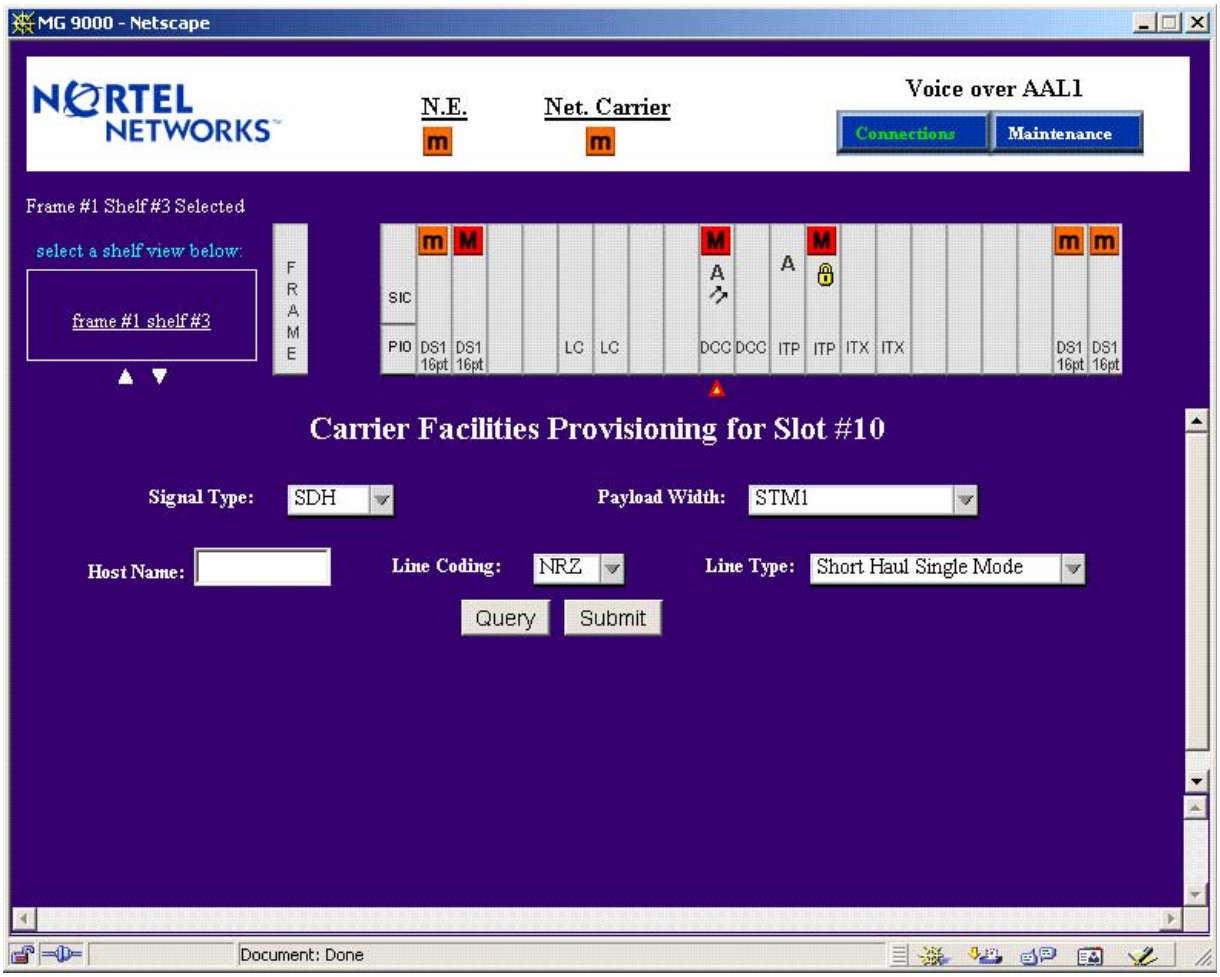
The “Query” button remains enabled always.

SDH Signal Type

If the user selects SDH as the “Signal Type”, the “Payload Width” will contain only STM1 value. The user in this case has to only give a proper “Host Name” and click on the “SUBMIT” button. For this case the second section will not be shown to the user.

The following figure shows the screen shot when SDH is selected as “Signal Type”.

Carrier Provisioning Screen having “Signal Type” as “SDH”



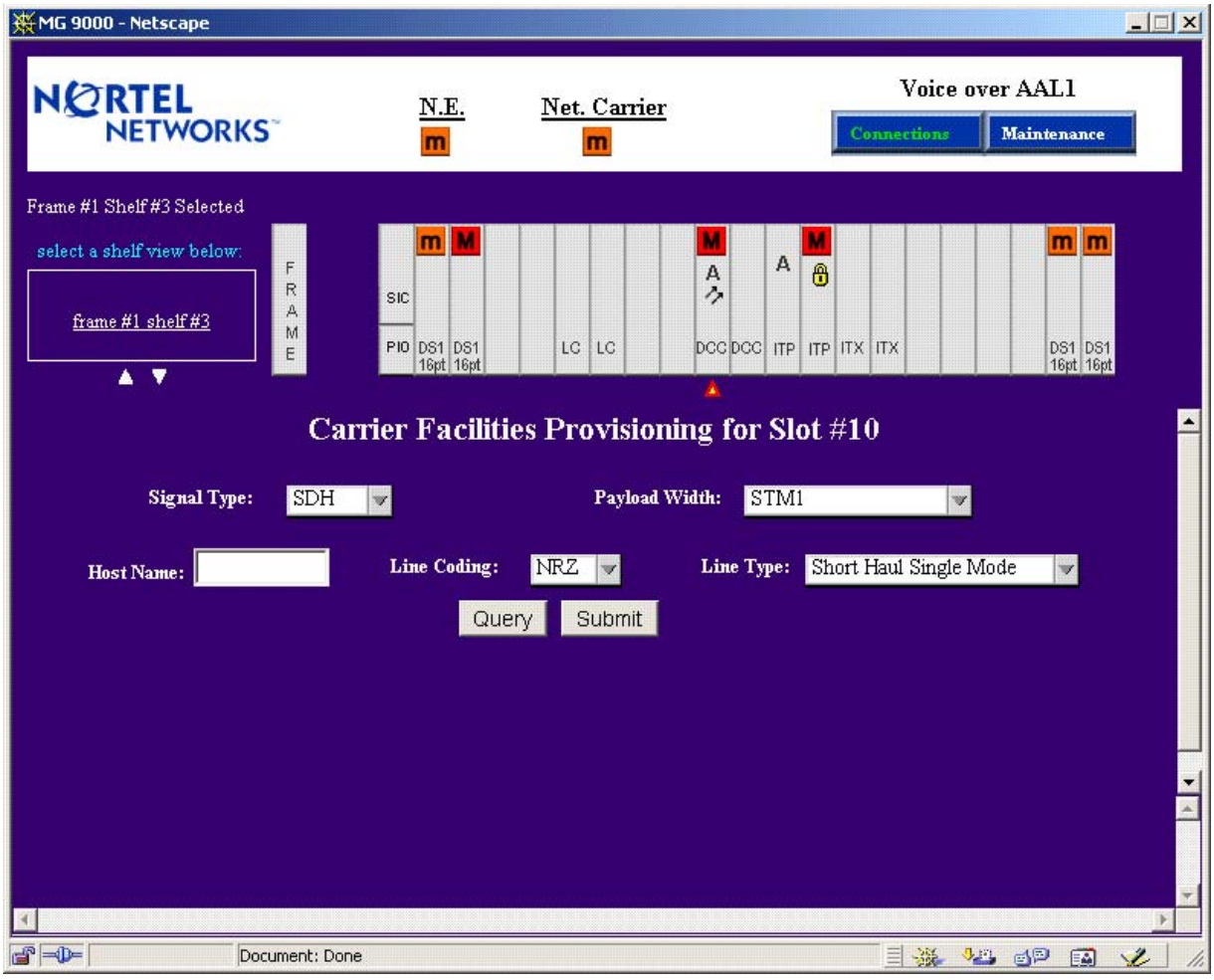
SONET Signal Type

If the user selects SONET as the “Signal Type”, the “Payload Width” list box will be enabled with “-------” as the default value and “OC3 Concatenated”, “OC3” the other values.

OC3 Concatenated Payload Width

On selecting “OC3 Concatenated”, the user has to only give a proper “Host Name” and click on the “SUBMIT” button. For this case the second section will not be shown to the user. The following figure shows the screen shot when “OC3 Concatenated” is selected as the “Payload Width”.

Carrier Provision Screen having “Payload Width” as “OC3 Concatenated”



OC3 Payload Width

On selecting “OC3” as the “Payload Width”, the second section is shown to the user. The “SUBMIT” button of the first section still remains disabled only on IE5.5. For the other browsers, click on this SUBMIT button gives a

message saying – ‘Submit the path details by clicking the submit button against the path’.

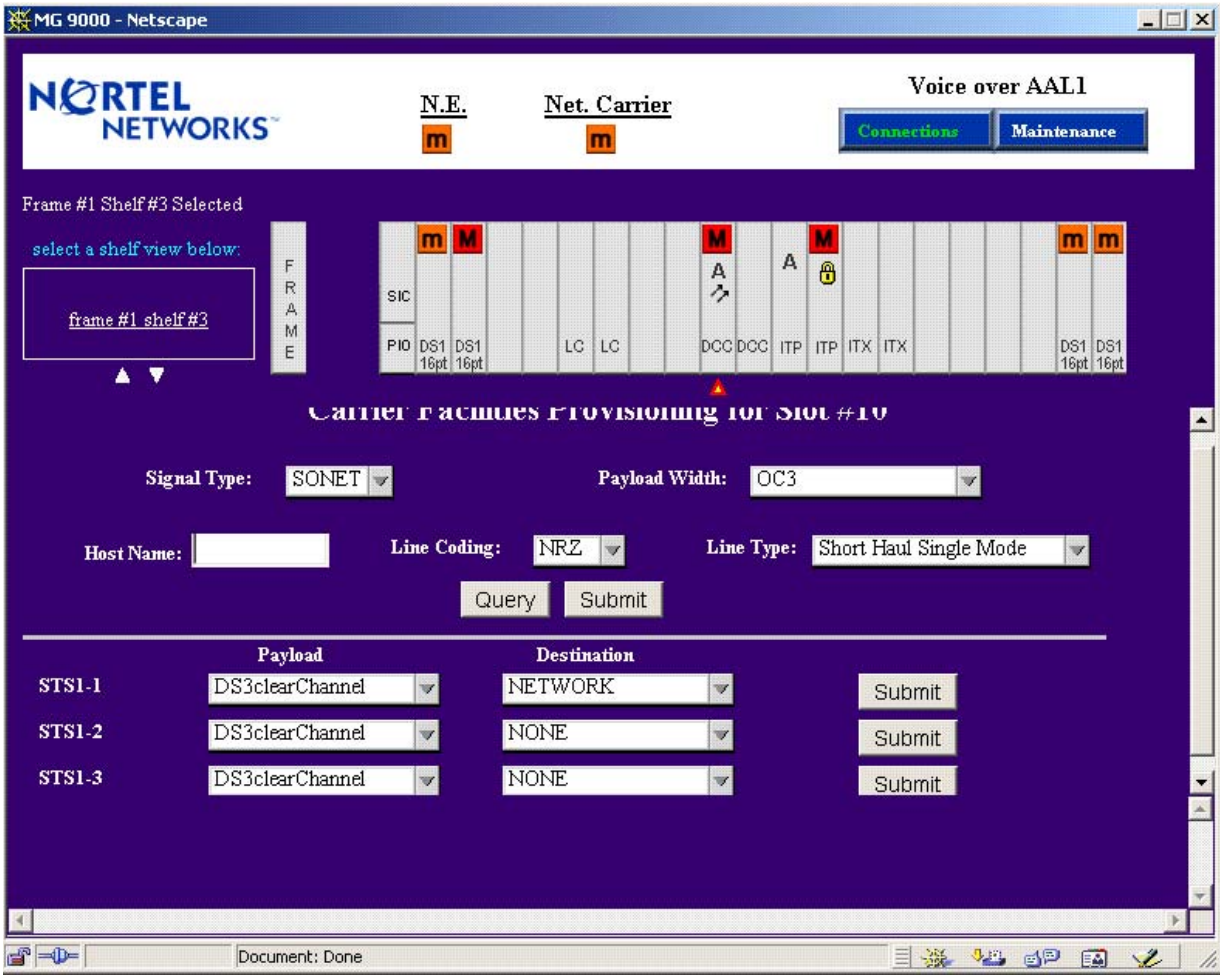
The STS1-1 path of the second section will have the default values of “Payload” and “Destination” as “Ds3clearChannel” and “NETWORK” respectively. The other STS1 paths will have the default values of “Payload” and “Destination” as “Ds3ClearChannel” and “NONE” respectively.

After entering a valid “Host Name”, the user has to click on any one of the “SUBMIT” buttons in second section.

If the LCI user selects “sts1” option under the “Payload” list box and clicks on the corresponding “SUMBIT” button, then the carrier will not carry any DS3 Payload though it will be configured in “OC3” mode.

If the user wishes to designate another STS1 path as "Network", then the existing "Network" STS1 path must be changed to "None". After this, the user may choose a different "Network" carrier. An error message “Only one STS1 Path may be designated as a Network carrier” is displayed for this case. The following figure shows the screen shot when OC3 is selected as “Payload Width”.

Carrier Provision Screen having “Payload Width” as “OC3”



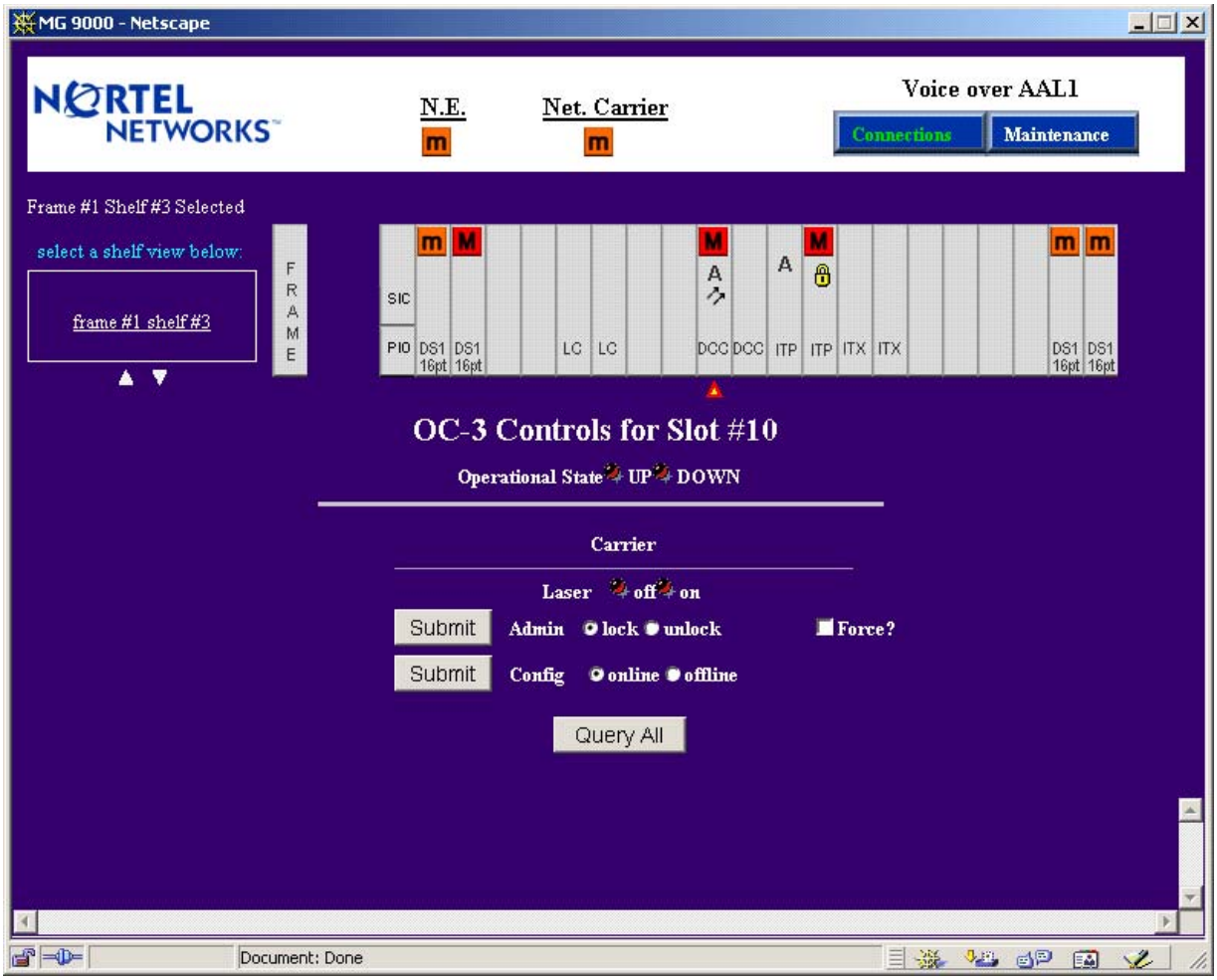
Carrier Controls Page

This page is used by the user for locking/unlocking the carrier. It is invoked by selecting the DCC card and clicking on the “Carrier à Controls” option listed in the Menu.

Carrier provisioned in “SDH” and “OC3 Concatenated” mode

In this case, the old “Carrier Controls” page is displayed to the user as shown in the following figure. There is no change in the behavior of this page.

Carrier Controls Screen for SDH and OC3c mode



Carrier provisioned in “OC3” mode

In this case an alternative “Carrier Controls” page is displayed to the user as shown in the following figure.

This page has individual options for locking/unlocking the “OC3 Section/Line” and the three STS1 paths.

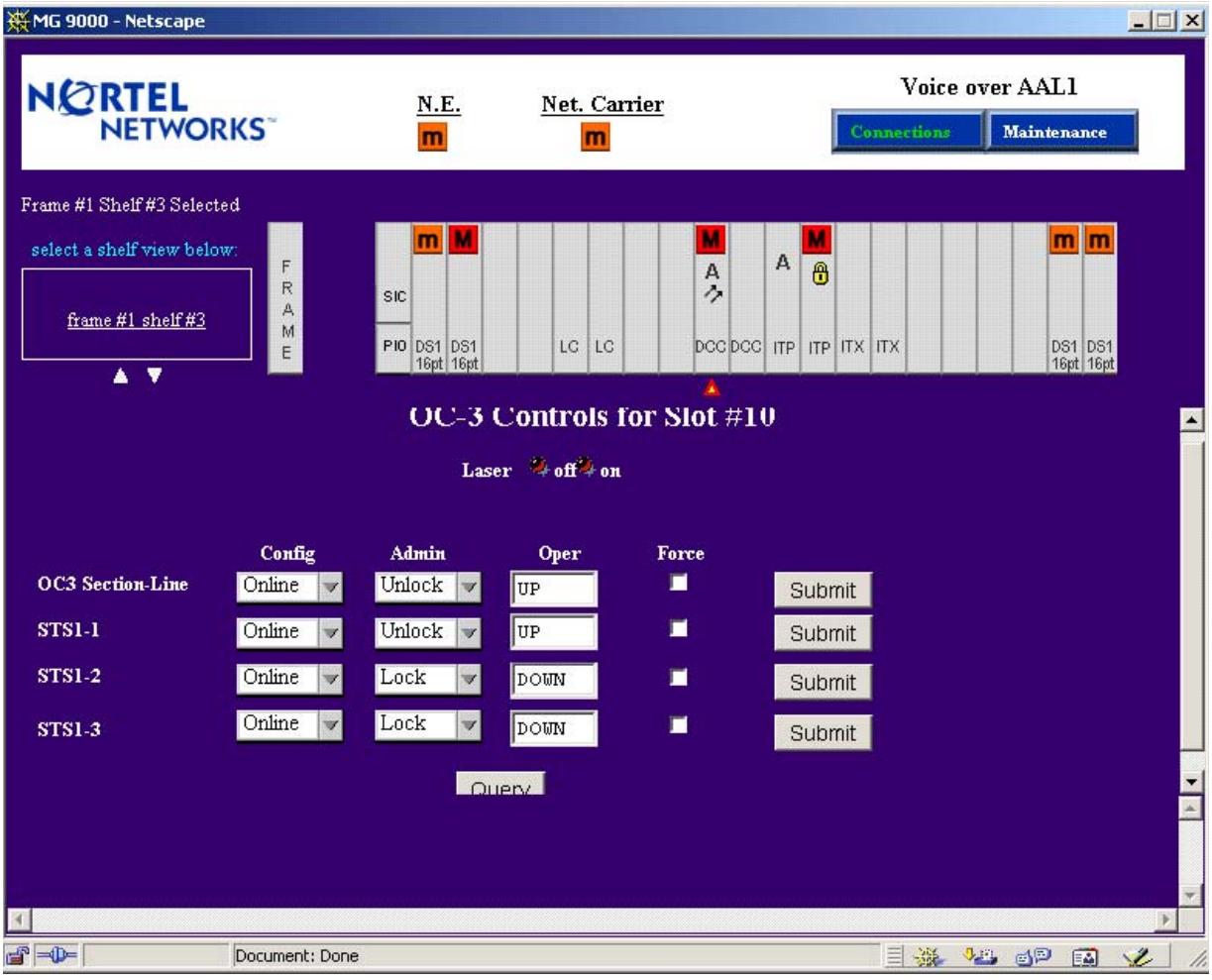
Carrier lock symbol is removed from the DCC card when “OC3 Section/Line” and one of the STS1 paths is unlocked. Under all other conditions, the carrier lock symbol is retained on the DCC card.

Specific error messages are displayed on the active card. The messages guide the user to take appropriate steps while performing any admin/config operations.

Say if the user tries to unlock more than one STS1 paths, then the message “Invalid operation. Only one STS1 Path can be unlocked at any given time” is shown to user.

When the user performs any operations on Controls page, on an inactive card, a general success/failure message is displayed.

Carrier Controls Screen for OC3 mode



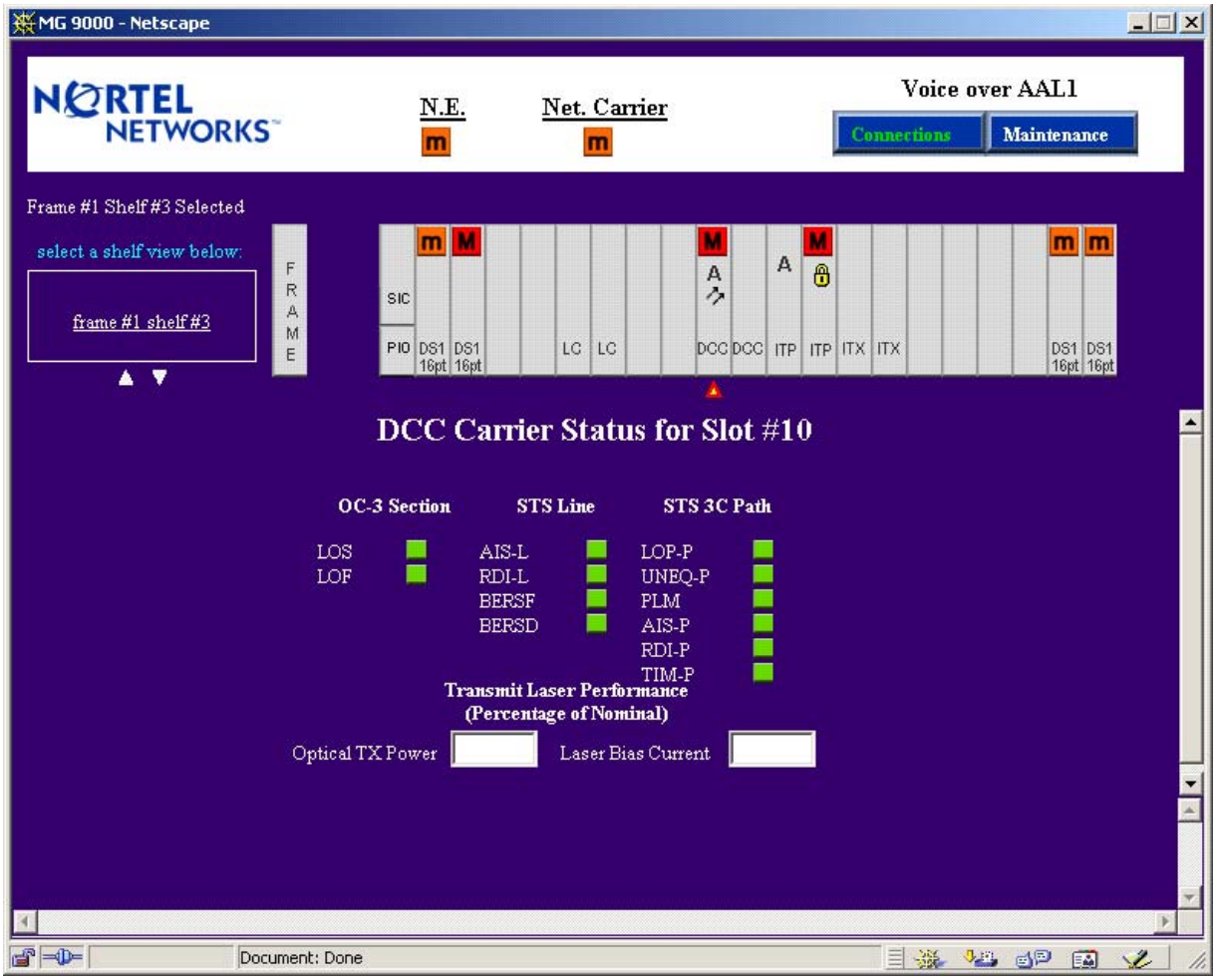
Carrier Status Page

This page is used by the user for viewing the status of the carrier. It is invoked by selecting the DCC card and clicking on the “Carrier à Status” option listed in the Menu.

Carrier provisioned in “SDH” and “OC3 Concatenated” mode

In this case, the old “Carrier Status” page is displayed to the user as shown in the following figure. There is no change in the behavior of this page.

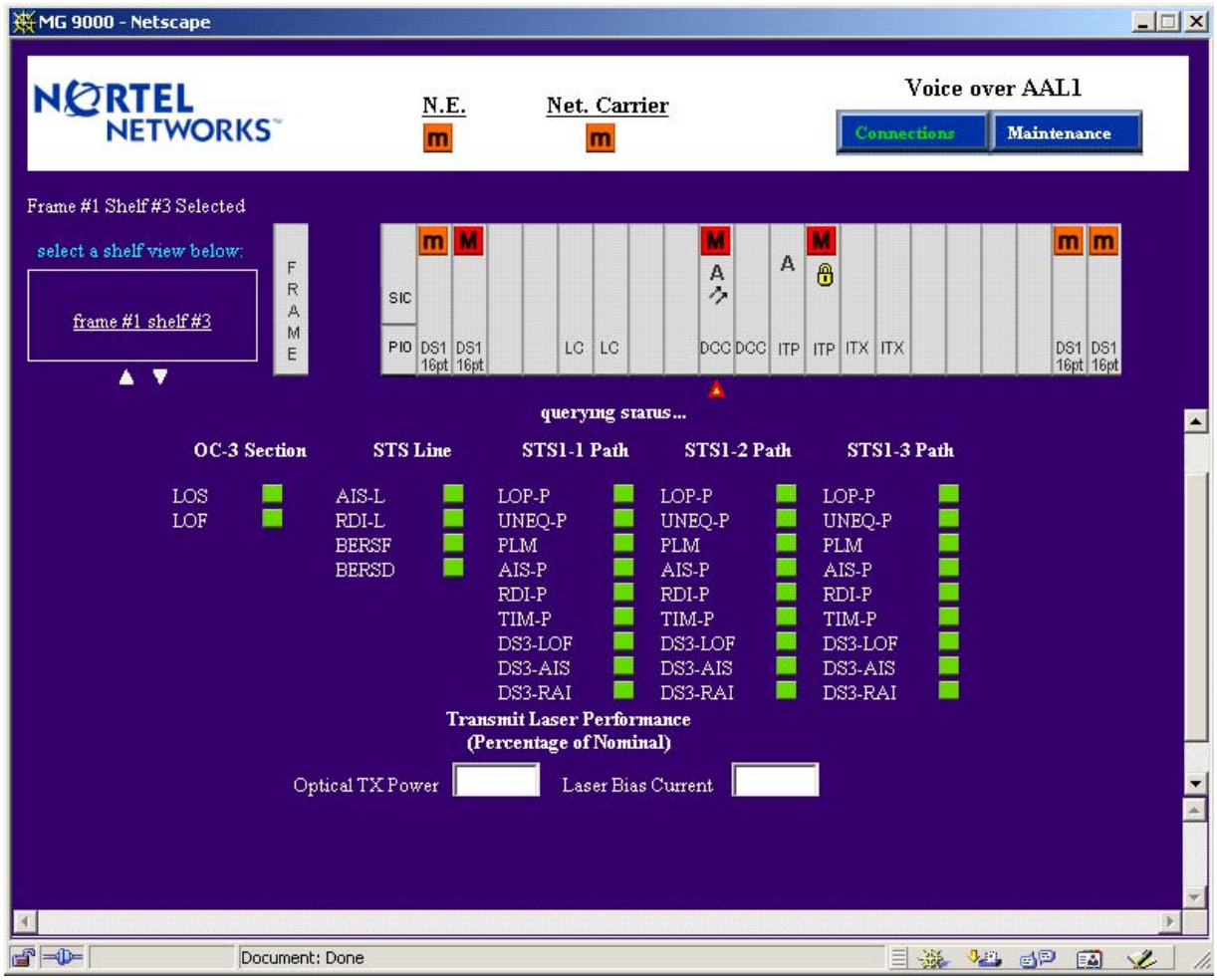
Carrier Status Screen for SDH and OC3c mode



Carrier provisioned in “OC3” mode with DS3 Payload

In this case an alternative “Carrier Status” page is displayed to the user as shown in the following figure 11. This page will show “OC3 Section”, “STS Line”, 3 STS1 Path and DS3 Path alarms.

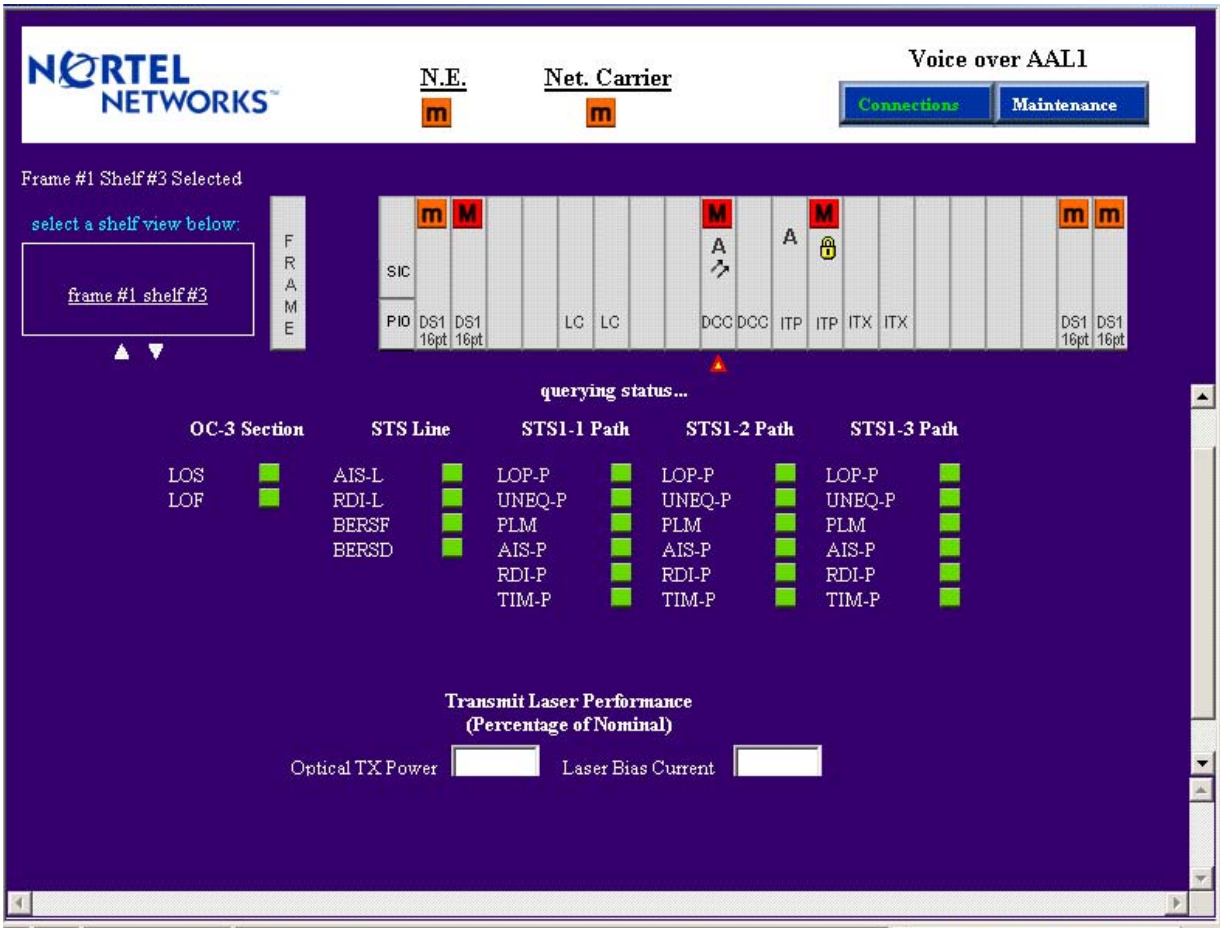
Carrier Status Screen for OC3 mode with DS3 Payload



Carrier provisioned in “OC3” mode without DS3 Payload

In this case an alternative “Carrier Status” page is displayed to the user as shown in the following figure. This page will show “OC3 Section”, “STS Line”, 3 STS1 Path alarms.

Carrier Status Screen for OC3 mode without DS3 Payload



General

When the LCI user tries to invoke “Carrier Controls” and “Carrier Status” pages prior to provisioning the carrier, a message “Operation cannot be performed as the Carrier is not yet provisioned” is shown.

Hardware Requirements or Dependencies

There will be no additional hardware requirements introduced as a result of this feature.

Software Requirements or Dependencies

There will be no additional software requirements introduced as a result of this feature.

Limitations and restrictions

Upon feature completion, there will not be any visible functional limitations and restrictions on the LCI that may affect the end user.

Interactions

No change.

Applicable customer facing sections

Fault Management:

Logs	____N/A__
Alarms	____X____

Configuration:

Data Schema	____X_____
User Interface	____X_____
Element Management	____N/A____
Security	____N/A____
Service Order	____N/A____
Office Parameters	____N/A____

Accounting (includes AMA billing)	____N/A____
Performance (includes operational measurements)	____N/A____

Glossary

Term	Description
LCI	Local Craft Interface
DCC	Data Controller Card

Product = CS 2000

A00003617 -- AlarmD Integration (PT-AAL1)

Functional Description

This feature serves the following purposes:

1. Use alarmD as the reporting (writing to customer logs and lighting alarm lights) and storage mechanism for all platform related alarms.
2. In addition to existing fault monitors, provide new monitors that will monitor the following system components.

- CPU load average
- Memory usage
- Swap space

In addition to this, the existing file system monitor will be enhanced to monitor a lot more than just file system usage.

3 It will provide interfaces to turn on, turn off and query alarm lights on Netra 1400 and N240 platforms. A command line interface to do the same will also be provided.

4 A command to query all the faults on a system (an aggregate view of the system) will be included. This command can be invoked from command line or through the cli interface.

Applicable customer facing sections

Fault Management

Not applicable	_____
Logs	___X __
Alarms	___X__

Configuration

Not applicable	_____
Data Schema/MIBs	_____
User Interface	__X___
GUI	_____
Element Management	_____
Security	_____
Service Order	_____
Office Parameters	_____
SOC	_____
Upgrades impact	_____

Accounting (includes AMA billing)	_____
Not Applicable	___X___
Billing changes	_____

Performance _____

Not Applicable ___X___

Operational Measurements _____

Performance Measurements _____

Hardware Requirements or Dependencies

Certain components of this feature will be supported only on field grade hardware.

When an alarm is raised or cleared, the corresponding alarm light will be turned on and off only on T1400s and N240s.

Logs will be generated on other platforms. However, the turning on, turning off and querying the state of a light will be supported only on T1400s and N240s.

Software Requirements or Dependencies

No requirements identified at this time.

Limitations and restrictions

None

Interactions

A00001953 - Common Platform Capabilities - introduced a set of fault monitors. The reporting mechanism used by these monitors was through two separate calls. The first call was to write a customer log. The second was to turn on/ off an alarm light. The state of a fault was not maintained.

As part of this feature, alarmD will be used to write logs and light a light as part of a single call. It will also store the state of a fault associated with a particular monitor. These faults will be aggregated to provide a blanket view of the system at an instant in time. Existing monitors (the ones provided as part of A00001953) will be modified to make use of the capability that alarmD provides.

Fault Management for A00003617

Logs

CPU Related Logs

Log related to a Major Alarm

3X20 ** SPFS310 JUL17 14:53:12 0093 TBL SPFS Fault

Location: SSPFS - <hostname>

Time: Thu Jul 17 14:53:11 EDT 2003

State: Raised

Category: Equipment

Cause: CPU Load Average threshold exceeded

ProbableCause: thresholdCrossed

ComponentId: CPU

Description: CPU load average is 6.3

Recovery Action: Check System for run away processes.

Log related to Minor Alarm

3X20 * SPFS310 JUL17 14:53:12 0093 TBL SPFS Fault

Location: SSPFS - <hostname>

Time: Thu Jul 17 14:53:11 EDT 2003

State: Raised

Category: Equipment

Cause: CPU Load Average threshold exceeded

ProbableCause: thresholdCrossed

ComponentId: CPU

Description: CPU load average is 4.3

Recovery Action: Check System for runaway processes.

Log associated with a clear

3X20 SPFS310 JUL17 22:20:05 0812 INFO SPFS Fault Cleared

Location: SSPFS - <hostname>

Time: Thu Jul 17 22:20:04 EDT 2003

State: Cleared

Category: Equipment

Component Id: CPU

Description: No CPU problems reported at this time

Swap Space

Logs Related to Major Alarms

3X20 ** SPFS310 JUL17 14:53:12 0093 TBL SPFS Fault

Location: SSPFS - <hostname>

Time: Thu Jul 17 14:53:11 EDT 2003

State: Raised

Category: Equipment

Cause: Swap Space usage threshold exceeded

ProbableCause: thresholdCrossed

ComponentId: SwapSpace

Description: Less than 20% of swap space available

Recovery Action: Contact Support.

Logs Related To Critical Alarms

3X20 ** SPFS310 JUL17 14:53:12 0093 TBL SPFS Fault

Location: SSPFS - <hostname>

Time: Thu Jul 17 14:53:11 EDT 2003

State: Raised

Category: Equipment

Cause: Swap Space usage threshold exceeded

ProbableCause: thresholdCrossed

ComponentId: SwapSpace

Description: Less than 10% of swap space available

Recovery Action: Contact Support.

Logs Related To Clears

3X20 SPFS310 JUL17 22:20:05 0812 INFO SPFS Fault Cleared

Location: SSPFS - <hostname>

Time: Thu Jul 17 22:20:04 EDT 2003

State: Cleared

Category: Equipment

Component Id: Swap Space

Description: Over 20% of swap space available.

Memory Usage

Logs Related to Minor Alarms

3X20 * SPFS310 JUL17 14:53:12 0093 TBL SPFS Fault

Location: SSPFS - <hostname>

Time: Thu Jul 17 14:53:11 EDT 2003

State: Raised

Category: Equipment

Cause: Memory usage threshold exceeded

ProbableCause: thresholdCrossed

ComponentId: Memory

Description: Scan Rate Exceeded 20

Recovery Action: Contact Support

Logs Related to Major Alarms

3X20 ** SPFS310 JUL17 14:53:12 0093 TBL SPFS Fault

Location: SSPFS - <hostname>

Time: Thu Jul 17 14:53:11 EDT 2003

State: Raised

Category: Equipment

Cause: Memory usage threshold exceeded

ProbableCause: thresholdCrossed

ComponentId: Memory

Description: Scan Rate Exceeded 50

Recovery Action: Contact Support

Logs Related To Clears

3X20 SPFS310 JUL17 22:20:05 0812 INFO SPFS Fault Cleared

Location: SSPFS - <hostname>

Time: Thu Jul 17 22:20:04 EDT 2003

State: Cleared

Category: Equipment

Component Id: Memory

Description: Reported Scan Rate is less than 20. No memory problems reported at this time.

File System Monitor

Logs Related To Major Alarms

3X20 ** SPFS350 JUL17 14:53:12 0093 TBL SPFS Fault

Location: SSPFS - <hostname>

Time: Thu Jul 17 14:53:11 EDT 2003

State: Raised

Category: Software

Cause: FileSystem Not mounted

ProbableCause: SHM: check probable cause

ComponentId: FSMon

Description: Filesystem <mountpoint> not mounted

Recovery Action: Contact Support.

3X20 ** SPFS350 JUL17 14:53:12 0093 TBL SPFS Fault

Location: SSPFS - <hostname>

Time: Thu Jul 17 14:53:11 EDT 2003

State: Raised

Category: Software

Cause: File System usage threshold exceeded

ProbableCause: thresholdCrossed

ComponentId: FSMon

Description: Less than 20% of <Filesystem> available

Recovery Action: Remove files from <Filesystem>

Critical Alarms

3X20 *** SPFS350 JUL17 14:53:12 0093 TBL SPFS Fault

Location: SSPFS - <hostname>

Time: Thu Jul 17 14:53:11 EDT 2003

State: Raised

Category: Software

Cause: File system usage threshold exceeded

ProbableCause: thresholdCrossed

ComponentId: FSMon

Description: Less than 10% of <File System> available

Recovery Action: Remove files immediately from <Filesystem>

3X20 *** SPFS350 JUL17 14:53:12 0093 TBL SPFS Fault

Location: SSPFS - <hostname>

Time: Thu Jul 17 14:53:11 EDT 2003

State: Raised

Category: Software

Cause: File system write failed

ProbableCause: fileError

ComponentId: FSMon

Description: O_SYNC write to <File System> Failed

Recovery Action: Contact support

3X20 *** SPFS350 JUL17 14:53:12 0093 TBL SPFS Fault

Location: SSPFS - <hostname>

Time: Thu Jul 17 14:53:11 EDT 2003

State: Raised

Category: Software

Cause: File system read failed

ProbableCause: fileError

ComponentId: FSMon

Description: O_DIRECT read from <File System> failed

Recovery Action: Contact Support.

Minor Alarm

3X20 * SPFS350 JUL17 14:53:12 0093 TBL SPFS Fault

Location: SSPFS - <hostname>

Time: Thu Jul 17 14:53:11 EDT 2003

State: Raised

Category: Software

Cause: File System usage threshold exceeded

ProbableCause: thresholdCrossed

ComponentId: FSMon

Description: Less than 25% of <Filesystem> available

Recovery Action: Remove files from <Filesystem>

Alarm Clears

3X20 SPFS350 JUL17 22:20:05 0812 INFO SPFS Fault Cleared

Location: SSPFS - <hostname>

Time: Thu Jul 17 22:20:04 EDT 2003

State: Cleared

Category: Software

Component Id: FSMon

Description: No File System related problems reported at this time.

Cli interface to query platform state.

A cli interface to query the “state” of the system will be made available.

The interface will allow the user to query a comprehensive state of the system (this includes information about all monitors registered with AlarmD) or just the pieces that have faults tagged against them; both will be available.

Both these commands can be invoked either from cli or directly from the command line.

The output of these commands has not been defined fully yet. In time, this document will be updated to reflect the output of these commands.

The anticipated output looks like this:

The cli interface to these commands will be as shown below:

Step 1: Type in cli

```
> cli
```

This brings up the following menu:

```
Command Line Interface

 1 - View

 2 - Configuration

 3 - Other


 X - exit
```

```
select - 2
```

Step 2: Select choice 2 (Configuration) from the menu. This will bring up the following options.

```
Platform Monitor Status

1 - all Monitor

2 - faults
```

Configuration

1 - NTP Configuration

2 - Apache Proxy Configuration

3 - DCE Configuration

4 - OAMP Application Configuration

5 - CORBA Configuration

6 - IP Configuration

7 - DNS Configuration

8 - Syslog Configuration

9 - Database Configuration

10 - NFS Configuration

11 - Bootp Configuration

12 - Restricted Shell Configuration

13 - Security Services Configuration

14 - Login Session

15 - Location Configuration

16 - Cluster Configuration

17 - Succession Element Configuration

18 - snmp_poller (SNMP Poller Configuration)

X - exit

select - 17

Step 3: Select 17 (Succession element configuration). That will bring up the following menu

Succession Element Configuration

1 - RESMON Application Configuration

2 - NPM Application Configuration

3 - PSE Application Configuration

4 - OMPUSH Application Configuration

X - exit

select - 1

Step 4: Select 1 (Resmon Aplication configuration).

RESMON Application Configuration

1 - queryFaults (Query all faults on the box)

2 - enableLocalLogs (Enable Local Logging Of Faults)

3 - disableLocalLogs (Disable Local Logging Of Faults)

X - exit

select - 1

Step 5: Select 1 (Query Faults).

If there are no alarms on the box the output will look like this

=== Executing "queryFaults"

Alarm database does not conatin Faulted Nodes

=== "queryFaults" completed successfully

If alarms are raised, the output will look like this (sample output)

```
** SPFS310 NOTICE: bge2: link down
        Network Interface down
        Tue Mar 30 17:31:58 2004

 ** SPFS310 NOTICE: bge0: link down
        Network Interface down
        Tue Mar 30 17:32:02 2004
```

Cli interface to turn off local logging

Run through steps 1-4 from “Cli interface to query platform state.” on page 1018.

In the RESMON Application Configuration menu ,select 3 (disableLocalLogs).

RESMON Application Configuration

1 - queryFaults (Query all faults on the box)

2 - enableLocalLogs (Enable Local Logging Of Faults)

3 - disableLocalLogs (Disable Local Logging Of Faults)

X - exit

select - 3

This will print out the following message:

=== Executing "disableLocalLogs"

=== "disableLocalLogs" completed successfully

Cli option to turn ON local logging

Run through steps 1-4 from “Cli interface to query platform state.” on page 1018.

In the RESMON Application Configuration menu ,select 3 (disableLocalLogs).

RESMON Application Configuration

1 - queryFaults (Query all faults on the box)

2 - enableLocalLogs (Enable Local Logging Of Faults)

3 - disableLocalLogs (Disable Local Logging Of Faults)

X - exit

select - 2

This will print out the following message:

=== Executing "enableLocalLogs"

=== "enableLocalLogs" completed successfully

Glossary

Term	Description
FSMon	File System Monitor
AlarmD	The fault reporting utility that will be provided as part of the SSPFS
CPU	Central Processing Unit
CPU Load	The number of processes on the “ready” queue (that is, processes that are not blocked waiting for IO, but are in a “run” state).
15 minute Load average	The average CPU load over 15 minutes
NIC	Network interface card.

Product = CS 2000

A00003789 -- IMT INTRA CAUSE Enhancement (Succession on DMS)

Functional Description

This feature introduces the capability for originating INTRA IMT trunks to route advance on three specific CAUSE values:

- CAUSE 42 - Switch Equipment Congestion (SWEQCONG)
- CAUSE 47 - Resources Unavailable (RESUNAV)
- CAUSE 51 - This is a non standardized “Service” related CAUSE (CSE_51) utilized by the customer in their own network.

and NOT route advance on:

- CAUSE 34 - No Circuits Available (NOCIRCAV)

PTS and SS7 INTRA IMT originators are supported and must terminate to an SS7 EANT or IMT terminator for the described CAUSE enhancements to take place.

Specifically for SS7 INTRA IMT originators this feature enables CAUSE handling in the CM with existing optional table CSEMAP for all CAUSE values in addition to the specified functionary for CAUSE 34, 42, 47 and 51.

The INTRA IMT CAUSE enhancement capability is controlled on a per trunk group basis using a new option in table TRKOPTS called INTRACSE.
NOTE: Patch SBB41 introduced the TRKOPTS option as INTRA_CSE

(w/ underscore) and this activity removes the underscore for TRKOPTS option consistency and ease of use. The INTRACSE TRKOPTS option can only be assigned to originating (IC, 2W) IMT Trunks with TRKGRP field NETWKSPC set to INTRA. The INTRACSE option contains a "route advance choice" field that can be set to Y or N.

This capability interacts with optional table CSEMAP but does not have a dependency on table CSEMAP. For more information see "Call Processing CAUSE Handling" on page 1026.

This capability is under Software Optionality Control (SOC). The SOC order code is NSER0005.

Please refer to the following sections for detailed information on this capability:

- Background Information
- Software Optionality Control NSER0005
- Table TRKOPTS option INTRACSE
- Call Processing CAUSE Handling

Background Information

It is important to understand the default or existing CAUSE handling behavior for both PTS and SS7 INTRA IMT originators prior to this activity.

PTS INTRA IMT originators that terminate to SS7 EANT and IMT trunks always perform CAUSE handling in the CM as the CAUSE value cannot be passed to the adjacent office due to interworking (PTS to SS7). Therefore "default" CAUSE handling for PTS INTRA IMT originators already exists. The specific CAUSE values impacted by this feature have a default functionality for PTS INTRA IMT originators as follows:

- CAUSE 34, 42 and 47 all route advance by default and can be overridden by associated CSEMAP entries to not route advance or to go to a different treatment. Reference below.
- CAUSE 51 is an undefined CAUSE value and by default goes to (RODR) treatment. CSE_51 can be overridden by a CSEMAP entry to route advance or go to a different treatment. Reference for details.

Default PTS INTRA IMT CAUSE Handling Behavior

CSEMAP	CAUSE 34, 42, 47 Default Result	CAUSE 51 Default Result
No Entry	Route Advance (Default)	TRTMT (Default - RODR)
RTE ADV - N	CSEMAP TRTMT	CSEMAP TRTMT
RTE ADV - Y	Route Advance (CSEMAP)	Route Advance (CSEMAP)

SS7 INTRA IMT originators that terminate to SS7 EANT and IMT trunks do not perform CAUSE handling in the CM prior to this feature. The CAUSE values are passed (bounced) to the adjacent office without any CM interaction.

This activity, when active, will impact both SS7 and PTS INTRA IMT originators in the same way as described in section " Call Processing CAUSE Handling" on page 1026. When inactive, the default behavior will be as described in this section "Background Information" .

Software Optionality Control (SOC) NSER0005

The new SOC order code NSER0005 - Intra IMT Cause Enhancements is introduced by this feature. When the NSER0005 SOC state is IDLE, CAUSE handling behavior is unchanged for calls with INTRA IMT originators. The new TRKOPTS option INTRACSE can be data filled when the SOC state is IDLE or ON.

The new SOC NSER0005 - Intra IMT Cause Enhancements is dependant upon SOC NSER0003 - Inter/Intra IMT for the described functionality to be active.

Changing the NSER0005 SOC state to ON does not in itself enable any new functionality. NSER0005 SOC in conjunction with the INTRACSE TRKOPTS option, enables the CAUSE Enhancements capability described in this document. For more information see "Call Processing CAUSE Handling" on page 1026.

Table TRKOPTS option INTRACSE

A new TRKOPTS option called INTRACSE is introduced by this feature. The INTRACSE option contains a field called RTE_ADV_CHOICE that must be data filled to Y or N to select the route advance capabilities described in section "Call Processing CAUSE Handling" on page 1026.

The following figure shows an example entry of the INTRACSE option data filled on a trunk CLLI in table TRKOPTS.

TRKOPTS option INTRACSE Example Entry

```
TABLE: TRKOPTS
 -------------------------
TRKCLLI   INTRACSE   INTRACSE  RTE_ADV_CHOICE  Y
```

The CAUSE Enhancement capability is dependant on the originating trunk and therefore The INTRACSE option can only be assigned to IC or 2W INTRA IMT trunks. The option can be assigned to both SS7 and PTS INTRA IMT signaling trunks. The option allows the customer to activate the CAUSE enhancements capability on a per trunk group basis. INTRA IMT originators with this option assigned must terminate to an SS7 terminating trunk to enable the CAUSE Enhancement capability.

Various error messages occur during datafill if the INTRACSE option is assigned to something other than the specified trunk data. below illustrates the error messages associated with the INTRACSE option.

TRKOPTS INTRACSE Datafill Error Messages

Attempts to datafill the INTRACSE option on a trunk type other than IMT, results in the following error message:

'INTRACSE option is supported only for IMT trunk types'

Attempts to datafill the INTRACSE option on an IMT trunk with a NETWKSPC value other than INTRA, results in following error message

'INTRACSE option requires NETWKSPC to be INTRA'

Attempts to datafill the INTRACSE option on an outgoing (OG) trunk, result in the following error message:

'INTRACSE option supports IC and 2W direction only.'

Call Processing CAUSE Handling

The CAUSE enhancements capability for this activity is described in “ INTRA IMT CAUSE Handling Matrix” on page 1028. There are several variables that

determine the CAUSE handling behavior for INTRA IMT originators. The variables are summarized as follows:

- SOC NSER0003 - Inter/Intra IMT must be ON. For " INTRA IMT CAUSE Handling Matrix" on page 1028 this variable is not listed and the SOC is assumed to be ON.
- SOC NSER0005 - Intra IMT Cause enhancements - IDLE / ON status indicates optionality status. IDLE implies default or existing behavior prior to this activity.
- TRKOPTS option INTRACSE. The presence of the option for a particular trunk allows two things to occur:
  - — Enables CAUSE handling in the CM for INTRA IMT SS7 originators for all CAUSE values in addition to the functionality described in this document for CAUSE values 34, 42, 47 and 51.
  - — Disables CAUSE 34 from route advancing for both SS7 and PTS INTRA IMT trunks. However a CSEMAP entry for CAUSE 34 can be used to provide route advance capabilities or change the treatment handling.
- INTRACSE RTE_ADV_CHOICE Y/N - this field impacts CAUSE values 42, 47 and 51 only and when set to Y enables route advance with or without CSEMAP interaction. When set to N default treatment is used or CSEMAP entries can allow route advance or change the treatment.
- CSEMAP entries for CAUSE values 42, 47 and 51. With INTRACSE RTE_ADV_CHOICE = N, the CSEMAP determines route advance or treatment CAUSE handling. With INTRACSE RTE_ADV_CHOICE = Y, the call will always route advance regardless of CSEMAP entry.
- CSEMAP entry for CAUSE 34. INTRACSE RTE_ADV_CHOICE subfield has no impact on CAUSE handling for CAUSE 34. The presence of the INTRACSE option forces the call to go to treatment (NCRT). However a CSEMAP entry for CAUSE 34 can change the treatment or set the route advance bool and the call routes accordingly.

The following table describes the CAUSE Enhancement behavior provided by this activity.

INTRA IMT CAUSE Handling Matrix

SOC NSER0005	TRKOPTS INTRACSE	CSEMAP	CAUSE 42,47 and 51 Result	CAUSE 34 Result
IDLE	N/A	N/A	Default CAUSE Behavior[a]	Default CAUSE Behavior
ON	No Entry	No Entry	Default CAUSE Behavior	Default CAUSE Behavior
ON	No Entry	RTE ADV - N	Default CAUSE Behavior	Default CAUSE Behavior
ON	No Entry	RTE ADV - Y	Default CAUSE Behavior	Default CAUSE Behavior
ON	RTE ADV - N	No Entry	Default TRTMT[b]	Default TRTMT
ON	RTE ADV - N	RTE ADV - N	CSEMAP TRTMT	CSEMAP TRTMT
ON	RTE ADV - N	RTE ADV - Y	Route Advance (CSEMAP)	Route Advance (CSEMAP)
ON	RTE ADV - Y	No Entry	Route Advance (INTRACSE)	Default TRTMT (NCRT)
ON	RTE ADV - Y	RTE ADV - N	Route Advance (INTRACSE)	Default TRTMT (NCRT)
ON	RTE ADV - Y	RTE ADV - Y	Route Advance (INTRACSE)	Route Advance (CSEMAP)

a. Default CAUSE Behavior is different for SS7 and PTS See “Background Information” on page 1024. for specific details
b. Default TRTMT for CAUSE 34 is NCRT, CAUSE 42 is NBLH, CAUSE 47 is GNCT, and CAUSE 51 is RODR

Hardware Requirements or Dependencies

None

Software Requirements or Dependencies

SOC NSER0005 is dependant on SOC NSER0003 - Inter/Intra IMT. SOC NSER0003 must be ON before SOC NSER0005 call processing capabilities become active.

Limitations and restrictions

From a Table Control perspective the TRKOPTS option INTRA _CSE can only be assigned to:

- INTRA IMT (IC or 2W) PTS Trunks
- INTRA IMT (IC or 2W) SS7 Trunks

From a Call processing perspective CAUSE handling requires terminations from INTRA IMT trunk originators to EANT or IMT (INTRA or INTER) SS7 trunk terminators.

Interactions

This capability interacts with optional Table CSEMAP but is not dependant nor does it change the behavior of the CSEMAP table. For details reference Table , “INTRA IMT CAUSE Handling Matrix,” on page 1028.

Applicable customer facing sections

Fault Management

- Logs ___N/A___
- Alarms ___N/A___

Configuration

- Data Schema ___X___
- User Interface ___N/A___
- Element Management ___N/A___
- Security ___N/A___
- Service Order ___N/A___
- Office Parameters ___N/A___

Accounting (includes AMA billing) ___N/A___

Performance (includes operational measurements) ___N/A___

Glossary

Term	Description
AMA	Automatic Message Accounting
EANT	Equal Access Network Trunk
IMT	Inter Machine Trunk
PTS	Per Trunk Signaling
SOC	Software Optionality Control
SS7	Signaling System #7

Configuration for A00003789

Hardware and Software Requirements

N/A

Initial Configuration

N/A

Office/Subnet parameters (OP/SP) (CM & SESM)

New/modified office/subnet parameters

New or modified parameter

Parm table	Parameter name	NEW/ CHANGED/ DELETED/ RELOCATED	Domain (CM or Subnet Management
OFCVAR	RTE_ADVANCE_FOR_INTRA_IMT_NCRT	New	CM

Parameter information

RTE_ADVANCE_FOR_INTRA_IMT_NCRT

Route Advance For INTRA IMT Release Cause (34) “No Circuit Available”

Functional description

This parm enables the optionality to route advance for release cause “No Circuit Available.” The SOC NSER0005 must be set to ON and the INTRACSE option in table TRKOPTS must be datafilled in order for the functionality of this parm to be enabled. The following table shows the behavior of Release Cause “No Circuit Available” when the office parm is enabled.

Option INTRACSE.RTEADV_CHOICE	RTE_ADVANCE_FOR_INTRA_IMT_NCRT	Action
Yes	Yes	Route Advance from option INTRACSE
Yes	No	Do not route advance from option INTRACSE however table CSEMAP may override and route advance
No	Yes	Do not route advance from option INTRACSE however table CSEMAP may override and route advance
No	No	Do not route advance from option INTRACSE however table CSEMAP may override and route advance

Provisioning rules
The values for this parm are boolean {N,Y}.

Range information

Range Information

Minimum	Maximum	Default
{N,Y}	{N,Y}	N

Activation
Immediate.

Dependencies
SOC NSER0005 must be set to ON and the INTRACSE option in table TRKOPTS must be present in order to enable the functionality of this parameter.

Consequences
None

Verification
None

Memory requirements
No memory impact.

Parameter release history update
Office parm RTE_ADVANCE_FOR_INTRA_IMT_NCRT is a new parm added in table OFCVAR.

Upgrade Impact

Dump and Restore

No customer interaction is required.

- Patch SBB41 status is checked during ONP and if patch is active the SOC status for NSER0005 is set to ON.
- Patch SBB59 status is checked during ONP and if the patch is active the office parm RTE_ADVANCE_FOR_INTRA_IMT_NCRT is set to “Y”. Otherwise the parm is set to “N”.

Element Management Upgrade

N/A

Data schema (DS) (CM, MIBS, RDB)

New/modified tables, MIBs, or Database Schema

New option is added to existing table TRKOPTS

Table/MIB name	NEW/CHANGED/ or DELETED/	Table Control (NEW/OLD/UNCHANGED)
TRKOPTS	Changed	Unchanged

Table/MIB/Remote Database Schema information

Name: TRKOPTS

TRunK OPTionS

Functional description

A new Trunk option, INTRACSE is introduced to Table TRKOPTS. The INTRACSE option contains a subfield called RTE_ADV_CHOICE that must be datafilled to Y or N to determine route advance behavior for specific CAUSE values. The CAUSE Enhancement capability is dependant on the originating trunk and therefore the INTRACSE option can only be assigned to IC or 2W INTRA IMT trunks. The option can be assigned to both SS7 and PTS INTRA IMT signaling trunks. The option allows the customer to activate the CAUSE enhancements capability on a per trunk group basis. INTRA IMT originators with this option assigned must terminate to an SS7 terminating trunk to enable the CAUSE Enhancement capability.

Only CAUSE values 34 (NOCIRCAV), 42 (SWEQCONG), 47 (RESUNAV) and 51 (CSE_51) are impacted by this option. CAUSE values 42, 47 and 51 will always route advance if the RTE_ADV_CHOICE field is set to Y.

If the office parameter RTE_ADVANCE_FOR_INTRA_IMT_NCRT is set to Y, CAUSE value 34 will route advance according to the RTE_ADV_CHOICE and table CSEMAP. If the office paramter is set to N, CAUSE value 34 will NOT route advancing regardless of the Y/N value of the RTE_ADV_CHOICE field.

Usage sequence and implications (CM Only)

Tables must be datafilled in the following sequence:

Current datafill order unchanged.

Size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
TRKOPTS	0	131072	Dynamically Allocated

Fields/OIDs

The following table lists fields/OIDs for TRKOPTS.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
OPTION	Changed	refinement	Option: INTRACSE subfield: RTE_ADV_CHOICE - Y/N	INTRA IMT CAUSE Enhancements Enables route advance capabilities for CAUSE values 34, 42, 47 and 51. Subfield RTE_ADV_CHOICE is a Y/N prompt. When datafilled to Y CAUSE 34, 42, 47 and 51 will route advance. When datafilled to N CAUSE values 34, 42, 47 and 51 will go to thier respective default treatments.

Datafill example

The following example shows sample datafill for table TRKOPTS.

```
TABLE: TRKOPTS
 -------------------------
TRKCLLI   INTRACSE   INTRACSE  RTE_ADV_CHOICE  Y
```

INTRACSE data fill incompatibilities result in the following Error Messages:

Attempts to datafill the INTRACSE option on a trunk type other than IMT results in the following error message:

'INTRACSE option is supported only for IMT trunk types'

Attempts to datafill the INTRACSE option on an IMT trunk with a NETWKSPC value other than INTRA, results in following error message

'INTRACSE option requires NETWKSPC to be INTRA'

Attempts to datafill the INTRACSE option on an outgoing (OG) trunk result in the following error message:

'INTRACSE option supports IC and 2W direction only.'

Table release history update

INTRACSE with subfield RTE_ADV_CHOICE is added as an additional OPTION in table TRKOPTS.

Supplementary information

N/A

Translation verification other tools

N/A - Table TRKPOTS references are not displayed in TRAVER

Service Orders (SO) (CM & SESM)

N/A

Software optionality control (SOC)

SOC option name:	Intra IMT Cause Enhancements
SOC option title:	Yes
SOC option control type:	Usage
New SOC option?	Yes
SOC option order code	NSER0005
Option defined in DRU:	UCS
Affected products:	SN07

Element Management

N/A

Command interface changes

N/A

Security

N/A

Configuration Walkthrough

N/A

Product = CS 2000

A00003905 -- DIRP Enhancements for Billing (Succession on DMS)

Functional Description

Feature A00003905 increases the number of DIRP volumes in table DIRPPOOL from 24 to 72.

The feature uses SOC to restrict provisioning more than 24 volumes per DIRP pool if the SOC state is IDLE. Rejection messages indicate that this feature is inactive.

The SOC name for this functionality is BASE DIRP enh to 72 vol, and the ORDCODE is BASE0014.

Hardware Requirements or Dependencies

Feature A00003905 works in conjunction with feature A00002186 to realize 4G of storage capacity for a DIRP subsystem. Feature A00002186 increase DDU storage capacity from 1G to 4G. However, for any feature functionality to be active, 4G DDUs must be present in the switch with the appropriate IOM load.

Software Requirements or Dependencies

To achieve 4G of DIRP DDU storage capacity, both features A00003905 and A00002186 must be present and active. Both features are enabled and disabled via SOC. IOM load XXXYYYZZZ is required.

Limitations and restrictions

None.

Interactions

Feature A00003905 impacts table control for table DIRPPOOL. Expanding the number of volumes per pool necessitated a change in how table DIRPPOOL is manually provisioned. Volumes are no longer provisioned as individual fields but are provisioned in groups of three. Using DIRP MNT to provision volumes is unaffected.

Applicable customer facing sections

Fault Management

- Logs _____
- Alarms _____

Configuration

- Data Schema __X__
- User Interface __X__
- Element Management _____
- Security _____
- Service Order _____
- Office Parameters _____

Accounting (includes AMA billing) _____

Performance (includes operational measurements) _____

Realtime __X__

Engineering Information __X__

Glossary

Term	Description
New term	Definition
DIRP MNT	MAPCI; MTC; IOD; DIRP; MNT

Configuration for A00003905

Hardware and Software Requirements

Feature A00003905 allows 72 disk volumes to be provisioned per DIRP pool in table DIRPPOOL. Previously, only 24 volumes could be allocated per pool.

Feature A00002186 expands DDU capacity from 1G to 4G. IOM load XXXYYYZZZ is required by feature A00002186.

In order for full 4G DDU capacity to be available for DIRP, feature A00002186 must be at SOC state ON. IOM load XXXYYYZZZ must be used. Feature A00003905 must also be at SOC state ON.

The SOC name for this functionality is BASE DIRP enh to 72 vol, and the ORDCODE is BASE0014.

Initial Configuration

Feature A00003905 SOC state defaults to IDLE.

72 possible volumes are displayed in table DIRPPOOL. Access to provisioning more than 24 volumes is SOC controlled.

Upgrade Impact

Dump and Restore

Feature A00003905 sources the functionalities provided by software bridge SBB28. SBB28 created a new table DIRPOOL2 which linked together three 24 volume pools in table DIRPPOOL in order to achieve 72 volumes of storage per DIRP subsystem.

Over an ONP when bridge SBB28 is active and table DIRPOOL2 contains linked pools, feature A00003905 will consolidate all of the pools' volumes under the main pool that is provisioned against the subsystem in table DIRPSSYS. The emptied unused pools will be deleted from table DIRPPOOL.

Any files present in table DIRPHOLD from the volumes being consolidated will be deleted as part of the consolidation process. Files in table DIRPHOLD should be processed prior to an ONP. The following warning is displayed during POSTSWACT:

```
WARNING - ALL DIRPHOLD FILES FOR VOLUME <volume name> DELETED
FROM TABLE DIRPHOLD, AND ARE THE USERS' RESPONSIBILITY
```

Table DIRPOOL2 is present on the new load only during the ONP and is only used for consolidation. The table is deleted from the system at the end of the ONP.

SOC state is not considered during an ONP. Feature A00003905 will always transfer and consolidate if needed. SOC state IDLE will prevent any future provisioning of volumes in a pool that has more than 24 volumes.

Data schema (DS) (CM, MIBS, RDB)

New/modified tables, MIBs, or Database Schema

Table	NEW/CHANGED/ or DELETED/	Table Control (NEW/OLD/UNCHANGED)
DIRPPOOL	CHANGED	UNCHANGED
DIRPOOL2	NEW	NEW

Table/MIB/Remote Database Schema information

Name: DIRPPOOL

Functional description

Table DIRPPOOL contains information regarding the pool of available devices to be used by a DIRP subsystem for recording.

Usage sequence and implications (CM Only)

Current datafill order unchanged.

Size

Increasing the number of volumes per pool to 72 from 24 increases the memory requirements of table DIRPPOOL. Essentially, volume related store now requires 3x as much memory (72/24=3). Modules DIRPGI and DIRPDSON carry the bulk of the increase in storage. The following information shows the increase:

```
BEFORE:
>store ds scan module dirpgi
Storetype    Ttl      Ttl        Min        Max
             Blks     Size       Blk        Blk
             Owned    Owned      Owned      Owned
DSTEMP_B           1 #00000A00 #00000A00 #00000A00
DSPROT_W          10 #0000C200 #000000C0 #00006300
DSPERM_B          28 #00047F40 #00006000 #00006000
DSSOS_B            1 #00000A00 #00000A00 #00000A00
DSSOS_W            1 #00000A00 #00000A00 #00000A00
Totals:           41 #00055F40
>store ds scan module dirpdson
Storetype    Ttl      Ttl        Min        Max
             Blks     Size       Blk        Blk
             Owned    Owned      Owned      Owned
DSPROT_W           1 #00001D00 #00001D00 #00001D00
DSPERM_B           1 #00001440 #00001440 #00001440
Totals:            2 #00003140
AFTER:
>store ds scan module dirpgi

Storetype    Ttl      Ttl        Min        Max
             Blks     Size       Blk        Blk
```

```
              Owned    Owned      Owned      Owned
DSTEMP_B            1 #00000A00 #00000A00 #00000A00
DSPROT_W           67 #00018540 #000004A0 #00005900
DSPERM_B           67 #00015880 #00001420 #00001420
DSSOS_B             1 #00000A00 #00000A00 #00000A00
DSSOS_W             1 #00000A00 #00000A00 #00000A00

Totals:           137 #0002FBC0
>store ds scan module dirpdson

Storetype     Ttl       Ttl        Min        Max
              Blks      Size       Blk        Blk
              Owned     Owned      Owned      Owned
DSPROT_W            1 #00002300 #00002300 #00002300
DSPERM_B            1 #00001740 #00001740 #00001740

Totals:             2 #00003A40
```

Table size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
DIRPPOOL	SAME	SAME	Volume memory requirements increase by 3x. See above.

Fields

The following table lists changed fields for DIRPPOOL.

Every individual volume field, i.e. VOLUME12, is changed to a TABLE of three volume names.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
VOLUME0	Changed	None	eight_char _vector	New Field Name: VOL00X02 The field will be provisioned with 3 volume names for volumes 00 to 02. Default: $ $ $

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
VOLUME1	Changed	None	eight_char_vector	New Field Name: VOL03X05 The field will be provisioned with 3 eight_char_vector for volumes 03 to 05. Default: $ $ $
VOLUME2	Changed	None	eight_char_vector	New Field Name: VOL06X08 The field will be provisioned with 3 eight_char_vector for volumes 06 to 08. Default: $ $ $
VOLUME3	Changed	None	eight_char_vector	New Field Name: VOL09X11 The field will be provisioned with 3 eight_char_vector for volumes 09 to 11. Default: $ $ $
VOLUME4	Changed	None	eight_char_vector	New Field Name: VOL12X14 The field will be provisioned with 3 eight_char_vector for volumes 12 to 14. Default: $ $ $
VOLUME5	Changed	None	eight_char_vector	New Field Name: VOL15X17 The field will be provisioned with 3 eight_char_vector for volumes 15 to 17. Default: $ $ $

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
VOLUME6	Changed	None	eight_char_vector	New Field Name: VOL18X20 The field will be provisioned with 3 eight_char_vector for volumes 18 to 20. Default: $ $ $
VOLUME7	Changed	None	eight_char_vector	New Field Name: VOL21X23 The field will be provisioned with 3 eight_char_vector for volumes 21 to 23. Default: $ $ $
VOLUME8	Changed	None	eight_char_vector	New Field Name: VOL24X26 The field will be provisioned with 3 eight_char_vector for volumes 24 to 26. Default: $ $ $
VOLUME9	Changed	None	eight_char_vector	New Field Name: VOL27X29 The field will be provisioned with 3 eight_char_vector for volumes 27 to 29. Default: $ $ $
VOLUME10	Changed	None	eight_char_vector	New Field Name: VOL30X32 The field will be provisioned with 3 eight_char_vector for volumes 30 to 32. Default: $ $ $

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
VOLUME11	Changed	None	eight_char_vector	New Field Name: VOL33X35 The field will be provisioned with 3 eight_char_vector for volumes 33 to 35. Default: $ $ $
VOLUME12	Changed	None	eight_char_vector	New Field Name: VOL36X38 The field will be provisioned with 3 eight_char_vector for volumes 36 to 38. Default: $ $ $
VOLUME13	Changed	None	eight_char_vector	New Field Name: VOL39X41 The field will be provisioned with 3 eight_char_vector for volumes 39 to 41. Default: $ $ $
VOLUME14	Changed	None	eight_char_vector	New Field Name: VOL42X44 The field will be provisioned with 3 eight_char_vector for volumes 42 to 44. Default: $ $ $
VOLUME15	Changed	None	eight_char_vector	New Field Name: VOL45X47 The field will be provisioned with 3 eight_char_vector for volumes 45 to 47. Default: $ $ $

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
VOLUME16	Changed	None	eight_char_vector	New Field Name: VOL48X50 The field will be provisioned with 3 eight_char_vector for volumes 48 to 50. Default: $ $ $
VOLUME17	Changed	None	eight_char_vector	New Field Name: VOL51X53 The field will be provisioned with 3 eight_char_vector for volumes 51 to 53. Default: $ $ $
VOLUME18	Changed	None	eight_char_vector	New Field Name: VOL54X56 The field will be provisioned with 3 eight_char_vector for volumes 54 to 56. Default: $ $ $
VOLUME19	Changed	None	eight_char_vector	New Field Name: VOL57X59 The field will be provisioned with 3 eight_char_vector for volumes 57 to 59. Default: $ $ $
VOLUME20	Changed	None	eight_char_vector	New Field Name: VOL60X62 The field will be provisioned with 3 eight_char_vector for volumes 60 to 62. Default: $ $ $

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
VOLUME21	Changed	None	eight_char _vector	New Field Name: VOL63X65 The field will be provisioned with 3 eight_char_vector for volumes 63 to 65. Default: $ $ $
VOLUME22	Changed	None	eight_char _vector	New Field Name: VOL66X68 The field will be provisioned with 3 eight_char_vector for volumes 66 to 68. Default: $ $ $
VOLUME23	Changed	None	eight_char _vector	New Field Name: VOL69X71 The field will be provisioned with 3 eight_char_vector for volumes 69 to 71. Default: $ $ $

Datafill example

The following example shows sample datafill and how volumes would now be added and deleted for table DIRPPOOL.

Changing the volumes with a one line command is not recommended. Table control does not recognize NIL volume names, and unexpected provisioning may result. Always verify table changes before confirming. Changing individual volumes is possible, but the approach taken in the example below and in the sample datafill is recommended. An example of a one line volume name change is below.

> CHA VOL00X02 $ $ D000VOL2

Preferred method:

> CHA VOL00X02

> VOL00X02: $ $ $

> $ $ D000VOL2

```
>table dirppool;pos 14
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: DIRPPOOL
    14 MEGAPOOL  REGULAR    DISK  D000CDR D000CDR1  D000AMA
D000OCC1         $         $         $         $         $
       $         $         $         $         $         $
       $         $         $         $         $         $
       $  F17LAMA  F02LAMA         $         $         $
       $         $         $         $         $         $
       $         $         $         $         $         $
       $         $         $         $         $         $
       $         $         $         $         $         $
       $         $         $         $         $         $
       $         $         $         $         $         $
       $         $         $         $         $         $
       $         $         $
>format pack;lis
<line length>:   76 columns can be output per line.
<pack mode>:     Pack mode is ON.
<indent column>: Indented lines will begin in column 1.
<first column>:  The first column of output is column 1.
POOLNO POOLNAME POOLTYPE DEVTYPE VOL00X02 VOL03X05 VOL06X08 VOL09X11
VOL12X14 VOL15X17 VOL18X20 VOL21X23 VOL24X26 VOL27X29 VOL30X32 VOL33X35
VOL36X38 VOL39X41 VOL42X44 VOL45X47 VOL48X50 VOL51X53 VOL54X56 VOL57X59
VOL60X62 VOL63X65 VOL66X68 VOL69X71
------------------------------------------------------------------------
14 MEGAPOOL REGULAR DISK D000CDR D000CDR1 D000AMA D000OCC1 $ $ $ $ $ $ $ $
$ $ $ $ $ $ $ $ $ F17LAMA F02LAMA $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $
$ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $
>ran
 1 POOLNO            DIRPPOOL_KEY
 2 POOLNAME          EIGHT_CHAR_VECTOR
 3 POOLTYPE          DIRPFILEUSE
 4 DEVTYPE           DEVICETYPESR
 5 VOL00X02          THREE_VOLUME_TABLE
 6 VOL03X05          THREE_VOLUME_TABLE
 7 VOL06X08          THREE_VOLUME_TABLE
 8 VOL09X11          THREE_VOLUME_TABLE
 9 VOL12X14          THREE_VOLUME_TABLE
10 VOL15X17          THREE_VOLUME_TABLE
11 VOL18X20          THREE_VOLUME_TABLE
12 VOL21X23          THREE_VOLUME_TABLE
13 VOL24X26          THREE_VOLUME_TABLE
14 VOL27X29          THREE_VOLUME_TABLE
15 VOL30X32          THREE_VOLUME_TABLE
16 VOL33X35          THREE_VOLUME_TABLE
17 VOL36X38          THREE_VOLUME_TABLE
18 VOL39X41          THREE_VOLUME_TABLE
19 VOL42X44          THREE_VOLUME_TABLE
20 VOL45X47          THREE_VOLUME_TABLE
21 VOL48X50          THREE_VOLUME_TABLE
22 VOL51X53          THREE_VOLUME_TABLE
23 VOL54X56          THREE_VOLUME_TABLE
24 VOL57X59          THREE_VOLUME_TABLE
25 VOL60X62          THREE_VOLUME_TABLE
```

```
26 VOL63X65           THREE_VOLUME_TABLE
27 VOL66X68           THREE_VOLUME_TABLE
28 VOL69X71           THREE_VOLUME_TABLE
LOGICAL TUPLE TYPE: DIRPPOOL_LT
>ran 27
27 VOL66X68           THREE_VOLUME_TABLE
TYPE IS THREE_VOLUME_TABLE TABLE OF 3 VECTORS OF UP TO 8 CHAR'S
>cha
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
>y
POOLNAME: MEGAPOOL
>
POOLTYPE: REGULAR
>
DEVTYPE: DISK
>
VOL00X02: D000CDR D000CDR1  D000AMA
>$ D000CDR1 D000AMA
VOL03X05: D000OCC1        $        $
>
VOL06X08: $         $        $
>
VOL09X11: $         $        $
>
VOL12X14: $         $        $
>
VOL15X17: $         $        $
>
VOL18X20: $         $        $
>
VOL21X23: $  F17LAMA  F02LAMA
>
VOL24X26: $         $        $
>
VOL27X29: $         $        $
>
VOL30X32: $         $        $
>
VOL33X35: $         $        $
>
VOL36X38: $         $        $
>
VOL39X41: $         $        $
>
VOL42X44: $         $        $
>
VOL45X47: $         $        $
>
VOL48X50: $         $        $
>
VOL51X53: $         $        $
>
VOL54X56: $         $        $
>
VOL57X59: $         $        $
>
VOL60X62: $         $        $
>
VOL63X65: $         $        $
>
```

```
VOL66X68: $         $         $
>
VOL69X71: $         $         $
>
TUPLE TO BE CHANGED:
14 MEGAPOOL REGULAR DISK $ D000CDR1 D000AMA D000OCC1 $ $ $ $ $ $ $ $ $ $ $
$ $ $ $ $ $ F17LAMA F02LAMA $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $
$ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
>y
WARNING - ALL DIRPHOLD FILES FOR VOLUME D000CDR DELETED
FROM TABLE DIRPHOLD, AND ARE THE USERS' RESPONSIBILITY
Regular Volume D000CDR will be taken out of DIRP as soon as possible.
TUPLE CHANGED
JOURNAL FILE INACTIVE
>lis
POOLNO POOLNAME POOLTYPE DEVTYPE VOL00X02 VOL03X05 VOL06X08 VOL09X11
VOL12X14 VOL15X17 VOL18X20 VOL21X23 VOL24X26 VOL27X29 VOL30X32 VOL33X35
VOL36X38 VOL39X41 VOL42X44 VOL45X47 VOL48X50 VOL51X53 VOL54X56 VOL57X59
VOL60X62 VOL63X65 VOL66X68 VOL69X71
------------------------------------------------------------------------
14 MEGAPOOL REGULAR DISK $ D000CDR1 D000AMA D000OCC1 $ $ $ $ $ $ $ $ $ $ $
$ $ $ $ $ $ F17LAMA F02LAMA $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $
$ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $
>cha VOL00X02
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
>y
VOL00X02: $         $         $
>D000CDR D000CDR1 D000AMA
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
>y
TUPLE TO BE CHANGED:
14 MEGAPOOL REGULAR DISK D000CDR D000CDR1 D000AMA D000OCC1 $ $ $ $ $ $ $ $
$ $ $ $ $ $ $ $ $ F17LAMA F02LAMA $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $
$ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
>y
Regular volume D000CDR allocated.
WARNING : This POOL has a mixture of device
          types which is not recommended.
TUPLE CHANGED
JOURNAL FILE INACTIVE
```

Table release history update

Each individual volume field in table DIRPPOOL is now replaced with a field that contains three volume names. The new field name represents the 3 volume names. For example, VOL24X26 represent volumes 24, 25, and 26. Table control will require 3 volume names be entered for each new volume range field. "$" is still used for no volume name. Changing volume names with a one line command is not recommended. In order to change a specific range of volumes perform a change on the range and be prompted for the new volumes.

SOC is used to limit provisioning of more than 24 volumes per pool in table DIRPPOOL. If more than 24 volumes are attempted to be provisioned in table DIRPPOOL and the SOC state is IDLE, an error message is produced

indicating the SOC limitation, and the volumes are not provisioned. The SOC name for this functionality is BASE DIRP enh to 72 vol, and the ORDCODE is BASE0014.

Supplementary information

Volumes can be provisioned via table control or through the use of the MNT and DMNT commands at the MAPCI DIRP level. MNT and DMNT usage to provision volumes remains unchanged with this feature.

Translation verification other tools

The following example shows the output from MAPCI DIRP QUERY when it is used to verify the provisioned volumes in table DIRPPOOL for a specific subsystem.

```
>mapci nodisp;mtc;iod;dirp;query ama all
MAPCI:
MTC:
IOD:
DIRP:
SSNAME SSNO SEQNO ROTATES POOLNO PARLPOOL EMERGENCY
AMA       3     1       0     14  NONE     ***YES***

REGULAR
FILE(S)  STATE VOLUME   RECCOUNT BLOCK E  V V_B VLID FNUM FRN#
ACTIVE   AVAIL F02LAMA         1     1 0 23 NO  8482 0036 3184
STANDBY1 AVAIL F17LAMA         0     0 0 22 NO  84C2 007F 6188

PARALLEL
FILE              STATE VOLUME   BLOCK E  V V_B VLID FNUM FRN#
                   NONE


REGULAR VOLUME(S)
VOL# VOLNAME  STATE         IOC CRD PORT VOL FSEG ROOM VLID FILES
   0 D000CDR  READY           1   8 N/A    5   28   28 2805
   1 D000CDR1 READY           1   8 N/A    6   29   29 2806
   2 D000AMA  READY           1   8 N/A    1   19   19 2801
   3 D000OCC1 READY           1   8 N/A    3   77   77 2803
  22 F17LAMA  READY         N/A N/A N/A    2  120  120 84C2 S1
  23 F02LAMA  READY         N/A N/A N/A    2  114  114 8482 A

REGULAR SPACE
VOL# VOLNAME  STATE         SEGS   EXP UNEXP TOTAL
   0 D000CDR  READY           28     0     0    28
   1 D000CDR1 READY           29     0     0    29
   2 D000AMA  READY           19     0     0    19
   3 D000OCC1 READY           77     0     0    77
  22 F17LAMA  READY          120     0     0   120
  23 F02LAMA  READY          114     0     0   114
```

Name: DIRPOOL2

Functional description

Feature Bridge SBB28 introduced table DIRPOOL2 in SNNCSH04. Table DIRPOOL2 links three DIRP pools in table DIRPPOOL for a subsystem listed in table DIRPSSYS. The three pools provide 72 volumes of storage capacity per subsystem.

Table DIRPOOL2 is created in feature A00003905 solely for the purpose of providing information needed to consolidate linked pools when moving to a load that now has 72 volumes per pool in table DIRPPOOL. The table is created at IPL. Its data is transferred during DART (if applicable). The table data is used during POSTSWACT to consolidate volumes in DIRPPOOL. At the end of POSTSWACT, table DIRPOOL2 is deleted from the switch.

Basic table functionality is provided during the duration of the ONP, but no data verification is done. Valid data is assumed from the old load (pre-SNNCSH07).

Usage sequence and implications (CM Only)

Tables must be datafilled in the following sequence:

DIRPPOOL

DIRPSSYS

DIRPOOL2

Size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
DIRPOOL2	0	24	Memory is allocated only during ONP and is freed afterwards.

Fields/OIDs

The following table lists fields for DIRPOOL2.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
ssysname	new	none	ssnamesr	DIRP subsystem name
poolnam1	new	none	poolnamesr	DIRP pool name

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
poolnam2	new	none	poolname sr	DIRP pool name
poolnam3	new	none	poolname sr	DIRP pool name

Datafill example

The following example shows sample datafill for table DIRPOOL2 which was transferred from feature bridge SBB28 data in SNNCSH04.

```
Mate>table dirpool2
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: DIRPOOL2
Mate>lis all
TOP
SSYSNAME POOLNAM1 POOLNAM2 POOLNAM3
---------------------------------
     AMA  AMAPOOL MEGAPOOL MCKYPOOL
BOTTOM
```

Table release history update

Table DIRPOOL2 is introduced by feature A00003905 solely for consolidating pool volumes linked via feature bridge SBB28. SBB28 introduced table DIRPOOL2 to link up to three DIRP pools to one DIRP subsystem allowing for a maximum of 72 recording volumes. Table DIRPOOL2 is used during ONP to consolidate the linked pool volumes under the main pool that is datafilled against the subsystem in table DIRPSSYS. Post-ONP, table DIRPOOL2 is deleted from the system, and SOC for feature A00003905 is used to provision more than 24 and up to 72 volumes per pool in table DIRPPOOL.

Supplementary information

None.

Translation verification other tools

Table DIRPOOL2 data can be verified post-RESTORE by listing the table on the inactive side during an ONP.

Consolidation can be verified by checking table DIRPPOOL after POSTSWACT to ensure that all linked pool volumes were moved under the main pool provisioned against the subsystem in table DIRPSSYS.

Software optionality control (SOC)

SOC

SOC option name:	BASE DIRP enh to 72 vol
SOC option title:	Yes
SOC option control type:	State
New SOC option?	Yes
SOC option order code	BASE0014
Option defined in DRU:	BASE
Affected products:	DIRP

SOC state IDLE limits the number of provisionable volumes per pool in table DIRPPOOL to 24. SOC state ON increases the total number of volumes per pool to 72.

Command interface changes

Directory: MAPCI;MTC;IOD;DIRP

Directory description

DIRP provides the ability to perform a variety of commands against DIRP subsystems.

Accessing directory: DIRP

Access to directory or MAP level and return to CI

MAPCI;MTC;IOD;DIRP

QUIT ALL

Command: MNT

Command type: MENU

Command target: All

Command availability: RES

Command description

MNT mounts a specific volume to a specific DIRP subsystem.

Command syntax

MNT <DIRP subsystem> <volume name>

Qualifications and warnings

Feature A00003905 SOC limits the number of volumes provisionable per DIRP subsystem if the SOC state is IDLE. If the state is IDLE, only 24 volumes can be provisioned per DIRP pool in table DIRPPOOL. If more than 24 volumes are attempted to be provisioned with SOC state IDLE, an error message is produced, and the volume is not mounted against the subsystem.

The SOC name for this functionality is BASE DIRP enh to 72 vol, and the ORDCODE is BASE0014.

Responses

```
DIRP Volume Expansion SOC is not ON. Cannot mount
more than 24 VOLUMES per POOL.
```

The user is trying to allocate more than 24 volumes per pool with the SOC state for feature A00003905 IDLE.

MAP outputs with associated meanings and actions

Command: DIRP MNT
DIRP Volume Expansion SOC is not ON. Cannot mount more than 24 VOLUMES per POOL. **Meaning:** Cannot mount more than 24 volumes per pool in table DIRPPOOL **System or user actions:** The user needs to purchase functionality under feature A00003905 if they want to provision more that 24 volumes per pool in table DIRPPOOL.

Product = CS 2000

A00003971 -- SPM Log Robustness (Succession on DMS)

Functional Description

SPM Log robustness initiative is intended to enhance the logs generated for SPMs.

During an analysis of the CSR responsiveness, it was found that SPM logs did not provide sufficient data for analysis. To provide a faster resolution of SPM issues, a need was felt to enhance the logs generated for SPMs. In conjunction, MAP responses for various commands have been enhanced to provide greater details about the failure/refusal of MAP commands.

Hardware Requirements or Dependencies

None

Software Requirements or Dependencies

MAP response modification

When a manual or force swact is issued on the CEM protection level MAP, if the command fails, a reason is displayed along with the existing response. When a RTS is issued on a RM, if the command fails because of the RM not having a valid load in flash, a message appears. This message has been corrected to include a ‘have a’ in the existing message ‘RM does not valid load in Flash’.

More details can be found in the Configuration section of this book.

LOGS

The following existing logs are impacted by this activity

Activity status of the unit/device will be displayed along with the other fields for the following logs

- SPM300 - Device Fault report log
- SPM500 - Device state change log
- SPM650 - Boot loader pass log
- SPM651 - Boot loader fail log
- SPM684 - Erase Flash log
- SPM301 - Patch failed log
- NODE302 - Software Alarm log
- NODE303 - Wrong Application Data
- NODE326 - Hardware Fault
- NODE600 - System Recovery Action
- NODE601 - System Status Notification

TaskName will be displayed along with the taskID for the following logs.

- SPM311 - SW Exception Report
- SPM312 - Trap

New field ‘Reason’ will be added to the following log to provide a reason for protection switch failure.

- SPM331 - Failed Device Protection Switch

The following new logs have been introduced

- SPM 682 - indicates CEM manual reset.
- SPM 683 - indicates reason for CEM swact.
- NODE 602 - indicates reason for CEM state transition

For more details about the enhancement to the above logs, please refer to the Fault Management chapter of this book.

Limitations and restrictions

None

Interactions

None

Applicable customer facing sections

Fault Management

Logs	__X____
Alarms	_____

Configuration

Data Schema	_____
User Interface	__X____
Element Management	_____
Security	_____
Service Order	_____
Office Parameters	_____

Accounting (includes AMA billing) _____

Performance (includes operational measurements) _____

Glossary

Term	Description
CEM	Common Equipment Module
CSR	Customer Service Request
MAP	Maintenance and Administration Position
SPM	Spectrum Peripheral Module
SWACT	Switch Activity

Fault Management for A00003971

Fault management strategy

As a part of this activity the following enhancements are done.

- Some of the existing logs generated for SPMs shall be modified to provide additional data.
- Two new SPM logs, SPM 682 and SPM 683 shall be implemented to report on conditions related to manual reset of CEM/RM and CEM swact trigger respectively.
- A new NODE log, NODE602 shall be implemented to report on the CEM state transition reasons. This log is generated only when the CEM state transitions from Insv to Istb or Insv to Sysb. This log provides the reason for the state transition.

Fault management tools and utilities

Logutil

Logs

This section gives details of each log modified/added.

SPM300

Explanation

Log Title: Device Fault report

Name: SPM 300

Description:

This log is generated when a fault occurs on a SPM device.

Event type: TBL

Format

The following figure shows the format and an example of the SPM 300 log after the completion of this activity.

Format and example of SPM 300 log

Format of SPM 300 log

```
<office_id> <alarm> SPM300 <mmmdd hh:mm:ss ssdd> TBL Device Fault Report
          Location   : SPM : <spm_number> <cpk_type> : <cpk_number> Activity:<A or I>
          Status     : <one of the 3 strings given below>
          Problem Description: <text up to 16 chars>
          <text up to 64 chars>
          Action: Replace the following cards in the ordered list.
          Cardlist:
          <device_cardlist>
          Location: <SPM node_no> Type: <spm_type> Fabric: <fabric_type>
```

Example of SPM 300 log

```
STEC207AT ***  SPM300 JUL28 07:02:21 6701 TBL  Device Fault Report
           Location   : SPM : 25   VSP : 7 Activity : A
           Status     : Fault Raised
           Problem Description: Critical
             8I: RM reset reason: Last Gasp
           Action     : Replace the following cards in the order listed.
           Cardlist   :
             Site     Flr   Row FrPos ShfPos ShfPec    Slot
             HOST     3     A   0     59      NTLX66AA  4
             HOST     3     A   0     43      NTLX82AA  8
```

Field descriptions

The newly added field ‘Activity’ indicates the activity status of the device. The status field indicates ‘Fault Raised’ instead of ‘Alarm Raised’. The following table describes the modified fields.

SPM 300 field details

Field	Modified/Added	Value	Description
Activity	Added	A or I	This indicates activity status of the device. A - Active; I - Inactive;
Status	Modified	Fault Raised Fault Cleared Info Only	This indicates whether fault was raised/cleared or whether the log is meant just for information only.

Action

Not applicable.

Associated Operational Measurements or Performance Measurements

None.

Additional information

None.

SPM500

Explanation

Log Title: Device State change report

Name: SPM 500

Description:

This log is generated when a state change occurs on a SPM RM.

Event type: INFO

Format

The following figure shows the format and an example of the SPM 500 log after completion of this activity.

Format and example of SPM 500 log

Format of SPM 500 log

```
<office_id> <alarm> SPM500 <mmmdd hh:mm:ss ssdd> INFO Device State Change
          Location   : SPM : <spm_number> <cpk_type> : <cpk_number>
          From       :<state> <activity status>
          To         :<state> <activity status>
          Location   : <SPM node_no> Type: <spm_type> Fabric: <fabric_type>
```

Example of SPM 500 log

```
RTPY07AW ***  SPM500 AUG28 03:06:11 7700 INFO Device State Change
                  Location: SPM : 10   DLC : 0
                  From    : InSv (Active  )
                  To      : SysB (Inactive)
```

Field descriptions

The newly added string along with the state 'Active/Inactive' indicates the activity status of the device on which state change is being reported.

SPM 500 field details

Field	Modified/Added	Value	Description
From	Modified	Active/Inactive	In addition to the state of the device, the activity before transition is also indicated.
To	Modified	Active/Inactive	In addition to the state of the device, the activity after transition is also indicated.

Action

Not applicable.

Associated Operational Measurements or Performance Measurements

None.

Additional information

None.

SPM650

Explanation

Log Title: SPM Bootloader log (loading passed)

Name: SPM 650

Description:

This log is generated when a SPM bootloader completes load transfer successfully.

Event type: Not applicable

Format

The following figure shows a format and example of the SPM 650 log after completion of this activity.

Format and example of SPM 650 log

Format of SPM 650 log

```
RTPY07AW      SPM650 <mmmdd hh:mm:ss ssdd> PASS
                 SPM Device Loader Success
        Report:          <report seq. num> OF <total num. of report>
        Device:          SPM <spm num> <device type> <device unit no> Activity : <A or I>
        Result:          Passed
        Load File:       <load file name>
        Elapsed Time:    <elapsed hour>:<elapsed min>:<elapsed sec>
        KiloByte Loaded: <kiloByte downloaded>
```

Example of SPM 650 log

```
RTPY07AW      SPM650 AUG28 02:46:52 8400 PASS
                 SPM Device Loader Success
        Report:          1 OF 1
        Device:          SPM 10 VSP 2 Activity : I
        Result:          Passed
        Load File:       DSP20AM_010012
        Elapsed Time:    00:03:49
        KiloByte Loaded: 2926
```

Field descriptions

The newly added field ‘Activity’ indicates the activity status of the device. The following table gives details of the newly added field.

SPM 650 field details

Field	Modified/Added	Value	Description
Activity	Added	A or I	This indicates activity status of the device. A - Active I - Inactive

Action

Not applicable.

Associated Operational Measurements or Performance Measurements

None.

Additional information

None.

SPM651

Explanation

Log Title: SPM Bootloader log (loading Failed)

Name: SPM 651

Description:

This log is generated when a SPM bootloader fails to transfer load.

Event type: Not applicable

Format

The following figure shows the format and an example of the SPM 651 log after completion of this activity.

Format and example of SPM 651 log

Format of SPM 651 log

```
RTPY07AW   *  SPM651 <mmmdd hh:mm:ss ssdd> FAIL
                 SPM Device Loader Failure
        Report:          <report seq. num> OF <total num. of report>
        Device:          SPM <spm num> <device type> <device unit no> Activity : <A or I>
        Result:          Failed
        Load File:       <load file name>
        Elapsed Time:    <elapsed hour>:<elapsed min>:<elapsed sec>
        Failure Reason:  <kiloByte downloaded>
```

Example of SPM 651 log

```
RTPY07AW   *  SPM651 AUG28 02:11:03 3800 FAIL
                 SPM Device Loader Failure
        Report:          1 OF 1
        Device:          SPM 10 VSP 2 Activity : I
        Result:          Failed
        Load File:       DSP20AM_010012
        Elapsed Time:    00:00:46
        Failure Reason:  Loading Aborted
```

Field descriptions

The newly added field ‘Activity’ indicates the activity status of the device. The following table gives details of the new field added.

SPM 651 new field details

Field	Modified/Added	Value	Description
Activity	Added	A I	This indicates activity status of the device. A - Active I - Inactive

Action

Not applicable.

Associated Operational Measurements or Performance Measurements

None.

Additional information

None.

SPM684

Explanation

Log Title: Erase Flash log

Name: SPM 684

Description:

This log is generated when a EraseFl command is executed on a CEM MAP.

Event type: INFO

Format

The following figure shows the format and an example of the SPM 684 log after completion of this activity.

Format and example of SPM 684 log

```
Format of SPM684 log

<Office id> SPM684 <mmmdd hh:mm:ss ssdd>INFO ERASE FLASH
Location: SPM : <spm no> CEM : <unit no> Activity : <A or I>
Userid : <userid>
Description:<one of the 4 strings given below>
Location   : <SPM node_no> Type: <spm_type> Fabric: <fabric_type>


string1 : ERASE FLASH INITIATED
string2 : ERASE FLASH COMPLETED
string3 : ERASE FLASH FAILED
string4 : ERASE FLASH REJECTED


Example of SPM log

RTPY07AW      SPM684 AUG28 03:04:25 4800 INFO ERASE FLASH
        Location    : SPM :  10   CEM : 0 Activity : I
        Userid      : USER1
        Description : ERASE FLASH COMPLETED
```

Field descriptions

The newly added field ‘Activity’ indicates the activity status of the device. The following table gives details about the new field.

SPM 651 new field details

Field	Modified/Added	Value	Description
Activity	Added	A I	This indicates activity status of the device. A -Active I -Inactive

Action

Not applicable.

Associated Operational Measurements or Performance Measurements

None.

Additional information

None.

SPM301

Explanation

Log Title: Device Patching Report

Name: SPM 301

Description:

This log is generated when patching fails on a SPM device.

Event type: TBL

Format

The following figure shows the format and an example of the SPM 301 log after completion of this activity.

Format and example of SPM 301 log

Format of SPM301 log

```
<office_id> <alarm> SPM301 <mmmdd hh:mm:ss: ssdd> TBL  Device Patching Report
         Location   : SPM : <spm_number> <cpk_type> : <cpk_number> Activity:<A or I>
         Status     : <one of the 2 strings given below>
         Location: <SPM node_no> Type: <spm_type> Fabric: <fabric_type>
```

string 1 : Patching operation failure set
string 2 : Patching operation failure cleared

Example of SPM301 log

```
INTL7006CD  **  SPM301 JAN01 09:50:33 1600 TBL  Device Patching Report
          Location   : SPM : 2   CEM : 1 Activity: I
          Status     : Patching operation failure set
```

Field descriptions

The newly added field 'Activity' indicates the activity status of the device. The following table gives details about the new field.

SPM 301 new field details

Field	Modified/Added	Value	Description
Activity	Added	A I	This indicates activity status of the device. A -Active I -Inactive

Action

Not applicable.

Associated Operational Measurements or Performance Measurements

None.

Additional information

None.

SPM311

Explanation

Log Title: SW exception Report

Name: SPM 311

Description:

This log is generated when software error (SWERR) occurs on a SPM device.

Event type: TBL

Format

The following figure shows the format and an example of the SPM 311 log after completion of this activity.

Format and example of SPM 311 log

Format of SPM311 log

```
<office_id> <alarm> SPM311 <mmmdd hh:mm:ss ssdd> TBL SW Exception Report
      SPM <node number> <circuit pack> <circuitpackno> : <activity>              Time: <timestamp>
        Filename: <filename>             LineNumber: <linenumber>
        TaskID: <task id>      Index: <index number>          Reason: <reason>
        TaskName: <taskname string>
        ErrStr:    <error string>
        ErrData: <error data>
        Traceback: <traceback>
```

Example of SPM311 log

```
MSH306BB      SPM311 FEB24 03:10:47 5519 TBL  SW Exception Report
           SPM  12 CEM   1 : I                      Time: 03:10:47.145
           Filename: isupSgrpDDMData.cpp      LineNumber: 489
           TaskID: 000000DF      Index:           Reason:
           TaskName: processMipArbitrati
           ErrStr:
           ErrData:   00376230 026B6D24 026B6D1C 026B6D40 00D1FA58
           Traceback: 00D1FD14 00CEA1A4 00D2D044 00D2F598 00D2F894 00D2E87C
```

Field descriptions

The newly added field ‘TaskName’ gives the task name for the task Id. The following table gives details about the new field.

SPM 311 field details

Field	Modified/Added	Value	Description
TaskName	Added	String	This indicates taskname corresponding to the taskID field.

Action

Not applicable.

Associated Operational Measurements or Performance Measurements

None.

Additional information

None.

SPM312

Explanation

Log Title: Trap log

Name: SPM 312

Description:

This log is generated when a trap occurs in a SPM device.

Event type: TBL

Format

The following figure shows the format and an example of the SPM 312 log after completion of this activity.

Format and example of SPM 312 log

Format of SPM312 log

```
<office_id> <alarm> SPM312 <mmmdd hh:mm:ss ssdd> TBL Trap
          SPM <node number> <circuit pack> <circuitpackno> : <activity>          Time: <timestamp>
             TaskID: <task id>  TrapNo: <trap number>
             TaskName: <taskname string>
             Instr:   <instruction>      Flt: <fault>     Vector: <vector>
             Traceback: <traceback>
```

Example of SPM312 log

```
MG4K106BG ***  SPM312 MAR03 03:37:59 8963 TBL  Trap
               SPM  64 CEM   0 : A                       Time: 03:37:59.155
               TaskID: 000000D3  TrapNo: 00000001
               TaskName: OmSubsystemStart
               Instr:  009CFB00     Flt: 00000000     Vector: 00000300
              Traceback: 009CF44C 00774B44 01608508 FDFDFDFD FDFDFDFD FDFDFDFD
                         FDFDFDFD FDFDFDFD FDFDFDFD FDFDFDFD
```

Field descriptions

The newly added field ‘TaskName’ gives the task name corresponding to the the task Id displayed in the log. The new field is described in the following table.

SPM 312 field details

Field	Modified/Added	Value	Description
TaskName	Added	String	This indicates taskname corresponding to the taskID field.

Action

Not applicable.

Associated Operational Measurements or Performance Measurements

None.

Additional information

None.

SPM331

Explanation

Log Title: Failed Device Protection Switch

Name: SPM 331

Description:

This log is generated when sparing fails/is rejected or when PROTFAIL alarm is cleared on a SPM device.

Event type: TBL

Format

The following figure shows the format and an example of the SPM 331 log after completion of this activity.

Format of SPM 331 log

Format of SPM 331 log

```
<office_id> <alarm> SPM331 <mmmdd hh:mm:ss ssdd> TBL Failed Device Protection Switch
                    Location:  SPM : <spm_number> <cpk_type> : <cpk_number>
                    Status  : <one of the strings given below>
                    Description: <Description string>
                    Reason  : <Failure Reason string>
                    Location   : <SPM node_no> Type: <spm_type> Fabric: <fabric_type>
```

Example of SPM 331 log

```
MSH207BL ***  SPM331 NOV27 02:32:27 1100 TBL  Failed Device Protection Switch
                    Location: SPM : 25   VSP : 0
                    Status  : Alarm Raised
                    Description: Manual spare from VSP 1 to VSP 0 failed.
                    Reason  :  dest Config failed!
```

Field descriptions

The newly added field ‘Reason’ indicates the Reason for the protection switch failure/refusal. The following table gives details of the new and modified fields.

SPM 331 field details

Field	Modified/Added	Value	Description
Reason	Added	string	This indicates reason for failure/rejection of protection switching for the device.

Action

Not applicable.

Associated Operational Measurements or Performance Measurements

None.

Additional information

None.

SPM682

Explanation

Log Title: Resetmod

Name: SPM 682

Description:

This log is generated when CEM/RM is manually reset on the MAP. This log is generated in the following conditions

1> When resetmod command is initiated from the MAP
2> When resetmod command is completed
3> When resetmod command fails
4> When resetmod command is aborted
5> When reset via mate is initiated (on CEM) from the MAP
6> When reset firmware is initiated from the MAP

Event type: INFO

Format

The following figure shows the format and examples of the SPM 682 log .

Format of SPM 682 log

Format of SPM682 log

```
<Office id> SPM682 <mmmdd hh:mm:ss ssdd> INFO RESETMOD
Location: SPM : <spm no>  <cpk_type> : <cpk_number>
Userid : <userid>
Description:<one of the 7 strings given below>
Location   : <SPM node_no> Type: <spm_type> Fabric: <fabric_type>
```

Description strings:

```
Resetmod Initiated
Resetmod Completed
Resetmod Firmware Initiated
Resetmod ViaMate Initiated
Resetmod Rejected
Resetmod Failed
Resetmod Aborted
```

Example of SPM 682 log

```
STEC207AS       SPM682 JUL16 07:31:58 7311 INFO RESETMOD
                 Location     : SPM :  25   CEM : 0
                 Userid       : USER1
                 Description : Resetmod initiated



STEC207AS       SPM682 JUL16 07:31:58 7311 INFO RESETMOD
                 Location     : SPM :  25   DSP : 1
                 Userid       : USER1
                 Description : Resetmod initiated
```

When the resetmod command is issued with the option nowait, the logs are as follows

```
RSN07AOINDY1       SPM682 OCT18 14:59:57 4700 INFO RESETMOD
        Location     : SPM :   1   CEM: 1
        Userid       : ADMIN
        Description : Resetmod initiated


RSN07AOINDY1       SPM682 OCT18 15:04:17 4500 INFO RESETMOD
        Location     : SPM :   1   CEM: 1
        Userid       :
        Description : Resetmod Completed
```

Field descriptions

The following table describes each field in detail.

SPM 682 field details

Field	Value	Description
INFO RESETMOD	Constant	Indicates that the log is a info log and related to resetmod
spm number	Numeric	Indicates the spm number on which resetmod was initiated
cpk_type	String	This is the circuitpack type on which the manual reset was issued.
cpk_number	Numeric	This is the circuit pack number on which manual reset was issued.
UserId	string	Gives the login ID of the user who issued the reset command.
Description	Resetmod Initiated Resetmod Completed Resetmod Aborted Resetmod Failed Resetmod Firmware Initiated Resetmod ViaMate Initiated Resetmod Rejected	This is a description of the resetmod status.

Action

Not applicable.

Associated Operational Measurements or Performance Measurements

None.

Additional information

None.

SPM683

Explanation

Log Title: CEM swact trigger

Name: SPM 683

Description:

This log is generated when CEM swact occurs.

Event type: INFO

Format

The following figure shows the format of the SPM 683 log .

Format of SPM 683 log

Format of SPM 683 log

```
<office_id> <alarm> SPM683 <mmmdd hh:mm:ss ssdd> INFO CEM Swact Trigger
                    Location:  SPM : <spm_number>
                    Swact Reason: <Description string>
                    Location   : <SPM node_no> Type: <spm_type> Fabric: <fabric_type>
```

Example of SPM 683 log

```
MSH207BL      SPM683 NOV27 00:45:30 3300 INFO CEM Swact
                  Location    : SPM : 25   CEM : 0
                  Swact Reason: System Cold switch from CEM 0 to CEM 1.
                                CEM SWACT due to Critical Fault. See NODE logs.
                  Location: SPM  25  Type: DMSCP


MSH207BL      SPM683 NOV27 00:45:05 1900 INFO CEM Swact
                  Location    : SPM : 25   CEM : 0
                  Swact Reason: Manual switch from CEM 0 to CEM 1.
                                No other details.
                  Location: SPM  25  Type: DMSCP
```

Field descriptions

The following table describes each field in detail.

SPM 683 field details

Field	Value	Description
INFO CEM Swact trigger	Constant	This indicates that the log is a information log related to CEM swact trigger.
spm number	Numeric	Indicates the SPM number on which CEM swact occurred.
Status	No Alarm	Gives the status of the alarm.
Description	String	This gives the description of what triggered the CEM swact.

Action

Not applicable.

Associated Operational Measurements or Performance Measurements

None.

Additional information

None.

NODE 600

Explanation

Log Title: System Recovery Action

Name: NODE 600

Description:

This log is generated when a system recovery is happening on a node/unit

Event type: INFO

Format

The following figure shows an example and format of the NODE 600 log . The activity status is displayed in the log only if the architecture type is not load shared.

Format and example of NODE600 log

Format of NODE600 log

```
NODE600 mmmdd hh:mm:ss ssdd INFO TBL System Recovery Action
  Location= <node>
  Trouble= <trouble_code>
  Action= <user_action>
  Activity=<Activity status A or I>
  Integrated Node Maintenance Detailed Information
  Trouble Reason= <INM trouble condition reason>
```

Example of NODE600 log

```
RTPY07AW     NODE600 AUG28 01:04:40 8300 INFO System Recovery Action
        Location: SPM 12 Unit 1
         System recovery is in progress
         Activity: I
         Integrated Node Maintenance Detailed Information
                  INM retry audit trigger received
                  Information for analysis, no immediate action required
```

Field descriptions

The newly added field ‘Activity’ indicates the activity status of the unit.

NODE 600 field details

Field	Modified/Added	Value	Description
Activity	Added	A I	This indicates activity status of the unit. A -Active I - Inactive

Action

Not applicable.

Associated Operational Measurements or Performance Measurements

None.

Additional information

NODE601

Explanation

Log Title: System Status Notification

Name: NODE 601

Description:

This log is generated indicating a status notification.

Event type: INFO

Format

The following figure shows the format of the NODE 601 log .

Format of NODE 601 log

```
NODE601 <mmmdd hh:mm:ss ssdd> INFO System Status Notification
        Location: <node> <Unit number>
         Activity: <activity status A or I>
         Integrated Node Maintenance Detailed Information
         <Detailed information>
```

Example of NODE 601 log

```
RTP5     NODE601 JUL01 12:23:05 4627 INFO System Status Notification
        Location: SPM 1 Unit 1
         Activity : I
         Integrated Node Maintenance Detailed Information
         Data not synchronized
         Loadname mismatch
         Check datafill and correct if necessary
         Datafill Loadname does not match Loadname in PM
```

Field descriptions

The newly added field 'Activity' indicates the activity status of the unit.

SPM 601 field details

Field	Modified/Added	Value	Description
Activity	Added	A I	This indicates activity status of the unit. A - Active I - Inactive

Action

Not applicable.

Associated Operational Measurements or Performance Measurements

None.

Additional information

None.

NODE302

Explanation

Log Title: Software Alarm

Name: NODE 302

Description:

This log is generated when a software fault or alarm occurs.

Event type: TBL

Format

The following figure shows the format of the NODE 302 log .

Format of NODE 302 log

NODE 302 <mmmdd hh:mm:ss> <ssdd> TBL Software Alarm
Location: <NODE>
Activity:<Activity status A or I>
Integrated Node Maintenance Detailed Information
Trouble Reason: <Trouble_Reason>
Trouble Detail: Details of trouble

Example of NODE302 log

NODE 302 <mmmdd hh:mm:ss> <ssdd> TBL Software Alarm
Location: SPM 1 Unit 1
Activity: I
Integrated Node Maintenance Detailed Information
Trouble Reason: <Trouble_Reason>
Trouble Detail: <Details of trouble>

Field descriptions

The newly added field ‘Activity’ indicates the activity status of the unit.

NODE 302 field details

Field	Added/Modified	Value	Description
Activity	Added	A I	This indicates activity status of the unit. A - Active I - Inactive

Action

Not applicable.

Associated Operational Measurements or Performance Measurements

None.

Additional information

None.

NODE303

Explanation

Log Title: Wrong Application Data

Name: NODE 303

Description:

This log is generated when Wrong Application Data due to manual or system initiated activities is detected.

Event type: TBL

Format

The following figure shows the format of the NODE 303 log .

Format of NODE 303 log

Format and example of NODE log

NODE 303 <mmmdd hh:mm:ss> <ssdd> TBL Wrong Application Data
Location: <NODE>
Trouble: <Trouble_Type>
Action: <User_Action>
Activity:<Activity status A or I>
Integrated Node Maintenance Detailed Information
Trouble Reason: <Trouble_Reason>
Trouble Detail: CEM in Slot <slot_number(7or 8)> has Application Data of CEM <cem_number(0 or 1)>

```
NODE303 FEB15 01:57:54 2112 TBL Wrong Application Data
Location: SPM 0 Unit 1
Trouble:  CEM has Application Data of Mate CEM
Action:   Check LINK300 Logs & reconnect DS512 Links correctly
Activity: I
Integrated Node Maintenance Detailed Information
Trouble Reason:  DS-512 Link/Links may be misconnected.
Trouble Detail:  CEM in Slot 8 has Application Data of CEM 0.
```

Field descriptions

The newly added field ‘Activity’ indicates the activity status of the unit.

NODE 303 field details

Field	Added/Modified	Value	Description
Activity	Added	A I	This indicates activity status of the unit. A- Active I-Inactive

Action

Not applicable.

Associated Operational Measurements or Performance Measurements

None.

Additional information

None.

NODE326

Explanation

Log Title: Hardware Fault

Name: NODE 326

Description:

This log is generated when a hardware fault occurs.

Event type: TBL

Format

The following figure shows the format of the NODE 326 log .

Format of NODE 326 log

```
NODE326 <mmmdd hh:mm:ss ssdd> TBL Hardware Fault
      Location: <node> <unit number>
      Status:   <Alarm status>
      Trouble:  <trouble_code>
      Action:   <user_action>
      Activity: <activity status A or I>
       Integrated Node Maintenance Detailed Information
       Trouble Reason:  <INM trouble condition reason>
       Trouble Detail:  <trouble detail>
```

Example of NODE326 log

```
RSN07AOINDY1  ** NODE326 OCT02 14:55:30 3300 TBL  Hardware Fault
        Location: SPM 3 Unit 0
        Status:   Alarm raised
        Trouble:  Card fault
        Action:   Restore communication with the Resource Processor
         Activity: I
         Integrated Node Maintenance Detailed Information
         Trouble Reason:  Link isolation condition
         Trouble Detail:  Link/Messaging hardware
```

Field descriptions

The newly added field ‘Activity’ indicates the activity status of the unit.

NODE 326 field details

Field	Added/Modified	Value	Description
Activity	Added	A I	This indicates activity status of the unit. A-Active I-Inactive

Action

Not applicable.

Associated Operational Measurements or Performance Measurements

None.

Additional information

None.

NODE602

Explanation

Log Title: CEM State Change Reason Report

Name: NODE 602

Description:

This log is generated when a CEM unit of an SPM transitions from Insv to Sysb or Insv to Istb.

Event type: INFO

Format

The following figure shows the format of the NODE 602 log .

Format of NODE 602 log

```
<office_id> <alarm> NODE602 <mmmdd hh:mm:ss ssdd> INFO CEM State Change Reason Report
        Location:  SPM : <spm_number> CEM : <Unit number>
        Reason  : <Description string>
        Location   : <SPM node_no> Type: <spm_type> Fabric: <fabric_type>
```

Example of NODE602 log

```
MSH207BL     NODE602 DEC01 00:38:58 1500 TBL  CEM State Change Reason Report
        Location: SPM:  10   CEM :  0
        Reason  : /RmmMgr/CfltSet
        Location: SPM  10  Type: SMG4      Fabric: ATM
```

Field descriptions

The fields in the NODE 602 log are explained below in Table , “NODE 602 field details,” on page 1080.

NODE 602 field details

Field	Value	Description
INFO CEM State Change Reason Report	Constant	This indicates that the log is a information log related to CEM state change reason.
spm number	Numeric	Indicates the SPM number on which CEM state transition occurred.

Field	Value	Description
CEM unit number	Numeric	This gives the unit number of the CEM which underwent a state transition.
Reason	String	This gives the description of the reason for CEM state transition.

Action

Not applicable.

Associated Operational Measurements or Performance Measurements

None.

Additional information

None.

Related documentation

None.

Configuration for A00003971

Hardware and Software Requirements

When a manual or force swact is issued on the CEM protection level MAP, if the command fails, a reason should be displayed along with the existing response.

When the RTS of a RM fails due to invalid load in the flash, a message is displayed. This existing message needs to be corrected to include a ‘have a’ to make it grammatically correct.

Command interface changes

Directory: <directory name/MAP level>

CEM PROT level (protection level)

Directory description

This level is used to perform a manual/forced sparing on a CEM.

Accessing directory: <directory name>

Access to directory or MAP level and return to CI

To access the protection level for a CEM unit, the following is used on the command interface.

mapci;mtc;pm;post spm <spm_number>;select cem <cem number>;prot

To quit and return to the CI level, the following command is used

quit mapci

Command: <Manual/Force>

Command description

Manual command performs a manual sparing action on the selected CEM unit.

Responses

In case of failure or refusal of the manual/force sparing command, a response is output indicating the reason for failure/refusal. The list of reason strings in the response is as shown below

No swact comment
Node not inservice
Will disrupt service
Maintenance in progress
No response from unit(s)
Data-sync blocked swact.
Clock-sync blocked swact.
Carriers not up.
Hardware failure.
Unit not active. Hence cannot switch activity.
Mate CEM blocking swact.
Mate not present. Node is in simplex mode
Mate not available. Check the state of mate unit
Unable to contact mate. Mate isolated
Mate unit's state is worse off
Mate unit has already assumed activity.
Swact in progress.

The following figure shows the format of the response on the MAP.

MAP command response for CEM swact failure/refusal

```
 CM       MS      IOD      Net       PM      CCS      Lns      Trks     Ext      APPL
  CM Flt    SysB    5 CkEr    2CSLk    2 SPM      .        .         .CS    1Crit     .
    M        M                          *C*                             *C*
  Protectn                             SysB     ManB     OffL     CBsy     ISTb     InSv
   0 Quit           PM                    0        0        1        0       10        9
   2                SPM                   0        0        0        0        4        0
   3                  CEM                 0        0        0        0        2        0
   4
   5             SPM    4  ISTb
   6             Prot Grp: CEM           Mode: N/A                Schema: N/A
   7 Force      Sh0 U R A Stat    Sh0 U R A Stat    Sh1 U R A Stat    Sh1 U R A Stat
   8 Manual      1 -- - - ----     8  1 S A ISTb     1 -- - - ----     8 -- - - ----
   9             2 -- - - ----     9 -- - - ----     2 -- - - ----     9 -- - - ----
  10             3 -- - - ----    10 -- - - ----     3 -- - - ----    10 -- - - ----
  11             4 -- - - ----    11 -- - - ----     4 -- - - ----    11 -- - - ----
  12             5 -- - - ----    12 -- - - ----     5 -- - - ----    12 -- - - ----
  13 Select_     6 -- - - ----    13 -- - - ----     6 -- - - ----    13 -- - - ----
  14             7  0 W I ISTb    14 -- - - ----     7 -- - - ----    14 -- - - ----
  15            y
  16            SPM  4 CEM  1 Manual: Request has been submitted.
  17            SPM  4 CEM  1 SwAct: Command failed.<Failure reason string>
  18
   CMAP3
 Time  19:51
```

Directory: <directory name/MAP level>

RM circuit pack level

Directory description

This level is used to perform maintenance commands on a RM.

Accessing directory: <directory name>

Access to directory or MAP level and return to CI

To access the RM level for the circuit pack, the following is used on the command interface.

mapci;mtc;pm;post spm <spm_number>;select <RM circuitpack ><RM unit number>

To quit and return to the CI level, the following command is used

quit mapci

Command: <RTS>

Command description

RTS command returns the circuit pack(s) to service.

Responses

In case of failure a message is displayed on the MAP.

If the failure is due to an invalid load in the flash, the following message is displayed on the MAP.

RM does not valid load in Flash**.**

This message has been changed to

RM does not have a valid load in Flash.

The following figure shows the format of the response on the MAP.

MAP response for RTS failure due to invalid load in flash

```
XAC      MS     IOD     Net      PM     CCS     Lns     Trks    Ext     APPL
AMDI     Istb   1IOCOS    .     7 SPM  4   RS    .      52CC.   1 Maj  ATM_21
 *C*              M             *C*     *C*              *C*      M      *C*
DLC                             SysB    ManB    OffL    CBsy    ISTb    InSv
 0 Quit          PM               4       0       0       0       20       5
 2               SPM              0       0       0       0        8       1
 3 ListSet         DLC            1       0       0       0        1       0
 4
 5            SPM    5 DLC   0  InAct  SysB
 6 Tst
 7 Bsy         Loc : Row B  FrPos  0 ShPos 59 ShId 1 Slot  1   Prot Grp : 1
 8 RTS       Default Load: DLC71AZ                          Prot Role: Working
 9 OffL       rts
10 LoadMod    SPM  5 DLC  0 RTS: Request has been submitted.
11            Severity:  Critical
12 Next       Problem : Restart failed, no load in Flash, please reload.
13 Select_
14 QueryMod   Action     : No Cardlist Available.
15 ListAlm    SPM  5 DLC  0 RTS: Command failed. RM does not have a valid load
16 Prot       in Flash.
17 SPERFORM
18
  MALINI
Time  04:31  >
```

Product = CS 2000

A00004036 -- AIN Update Message Query, Response Enhancement (Succession on DMS)

Functional Description

This activity addresses the development associated with enabling in the DMS the update and/or query capabilities for the service listed in the Chapter 5 Section 5.7 of GR-1298 “Information Revision Messages”, which outlines specific groups as well as the services and/or functions relevant to each group.

Given that the appropriate network architecture is available, with the addition of this set of capabilities in the DMS, subscriber’s will have the ability to both query the status and/or programmed information (if applicable) as well as activate/deactivate and update their corresponding service.

While the first iterations will rely heavily on Advanced Intelligent Network (AIN) (the initial protocol support is Abstract Syntax Notation 1 (ASN.1) via Signaling System No. 7 (SS7)), it should be understood that the intention is for the individual update and/or query service event handlers ***not*** be protocol dependent nor coupled to AIN directly.

There is much to benefit, however, in abiding by GR-1298; primarily compliance but it also provides an initial set of requirements and capabilities that are already generally available. The following sections outline GR-1298’s Service Data Function *(SDF)* groups as well as their corresponding capabilities and relevant services.

This development allows end user to activate/deactivate the service as if he/she have done from their own phone. Based on the service provider’s interface for the end-user it take out the complexity to activate, deactivate, add, change, delete or edit service specific data faced by end-user using a phone.

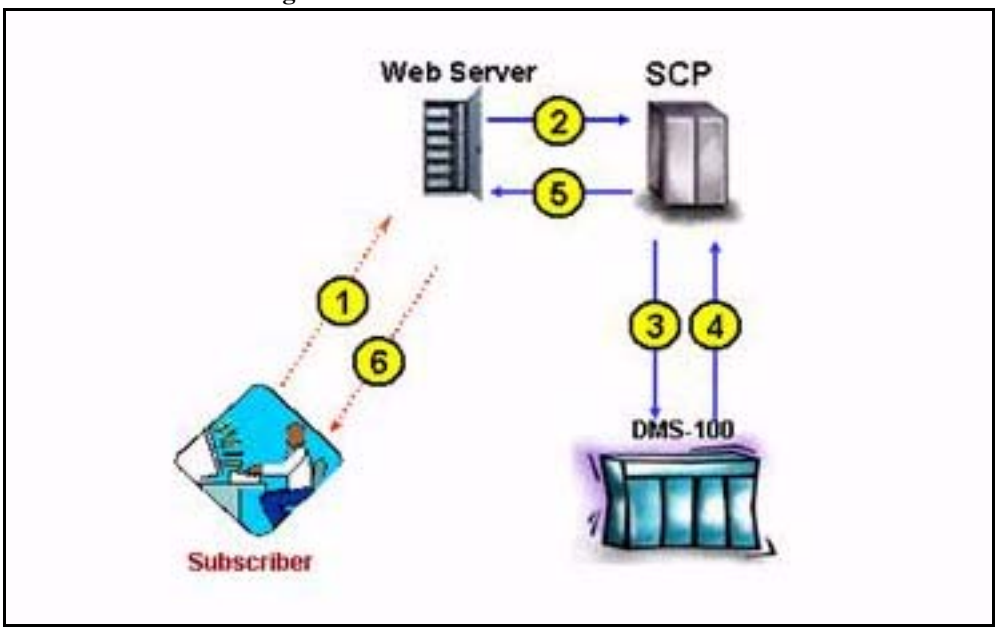
Functional Behavior

Recognizing that the scope of this activity does not go beyond development in the Core, “Functional Behavior Diagram” on page 1086 below illustrates the basic control capabilities this activities intends to enable Off-board service control (given an AIN network solution). The following steps outline the basic tasks:

1. The subscriber logs into the Provider’s network and, via Web or PC Client based application, gains access to his or her subscriber service control level. From here, the subscriber can generate a request for information about subscribed to services and/or an update to change, for example, the status of a service.

2. The subscriber's update/query request is delivered to the Provider's Network Server where a properly encoded message is created and dispatched to the SCP enabled in the Provider's network.
3. The update/query request is delivered to the SCP where a properly encoded message is created and dispatched via (SS7 or TCAP/IP) to the End-Office serving the subscriber.
4. The End-Office handles the request and replies with the appropriate response. A query response, for example, contains the information requested (e.g. status of a service).
5. The response is delivered to the Provider's Network Server where it is put into a format understood by the application serving the subscriber and, finally,
6. The formatted response makes gets delivered to the subscriber's application where the information is displayed.

Functional Behavior Diagram

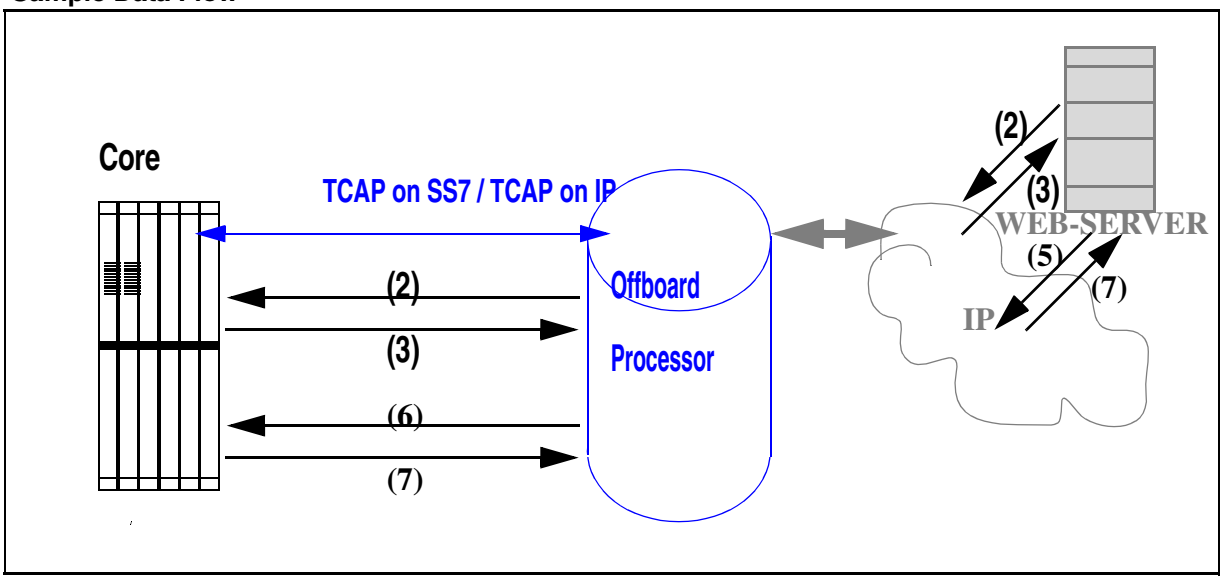


Note: It should be understood that the behavioral diagram outlined above represents only one of several possible network solutions and, while it represents the most plausible configuration in the short term, should not be considered the only alternative.

Sample Data Flow

The Figure , "Sample Data Flow" for the service management feature is described below:

Sample Data Flow



1. The end-user browses the web-site, logs into the his / her account. E.g.: Myaccount@MyServiceProvider.com.
2. The Web client triggers a Query to the Off-board Processor, the Off-board Processor in turn generates a TCAP Query Request (NCR) to the Core.
3. The Core responds with the TCAP Query Response (NCR) message which return the users current profile, i.e. the current features assigned to the subscriber, their activation status and relevant attributes.
4. The end-user may decide to change certain services, for e.g.: SLE lists, call forward DN, or turn the call forward busy on the line. The user submits these changes.
5. This triggers the Offboard processor, which could be either of the SCP, IMS or an independent box.
6. The off-board processor in turn Builds TCAP Non Call Related Messages (e.g.: Update Message) and sends to the Core /Switch.
7. The Core / Switch will process the request and respond with the outcome of the request.
8. The Web-server could further use other Query Requests and Update Message to retrieve updated information for a user profile and change the feature attributes.

DN Validation

The DN Validation requires TCAP query for certain services. GR-1298 is not clear on how to allow the DN validation for Non-CallP services. However, we are able to provide DN Validation using TCAP query. The following is the details for the DN Validation behavior for Non-CallP query and update request from the SCP:

SDF Group 1

Group1 services are those generally provided with the ability to

- activate and/or deactivate
- retrieve the status

The following is a list of services GR-1298-Core classifies as Group1.

- Message Waiting Indicator (MWT, CMWI, AINMWT etc.)
- Visual Message Waiting Indicator (MWL, CMWI, AINMWT etc.)
- Anonymous Call Rejection (ACRJ)
- Automatic Callback (deactivation or *cancellation* only) (ACB)
- Automatic Recall (deactivation or *cancellation* only) (AR)
- Call Screening (CSMI)
- Outside Calling Area Alerting (LDSA)
- Calling Identity Delivery and Suppression (activation -> *set the pps to public* and deactivation -> *set the pps to private*) (SUPPRESS)
- Call Waiting (CWTACT)

The following service is not classified by GR-1298-Core but supported by CM under Group 1:

- Make Set Busy (MSB)

  Note: Appendix A describes the encoding/decoding of MSB.

SDF Group 2

Group2 services are those generally provided with the ability to

- activate and/or deactivate
- update a corresponding delay interval value.
- retrieve the status and/or delay interval value.

The following is a list of services GR-1298-Core classifies as Group2.

- Audio Message Waiting Indicator (PRN)

SDF Group 3

Group3 services are those generally provided with the ability to

- activate and/or deactivate
- add/delete list entries corresponding to a specified Directory Number (DN), Speed Call Code or Incoming Memory Slot
- delete all list entries

- delete all private entries
- retrieve the status, list entries and/or list size

The following is a list of services GR-1298-Core classifies as Group3.

- Distinctive Ringing/Call Waiting
- Selective Call Rejection

The following service is not classified by GR-1298-Core but supported by CM under group 3:

- Simultaneous Ringing (SIMRING)

  Note: The Section describes the encoding/decoding of Simring.

SDF Group 4

Group4 services are those generally provided with the ability to

- activate and/or deactivate
- set or clear forwarding (remote) DN
- retrieve the status and/or forwarding DN

The following is a list of services GR-1298-Core classifies as Group4.

- Call Forwarding Variable
- Call Forwarding Don't Answer
- Call Forwarding Busy Line

  Note: Please refer to section for support of AINDigits Parm. This parm is not supported for Group4 in GR-1298 and GR-1299.

SDF Group 5

Group5 services are those generally provided with the ability to

- activate and/or deactivate
- add/delete list entries corresponding to a specified DN, Speed Call Code or Incoming Memory Slot
- delete all list entries
- delete all private entries
- set or clear forwarding (remote) DN
- retrieve the status, list entries, list size and/or forwarding DN

The following is a list of services GR-1298-Core classifies as Group5.

- Selective Call Forwarding
- Selective Call Acceptance

Note: Please refer to section for support of AINDigits Parm. This parm is not supported for Group5 in GR-1298 and GR-1299.

SDF Group 6

Group6 services are those generally provided with the ability to

- update the relevant delay interval for number of rings prior to forwarding
- retrieve the delay interval value

The following is a list of services GR-1298-Core classifies as Group6.

- Ring Control

SDF Group 7

Group7 services are those generally provided with the ability to

- invoke the DMS-based CNDB or CNAB features

The following is a list of services GR-1298-Core classifies as Group7.

- Calling Number Delivery Blocking
- Calling Name Delivery Blocking

SDF Group 8

Group8 services are those generally provided with the ability to

- invoke a service

The following is a list of services GR-1298-Core classifies as Group8.

- Customer Originated Trace
- Cancel Call Waiting

SDF Group 9

Group9 services are those generally provided with the ability to

- change speed calling list entry to specified DN

The following is a list of services GR-1298-Core classifies as Group9.

- Speed Calling

For more information, please refer to GR-1298-Core, section 6.4.

Nortel has developed different variants of the GR's Speed Calling feature. For instance, Nortel's Speed Calling Short (SCS) allows an end user to store a

maximum of ten (i.e., 0 to 9) often dialed DNs; therefore, SCS supports a single Speed Calling cell digit access. Nortel's Speed Calling Long (SCL) allows an end user to store up to seventy (i.e., 00 to 69) often dialed DNs; therefore, SCL supports two digits for Speed Calling Cell access.

Note: for SCL (i.e., L30, L50 or L70), the end user must dial both digits of the two digit Speed Calling code, even if the first digit is zero.

This design intent makes the assumption that from the Speed Calling Cell digits provided (from the end user), a single Speed Calling (SC) digit indicates SCS, and two SC digits indicate SCL or Speed Calling User (SCU)[1].

GR-1298-Core allows for Group9 Update request(s); however, it does not provide for a Group9 Query message in order to retrieve/query the user's Speed Call data. However, Nortel will utilize the Extension Parm to retrieve/query a Block of 20 DNs (per Group9 Query Message). Each Query Block (of DNs) are labeled 0 to 5. For instance:

Nortel's Group9 Query Action $Block_X$: where x = 0 through 5:

- Query Action $Block_0$ contains DNs associated with Speed Call Codes 0 to 19
- Query Action $Block_1$ contains DNs associated with Speed Call Codes 00 to 19
- Query Action $Block_2$ contains DNs associated with Speed Call Codes 20 to 39
- Query Action $Block_3$ contains DNs associated with Speed Call Codes 40 to 59
- Query Action $Block_4$ contains DNs associated with Speed Call Codes 60 to 79
- Query Action $Block_5$ contains DNs associated with Speed Call Codes 80 to 99

Nortel's Group9 Query Action $Block_0$ is utilized for Speed Call Short only. Since Nortel's Speed Call Short list could contain up to a maximum of 10 DNs associated with a Speed Call Code, only the first 10 indexes (0 to 9) of Block0 will be utilized for a Speed Call query. The remaining indexes (10 to 19) will contain NIL DNs.

Nortel's Group9 Query Action Blocks 1-5 (i.e., Blocks1 through Blocks5) are utilized for Speed Call Long only.

1. SCU - Speed Calling User: this user is allowed (if provisioned with the SCU Servord line option) to have access to a Speed Calling Long list. However, for this feature deployment, the SCU user is not allowed to add, change or query the Speed Calling list - only the SCL controller is allowed to modify or to query their SCL list.

Speed Calling directory number validation will be performed if the Speed Calling Validation (SCVAL) option is provisioned in Table CUSTSTN.

Please reference the appendix for Nortel's Group9 Query implementation, which utilizes the Extension Parm. Also, please refer to section for support of AINDigits Parm. This parm is not supported for Group9 in GR-1298 and GR-1299.

Hardware Requirements or Dependencies

In order to enable this capability for affected subscribers, the following must be present in the provider's network:

- EO Switch providing the affected services must be enabled to handle the corresponding update and/or queries request via SS7.

Software Requirements or Dependencies

A number of services are controlled via software optionality control (SOC). In order to use these services, appropriate SOCs must be activated in the switch. Therefore, this development depends on the following SOCs:

- AIN00002 - Essentials
- AIN00006 - Call Management
- AIN00210 - Service Enablers
- RES00008 - Long Distance Indicator
- RES00059 - LDA Enhancement
- RES00047 - Call Screening
- RES00053 - Enhanced CSMI
- RES00060 - Usage Sensitive Call Forwarding
- RES00073 - SLE/ACBAR NO TCAP
- RES00081 - Simultaneous Ring
- RES00085 - SimRing Virtual DN
- RES00102 - Enh Do Not Disturb

Limitations and restrictions

As discussed previously, the initial release of this capability is coupled to AIN, specifically for signaling support and primary message (ASN.1) encoding/decoding functions.

Because each group/service pair has its own unique set of limitations/restrictions, a table is being provided to capture what, if any, limitations are present for each application.

Limitations and Restrictions for each service

Group	Service	Limitations/Restrictions
1	Message Waiting Indicator	To support MWI, MSRID is required to be sent by off-board processor and it has to be data filled in Table MSRTAB in the DMS. In the response of the query for MWI status, the ON/OFF status is sent back to the off-board system. The requestor DN which is stored against the agent will not be sent because GR-1298-Core does not support any additional data. The DMS supports following type of Message Waiting Indicator and Services: Message Waiting Lamp - for Integrated Business Network (IBN) and Key Set (KSET) lines in business Stutter Dial Tone (STD) - for Residential (RES) lines in residential and IBN lines in business environment. Class Message Waiting Indicator (CMWI) for RES lines in form of STD. All existing Message Waiting (MWT) limitations and restrictions for activation and deactivation are the same and applicable to query and update messages for MWT. Also, please refer to AIN Service Implementation Guide (SIG) for more details.
1	Visual Message Waiting Indicator	To support MWI, MSRID is required to be sent by off-board processor and it has to be data filled in Table MSRTAB in the DMS. In the response of the query for MWI status, the ON/OFF status is sent back to the off-board system. The requestor DN which is stored against the agent will not be sent because GR-1298-Core does not support any additional data. The DMS supports following type of Message Waiting Indicator and Services: Message Waiting Lamp - for IBN and KSET lines in business STD - for RES lines in residential and IBN lines in business environment. CMWI for RES lines in form of STD. The DISPLAY TEXT is not supported. All existing MWT limitations and restrictions for activation and deactivation are the same and applicable to query and update messages for MWT. Also, please refer to AIN SIG for more details.
1	Anonymous Caller Rejection	All existing Anonymous Caller Rejection (ACRJ) limitations and restrictions for activation and deactivation are the same and applicable to query and update messages for ACRJ.

Limitations and Restrictions for each service

Group	Service	Limitations/Restrictions
1	Automatic Callback	The only portion is supported to deactivate the Automatic Callback (ACB) as per GR-1298-Core. The activation request for ACB is rejected. All existing Automatic Callback (ACB) limitations and restrictions for deactivation are the same and applicable to query and update messages for ACB.
1	Automatic Recall	The only portion is supported to deactivate the Automatic Recall (AR) as per GR-1298-Core. The activation request for AR is rejected. All existing Automatic Recall (AR) limitations and restrictions for deactivation are the same and applicable to query and update messages for AR.
1	Call Screening	The Call Screening, Monitoring and Intercept (CSMI) is supported for both residential and business lines. All existing CSMI limitations and restrictions for activation and deactivation are the same and applicable to query and update messages for CSMI.
1	Outside Calling Area Alerting	The Outside Calling Area Alerting is known as long distance alerting (LDA) in DMS. The LDA service along with LDA Enhancement (LDAE) supports LDSV, LDSO, LDSA, LDSR and LDST options in DMS switch. Out of these options, the only option allows end user to activate/deactivate is LDSA using access code. The query and update messages are only applicable to LDSA state and activation/deactivation. If LDS_AUTO_PROV_ENABLED office parameter is set to “Y”, the LDSA is automatically provisioned to line if the LDSV option is data filled in Table LINEATTR. User action to deactivate is ignored by the LDSA service. The update message for LDSA is ignored. All existing LDSA limitations and restrictions for activation and deactivation are the same and applicable to query and update messages for LDSA.

Limitations and Restrictions for each service

Group	Service	Limitations/Restrictions
1	Calling Identity Delivery and Suppression	The Calling Identity Delivery and Suppression (SUPPRESS) is only supported for the PUBLIC network. The query returns the current status of the line as public or private. The update request to activate change the status pps to public. The update request to deactivate change the status pps to private. If current status is public and deactivate request is received, no change made to the status. If current status is private and activate request is received, no change made to the status. All existing SUPPRESS limitations and restrictions for activation and deactivation are the same and applicable to query and update messages for SUPPRESS.
1	Call Waiting	The call waiting (CWT) service is always active on all the lines when assigned in the switch. It is only deactivated when Cancel Call Waiting (CCW) access code is dialed. In the response to the query request following is sent for CWT: If only CWT option is assigned to the line than the status of CWT is active. If CWTACT is also assigned to the line than the status of CWTACT. In the response to the update request following activation/deactivation are done: If only CWT option is assigned to the line than activate/deactivate request are rejected because we can not change the status of CWT on the line. If CWTACT is also assigned to the line than the activate request change the status to active and deactivate request change the status to inactive. Prior to this release CWTACT was only supported for the business lines. This feature also makes CWTACT available to RES lines as well. All existing CWT and CWTACT limitations and restrictions for activation and deactivation are the same and applicable to query and update messages for CWT and CWTACT.

Limitations and Restrictions for each service

Group	Service	Limitations/Restrictions
1	Make Set Busy	The Make Set Busy (MSB) is not required nor supported by GR-1298-Core and GR-1299-Core. This is a group 1 service supported by this activity as additional supported service. The activate request turns MSB “ON” and deactivate request turns MSB “OFF”. All existing MSB limitations and restrictions for activation and deactivation are the same and applicable to query and update messages for MSB. For encoding/decoding of MSB, please refer to Section .
2	Audio Message Waiting Indicator	The GR-1298 defined Audio Message Waiting Indicator (AMWI) allows control of both MWT indication for the line in terms of ping ring at a programmable interval. This is the main difference between MWT in group1 and AMWI in grouyp2. The DMS service PRN falls under AMWI category while all other flavor of MWT in DMS are Group1 services. The delay interval is not supported. The CM feature Periodic Ringing Notification (PRN) can only be activated or deactivated because PRN does not allow to control the ring interval or delay interval.

Limitations and Restrictions for each service

Group	Service	Limitations/Restrictions
3	Distinctive Ringing/Call Waiting	GR-219-Core provides the following guidance with respect to Distinctive Ringing/Call Waiting (DRCW) Traffic Measurements: Hourly peg counts and usage counts with a usage scan rate of 1 per 10 seconds for SCRJ screen editing, for attempts to invoke control procedures as a result of dialing either SCF service access code (*61 or *81) The end-office will peg any DRCW editing attempt as though the subscriber had instigated the editing session via service access code, therefore, the existing set of DRCW OMs will be used to reflect the measurements for both service access code and/or off-board service control attempts. For more information, please refer to the chapter discussing performance. DRCW editing will be denied if DOR option present. In such instances, a result cause of *denied unsuccessful update (27)* will be provided in the update response. DRCW editing will be denied if DENY DRCW option present. In such instances, a result cause of *denied unsuccessful update (27)* will be provided in the update response. Attempts to add Extension DNs to an IBN subscriber's DRCW list is not supported.[a] TCAP DN validation will not be performed for ADDs in which the source of the DN to be added is either incoming call memory or an existing SpeedCall cell entry. The office parameter that controls the maximum number of SLE programmers allowed at any given time (SLE_MAX_PROGRAMMERS) will have no affect on SLE programming performed via the off-board service control interface. A response of *confAllAnonymousEntriesRemoved* will be returned for *Delete All Anonymous Entries* update requests in which no private DNs are present in the subscriber's list. When editing DRCW via Universal Access, the initial edit/query attempt will automatically add DRCW to the subscriber's line and take on the characteristics of DRCW as defined in table RESOFC. Edit attempts with SOCOption AIN00322 IDLE will result in a SLE106 log being generated. A response of *deniedUnsuccessfulUpdate* will be returned for ADD attempts in which DN validation fails. For entire list queries in which the number of DNs in the list exceeds 32,only the first 32 entries will be reported in the query response and a SLE106 log will be generated.

Limitations and Restrictions for each service

Group	Service	Limitations/Restrictions
3	Selective Call Rejection	• GR-218-Core provides the following guidance with respect to Selective Call Rejection (SCRJ) Traffic Measurements: *Hourly peg counts and usage counts with a usage scan rate of 1 per 10 seconds for SCRJ screen editing, for attempts to invoke control procedures as a result of dialing either SCF service access code (*60 or *80)* The end-office will peg any SCRJ editing attempt as though the subscriber had instigated the editing session via service access code, therefore, the existing set of SCRJ OMs will be used to reflect the measurements for both service access code and/or off-board service control attempts. For more information, please refer to the chapter discussing performance. • SCRJ editing will be denied if DOR option present. In such instances, a result cause of *denied unsuccessful update (27)* will be provided in the update response. • SCRJ editing will be denied if DENY SCRJ option present. In such instances, a result cause of *denied unsuccessful update (27)* will be provided in the update response. • Attempts to add Extension DNs to an IBN subscriber's SCRJ list is not supported. • TCAP DN validation will not be performed for ADDs in which the source of the DN to be added is either incoming call memory or an existing SpeedCall cell entry. • The office parameter that controls the maximum number of SLE programmers allowed at any given time (SLE_MAX_PROGRAMMERS) will have no affect on SLE programming performed via the off-board service control interface. • A response of *confAllAnonymousEntriesRemoved* will be returned for *Delete All Anonymous Entries* update requests in which no private DNs are present in the subscriber's list. • When editing SCRJ via Universal Access, the initial edit/query attempt will automatically add SCRJ to the subscriber's line and take on the characteristics of SCRJ as defined in table RESOFC. • Edit attempts with SOCOption AIN00322 IDLE will result in a SLE106 log being generated. • A response of *deniedUnsuccessfulUpdate* will be returned for ADD attempts in which DN validation fails. • For entire list queries in which the number of DNs in the list exceeds 32,only the first 32 entries will be reported in the query response and a SLE106 log will be generated.

Limitations and Restrictions for each service

Group	Service	Limitations/Restrictions
3	Simultaneous Ringing	• The *EditSpecificEntry field* values of “add” or “delete” will be interpreted to add or delete only the NON-Pilot Member DN of a SIMRING group. • *EditAllEntries field* with a value of “deleteAllEntries “is interpreted as deleting only the Non-Pilot Member DNs in the SIMRING group. • *EditSpecificEntry field* with value of “delete” will result in SIMRING getting deactivated on the PILOT DN if no entries remain on the list. • *EditAllEntries field* with a value of “deleteAllEntries “will result in SIMRING getting deactivated on the PILOT DN. • *EditAllEntries field* with a value of “deleteAllPrivateEntries” is NOT valid for SIMRING. The update message with this action field will result in UnavailableResources result Cause being sent back as return error component. • The UPDATE message cannot edit the Non Pilot Member DN list during a SIMRING call (i.e. while all the member DNs are ringing). • Attempts to add NON-Pilot Member DNs via the ICM or given SpeedCall cell entry are not supported for SIMRING. • Edit attempts with SOCOption AIN00327 IDLE will result in a SLE106 log being generated. • A response of *deniedUnsuccessfulUpdate* will be returned for ADD attempts in which DN validation fails.
4	Call Forwarding Variable	Courtesy call during activation is not supported. No AIN triggers will be encountered during programing. ISDN agents are not supported. In a case involving updating the activation data for a call forward keylist, consistency will be retained between this feature and the present DMS call forwarding code as to what constitutes a successful updating. When the call forward service is deactivated, it will not clear the forwarding DN. This is to maintain consistency with the current DMS implementation. When the forwarded to DN is cleared, the call forwarding service will also be deactivated. The forwarded to DN may be up to 30 digits in length. CFU Per Key is not supported.

Limitations and Restrictions for each service

Group	Service	Limitations/Restrictions
4	Call Forwarding Don't Answer	Courtesy call during activation is not supported. No AIN triggers will be encountered during programing. Integrated Services Digital Network (ISDN) agents are not supported. In a case involving updating the activation data for a call forward keylist, consistency will be retained between this feature and the present DMS call forwarding code as to what constitutes a successful updating. When the call forward service is deactivated, it will not clear the forwarding DN. This is to maintain consistency with the current DMS implementation. When the forwarded to DN is cleared, the call forwarding service will also be deactivated. The forwarded to DN may be up to 30 digits in length. CFB Per Key is not supported.
4	Call Forwarding Busy Line	Courtesy call during activation is not supported. No AIN triggers will be encountered during programing. ISDN agents are not supported. In a case involving updating the activation data for a call forward keylist, consistency will be retained between this feature and the present DMS call forwarding code as to what constitutes a successful updating. When the call forward service is deactivated, it will not clear the forwarding DN. This is to maintain consistency with the current DMS implementation. When the forwarded to DN is cleared, the call forwarding service will also be deactivated. The forwarded to DN may be up to 30 digits in length. CFD Per Key is not supported.

Limitations and Restrictions for each service

Group	Service	Limitations/Restrictions
5	Selective Call Forward	• GR-217-Core provides the following guidance with respect to Selective Call Forwarding (SCF) Traffic Measurements (section 3.5.4): *Hourly peg counts and usage counts with a usage scan rate of 1 per 10 seconds for SCF screen editing, for attempts to invoke control procedures as a result of dialing either SCF service access code (*63 or *83)* The end-office will peg any SCF editing attempt as though the subscriber had instigated the editing session via service access code, therefore, the existing set of SCF OMs will be used to reflect the measurements for both service access code and/or off-board service control attempts. For more information, please refer to the chapter discussing performance. • SCF editing will be denied if DOR option present. • SCF editing will be denied if DENY SCF option present. • If there are no entries in the list *and* no forwarding DN present, attempts to enable SCF will fail with a result cause of *denied invalid Forward DN*(17). • Attempts to add Extension DNs to an IBN subscriber's SCF list is not supported. • TCAP DN validation will not be performed for ADDs in which the source of the DN to be added is either incoming call memory or an existing SpeedCall cell entry. • The office parameter that controls the maximum number of SLE programmers allowed at any given time (SLE_MAX_PROGRAMMERS) will have no affect on SLE programming performed via the off-board service control interface. • A response of *confAllAnonymousEntriesRemoved* will be returned for *Delete All Anonymous Entries* update requests in which no private DNs are present in the subscriber's list. • When editing SCF via Universal Access, the initial edit/query attempt will automatically add SCF to the subscriber's line and take on the characteristics of SCF as defined in table RESOFC. • Edit attempts with SOCOption AIN00322 IDLE will result in a SLE106 log being generated. • A response of *deniedUnsuccessfulUpdate* will be returned for ADD attempts in which DN validation fails. • For entire list queries in which the number of DNs in the list exceeds 32,only the first 32 entries will be reported in the query response and a SLE106 log will be generated.

Limitations and Restrictions for each service

Group	Service	Limitations/Restrictions
5	Selective Call Acceptance	• GR-1298-Core provides for Selective Call Acceptance (SCA) to define the *no call acceptance treatment* as being a forwarding DN. Nortel Network's version of SCA does not allow for this capability. • The end-office will peg any SCA editing attempt as though the subscriber had instigated the editing session via service access code, therefore, the existing set of SCA OMs will be used to reflect the measurements for both service access code and/or off-board service control attempts. For more information, please refer to the chapter discussing performance. • SCA editing will be denied if DOR option present. • SCA editing will be denied if DENY SCA option present. • Attempts to add Extension DNs to an IBN subscriber's SCA list is not supported. • TCAP DN validation will not be performed for ADDs in which the source of the DN to be added is either incoming call memory or an existing SpeedCall cell entry. • The office parameter that controls the maximum number of SLE programmers allowed at any given time (SLE_MAX_PROGRAMMERS) will have no affect on SLE programming performed via the off-board service control interface. • A response of *confAllAnonymousEntriesRemoved* will be returned for *Delete All Anonymous Entries* update requests in which no private DNs are present in the subscriber's list. • When editing SCA via Universal Access, the initial edit/query attempt will automatically add SCA to the subscriber's line and take on the characteristics of SCA as defined in table RESOFC. • Edit attempts with SOCOption AIN00322 IDLE will result in a SLE106 log being generated. • A response of *deniedUnsuccessfulUpdate* will be returned for ADD attempts in which DN validation fails. • For entire list queries in which the number of DNs in the list exceeds 32,only the first 32 entries will be reported in the query response and a SLE106 log will be generated.
6	Ring Control	Only supported for a ring control type of PRGRING. One ring will last 8s for lines off of non-RDT peripherals and 6s for lines off of Remote Digital Terminal (RDT) peripherals. The number of rings can range between what the OFCENG parm RINGCTRL_MIN_VALUE is set to and 9.
7	Calling Number Delivery Blocking	A DN's Permanent Presentation Status (PPS) is stored in table DNATTRS under the SUPPRESS option. The CNDB feature allows the caller to override the Number portion of the PPS on a per-call basis. The line must be subscribed to the CNDB line or customer group option or the CNDB Universal option. The agent must be off-hook and in the dialing state for the CNDB service to be invoked.

Limitations and Restrictions for each service

Group	Service	Limitations/Restrictions
7	Calling Name Delivery Blocking	A DN's Permanent Presentation Status (PPS) is stored in table DNATTRS under the SUPPRESS option. The CNAB feature allows the caller to override the Name portion of the PPS on a per-call basis. The line must be subscribed to the CNAB line or customer group option or the CNAB Universal option. The agent must be off-hook and in the dialing state for the CNAB service to be invoked.
8	Customer Originated Trace	• As per GR-216-Core and the CM implementation of the Customer Originated Trace (COT) feature, two activation levels (ACTLEVEL) are available for conventional users accessing the feature via an access code on telephone. The UPDATE message will allow invoking of the COT feature only for ACTLEVEL of ONELEVEL, which does NOT have any confirmation prompt announcements for the user accessing the feature. • The UPDATE message will not be supporting any announcements or any language related enhancements for the COT feature invocation. • If the COT has already been activated by the user via the access code from a telephone for the last incoming call then if an UPDATE message is used for the COT invocation, then it will be treated like a repeat attempt. The same will be valid in vice-versa scenario.
8	Cancel Call Waiting	• The user can use the UPDATE message to activate Cancel Call Waiting (CCW) only when the user is already off hook and getting a dial tone or is already on a call (single party or multiparty). • If the user invokes CCW through the UPDATE message while being off hook, then the user will not hear any audible confirmation tone for the invocation.

Limitations and Restrictions for each service

Group	Service	Limitations/Restrictions
9	Speed Calling	• GR-1299-Core provides numbers 2 through 9 (for Speed Call Short) or numbers 20 through 39 (for Speed Call Long) as the Speed Calling Code(s) for the Group9 Update Message. Nortel will support these GR required Speed Calling Code range. However, Nortel exceeds the GR-1299-Core standard by supporting the following Speed Call Code(s) (from NTP 297-8021-350, Standard 14.02, May 2001): - single digit Speed Call Cell range 0 to 9 for Speed Call Short (SCS), and - two digit Speed Call Cell range 00 to 69 for Speed Call Long (SCL) or Speed Call User (SCU) • GR-1299-Core does not provide for a Group9 Query message in order to retrieve/query the user's Speed Call data. However, Nortel will utilize the Extension Parm to retrieve/query a Block of 20 DNs (per Group9 Query Message). Each Query Block (of DNs) are labeled 0 to 5. For example: Nortel's Group9 Query Action $Block_X$: where X = 0-5: - Query Action $Block_0$ contains DNs associated with Speed Call Codes 0 to 19 - Query Action $Block_1$ contains DNs associated with Speed Call Codes 00 to 19 - Query Action $Block_2$ contains DNs associated with Speed Call Codes 20 to 39 - Query Action $Block_3$ contains DNs associated with Speed Call Codes 40 to 59 - Query Action $Block_4$ contains DNs associated with Speed Call Codes 60 to 79 - Query Action Block5 contains DNs associated with Speed Call Codes 80 to 99 • Nortel's Group9 Query Action $Block_0$ is utilized for Speed Call Short only. Since Nortel's Speed Call Short list could contain up to a maximum of 10 DNs associated with a Speed Call Code, only the first 10 indexes (0 to 9) of $Block_0$ will be utilized for query. The remaining indexes (10 to 19) will contain NIL DNs. • Nortel's Group9 Query Action Blocks 1-5 (i.e., $Blocks_1$ through $Blocks_5$) are utilized for Speed Call Long only.

Limitations and Restrictions for each service

Group	Service	Limitations/Restrictions
9	Speed Calling	• GR-1299-Core provides that the Group9 Update Speed Call DN be a maximum of 10 digits per Speed Call Cell. **Note**: Nortel will support the GR-1299-Core requirement for a 10 digit Speed Call DN per Cell. In addition, Nortel will support an AINDigit DN which supports up to 30 digits for a Speed Call DN per Cell. • Nortel's Speed Call Design intent indicates that from the Speed Calling Cell digits provided (from the end user), a single Speed Calling Cell digit indicates Speed Calling Short, and two Speed Calling Cell digits indicate Speed Calling Long or Speed Calling User (SCU)[b]. • Only the Speed Call Controller is allowed to receive or query their Speed Calling List - not a Speed Calling User (SCU). • End to End Speed Call Signaling is not supported. • The Group9 Query Response Extension Parm contains the following fields: - **Count**: the total number of Speed Calling DNs within this $Block_X$ (up to 20). - **DN Bytes**: the number of bytes needed to represent the Speed Calling DN. Note: this range is 1 to 15, where 15 bytes represents 30 Digits. - **SC Cell**: the Speed Calling Cell associated with the Speed Calling DN. - **SC DN**: the Speed Calling DN. **NOTE:** ***if there's an odd number of Speed Calling Digits, the ending nibble will be hex F.*** • Please reference NTP 297-8021-350, Standard 14.02, May 2001 for all Nortel Speed Call limitations/restrictions. The Group9 Update/Query Event Handler will support the following: • Update Result Causes: - *deniedUnsuccessfulUpdate* - *confServiceActivated* • Update Return Result: - *UPD_UnavailableResources* - *UPD_OK* • Query Result: - *QR_Unavailable_Resources* - *QR_OK*

a. support EXTN DNs is possible given that EXTN is specified in the ADD DN update request - EXTN parm is currently not supported in the protocol but could be added as an extension parm of both group3 and group5 services.

b. SCU - Speed Calling User: this user is allowed (if provisioned with the SCU Servord line option) to have access to a Speed Calling Long list. However for this
feature deployment, the SCU user is not allowed to add, change or query the Speed Calling list - only the SCL controller is allowed to modify or to query their SCL list.

Appendix A for A00004036: Supplementary Details

This section contains additional details for the encoding and decoding services which are not supported by the GR-1298 and GR-1299. It also contains the details of Nortel's Extension Parameter(s) to support additional services and functionalities.

Make Set Busy Encoding and Decoding

The Make Set Busy service is not described in the GR-1299, Issue 7, Nov. 2001, ASN.1 encoding. The following extension to the GR-1299 ASN.1 encoding provides the Make Set Busy service accessible via update messages (Page 6-17, Section 6.4.2, GR-1299-Core, Issue 7, Nov. 2001):

Service1::=ENUMERATED {

messageWaitingIndicator (0),

visualMessageWaitingIndicator (1),

anonymousCallRejection (2),

automaticCallback (3),

automaticRecall (4),

callScreening (5),

outsideCallingAreaAlerting (6),

callingIdPresentAndSuppress (7),

callWaiting (8),

makeSetBusy (9)

}

The RequestGroup1 in Section 6.114, Page 6-110 of GR-1299-Core, Issue 7, Nov. 2001 refers to above Service1 for the Query request. The above change also apply to RequestGroup1, Service1 as well to provide the query request of the makeSetBusy service.

The same changes also apply to Page C-57 and C-79, ASN.1 Modules to provide makeSetBusy service under Service1 category.

The following is a hex and ASCII representation of the makeSetBusy Query, makeSetBusy Update request without AMASLPID and makeSetBusy Update request with AMASLPID:

makeSetBusy in Query Request:

BF 72

09

A1

07

81 01 09

82 02 07 80

ProvideInfo

(

RequestGroup1

(

Service1(makeSetBusy)

Request1(activationStatus)

)

)

makeSetBusy in Update Request without AMASLPID (Activate Request):

A2

06

81 01 09

82 01 01

UpdateGroup1

(

Service1(makeSetBusy)

Action1(on)

)

makeSetBusy in Update Request without AMASLPID (Deactivate Request):

A2

06

81 01 09

82 01 00

UpdateGroup1

(

Service1(makeSetBusy)

Action1(off)

)

makeSetBusy in Update Request with AMASLPID (Activate Request):

BF 67

11

A1

07

81 05 16 63 12 53 31

A2

06

81 01 09

82 01 01

8A 05 11 11 11 11 01

SSPUserResource

(

SSPUserResourceID

(

DN(6136213513)

)

UpdateGroup1

(

Service1(makeSetBusy)

Action1(on)

)

)

AMASlpID(111111111)

makeSetBusy in Update Request with AMASLPID (Deactivate Request):

BF 67

11

A1

07

81 05 16 63 12 53 31

A2

06

81 01 09

82 01 00

8A 05 21 43 65 87 09

SSPUserResource

(

SSPUserResourceID

```
(
   DN(6136213513)
)
UpdateGroup1
(
   Service1(makeSetBusy)
   Action1(off)
)
)
AMASlpID(123456789)
```

Simring Encoding and Decoding

The Simring (simultaneousRinging) service is not described in the GR-1299, Issue 7, Nov. 2001, ASN.1 encoding. The following extension to the GR-1299 ASN.1 encoding provides the Simring service accessible via update messages (Page 6-18, Section 6.4.2, GR-1299-Core, Issue 7, Nov. 2001):

```
Service3::=ENUMERATED{
distinctiveRingingCallWaiting (0),
selectiveCallRejection (1),
simultaneousRinging (2)
}
```

The RequestGroup3 in Section 6.114, Page 6-110 of GR-1299-Core, Issue 7, Nov. 2001 refers to above Service3 for the Query request. The above change also apply to RequestGroup3, Service3 as well to provide the query request of the simring service.

The same changes also apply to Page C-59 and C-80, ASN.1 Modules to provide simring service under Service3 category.

The following is a hex and ASCII representation of the simring query and update requests:

Simring Query Request:

BF 72

09

A3

07

81 01 02

82 02 07 80

ProvideInfo

(

RequestGroup3

(

Service3(simultaneousRinging)

Request3(activationStatus)

)

)

Simring Update Request:

A4

09

81 01 02

A3

04

9F 69 01 00

UpdateGroup3

(

Service3(simultaneousRinging)

EditSpecificEntry

(

EditListType(addListElement)

)

)

Support of AINDigits Parameter in Call Forwarding and Speed Call

Call Forwarding and Speed Call are not described in GR-1299 Issue 7, Nov.2001, with having the capability to use up to thirty digit DNs (long DN). The following description captures how up to long DNs can now be used.

Service groups 3, 4, 5 and 9 have the ability to send a update request with long DNs. And service groups 3, 4 and 5 have the ability to receive a query request that contain long DNs.

Long DNs are not used to specify the UserResourceID. They're only permitted for example, when updating the ForwardingDN in a Call Forward Variable (CFU) request.

AdministrableObject Changes:

Service Group 3

Entry::=CHOICE {

[1] IMPLICIT Dn.

[2] IMPLICIT SpeedCallingCode,

[3] IMPLICIT MemorySlot,

[4] IMPLICIT AINDigits

}

-- AINDigits parameter supports up to 30 digits.

Service Group 4

Set::=CHOICE {

[1] IMPLICIT Dn,

[4] IMPLICIT SpeedCallingCode,

[5] IMPLICIT AINDigits

}

-- AINDigits parameter supports up to 30 digits.

Service Group 5

The above new definition, SET, is used indirectly by Service Group 5.

Service Group 9

ChangeList::=SEQUENCE {

[1] IMPLICIT Dn,

[2] IMPLICIT SpeedCallingCode,

[3] IMPLICIT AINDigits

}

-- AINDigits parameter supports up to 30 digits.

InfoProvided Changes:

All Service Groups will use this new query definition.

InfoProvided::=[100] IMPLICIT SEQUENCE {

[1] IMPLICIT ActivationStateCode OPTIONAL

[2] IMPLICIT EntireList OPTIONAL

[3] IMPLICIT MemorySlot OPTIONAL

[4] IMPLICIT ListSize OPTIONAL

[5] IMPLICIT ForwardToDn OPTIONAL

[6] IMPLICIT DelayInterval OPTIONAL

[7] IMPLICIT Empty OPTIONAL,

[8] IMPLICIT ListSizeVarDN OPTIONAL,

[9] IMPLICIT ForwardToVarDN OPTIONAL

}

ListSizeVarDN::=SEQUENCE {

AINDigits

}

-- ListSizeVarDN is a new field that uses type AINDigits, which supports up to 30 digits.

ForwardToVarDN::=SEQUENCE {

AINDigits

}

-- ForwardToVarDN is a new field that uses type AINDigits, which supports up to 30 digits.

Example: Call Forward Query Request Response

BF 64

0B

81 01 00

89 06 80 00 27 43 05 00

InfoProvided

(

ActivationStateCode(off)

ForwardToVariableDn(notApplicable odd unknownOrNotApplicable 7234500)

)

Example: Call Forward Update Request

A5

0D

81 01 00

A3

08

84 06 80 00 27 43 05 00

UpdateGroup4

(

Service4(callForwardingVariable)

ForwardingDN

(

VariableDn(notApplicable odd unknownOrNotApplicable 7234500)

)

)

Example: Speed Call Update Request

AA

11

81 01 00

A2

0C

83 06 80 00 27 43 15 00

82 02 32 33

UpdateGroup9

(

Service9(speedCalling)

ChangeList

(

VariableDn(notApplicable odd unknownOrNotApplicable 7234510)

SpeedCallingCode(23)

)

)

Speed Call Query Request Extension Parameter

The Speed Calling Query Request Extension Parameter contains the following fields:

- AssignmentAuthority: this field is utilized to identify if this particular Extension Parm is appropriate for this vendor's switch.
- NCRSpeedCallQueryRequest(x), where x = 0-5: the non-call response (NCR) parm identifies the Speed Calling Query Action Block request.

Note: the Speed Calling Query Action Block number (0 through 5) dictates which Speed Calling DN(s) will be retrieved:
- Query Action $Block_0$ contains DNs associated with Speed Call Codes 0 to 19
- Query Action $Block_1$ contains DNs associated with Speed Call Codes 00 to 19
- Query Action $Block_2$ contains DNs associated with Speed Call Codes 20 to 39
- Query Action $Block_3$ contains DNs associated with Speed Call Codes 40 to 59
- Query Action $Block_4$ contains DNs associated with Speed Call Codes 60 to 79
- Query Action $Block_5$ contains DNs associated with Speed Call Codes 80 to 99

Listed below are two Speed Calling Query Request examples: one for Speed Calling Short (SCS), and one for Speed Calling Long (SCL):

- Speed Calling Short (SCS) Query Request example:

Speed Calling SCS Example

```
>qlen 0 0 0 13
------------------------------------------------------------------------------
LEN:     HOST  00 0 00 13
TYPE: SINGLE PARTY LINE
SNPA: 613
DIRECTORY NUMBER:     6212233
LINE CLASS CODE:  IBN
IBN TYPE: STATION
CUSTGRP:             BNR     SUBGRP: 0  NCOS: 0
SIGNALLING TYPE:  DIGITONE
CARDCODE:  6X17AC    GND: N  PADGRP: STDLN  BNV: NL MNO: N
PM NODE NUMBER     :    67
PM TERMINAL NUMBER :    14
OPTIONS:
DGT SCS
------------------------------------------------------------------------------
```

Speed Calling SCS Example cont.

```
>t ibnsc
TABLE: IBNSC
IBNSCKEY RESULT
---------------
HOST 00 0 00 13 0 SCS 3 8675309 <------ odd number of digits (DN1)
HOST 00 0 00 13 0 SCS 7 9195521200 <--- even number of digits (DN2)


Group 9 Query Request for Action 0:
===================================
MESSAGE
qr9extension0:
QueryWithPermission
(
    OriginationTransactionID(0000029D)
    Components
    (
        InvokeLast
        (
            InvokeID(01 00)
            PrivateTCAP
            QueryRequest
            ParameterSequence
            (
                UserID
                (
                    DN(6136212233) <---Speed Calling Subscriber
                )
                ExtensionParameter
                (
                    AssignmentAuthority(BR549)
                    NCRSpeedCallQueryRequest(0) <---Action Block 0
                )
            )
        )
    )
)
;
```

Speed Calling SCS Example cont.

```
Group 9 Query Response for Action 0:
====================================
MESSAGE
Response
(
    DestinationTransactionID(0000029D)
    Components
    (
        ReturnResultLast
        (
            CorrelationID(01)
            ParameterSequence
            (
                ExtensionParameter
                (
                    AssignmentAuthority(BR549)
                    NCRSpeedCallQueryResponse(020403685703F905071959252100)
                )
            )
        )
    )
)
;

where 020403685703F905071959252100:
02 - Number of Speed Calling DN(s): 2
04 - Number of DN Bytes for DN1: 4 bytes
03 - Speed Calling Cell assignment: 3
685703F9- DN1: 6875309 (Notice the ending hex F for odd number of digits)
05 - Number of DN Bytes for DN2: 5 bytes
07 - Speed Calling Cell assignment: 7
1959252100 - DN2: 9195521200
```

- Speed Calling Long (SCL) Query Request example:

Speed Calling SCL Example

```
>qlen 0 0 0 13
------------------------------------------------------------------------------
LEN:     HOST  00 0 00 13
TYPE: SINGLE PARTY LINE
SNPA: 613
DIRECTORY NUMBER:     6212233
LINE CLASS CODE:  IBN
IBN TYPE: STATION
CUSTGRP:            BNR     SUBGRP: 0  NCOS: 0
SIGNALLING TYPE:  DIGITONE
CARDCODE:  6X17AC    GND: N  PADGRP: STDLN  BNV: NL MNO: N
PM NODE NUMBER     :    67
PM TERMINAL NUMBER :    14
OPTIONS:
DGT SCL 0 L30
------------------------------------------------------------------------------
```

Speed Calling SCL Example cont.

```
>t ibnsc
TABLE: IBNSC
IBNSCKEY RESULT
---------------
HOST 00 0 00 13 0 SCL 23 3362921345 <--- even number of digits (DN1)
HOST 00 0 00 13 0 SCL 29 8675309 <------ odd number of digits (DN2)



Group 9 Query Request for Action 2:
===================================
MESSAGE
qr9extension2:
QueryWithPermission
(
    OriginationTransactionID(000002B3)
    Components
    (
        InvokeLast
        (
            InvokeID(01 00)
            PrivateTCAP
            QueryRequest
            ParameterSequence
            (
                UserID
                (
                    DN(6136212233) <---Speed Calling Subscriber
                )
                ExtensionParameter
                (
                    AssignmentAuthority(BR549)
                    NCRSpeedCallQueryRequest(2) <---Action Block 2
                )
            )
        )
    )
)
;
```

Speed Calling SCL Example cont.

```
Group 9 Query Response for Action 2:
====================================
MESSAGE
Response
(
    DestinationTransactionID(000002B3)
    Components
    (
        ReturnResultLast
        (
            CorrelationID(01)
            ParameterSequence
            (
                ExtensionParameter
                (
                    AssignmentAuthority(BR549)
                    NCRSpeedCallQueryResponse(020517332629315404 1D685703F9)
                )
            )
        )
    )
)
;


where 0205173326293154041D685703F9:
02 - Number of Speed Calling DN(s): 2
05 - Number of DN Bytes for DN1: 5 bytes
17 - Speed Calling Cell assignment: 17 hex, 23 dec
3326293154 - DN1: 3362921345
04 - Number of DN Bytes for DN2: 4 bytes
1D - Speed Calling Cell assignment: 1D hex, 29 dec
685703F9 - DN2: 8675309 (Notice the ending hex F for odd number of digits)
```

Extension Parameter ASN.1 Details:- The following details are based on GR1299 Issue 7 requirements and definitions. They follow the ASN.1 notations for Extension Parameter, Assignment Authority and Special Routing Extension Parameter.

ExtensionParameter:-

The following shall be used for the ExtensionParameter (CR6-334 in GR1299 Issue 7, Page 6-77):

ExtensionParameter ::= [84] IMPLICIT SEQUENCE {

assignmentAuthority OBJECT IDENTIFIER,

parameters ANY DEFINED BY assignmentAuthority

}

-- The maximum length of the assignmentAuthority is 15 octets

The parameters field is to be defined by individual service providers. See ITU-T Recommendation X.209 for the encoding rules of OBJECT IDENTIFIERs.

assignmentAuthority:-

The following shall be used for the assignementAuthority (same as EnvelopeEncodingAuthority - R6-332 in GR1299 Issue 7, Page 6-76):

assignmentAuthority ::= [98] IMPLICIT OBJECT IDENTIFIER

-- Maximum of 15 octets

The following is bit encoding of the assignmentAuthority:

Bit and Octet Encoding of assignmentAuthority

TCAP INFORMATION		ENCODING	In Hex
		HGFEDCBA	
Parameter Identifier	assignmentAuthority (1st octet	10011111	9F
	assignementAuthority (2nd octet)	01100010	62
Parameter Length		00000111	07
Contents	1st sub-identifier	00101010	2A
	2nd sub-identifier	10000110	86
	3rd sub-identifier	01001000	48
	4th sub-identifier	10000110	86
	5th sub-identifier	11110110	F6
	6th sub-identifier	01111101	7D
	7th sub-identifier	00100100	24

NCRSpeedCallQuery Request:-

The following shall be used for the as NCRSpeedCallQueryRequest (As per ITU-T Recommendation X.209):

NCRSpeedCallQueryRequest::= [2] CHOICE {

[1] IMPLICIT ActionBlock

}

```
ActionBlock::=INTEGER (0 .. 5)

-- used to convey to the switch

-- association of Speed Call Codes.

-- 0 indicates that the Speed Call Codes for Speed Call short range from 0 to 9

-- 1 indicates that the Speed Call Codes for Speed Call long range from 00 to
19

-- 2 indicates that the Speed Call Codes for Speed Call long range from 20 to
39

-- 3 indicates that the Speed Call Codes for Speed Call long range from 40 to
59

-- 4 indicates that the Speed Call Codes for Speed Call long range from 60 to
79

-- 5 indicates that the Speed Call Codes for Speed Call long range from 80 to
99
```

Speed Call Query Response Extension Parameter

The Speed Calling Query Response Extension Parameter contains the following fields:

- AssignmentAuthority: this field is utilized to identify if this particular Extension Parm is appropriate for this vendor's switch.
- NCRSpeedCallQueryResponse: the non-call response (NCR) parm contains the Speed Calling DN(s) associated with the Query Action Block request.

The NCRSpeedCallQueryResponse contains the following fields:

- **Count**: the total number of Speed Calling DNs within this Action Block$_X$ (up to 20).
- **DN Bytes**: the number of bytes needed to represent the Speed Calling DN. Note: range is 1 to 15, where

  1 byte - supports 1 or 2 Digits
  2 bytes - supports 3 or 4 Digits
  3 bytes - supports 5 or 6 Digits
  4 bytes - supports 7 or 8 Digits
  5 bytes - supports 9 or 10 Digits
  6 bytes - supports 11 or 12 Digits
  7 bytes - supports 13 or 14 Digits
  8 bytes - supports 15 or 16 Digits

9 bytes - supports 17 or 18 Digits
10 bytes - supports 19 or 20 Digits
11 bytes - supports 21 or 22 Digits
12 bytes - supports 23 or 24 Digits
13 bytes - supports 25 or 26 Digits
14 bytes - supports 27 or 28 Digits
15 bytes - supports 29 or 30 Digits

- **SC Cell**: the Speed Calling Cell associated with the Speed Calling DN.
- **SC DN**: the Speed Calling DN.

  Note: if there's an odd number of Speed Calling Digits, the ending nibble will be hex F.

Please refer to "Speed Calling SCS Example" on page 1117 and "Speed Calling SCL Example" on page 1118 for Speed Calling Query Response examples.

NCRSpeedCallQueryResponse:-

The following shall be used for the as NCRSpeedCallQueryRequest (As per ITU-T Recommendation X.209):

NCRSpeedCallQueryResponse::= [3] IMPLICIT HEX

-- Maximum of 361Octets.

Applicable customer facing sections

Fault Management

Logs	_____X
Alarms	___N/A

Configuration

Data Schema	___N/A
User Interface	___N/A
Element Management	___N/A
Security	___N/A
Service Order	___N/A
Office Parameters	___N/A
Software Optionality Control (SOC)	_____X

Accounting (includes AMA billing) _____X

Performance (includes operational measurements) _____X

Realtime _____X

Engineering Information _____X

Glossary

Term	Description
CM	Computing Module
SOC	Software Optionality Control
AIN	Advanced Intelligent Network
ASN.1	Abstract Syntax Notation 1
SS7	Signaling System No. 7
TCAP	Transaction Capabilities Application Part
IP	Internet Protocol
SCP	Service Control Point
IBN	Integrated Business Network
KSET	Key Set
SDF	Service Data Function
DN	Directory Number
SIMRING	Simultaneous Ringing
SCS	Speed Calling Short
SCL	Speed Calling Long
SCU	Speed Calling User
SC	Speed Calling
PC	Personal Computer
EO	End-Office
STD	Stutter Dial Tone
RES	Residential
MWT	Message Waiting
CMWI	Class Message Waiting Indicator
ACRJ	Anonymous Caller Rejection

Term	Description
ACB	Automatic Call Back
AR	Automatic Recall
CSMI	Call Screening, Monitoring and Intercept
LDA	Long Distance Alerting
LDAE	Long Distance Alerting Enhancement
SUPPRESS	Calling Identity Delivery and Suppression
CWT	Call Waiting
MSB	Make Set Busy
PRN	Periodic Ringing Notification
DRCW	Distinctive Ringing/Call Waiting
SCRJ	Selective Call Rejection
ISDN	Integrated Services Digital Network
SCA	Selective Call Acceptance
RDT	Remote Digital Terminal
COT	Customer Originated Trace
CCW	Cancel Call Waiting
AMA	Automatic Message Accounting
PPS	Permanent Presentation Status

Configuration for A00004036

Hardware and Software Requirements

NA

Initial Configuration

NA

Office/Subnet parameters (OP/SP) (CM & SESM)

NA

Upgrade Impact

NA

Data schema (DS) (CM, MIBS, RDB)

NA

Service Orders (SO) (CM & SESM)

NA

Software optionality control (SOC)

SOC

SOC option name:	Off-board Service Control
SOC option title:	Yes
SOC option control type:	state
New SOC option?	Yes
SOC option order code	AIN00321 SVC MGR Basic AIN00322 SVC MGR List Editing AIN00323 SVC MGR Speed Call AIN00324 SVC MGR Call Forward AIN00325 SVC MGR Privacy Control AIN00326 SVC MGR COT and CCW AIN00327 SVC MGR SIMRING
Option defined in DRU:	CNA
Affected products:	SNNCSH07

Element Management

NA

Command interface changes

NA

Security

NA

Configuration Walkthrough

NA

Performance for A00004036

Performance management strategy

Not applicable.

Performance management tools and utilities

Not applicable.

Operational Measurements (OM)

This activity will not be enabling any new OMs, however, similar to operations performed due to service access code driven commands, existing OM groups/registers will be pegged to reflect the relevant incremental update attempts for the same service. For example, an attempt to activate SCF via some off-board interface will be pegged as though the subscriber had gone off-hook and dialed the activation access code for SCF.

For clarity, the following sections will outline in detail what OMs, if any, will be pegged when a request for an off-board service update or change is being processed.

Group1 Services OM Group

The following sub-sections define the OM groups associated with the Group1 services.

The service CSMI and LDS pegs particular OM groups. However, these OM groups are for CallP specific pegging. Therefore, for service control perspective they are not affected nor pegged.

Other Group1 services do not have any OM groups.

ACRJ OM Group

Operational Measures associated with the Anonymous Call Rejection service.

Release history update

Not Applicable

Registers used for Off-board service updates

OM group registers display on the MAP terminal as follows. The registers used for pegging off-board service updates are in ***bold italics***.

ACRJ OM Group Display

ACRJ OM Group Display

```
>omshow acrj active

ACRJ

CLASS: ACTIVE
START:2003/09/10 08:30:00 WED; STOP: 2003/09/10 09:55:39 WED;
SLOWSAMPLES:        5 ; FASTSAMPLES:       48 ;

      ACRJACT  ACRJDACT   ACRJANN  ACRJAUNV
     ACRJDUNV  ACRJDENY

  0
          0       0       0       0
          0       0
```

ACRJACT

Register ACRJACT (Anonymous Call Rejection Activation) will be pegged if the ACRJ Update message successfully activate the ACRJ service.

ACRJDACT

Register ACRJDACT (Anonymous Call Rejection Deactivation) will be pegged if the ACRJ Update message successfully deactivate the ACRJ service.

ACRJAUNV

Register ACRJAUNV (Anonymous Call Rejection Universal Activation) will be pegged if the ACRJ Update message successfully activate the usage based ACRJ service.

ACRJDUNV

Register ACRJDUNV (Anonymous Call Rejection Universal Deactivation) will be pegged if the ACRJ Update message successfully deactivate the usage based ACRJ service.

Register release history update

Not Applicable.

Associated registers

Not applicable.

Associated logs

<None>

AR OM Group

Operational Measures associated with the Automatic Recall service.

Release history update

Not Applicable

Registers used for Off-board service updates

OM group registers display on the MAP terminal as follows. The registers used for pegging off-board service updates are in ***bold italics***.

AR OM Group Display

AR OM Group Display

```
>omshow ar active

AR

CLASS: ACTIVE
START:2003/09/10 10:00:00 WED; STOP: 2003/09/10 10:13:33 WED;
SLOWSAMPLES:        1 ; FASTSAMPLES:        1 ;

        ARATT    ARFDEN    AROVFL    ARLTDA
       ARSTDA    ARSTDT    ARIMED    ARDLAY
       ARTIME    ARRSCN     ARSCR   ARDATT
       ARPRCD    AROPTO    ARBDIN     ARABT
       ARRACT     ARSTR    ARTSCN    AROSCN
        ARARN    ARNIMED   ARUNIV    ARDENY
     ARPVTBLK   ARPVTALW   ARDSBLID

 0
          0       0       0       0
          0       0       0       0
          0       0       0       0
          0       0       0       0
          0       0       0       0
          0       0       0       0
          0       0       0
```

ARDATT

Register ARDATT (Automatic Recall Deactivation ATTempt) will be pegged if the AR Update message to deactivate AR service is received.

ARUNIV

Register ARUNIV (Automatic Recall Universal) will be pegged if the AR Update message to deactivate the Universal AR service is received.

Register release history update

Not Applicable.

Associated registers

Every time Universal AR deactivate request is received, both ARUNIV and ARDATT will be pegged.

Associated logs

<None>

ACB OM Group

Operational Measures associated with the Automatic Call Back service.

Release history update

Not Applicable

Registers used for Off-board service updates

OM group registers display on the MAP terminal as follows. The registers used for pegging off-board service updates are in ***bold italics***.

ACB OM Group Display

ACB OM Group Display

```
>omshow acb active

ACB

CLASS: ACTIVE
START:2003/09/10 08:30:00 WED; STOP: 2003/09/10 10:01:40 WED;
SLOWSAMPLES:        6 ; FASTSAMPLES:        52 ;

        ACBATT    ACBFDEN    ACBOVFL    ACBLTDA
       ACBSTDA    ACBSTDT    ACBIMED    ACBDLAY
       ACBTIME    ACBRSCN    ACBSCR    ACBDATT
        ACBABT    ACBRACT    ACBSTR    ACBTSCN
       ACBOSCN    ACBACBN   ACBNIMED    ACBUNIV
       ACBDENY

  0
          0        0        0        0
          0        0        0        0
          0        0        0        0
          0        0        0        0
          0        0        0        0
          0
```

ACBDATT

Register ACBDATT (Automatic Call Back Deactivation ATTempt) will be pegged if the ACB Update message to deactivate ACB service is received.

ACBUNIV

Register ACBUNIV (Automatic Call Back Universal) will be pegged if the ACB Update message to deactivate the Universal ACB service is received.

Register release history update

Not Applicable.

Associated registers

Every time Universal ACB deactivate request is received, both ACBUNIV and ACBDATT will be pegged.

Associated logs

<None>

Group2 Services OM Group

No OM generated for Group2. Therefore, no OM changes identified.

Group3 Services OM Group

Operational Measures associated with the Selective Call Rejection, Distinctive Ring/Call Waiting and Simultaneous Ringing services.

Release history update

Not Applicable

Registers used for SCRJ Off-board service updates

OM group registers display on the MAP terminal as follows. The registers used for pegging off-board service updates are in ***bold italics***.

SCRJ OM Group Display

```
>omshow scrj active

SCRJ

CLASS: ACTIVE
START:2003/10/31 11:30:00 FRI; STOP: 2003/10/31 11:58:19 FRI;
SLOWSAMPLES:       17 ; FASTSAMPLES:       170 ;

      SCRJEATT  SCRJEDEN  SCRJEOVF  SCRJACT
      SCRJDACT  SCRJEUSG  SCRJSAT   SCRJSAT2
      SCRJSDEN  SCRJSBLK  SCRJSRJT  SCRJUNIV
      SCRJDENY  SCRJAUNV  SCRJDUNV

  0
          0       0       0       0
          0       0       0       0
          0       0       0       0
          0       0       0

>
```

SCRJEATT

Register SCRJEATT (Selective Call ReJection Editing ATTempt) is pegged each time a subscriber updates his/her SCRJ programmed data via some edit session. Similar to the operations performed via service access code controlled edit session, the SCRJEATT register will be pegged for each of the following off-board service update requests.

- addition of DN to a subscriber's SCRJ list
- deletion of a DN from a subscriber's SCRJ list
- request to delete all DNs in a subscriber's SCRJ list
- request to delete all anonymous or private entries in a subscriber's SCRJ list

SCRJEDEN

Register SCRJEDEN (Selective Call ReJection Editing DENial) is pegged each time a subscriber's attempt to update his/her SCRJ programmed data via some edit session is denied. The SCRJEDEN register will be pegged when/if the following is true for a given SCRJ off-board service update request.

- SLE not ENABLED in table CUSTSTN
- SCRJ not ENABLED in table RESOFC

SCRJACT

Register SCRJACT (Selective Call ReJection ACTivation) is pegged each time a subscriber activates his/her SCRJ service. Similar to the operations

performed via service access code controlled activation, the SCRJACT register will be pegged for each occurrence of the an off-board service update activation request.

SCRJDACT

Register SCRJDACT (Selective Call ReJection DeACTivation) is pegged each time a subscriber deactivates his/her SCRJ service. Similar to the operations performed via service access code controlled activation, the SCRJDACT register will be pegged for each occurrence of the an off-board service update deactivation request.

SCRJDENY

Register SCRJDENY (Selective Call ReJection DENY) is pegged each time a subscriber's attempt to update his/her SCRJ programmed data via some edit session is denied due to the presence of the DENY option. The SCRJDENY register will be pegged for each of the following off-board service update request attempts.

- DOR option present on the given SCRJ subscriber's line
- SCRJ enabled office wide and DENY SCRJ option present on the given subscriber's line

Registers used for DRCW Off-board service updates

OM group registers display on the MAP terminal as follows. The registers used for pegging off-board service updates are in ***bold italics***.

DRCW OM Group Display

```
>omshow drcw active

DRCW

CLASS: ACTIVE
START:2003/10/31 12:00:00 FRI; STOP: 2003/10/31 12:03:59 FRI;
SLOWSAMPLES:        3 ; FASTSAMPLES:        24 ;

     DRCWEATT  DRCWEDEN  DRCWEOVF  DRCWACT
     DRCWDACT  DRCWEUSG  DRCWSAT   DRCWSAT2
     DRCWSDEN  DRCWSBLK  DRCWRING  DRCWTATT
     DRCWTOVF  DRCWUNIV  DRCWDENY  DRCWAUNV
     DRCWDUNV

  0
          0       0       0       0
          0       0       0       0
          0       0       0       0
          0       0       0       0
          0

>
```

DRCWEATT

Register DRCWEATT (Distinctive Ringing Call Wait Editing ATTempt) is pegged each time a subscriber updates his/her DRCW programmed data via some edit session. Similar to the operations performed via service access code controlled edit session, the DRCWEATT register will be pegged for each of the following off-board service update requests.

- addition of DN to a subscriber's DRCW list
- deletion of a DN from a subscriber's DRCW list
- request to delete all DNs in a subscriber's DRCW list
- request to delete all anonymous or private entries in a subscriber's DRCW list

DRCWEDEN

Register DRCWEDEN (Distinctive Ringing Call Wait Editing DENial) is pegged each time a subscriber's attempt to update his/her DRCW programmed data via some edit session is denied. The DRCWEDEN register will be pegged when/if the following is true for a given DRCW off-board service update request.

- SLE not ENABLED in table CUSTSTN
- SCF not ENABLED in table RESOFC

DRCWACT

Register DRCWACT (Distinctive Ringing Call Wait ACTivation) is pegged each time a subscriber activates his/her DRCW service. Similar to the operations performed via service access code controlled activation, the DRCWACT register will be pegged for each occurrence of the an off-board service update activation request.

DRCWDACT

Register DRCWDACT (Distinctive Ringing Call Wait DeACTivation) is pegged each time a subscriber deactivates his/her DRCW service. Similar to the operations performed via service access code controlled activation, the DRCWDACT register will be pegged for each occurrence of the an off-board service update deactivation request.

DRCWDENY

Register DRCWDENY (Distinctive Ringing Call Wait DENY) is pegged each time a subscriber's attempt to update his/her DRCW programmed data via some edit session is denied due to the presence of the DENY option. The DRCWDENY register will be pegged when/if the following is true for a given DRCW off-board service update request.

- DOR option present on the given DRCW subscriber's line

- DRCW enabled office wide and DENY SCA option present on the given subscriber's line

Registers used for SimRing Off-board service updates

OM group registers display on the MAP terminal as follows. The registers used for pegging off-board service updates are in ***bold italics***.

SimRing OM Group Display

```
>omshow simring active

SIMRING

CLASS: ACTIVE
START:2003/10/31 12:00:00 FRI; STOP: 2003/10/31 12:08:27 FRI;
SLOWSAMPLES:        6 ; FASTSAMPLES:        51 ;

      SIMRACT   SIMRDACT   SIMREATT   SIMREDEN
     SIMREOVF    SIMRINV   SIMRFAIL

   0
         0       0       0       0
         0       0       0

>
```

SIMRACT

Register SIMRACT (SIMultaneous Ringing ACTivation) is pegged each time a subscriber activates his/her SIMRing service. Similar to the operations performed via service access code controlled activation, the SIMRACT register will be pegged for each occurrence of the an off-board service update activation request.

SIMRDACT

Register SIMRDACT (SIMultaneous Ringing DeACTivation) is pegged each time a subscriber deactivates his/her SIMRing service. Similar to the operations performed via service access code controlled activation, the SIMRDACT register will be pegged for each occurrence of the an off-board service update deactivation request.

SIMREATT

Register SIMREATT (SIMultaneous Ringing Editing ATTempt) is pegged each time a subscriber updates his/her SIMRing programmed data via some edit session. Similar to the operations performed via service access code controlled edit session, the SIMREATT register will be pegged for each of the following off-board service update requests.

- addition of DN to a subscriber's SIMRing list
- deletion of a DN from a subscriber's SIMRing list

SIMREDEN

Register SIMREDEN (SIMultaneous Ringing Editing DENial) is pegged each time a subscriber's attempt to update his/her SIMRing programmed data via some edit session is denied. The SIMREDEN register will be pegged when/if the following is true for a given SIMRing off-board service update request.

- SLE not ENABLED in table CUSTSTN
- SCF not ENABLED in table RESOFC

Register release history update

Not Applicable.

Associated registers

Not applicable.

Associated logs

<None>

Group4 Services OM Group

Operational Measures associated with the Call Forwarding service. Activation and deactivation OMs exist only for POTS CFW. There are no current OMs for RES/IBN CFW activation and deactivation. There are no current OMs for any type of Call Forward Busy or Don't Answer (POTS or RES/IBN).

This service does not operate in a call processing environment. Therefore no call processing related OM will be pegged. Examples of those are OTS (Office Traffic Summary) and traffic separation pegs.

Release history update

Not Applicable

Registers used for Off-board service updates

OM group registers display on the MAP terminal as follows. The registers used for pegging off-board service updates are in ***bold italics***.

CFWPOTS OM Group Display

```
>omshow cfwpots active
CFWPOTS
CLASS: ACTIVE
START:2003/10/03 09:00:00 FRI; STOP: 2003/10/03 09:06:39 FRI;
SLOWSAMPLES:        4 ; FASTSAMPLES:        40 ;
      CFWPAATT   CFWPSUC1   CFWPSUC2   CFPAOVFL
      CFPADENY   CFWPFATT   CFPFOVFL   CFPFDENY
       CFWSOV    CFBPATT   CFBPDENY   CFBPOVFL
       CFBPSOV   CFDPATT1   CFDPATT2   CFDPDENY
      CFDPOVFL   CFDPCNC1   CFDPCNC2    CFDPSOV
      CFDPFAIL
  0
            1        1        0        0
            0        0        0        0
            0        0        0        0
            0        0        0        0
            0        0        0        0
            0
```

CFWPAATT

Register CFWPAATT will be pegged for each activation attempt for POTS CFW.

CFWPSUC1

Register CFWPSUC1 will be pegged each time activation of POTS CFW is successful. Register CFWPSUC2 which is pegged when the courtesy call is successful during POTS CFW programming and activation will not be pegged by this service because courtesy calls are not supported.

CFPADENY

Register CFPADENY is pegged while attempting to set a forward to DN and the forward to DN fails validation for any reason.

CFPAOVFL

Register CFPAOVFL is pegged if there is some software or data storage problem with storing the forward to DN after it has been validated successfully.

Register release history update

Not Applicable.

Associated registers

Not applicable.

Associated logs

<None>

Group5 Services OM Group

Operational Measures associated with the Selective Call Forwarding and Selective Call Acceptance services.

Release history update

Not Applicable

Registers used for SCF Off-board service updates

OM group registers display on the MAP terminal as follows. The registers used for pegging off-board service updates are in ***bold italics***.

SCF OM Group Display

```
>omshow scf active

SCF

CLASS: ACTIVE
START:2003/08/27 09:30:00 WED; STOP: 2003/08/27 09:31:39 WED;
SLOWSAMPLES:        1 ; FASTSAMPLES:        10 ;

      SCFEATT   SCFEOVF SCFEDEN   SCFEUSG
        SCFACT   SCFDACT   SCFFWD   SCFFWD2
       SCFSAT   SCFSAT2   SCFFAIL   SCFOVFL
     SCFSOVFL   SCFSDEN   SCFSBLK   SCFUNIV
      SCFDENY   SCFAUNV   SCFDUNV

  0
          0      0      0      0
          0      0      0      0
          0      0      0      0
          0      0      0      0
          0      0      0
>
```

SCFEATT

Register SCFEATT (Selective Call Forwarding Editing ATTempt) is pegged each time a subscriber updates his/her SCF programmed data via some edit session. Similar to the operations performed via service access code controlled edit session, the SCFEATT register will be pegged for each of the following off-board service update requests.

- addition of DN to a subscriber's SCF list
- deletion of a DN from a subscriber's SCF list
- request to delete all DNs in a subscriber's SCF list
- request to delete all anonymous or private entries in a subscriber's SCF list

- set the forwarding DN
- clear the forwarding DN

SCFEDEN

Register SCFEDEN (Selective Call Forwarding Editing DENial) is pegged each time a subscriber's attempt to update his/her SCF programmed data via some edit session is denied. The SCFEDEN register will be pegged when/if the following is true for a given SCF off-board service update request.

- SLE not ENABLED in table CUSTSTN
- SCF not ENABLED in table RESOFC

SCFACT

Register SCFACT (Selective Call Forwarding ACTivation) is pegged each time a subscriber activates his/her SCF service. Similar to the operations performed via service access code controlled activation, the SCFACT register will be pegged for each occurrence of the an off-board service update activation request.

SCFDACT

Register SCFDACT (Selective Call Forwarding DeACTivation) is pegged each time a subscriber deactivates his/her SCF service. Similar to the operations performed via service access code controlled activation, the SCFDACT register will be pegged for each occurrence of the an off-board service update deactivation request.

SCFDENY

Register SCFDENY (Selective Call Forwarding DENY) is pegged each time a subscriber's attempt to update his/her SCF programmed data via some edit session is denied due to the presence of the DENY option. The SCFDENY register will be pegged for each of the following off-board service update request attempts.

- DOR option present on the given SCF subscriber's line
- SCF enabled office wide and DENY SCF option present on the given subscriber's line

Registers used for SCA Off-board service updates

OM group registers display on the MAP terminal as follows. The registers used for pegging off-board service updates are in ***bold italics***.

SCA OM Group Display

```
>omshow sca active

SCA

CLASS: ACTIVE
START:2003/10/30 16:00:00 THU; STOP: 2003/10/30 16:17:59 THU;
SLOWSAMPLES:       11 ; FASTSAMPLES:       108 ;

      SCAEATT   SCAEDEN   SCAEOVF    SCAACT
      SCADACT   SCAEUSG    SCASAT    SCASAT2
      SCASDEN   SCASBLK   SCASRJT   SCASRJT2
      SCASTRM    SCAUNIV   SCADENY    SCAAUNV
      SCADUNV

0
          0       0       0       0
          0       0       0       0
          0       0       0       0
          0       0       0       0
          0
```

SCAEATT

Register SCAEATT (Selective Call Acceptance Editing ATTempt) is pegged each time a subscriber updates his/her SCA programmed data via some edit session. Similar to the operations performed via service access code controlled edit session, the SCAEATT register will be pegged for each of the following off-board service update requests.

- addition of DN to a subscriber's SCA list
- deletion of a DN from a subscriber's SCA list
- request to delete all DNs in a subscriber's SCA list
- request to delete all anonymous or private entries in a subscriber's SCA list

SCAEDEN

Register SCAEDEN (Selective Call Acceptance Editing DENial) is pegged each time a subscriber's attempt to update his/her SCA programmed data via some edit session is denied. The SCAEDEN register will be pegged when/if the following is true for a given SCA off-board service update request.

- SLE not ENABLED in table CUSTSTN
- SCF not ENABLED in table RESOFC

SCAACT

Register SCAACT (Selective Call Acceptance ACTivation) is pegged each time a subscriber activates his/her SCA service. Similar to the operations performed via service access code controlled activation, the SCAACT register

will be pegged for each occurrence of the an off-board service update activation request.

SCADACT

Register SCADACT (Selective Call Acceptance DeACTivation) is pegged each time a subscriber deactivates his/her SCA service. Similar to the operations performed via service access code controlled activation, the SCADACT register will be pegged for each occurrence of the an off-board service update deactivation request.

SCADENY

Register SCADENY (Selective Call Acceptance DENY) is pegged each time a subscriber's attempt to update his/her SCA programmed data via some edit session is denied due to the presence of the DENY option. The SCADENY register will be pegged when/if the following is true for a given SCA off-board service update request.

- DOR option present on the given SCA subscriber's line
- SCA enabled office wide and DENY SCA option present on the given subscriber's line

Register release history update

Not Applicable.

Associated registers

Not applicable.

Associated logs

<None>

Group6 Services OM Group

Operational Measures associated with the Call Forwarding Don't Answer Timer service.

Release history update

Not Applicable

Registers used for Off-board service updates

OM group registers display on the MAP terminal as follows. The registers used for pegging off-board service updates are in ***bold italics***.

SPRING OM Group Display

SPRING OM Group Display

```
> >omshow spring active

SPRING

CLASS: ACTIVE
START:2003/10/30 11:00:00 THU; STOP: 2003/10/30 11:05:57 THU;
SLOWSAMPLES:        4 ; FASTSAMPLES:        36 ;

      RCTRLLA   RCTRLRA   RCTRLSLA   RCTRLSRA
      RCTRLFA

  0
        0       0       0       0
        0
```

RCTRLLA

Register RCTRLLA (Ring ConTRoL Local Activation ATTempt) will be pegged if a CFDVT update request is received.

RCTRLSLA

Register RCTRLSLA (Ring ConTRoL Successful Local Activation) will be pegged each time the user is given access to update the CFDVT data whether or not the data is successfully altered or not.

RCTRLFA

Register RCTRLFA (Ring ConTRoL Local FAilure) will be pegged each time there is a failure due to unavailable resources.

Register release history update

Not Applicable.

Associated registers

Not applicable.

Associated logs

<None>

Group7 Services OM Group

No OM generated for Group7. Therefore, no OM changes identified.

Group8 Services OM Group

Customer Originated Trace (COT) OM Group

Operational Measures associated with the Customer Originated Trace (COT) service.

Release history update

Not Applicable

Registers used for Off-board service updates

OM group registers display on the MAP terminal as follows. The registers used for pegging off-board service updates are in ***bold italics***.

COT OM Group Display

COT OM Group Display

```
>omshow cot active

COT

CLASS: ACTIVE
START:2003/09/10 10:00:00 WED; STOP: 2003/09/10 10:21:58 WED;
SLOWSAMPLES:        1 ; FASTSAMPLES:        8 ;

      COTATT   COTFDEN   COTOVFL   COTCMPL
     COTINCM   COTPRCD   COTOPTO   COTBDIN
     COTPFLR   COTUNIV   COTDENY

 0
        0       0       0       0
        0       0       0       0
        0       0       0
```

COTATT

Register COTATT (Customer Originated Trace Activation Attempt) will be pegged if the COT Update message for the COT service is received.

COTUNIV

Register COTUNIV (Customer Originated Trace Universal) will be pegged if the COT Update message is received for the universal COT service.

Register release history update

Not Applicable.

Associated registers

Not applicable.

Associated logs

<None>

Group9 Services OM Group

Speed Call OM Group

Operational Measures associated with the Speed Calling service.

Release history update

Not Applicable

Registers used for Off-board service updates

OM group registers display on the MAP terminal as follows. The registers used for pegging off-board service updates are in ***bold italics***.

POTS Speed Call, SC1 or SC2

SCPOTS OM Group Display

```
>omshow scpots active

SCPOTS

CLASS: ACTIVE
START:2003/10/24 10:00:00 FRI; STOP: 2003/10/24 10:22:51 FRI;
SLOWSAMPLES:       14 ; FASTSAMPLES:       137 ;

     KEY (SC_OM_TUPLES)
       SCPAATT  SCPAOVFL  SCPADENY   SCPFATT
      SCPFDENY

  0 SC1_TUPLE
          0       0       0       0
          0
  1 SC2_TUPLE
          0       0       0       0
          0
```

SCPAATT

Register SCPAATT (Speed Calling Program Activation ATTempt) will be pegged if the Speed Call Update message successfully added or changed a Speed Call DN.

SCAOVFL

Register SCAOVFL (Speed Calling Activation OVerFLow) is pegged if the Speed Call Update message failed to program the Speed Call Cell because of

a lack of software resources; for example, a lack of HEAP memory in reserve for Speed Calling.

SCADENY

Register SCADENY (Speed Calling Activation DENY) is pegged if the Speed Call Update message failed to program or erase a Speed Call Cell because of an invalid Speed Call Cell number.

Register release history update

Not Applicable.

Associated registers

Not applicable.

Associated logs

<None>

Office Traffic Summary (OTS)

OTS OM Group Display

```
>omshow ots active

OTS

CLASS: ACTIVE
START:2003/10/24 10:00:00 FRI; STOP: 2003/10/24 10:22:51 FRI;
SLOWSAMPLES:       14 ; FASTSAMPLES:       137 ;

    KEY ( )
       NORG NORG2 ORGTRM ORGTRM2
       ORGOUT ORGOUT2 ORGTRMT ORGABDN
       ORGLKT ORGFSET ORGFSET2 NINC
       NINC2 INCTRM INCTRM2 INCOUT
       INCOUT2 INCTRMT INCABNM INCABNC
       INCLKT INCFSET NSYS NSYS2
       SYSTRM SYSOUT SYSTRMT SYSABDN
       SYSLKT SYSFSET

       0
          0       0       0       0
          0       0       0       0
          0       0       0       0
          0       0       0       0
          0       0       0       0
          0       0       0       0
          0       0       0       0
          0       0
```

ORGFSET

Register ORGFSET (Originating Feature SET) is pegged when a Speed Call feature is successfully programmed by a user via the Speed Call Update message.

ORGTRMT

Register ORGTRMT (Originating Treatment) is pegged if the Speed Call Update message failed to program the Speed Call feature because of an error condition.

Register release history update

Not Applicable.

Associated registers

Not applicable.

Associated logs

<None>

Accounting for A00004036

Accounting strategy

The general accounting strategy for this activity is to continue to perform whatever billing for successful updates that is done today for service activation/deactivation, list editing, etc. In addition to performing the standard billing, a Service Logic Identification Module (module code 039) will be appended to the current record as an AMAslpid is included in the corresponding update request.

CM billing due to Update Requests

The AMA records generated as per the service requirements and the GR1298 requirements (Update and Query messages) for all the service groups whose provisioning and activation is being controlled and queried by the Update and query messages are as follows:

Group1 Services AMA

Only three services--Automatic Call Back (ACB), Automatic Recall (AR) and Make Set Busy (MSB)--generate the AMA record. All other services do not have any AMA record associated with them.

Update Message for ACB (Universal) and AR (Universal)

Consistent with the billing performed as a result of Automatic Call Back (universal - usage based), and Automatic Recall (universal - usage based) being modified via access code, a callcode 330 record (structure code 1030)

will also be provided to record successful deactivation of ACB (universal), and AR (universal).

Update Message for MSB

Consistent with the billing performed as a result of MSB being modified via access code, a callcode 006 record (structure code 510) will also be provided to record successful activation and deactivation of MSB.

Module code 039

When an *AMAslpid* is provided with an update request, a Service Logic Identification Module (module code 039) populated with the *AMAslpid* provided will be appended to any base record associated with the update. The following MAP example figure is in non-printing text.

Example: ACB deactivation - Update message (with AMAslpid)

*HEX ID:AA STRUCTURE CODE:01030C CALL CODE:330C SENSOR TYPE:036C SENSOR ID:0619351C REC OFFICE TYPE:036C REC OFFICE ID:0619351C DATE:30929C CLASS FEATURE:069C ORIG NPA:613C ORIG NUMBER:6215821C OVERSEAS IND:1C TERM NPA:00000C TERM NUMBER:0000000C CONNECT TIME:1508160C ELAPSED TIME:000000059C CLASS FUNCTION:000C FEATURE STATUS:000C SCRN LIST SCF:000C SCRN LIST SCR:000C SCRN LIST DRCW:000C
MODULE CODE:039C SLP ID:123456789C MODULE CODE:000C

Example: AR deactivation - Update message (with AMAslpid)

*HEX ID:AA STRUCTURE CODE:01030C CALL CODE:330C SENSOR TYPE:036C SENSOR ID:0619351C REC OFFICE TYPE:036C REC OFFICE ID:0619351C DATE:30929C CLASS FEATURE:068C ORIG NPA:613C ORIG NUMBER:6215821C OVERSEAS IND:1C TERM NPA:00000C TERM NUMBER:0000000C CONNECT TIME:1508160C ELAPSED TIME:000000059C CLASS FUNCTION:000C FEATURE STATUS:000C SCRN LIST SCF:000C SCRN LIST SCR:000C SCRN LIST DRCW:000C
MODULE CODE:039C SLP ID:123456789C MODULE CODE:000C

Example: MSB activation- Update message (with AMAslpid)

*HEX ID:AA STRUCTURE CODE:40510C CALL CODE:006C SENSOR TYPE:036C SENSOR ID:0000000C REC OFFICE TYPE:036C REC OFFICE ID:0000000C DATE:80218C TIMING IND: 00000C STUDY IND:0000000C CLD PTY OFF-HK:0C SERVICE OBSERVED:0C OPER ACTION:0C SERVICE FEATURE:000C SIG DIGITS NEXT FIELD:009C ORIG OPEN DIGITS 1:00036340101C ORIG OPEN DIGITS 2:FFFFFFFFFF ORIGINATING CHARGE INFO:FFFF DOMESTIC/INTL INDICATOR:1C SIG DIGITS NEXT FIELD:007C TERM OPEN DIGITS 1:00006340102C TERM OPEN DIGITS 2:FFFFFFFFF CONNECT TIME:1451038C ELAPSED TIME:000000138C MODULE CODE:611C GENERIC CONTEXT ID:8002415C GENERIC DIGITS STRING ONE:94A28200000090C
MODULE CODE:039C SLP ID:123456789C MODULE CODE:000C

Group2 Services AMA

No AMA records are generated for Group2 services.

Group3 Services AMA

Update Message for DRCW, SCRJ and SIMRING

Consistent with the billing performed as a result of Distinctive Ringing / Call Waiting, Selective Call Rejection and Simultaneous Ringing being modified via access code, a callcode 330 record (structure code 1030) will also be provided to record successful DRCW or SCRJ or SIMRING activation, deactivation, list edit operations, etc.

Module code 039

When an *AMAslpid* is provided with an update request, a Service Logic Identification Module (module code 039) populated with the *AMAslpid* provided will be appended to any base record associated with the update.

The following MAP example figure is in non-printing text.

Example: DRCW activation- Update message (with AMAslpid)

*HEX ID:AA STRUCTURE CODE:01030C CALL CODE:330C SENSOR TYPE:036C SENSOR ID:0619351C REC OFFICE TYPE:036C REC OFFICE ID:0619351C DATE:30929C CLASS FEATURE:073C ORIG NPA:613C ORIG NUMBER:6215821C OVERSEAS IND:1C TERM NPA:00000C TERM NUMBER:0000000C CONNECT TIME:1508160C ELAPSED TIME:000000059C CLASS FUNCTION:002C FEATURE STATUS:000C SCRN LIST SCF:FFFF SCRN LIST SCR:FFFF SCRN LIST DRCW:001C
MODULE CODE:039C SLP ID:111111111C MODULE CODE:000C

Example: SCRJ activation- Update message (with AMAslpid)

*HEX ID:AA STRUCTURE CODE:01030C CALL CODE:330C SENSOR TYPE:036C SENSOR ID:0619351C REC OFFICE TYPE:036C REC OFFICE ID:0619351C DATE:30929C CLASS FEATURE:072C ORIG NPA:613C ORIG NUMBER:6215821C OVERSEAS IND:1C TERM NPA:00000C TERM NUMBER:0000000C CONNECT TIME:1508302C ELAPSED TIME:000000081C CLASS FUNCTION:002C FEATURE STATUS:000C SCRN LIST SCF:FFFF SCRN LIST SCR:001C SCRN LIST DRCW:FFFF ***MODULE CODE:039C SLP ID:111111111C*** MODULE CODE:000C

Group4 Services AMA

Updates to Call Forwarding

Consistent with the billing performed as a result of Call Forwarding being modified via access code, a callcode 31 record (structure code 614) will be provided for successful CFW activation (POTS or IBN/RES) and a callcode 31 record (structure code 96) will be provided for successful CFW deactivation (POTS or IBN/RES).

There are no billing records provided for Call Forward Busy or Don't Answer activation or deactivation for either POTS or IBN/RES.

Module code 039

Impact to be determined.

When an *AMAslpid* is provided with an update request, a Service Logic Identification Module (module code 039) populated with the *AMAslpid* provided will be appended to any base record associated with the update.

The following MAP example figure is in non-printing text.

Example: Call Forward activation- Update message (with AMAslpid)

*HEX ID:AA STRUCTURE CODE:00614C CALL CODE:031C SENSOR TYPE:036C SENSOR ID:0619351C REC OFFICE TYPE:036C REC OFFICE ID:0619351C DATE:30926C TIMING IND:00100C STUDY IND:0000000C SERVICE FEATURE:012C ACTIVATING NPA:613C ACTIVATING NUMBER:6213502C FWD OVERSEAS IND:1C FWD NPA:00613C FWD NUMBER:6212500C ACTIVATION TIME:1426285C
MODULE CODE:039C SLP ID:111111111C MODULE CODE:000C

Example: Call Fwd deactivation- Update message (with AMAslpid)

*HEX ID:AA STRUCTURE CODE:00096C CALL CODE:031C SENSOR TYPE:036C SENSOR ID:0619351C REC OFFICE TYPE:036C REC OFFICE ID:0619351C DATE:30926C TIMING IND:00300C STUDY IND:0000000C SERVICE FEATURE:012C ACTIVATING NPA:613C ACTIVATING NUMBER:6213502C FWD OVERSEAS IND:1C FWD NPA:00613C FWD NUMBER:6212500C ACTIVATION TIME:1426285C ELAPSED TIME:000000265C PRESENT DATE:30926C PRESENT TIME:1426568C ***MODULE CODE:039C SLP ID:111111111C*** MODULE CODE:000C

Group5 Services AMA

Updates to Selective Call Forwarding

Consistent with the billing performed as a result of Selective Call Forwarding being modified via access code, a callcode 330 record (structure code 1030) will also be provided to record successful SCF activation, deactivation, list edit operations, etc.

Module code 039

When an *AMAslpid* is provided with an update request, a Service Logic Identification Module (module code 039) populated with the *AMAslpid* provided will be appended to any base record associated with the update.

The following MAP example figure illustrates the above as it relates to the extension of a Selective Call Forwarding CLASS AMA record. The Module Code 039 portion of the record is represented as ***bold italics***.

Example: Update message for SCF

*HEX ID:AA STRUCTURE CODE:41030C CALL CODE:330C SENSOR TYPE:036C SENSOR ID:0619351C REC OFFICE TYPE:036C REC OFFICE ID:0619351C DATE:30731C CLASS FEATURE:052C ORIG NPA:000C ORIG NUMBER:0000000C OVERSEAS IND:1C TERM NPA:00000C TERM NUMBER:0000000C CONNECT TIME:0857083C ELAPSED TIME:000000000C CLASS FUNCTION:001C FEATURE STATUS:000C SCRN LIST SCF:001C SCRN LIST SCR:FFFF SCRN LIST DRCW:FFFF ***MODULE CODE:039C SLP ID:111111111C*** MODULE CODE:000C

Group6 Services AMA

No AMA records are generated for Group6 Services.

Group7 Services AMA

Update Messages for CallingNunberDeliveryBlocking

Consistent with the billing performed as a result of CNDB being activated via an access code, a callcode 330 record (structure code 1030) will be provided to record successful CNDB activation.

Module Code 039

When an *AMAsplidid* is provided with an update request, a Service Logic Identification Module (module code 039) populated with the *AMAslipid* will be appended to any base record associated with the update.

Example CNDB Activation

*HEX ID:AA STRUCTURE CODE:01030C CALL CODE:330C SENSOR TYPE:036C SENSOR ID:0619351C REC OFFICE TYPE:036C REC OFFICE ID:0619351C DATE:31030C CLASS FEATURE:075C ORIG NPA:613C ORIG NUMBER:6213513C OVERSEAS IND:1C TERM NPA:00613C TERM NUMBER:7234535C CONNECT TIME:0949248C ELAPSED TIME:000000000C CLASS FUNCTION:000C FEATURE STATUS:000C SCRN LIST SCF:000C SCRN LIST SCR:000C SCRN LIST DRCW:000C *MODULE CODE:039C SLIP ID:111111111C MODULE CODE:000C*

Group8 Services AMA

Update Message for COT and CCW

Consistent with the billing performed as a result of Customer Originated Trace and CancelCall Waiting being modified via access code, a callcode 330 record (structure code 1030) will also be provided to record successful COT or CCW invocation.

Module code 039

When an *AMAslpid* is provided with an update request, a Service Logic Identification Module (module code 039) populated with the *AMAslpid* provided will be appended to any base record associated with the update.

The following MAP example figure is in non-printing text.

Example COT activation and LINE 150 Log

*HEX ID:AA STRUCTURE CODE:01030C CALL CODE:330C SENSOR TYPE:036C SENSOR ID:0619351C REC OFFICE TYPE:036C REC OFFICE ID:0619351C DATE:30929C CLASS FEATURE:070C ORIG NPA:613C ORIG NUMBER:6215821C OVERSEAS IND:0C TERM NPA:00613C TERM NUMBER:6215121C CONNECT TIME:1510368C ELAPSED TIME:000000000C CLASS FUNCTION:000C FEATURE STATUS:000C SCRN LIST SCF:000C SCRN LIST SCR:000C SCRN LIST DRCW:000C ***MODULE CODE:039C SLIP ID:111111111C MODULE CODE:000C***

>open line 150
Done.
RTPT07BD LINE150 SEP29 15:10:36 2600 INFO FULL COT TRACE
SUBSCRIBER LEN: HOST 05 0 08 21 SUBSCRIBER DN: 613 6215821
TRACE DUMP
TIME CALL RCVD: SEP29 15:10:07 DN: 613 6215121
INTRAOFFICE: Y ORIG ADDR TYPE: 003 (UNIQUE)
OUT OF AREA: N CWT: N PRIVATE: N GIC: N
NETWORK: PUBLIC
JIP: 000000
JIP REASON: HOMELRN USED

Group9 Services AMA

No AMA records are generated for Group9 Services.

Other changes

Not applicable.

Product = CS 2000

A00004037 -- USNBD CALEA CMR Interaction Enhancements (Succession on DMS)

Functional Description

Currently there are three types of delivery mechanisms available for CDC messaging; X25, SCTP (supported only on CS2Kdelivery) or call data delivery via Frequency Shift Keying (FSK supported on DMS or in a CS2K hybrid configuration with TDM LTC/LGCs) over a dedicated POTs line. X25 and SCTP mechanisms require Law Enforcement agencies to purchase additional hardware in order to receive the call data messages. Nortel has provided an inexpensive mechanism for the delivery of call data over a

dedicated line. This feature will allow a mechanism for delivery of call data over a Switched Remote trunk.

Functional Description

Currently, FSK supports 2 access types, SL (switched local) and DE (Dedicated). This feature will add a third access type called SR (Switched Remote).

The DTC/SPM or other trunking peripheral does not support the CMR card. In order for the call data to be delivered over a trunk, an LGC/LTC peripheral containing the CMR will allocate a p-side loop around to the trunk. This will allow the data sent from the CM to be looped from the CMR peripheral to the trunk peripheral and out over the trunk.

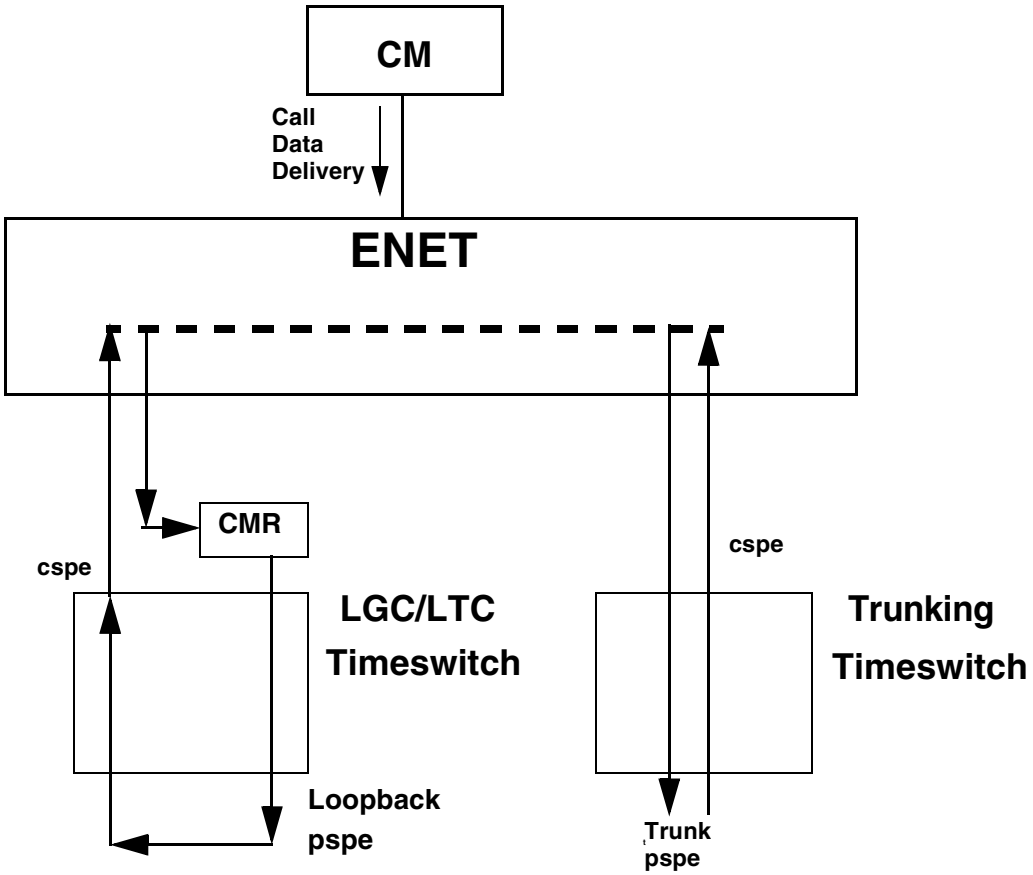
This feature will also support equal access dialing/routing for both Switched-Remote trunk CDCs and Switched CCRs (Note: Switched CCR or dial-out CCR functionality was initially provided in NA014 without equal access support).

To provide support of Equal Access, USNBD Agency command is modified to allow for the provisioning of a PIC and LATA which will be used for all equal access calls to Trunk CDCs and switched CCRs for that agency. If equal access dialing is not desired, the PIC and LATA fields should be set to NILCAR and NILLATA respectively.

Supported trunk types for equal access calls on SR CDCs and Switched CCRs are ISUP IT and ATC trunks with FGD signalling only.

The following figure shows how the connections are made between the CMR card and the outgoing trunk.

CMR card to DTC connection



Modifications to USNBD CI commands

The USNBD CDC and AGENCY commands will be enhanced to allow a new type of transport protocol, SR (switched remote) for FSK CDC over trunks. The following figure illustrates the CDC list command with an SR CDC link added.

Trunk

```
cdc list all
Index Type  Access CDC DN       Agency
     [Associated SINs]
-------------------------------------------------------------------------
 1 FSK DE    6136211004          TEST
 2 FSK  SL   6136211005          TEST
 3 FSK SR    16136211006         FBI_WITH_EA
CDC LIST DONE
```

The Switched Remote CDC type will utilize Agency data just like the Switched CCRs, for billing information and digit translation.

The Agency command ADD and LIST will be enhanced to add the PIC and LATA fields. The following figure shows the agency list display.

Agency List Display

```
>agency list
AGENCY-NAME   STS   PRETRANSLATOR   LCANAME   BILLNO
                    PIC                       LATA
-------------------------------------------------------------------------------
FBI_NO_EA     613   P621            L613      6135551000
                    NILCAR                    NILLATA
FBI_WITH_EA   613   P621            L613      6135551001
                    ITT                       LATA1
AGENCY   LIST   DONE.
```

The Switched Remote CDC will utilize Agency data just like the existing Switched CCRs, for billing information and digit translation.

The following figure is a calldump of the 110 and 119 billing records which are output for each CCR or CDC call utilizing EA translations.

110 and 119 CALLDUMP logs

```
*HEX ID:AA   STRUCTURE CODE:40625C   CALL CODE:110C   SENSOR TYPE:036C
SENSOR ID:0619351C   REC OFFICE TYPE:036C   REC OFFICE ID:0619351C
DATE:31215C   TIMING IND:00000C   STUDY IND:0200000C   CLD PTY OFF-HK:0C
SERVICE OBSERVED:0C   OPER ACTION:0C   SERVICE FEATURE:000C
ORIG NPA:613C   ORIG NUMBER:5551000C   OVERSEAS IND:0C
TERM NPA:00345C   TERM NUMBER:8882400C   CONNECT TIME:1016181C
ELAPSED TIME:000000465C   IC/INC PREFIX:04881C   CC DATE:31215C   CC  TIME:1016165C
ELAPSED CC:000000482C   IC/INC EVENT STATUS:010C   TRUNK GROUP NUMBER:40639C
ROUTING INDICATOR:1C   DIALING INDICATOR:1C   ANI INDICATOR:1C
MODULE CODE:306C   OLIP:031C   MODULE CODE:000C


*HEX ID:AA   STRUCTURE CODE:40625C   CALL CODE:119C   SENSOR TYPE:036C
SENSOR ID:0619351C   REC OFFICE TYPE:036C   REC OFFICE ID:0619351C
DATE:31215C   TIMING IND:00000C   STUDY IND:0200000C   CLD PTY OFF-HK:0C
SERVICE OBSERVED:0C   OPER ACTION:0C   SERVICE FEATURE:000C
ORIG NPA:613C   ORIG NUMBER:5551000C   OVERSEAS IND:0C
TERM NPA:00345C   TERM NUMBER:8882400C   CONNECT TIME:1016180C
ELAPSED TIME:000000465C   IC/INC PREFIX:04881C   CC DATE:31215C   CC TIME:1016163C
ELAPSED CC:000000482C   IC/INC EVENT STATUS:010C   TRUNK GROUP NUMBER:30639C
ROUTING INDICATOR:0C   DIALING INDICATOR:FF   ANI INDICATOR:1C
MODULE CODE:306C   OLIP:031C   MODULE CODE:000C
```

CDC Link Establishment/Termination/Retries

The same rules which apply to Switched Local CDC lines, will be followed for Switched Remote trunks. A detailed list is in the DID section of this document.

Hardware Requirements or Dependencies

Availability of a CMR card in any LGC/LTC on the switch.

Software Requirements or Dependencies

Soc options NBD00003 and NBD00004 turned “ON” for USNBD functionality.

Limitations and restrictions

CM portion of this feature requires the XPM portion of this feature.

Interactions

The feature does not modify the way USNBD interacts with other features. It adds an additional CDC type.

Logs (LG)

New/modified logs

The existing UNB error and secret logs are enhanced to report the problems specific to Switched Remote CDCs during administration or audits. UNB306 logs will be output if the PIC or LATA fields are deleted.

Data schema (DS)

No new tables are created by this feature and none of the existing tables are modified by this feature.

Office parameters (OP)

No office parameter related changes are made by this feature.

Service orders (SO)

No Service order changes are made by this feature.

Alarms (AL)

No new alarms are added by this feature and none of the existing ones are modified by the feature.

Glossary

Term	Description
CALEA	Communications Assistance for Law Enforcement Act
CLASS	Custom Local Area Signaling Services
CMR	CLASS Modem Resource
FSK	Frequency Shift Keying
LEA	Law Enforcement Agencies
LI	Lawful Interception
PCM	Pulse Code Modulation
USNBD	United States Network Broadcast Delivery

Product = CS 2000

A00004045 -- CLIDN on DMS-250 (Succession on DMS)

Functional Description

The Calling Line Identification Directory Number (CLIDN) call tracing capability captures call data based on the Called number. Called numbers that require tracing are entered into table CLIDN. Call data is captured during trunk termination and output in a TRK605 log. The TRK605 log contains the call origination number (e.g. Calling Party Number) and additional call information for tracing malicious, threatening or otherwise harassing calls.

Prior to this activity, the CLIDN table existed only in the DMS-100/200 product line as one option for providing CLI call tracing functionality. This feature implements similar DMS-100/200 CLIDN call tracing capability into the UCS DMS-250 product line and uses the same CLIDN table. The UCS DMS-250 functionality supports originations and terminations on the following DMS-250 trunk types: EANT (PTS and SS7), PRI, DAL, ONAL, ONAT and IMT (PTS and SS7). Availability of TRK605 log information is dependent on trunk and signaling type at the time the call information is captured.

Please refer to the following sections for additional information on this capability:

- Software Optionality Control (SOC): UTRS0012

- Table CLIDN
- TRK605 Log
- TRK605 Log Data Capture (Call Processing)

Software Optionality Control (SOC): UTRS0012

The new SOC code UTRS0012 ‘CLIDN for DMS-250’ is introduced by this feature. When UTRS0012 is ON, call attempts on a supported incoming trunk to a called number marked for tracing in table CLIDN will generate a TRK605 log. When UTRS0012 is IDLE, call attempts on a supported incoming trunk to a called number marked for tracing in table CLIDN will not generate a TRK605 log. The following figure shows an example of SOC UTRS0012 in the ON state.

UTRS0012 SOC option

```
>SOC
SOC:
>SELECT OPTION UTRS0012

GROUP:UTRS
OPTION    NAME                RTU STATE   USAGE   LIMIT    UNITS  LAST_CHG
------    ----                --- -----   -----   -----    -----  --------
UTRS0012  UCS CLIDN on DMS-250   Y   ON      -       -        -  03/08/28
```

If ACTPATCH KGL03 is active, then SOC UTRS0012 will be set to RTU "Y" and STATE "ON" on ONP to the sourced release.

Table CLIDN

This feature makes table CLIDN functionality available for the UCS DRU. Table CLIDN allows for a maximum of 67 ten-digit directory number (DN) (area code + office code + DN) tuples for which CLI call tracing is provided. For a service code (i.e., 411, 911, etc.) or a seven-digit DN, the letter N (internally translated to 0) must be prefixed to make the total digit count equal to 10.

Table CLIDN is not changed by this feature and is associated with the TRK605 log. When the called number is datafilled in table CLIDN, UTRS0012 SOC option is ON and the incoming trunk is a supported trunk type, the TRK605 log is generated. The following figure shows example datafill for table CLIDN.

Table CLIDN datafill

```
>table clidn
>add
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
>y
DIGITS:
>6136215015
TUPLE TO BE ADDED:
6136215015
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
>y
TUPLE ADDED
>list all
TOP
DIGITS
------
NNNNNNN411
NNN8765000
6136215015
BOTTOM
```

TRK605 Log

This feature makes TRK605 log functionality available for the UCS DRU. The existing TRK605 log was introduced in the DMS-100/200 by the Inter-Switch Call Trace (ICT) feature AN1658. The TRK605 log is used in a tandem switch to identify the origination number when the called number is being traced. The TRK605 log contains the fields: Incoming trunk, Outgoing trunk, Called number, Originating number, Source, Call ID and Time.

TRK605 Format

This feature does not change the format of the existing TRK605 log. The log report format for TRK605 is as follows:

* TRK605 mmmdd hh:mm:ss ssdd ALARM INFO ICT Calling Line Ident
INCOMING TRUNK = <CKT CLLI>

OUTGOING TRUNK = <CKT CLLI>

CALLED NUMBER = NXXNXXXXXX

SOURCE = CALLING NUMBER/CHARGE NUMBER/UNAVAILABLE

CALLID = XXXXXX

TIME: MONTH: DAY HH:mm:ss

An example of log report TRK605 follows:

```
* TRK605 SEP27 14:23:29 5908 INFO ICT Calling Line Ident
    INCOMING TRUNK = CKT     DCEA20C7DR01    1
    OUTGOING TRUNK = CKT     DCEA21C7DR02    1
    CALLED NUMBER  = 2018212345
    ORIGINATION NUMBER = 8146119871
    SOURCE =           CALLING NUMBER
    CALLID =      852346
    TIME:    SEP27 14:23:29
```

TRK605 Log Field descriptions

The following table describes each field in the TRK605 log report.

TRK605 Log Field descriptions

Field	Value	Description
*	Alarm	One asterik indicates that the generation of this log report represents a minor alarm condition.
INCOMING TRUNK	Trunk Group name and member number	This field identifies the CLLI name and member number of the incoming trunk.
OUTGOING TRUNK	Trunk Group name and member number	This field identifies the CLLI name and member number of the outgoing trunk.
CALLED NUMBER	Digits 0-9	This field identifies the called number that is being traced.
ORIGINATIN G NUMBER	Digits 0-9 or '$'	This field identifies either the calling number, charge number or billing number from the incoming trunk call information. The CLIDN for DMS-250 feature attempts to get the calling number first. If the calling number is not available, the charge number is used. If the charge number is not available, the billing number is used. If neither the calling, charge nor billing number is available, this field will display '$'.
SOURCE	Calling Number, Charge Number or Unavailable	This field identifies from what the originating number is derived. If the originating number cannot be derived, '$' will appear in the ORIGINATING NUMBER field and the SOURCE field will display "UNAVAILABLE".

TRK605 Log Field descriptions

Field	Value	Description
CALLID	6 digit number; Digits 0-9 used	This field identifies the call process id number.
TIME	Month, Day, Hour, Minute and Second	This field identifies the date and time the call was logged.

TRK605 Log Data Capture (Call Processing)

When a supported incoming trunk with the called number datafilled in table CLIDN attempts to terminate on an outgoing trunk, a TRK605 log message is generated. The TRK605 log data is captured from the call information depending on the type of call and incoming trunk call data.

The following three call types may impact the Called number used to index table CLIDN on incoming DMS-250 calls:

- For typical calls, the Called number from the incoming trunk is used to index table CLIDN for DN tracing.
- Incoming calls in which a ported number Generic Address Parameter (GAP) is signaled in or returned from the database query, the ported number is used to index table CLIDN for DN tracing, otherwise the Called number is used.
- For all CAIN calls that receive a Called number from the database, the returned Called number from the database is used to index table CLIDN for DN tracing.

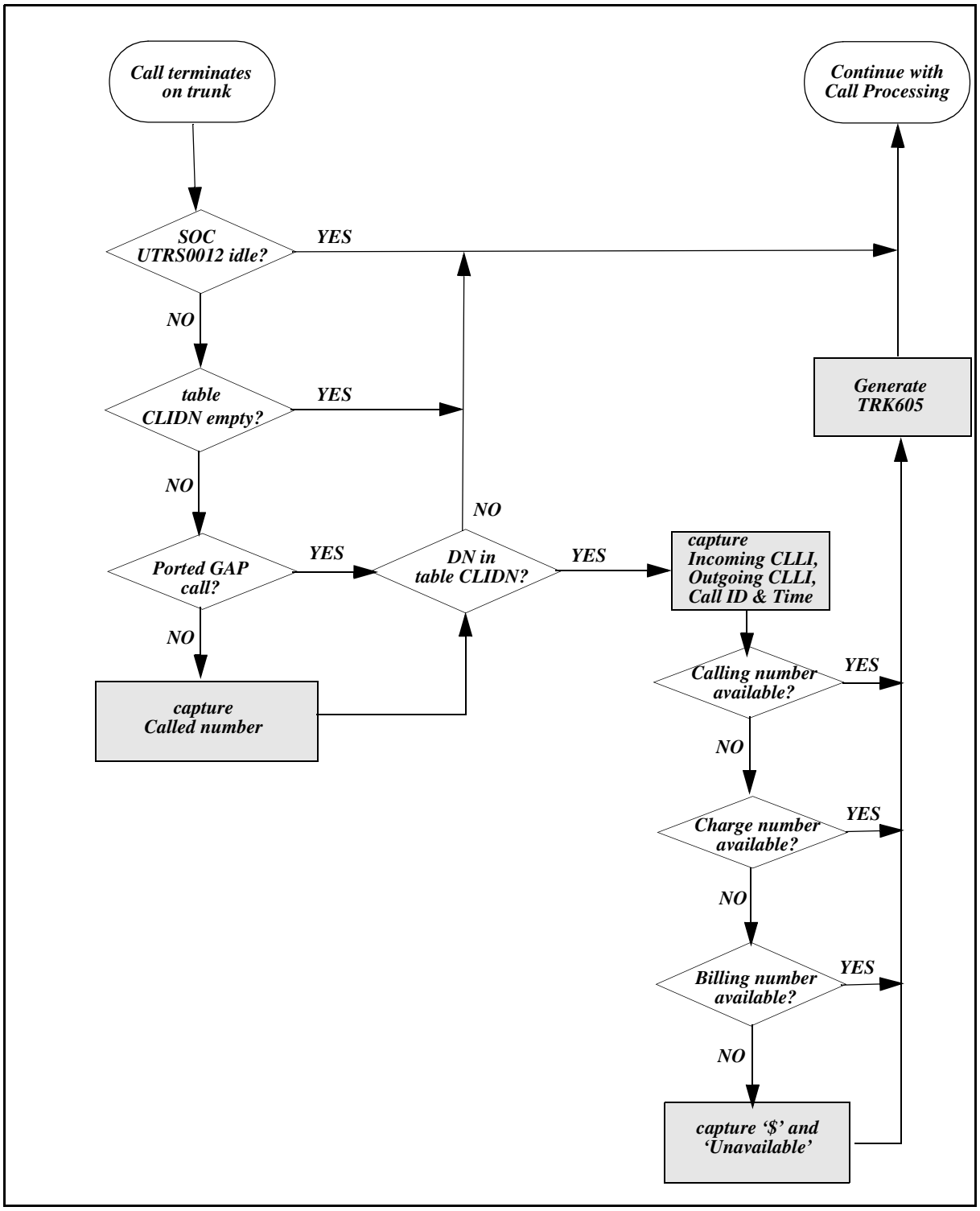
If the Called number is located in table CLIDN, the TRK605 log is generated with the incoming trunk captured call data. The following table gives a breakdown of how the TRK605 log data is derived. The flow chart in Figure describes the call processing behavior of this feature.

TRK605 log data

TRK605 log field	Information received from
Incoming Trunk	CLLI of incoming trunk
Outgoing Trunk	CLLI of outgoing trunk
Called Number	Ported number GAP, if ported number is signaled in. The number returned from query, if CAIN alters called number. Called number present in the incoming trunk call data, if typical call.

TRK605 log field	Information received from
Origination Number	Calling party number, charge number or billing number. If none of the above info is available, this field will be '$' (left blank).
Source	'CALLING NUMBER' if Origination number field is calling party number. 'CHARGE NUMBER' if Origination number field is charge number or billing number. 'UNAVAILABLE' if Origination number field is '$'.
Callid	Call data information
Time	Call data information time

CLIDN Call behavior



Hardware Requirements or Dependencies

None.

Software Requirements or Dependencies

SN07 (UCS20).

Limitations and restrictions

- This functionality will not support the following UCS trunk types: AXXESS.
- Only standard In-switch routed CAIN calls will be supported.
- This feature is patched in SN06 under ACTPATCH KGL03.

Interactions

None.

Applicable customer facing sections

Fault Management

Logs	__X___
Alarms	__N/A_

Configuration

Data Schema	__X___
User Interface	__N/A_
Element Management	__N/A_
Security	__N/A_
Service Order	__N/A_
Office Parameters	__N/A_

Accounting (includes AMA billing)	__N/A_
Performance (includes operational measurements)	__N/A_

Glossary

Term	Description
ANI	Automatic Number Identification
CAIN	Carrier Advanced Intelligent Network
CLI	Calling Line Identify
CLIDN	Calling Line Identify Directory Number

Term	Description
CLLI	Common Language Location Identification
DAL	Dedicated Access Line
DN	Directory Number
EANT	Equal Access Network Trunk
GAP	Generic Address Parameter
IAM	Initial Address Message of the SS7 signalling
IMT	Inter Machine Trunk
ISUP	Integrated Services digital network User Part
ICT	Inter-Switch Call Trace
LNP	Local Number Portability
ONAL	Off Network Access Line
ONAT	Off Network Access Trunk
ONP	One Night Process
PRI	Primary Rate Interface
RTU	Right to Use
SS7	Signalling System No. 7
SOC	Software Optionality Control
UCS	Universal Carrier Service

Configuration for A00004045

Hardware and Software Requirements

In order to perform CLIDN call tracing on the DMS-250, SOC UTRS0012 must be ON and the desired termination number(s) must be datafilled in table CLIDN.

Initial Configuration

This feature impacts EANT, PRI, DAL, ONAL, ONAT and IMT trunks.

This feature creates a section for existing table CLIDN (see Section 13.5.1).

Office/Subnet parameters (OP/SP) (CM & SESM)

N/A

Upgrade Impact

Dump and Restore

If ACTPATCH KGL03 (UCS19)is active on Dump side, then UTRS0012 will be set to RTU "Y" and "ON" on ONP to the sourced release (restore side UCS20 and above).

Element Management Upgrade

N/A

Data schema (DS) (CM, MIBS, RDB)

New table

Table CLIDN is new to the UCS DRU, but currently exists in DMS-100/200.

New table

Table/MIB name	NEW/CHANGED/ or DELETED/	Table Control (NEW/ OLD/UNCHANGED)
CLIDN	NEW	UNCHANGED

Table/MIB/Remote Database Schema information

Name: CLIDN

Calling Line Identification Directory Number

Functional description

Table CLIDN allows for a maximum of 67 ten-digit directory number (DN) (area code + office code + DN) tuples for which CLI call tracing is provided. These DNs are external to the switching unit. The ten-digit DNs include an area code + office code + directory number or a service code.

For a service code (i.e., 411, 911, 0, etc.) or a seven-digit DN, the letter N must be prefixed to make the total digit count equal to 10. The system internally translates the letter N to 0.

Table CLIDN is associated with the TRK605 log on the DMS-250 switch. When the called number is datafilled in table CLIDN, UTRS0012 SOC option is ON and the incoming trunk type is supported (trunk types: EANT, PRI, DAL, ONAL, ONAT or IMT), the TRK605 log is generated.

The TRK605 log report contains the following fields:

- the incoming trunk group and number
- the outgoing trunk group and number
- the called party number

- the originating party number
- the date and time

Usage sequence and implications (CM Only)

No other tables need to be datafilled prior to entering data into table CLIDN.

Size

Table size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
CLIDN	0	67	

Fields

The following table lists field description for table CLIDN.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
DIGITS	N/A		numeric digits 0-9 and N	*Digits.* The entry is equal to the ten-digit DN of a line external to the switching unit. The letter N must prefix service codes like 411, 911 and 0. This action makes the total digit count equal to 10. The system translates the letter N internally to 0.

Datafill example

The following figure shows an example of datafill for table CLIDN. The example contains a service code, 7-digit DN and 10-digit DN.

MAP example for table CLIDN

```
TABLE: CLIDN

DIGITS
----------
NNNNNNN411
NNN8765000
2018213456
```

Table release history update

Design activity A00004045 (CLIDN for DMS-250) introduced log report TRK605 to the UCS DRU in SN07.

Design activity AN1658 (Inter-Switch Call Trace) introduced log report TRK605 in CNA05.

Supplementary information

N/A

Translation verification other tools

Table CLIDN does not use translation verification tools.

Service Orders (SO) (CM & SESM)

N/A

Software optionality control (SOC)

SOC

SOC option name:	CLIDN for DMS-250
SOC option title:	Yes
SOC option control type:	usage
New SOC option?	Yes
SOC option order code	UTRS0012
Option defined in DRU:	UCS
Affected products:	SN07

Element Management

N/A

Command interface changes

N/A

Security

N/A

Configuration Walkthrough

In order to perform CLIDN call tracing on the DMS-250, SOC UTRS0012 must be ON and the desired called number(s) must be datafilled in table CLIDN.

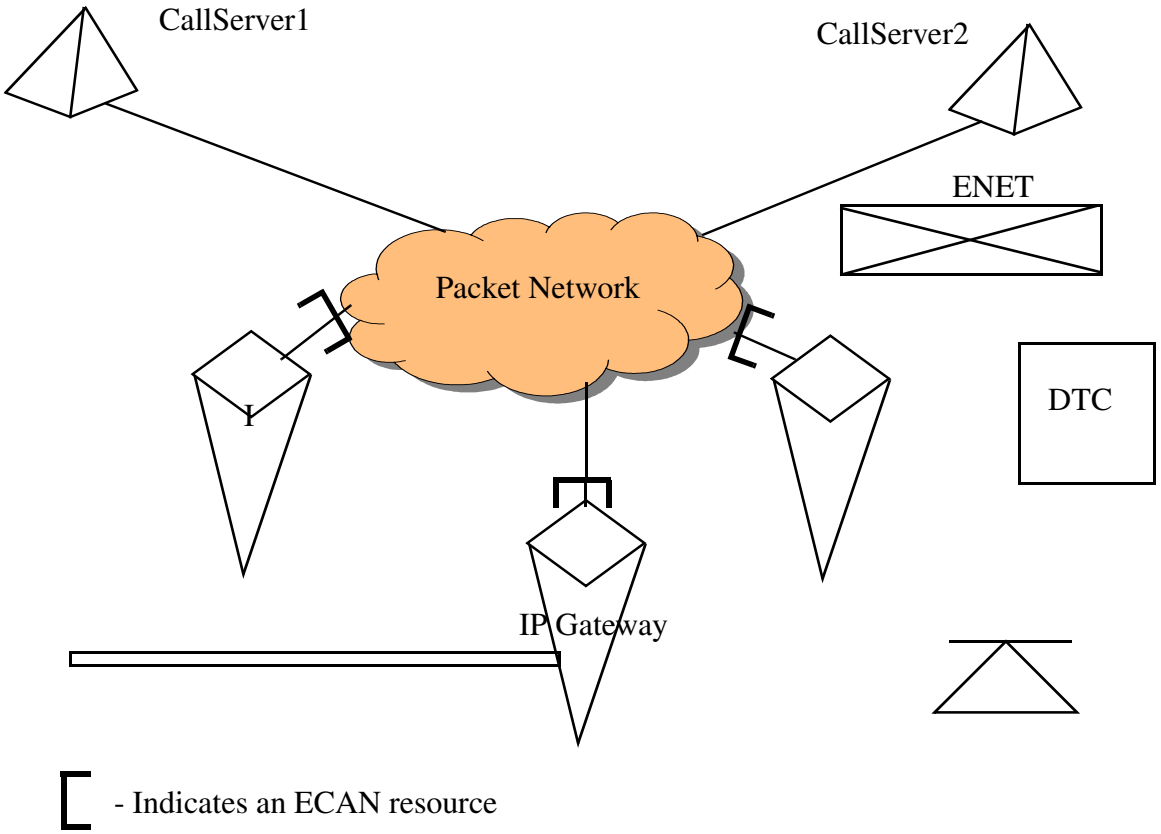
Product = CS2000

A00004046 -- ECAN for Trimodal, 9K-IP-IPIW to Legacy (UA-AAL1)

Functional Description

The TriModal call model allows for legacy, AAL1 and IP bearer fabrics to co-exist in the same Call Server VPN. This activity is responsible for ensuring that ECAN resources can and are allocated appropriately within the CallServer VPN. The goal is to ensure that ECAN resources are always applied in IP networks and are applied according to the selected strategy for AAL1 fabric. This entails implementation of an Edge Strategy for IP Networks and either an Edge or Region strategy for AAL1 networks. Edge Strategy requires that ECAN resources are always allocated at the point of entry into a packet network. Region strategy uses a provisioning model that allows the customer to dictate where ECAN resources should be deployed throughout the network.

Edge Strategy



The diagram above is an illustration of how an edge strategy could be employed. The salient point is that every point of entry into the network is covered by an ECAN resource.

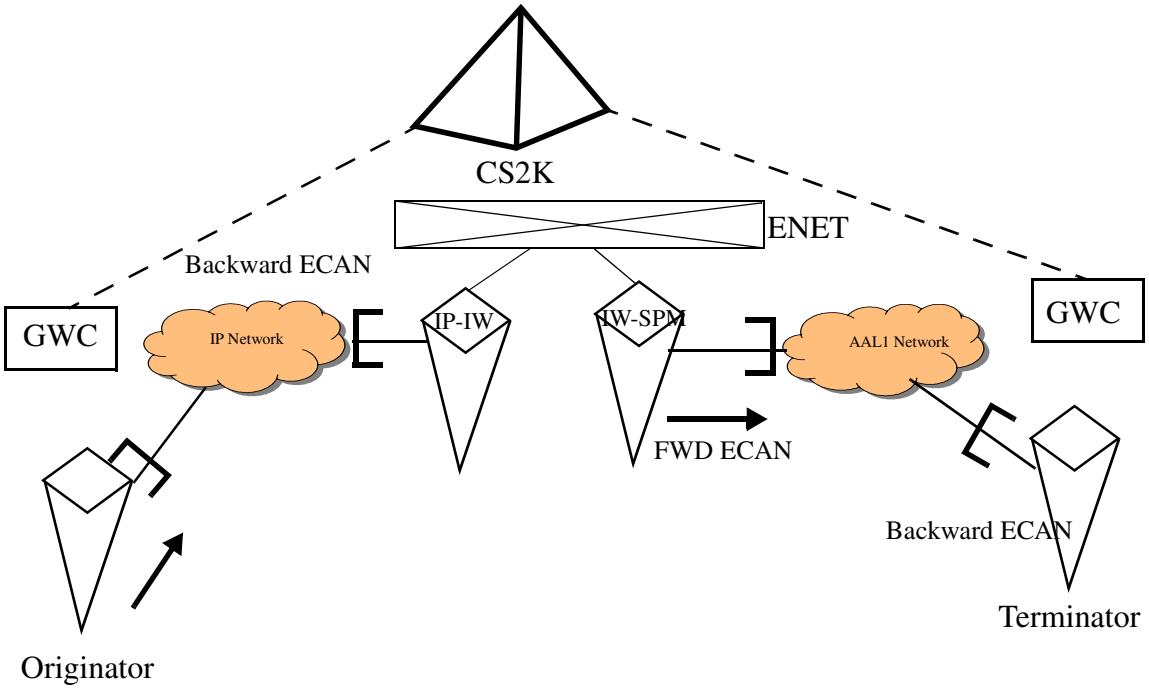
Conversely, a region strategy is dictated by provisioning. The customer, using knowledge of network parameters, provisions the strategic locations within their network where ECAN resources should be applied. It is not assumed that a network device with a packet interface will automatically utilize ECAN resources.

In SN06, feature A89007309, introduced support for an ECAN_EDGE_STRATEGY office parameter which would be used to differentiate between EDGE and REGION strategies on IP and AAL1 networks. A primary goal of activity A00004046 is to ensure that in the TriModal implementation, this strategy continues to be effective.

In SN07, IP, AAL1 and ENET bearer fabrics all co-exists on the same CS2K callserver. At a minimum, every call in this topology must have sufficient ECAN resources. These resources may be provided locally or optimized out of the call if it is subsequently determined that the resource is not required. Fortunately, the SN06 strategy extends itself quite well to the TriModal architecture, ensuring that ECAN is applied consistent with this strategy.

The ECAN edge strategy will be assumed for all packet network types except AAL1. The ECAN strategy for AAL1 will be determined by the value of the EDGE_ECAN_STRATEGY office parameter. Currently, there are scenarios where ECAN resources in a TriModal switch will be duplicated.

TRI-MODAL IP-AAL1 Call



In the call scenario above, 4 ECAN resources will be allocated in the call, depending upon the ECAN_EDGE_STRATEGY value for the AAL1 side. The IP side of the call will always allocate both ECAN resources, however, if the REGION strategy is deployed, the ECAN resource on the AAL1 side of the call, utilizing the IW-SPM, will be deallocated. The manner in which ECAN resources are allocated in this TriModal topology is unchanged from the manner in which the resources would be allocated if both IP and AAL1 were not converged.

Therefore, in summary, the ECAN_EDGE_STRATEGY parameter will continue to be used in the CS2K to control ECAN allocation in the AAL1 bearer fabric. All other packet bearer fabrics will assume the edge strategy.

Trunk Provisioning

In summary, support for TriModal CS2K should be transparent to the customer. Support for this activity will be provided by the existing infrastructure, developed in the previous release for support of Next Generation Networks.

Hardware Requirements or Dependencies

There are no additional hardware requirements in support of this feature.

Software Requirements or Dependencies

There are no additional software requirements in support of this feature.

Limitations and restrictions

Trunk provisioning pertaining to ECAN is limited to provisioning ECAN resources against a specific trunk sub-group. There are 2 fields in TRKSGRP where this is done. On SPM peripherals, the SPMECIDX option is used to connect a specific ECAN provisioned value with a subgroup. For all other trunks, the ECSTAT field is used to determine whether or not ECAN resources are available, internally or externally.

This mode of operation is unchanged in this activity, however, customers should be aware of the following limitation (once MG4K-IP is available) when determining the ECAN characteristics of SPM based trunk members constituting a trunk group. TRKSGRP table only allows 2 subgroup tuples to be added per trunk group. There are currently 3 bearer fabrics that could potentially differ in their ECAN provisioning requirements in this table.

- Legacy Trunks i.e DMSCP SPM.
- AAL1 Trunks i.e. MG4K
- IP Trunks i.e. MG4K-IP (not available in SN07)

Since only 2 trunk subgroup tuples are allowed per trunk group, if the strategy for a trunk group contains all three component types, 2 of these types must share the same SPMECIDX value. This constraint should be considered during trunk datafill planning.

Interactions

There should be no visible effect in support of ECAN allocation in a TRI-MODAL call server. The extensibility of existing Next-Generation-Networks ECAN support makes the application of these resources transparent on a TRI-MODAL CS2K.

ECAN Terminal Type Cross Matrix

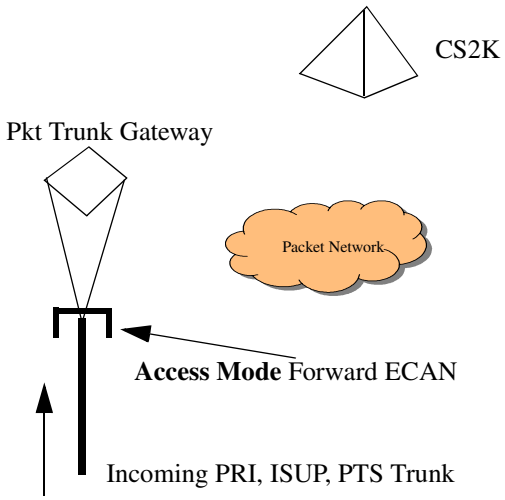
The allocation of resources are described in terms of Forward and Backward ECAN and Network vs. Access Mode allocation. In order to facilitate the understanding of table data, an explanation of these terms is in order.

Forward ECAN refers to ECAN resources that prevent echo from traversing in the forward direction of the call from originator to terminator. Backward ECAN refers to ECAN resources that prevent echo from traversing the call in a backwards direction from terminator to originator.

This concept in conjunction with Access vs. Network mode echo cancellation provides the exact direction and location in the CS2K that the echo cancellers are applied. Access mode ECAN refers to echo cancellers applied towards the

facility i.e. The Line or the Trunk entity that is the source of the echo. Network mode ECAN applies echo cancellers toward the ENET. “Towards the ENET” or “Towards the Facility” applies to the “tail of the echo”. The “tail of the echo” can be thought of as the round-trip path from the echo canceller to the source of the echo. The echo cancellers are deployed in the direction of the tail. The following diagrams are provided to help the reader to understand how echo cancellers are applied in conjunction with these concepts.

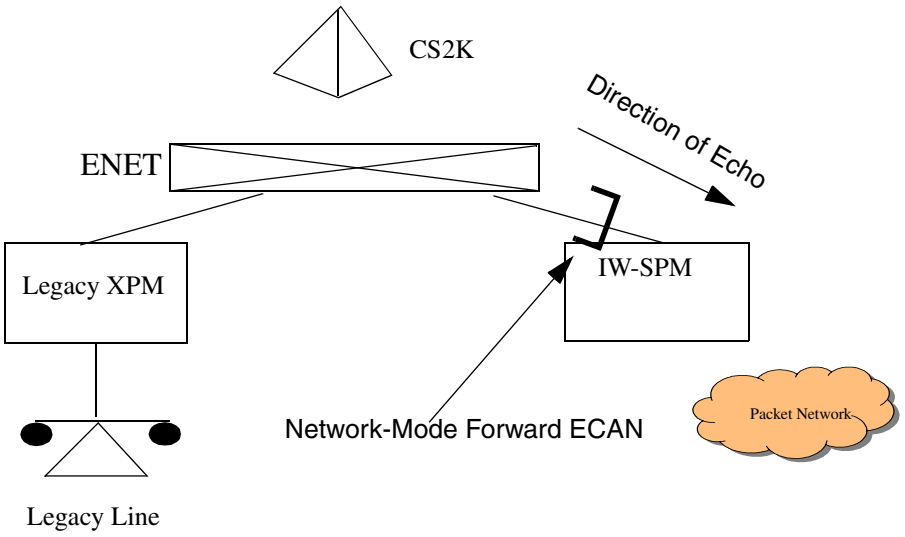
Access Mode ECAN Example



As the preceding figure illustrates, the echo canceller is applied to the incoming trunk, before packetization. It is Access Mode because it is applied to control echo from the Facility. It is “forward” because it is blocking echo in the forward direction towards the terminating side of the call.

Network-Mode echo cancellers are applied toward the ENET. This is the defining characteristic of Network-Mode ECAN. Figure below illustrates this concept.

Network Mode Forward ECAN

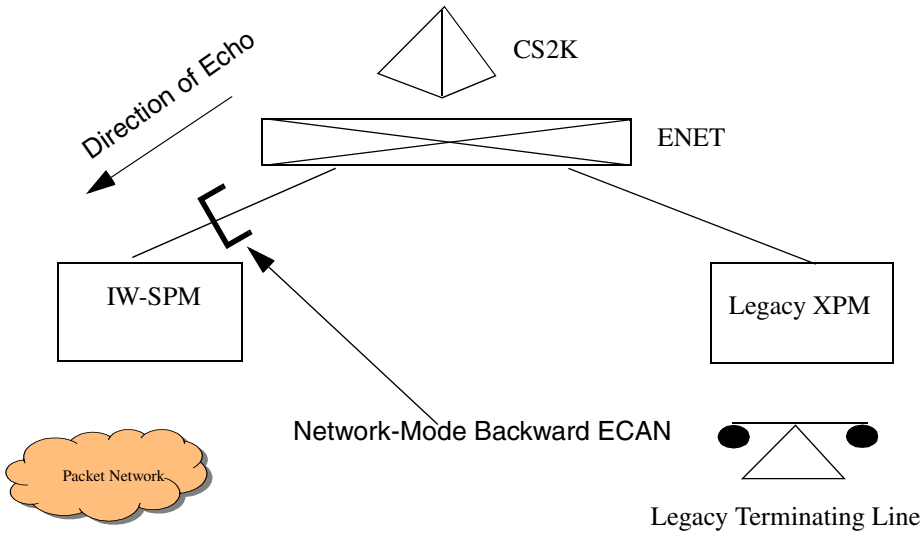


In the preceding figure, the echo canceller is forward, due to the direction of the echo that is being cancelled. Echo cancellation is applied prior to packetization. However, the same ECAN resource applied in a different configuration can be Network-Mode **Backward** ECAN due to its position within the CS2K VLAN. This is the reason that Forward and Backward are not sufficient to determine the location of an echo canceller in the VLAN.

If the IW-SPM is positioned on the originating side of the CS2K VLAN, as opposed to the terminating side of the CS2K as it is shown in Figure , it is providing Backward ECAN.

The following figure illustrates an IW-SPM providing ECAN resources in this capacity.

Network-Mode Backward ECAN



The following tables provide a high-level view of ECAN allocation for different terminal types. Note that ABI lines and trunks have the same ECAN behavior as a packet line of the same network type. For example, an AAL1 ABI trunk would have the same ECAN behavior as listed in the following tables for an AAL1 line.

ECAN Location for Legacy and IP Interworkings

Call Type	IP IW SPM	IP MG4K	IP Line GW	IP trunk GW
IP line to Legacy agent	Backward ECAN		Forward ECAN	
Legacy agent to IP line	Forward ECAN		Backward ECAN	
IP MG4K trunk to Legacy agent	Backward ECAN	Forward ECAN		
Legacy Agent to IP MG4K trunk	Forward ECAN	Backwar d ECAN		
IP GWC trunk to Legacy agent	Backward ECAN			Forward ECAN
Legacy Agent to IP GWC trunk	Forward ECAN			Backward ECAN
Legacy Agent to SIPT GWC trunk	Forward ECAN			

ECAN Location for Legacy and IP Interworkings

Call Type	IP IW SPM	IP MG4K	IP Line GW	IP trunk GW
SIPT GWC trunk to Legacy Agent	Backward ECAN			
Note:	It is assumed that all packet trunks are datafilled with access mode ECAN.			

ECAN Location for AAL1 agent Interworkings

Call Type	ECAN_EDGE_STRATEGY = N			ECAN_EDGE_STRATEGY = Y		
	AAL1 IW SPM	AAL1 MG4K	AAL1 line GW	AAL1 IW SPM	AAL1 MG4K	AAL1 line GW
AAL1 line to AAL1 line			Forward & Backward ECAN			Forward & Backward ECAN
AAL1 line to MG4K trunk		Forward & Backward ECAN**	Forward ECAN		Backward ECAN	Forward ECAN
AAL1 line to AAL1 BICC trunk			Forward ECAN			Forward ECAN
MG4K trunk to MG4K trunk		Forward & Backward ECAN			Forward & Backward ECAN	
MG4K trunk to AAL1 line		Forward & Backward ECAN**	Backward ECAN		Forward ECAN	Backward ECAN
MG4K trunk to AAL1 BICC trunk		Forward & Backward ECAN**			Forward ECAN	
AAL1 BICC trunk to AAL1 BICC trunk						
AAL1 BICC trunk to AAL1 line			Backward ECAN			Backward ECAN
AAL1 BICC trunk to AAL1 MG4K trunk		Backward ECAN			Backward ECAN	
Note:	It is assumed that all packet trunks are datafilled with access mode ECAN. ****Note:** calls involving AAL1 MG4K ISUP trunks when ECAN_EDGE_STRATEGY is set to N will result in two ECAN resources in the same direction even if provisioned to only perform ECAN in only one direction.					

ECAN Location for Legacy and AAL1 Interworkings

Call Type	ECAN_EDGE_STRATEGY = N			ECAN_EDGE_STRATEGY = Y		
	AAL1 IW SPM	AAL1 MG4K	AAL1 line GW	AAL1 IW SPM	AAL1 MG4K	AAL1 line GW
AAL1 line to Legacy agent			Forward ECAN	Backward ECAN		Forward ECAN
Legacy agent to AAL1 line			Backward ECAN	Forward ECAN		Backward ECAN
MG4K trunk to Legacy agent		Forward & Backward ECAN**		Backward ECAN	Forward ECAN	
Legacy Agent to MG4K trunk		Forward & Backward ECAN**		Forward ECAN	Backward ECAN	
Legacy Agent to DPT GWC trunk	Forward ECAN			Forward ECAN		
DPT GWC trunk to Legacy Agent	Backward ECAN			Backward ECAN		
Note:	It is assumed that all packet trunks are datafilled with access mode ECAN. **Note:** calls involving AAL1 MG4K ISUP trunks when ECAN_EDGE_STRATEGY is set to N will result in two ECAN resources in the same direction even if provisioned to only perform ECAN in only one direction.					

ECAN Location for IP and AAL1 (edge) Interworkings

Call Type	IP IW SPM	IP MG4K	IP Line GW	IP trunk GW	AAL1 IW SPM	AAL1 MG4K	AAL1 line GW
IP line to AAL1 line	Backward ECAN		Forward ECAN		Forward ECAN		Backward ECAN
IP line to AAL1 BICC trunk	Backward ECAN		Forward ECAN		Forward ECAN		
IP line to AAL1 MG4K trunk	Backward ECAN		Forward ECAN		Forward ECAN	Backward ECAN	
IP GWC trunk to AAL1 line	Backward ECAN			Forward ECAN	Forward ECAN		Backward ECAN
IP GWC trunk to AAL1 BICC trunk	Backward ECAN			Forward ECAN	Forward ECAN		
IP GWC trunk to AAL1 MG4K trunk	Backward ECAN			Forward ECAN	Forward ECAN	Backward ECAN	

ECAN Location for IP and AAL1 (edge) Interworkings

Call Type	IP IW SPM	IP MG4K	IP Line GW	IP trunk GW	AAL1 IW SPM	AAL1 MG4K	AAL1 line GW
IP MG4K trunk to AAL1 line		Forward ECAN			Forward ECAN		Backward ECAN
IP MG4K trunk to AAL1 BICC trunk	Backward ECAN	Forward ECAN			Forward ECAN		
IP MG4K trunk to AAL1 MG4K trunk		Forward ECAN				Backward ECAN	
IP SIPT trunk to AAL1 line	Backward ECAN				Forward ECAN		Backward ECAN
IP SIPT trunk to AAL1 BICC trunk	Backward ECAN				Forward ECAN		
IP SIPT trunk to AAL1 MG4K trunk	Backward ECAN				Forward ECAN	Backward ECAN	
AAL1 line to IP line	Forward ECAN		Backward ECAN		Backward ECAN		Forward ECAN
AAL1 line to IP GWC trunk	Forward ECAN			Backward ECAN	Backward ECAN		Forward ECAN
AAL1 line to IP MG4K trunk		Backward ECAN			Backward ECAN		Forward ECAN
AAL1 line to IP SIPT trunk	Forward ECAN				Backward ECAN		Forward ECAN
AAL1 BICC trunk to IP line	Forward ECAN		Backward ECAN		Backward ECAN		
AAL1 BICC trunk to IP GWC trunk	Forward ECAN			Backward ECAN	Backward ECAN		
AAL1 BICC trunk to IP MG4K trunk	Forward ECAN	Backward ECAN			Backward ECAN		
AAL1 BICC trunk to IP SIPT trunk	Forward ECAN				Backward ECAN		
AAL1 MG4K trunk to IP line	Forward ECAN		Backward ECAN			Forward ECAN	
AAL1 MG4K trunk to IP GWC trunk	Forward ECAN			Backward ECAN	Backward ECAN	Forward ECAN	
AAL1 MG4K trunk to IP MG4K trunk		Backward ECAN				Forward ECAN	

ECAN Location for IP and AAL1 (edge) Interworkings

Call Type	IP IW SPM	IP MG4K	IP Line GW	IP trunk GW	AAL1 IW SPM	AAL1 MG4K	AAL1 line GW
AAL1 MG4K trunk to IP SIPT trunk	Forward ECAN				Backward ECAN	Forward ECAN	
Note:	It is assumed that all packet trunks are datafilled with access mode ECAN.						

ECAN Location for IP and AAL1 (region) Interworkings

Call Type	IP IW SPM	IP MG4K	IP Line GW	IP trunk GW	AAL1 IW SPM	AAL1 MG4K	AAL1 line GW
IP line to AAL1 line	Backward ECAN		Forward ECAN				Backward ECAN
IP line to AAL1 BICC trunk	Backward ECAN		Forward ECAN		Forward ECAN		
IP line to AAL1 MG4K trunk	Backward ECAN		Forward ECAN			Forward & Backward ECAN**	
IP GWC trunk to AAL1 line	Backward ECAN			Forward ECAN			Backward ECAN
IP GWC trunk to AAL1 BICC trunk	Backward ECAN			Forward ECAN	Forward ECAN		
IP GWC trunk to AAL1 MG4K trunk	Backward ECAN			Forward ECAN		Forward & Backward ECAN**	
IP MG4K trunk to AAL1 line		Forward ECAN					Backward ECAN
IP MG4K trunk to AAL1 BICC trunk	Backward ECAN	Forward ECAN			Forward ECAN		
IP MG4K trunk to AAL1 MG4K trunk		Forward ECAN				Backward ECAN	
IP SIPT trunk to AAL1 line	Backward ECAN						Backward ECAN
IP SIPT trunk to AAL1 BICC trunk	Backward ECAN				Forward ECAN		
IP SIPT trunk to AAL1 MG4K trunk	Backward ECAN					Forward & Backward ECAN**	

ECAN Location for IP and AAL1 (region) Interworkings

Call Type	IP IW SPM	IP MG4K	IP Line GW	IP trunk GW	AAL1 IW SPM	AAL1 MG4K	AAL1 line GW
AAL1 line to IP line	Forward ECAN		Backward ECAN				Forward ECAN
AAL1 line to IP GWC trunk	Forward ECAN			Backward ECAN			Forward ECAN
AAL1 line to IP MG4K trunk	Forward ECAN	Backward ECAN					Forward ECAN
AAL1 line to IP SIPT trunk	Forward ECAN						Forward ECAN
AAL1 BICC trunk to IP line	Forward ECAN		Backward ECAN		Backward ECAN		
AAL1 BICC trunk to IP GWC trunk	Forward ECAN			Backward ECAN	Backward ECAN		
AAL1 BICC trunk to IP MG4K trunk	Forward ECAN	Backward ECAN			Backward ECAN		
AAL1 BICC trunk to IP SIPT trunk	Forward ECAN				Backward ECAN		
AAL1 MG4K trunk to IP line	Forward ECAN		Backward ECAN			Forward & Backward ECAN**	
AAL1 MG4K trunk to IP GWC trunk	Forward ECAN			Backward ECAN		Forward & Backward ECAN**	
AAL1 MG4K trunk to IP MG4K trunk		Backward ECAN				Forward ECAN	
AAL1 MG4K trunk to IP SIPT trunk	Forward ECAN					Forward & Backward ECAN**	
Note:	It is assumed that all packet trunks are datafilled with access mode ECAN. ****Note:** calls involving AAL1 MG4K ISUP trunks when ECAN_EDGE_STRATEGY is set to N will result in two ECAN resources in the same direction even if provisioned to only perform ECAN in only one direction.						

Applicable customer facing sections

Fault Management

Logs

Alarms _____

Configuration

Data Schema _____

User Interface _____

Element Management _____

Security _____

Service Order _____

Office Parameters __X___

Accounting (includes AMA billing) _____

Performance (includes operational measurements) _____

Glossary

Term	Description
Forward ECAN	Echo Cancellers blocking echo from traversing from originator to terminator
Backward ECAN	Echo Cancellers blocking echo from traversing from terminator to originator

Configuration for A00004046

Initial Configuration

Customers must consider the ECAN requirements of trunk members that will comprise trunk groups within the network. The inability to set more than two simultaneous SPMECIDX values within a trunk group is the source of this constraint.

The SPMECIDX field identifies a particular ECAN configuration tied to trunk members within a trunk subgroup. The existing TRKSGRP table only allows two tuples within the same trunk group. Therefore, for SPM based trunks coexisting with ENET based trunks, there are only 2 possible ECAN alternatives available.

Office parameters (CM)

The ECAN_EDGE_STRATEGY office parameter's role is changing slightly in SN07. This change impacts the role of this office parameter for determining ECAN implementation strategy within the network.

Modified office parameters

Parm table	Parameter name	NEW/CHANGED/DELETED/RELOCATED	Domain (CM or Subnet Management
OFCENG	ECAN_EDGE_STRATEGY	CHANGED	CM

Parameter information

ECAN_EDGE_STRATEGY

ECAN_EDGE_STRATEGY in table OFCENG.

Functional description
The ECAN_EDGE_STRATEGY is used to determine ECAN resource allocation strategy within the network. The role of this parameter is changing in SN07 to only impact AAL1 networks. The assumption is that all other packet networks are EDGE strategy by default.

Provisioning rules
No Change

Range information
No Change

Activation
No Change

Dependencies
No Change

Consequences
No Change

Verification
No Change

Memory requirements
No Change

Parameter release history update
ECAN_EDGE_STRATEGY in table OFCENG in SN07 and beyond will only apply to AAL1 bearer networks. All other packet network type such as IP will assume the edge ECAN strategy.

Upgrade Impact

Dump and Restore

There is no impact to upgrades.

Element Management Upgrade

Not applicable.

Product = CS 2000

A00004126--SPM ECAN Control Enhancement (PT-AAL1)

Functional Description

Introduction

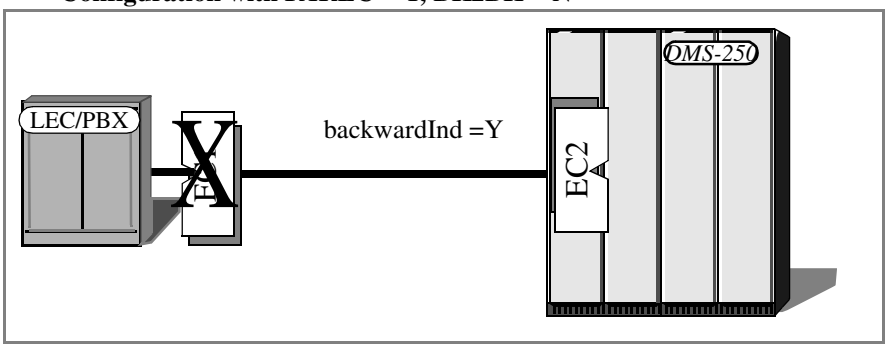
Currently, ECANs for ISUP trunks are allocated according to the ECAN control (EC) bits sent in the IAM and ACM/ANS message. If the far end switch incorrectly sets the EC bits then the near end will incorrectly allocate or not allocate an ECAN accordingly. This feature provides code changes in the CM and SPM that support backward and forward echo cancellation on an ISUP trunk regardless of the ECAN control bit setting of the far end by ignoring the echo bits sent in the IAM and ACM/ANS message.

This will offer the host SPM customer the flexibility of controlling the software decision making process to provide forward and backwards echo cancellation on a per trunk group basis. If the craftsman desires to control how ECANs are allocated, the trunk option SPMECIDX in table SPMECAN can be datafilled to ignore the ISUP EC bits by setting a new bool IGNOREEC to TRUE. **However, ignoring the EC bits can cause more than two ECANS per call.**

Case : FAREC = Y, BK2BK = N

In this scenario, an external ECAN is expected at the distant end of the trunk. However, if the backward indicator indicates an ECAN is allocated when one is not allocated the DMS switch is provisioned with only one ECAN to cancel the backward echo. Therefore, a backward ECAN is needed to cancel the echo from the PBX/LEC. Please refer to the following figure.

Configuration with FAREC = Y, BK2BK = N



Hardware Requirements or Dependencies

There are no new hardware requirements for this feature.

Software Requirements or Dependencies

This feature requires the SPM and the CM to loaded simultaneously with SP20 and SN07, respectively, to activate this feature.

Limitations and restrictions

The following restrictions apply to the SPMECAN Table Control operations only:

- When changing the IGNOREEC bit from N to Y, it cannot be set Y if there are existing TRKSGRP tuples that use this SPMECAN index (tuple) and support any signaling type other than CCS7.
- When changed to Y, the new setting of the IGNOREEC bit will apply to all TRKSGRP CCS7 tuples that use the SPMECAN index.
- When changing the IGNOREEC bit from Y to N, it can be set N even if there are tuples in Table TRKSGRP that use this SPMEC index. The setting of the bit to N will be applied to all Trunk Subgroups that use this SPMECAN index.

Interactions

None

Applicable customer facing sections

Fault Management

Logs	___NA___
Alarms	___NA___

Configuration

Data Schema	____X___

User Interface ___NA___

Element Management ___NA___

Security ___NA___

Service Order ___NA___

Office Parameters ___NA___

Accounting (includes AMA billing) ___NA___

Performance (includes operational measurements) ___NA___

Realtime ___X___

Engineering Information ___X___

Glossary

Term	Description
ONP	One Night Process
DDM	Data Distribution Manger
BK2BK	Back to Back Ecan deployment
FAREC	Far End Ecan deployment

Configuration for A00004126

Hardware and Software Requirements

It is assumed that all basic provisioning is complete up to and including Table SPMECAN.

Initial Configuration

Not Applicable.

Upgrade Impact

Dump and Restore

All tuples in Table SPMECAN will contain the new IGNOREEC field as they are transferred from the old BCS side to the new. The new field will be set FALSE as a default value. There is no preparation that must be done by the customer until after the dump and restore has completed.

If the customer wishes to change the field afterwards then they must use standard Table Control mechanisms to set the IGNOREEC bool to Y.

Element Management Upgrade

Not Applicable.

Data schema (DS) (CM, MIBS, RDB)

New/modified tables, MIBs, or Database Schema

Adding a new IGNOREEC field to the existing table definition of SPMECAN.

New or modified tables

Table/MIB name	NEW/CHANGED/ or DELETED/	Table Control (NEW/ OLD/UNCHANGED)
SPMECAN	CHANGED	NEW

Table/MIB/Remote Database Schema information

Name: SPMECAN

SPM Echo Cancellation Table

Functional description

Table SPMECAN provides entries which define the attributes of specific ECAN setup. Tuples in Table TRKSGRP can assign (as an option) an index into Table SPMECAN to that subgroup. All trunks which use this subgroup will also use the specific SPMECAN setup as defined in the SPMECAN tuple associated to the index used by subgroup tuple.

Usage sequence and implications (CM Only)

Tables must be datafilled in the following sequence:

- Current datafill order unchanged.

Size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
SPMECAN	0	256	New field adds 1 bool (bit) to overall size of physical store. Since the store is word aligned there is actually no additional memory usage.

Fields/OIDs

The following table lists fields/OIDs for SPMECAN.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
IGNOREEC	NEW	NA	Y/N	Long Name: ignoreec Default Value: N For rules on setting this bool see "Configuration Walkthrough" on page 1187

Datafill example

The following example shows sample datafill for table SPMECAN:

```
>table spmecan
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED

TABLE: SPMECAN
>lis
TOP
ECINDEX TONDS TONMG TONEDMOD S56KB AUTON NLP NSMAT SOS TDINC  MDLA MERL ACOM
FAREC BK2BK IGNOREEC S2COMPAT ECBYTE1 ECBYTE2 ECBYTE3 ECBYTE4
-------------------------------------------------------------------------------
 1     Y     Y     G165     Y     Y   Y     Y   Y     Y  32MS  6DB 33DB
 N     Y     N    S2C_NORM      00      00      00      00
```

Table release history update

A new field is added to Table SPMECAN called IGNOREEC. This field (if set to Y) is used to instruct CEM Callp if it should use the FAREC and BK2BK fields in the SPMECAN tuple to set up ECANs for individual calls. If the field is set N, then ECANs are set up using the EC bits in the ACM/ANS and ANI callp messages in the CEM.

Supplementary information

Not Applicable

Translation verification other tools

None.

Configuration Walkthrough

The walkthrough or datafill order for this table has not changed. The IGNOREEC field can be set Y or N depending on the use of the SPMECAN tuple in table TRKSGRP. The following rules apply:

- When changing the IGNOREEC bit from N to Y, it cannot be set Y if there are existing TRKSGRP tuples that use this SPMECAN index (tuple) and support any signaling type other than CCS7.

  The following string is output at the MAP table control when this error occurs (where nnn = range of datafilled trksgrp tuples):

  ```
  "Non-CCS7 tuple(s) in Table TRKSGRP are using this ECAN index."
  "See SGRP Index:nnnn in Table TRKSGRP."
  ```

- When changed to Y, the new setting of the IGNOREEC bit will apply to all TRKSGRP CCS7 tuples that use the SPMECAN index.
- When changing the IGNOREEC bit from Y to N, it can be set N even if there are tuples in Table TRKSGRP that use this SPMEC index. The setting of the bit to N will be applied to all Trunk Subgroups that use this SPMECAN index.
- When changing a tuple in Table TRKSGRP to use an existing SPMECAN index that has the IGNOREEC bool set to Y, the TRKSGRP tuple must only support ISUP. If it supports any other signaling type the following error messages appear (depending on whether the load is a CNA or UCS load):

  CNA:

  ```
  "SPMECIDX IS NOT SUPPORTED ON THIS TRUNK"
  "TYPE FOR MG4K NA100 PTS."

  "SPMECIDX IS NOT SUPPORTED ON THIS TRUNK"
  "TYPE FOR MG4K NA100 ISDN."
  ```

  UCS:

  ```
  "SPMECIDX IS NOT SUPPORTED ON THIS TRUNK"
  "TYPE FOR MG4K UCS PTS."

  "SPMECIDX IS NOT SUPPORTED ON THIS TRUNK"
  "TYPE FOR MG4K UCS  ISDN."
  ```

Product = CS 2000

A00004260--XPKT301 Alarm Banner for MG4K/IW/DPT (PT-AAL1)

Functional Description

Description

This feature introduces a new MAP banner alarm that is generated when the number of XPKT301 logs crosses (i.e. meets or exceeds) thresholds controlled by the customer. XPKT301 logs are currently generated whenever a call fails SVC setup thru the ATM fabric. The new banner alarm will be displayed as “nn PKT” with major severity, where “nn” is the number of SMG4, IW, and

DPT gateways (i.e. nodes) that have crossed the threshold for XPKT301XPKT301 logs. “PKT” is an abbreviation for Packet. The customer can modify the threshold parameters via Table OFCENG. A new XPKT806 log, with major alarm, is generated when a node crosses its threshold. A new XPKT807 log is generated when the node alarm clears. A new option allows suppressing further XPKT301 logs while the XPKT806 alarm is present for a SPM impacted by the XPKT301.

Note that “SMG4 node” refers to a SPM tuple in MNNODE with a CLASS of SMG4. “IW node” refers to a SPM tuple in MNNODE with a CLASS of IW and a DPT_INFO of BRDG_ONLY (Bridged). “DPT node” refers to a SPM tuple in MNNODE with a class of IW and a DPT_INFO of DPT_ONLY.

The new Map functions are documented in the OPTCN section. The new logs and alarms are documented in the OPTFM section. The office parameters that control the thresholds are documented in the OPTCN section.

Motivation for this feature is to allow the customer to respond quickly to ATM CallP failures (indicated by XPKT301 logs) by having a visual display at the MAP banner. There are cases where XPKT301 logs can occur due to problems in the ATM fabric that are not indicated elsewhere on the MAP (e.g. when there are no SMG4 equipment failures reported on the MAP).

Hardware Requirements or Dependencies

None.

Software Requirements or Dependencies

This feature will impact the MSH20 stream that is being delivered in SN07 loads. Feature will be patched to SN06. This feature does not impact any firmware or Local loads.

Here are the BLM and customer requirements for this feature:

1. Provide a new “nn PKT” MAP banner alarm for SVC failures on these ATM gateways: SMG4 (MG 4000), IW, and DPT-SPM. The SVC failures are indicated by the current XPKT301 log. The “nn PKT” will be displayed with major priority under the APPL MAP banner, where “nn” is the current number of nodes with the XPKT806 alarm.
2. A new XPKT806 log with major alarm will be **raised** on a per node basis when the number of XPKT301 logs for that node crosses (i.e. reaches or exceeds) RAISE_THRESHOLD number of XPKT301 logs within RAISE_CYCLE number of minutes, where RAISE_THRESHOLD and RAISE_CYCLE are office parameters provisionable on a per node class basis. The three supported Succession node classes will be SMG4, IW, and DPT. The XPKT806 log info will include node number (i.e. SPM number), node class type (i.e. SMG4, IW, DPT), number of SVC failures for that node, time interval, and threshold values.

3. Likewise, the alarm will be **cleared** on a per node basis via XPKT807 log when the number of XPKT301 logs for that node does not exceed CLEAR_THRESHOLD number of XPKT301 logs within CLEAR_CYCLE number of minutes, where CLEAR_THRESHOLD and CLEAR_CYCLE are office parameters provisionable on a per node class basis. There will be no severity for the XPKT807 log. The XPKT807 log will show the same type of info as the XPKT806 log.
4. The new alarm will be raised instantly once the raise threshold is crossed for a node (i.e. will not wait for the time interval to expire).
5. Provisioning changes to the feature's office parameters that control raising and clearing the alarm will be activated immediately and not require a Restart. To immediately activate the changes, it will be necessary to reset the raise and clear cycles on the impacted node class type. For example, if a raise cycle is running on a SMG4 and any of the office parameters for the SMG4 are changed, then the raise cycle will be aborted by zeroing its XPKT301 hit counter and starting the raise cycle fresh with the updated threshold and cycle duration values.
6. Alarms and fault counts must persist over local node SWACTs and local S/W Upgrades, but not over ONPs. If the new alarm is present before an ONP, it will disappear after the NoRestartSWACT and will then be raised again if the fault condition persists.
7. An XPKT301 log for a failed **intra-office** gateway call (i.e. SMG4 to SMG4 call) will peg both gateways as long as the originating and terminating gateways are supported node classes (i.e. SMG4, IW, or DPT).
8. An XPKT301 log for a failed **inter-office** gateway call that terminates to a DPT will only peg the terminating node. Note that in this case, the originating node is not on the CS2K so the terminating info is all that is available to the CS2K.
9. New MAP commands will be provided to allow the craftsperson to query the status of any single node, or to query the status of all nodes in the CS2K office. The status information displayed will include node number, node class type, number of SVC failures, time interval, the threshold values, etc. MAP commands will also be provided to manually clear the alarm and to zero the failure counters.
10. The alarm status can be viewed at the APPL MAP level under a new PKT column (same place where all other APPL alarms can be viewed).
11. A new MAP level will dynamically display the alarm status for every supported node (SMG4, IW, DPT) in the CS2K office.
12. The feature will default to "off". Customer must turn the feature on via the new office parameters to see the new XPKT806 alarms reported.

13. Introduce a new option to suppress further XPKT301 logs that impact a XPKT806-alarmed Succession node. This new option is “off” by default, meaning the customer must turn this option “on” before any XPKT301 logs will be suppressed. Once the XPKT806 alarm clears for a Succession node via an XPKT807 log, that node will no longer suppress any XPKT301 logs.

Limitations and restrictions

1. MG9K is not a supported node type for this feature.
2. While alarm raising is immediate per requirement #4 above, the clearing of the alarm can take an extra minute beyond the clear cycle completion. For example, consider a SMG4 that raised an XPKT806 alarm and is now running a 5 minute clear cycle; if the number of XPKT301 hits does not exceed the CLEAR_THRESHOLD, then the alarm will be cleared via XPKT807 between 5 and 6 minutes after the alarm was initially raised. This slower clearing of the alarm helps to minimize the real time impact of the new software.
3. This limitation is only applicable if XPKT301 suppression is “on” per requirement #13 above. If an XPKT301 log impacts two Succession nodes and only one of the nodes has the XPKT806 alarm raised, then the XPKT301 will still be suppressed even though one of the nodes does not have the XPKT806 alarm raised.
4. This feature will be dormant in MTXP/MSH20 Combo load since there is no room available for PKT in the dynamic alarm status of the MAPCI;MTC;APPL level.

Interactions

SPM Nodes Impacted by XPKT301 - Rules for Node Pegging

Feature A00004430 is being developed to deliver new OMs for XPKT301 logs. A0004430 is dependent on the A0004260 feature for the functionality of determining which SPM nodes are impacted by an XPKT301 log. To determine which SPM nodes are impacted, these fields from the XPKT301 log will be examined:

1. **Orig agent:** if this is a trunk hosted by a SMG4, then the XPKT301 log will be pegged against that SMG4 node.
2. **Term agent:** if this is a trunk hosted by a SMG4,, then the XPKT301 log will be pegged against that SMG4 node.
3. **Location:** if this SPM number is not the same as the SPM node hosting the originating or terminating agent, then the XPKT301 log will be pegged against the SPM in this Location field. .

In some cases, the SMG4 node will be the host for the originating or terminating agent and appear in the “Location” field; in these cases, following the above rules will avoid double-pegging the SMG4 node. Note that intra-switching at the SMG4 will prevent the same SMG4 node from hosting the originating and terminating agents (i.e. trunks).

For calls involving IW or DPT, those node types will never be the host of the originating or terminating agent since IW and DPT nodes do not provide trunks. When a IW of DPT node is involved with an XPKT301 failure, the node will only appear in the “Location” field.

Pegs during XPKT301 Suppression

While XPKT301 logs are being suppressed for any node with an XPKT806 alarm raised, all Succession nodes impacted by the XPKT301 will continue to be pegged for the purposes of OM (A00004430) and raising/clearing XPKT806/807 (A00004260).

Applicable customer facing sections

Fault Management	
Logs	___X__
Alarms	__X_
Configuration	
Data Schema	__N/A_
User Interface	___X__
Element Management	__N/A_
Security	__N/A_
Service Order	__N/A_
Office Parameters	___X__
Accounting (includes AMA billing)	__N/A_
Performance (includes operational measurements)	__N/A_
Realtime	___X__
Engineering Information	__ X _

Fault Management for A00004260

Fault management strategy

This section describes troubleshooting for the new XPKT806 and XPKT807 logs, which assist with current strategy of troubleshooting XPKT301 logs.

Fault management tools and utilities

Tools used are LOGUTIL, for the new logs described in the following sections, and MAPCI, which has the new APPL;PKT;SPM_ATM Map levels to assist with troubleshooting the new XPKT806 and XPKT807 logs.

XPKT806 Logs

Explanation

Log Title: XPKT806

Name: TBL ATM PACKET ALARM

Description: Reported when the number of XPKT301 logs against a SPM node crosses (i.e. meets or exceeds) the threshold. The threshold value and duration of the collection interval (called a “raise cycle”) are defined in the Configuration section.

The “nn PKT” major alarm is raised under the APPL banner in MAPCI;MTC whenever one or more nodes have the XPKT806 alarm raised. See the Configuration section on MAPCI;MTC level for more details.

Event type: Major

Format

```
MG4K107BH  **  XPKT806  <mmmdd hh:mmm:ss seq#> TBL  ATM Packet Alarm
         Status  : Alarm Raised
         Problem : Node reached threshold of <hits> XPKT301 failures
                 at <CycleDur> minutes into a <CycleMax> minute raise cycle.
         Troubleshooting : MAPCI;MTC;APPL;PKT;SPM_ATM or refer to NTPs.
         Location: SPM  <SPMNUM>  Type: <SPM Class>      Fabric: <Fabric>


MG4K107BH  **  XPKT806 OCT31 11:55:30 7100 TBL  ATM Packet Alarm
         Status  : Alarm Raised
         Problem : Node reached threshold of 2 XPKT301 failures
                   at 3 minutes into a 15 minute raise cycle.
         Troubleshooting : MAPCI;MTC;APPL;PKT;SPM_ATM or refer to NTPs.
         Location: SPM  60  Type: SMG4      Fabric: ATM
```

Field descriptions

Field	Value	Description
<mmmdd hh:mmm:ss seq#>	numeric	Date, Time, and Log Sequence number
<hits>	1..32767	Number of XPKT301 logs that impacted this SPM node during the cycle. This number will match the RAISE_THRESHOLD value since alarm is raised as soon as threshold is crossed.
<CycleDur>	1..1440	Number of minutes that elapsed (i.e. duration) in the current cycle when the alarm was raised.
<CycleMax>	1..1440	Maximum minutes in the cycle - same as RAISE_CYCLE in the office parameter that controls the threshold.
<SPMNUM>	0..85	Number of SPM that raised this alarm
<SPM Class>	SMG4, IW, or DPT	SPM Class of the node where IW is IW with BRDG_ONLY, and DPT is IW with DPT_ONLY.

Action

Alarm will clear automatically if the number of XPKT301 failures diminishes. The MAPCI;MTC;APPL;PKT;SPM_ATM Map level provides helpful commands for troubleshooting XPKT806 alarms. Also refer to the existing NTP troubleshooting procedures for XPKT301 logs.

Associated Operational Measurements or Performance Measurements

Feature A00004430 is creating new OMs in SN07 to track the XPKT301 hits on a per node basis.

Additional information

None

XPKT807 Logs

Explanation

Log Title: XPKT807

Name: INFO ATM PACKET ALARM

Description: Reported when the XPKT806 alarm clears for a SPM node. The clearing is done when the number of XPKT301 logs against the node does not

exceed the threshold. The threshold value and duration of the collection interval (called a “clear cycle”) are defined in the Configuration section.

Event type: None

Format

There are four different formats for the XPKT807 log, where the difference between the formats is the text in the “Reason:” field, which will indicate the four different ways the alarm can be cleared.

XPKT807 for Automatic Clearing when Threshold Met

This format is used when the ATM806 alarm is automatically cleared by the system after the threshold is not exceeded when the clear cycle expires. This is the most common way of clearing the alarm.

```
RSN07BD     XPKT807 <mmmdd hh:mmm:ss seq#> INFO ATM Packet Alarm
        Status: Alarm Cleared Automatically
       Reason: Node had <hits> XPKT301 failures in a <CycleMax> minute clear
               cycle with a threshold of <Thresh> XPKT301 failures.
        Location: SPM <SPMNUM>  Type: <SPM Class>  Fabric: <Fabric>

RSN07BD     XPKT807 SEP30 12:58:04 1100 INFO ATM PACKET ALARM
        Status: Alarm Cleared Automatically
        Reason: Node had 0 XPKT301 failures in a 15 minute clear
                cycle with a threshold of 0 XPKT301 failures.
        Location: SPM 39  Type: SMG4  Fabric: ATM
```

XPKT807 for Manual Clearing by Map Command

This format is used when the XPKT806 alarm is manually cleared via the CLEAR command at the MAPCI;MTC;APPL;PKT;SPM_ATM level:

```
RSN07BD     XPKT807 <mmmdd hh:mmm:ss seq#> INFO ATM Packet Alarm
        Status: Alarm Cleared Manually by User <user>
        Reason: Cleared by MAPCI;MTC;APPL;PKT;SPM_ATM;CLEAR command.
                Node had <hits> XPKT301 failures before clear cycle aborted.
        Location: SPM <SPMNUM>  Type: <SPM Class>  Fabric: <Fabric>

RSN07BD     XPKT807 SEP30 12:58:04 1100 INFO ATM PACKET ALARM
        Status: Alarm Cleared Manually by User ADMIN
        Reason: Cleared by MAPCI;MTC;APPL;PKT;SPM_ATM;CLEAR command.
                Node had 0 XPKT301 failures before clear cycle aborted
        Location: SPM 39  Type: SMG4  Fabric: ATM
```

XPKT807 for Manual Clearing by Disabling Feature

This format is used when the XPKT806 alarm is manually cleared via Table OFCENG by setting the sub-parameter RAISE_THRESHOLD to zero for one of these tuples:

- XPKT806_SMG4_RAISE_CLEAR
- XPKT806_IW_RAISE_CLEAR

- XPKT806_DPT_RAISE_CLEAR

Setting the RAISE_THRESHOLD to zero will disable XPKT806 reporting for the supported SPM type. See the OPTCN section for more details on the above office parameters.

```
RSN07BD     XPKT807 <mmmdd hh:mmm:ss seq#> INFO ATM Packet Alarm
        Status: Alarm Cleared Manually by User <user>
        Reason: Cleared by disabling feature in Table OFCENG.
                Node had <hits> XPKT301 failures before clear cycle aborted.
        Location: SPM <SPMNUM>  Type: <SPM Class>  Fabric: <Fabric>

RSN07BD     XPKT807 SEP30 12:58:04 1100 INFO ATM PACKET ALARM
        Status: Alarm Cleared Manually by User ADMIN
        Reason: Cleared by disabling feature in Table OFCENG.
                Node had 0 XPKT301 failures before clear cycle aborted
        Location: SPM 39  Type: SMG4  Fabric: ATM
```

XPKT807 for Automatic Clearing when Node Deleted

This format is used when the XPKT806 alarm is automatically cleared for a node that has XPKT806 alarm present and is then deleted.

```
RSN07BD     XPKT807 <mmmdd hh:mmm:ss seq#> INFO ATM Packet Alarm
        Status: Alarm Cleared Automatically
        Reason: Cleared since node has been deleted.
                Node had <hits> XPKT301 failures before clear cycle aborted.
        Location: SPM <SPMNUM>  Type: <SPM Class>  Fabric: <Fabric>

RSN07BD     XPKT807 SEP30 12:58:04 1100 INFO ATM PACKET ALARM
        Status: Alarm Cleared Automatically
        Reason: Cleared since node has been deleted.
                Node had 0 XPKT301 failures before clear cycle aborted
        Location: SPM 39  Type: SMG4  Fabric: ATM
```

Field descriptions

Field	Value	Description
<mmmdd hh:mmm:ss seq#>	numeric	Date, Time, and Log Sequence number
<user>	string	Login ID of user that executed command that caused manual clearing of the alarm.
<hits>	1..32767	Number of XPKT301 logs that impacted this SPM node during the cycle.

Field	Value	Description
<CycleMax>	1..1440	Number of minutes in a clear cycle - same as CLEAR_CYCLE in the office parameter that controls the threshold.
<Thresh>	1..32767	Number of XPKT301 hits allowed against the node for alarm to clear. Same as CLEAR_THRESHOLD in the office parameter that controls the threshold.
<SPMNUM>	0..85	Number of SPM that cleared the XPKT806 alarm.
<SPM Class>	SMG4, IW, or DPT	SPM Class of the node where IW is IW with BRDG_ONLY, and DPT is IW with DPT_ONLY.

Action

None - just a notification that the previous XPKT806 major alarm has now cleared for this SPM node. The MAPCI;MTC;APPL;PKT;SPM_ATM Map level provides helpful commands for troubleshooting XPKT806 alarms.

Associated Operational Measurements or Performance Measurements

Feature A00004430 is creating new OMs in SN07 to track the XPKT301 hits on a per node basis.

Additional information

None

Alarms

A new “nn PKT” major alarm is introduced under the APPL banner for the MAPCI;MTC level. See the OPTCN section for details.

A new XPKT806 log with major alarm is introduced. See details above in the section for “XPKT806 Logs”.

Configuration for A00004260

Hardware and Software Requirements

Only requires SN07 load in Core. Will be patched back to SN06.

The parameter and log names are different between SN06 and SN07. SN06 has ATM606, ATM806, and ATM807 logs. In SN07, these logs have been replaced with XPKT301, XPKT806, and XPKT807, respectively. Versions of this

DDOC prior to issue AA24 will show the names used in SN06, while issue AA24 and later will show the names used in SN07.

Initial Configuration

At the CI prompt, enter these commands:

- ENGWRITE ON
- TABLE OFCENG
- POS SMG4_XPKT806_RAISE_CLEAR

which positions on the first of four new tuples.

Office/Subnet parameters (OP/SP) (CM & SESM)

Introducing three new office parameters for Table OFCENG in the CM.

New/modified office/subnet parameters

Parm table	Parameter name	NEW/CHANGED/DELETED/RELOCATED	Domain (CM or Subnet Management
OFCENG	XPKT806_SMG4_RAISE_CLEAR	New	CM
OFCENG	XPKT806_IW_RAISE_CLEAR	New	CM
OFCENG	XPKT806_DPT_RAISE_CLEAR	New	CM
OFCENG	XPKT806_SUPPRESSES_XPKT301	New	CM

Parameter information

XPKT806_SMG4_RAISE_CLEAR

SMG4 node threshold parameters for raising and clearing XPKT806 alarm.

Functional description

This parameter controls the raising of an XPKT806 major alarm for SMG4 nodes due to the number of XPKT301 hits against the SMG4 nodes. It also controls clearing the alarm via an XPKT807 log.

There are four subfields for this tuple:

1 RAISE_THRESHOLD - when the number of XPKT301 logs against the SMG4 node crosses (i.e. reaches or exceeds) this number during the raise cycle, then generate an XPKT806 log with major alarm, update “nn PKT” display under the APPL banner, and change the node to a clear cycle. Range is 0 to 32767. Default is 0, which disables this feature for all SMG4 nodes. Recommended value is 2.

2 RAISE_CYCLE - number of minutes in the “raise cycle” where we count the number of XPKT301 logs against the SMG4 node to see if XPKT806 needs to be generated. Range is 1 to 1440, where 1440 = 60 minutes per hour times 24 hours in a day. So we can go as fast as every minute, or as slow as every day. Default is 15, which is also the recommended value.

3 CLEAR_THRESHOLD - when the number of XPKT301 logs against the SMG4 node meets (or falls below) this number during the clear cycle, then generate an XPKT807 log, update “nn PKT” display under the APPL banner, and change the node to a raise cycle. Range is 0 to 32767. Default is 0, meaning there must be no XPKT301 failures against the node during the clear cycle to generate the XPKT807 log. Recommended value is 0.

4 CLEAR_CYCLE - number of minutes in the “clear cycle” where we count the number of XPKT301 logs against the SMG4 node to see if XPKT807 needs to be generated. Range is 1 to 1440. Default is 5, which is also the recommended value.

Provisioning rules

It is recommended (but not enforced) that RAISE_THRESHOLD should be greater than or equal to CLEAR_THRESHOLD. When this situation is encountered, the user will be warned with:

Warning: CLEAR_THRESHOLD should not exceed
RAISE_THRESHOLD.

If RAISE_THRESHOLD is set to a zero value (i.e. disabling the feature), then this message will be seen instead:

Note: Disabled reporting of XPKT806 alarms for all SMG4 nodes.

If the feature is disabled (i.e. RAISE_THRESHOLD = 0) and the user attempts to change the other fields, then this warning will be generated:

Warning: Altering these fields will have no effect since the feature is disabled (i.e. RAISE_THRESHOLD = 0).

Range information

Since this tuple has subfields, we will show 4 numbers for each table entry. The

Range Information

Minimum	Maximum	Default
0, 1, 0, 1	32767, 1440, 32767, 1440	0, 15, 0, 5 Setting RAISE_THRESHOLD to 0 disables this feature for all SMG4 nodes.

numbers correspond to the subfields described previously in the Functional Description.

Activation

Activation is immediate and will be conveyed to the user with this message whenever the parm values are changed while RAISE_THRESHOLD is non-zero (i.e. feature is enabled):

> ***Note:*** This office parm change takes effect immediately for all SMG4 nodes by resetting the detection cycles with the updated parameter values.

If any XPKT806 alarms are present when the feature becomes disabled, then the alarms will be cleared immediately.

If any XPKT806 alarms are present when the parameters are changed while the feature is enabled, then the alarms will remain raised.

Dependencies

None

Consequences

None

Verification

To check that the office parameter changes are working, go to the MAPCI;MTC;APPL;PKT;SPM_ATM level and enter the PARMS command.

To actually see the XPKT806 alarm raised, you will need to cause XPKT301 logs via ATM call connection failures. Do NOT cause these failures in a live switch.

Memory requirements

No memory impact.

Parameter release history update

Introduced new XPKT806_SMG4_RAISE_CLEAR parameter for Table OFCENG that controls raising XPKT806 alarm for SMG4 nodes.

XPKT806_IW_RAISE_CLEAR

IW node threshold parameters for raising and clearing XPKT806 alarm.

Functional description

This parameter controls the raising of an XPKT806 major alarm for IW nodes due to the number of XPKT301 hits against the IW nodes. It also controls clearing the alarm via an XPKT807 log.

There are four subfields for this tuple:

1. RAISE_THRESHOLD - when the number of XPKT301 logs against the IW node crosses (i.e. reaches or exceeds) this number during the raise cycle, then generate an XPKT806 log with major alarm, update “nn PKT” display under the APPL banner, and change the node to a clear cycle. Range is 0 to 32767. Default is 0, which disables this feature for all IW nodes. Recommended value is 2.
2. RAISE_CYCLE - number of minutes in the “raise cycle” where we count the number of XPKT301 logs against the IW node to see if XPKT806 needs to be generated. Range is 1 to 1440, where 1440 = 60 minutes per hour times 24 hours in a day. So we can go as fast as every minute, or as slow as every day. Default is 15, which is also the recommended value.
3. CLEAR_THRESHOLD - when the number of XPKT301 logs against the IW node meets (or falls below) this number during the clear cycle, then generate an XPKT807 log, update “nn PKT” display under the APPL banner, and change the node to a raise cycle. Range is 0 to 32767. Default is 0, meaning there must be no XPKT301 failures against the node during the clear cycle to generate the XPKT807 log. Recommended value is 0.
4. CLEAR_CYCLE - number of minutes in the “clear cycle” where we count the number of XPKT301 logs against the IW node to see if XPKT807 needs to be generated. Range is 1 to 1440. Default is 5, which is also the recommended value.

Provisioning rules

It is recommended (but not enforced) that RAISE_THRESHOLD should be greater than or equal to CLEAR_THRESHOLD. When this situation is encountered, the user will be warned with:

Warning: CLEAR_THRESHOLD should not exceed RAISE_THRESHOLD.

If RAISE_THRESHOLD is set to a zero value (i.e. disabling the feature), then this message will be seen instead:

Note: Disabled reporting of XPKT806 alarms for all IW nodes.

If the feature is disabled (i.e. RAISE_THRESHOLD = 0) and the user attempts to change the other fields, then this warning will be generated:

Warning: Altering these fields will have no effect since the feature is disabled (i.e. RAISE_THRESHOLD = 0).

Range information

Since this tuple has subfields, we will show 4 numbers for each table entry. The

Range Information

Minimum	Maximum	Default
0, 1, 0, 1	32767, 1440, 32767, 1440	0, 15, 0, 5 Setting RAISE_THRESHOLD to 0 disables this feature for all IW nodes.

numbers correspond to the subfields described above in the Functional Description.

Activation

Activation is immediate and will be conveyed to the user with this message whenever the parm values are changed while RAISE_THRESHOLD is non-zero (i.e. feature is enabled):

Note: This office parm change takes effect immediately for all IW nodes by resetting the detection cycles with the updated parameter values.

If any XPKT806 alarms are present when the feature becomes disabled, then the alarms will be cleared immediately.

If any XPKT806 alarms are present when the parameters are changed while the feature is enabled, then the alarms will remain raised.

Dependencies

None

Consequences

None

Verification

To check that the office parameter changes are working, go to the MAPCI;MTC;APPL;PKT;SPM_ATM level and enter the PARMS command.

To actually see the XPKT806 alarm raised, you will need to cause XPKT301 logs via ATM call connection failures. Do NOT intentionally cause these failures in a live switch!

Memory requirements

No memory impact.

Parameter release history update

Introduced new XPKT806_IW_RAISE_CLEAR parameter for Table OFCENG that controls raising XPKT806 alarm for IW nodes.

XPKT806_DPT_RAISE_CLEAR

DPT node threshold parameters for raising and clearing XPKT806 alarm.

Functional description

This parameter controls the raising of an XPKT806 major alarm for DPT nodes due to the number of XPKT301 hits against the DPT nodes. It also controls clearing the alarm via an XPKT807 log.

There are four subfields for this tuple:

1. RAISE_THRESHOLD - when the number of XPKT301 logs against the DPT node crosses (i.e. reaches or exceeds) this number during the raise cycle, then generate an XPKT806 log with major alarm, update “nn PKT” display under the APPL banner, and change the node to a clear cycle. Range is 0 to 32767. Default is 0, which disables this feature for all DPT nodes. Recommended value is 2.
2. RAISE_CYCLE - number of minutes in the “raise cycle” where we count the number of XPKT301 logs against the DPT node to see if XPKT806 needs to be generated. Range is 1 to 1440, where 1440 = 60 minutes per hour times 24 hours in a day. So we can go as fast as every minute, or as slow as every day. Default is 15, which is also the recommended value.
3. CLEAR_THRESHOLD - when the number of XPKT301 logs against the DPT node meets (or falls below) this number during the clear cycle, then generate an XPKT807 log, update “nn PKT” display under the APPL banner, and change the node to a raise cycle. Range is 0 to 32767. Default is 0, meaning there must be no XPKT301 failures against the node during the clear cycle to generate the XPKT807 log. Recommended value is 0.

4. CLEAR_CYCLE - number of minutes in the "clear cycle" where we count the number of XPKT301 logs against the DPT node to see if XPKT807 needs to be generated. Range is 1 to 1440. Default is 5, which is also the recommended value.

Provisioning rules

It is recommended (but not enforced) that RAISE_THRESHOLD should be greater than or equal to CLEAR_THRESHOLD. When this situation is encountered, the user will be warned with:

Warning: CLEAR_THRESHOLD should not exceed RAISE_THRESHOLD.

If RAISE_THRESHOLD is set to a zero value (i.e. disabling the feature), then this message will be seen instead:

Note: Disabled reporting of XPKT806 alarms for all DPT nodes.

If the feature is disabled (i.e. RAISE_THRESHOLD = 0) and the user attempts to change the other fields, then this warning will be generated:

Warning: Altering these fields will have no effect since the feature is disabled (i.e. RAISE_THRESHOLD = 0).

Range information

Since this tuple has subfields, we will show 4 numbers for each table entry. The

Range Information

Minimum	Maximum	Default
0, 1, 0, 1	32767, 1440, 32767, 1440	0, 15, 0, 5 Setting RAISE_THRESHOLD to 0 disables this feature for all DPT nodes.

numbers correspond to the subfields described above in the Functional Description.

Activation

Activation is immediate and will be conveyed to the user with this message whenever the parm values are changed while RAISE_THRESHOLD is non-zero (i.e. feature is enabled):

Note: This office parm change takes effect immediately for all DPT nodes by resetting the detection cycles with the updated parameter values.

If any XPKT806 alarms are present when the feature becomes disabled, then the alarms will be cleared immediately.

If any XPKT806 alarms are present when the parameters are changed while the feature is enabled, then the alarms will remain raised.

Dependencies

None

Consequences

None

Verification

To check that the office parameter changes are working, go to the MAPCI;MTC;APPL;PKT;SPM_ATM level and enter the PARMS command.

To actually see the XPKT806 alarm raised, you will need to cause XPKT301 logs via ATM call connection failures. Do NOT cause these failures in a live switch.

Memory requirements

No memory impact.

Parameter release history update

Introduced new XPKT806_DPT_RAISE_CLEAR parameter for Table OFCENG that controls raising XPKT806 alarm for DPT nodes.

XPKT806_SUPPRESSES_XPKT301

Suppress XPKT301 logs while XPKT806 alarm is raised against SPM node impacted by the XPKT301.

Functional description

This parameter controls the suppression of XPKT301 logs for SPM nodes that are already in an XPKT806 alarm condition. Possible values are Y and N, with default of N and recommended value of Y. This parameter is “off” (N) by default, so it must be turned “on” (Y) to suppress XPKT301 logs.

Provisioning rules

None

Range information

Minimum	Maximum	Default
N	Y	N

Activation

Activation is immediate. When value is changed from N to Y, the customer will see this informational message:

> ***Note:*** XPKT301 logs are now being suppressed for SPM nodes with the XPKT806 alarm raised.

When values is changed from Y to N, the customer will see this informational message:

> ***Note:*** No longer suppressing XPKT301 logs.

Dependencies

None

Consequences

None

Verification

Only way to verify operation is to cause a flood of XPKT301 failures that result from ATM call connection failures, then verify the XPKT301 logs are suppressed as XPKT806 alarms occur. Do NOT cause these failures in a live switch.

Memory requirements

No memory impact.

Parameter release history update

Introduced new XPKT806_SUPPRESSES_XPKT301 office parameter in Table OFCENG to suppress XPKT301 logs while XPKT806 alarm is raised.

Upgrade Impact

Dump and Restore

No impact.

Element Management Upgrade

N/A.

Data schema (DS) (CM, MIBS, RDB)

No impact.

Service Orders (SO) (CM & SESM)

No impact.

Software optionality control (SOC)

No impact.

Element Management

No impact.

Command interface changes

Map Level: MTC

Level description

Modify the APPL banner in the existing/resident Map MTC level so a new alarm will be displayed whenever one of the SMG4/IW/DPT nodes have an XPKT806 alarm present. The new alarm is “nn PKT” with major severity, where “nn” is the number of SMG4/IW/DPT nodes with the alarm and “PKT” is Packet. The precedence of “nn PKT” with respect to existing APPL alarms is that “nn PKT” is higher than a SDM billing alarm but lower than a SysB SDM alarm.

Here’s how the Map banner will appear if two nodes have the XPKT806 alarm:

```
XAC      MS     IOD     Net      PM     CCS     Lns     Trks     Ext     APPL
   .      .       .       .       .       .       .       .       .     2 PKT
                                                                          M
   MTC         MTC:
  0 Quit
  2
  3 MTCNA
  4 SRSTATUS
  5 BERP
  6 CAPACITY
  7
  8
  9 XAC
 10 MS
 11 IOD
 12 Net
 13 PM
 14 CCS
 15 Lns
 16 Trks
 17 Ext
 18 APPL
   RLYNCH2
 Time  19:10  >
```

Accessing Map level: MTC

Access to MAP level and return to CI

To access the MTC level from CI, enter “mapci;mtc”
To return to CI, enter “quit all”

Map Level: APPL

Level description

Modifying the existing/resident Map APPL level to add a “PKT” display column and new menu command to enter the PKT level. Here’s how the new Map will appear when there are two ATM nodes with XPKT806 alarms:

```
XAC      MS     IOD     Net      PM     CCS     Lns     Trks    Ext     APPL
   .      .       .       .       .       .       .       .       .     2 PKT
                                                                          M
 APPL             OAMAP  ATMFW   SDM   SPMCP  SWMTC  SDMBIL   PKT  TOPSIP
  0 Quit            .      .      .      .      .      .     2 PKT   .
  2                                                          M
  3
  4 OAMAP
  5 ATMFW
  6 SDM
  7 SPMCP
  8 SWMTC
  9 SDMBIL
 10 PKT
 11 TOPSIP
 12
 13
 14
 15
 16
 17
 18
   RLYNCH
 Time  14:25  >
```

Accessing Map level: APPL

Access to MAP level and return to CI

To access the APPL level from CI, enter “mapci;mtc;appl”

To return to CI, enter “quit all”.

Command: PKT

Command type: Listed MENU

Command target: All

Command availability: RES

Command description

New command under APPL level that allows entry to the new PKT level described in the following section.

Command syntax

Command	Parameters and variables
PKT	(none)

Qualifications and warnings

None

Responses

Only response is to take user to the PKT level described here.

Map Level: PKT

Level description

Added new/resident Map PKT (for "Packet") level to show a dynamic summary of nodes contributing to the "nn PKT" alarm, and provide a new SPM_ATM command.

Here's how the Map will appear at the new PKT level when there are two SPM nodes with an XPKT806 alarm. The "SPM_ATM = 2" is the dynamic status that shows the number of ATM SPM (MG4K, IW, DPT) nodes that are contributing to the current "nn PKT" alarm. When there are no nodes with the XPKT806 alarm, a dot will be shown instead of a number (e.g. "SPM_ATM = .").

```
XAC      MS     IOD     Net      PM     CCS     Lns     Trks    Ext     APPL
   .      .       .       .       .       .       .       .       .     2 PKT
                                                                          M
PKT               OAMAP  ATMFW   SDM   SPMCP  SWMTC  SDMBIL  PKT   TOPSIP
  0 Quit             .      .      .      .      .      .    2 PKT    .
  2                                                          M
  3
  4 SPM_ATM        SPM_ATM = 2
  5              PKT:
  6
  7
  8
  9
 10
 11
 12
 13
 14
 15
 16
 17
 18
   RLYNCH4
 Time  10:29  >
```

Accessing Map level: PKT

Access to MAP level and return to CI

To access the PKT level from CI, enter “mapci;mtc;appl;pkt”

To return to CI, enter “quit all”.

Command: SPM_ATM

Command type: Listed MENU

Command target: All

Command availability: RES

Command description

New command under PKT level that allows entry to the new SPM_ATM level described in the following section.

Command syntax

Command	Parameters and variables
SPM_ATM	(none)

Qualifications and warnings

None

Responses

Only response is to take user to the SPM_ATM level described here.

Map Level: SPM_ATM

Level description

Added new/resident Map SPM_ATM level to display the dynamic XPKT806 alarm status on all 86 possible SMG4/IW/DPT nodes, and provide commands to troubleshoot the XPKT806 alarm on a node. Here’s how the SPM_ATM level will appear when SPMs 62 and 65 have the XPKT806 alarm. Note that the dynamic PKT status is also shown (e.g. “SPM_ATM = 2” in the example shown here).

```
XAC      MS     IOD     Net      PM     CCS     Lns     Trks    Ext     APPL
   .      .       .       .       .       .       .       .       .     2 PKT
                                                                          M
SPM_ATM          OAMAP  ATMFW   SDM   SPMCP  SWMTC  SDMBIL  PKT   TOPSIP
  0 Quit            .      .      .      .      .       .    2 PKT    .
  2                                                          M
  3
  4 Status_       SPM_ATM = 2
```

```
 5 SumAll         Status of SPMs with XPKT806 alarms:
 6 SumFail                    1111111111222222222233333333334444
 7 Parms             012345678901234567890123456789012345678901234
 8 Clear_            ---------------------------------------------
 9 Zero_             444444455555555556666666666777777777788888888
10                   345678901234567890123456789012345678901234567
11                   -----------------..*..*...--...-------------
12           KEY: '.' = OK   '*' = XPKT806 alarm   '/' = Disabled   '-' = N/A
13            SPM_ATM:
14
15
16
17
18
  RLYNCH4
Time  10:35  >
```

Per the key above:

- "." indicates a supported SPM node class (e.g.SMG4) that has the feature enabled (via Table OFCENG) but does not currently have an XPKT806 alarm.
- "*" indicates a supported SPM node class that currently has an XPKT806 alarm raised (and, of course, the feature is enabled).
- "/" indicates a supported SPM node class that has the feature disabled so XPKT806 alarms will be ignored.
- "-" indicates an unsupported SPM node class (e.g. Legacy TDM SPM).

Accessing Map level: SPM_ATM

Access to MAP level and return to CI

To access the PKT level from CI, enter "mapci;mtc;appl;pkt;spm_atm"
To return to CI, enter "quit all".

Command: STATUS

Command type: Listed MENU

Command target: All

Command availability: RES

Command description

New command under ATM level that shows the XPKT806 statistics for a specified SPM node.

Command syntax

Command	Parameters and variables
STATUS	<SPMNO> (0 to 85)
Parameters and variables	Description
<SPMNO>	Displays the XPKT806 statistics for the given SPM.

Qualifications and warnings

None

Responses

Command output

MAP outputs with associated meanings and actions

STATUS Command

```
SPM: <SPMNUM>  Class: <SPM Class>  XPKT806 alarm: <stat>
Which  Cycle  XPKT301 Thresh Time  Cycle
Cycle  Type    Hits   Limit Elpsd  Max
-----  ------ ------ ------ ----- -----
 Prev  <CyTy> <Hits> <Thrs> <Time> <Max>
 Curr  <CyTy> <Hits> <Thrs> <Time> <Max>
```

Meaning: Shows the statistics for processing XPKT806 alarms on the given SPM, where each parameter is described below:

<stat> is “Raised” or “Clear” depending on the current **STAT**us of the XPKT806 alarm for the SPM.

<SPMNUM> is the **NUM**ber of the **SPM**.

<SPM Class> is the **SPM Class**, which is one of “SMG4”, “IW” (for BRDG_ONLY IW), or “DPT” (for DPT_ONLY IW).

<CyTy> is the **CY**cle **TY**pe, which can be “Raise” or “Clear”. If “raise”, then raise cycle is determining whether XPKT806 alarm should be raised. If “clear”, then clear cycle is determining whether XPKT806 alarm should be cleared.

<Hits> is the number of XPKT301 **HITS** (i.e. logs) against the node during the cycle.

<Thrs> is the value of **THR**e**S**hold Limit in the cycle that must be reached to raise or clear the XPKT806 alarm. If the SPM class is SMG4 and the Cycle Type is “raise” cycle, then <Thrs> will be the value of RAISE_THRESHOLD in the XPKT806_SMG4_RAISE_CLEAR tuple in Table OFCENG.

<Time> is the **TIME** Elapsed in the cycle.

<Max> is the **MAX** time in the cycle. For a clear cycle on a IW node, this is the value of the CLEAR_CYCLE in the XPKT806_IW_RAISE_CLEAR parameter.

Note1: if the feature is disabled for the SPM, then only the first line above is shown and the second line will be “Feature disabled - see PARMS command.” An example is shown below.

Note2: if the first cycle is still running after a restart or enabling of the feature, then “Prev” info will not be valid. In this case, the entire “Prev” info line is replaced with “**Init**” until the initial current cycle completes. An example is shown below.

System or user actions: If the XPKT806 alarm is present, you should analyze the XPKT301 logs and determine what ATM network problem is causing this node to raise the XPKT806 alarm. If the XPKT301 failures are acceptable, then consider raising the RAISE_THRESHOLD and/or RAISE_CYCLE sub-parameters in Table OFCENG for the particular SPM node class type.

Example

If the XPKT806 alarm is present on SPM 62, then the user enters “STATUS 62” at the SPM_ATM level and will see output like this:

```
SPM: 62  Class: SMG4  XPKT806 alarm: Raised
Which  Cycle  XPKT301 Thresh Time  Cycle
Cycle  Type    Hits   Limit Elpsd  Max
-----  ------ ------ ------ ----- -----
 Prev  Raise      3      3     4    15
 Curr  Clear      1      2     2     5
```

In this example, the alarm was raised on SPM 62 during the previous cycle when 3 XPKT301 failures were detected at 4 minutes into the 15 minute raise cycle. The RAISE_THRESHOLD was 3. The current cycle shows that we have had 1 XPKT301 failure at 2 minutes into the 5 minute clear cycle. If the cycle ends with less than 2 ATM606 failures, then the ATM806 alarm will automatically be cleared.

If the first cycle is running after a restart or after enabling the feature, then the output of STATUS will appear as:

```
SPM: 64  Class: IW  XPKT806 alarm: Clear
Which  Cycle   XPKT301  Thresh  Time   Cycle
Cycle  Type     Hits   Limit   Elpsd   Max
-----  ------  ------  ------  -----  -----
 Prev   Init
 Curr   Raise       0       2      2      5
```

If the feature is disabled for the SPM, then the output will appear as:

```
SPM: 64  Class: IW  XPKT806 alarm: Clear
Feature disabled - see PARMS command.
```

Command: SUMALL

Command type: Listed MENU

Command target: All

Command availability: RES

Command description

New command under the SPM_ATM level that shows the XPKT806 status for all SPMs that support this alarm (i.e. SMG4/IW/DPT).

Command syntax

Command	Parameters and variables
SUMALL	(none)

Qualifications and warnings

None

Responses

Command output

MAP outputs with associated meanings and actions

SUMALL Command

```
SPM Clas Cycle XPKT301 Thresh Time  Cycle
Num Type Type   Hits   Limit Elpsd  Max
--- ---- ----- ------ ------ ----- -----
<n><Clas><CyTy><Hits> <Thrs> <Time> <Max>
 .
 .
<n><Clas><CyTy><Hits> <Thrs> <Time> <Max>
```

Meaning: SUMALL lists the XPKT806 status for every supported SPM, where each parameter is described below. Supported SPMs are SMG4, IW, and DPT.

<SPM Num> is the **NUM**ber of the **SPM**.

<Clas>: **CLAS**s **TYPE** of the SPM node - can be “SMG4”, “IW”, or “DPT”.

<CyTy> is the **CY**cle **TY**pe, which can be “Raise”, “Clear”, or “Disabled”. If “Raise”, then raise cycle is determining whether XPKT806 alarm should be raised. If “Clear”, then clear cycle is determining whether XPKT806 alarm should be cleared. So don’t get confused: a “Clear” in this column means the XPKT806 alarm is raised for the node and we are looking to clear it. If “Disabled”, then the feature is currently disabled for this SPM node class and the other fields on this row will be blank. Run the “PARMS” command to see how to enable the feature for a SPM node class.

<Hits> is the number of XPKT301 **HITS** (i.e. logs) against the node during the current cycle.

<Thrs> is the value of **THR**e**S**hold Limit in the current cycle that must be reached to raise or clear the XPKT806 alarm. If the SPM class is SMG4 and the Cycle Type is “raise” cycle, then <Thrs> will be the value of RAISE_THRESHOLD in the XPKT806_SMG4_RAISE_CLEAR tuple in Table OFCENG.

<Time> is the **TIME** Elapsed in the current cycle.

<Max> is the **MAX** time in the current cycle. For a clear cycle on a IW node, this is the value of the CLEAR_CYCLE in the XPKT806_IW_RAISE_CLEAR parameter.

System or user actions: Useful for showing the XPKT301 hits across all SPMs in the ATM network.

Example

Output of SUMALL command when there are only 5 ATM SPM nodes:

```
SPM Clas Cycle XPKT301 Thresh Time  Cycle
Num Type Type   Hits   Limit Elpsd  Max
--- ---- ----- ------ ------ ----- -----
 60 SMG4 Raise     0      3    12    15
 61 SMG4 Clear     1      3     4     5
```

```
62 DPT  Raise     0       4     12     15
63 DPT  Raise     0       4     12     15
64 IW   Disabled
```

In this example, only one of the nodes (SPM 61) has the XPKT806 alarm raised. So SPM 61 is currently 4 minutes into a 5 minute “Clear” cycle, during which it has had one XPKT301 log (i.e. “hit”) against it. If three more XPKT301 hit occurs during this cycle (for a total of 4), then the alarm will not clear since the CLEAR_THRESHOLD is 3. If no more XPKT301 hits occur, then the alarm will automatically clear. Note that the feature is disabled for the IW class.

Command: SUMFAIL

Command type: Listed MENU

Command target: All

Command availability: RES

Command description

New command under the SPM_ATM level that shows the XPKT806 status for only those SPMs that currently have the XPKT806 alarm raised.

Command syntax

Command	Parameters and variables
SUMFAIL	(none)

Qualifications and warnings

None

Responses

Command output

MAP outputs with associated meanings and actions

SUMFAIL Command

```
SPM Clas Cycle XPKT301 Thresh Time  Cycle
Num Type Type   Hits   Limit Elpsd  Max
--- ---- ----- ------ ------ ----- -----
<n><Clas><CyTy><Hits> <Thrs> <Time> <Max>
 .
 .
<n><Clas><CyTy><Hits> <Thrs> <Time> <Max>
```

Meaning: SUMFAIL lists the status for every SPM that currently has the XPKT806 alarm raised.

<SPM Num> is the **NUM**ber of the **SPM**.

<Clas>: **CLAS**s **TYPE** of the SPM node - can be “SMG4”, “IW”, or “DPT”.

<CyTy> is the **CY**cle **TY**pe, which can be “Raise” or “Clear”. If “raise”, then raise cycle is determining whether XPKT806 alarm should be raised. If “clear”, then clear cycle is determining whether XPKT806 alarm should be cleared. So don’t get confused: a “Clear” in this column means the XPKT806 alarm is raised for the node and we are looking to clear it.

<Hits> is the number of XPKT301 **HITS** (i.e. logs) against the node during the current cycle.

<Thrs> is the value of **THR**e**S**hold Limit in the current cycle that must be reached to raise or clear the XPKT806 alarm. If the SPM class is SMG4 and the Cycle Type is “raise” cycle, then <Thrs> will be the value of RAISE_THRESHOLD in the XPKT806_SMG4_RAISE_CLEAR tuple in Table OFCENG.

<Time> is the **TIME** Elapsed in the current cycle.

<Max> is the **MAX** time in the current cycle. For a clear cycle on a IW node, this is the value of the CLEAR_CYCLE in the XPKT806_IW_RAISE_CLEAR parameter.

System or user actions: Useful for showing the XPKT301 hits across all SPMs in the ATM network that have an XPKT806 alarm raised.

Example

Output of SUMFAIL command when only 1 ATM SPM node in the office currently has the ATM806 alarm raised:

```
SPM Clas Cycle XPKT301 Thresh Time  Cycle
Num Type Type   Hits   Limit Elpsd  Max
--- ---- ----- ------ ------ ----- -----
61 SMG4 Clear     1      3     4     5
```

In this example, only one of the nodes (SPM 61) has the XPKT806 alarm raised. So SPM 61 is currently in a clear cycle, during which it currently has had one XPKT301 hit. If three more XPKT301 hit occurs during this cycle (for

a total of 4 hits), then the alarm will not clear since the CLEAR_THRESHOLD is 1. If no more XPKT301 hits occur, then the alarm will automatically clear.

Command: PARMS

Command type: Listed MENU

Command target: All

Command availability: RES

Command description

New command under the SPM_ATM level that shows the office parameter values that control the reporting of XPKT806 alarms for the supported ATM SPMs. Also shows the parameter controlling XPKT301 suppression while the XPKT806 alarm is raised.

Command syntax

Command	Parameters and variables
PARMS	(none)

Qualifications and warnings

None

Responses

Command output

MAP outputs with associated meanings and actions

PARMS Command

```
Table OFCENG parameters that control threshold reporting:
                           Raise   Raise  Clear   Clear
OFCENG Parameter Name      Thrhld  Cycle  Thrhld  Cycle
---------------------      ------  -----  ------  -----
XPKT806_SMG4_RAISE_CLEAR      <x1>   <y1>    <a1>   <b1>
XPKT806_IW_RAISE_CLEAR        <x2>   <y2>    <a2>   <b2>
XPKT806_DPT_RAISE_CLEAR       <x3>   <y3>    <a3>   <b3>

Table OFCENG parameter that suppresses XPKT301 logs:
  XPKT806_SUPPRESSES_XPKT301 = <YES/NO>
```

Meaning: PARMS command lists the current value of every office parameter that controls the threshold reporting of the XPKT806 alarm. Note that there are a set of values for every support ATM SPM class. Also shows the parameter that control suppressing XPKT301 logs while an XPKT806 alarm is raised against any SPM node impacted by the XPKT301.

System or user actions: Shows user where to go in Table OFCENG to change the way XPKT806 is handled. Note that setting the RAISE_THRESHOLD to zero will disable reporting XPKT806 for that ATM SPM class.

Example

Output of PARMS command:

```
Table OFCENG parameters that control threshold reporting:
                          Raise   Raise  Clear   Clear
OFCENG Parameter Name     Thrhld  Cycle  Thrhld  Cycle
----------------------    ------  -----  ------  -----
XPKT806_SMG4_RAISE_CLEAR       1      5       0      3
XPKT806_IW_RAISE_CLEAR         1      5       0      3
XPKT806_DPT_RAISE_CLEAR        1      5       0      3

Table OFCENG parameter that suppresses XPKT301 logs:
  XPKT806_SUPPRESSES_XPKT301 = NO
```

Note that XPKT806 reporting is currently disabled for all DPT nodes.

Command: CLEAR

Command type: Listed MENU

Command target: All

Command availability: RES

Command description

New command under SPM_ATM level that manually clears the XPKT806 alarm for a specified SPM node.

Command syntax

sm<CommandName> command parameters and variables

Command	Parameters and variables
CLEAR	<SPMNO> (0 to 85)
Parameters and variables	Description
<SPMNO>	Manually clears the XPKT806 alarm for the given SPM.

Qualifications and warnings

If the alarm is raised, user will be prompted to confirm the action before proceeding. Here's the prompt that will appear:

Warning: confirm clearing XPKT806 alarm on SPM <nn> : (Y/N)>

where <nn> is the same number given as the option for the CLEAR command.

Responses

Command output

MAP outputs with associated meanings and actions

CLEAR Command
XPKT806 alarm cleared for SPM <SPMNO> **Meaning:** Confirms that the XPKT806 alarm was manually cleared for the given SPM, where <SPMNO> is the number of the SPM. **System or user actions:** Helpful for user to manually clear an XPKT806 alarm without waiting for the clear interval to complete.

Example

If the ATM806 alarm is present on SPM 63, then here's what is seen when the user manually clears the alarm:

```
clear 63
Warning: confirm clearing XPKT806 alarm on SPM  63 : (Y/N)>
y
Successful - XPKT806 alarm cleared for SPM 63
```

In this example, the alarm is successfully cleared so the SPM is reset into a fresh raise cycle with the XPKT301 hit counter cleared for that SPM.

If the SPM does not currently have the XPKT806 alarm present when CLEAR is run, then the output will appear as:

```
clear 63
No action taken - XPKT806 alarm is not present for SPM 63
```

Command: ZERO

Command type: Listed MENU

Command target: All

Command availability: RES

Command description

New command under SPM_ATM level that zero's the XPKT301 hit counter in the current cycle for a specified SPM node. See STATUS command for display of the XPKT301 hit counter in the current cycle.

Command syntax

<CommandName> command parameters and variables

Command	Parameters and variables
ZERO	<SPMNO> (0 to 85)
Parameters and variables	Description
<SPMNO>	Manually zero's XPKT301 hit counter for the given SPM.

Qualifications and warnings

None

Responses

Command output

MAP outputs with associated meanings and actions

ZERO Command
XPKT301 hit counter reset to 0 in current cycle for SPM <SPMNUM> **Meaning:** Confirms that the XPKT301 hit counter was reset to zero in the current cycle, where <SPMNO> is the number of the SPM. **System or user actions:** Helpful for user to manually zero the XPKT301 hit counter in the current cycle without waiting for the clear cycle to complete.

Example

Here's what is seen when the user manually zero's the XPKT301 hit counter for SPM 62:

```
>status 62
XPKT806 alarm: Raised   SPM: 62  Class: SMG4

Cycle  XPKT806  XPKT301  Time  Raise   Clear
       Alarm    Hits    Left  Thresh  Thresh
-----  ------  ------  ----  ------  ------
 Prev  Clear       3    11       3       2
 Curr  Raised      1     3       3       2
> zero 62
XPKT301 log hits reset to 0 for SPM 62
>status 62
XPKT806 alarm: Raised   SPM: 62  Class: SMG4

Cycle  XPKT806  XPKT301  Time  Raise   Clear
       Alarm    Hits    Left  Thresh  Thresh
-----  ------  ------  ----  ------  ------
 Prev  Clear       3    11       3       2
 Curr  Raised      0     2       3       2
```

In this example, the XPKT301 hit counter was 1 as shown by the first STATUS command. After the ZERO command, the second STATUS command confirms the counter was zeroed.

Security

No impact.

Configuration Walkthrough

This feature is "off" by default, so start by enabling the feature for each node type (SMG4, IW, DPT) with the appropriate office parameter in Table OFCENG (described above). Once enabled, the feature will run autonomously without user intervention to raise XPKT806 major alarms for any node that exceeds its XPKT301 threshold, then automatically clear the alarm with the clear threshold is met.

Product = CS2000

A00004391 -- ACD Agent Expansion from 9,999 to 30,000 Agents (Succession on DMS)

Functional Description

Currently, the maximum number of ACD agents that can be provisioned in a single SL-100 or DMS-100 switch is 9,999. This feature extends that maximum to 30,000 agents.

This activity does not increase the number of ACD groups per switch nor the number of ACD agents per group. It only increases the switch-wide maximum number of total ACD agents.

This feature will be controlled via usage based SOC. The maximum number of ACD agents in the switch will be determined by the level of SOC which has been purchased but cannot exceed 30,000 agents.

Background

The maximum number of ACD agents that can be provisioned in a DMS-100 or SL-100 is currently determined by the value of an office parameter. The parameter MAX_NUM_ACD_AGENTS_PER_SWITCH is found in table OFCOPT and can be set to any value in the range of 0 to 9999.

When an attempt is made to create a new ACD agent, the current count of agents in the switch is compared to the value of the office parameter. If the limit has already been reached, the new agent cannot be created. For this activity, the range of the office parameter will be increased to 30000.

Other factors which contribute to the current maximum of 9,999 ACD agents per switch include the ACD agent position ID (POSID) and login ID (LOGINID). The POSID is defined via SERVORD when a new ACD agent is created, and LOGINIDs are defined via tables ACDLOGIN and ACDENLOG.

The POSID and LOGINID are both four digit values with a range of 0001 to 9999. Though neither POSID nor LOGINID is directly correlated to the number of agents in the switch, it would be impractical to have more than 9,999 agents if the POSID and LOGINID remain limited to 4 digits. Therefore, the range of POSID and LOGINID will be increased to 30000.

The external impact of making these changes is briefly described in the sections that follow. More detailed information can be found in "Configuration for A00004391" on page 1233.

Office parameter MAX_NUM_ACD_AGENTS_PER_SWITCH

The office parameter MAX_NUM_ACD_AGENTS_PER_SWITCH currently has a maximum value of 9999. The range of this parameter will be increased to have a maximum value of 30000. The actual value of this parameter can no longer be changed by the end user. In order to change the value of the parameter, the SOC usage limit must be changed. The value in the office parameter will then be automatically updated to reflect the new SOC limit.

See "Office parameters (OP)" on page 1234 and "Software optionality control (SOC)" on page 1246 for detailed information.

Table ACDLOGIN

Table ACDLOGIN currently supports a maximum of 9,999 tuples. LOGINIDs between 0001 and 9999 can be datafilled here for use by individual ACD agents. This table will be expanded to support up to 30,000 tuples.

Expansion to 30,000 LOGINIDs requires that the LOGINID field be expanded from a 4 digit value to a 5 digit value. Existing 4 digit LOGINIDs will be padded with a leading 0 during ONP.

See "Data schema (DS)" on page 1235 for detailed information.

Table ACDENLOG

Table ACDENLOG currently supports up to 1024 partitions with a maximum of 9,999 tuples each. LOGINIDs between 0001 and 9999 can be datafilled in each partition for use by individual ACD agents. This table will be expanded to support up to 30,000 LOGINIDs in each partition.

Expansion to 30,000 LOGINIDs per partition requires that the LOGINID field be expanded from a 4 digit value to a 5 digit value. Existing 4 digit LOGINIDs will be padded with a leading 0 during ONP.

See "Data schema (DS)" on page 1235 for detailed information and examples.

Table ACDGRP

This activity adds a new field in table ACDGRP. The new field will be called IDSIZE and will specify the number of login digits to be used by all agents in the group. IDSIZE can be set to a value of 4 or 5. The default value will be 4.

When IDSIZE equals '4', all agents in the ACD group will login using 4 digit login IDs. When IDSIZE equals '5', all agents in the ACD group will login using 5 digit login IDs.

During ONP from a load which does not include this feature to a load which does, IDSIZE will be defaulted to '4' for all ACDGRP tuples.

All existing agents will continue to login using their existing 4 digit login IDs. The operating company can continue to add agents to these groups and/or create new groups with IDSIZE = 4 provided that there are available login IDs in the range of 00001 to 09999. Availability depends on datafill in table ACDLOGIN and/or ACDENLOG.

When login IDs 00001 through 09999 have been exhausted, the next agent added must use a 5 digit login ID. This means that the agent's entire ACD group must be converted to 5 digit login.

Converting a group to 5 digit login

To convert an ACD group from 4 digit login to 5 digit login, field IDSIZE in table ACDGRP must be changed to '5'. No other switch based changes will be required. However, all agents in that ACD group must be notified to begin using 5 digit login. Existing agents can simply use their old 4 digit login ID but manually pad it with a leading 0. For example, an agent using a login ID of 1234 will begin using the login ID 01234. If they attempt to login without the leading 0, the login will fail.

New agents that are added to a group already using 5 digit login IDs can use any available login ID in the range of 00001 to 30000. Availability depends on existing datafill in table ACDLOGIN and/or ACDENLOG.

See "Data schema (DS)" on page 1235 for detailed information and examples.

Table KSETLINE

Table KSETLINE defines the DN keys on all keysets. This activity makes a field change for KSETLINE tuples that meet the following criteria:

- FORMAT = 'ACD'
- ACDKEY = 'INCALLS'
- IDNUM = 'Y'

For these tuples, field POSID (position ID) is required. This activity expands the POSID field from 4 digits to 5 digits. Existing 4 digit POSIDs will be padded with a leading 0 during ONP.

The maximum value for POSID will be 30000.

See "Data schema (DS)" on page 1235 for detailed information and examples.

Table KSETFEAT

Table KSETFEAT defines the feature assignments on keysets. This activity makes a field change for KSETFEAT tuples that meet the following criteria:

- FEATURE = 'SUPR'
- IDNUM = 'Y'

For these tuples, field POSID (position ID) is required. This activity expands the POSID field from 4 digits to 5 digits. Existing 4 digit POSIDs will be padded with a leading 0 during ONP.

The maximum value for POSID will be 30000.

See "Data schema (DS)" on page 1235 for detailed information and examples.

Table IBNFEAT

Table IBNFEAT defines the feature assignments on IBN sets. This activity makes a field change for IBNFEAT tuples that meet the following criteria:

- FEATURE = 'ACD' or 'SUPR'
- IDNUM = 'Y'

For these tuples, field POSID (position ID) is required. This activity expands the POSID field from 4 digits to 5 digits. Existing 4 digit POSIDs will be padded with a leading 0 during ONP.

The maximum value for POSID will be 30000.

See "Data schema (DS)" on page 1235 for detailed information and examples.

SERVORD

Some Servord commands used by ACD offer a prompt for POSID. Currently, any value between 0000 and 9999 is accepted as valid input for the POSID. This activity will change the acceptable value of POSID to be a 5 digit value in the range of 00000 to 30000.

This change affects command prompting for NEW, ADO, NEWACD, and CHF commands.

See "Service Orders (SO)" on page 1244 for detailed information and examples.

Tools

ACDDEBUG and ACDSHOW are Command Interface (CI) tools that will require changes by this feature in order to handle a 5 digit position ID. ACDDEBUG is a CI tool created to display ACD data structures. Currently, a ACDDEBUG command uses a 4 digit position ID as an index in order to display ACD agent data. This activity will extend the command so that the data structures of an ACD agent with a 5 digit position will be displayed.

ACDSHOW is a CI tool that displays specific information concerning a current ACD configuration such as the list of agent positions in a ACD group and agent information for a given user login ID. Currently, ACDSHOW commands use a 4 digit position ID as an index in order to display information

concerning an ACD configuration. This activity will extend the command so that the information of an ACD agent with a 5 digit position will be displayed.

For more information on ACDDEBUG and ACDSHOW, please refer to "Command interface changes" on page 1247.

Intelligent Call Management (ICM)

ICM is a product that connects a host computer to a DMS-100 or MSL-100. ICM defines a switch to computer message set and a computer to switch message set that enables services to a telephone subscriber. Call event messages are sent from the switch to the host computer. Whereas call control messages, are sent from the host computer to the switch. Specific ICM call event messages or ICM call control message can contain a 'positionID' parameter and/or 'loginID' parameter. Currently, the 'positionID' parameter and the 'loginID parameter in ICM messages handle only 4 digits.

This activity will allow the switch to send ICM call event messages to the host computer with a 5 digit 'positionID' parameter and/or a 5 digit 'loginID' parameter. This activity will also allow call control ICM messages sent from the host computer to the switch to have a 5 digit 'positionID' parameter or 5 digit 'loginID' parameter. Once the call control message is received on the switch, the 5 digit 'positionID' or 5 digit 'loginID' will be checked for validity.

ACD Management Information System (MIS)

ACD MIS is a hardware and software option which provides customer premise equipment (CPE) downstream processor (DSP) with information concerning ACD events occurring in an associated DMS-100 switch. The DSP can request and collect ACD information from the switch. There are two types of ACD MIS messages: messages sent from the switch to the DSP and message sent from the DSP to the switch.

The following are categories of messages sent from the switch to the DSP:

- Switch Control messages
- Initialization Data messages
- ACD VFG OM messages,
- ACD call/agent position event messages and
- Load Management Event messages.

Specific ACD MIS messages can contain a 'positionID' parameter and/or 'loginID' parameter. Currently, the 'positionID' parameter and the 'loginID parameter in ACD MIS messages handle only 4 digits. This activity will allow ACD MIS messages sent from the switch to the DSP to have a 5 digit 'positionID' parameter or 5 digit 'loginID' parameter.

There following are categories of messages sent from the DSP to the switch:

- DSP Control Messages
- Inquire Switch Data Messages
- Remote Load Management Request messages.

This activity will allow ACD MIS message sent from the DSP to the switch to have a 5 digit ‘positionID’ parameter and/or a 5 digit ‘loginID’ parameter. The 5 digit ‘positionID’ will be checked for validity.

SOC Control

This feature will be controlled by a standard usage based SOC. The usage limit will define the maximum number of agents for the switch (i.e. the total number of lines that can have the ACD option assigned).

The default usage limit will be 0 ACD agents. During ONP from previous loads, the SOC usage limit will be set to match the value of office parameter MAX_NUM_ACD_AGENTS_PER_SWITCH. Thus there will be no impact to existing customers who do not purchase this SOC.

When the SOC is purchased, the usage limit can be increased by any number of agents up to a maximum value of 30,000 agents.

When the usage limit is changed via SOC, the value in office parameter MAX_NUM_ACD_AGENTS_PER_SWITCH will automatically be updated to reflect the SOC usage limit. The value in the office parameter can no longer be changed manually. The SOC usage limit must be changed first.

The SOC will not control the ability to use the optional 5 digit login IDs, nor will it control the ability to datafill extra login IDs for future use.

See “Software optionality control (SOC)” on page 1246 for detailed information.

Hardware Requirements or Dependencies

Not applicable

Software Requirements or Dependencies

Not applicable

Limitations and restrictions

- Once an ACD group is converted to 5 digit login (see section 2.2.5), all of the agents in that group will be required to login using 5 digits. Pre-existing 4 digit login IDs can be used by dialing a leading zero.
- Once an ACD group is converted to 5 digit login, it cannot be converted back to 4 digit login.

- Login IDs 00001 through 09999 can be used by any ACD agent in the switch. If the agent's group is using 4 digit login (as defined in table ACDGRP), the agent will dial the last 4 digits only. If the agent's group is using 5 digit login, the agent must dial all 5 digits.
- Login IDs 10000 through 30000 can only be used by agents in groups which use 5 digit login.
- Although 5 digit login is optional per ACD group, it should be noted that 5 digit login will be required as soon as the login IDs 00001 through 09999 are exhausted. At that point, the next agent added must use a 5 digit login ID. This means that the entire group to which this agent belongs must be converted to 5 digit login. The other agents in the group can continue to use their previous login IDs, but they must now include a leading zero when logging in.
- Individual ACD agents cannot be moved between two ACD groups which do not use the same number of login digits. Field IDSIZE in table ACDGRP must match for an agent to be moved from group to group by any means.

Interactions

Load Management / Remote Load Management

Load Management / Remote Load Management allows ACD agents to be moved from one ACD group to another. This activity restricts movement of agents between groups which do not use the same number of login digits. Field IDSIZE in table ACDGRP must match or the agent movement will not be allowed.

Applicable customer facing sections.

Fault Management	
Logs	__X__
Alarms	_N/A_
Configuration	
Data Schema	__X__
User Interface	_N/A_
Element Management	_N/A_
Security	_N/A_
Service Order	__X__
Office Parameters	__X__
Accounting (includes AMA billing)	_N/A_

Performance (includes operational measurements) _N/A_

Glossary

Term	Description
ACD	Automatic Call Distribution
ACDMIS	ACD Management Information Systems
ASN	Abstract Syntax Notation
CI	Command Interface
DMS	Digital Multiplex System
DN	Directory Number
DSP	Downstream Processor
IBN	Integrated Business Network
ICM	Intelligent Call Management
ONP	One Night Process
SCAI	Switch Computer Application Interface
SOC	Software Optionality Control

Fault Management for A00004391

Fault management strategy

There are 3 existing logs which are slightly modified for this feature. The modified logs are E911212, E911213, and E911214.

The modification is very minor. Each of these logs prints out a position ID and login ID when the 911 PSAP is using ACD. The fields used to display these IDs are increasing from 4 digits to 5 digits.

Fault management tools and utilities

Not Applicable

E911 212 Logs

Explanation

Log Title: E911 212

Name: E911 Call Event Record

Description: All E911 calls produce this log when either party disconnects.

Format

This is an existing log. Its function and basic format is unchanged by this activity.

If the E911 PSAP is using an ACD group for its agents, this log will print a position ID (POSID) and a login ID (LOGINID) associated with the agent who took the call. This feature expands these ID fields from 4 digits to 5 digits and extends their range to a maximum of 30000.

Field descriptions

Field descriptions

Field	Value	Description
POSID	00001 to 30000	This feature increases the size of this field to 5 digits and its range to a maximum of 30000.
LOGINID	00001 to 30000	This feature increases the size of this field to 5 digits and its range to a maximum of 30000.

Action

No new action is required beyond the standard procedures for E911 212 logs.

Associated Operational Measurements or Performance Measurements

Not Applicable.

Additional information

None.

E911 213 Logs

Explanation

Log Title: E911 213

Name: ACD PSAP Agent Login

Description: This log is produced when an ACD PSAP Agent logs in.

Format

This is an existing log. Its function and basic format is unchanged by this activity.

When an ACD PSAP agent logs in, this log is produced. It contains an AGENT POSITION ID and an AGENT LOGIN ID associated with the agent logging in. This feature expands these ID fields from 4 digits to 5 digits and extends their range to a maximum of 30000.

Field descriptions

Field descriptions

Field	Value	Description
AGENT POSITION ID	00001 to 30000	This feature increases the size of this field to 5 digits and its range to a maximum of 30000.
AGENT LOGIN ID	00001 to 30000	This feature increases the size of this field to 5 digits and its range to a maximum of 30000.

Action

No new action is required beyond the standard procedures for E911 213 logs.

Associated Operational Measurements or Performance Measurements

Not Applicable.

Additional information

None.

E911 214 Logs

Explanation

Log Title: E911 214

Name: ACD PSAP Agent Logout

Description: This log is produced when an ACD PSAP agent logs out.

Format

This is an existing log. Its function and basic format is unchanged by this activity.

When an ACD PSAP agent logs out, this log is produced. It contains an AGENT POSITION ID and an AGENT LOGIN ID associated with the agent logging out. This feature expands these ID fields from 4 digits to 5 digits and extends their range to a maximum of 30000

Field descriptions

Field descriptions

Field	Value	Description
AGENT POSITION ID	00001 to 30000	This feature increases the size of this field to 5 digits and its range to a maximum of 30000.
AGENT LOGIN ID	00001 to 30000	This feature increases the size of this field to 5 digits and its range to a maximum of 30000.

Action

No new action is required beyond the standard procedures for E911 214 logs.

Associated Operational Measurements or Performance Measurements

Not Applicable.

Additional information

None.

Alarms

Not Applicable

Related documentation

None.

Configuration for A00004391

Hardware and Software Requirements

Not applicable.

Initial Configuration

Not applicable.

Office parameters (OP)

New/modified office/subnet parameters

New or modified parameter

Parm table	Parameter name	NEW/ CHANGED/ DELETED/ RELOCATED	Domain (CM or Subnet Management
OFCOPT	MAX_NUMBER_ACD_AGENTS _PER_SWITCH	CHANGED	CM

Parameter information

MAX_NUMBER_ACD_AGENTS_PER_SWITCH

Maximum Number of Automatic Call Distribution Agents Per Switch

Functional description

This is a pre-existing office parameter which specifies the maximum number of ACD agent positions that the operating company can assign on the switching unit.

The purpose of this parameter will not be changed by this activity.

The range of this parameter will be increased to have a maximum value of 30,000 agents. The ability to assign a new value to this parameter will be restricted. A new value can only be assigned by changing the limit of the feature SOC.

When the SOC usage limit is increased or decreased, the value stored in the office parameter will be automatically updated to reflect the new limit. See section 13.7 for SOC information.

Range information

Range Information

Minimum	Maximum	Default
0	30000	0

This activity increases the maximum value of the office parameter.

Memory requirements

No memory impact.

Parameter release history update
The maximum value is being increased from 9999 to 30000 for SN07.

Upgrade Impact

Dump and Restore

This feature requires no operating company intervention during dump/restore or any other phase of ONP.

Element Management Upgrade

Not applicable.

Data schema (DS)

New/modified tables, MIBs, or Database Schema

New or modified tables

Table/MIB name	NEW/CHANGED/ or DELETED/	Table Control (NEW/OLD/UNCHANGED)
ACDGRP	CHANGED	UNCHANGED
KSETLINE	CHANGED	UNCHANGED
KSETFEAT	CHANGED	UNCHANGED
IBNFEAT	CHANGED	UNCHANGED
ACDLOGIN	CHANGED	UNCHANGED
ACDENLOG	CHANGED	UNCHANGED

Table/MIB/Remote Database Schema information

Name: ACDGRP
ACD Group Info

Functional description
ACDGRP is an existing table. This table defines ACD groups. A new field is introduced by this activity to specify the size (number of digits) of the Login ID. The size is either 4 or 5 digits. Default value is 4 digits.

Usage sequence and implications (CM Only)
Current datafill order unchanged.

Size
The size of table ACDGRP is not impacted by this activity.

Fields

The following table lists fields for ACDGRP.

A new field IDSIZE is added to this table. All other fields of this table are unchanged.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
IDSIZE	New	None	4 or 5	Size of the Login ID in number of digits.

Datafill example

The following example shows sample datafill for table ACDGRP. In this example, group ACDTEST1 is using 5 digit login IDs while the other 2 groups are using 4 digit login IDs.

Example tuples from table ACDGRP

```
 ACDNAME        CUSTGRP ACDRNGTH              THROUTE
              NSROUTE PRIOPRO DBG MAXCQSIZ MAXWAIT
                                                  ACDMIS
                                MSQS DISTRING OBSWTONE
                  FRCNGTSV    IDSIZE
                                                  OPTIONS

-----------------------------------------------------------------------------------
ACDGRP2              CGA            12              OFR3    1
            OFR3    1      0   N      12      20
                                                          N
                                  N      NONE          N
                    N               4
                                                          $
ACDTEST1           IBNTST             0              OFRT   41
            OFRT   43       0   N       1     256
                                                          N
                                  N      NONE          N
                    N               5
                                    (  VARWRAP 100) (   ACDCPK N )$
ACD1CGA              CGA            12              OFR3    1
            OFR3    1      0   N      12      20
                                                N
                                  N      NONE                    N
                    N               4
                                                          $
```

Table release history update
Since BCS18.

Supplementary information
Dump and Restore impact. There will be upgrade impact to table ACDGRP due to the new field IDSIZE introduced by this activity. The reformat procedures will default the value of this field to 4 during ONP.

Translation verification other tools
ACDGRP does not use translation verification tools.

Name: KSETLINE
Key Set Line Information table

Functional description
KSETLINE is an existing table. This table defines INCALLS KEY to key number 1 on ACD set. This activity changes the field POSID, which is the ACD position ID associated with the INCALLS KEY. The POSID will be changed to a 5 digit number.

Usage sequence and implications (CM Only)
Current datafill order unchanged.

Size
The size of table KSETLINE is not impacted by this activity.

Fields
The following table lists fields for KSETLINE.

The existing field POSID is changed in this table. All other fields of this table are unchanged.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
POSID	Changed	None	5-digit number between 00001 and 30000.	ACD Position ID associated with the INCALLS key.

Datafill example
The following example shows sample datafill for table KSETLINE. Note the 5 digit POSIDs.

Example tuples from table KSETLINE

```
        KSETKEY
                FORMAT
                                                        DNRESULT
                KSFMTID
                                                KSFMTARE
-------------------------------------------------------------------------------------------
HOST  05 0 00 06  1
                      ACD    Y          7502338
                       CGA    2          0  909
          INCALLS    CGAACD3   1 Y  00332
                                  (      3WC) (      MSB) (     ACDNR)$
                       MBS
HOST  05 1 00 06  1
                      ACD    Y          7502339
                       CGA    2          0  909
          INCALLS    CGAACD4   1 Y  00443
                                        (      MSB) (     ACDNR)$
                       MBS
SRCM  04 0 01 01  1
                      ACD    Y          7502331
                       CGA    2          0  909
           INCALLS    CGAACD1   1 Y  00112
                                  (      PRK) (      MSB) (     ACDNR)$
                       MBS
```

Table release history update
Since BCS10.

Supplementary information
Dump and Restore impact. There will be upgrade impact to table KSETLINE due to the change to the field POSID introduced by this activity. The reformat procedures will prefix a digit 0 to all ACD Position IDs upgraded during ONP.

Translation verification other tools
KSETLINE does use translation verification tools but are not impacted by this activity.

Name: KSETFEAT

Key Set Feature Information table

Functional description
KSETFEAT is an existing table. This table defines SUPR feature data when assigned to a keyset feature key. This activity changes the field POSID, which is the ACD position ID associated with the supervisor feature. The POSID will be changed to a 5 digit number.

Usage sequence and implications (CM Only)
Current datafill order unchanged.

Size
The size of table KSETFEAT is not impacted by this activity.

Fields
The following table lists fields for KSETFEAT.

The existing field POSID is changed in this table. All other fields of this table are unchanged.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
POSID	Changed	None	5-digit number between 00001 and 30000.	ACD Position ID associated with the SUPR key.

Datafill example
The following example shows sample datafill for table KSETFEAT. Note the 5 digit POSIDs.

Example tuples from table KSETFEAT

```
             FEATKEY       FEATURE
                                                  KVAR
-------------------------------------------------------------------
HOST  00 0 19 02  1      SUPR          SUPR    ACDTEST2     1 Y 01111
HOST  00 1 08 01  1      SUPR          SUPR    ACDTEST2     1 Y 02222
HOST  01 0 00 14  1      SUPR          SUPR      CGAACD5    1 Y 05555
HOST  01 1 01 24  1      SUPR          SUPR      CGAACD2    1 Y 07777
HOST  05 1 00 06  1      SUPR          SUPR      CGAACD4    1 Y 04444
```

Table release history update
Since BCS10.

Supplementary information
Dump and Restore impact. There will be upgrade impact to table KSETFEAT due to the change to the field POSID introduced by this activity. The reformat procedures will prefix a digit 0 to all SUPR Position IDs upgraded during ONP.

Translation verification other tools
KSETFEAT does use translation verification tools but are not impacted by this activity.

Name: IBNFEAT

IBN Line Feature Information table

Functional description

IBNFEAT is an existing table. This table defines ACD and SUPR feature data when assigned to IBN sets. This activity changes the field POSID which is the ACD position ID associated with the ACD or SUPR options on the set. The POSID will be changed to a 5 digit number.

Usage sequence and implications (CM Only)

Current datafill order unchanged.

Size

The size of table IBNFEAT is not impacted by this activity.

Fields

The following table lists fields for IBNFEAT.

The existing field POSID is changed in this table. All other fields of this table are unchanged.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
POSID	Changed	None	5-digit number between 00001 and 30000.	ACD Position ID associated with the ACD or SUPR option.

Datafill example

The following example shows sample datafill for table IBNFEAT. Note the 5 digit POSIDs.

Example tuples from table IBNFEAT

```
      LEN
        DNNO            DF        FEATURE

                                                                  DATA
-------------------------------------------------------------------------
HOST  01 1 02 00
          0             ACD              ACD     CGAACD2   1 Y 00020
   (ACDNR )$
HOST  05 1 01 05
          0             ACD              ACD    ACDTEST1   1 Y 05115
                  $
HOST  05 1 01 05
          0             SUPR            SUPR    ACDTEST1   1 Y 05225
```

Table release history update
Since BCS10.

Supplementary information
Dump and Restore impact. There will be upgrade impact to table IBNFEAT due to the change to the field POSID introduced by this activity. The reformat procedures will prefix a digit 0 to all ACD Position IDs upgraded during ONP.

Translation verification other tools
IBNFEAT does use translation verification tools but are not impacted by this activity.

Name: ACDLOGIN

ACD Login Table

Functional description
ACDLOGIN is an existing table. This table maps ACD Login IDs to a corresponding password, if needed. This table also maps Customer groups to the corresponding ACD Login ID, if requested. This table is indexed by Login ID.

Usage sequence and implications (CM Only)
Current datafill order unchanged.

Size

Table size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
ACDLOGIN	0	30,000	Memory is allocated dynamically through the use of SEGSTOR in blocks of 512. Two words of protected store is needed per tuple.

Fields

The following table lists fields for ACDLOGIN.

A range of the LOGINID field is changed by this activity. Remaining fields of this table are not changed.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
LOGINID	Changed	None	5-digit number between 00001 and 30000	The range of ACD Login ID is expanded to accommodate 30,000 Login IDs.

Datafill example

The following example shows sample datafill for table ACDLOGIN. Note the 5 digit LOGINIDs.

Example tuples from table ACDLOGIN

```
LOGINID CUSTGRP PSWD OPTIONS
-----------------------------------------------------------------
00551 Y CGA N (VARWRAP 100) $
01001 N N $
01002 Y IBNTST Y 1234 $
01003 Y IBNTST Y 1234 (VARWRAP 60) (PAQ 1) $
02001 N N $
02002 Y COMKODAK Y 1234 $
02003 Y COMKODAK Y 1234 (VARWRAP 60) (PAQ 1) $
04120 Y CGA N (VARWRAP 100) $
```

Table release history update

Since BCS18.

Supplementary information

Dump and Restore impact. There will be upgrade impact to table ACDLOGIN due to change in field LOGINID made by this activity. The reformat procedures will prefix a digit 0 to all Login Ids upgraded during ONP.

Translation verification other tools

ACDLOGIN does not use translation verification tools.

Name: ACDENLOG

ACD Enhanced Login

Functional description

Table ACDENLOG is an existing table. It allows multiple customer groups the full range of Login IDs for their ACD agents. This table is indexed by a two-part key, made up of the Partition Number (PARTNO) and Login ID (LOGINID). The table format is same as table ACDLOGIN with one additional field, ACTIVATE.

Usage sequence and implications (CM Only)

Current datafill order unchanged.

Size

Table size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
ACDENLOG	0	30,000	Memory is allocated dynamically through the use of SEGSTOR in blocks of 512. Two words of protected store is needed per tuple.

Fields

The following table lists fields for ACDENLOG.

The range of the LOGINID field is changed by this activity. Remaining fields of this table are not changed.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
LOGINID	Changed	None	5-digit number between 00001 and 30000	The range of ACD Login ID is expanded to accommodate 30,000 Login IDs.

Datafill example

The following example shows sample datafill for table ACDENLOG. Note the 5 digit LOGINIDs.

Example tuples from table ACDENLOG

```
 PARTNO LOGINID ACTIVATE  CUSTGRP  PSWD OPTIONS
-----------------------------------------------------------------
121 00551 N Y CGA N (VARWRAP 100) $
121 01001 N N N $
124 00551 N Y IBNTST Y 1234 $
125 01003 N Y IBNTST Y 1234 (VARWRAP 60) (PAQ 1) $
131 02001 N N N $
133 02002 N Y COMKODAK Y 1234 $
205 02002 N Y COMKODAK Y 1234 (VARWRAP 60) (PAQ 1) $
212 04120 N Y CGA N (VARWRAP 100) $
```

Table release history update

Since BCS20.

Supplementary information

Dump and Restore impact. There will be upgrade impact to table ACDENLOG due to change in field LOGINID made by this activity. The reformat procedures will prefix a digit 0 to all Login Ids upgraded during ONP.

Translation verification other tools

ACDENLOG does not use translation verification tools.

Service Orders (SO)

This activity does not introduce any new Service Order commands, LCCs, or options.

Service order change details

When the ACD option is added to a line (ADO, NEW, NEWACD commands), or when ACD option data is changed (CHF command), one of the prompts offered by Servord is POSID. Currently, any value between 0001 and 9999 is accepted as valid input for the POSID. This activity will change the acceptable value of POSID to be a 5 digit value in the range of 00001 to 30000.

How service order commands are presented

Description

The range of valid input for the POSID prompt has changed. Previously, the POSID was entered as a 4 digit value in the range of 0001 to 9999. It will now be entered as a 5 digit value in the range of 00001 to 30000.

Applicability

The POSID prompt is applicable to Servord commands ADO, NEW, NEWACD, and CHF only when they are used to manipulate the data associated with the ACD or SUPR line option.

Example

The following figures show an example of adding the ACD option to an existing business set using the ADO command. Note that when the system prompts for POSID, the user must now provide a 5 digit value in the range of 00001 to 30000. Previously, a 4 digit value would have been accepted.

Example of the ADO command in prompt mode

```
SO:
>ado
SONUMBER:      NOW   3 11  6 AM
>
DN_OR_LEN:
>6218000
OPTKEY:
>1
OPTION:
>acd
ACDGROUP:
>acdtest1
ACDSGRP:
>0
IDNUM:
>y
POSID:
>00018
OPTKEY:
>$
COMMAND AS ENTERED:
ADO NOW 3 11 6 AM 6218000 ( 1 ACD ACDTEST1 0 Y 0009 ( ) ( ) ) $
ENTER Y TO CONFIRM,N TO REJECT OR E TO EDIT
>y
```

Example of the ADO command in no-prompt mode

```
SO:
>ado $ 6218000 1 acd acdtest1 0 y 00018 $
```

The NEW, NEWACD, and CHF commands also offer the POSID prompt when used to manipulate ACD data. Examples of these commands are not provided because the effect of this change is identical to the ADO example shown above. POSID must now be input as a 5 digit value.

Command prompts

The valid input has changed for system prompt POSID.

Valid input for POSID

Prompt	Valid input	Description	Areas affected by prompt
POSID	00001 to 30000	ACD agent position ID.	Affects Servord commands ADO, NEW, NEWACD, and CHF when used to manipulate ACD option data.

Software optionality control (SOC)

This feature will be controlled by a standard usage based SOC. The usage limit will define the maximum number of ACD agents in the switch.

The default usage limit will be 0 ACD agents. During ONP from previous loads, the SOC usage limit will be set to match the value of office parameter MAX_NUM_ACD_AGENTS_PER_SWITCH. Thus there will be no impact to existing customers who do not purchase this SOC.

The SOC usage limit will control the maximum number of ACD agents in the switch. The office parameter MAX_NUM_ACD_AGENTS_PER_SWITCH will automatically be updated to match the SOC usage limit anytime the SOC usage limit is changed (increased or decreased).

The other aspects of this feature including 5 digit login optionality, ability to use login IDs between 10000 and 30000, and mandatory use of 5 digit POSIDs are not controlled in anyway by the SOC.

SOC

SOC option name:	ACD00101
SOC option title:	ACD Agent Expansion
SOC option control type:	USAGE
New SOC option?	YES
SOC option order code	00037650
Option defined in DRU:	CCM
Affected products:	NA100, SL100

Element Management

Not applicable.

Command interface changes

Command: ACDDEBUG

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

ACDDEBUG is a CI tool created to display ACD data structures in both dynamic and static environments.

The available commands are:

QUERY - Allows display of ACD data structures

CPIDTOAGT - Displays LEN and DN for entered line cpid or CLLI and member number for an entered trunk cpid.

QUIT - Quits from ACDDEBUG environment

Currently, the Query command uses a 4 digit positionID as an index in order to display ACD agent data. This activity will extend the command so that the data structures of an ACD agent with a 5 digit position will be displayed.

Command syntax for changed parameters

ACDDEBUG command parameters and variables

Command	Parameters and variables
QUERY AGENTDATA	ALL, GROUP, POSID
Parameters and variables	**Description**
ALL	Displays all agent data on the switch
GROUP	Displays agent data in a particular ACDGROUP
POSID	Displays agent data for a particular position ID. The positionID must be 5 digits.

Qualifications and warnings

NA

Responses

Wrong type

CI outputs with associated meanings and actions

ACDDEBUG
Wrong type: <ACD_posid?> {1 TO 30,000} Enter: <ACD_posid?> [<Form?>] **Meaning:** The user has input an invalid position ID. **System or user actions:** Input a valid position ID from 1 to 30,000

Example

Usage examples for ACDDEBUG Query command

Description of task:	Display the ACD agent data
Command: MAP response:	QUERY agentdata posid 12300 ACD GROUP NUMBER 5 (“ACDTEST1”) - - ACD AGENT DATA Protected Data - Index 22 Address 59443834 Incalls Cp_id: HOST 01 0 06 04 DN 6136212200 KEY 1 Agent Position ID: 12300 SCAI agent: NO Unprotected Data - Index 22 Address 4EC906E0 ECM_ASSOCIATED: N ECM_USER_DATA_PTR: FFFF0000 ECM_IDX_IN_AGT_LIST: -515 ECM_NETNODEID: 4261281277 Agent Login ID: 11300 Agent Login Partition NO.: 0 Status: ACDIDLE Not Ready Active: N

Command: ACDSHOW

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

ACDSHOW is a CI tool that displays specific information concerning a current ACD configuration such as the a list of agent positions in a ACD group and agent information for a given user login ID. Currently, ACDSHOW commands use a 4 digit positionID as an index in order to display information

concerning an ACD configuration. This activity will extend the command so that the information of an ACD agent with a 5 digit position will be displayed.

The available commands are:

ACDSHOW		
ACDDNS	HELP	QUIT
ACDSHOW	LOADMGMT	STATUS
ADMINGROUP	LOGINID	SUPERVISOR
AGTPOS	MODE	TABENTRY
AUDIOGROUP	NSAUDGRP	THRESHOLD
COUNTS	NSROUTE	THROUTE
GROUPINFO	OVFLROUTE	VALIDAUDIO
GROUPNAME	PASSWORD	VALIDROUTES
FIAUDGRP	FOAUDGRP	CLRROUTE
RENQTOUT	RENQRTE	RENQAUD

Command syntax for changed parameters

ACDSHOW command parameters and variables

Command	**Parameters and variables**
AGTPOS	ALL, GROUP, POSID, LEN, DN, CLLI,
LOGINID	ID
Parameters and variables	**Description**
ALL	Displays all agent data on the switch.
GROUP	Displays agent data in a particular ACDGROUP.
POSID	Displays agent data for a particular position ID. The positionID will be 5 digits.
LEN	Displays agent data for a particular LEN.
DN	Displays agent data for a particular DN.
CLLI	Displays agent data for a particular CLLI.
ID	Displays agent data for a particular login ID.The loginID will be 5 digits.

Qualifications and warnings

NA

Responses

Wrong type

CI outputs with associated meanings and actions

ACDSHOW
Wrong type: <ACD_posid?> {1 TO 30,000} Enter: <ACD_posid?> [<Form?>] **Meaning:** The user has input an invalid position ID. **System or user actions:** Input a valid position ID from 1 to 30,000

Example

Usage examples for ACDSHOW AGTPOS command

Description of task:	**Show ACD information by ACD agent positionID**
Command: MAP response:	AGTPOS POSID 12300 Agent: HOST 01 0 06 04 DN 6136212200 KEY 1 Agent Login ID: 11300 Status: IDLE Loginid Partition: 0

Usage examples for ACDSHOW LOGINID command

Description of task:	Show ACD information by ACD agent loginID
Command: MAP response:	LOGINID 11300 brief ibntst Agent Position ID: 12300 Agent Login ID: 11300 Status: IDLE Loginid_Partition: 000

Usage examples for ACDSHOW LOGINID command

Command:	LOGINID 11300 full ibntst
Map response:	Agent Position ID: 12300 Agent Login ID: 11300 Status: IDLE Loginid_Partition: 000 Agent: HOST 01 0 06 04 DN 6136212200 KEY 1 ACD Group: ACDTEST1 ACD Subgroup: 0 SCAI Agent: NO

Security

Not applicable

Configuration Walkthrough

Not applicable

Product = CS 2000

A00004422--Enhanced 911 Dynamic Packet Trunks Session Initiation Protocol-Telephony Call Trace (Succession on DMS)

Functional Description

Description

This feature provides the ability to trace established intra and inter office calls involving SIP-T DPT for Call Server 2000 (CS2K). Before the development of this feature, CS2K-Core had the ability to trace intra office line to line and inter office line to trunk/line and trunk to trunk/line calls for emergency situations (police, fire, hospital etc.) for only TDM trunks.

This feature enhances the trace abilities of CS2K to identify which SIP-T DPT (originating and/or terminating) is associated with an active call within the call server by means of SIP-T DPT callid.

This feature works for all calls and not just E911 calls.

The trunk information is provided through a new man-machine command interpreter (CI) command “SIPTRACE”[2]. The syntax and permissible input and output parameters of SIPTRACE are described in the following sections.

The input trunk information consists of:-

- trunk group and trunk member for TDM trunks.
- SIP-T DPT call-id for SIP-T DPT.

This command tool utility is limited to SIP-T DPT and TDM trunks as input to this command, while the output can be SIP-T DPT, TDM trunks or lines.

The new CI command “SIPTRACE” has the following syntax:-

SIPTRACE <Input trunk> {

{T <TDM trunk group> STRING

<TDM trunk member> {0 TO 9999}},

{D <DPT SIP-T call-id> STRING}}

Output on the CI prompt for the above command is of the following format:-

<input> is currently connected to ***<output>***

where

<input> is either

— “TDM trunk <trkgrp> <trkmem>” if a TDM trunk was entered or

— “SIP-T DPT <trkgrp> callid <SIP-T callid>” if a SIP-T callid was entered. The SIP-T callid entered on the command prompt during SIPTRACE command execution, is enclosed in single quotes.

<output> is one of the following:

— “TDM trunk <trkgrp> <trkmem>” if the connected party is a TDM trunk member

— “SIP-T DPT <trkgrp> callid <SIP-T callid>” if the connected party is a SIP-T DPT.

— “LINE <lineid>” DN is displayed, if the connected party is a line terminal.

2. Henceforth, in this document, all references to new CI command utility would refer to new CI command “SIPTRACE”.

For call scenarios in which the output TDM agent is found to be a C7ISL member, the tool automatically traverses the ISL and presents the final agent of the call. In such cases, multiple output lines are displayed on the CI.

Call scenarios involving SIP-T loop-arounds where SIP-T DPT looped around on the same or different GWC(s), are also supported by the new CI command SIPTRACE. In such cases, the output SIP-T call-id retrieved from the GWC is used to recursively trace the final output agent of the call and multi-line outputs are displayed on the CI.

The new CI command utility is at the top level of CI and the user is able to invoke this new command, at any level built over CI (e.g. MAPCI, LOGUTIL etc.)

The following are the error/information messages to be displayed on the CI.

Error/Information messages displayed on the CI

Sr. No.	Error/Information messages displayed on the CI	Cause of the error/information message
1	<Input trunk>[a] is currently connected to a line whose DN is not available	The output end-point is found to be a line but its Tid is not mapped to a DN datafilled in tables on the Core
2	TDM trunk group not datafilled in table CLLI	Invalid TDM trunk group entered
3	TDM trunk group not datafilled in table TRKGRP	TDM Trunk group not datafilled in table TRKGRP
4	TDM trunk group not datafilled in table TRKSGRP	TDM Trunk group not datafilled in table TRKSGRP
5	SIP-T DPT <SIP-T DPT trkgrp> callid <SIP-T call-id> not associated with any active call	SIP-T callid does not exist within the GWC(s) and when the SIP-T DPT trunk group is available.
6	<Input trunk> is currently connected to an un-supported agent type <CP selector>	Output agent is not supported by this feature
7	TDM trunk <trkgrp> <trkmem> not associated with any active call	The input TDM trunk member information entered at the CI does not map to a live call
8	SIP-T DPT callid <SIP-T call-id> not associated with any active call	CS2K-Core is unable to send broadcast message to GWC(s) to retrieve associated DPT Tid(s) or when the GWC response messages have arrived in the Core but unable to determine the output agent details and the SIP-T DPT trunk group is not available.
9	Unable to identify far-end C7ISL member for TDM trunk (C7ISL) <trkgrp> <trkmem>	The output agent is found to be a TDM C7ISL agent but the far end TDM C7ISL trunk group and trunk member details datafilled in table C7ISL are not available.
10	Trunk group datafilled as DPT in Table DPTRKMEM	DPT trunk group entered using option T while SIPTRACE command execution

Sr. No.	Error/Information messages displayed on the CI	Cause of the error/information message
11	Number of SIP-T DPT loop-arounds exceeded allowed limit	For call scenarios in which the number of SIP-T to SIP-T loop-arounds in the same call server has exceeded 9 (highly unlikely)

a. <Input trunk> refers to: {T <Input TDM trunk group> <Input TDM trunk member>, D <SIP-T DPT trkgrp> callid <SIP-T call-id>}

The snapshots of various combinations of call scenarios involving TDM and SIP-T DPT trunks is shown in the following examples; the SIPTRACE command execution is shown on the CI prompt for simplicity purpose but same can be executed on any level built over CI (e.g. MAPCI, LOGUTIL, etc.):-

1. TDM to line inter-working in CS2K

```
CI> SIPTRACE T ETSIV1LPA 2

TDM trunk ETSIV1LPA 2 is currently connected to LINE 1158206005
```

2. SIP-T DPT to line inter-working in CS2K

```
CI> SIPTRACE D '0026.4030-10-16-49-02.67@CS2K4_84'

SIP-T DPT K4SIP1LOOPFR3 callid 0026.4030-10-16-49-02.67@CS2K4_84
is currently connected to LINE 1158206007
```

3. TDM to TDM inter-working in CS2K

```
CI> SIPTRACE T ETSIV1LPB 2

TDM trunk ETSIV1LPB 2 is currently connected to TDM trunk
UKISUPLPA 10
```

4. TDM to SIP-T DPT inter-working in CS2K

```
CI> SIPTRACE T ETSIV1LPB 2

TDM trunk ETSIV1LPB 2 is currently connected to SIP-T DPT
K4SIP1LOOPFR3 callid 0026.4030-10-16-49-02.67@CS2K4_84
```

5. SIP-T DPT to TDM inter-working in CS2K

```
CI> SIPTRACE D '0026.4030-10-16-49-02.67@CS2K4_84'

SIP-T DPT K1SIP1V1 callid 0026.4030-10-16-49-02.67@CS2K4_84 is
currently connected to TDM trunk ETSIV1LPA 2
```

6. SIP-T DPT to SIP-T DPT inter-working in CS2K

```
CI> SIPTRACE D '0026.4030-10-16-49-02.67@CS2K4_84'

SIP-T DPT K1SIP1V1 callid 0026.4030-10-16-49-02.67@CS2K4_84 is
currently connected to SIP-T DPT K4SIP1LOOPFR3 callid 0026.4030-
10-16-49-02.95@CS2K4_84
```

7. Output TDM identified as C7ISL member

```
CI> SIPTRACE T ETSIV1LPB 2

TDM trunk ETSIV1LPB 2 is currently connected to TDM trunk (C7ISL)
ETSIV1LPA 3
TDM trunk (C7ISL) UKISUPLPA 4 is currently connected to LINE
1158206005
```

8. Input TDM identified as C7ISL member

```
CI> SIPTRACE T ETSIV1LPB 2

TDM trunk (C7ISL) ETSIV1LPB 2 is currently connected to TDM trunk
UKISUPLPA 8
```

9. SIP-T DPT loop-arounds (Case-1) - Posting the SIP-T call-id that is not a part of the SIP-T loop-around

```
CI> SIPTRACE D '0026.4030-10-16-49-02.67@CS2K4_84'

SIP-T DPT K1SIP1UK3 callid 0026.4030-10-16-49-02.67@CS2K4_84 is
currently connected to SIP-T DPT K1SIP1V1 callid 0026.4030-10-16-
49-02.95@CS2K4_84
SIP-T DPT K2SIP1CZ1 callid 0026.4030-10-16-49-02.95@CS2K4_84 is
currently connected to LINE 1158206005
```

10. SIP-T DPT loop-arounds (Case-2) - Posting the SIP-T call-id which is a part of the SIP-T loop-around

```
CI> SIPTRACE D '0026.4030-10-16-49-02.67@CS2K4_84'

SIP-T DPT K1SIP1UK3 callid 0026.4030-10-16-49-02.67@CS2K4_84 is
currently connected to SIP-T DPT K1SIP1V1 callid 0026.4030-10-16-
49-02.95@CS2K4_84
SIP-T DPT K2SIP1CZ1 callid 0026.4030-10-16-49-02.67@CS2K4_84 is
currently connected to LINE 1158206005
```

11. Invalid input option

```
CI> SIPTRACE abcd

Next par is: <Input trunk> {T <TDM trunk group> <TDM trunk
member>,
D <DPT SIP-T call-id>}


Enter: <Input trunk>
CI>
```

12. No option entered with new CI command

```
CI> SIPTRACE

Next par is: <Input trunk> {T <TDM trunk group> <TDM trunk
member>,
D <DPT SIP-T call-id>}


Enter: <Input trunk>
CI>
```

13. Incomplete input entered with option T

```
CI> SIPTRACE T ETSIV1LPA

Next par is: <TDM trunk member> {0 TO 9999}


Enter: <TDM trunk member>
CI>
```

14. Incomplete input entered with option D

```
CI> SIPTRACE D

Next par is: <DPT SIP-T call-id> {STRING}


Enter: <DPT SIP-T call-id>
CI>
```

15. Invalid input TDM trunk group name

```
CI> SIPTRACE T ABCD 2

TDM trunk group not datafilled in Table CLLI
```

16. TDM trunk group not datafilled in table TRKGRP

```
CI> SIPTRACE T UASBLDNANN 2

TDM trunk group not datafilled in Table TRKGRP
```

17. TDM trunk group not datafilled in table TRKSGRP

```
CI> SIPTRACE T ETSIV2LPB 2

TDM trunk group not datafilled in Table TRKSGRP
```

18. Invalid input TDM trunk member number

```
CI> SIPTRACE T ETSIV1LPA -2

Out of range: <TDM trunk member> {0 TO 9999}
Enter: <TDM trunk member>

CI>
```

19. SIP callid does not exist / does not map to any live call.

```
CI> SIPTRACE D '0026.4030-10-16-49-02.67@CS2K4_84'

SIP-T DPT K2SIP1CZ1 callid 0026.4030-10-16-49-02.67@CS2K4_84 not
associated with any active call
```

20. Input TDM parameters do not map to any live call.

```
CI> SIPTRACE T ETSIV1LPA 2

TDM trunk ETSIV1LPA 2 not associated with any active call
```

21. Output agent is not supported for TDM input

```
CI> SIPTRACE T ETSIV1LPA 2

TDM trunk ETSIV1LPA 2 is currently connected to an un-supported
agent type 10
```

22. Output agent is not supported for SIP-T DPT inputs

```
CI> SIPTRACE D '0026.4030-10-16-49-02.67@CS2K4_84'

SIP-T DPT K2SIP1CZ1 callid 0026.4030-10-16-49-02.67@CS2K4_84 is
currently connected to an un-supported agent type 12
```

23. Output line DN not identifiable for TDM inputs

```
CI> SIPTRACE T ETSIV1LPA 2

TDM trunk ETSIV1LPA 2 is currently connected to a line whose DN
is not available
```

24. Output line DN not identifiable for SIP-T DPT inputs

```
CI> SIPTRACE D '0026.4030-10-16-49-02.67@CS2K4_84'

SIP-T DPT K2SIP1CZ1 callid 0026.4030-10-16-49-02.67@CS2K4_84 is
currently connected to a line whose DN is not available
```

25. Output agent is TDM C7ISL but unable to find far-end C7ISL agent

```
CI> SIPTRACE T ETSILPB 2

TDM trunk ETSILPB 2 is currently connected to TDM trunk (C7ISL)
UKISUPLPA 3
Unable to identify far-end C7ISL member for TDM trunk (C7ISL)
UKISUPLPA 3
```

26. Input DPT trunk group entered with option T

```
CI> SIPTRACE T K2SIP1CZ1 2

Trunk group datafilled as DPT in Table DPTRKMEM
```

27. Unable to send GWC request message or unable to determine output agent for SIP-T DPT input

```
CI> SIPTRACE D '0026.4030-10-16-49-02.67@CS2K4_84'

SIP-T DPT callid 0026.4030-10-16-49-02.67@CS2K4_84 not
associated with any active call
```

Hardware Requirements or Dependencies

None.

Software Requirements or Dependencies

Software load from SN07 onwards.

Limitations and restrictions

— The new command interpreter (CI) command “SIPTRACE” is supported only for SIP-T DPT. It is not supported for networks using BICC protocol.

— TDM trunks and SIP-T DPT are the only input parameters allowed. Line is not allowed as input parameter.

— TDM trunks, SIP-T DPT and Line DNs are the only output parameters.

— If a line directly maps to a DN, the DN is displayed as <lineid> with area-code, office-code and station-number as datafilled in table DNINV.

— Lines, discovered as output agents, not mapped to DNs are not supported by the new CI command SIPTRACE.

— Feature interactions like 3WC or any other multi-linked calls with the new CI command SIPTRACE, are not supported by the new CI command SIPTRACE.

Interactions

Features supported by the new CI command SIPTRACE include, but not limited to, 3WC, CFB, CFU, CFDA, SDN, MLH.

Applicable customer facing sections

Fault Management

Logs	__N/A____
Alarms	__N/A____

Configuration

Data Schema	__N/A____
User Interface	__X____
Element Management	__N/A____
Security	__N/A____
Service Order	__N/A____
Office Parameters	__N/A____
Accounting (includes AMA billing)	__N/A____
Performance (includes operational measurements)	__N/A____

Glossary

Term	Description
3WC	Three way conference
BICC	Bearer Independent Call Control
CI	Command Interpreter
C7ISL	CCS7 ISUP Signalling Loop-back
CFB	Call Forward Busy
CFD/CFDA	Call Forward Don’t Answer
CFU	Call Forward Universal
CS2K	Communication Server 2000
DMS	Digital Multiplex System
DN	Directory Number
DPT	Dynamic Packet Trunking
E911	Enhanced 911 services
ISUP	ISDN User Part
ISDN	Integrated Services Digital Network
GWC	GateWay Controller
MLH	Multi Line Hunt-group
SIP-T	Session Initiation Protocol-Telephony

Term	Description
SDN	Secondary Directory Number
TDM	Time Division Multiplexing
VRDN	Virtual Routing Distribution Node

Product = CS 2000

A00004430--SVC Failure OMs (UA-AAL1)

Functional Description

Description

This SN07 feature provides two main functional components:

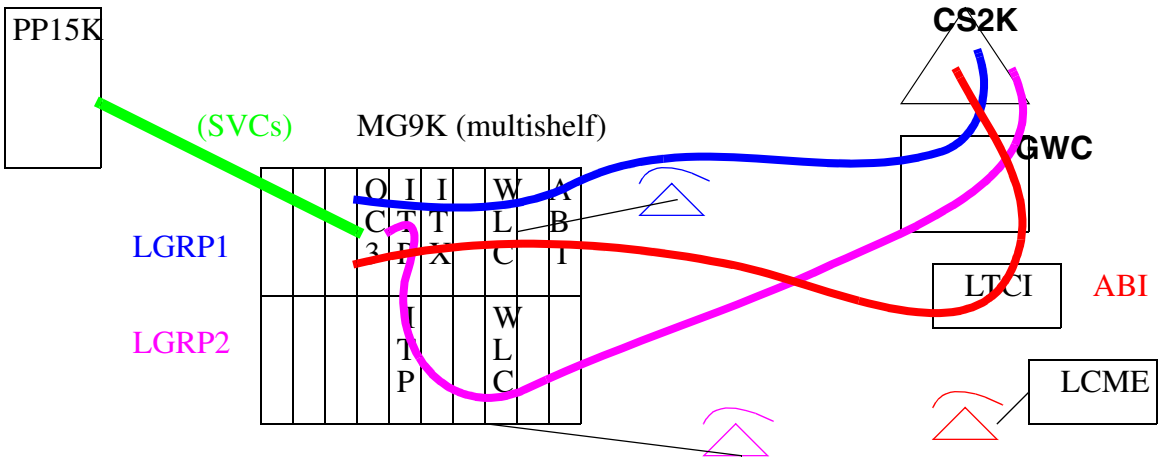
- Introduces new OM group AL1SVCOM.
- Replaces ATM606 log report with XPKT301 and XPKT302 logs.

OM group - AL1SVCOM - is used to provide OM registers for ATM switched virtual circuits (SVC) external network connection bearer path call origination attempts and call failures. Prior to this feature, ATM external network bearer path connection failures were only captured with ATM606 log reports for (SPM IW, DPT SPM and SMG4) nodes and also for MG9K nodes.

Prior to SN07, an ATM606 log report was generated when either a node failed to get an SVC connection through the ATM network during initial call setup, or when an established call was taken down due to an ATM external network connection failure.

When an ATM SVC failure occurs, this feature increments registers in OM group AL1SVCOM, on a nodal basis, for UA-AAL1 nodes: SMG4, IW SPM, and DPT SPM, and on a logical group basis for MG9K, and outputs an XPKT301 or XPKT302 log report. The XPKT301 log report is for UNI Call Setup connection failures. The XPKT302 log report is for UNI Mid-call connection failures.

CS2K identification of MG9K and ABI lines



MG9Ks are identified as ‘logical groups’ because the CS2K is not aware of MG9Ks on a nodal basis. SN06.2 feature A00002607 - ABI XPM SITE and MG9K Location support on the Core - provided the first step towards providing management on the CS2K of ABI XPM and MG9K lines in the Succession network, however, there is no distinction between an MG9K ‘master’ shelf (for multi-shelf MG9K configurations) and ‘subtending’ shelves.

Referring to the figure above, the physical ATM bearer path for a multi-shelf MG9K, (or a single-shelf MG9K) is between the ATM switch (which is a Passport 15000 in the example above) and the OC3 Supercore card on the MG9K master shelf. At the time of this writing, the CS2K has no concept of ‘master’ shelf for the MG9K. The ATM bearer path connection data is only maintained in the MG9K Element Manager. The CS2K maintains information in Table LGRPINV for each MG9K shelf. OM group AL1SVCOM will therefore output each MG9K shelf as a separate logical group, rather than identify one Master Shelf, where the actual physical ATM fiber connects the MG9K OC3 pack to the ATM network.

The MG9K logical group names displayed by OM group AL1SVCOM are the MG9K shelf names listed in Table LGRPINV.

The following table lists the registers for OM group AL1SVCOM and a description of each register. External network origination connection attempts and connection failures are tracked by this OM group in SN07.

This feature increments OM group AL1SVCOM registers for both originating and terminating nodes, when the Core attempts to set up an external network connection.[3] Thus one ATM606 logged ATM SVC failure event will in most cases increment two OM AL1SVCFL registers - once for the SVC originating call agent node, and once for the SVC terminating agent node.

When an ATM external network connection failed prior to SN07, the Gateway node that requested the connection - the master of the ATM connection - reported an ATM SVC failure message to the Core which then generated an ATM606 log report.

With this feature, an XPKT301 or XPKT302 log is generated for external network connection failures, depending upon if the connection failure occurred during initial call setup, or after the call was established, and then OM group AL1SVCOM failure registers are also pegged.

Registers for OM group AL1SVCOM

Register	Description
NOSVCAT	Number of SVC call attempts.
NOSVCAT2	Extension register for nosvcatt.
NOSVCFL	Number of SVC call failures.
ISSVCAT	Number of intraswitched (local) SVC call attempts
ISSVCAT2	Extension register for issvcsat.
ISSVCFL	Number of intraswitch (local) SVC call failures.
DPTSVCA	Number of interswitch (DPT) SVC call attempts.
DPTSVCA2	Extension register for dptsvca.
DPTSVCF	Number of interswitch (DPT) SVC call failures.
NRTEDEST	ATM cause code 3 - no route to destination - SVC call failures.
NOUSRRES	ATM cause code 18 - no user responding - SVC call failures.
VPCINAVL	ATM cause code 35 - requested VPI/VCI not available - SVC call failures.
BWTHNAVL	ATM cause code 37 - user cell rate not available - SVC call failures.
TEMPFAIL	ATM cause code 41 - temp failure - SVC call failure reference.
RESUNAVL	ATM cause code 47 - Resource unavailable SVC call failure reference
OTH_CC	All other ATM cause codes SVC call failures.

3. Inter-office MG9K calls using BICC GWC, have only an originating node to report for the SVC call failure. The terminating side of the bearer path through the ATM network is located in another office. The local office is only aware of the originating agent on the ATM bearer path connection.

The following figure shows the OM register peg flow chart for group AL1SVCOM.

1 (Originating registers): nosvcat, issvcat, dptsvca

All external network connection attempts peg register ***nosvcat*** (number of svc attempts)

If the external network connection attempt is an 'intra' switched call, register ***issvcat*** (interswitch svc attempt) is pegged along with the nosvcat register.

If the external network connection failure is an 'inter' switched call, register ***dptsvca*** is pegged along with the nosvcat register.

2 (Failure registers): dptsvcf, issvcfl, dptsvcf

All connection failures peg register ***nosvcfl*** (number of svc failures).

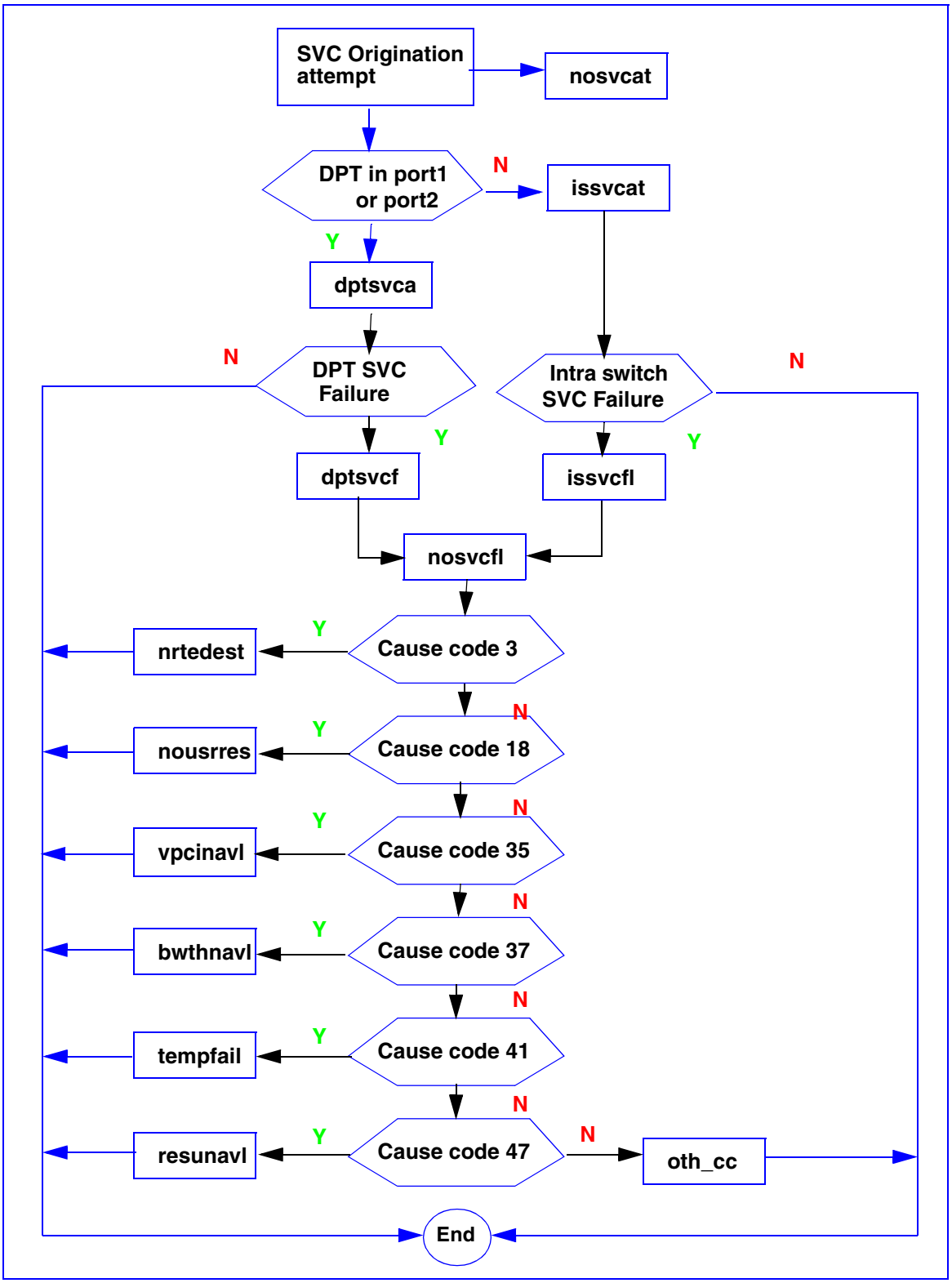
If the connection fails and the call is inter-switched, register ***dptsvcf*** is pegged along with the nosvcfl register.

If the connection fails and the call is intra-switched, register ***issvcfl*** is pegged along with the nosvcfl register.

3 (Failure registers):
nrtedest, ***nousrres***, ***vpcinavl***, ***bwthnavl***, ***tempfail***, ***resunavl***, ***oth_cc***

Depending upon what ATM cause code is reported to the Core from the Gateway, will determine which of the above registers are then pegged. Only one of the above registers will be pegged to provide further categorization for connection failures. If the ATM cause code is not one of 3, 18, 35, 37, 41, or 47, register oth_cc (all other cause codes) is pegged.

AL1SVCFL OM Group Register Flow



The following figure displays OMSHOW command output for the new AL1SVCFL OM group.

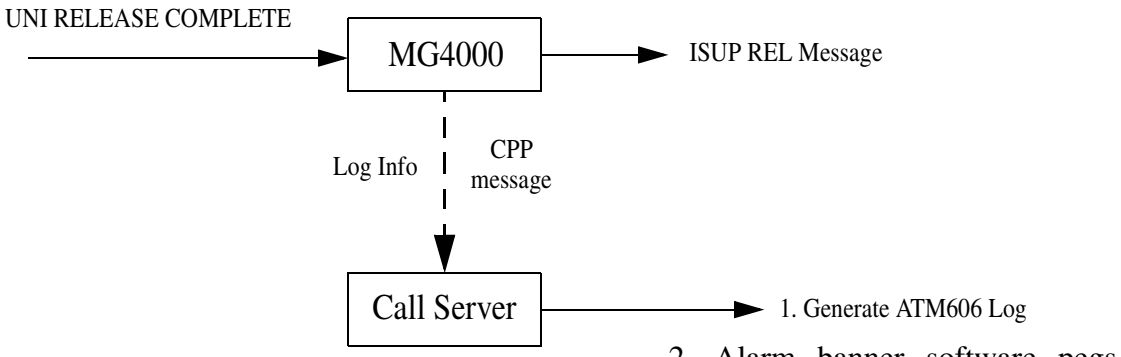
OM group AL1SVCFL with registers

```
omshow al1svcom active 60 120
AL1SVCOM

CLASS: ACTIVE
START:2004/02/03 15:30:00 TUE; STOP: 2004/02/03 15:31:26 TUE;
SLOWSAMPLES:        1 ; FASTSAMPLES:         9 ;

    KEY (SVC_OM_PM_INFO)
    INFO (SVC_OM_TUPLE_DATA)
      NOSVCAT   NOSVCAT2   NOSVCFL   ISSVCAT
     ISSVCAT2   ISSVCFL   DPTSVCA   DPTSVCA2
      DPTSVCF   NRTEDEST   NOUSRRES   VPCINAVL
     BWTHNAVL   TEMPFAIL   RESUNAVL    OTH_CC

  66
    SMG4 SPM    0
          0        0        0        0
          0        0        0        0
          0        0        0        0
          0        0        0        0
  108
  MG9K ABI HOST 02 0
          0        0        0        0
          0        0        0        0
          0        0        0        0
          0        0        0        0
  112
  MG9K ABI RDT1 34 0
          0        0        0        0
          0        0        0        0
          0        0        0        0
          0        0        0        0
  118
    MG9K SLOA 23 3
          2        0        0        2
          0        0        0        0
          0        0        0        0
          0        0        0        0
```

SPM based AAL1 SVC Failure OM generation Functionality

When the ATM606 log is generated for SPM IW, DPT SPM or an SMG4, new software introduced by this feature pegs the appropriate OM AL1SVCOM registers as shown in the following figure.

SPM based AAL1 Functionality



1. A00004260 - SN07

The operations relevant to an ATM bearer path failure scenario are as follows:

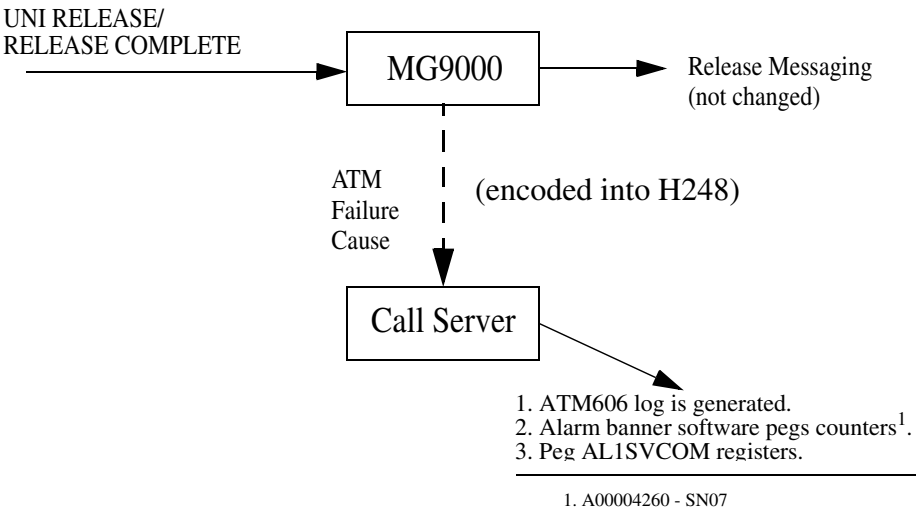
- During call setup time, the MG 4000 sends a UNI Setup message to the Passport ATM switch. Instead of receiving a UNI Connect, a UNI Release Complete is received with a cause value indicating some failure to set up the ATM SVC, or bearer path.
- When the MG 4000 receives the UNI Release Complete message, it gathers data needed for the new log and sends it to the Call Server.
- The Call Server receives the message from the MG 4000 and formats it into a new log, increment the appropriate alarm banner counter[4], and pegs the appropriate OM group AL1SVCOM register for the ATM failure cause code event.
- The Supernode Data Manager uses the existing log delivery capabilities to transfer the new log and OM to the OSS.
- The MG 4000 builds an ISUP RELease message and inserts the ISUP release cause value of 47. The ISUP RELease message is sent to the Ingress Succession Network in case of inter-working calls.

4. SN07 - A00004260 - Alarm Banner, available elsewhere in this document.

MG9K AAL1 SVC Failure OM generation Functionality

The functionality shown in the following figure shows the SN06.2 generation of ATM606[5] logs for MG9K gateways, and the OM pegging functionality introduced by this feature.

Functional Behavior Diagram



- During call setup time, the MG 9000 sends a UNI Setup message to the Passport ATM switch. Instead of receiving a UNI Connect, a UNI Release/release Complete is received with a cause value indicating some failure to set up the ATM SVC, or bearer path.
- When the MG 9000 receives the UNI Release/release Complete message, it encodes the UNI release cause into an H248 message and sends same to the Call Server.
- The Call Server receives the message from the MG 9000 and formats it into an ATM606 log, and pegs the appropriate AL1SVCOM OM register for the ATM failure cause code[6].
- The Supernode Data Manager uses the existing log delivery capabilities to transfer the new log to the customer's OSS.
- For the affected call, the Call Server will detect integrity lost and process release messages to the other agent (line or trunk) in its usual way.

5. ATM606 logs are replaced by the XPKT301 and XPKT302 log in SN07, see DSUM and FM sections.
6. The alarm banner feature in SN07 is for SMG4/IW/DPTs only.

XPKT301 and XPKT302 logs

This feature eliminates the ATM606 log, replacing it with XPKT301 and XPKT302 logs. The XPKT301 and XPKT302 logs contain all the existing fields and formatting of the ATM606 log, and also introduce three new fields:

- Orig Node field:
  This field lists the node name for the originating calling agent.
- Term Node field:
  This field lists the node name for the terminating calling agent.
- Debug field:
  This field introduces a debug area that provides space to capture Gateway application information that would be useful to help troubleshoot external network failure conditions. This information will be useful to Nortel Networks engineers in a later release. The values in SN07 are NIL.

The XPKT301 log is generated for ATM external network connection failures that fail during initial call setup.

The XPKT302 log is generated for ATM external network connection failures that occur for established connections.

XPKT301 and XPKT302 logs

```
RTP7          XPKT301 FEB01 11:44:12 7100 INFO UNI Setup Failure
      Location: SPM 4
      Type: SMG4
      Orig Agent: GRP      BICCINTRA1
      Orig Node: SPM 4
      Term Agent: GRP      BICCINTRA2
      Term Node: SPM 4
      Called Number:          9686930
      CallID: 28705228
      Cause: 31 NORMAL_UNSPEC
      Debug: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
      Location: SPM   4  Type: SMG4     Fabric: ATM

RTP7     XPKT302  FEB02 12:26:21 9100 INFO UNI Mid-call Failure
      Location: SLOA 23 3
      Type: MG9K
      Orig Agent: HOST 00 0 00 08    DN 6136211002
      Orig Node: SLOA 23 3
      Term Agent: SLOA 23 3 04 00    DN 6137202340
      Term Node: SLOA 23 3
      Called Number:          7202340
      CallID: 37224882
      Cause: 41 TEMP_FAILURE
      Debug: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
      Location: SLOA 23 3   Type: MG9K     Fabric: ATM
```

Hardware Requirements or Dependencies

None

Software Requirements or Dependencies

SN07 - feature A00004260 - ATM606 Alarm Banner for SMG4/IW/DPT-SPM.

Limitations and restrictions

None

Interactions

Node

Applicable customer facing sections

Fault Management

Logs	___X___
Alarms	_____

Configuration

Data Schema	_____
User Interface	_____
Element Management	_____
Security	_____
Service Order	_____
Office Parameters	_____

Accounting (includes AMA billing)	_____
Performance (includes operational measurements)	__X___

Fault Management for A00004430

Logs

XPKT301 and XPKT302

Log Title: XPKT301

Name: UNI Connection Failure

The XPKT301 log replaces the ATM606 log in SN07. The ATM606 log was introduced on the SMG4 in SN05, and was expanded to include MG9K and MG9K ABI nodes in SN06.

The XPKT301 log is generated when a UNI Release/Release Complete message is received by a Succession line or trunk peripheral where the release cause in the message indicates a failure, i.e. not normal clearing. The Core is sent an ATM SVC failure message from either an SPM based AAL1 node (SMG4, IW SPM, or DPT SPM), or from an MG9K Gateway, through a Gateway Controller (GWC). The log can be used to troubleshoot system configuration and setup problems.

In SN07 the XPKT301 is the only log generated by SPM based AAL1 nodes, and represents both ATM SVC setup call failures, and ATM SVC mid-call failures.

NOTE In SN07, for MG9K and MG9K ABI nodes, the XPKT301 log represents ATM SVC call setup failures. (The XPKT302 log is generated for MG9K and MG9K ABI established calls).

Event type: INFO

Log Title: *XPKT302*

Name: UNI Mid-call Failure

Description: This log is generated when a UNI Release/Release Complete message is received by a Succession line or trunk peripheral and the release cause in the message indicates a failure, i.e. not normal clearing, for established MG9K or MG9K ABI node calls.

The log can be used to troubleshoot system configuration and setup problems.

The XPKT302 log is introduced in SN07 and is generated by MG9K Gateway or MG9K ABI nodes for established calls.

Event type: INFO

Format

The format of the XPKT301 and XPKT302 logs are almost identical to the ATM606 log, except for three new fields. New fields are introduced for the originating and terminating nodes (Orig Node, Term Node). A new DEBUG field is also introduced for future use by Gateways to send information back to the Core for Field Support trouble shooting.

SPM originated logs

The first example is for SPM originated logs, logs pertaining to ATM connections made by an SPM. This example also illustrates an optional last

line applicable to **all** ATM-related logs that is present when SPM_ENHANCED_OUTPUT in table OFCVAR is set to ON.

CS0004BB XPKT301 JAN17 09:27:41 1800 INFO UNI Connection Failure
Location: SPM 2
Type: SMG4
Orig Agent: CKT MGEA22C7DR01 1
Orig Node: SPM 2
Term Agent: CKT MGEA27C7DR06 1
Term Node: SPM 2
Called Number: 5018271111
Call ID: 42565634
CAUSE = 3 NO_ROUTE_TO_DEST
DEBUG: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Location: SPM 2 Type: SMG4 Fabric: ATM

MG9K Originated, MG9K ITP Hosted Lines

CS0004BB XPKT301 JAN17 09:27:44 1800 INFO UNI Connection Failure
Location: SLOA 23 3
Type: MG9K
Orig Agent: HURR 02 5 01 74 DN 619522087
Orig Node: SLOA 23 3
Term Agent: HURR 02 5 04 30 DN 6195220943
Term Node: SLOA 23 3
Called Number: 6195220943
Call ID: 42565699
CAUSE = 3 NO_ROUTE_TO_DEST
DEBUG: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

MG9K Originated, ABI Hosted Lines

RTP7 XPKT301 FEB11 11:40:22 3600 INFO UNI Connection Failure
Location: SMA2 0
Type: MG9K-ABI
Orig Agent: HOST 00 0 07 19 DN 6136212587
Orig Node:
Term Agent: RDT1 24 0 00 26 DN 6136212301
Term Node: SMA2 0
Called Number: 6212301
CallID: 47907279
Cause: 41 TEMP_FAILURE
DEBUG: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

XPKT301 log(s) - MG9K ABI line to legacy line established call

These two XPKT logs were generated for an established MG9K ABI line to legacy line call. This call involved two SVC connections: one (1) for the IW SPM which connected the legacy line to the ATM network and one (1) for the MG9K ABI line connection to the ATM network. One XPKT 301 log is generated for the IW SPM, and one XPKT302 log is generated for the MG9K ABI.

RTP7 XPKT301 FEB14 11:31:22 7001 INFO UNI Connection Failure
Location: SPM 3
Type: IW
Orig Agent: RDT1 24 0 00 26 DN 6136212301
Orig Node: SMA2 0
Term Agent: HOST 00 0 07 19 DN 6136212587
Term Node:
Called Number: 6212587
CallID: 43647418
Cause: 41 TEMP_FAILURE
DEBUG: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Location: SPM 3 Type: IW Fabric: ATM

RTP7 XPKT302 FEB14 11:31:22 7102 INFO UNI Mid-call Failure
Location: SMA2 0
Type: MG9K-ABI
Orig Agent: RDT1 24 0 00 26 DN 6136212301
Orig Node: SMA2 0
Term Agent: HOST 00 0 07 19 DN 6136212587
Term Node:
Called Number: 6212587
CallID: 43647418
Cause: 41 TEMP_FAILURE

DEBUG: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

MG9K Originated, ABI Hosted Trunks

CS0004BB XPKT301 JAN17 09:27:41 1800 INFO UNI Connection Failure
Location: RCC 3
Type: MG9K-ABI
Orig Agent: CKT MGEA60TWMFWK 1
Term Agent: CKT S5S4D0D0TR1 1600
Called Number: 5018271111
Call ID: 42565634
CAUSE = 41 TEMP_FAILURE

Field descriptions

Field	Value	Description
Location	SPM <nn> or <site, frame, unit/shelf> or <trunk PM name, PM #>	Identifies the node or subnode hosting the line/trunk whose bearer connection received the UNI Release/ Release Complete with failure cause. This is the master node that requested the ATM connection.
Type	SMG4 or IW or MG9K or MG9K-ABI	Identifies the type of the node associated with the location.
Orig. Agent	CKT/DPT, CLLI, CIC or LEN, DN	Identification and properties of the originating agent in the affected call
Orig. Node	- SPM <nn> or - MG9K <lgrp - name> - MG9K-ABI (pm name)	- SPM and number - MG9K Lgrp name from table lgrpinv - the name of the ABI peripheral that has its DS-512 fiber connected to the MG9K Gateway,
Term. Agent	CKT/DPT, CLLI, CIC or LEN, DN	Identification and properties of the terminating agent in the affected call

Field	Value	Description
Term. Node	- SPM <nn> or - MG9K <lgrp - name> - MG9K-ABI (pm name)	- SPM and number - MG9K Lgrp name from table lgrpinv - the name of the ABI peripheral that has its DS-512 fiber connected to the MG9K Gateway,
Called Number	<digit string>	The called number of the affected call
CallID	<digits>	The DMS Core Call Identifier for the affected call
Cause	digits, text	The UNI release/release complete cause value and associated text as defined in the Q2931 standard.
Debug	Nil values in SN07	Future use for Gateways to send information back to the Core to allow Nortel Network engineers to trouble shoot External Network problems.

Action

No immediate action is required. These logs are informational and intended to help with diagnosing call completion problems.

Associated Operational Measurements or Performance Measurements

Whenever this log is generated a subsequent integrity lost event will occur and this latter event will cause the ISCONBAD OM to be pegged if the agent attempting the ATM connection is an ISUP agent.

0.0.0.1 OM group AL1SVCOM register pegs in SN07

At the time the XPKT301 or XPKT302 logs are generated, corresponding nodal tuples in new OM group AL1SVCOM are also pegged.

AL1SVCOM

CLASS: ACTIVE

START:2004/02/14 11:10:00 SAT; STOP: 2004/02/14 11:11:21 SAT;

SLOWSAMPLES: 1 ; FASTSAMPLES: 8 ;

KEY (SVC_OM_PM_INFO1)

INFO (SVC_OM_TUPLE_DATA1)

NOSVCAT NOSVCAT2 NOSVCFL ISSVCAT

ISSVCAT2 ISSVCFL DPTSVCA DPTSVCA2

DPTSVCF NRTEDEST NOUSRRES VPCINAVL

BWTHNAVL TEMPFAIL RESUNAVL OTH_CC

72

IW SPM 3

1 0 1 1

0 1 0 0

0 0 0 0

0 0 0 0

101

MG9K ABI SMA2 0

1 0 1 1

0 1 0 0

0 0 0 0

0 0 0 0

118

MG9K SLOA 23 3

2 0 2 2

0 2 0 0

0 0 0 0

0 2 0 0

Additional information

NA

Performance Management for A00004430

Performance management strategy

OM group AL1SVCOM is introduced in SN07. This OM group maintains OM peg counts for ATM SVC origination and ATM SVC failures on a nodal basis for SMG4, IW SPM, DPT SPM, MG9K, and MG9K ABI gateways.

Origination registers are pegged upon external network setup attempts by the Core. Failure registers are pegged when the Core receives ATM SVC failure messages from SMG4, IW SPM, DPT SPM, MG9K, and MG9K ABI gateways.

Performance management tools and utilities

No change.

Performance Measurements (PM), Operational Measurements (OM), and stats

PM, OM, and stats format

Component: Core OM group
Performance Measurement name: AL1SVCOM
Performance measurement description: AAL1 external network origination and failure pegs per node.
History: Created in SN07

OM Group - AL1SVCOM

Registers for OM group AL1SVCOM

Register	Description
NOSVCAT	Number of SVC call attempts.
NOSVCAT2	Extension register for nosvcatt.
NOSVCFL	Number of SVC call failures.
ISSVCAT	Number of intraswitched (local) SVC call attempts
ISSVCAT2	Extension register for issvcsat.
ISSVCFL	Number of intraswitch (local) SVC call failures.
DPTSVCA	Number of interswitch (DPT) SVC call attempts.
DPTSVCA2	Extension register for dptsvca.
DPTSVCF	Number of interswitch (DPT) SVC call failures.
NRTEDEST	ATM cause code 3 - no route to destination - SVC call failures.

Registers for OM group AL1SVCOM

Register	Description
NOUSRRES	ATM cause code 18 - no user responding - SVC call failures.
VPCINAVL	ATM cause code 35 - requested VPI/VCI not available - SVC call failures.
BWTHNAVL	ATM cause code 37 - user cell rate not available - SVC call failures.
TEMPFAIL	ATM cause code 41 - temp failure - SVC call failure reference.
RESUNAVL	ATM cause code 47 - Resource unavailable SVC call failure reference
OTH_CC	All other ATM cause codes SVC call failures.

OM group AL1SVCOM description

AL1SVCOM provides origination and failure register pegs, on a nodal basis, for SMG4, IW SPM, DPT SPM, MG9K, and MG9K ABI AAL1 external bearer path connections.

Release history update

SN07 - Introduced by activity A00004430.

Registers

OM group registers display on the MAP terminal as follows:

AL1SVCOM - OM Group Display

```
AL1SVCOM

CLASS: ACTIVE
START:2004/02/14 11:10:00 SAT; STOP: 2004/02/14 11:11:21 SAT;
SLOWSAMPLES:        1 ; FASTSAMPLES:        8 ;

     KEY (SVC_OM_PM_INFO1)
     INFO (SVC_OM_TUPLE_DATA1)
       NOSVCAT   NOSVCAT2    NOSVCFL    ISSVCAT
      ISSVCAT2    ISSVCFL    DPTSVCA   DPTSVCA2
       DPTSVCF   NRTEDEST   NOUSRRES   VPCINAVL
      BWTHNAVL   TEMPFAIL   RESUNAVL     OTH_CC

   66
     SMG4 SPM    0
          0        0        0        0
          0        0        0        0
          0        0        0        0
          0        0        0        0
```

Group structure

OM group provides one tuple(s) for each node.

Key field: <SVC_OM_PM_INFO1><Refinement of OMINFOAREA, contains one field -> SVC_OM_TUPLE_DATA1.
>

Info field: <SVC_OM_TUPLE_DATA1>{<Node_name (eight characters)>, <device_name (fifteen characters)>}.

Associated OM groups

<None>

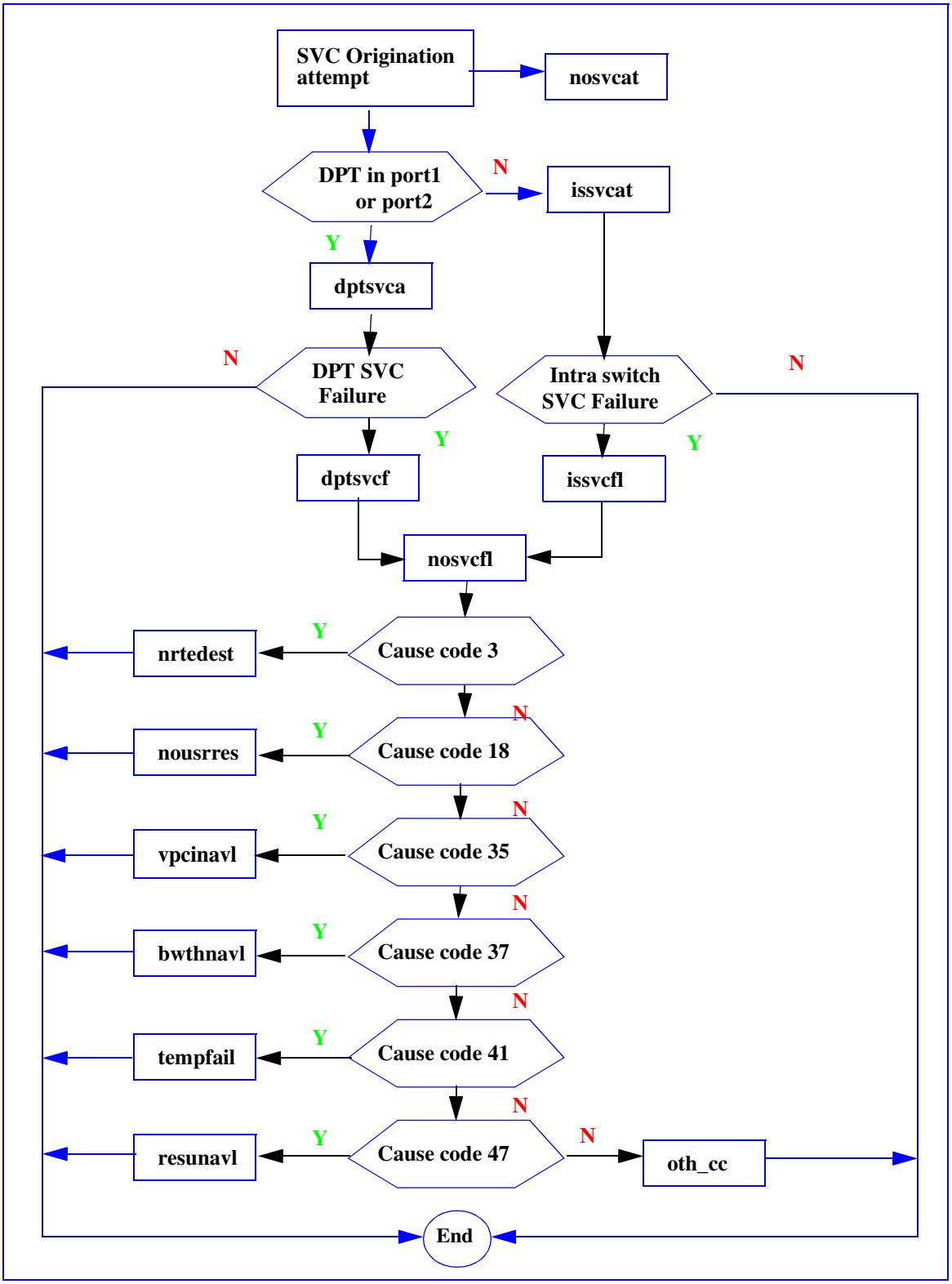
Associated functional groups

<None>

OM group AL1SVCFL registers logic flow chart

Refer to the following figure.

AL1SVCFL OM Group Register Flow



Register BWTHNAVL

Register description

Bandwidth not available.

This register is pegged for external network bearer path ATM SVC failures when the ATM cause code sent back from either an SPM node (SMG4, IW SPM, DPT SPM) or GWC is cause code 37 (user cell rate not available).

Register release history update

Introduced in SN07.

Associated registers

ISSVCFL, DPTSVCF, NOSVCFL

Associated logs

XPKT301 or XPKT302.

Register DPTSVCA

Register description

Number of interswitch (DPT) SVC call attempts.

This register is pegged against an originating or terminating agent's node for SVC origination attempts, when the originating or terminating agent call processing selector is a DPT trunk.

Register release history update

Introduced in SN07.

Associated registers

NOSVCAT, ISSVCAT

DPTSVCA + ISSVCAT = NOSVCAT

Associated logs

<None>

Register DPTSVCF

Register description

Number of interswitch (DPT) SVC call failures.

This register is pegged against an originating or terminating agent's node when the originating or terminating agent call processing selector is a DPT trunk,

and the SVC connection either fails during call setup, or is taken down for an established call.

Register release history update
Introduced in SN07.

Associated registers
NOSVCFL, ISSVCFL

DPTSVCF + ISSVCFL = NOSVCFL

Associated logs
XPKT301 or XPKT302.

Register ISSVCAT

Register description
Number of intraswitch SVC call attempts.

This register is pegged for each intraswitched external network bearer path SVC origination.

Register release history update
Introduced in SN07.

Associated registers
DPTSVCA, NOSVCAT

DPTSVCA + ISSVCAT = NOSVCAT

Associated logs
<None>

Register ISSVCFL

Register description
Number of intraswitch SVC connection failures.

This register is pegged for each intraswitch SVC connection failure that occurs during call setup, or for established connections.

Register release history update
Introduced in SN07.

Associated registers
DPTSVCF, NOSVCFL

DPTSVCF + ISSVCFL = NOSVCFL

Associated logs
XPKT301 or XPKT302.

Register NOSVCAT

Register description
Number of SVC attempts.

This register is pegged for each external network bearer path SVC origination, for each node.

Register release history update
Introduced in SN07.

Associated registers
ISSVCAT and DPTSVCA

ISSVCAT + DPTSVCA = NOSVCAT

Associated logs
<None>

Register NOSVCFL

Register description
Number of SVC connection failures.

This register is pegged for all SVC setup and established call connection failures against the node.

Register release history update
Introduced in SN07.

Associated registers
ISSVCFL and DPTSVCF

ISSVCFL + DPTSVCF = NOSVCFL

Associated logs
XPKT 301 and XPKT302.

Register NOUSRRES

Register description
No user responding SVC connection failure.

This register is pegged for external network bearer path ATM SVC failures when the ATM cause code sent back from either an SPM node (SMG4, IW SPM, DPT SPM) or GWC is cause code 18 (no user responding).

Register release history update

Introduced in SN07.

Associated registers

ISSVCFL, DPTSVCF, NOSVCFL

Associated logs

XPKT301 and XPKT302.

Register NRTEDEST

Register description

No route to destination SVC call failure.

This register is pegged for external network bearer path ATM SVC failures when the ATM cause code sent back from either an SPM node (SMG4, IW SPM, DPT SPM) or GWC is cause code 3 (no route to destination).

Register release history update

Introduced in SN07.

Associated registers

ISSVCFL, DPTSVCF, NOSVCFL

Associated logs

XPKT301 and XPKT302

Register OTH_CC

Register description

All other ATM cause codes.

This register is pegged for external network bearer path ATM SVC failures when the ATM cause code sent back from either an SPM node (SMG4, IW SPM, DPT SPM) is not one of (3, 18, 35, 37, 41, or 47).

Register release history update

Introduced in SN07.

Associated registers

ISSVCFL, DPTSVCF, NOSVCFL

Associated logs
XPKT301 and XPKT302

Register RESUNAVL

Register description
Resource unavailable SVC connection failure.

This register is pegged for external network bearer path ATM SVC failures when the ATM cause code sent back from either an SPM node (SMG4, IW SPM, DPT SPM) or GWC is cause code 47(resource unavailable).

Register release history update
Introduced in SN07.

Associated registers
ISSVCFL, DPTSVCF, NOSVCFL

Associated logs
XPKT301 and XPKT302

Register TEMPFAIL

Register description
Temp failure SVC connection failure.

This register is pegged for external network bearer path ATM SVC failures when the ATM cause code sent back from either an SPM node (SMG4, IW SPM, DPT SPM) or GWC is cause code 41 (temp failure).

Register release history update
Introduced in SN07.

Associated registers
ISSVCFL, DPTSVCF, NOSVCFL

Associated logs
XPKT301 and XPKT302

Register VPCINAVL

Register description
Request VPI/VCI not available.

This register is pegged for external network bearer path ATM SVC failures when the ATM cause code sent back from either an SPM node (SMG4, IW SPM, DPT SPM) or GWC is cause code 35 (requested VPI/VCI not available).

Register release history update
Introduced in SN07.

Associated registers
ISSVCFL, DPTSVCF, NOSVCFL

Associated logs
XPKT301 and XPKT302

Product = CS 2000

A00004449--OP_E911 Trunk Support (PT-AAL1)

Functional Description

This feature supports the provisioning of OP and E911 MF trunks for DMSCP SPM for North American market.

E911 emergency service is a distinct product from the Basic 911 emergency service (B911). A DMS100 or DMS100/200 office with the E911 product, known as an E911 tandem, provides centralized emergency service that is capable of serving many end offices. An E911 tandem receives 911 calls from end offices and routes the calls to the appropriate PSAP (Public Safety Answering Point).

This feature enables the provisioning of E911 MF trunk for DMSCP SPM in table TRKMEM.

Hardware Requirements or Dependencies

None.

Software Requirements or Dependencies

None.

Limitations and restrictions

None.

Interactions

The intent of this activity is to support the provisioning of E911 MF trunks for DMSCP SPM. All the applicable interactions supported by this trunk group for DTC shall be supported on DMSCP SPM.

Applicable customer facing sections

Fault Management	
Logs	N/A
Alarms	N/A
Configuration	
Data Schema	N/A
User Interface	N/A
Element Management	N/A
Security	N/A
Service Order	N/A
Office Parameters	N/A
Accounting (includes AMA billing)	N/A
Performance (includes operational measurements)	N/A

Glossary

Term	Description
MF	Multi Frequency
DMSCP SPM	Digital Multiplex System Call Processing, Spectrum Peripheral Module
E911	Enhanced 911
PSAP	Public Safety Answering Point.

Product = CS 2000

A00004554--SDM FX System Backup Enhancements (Succession on DMS)

This feature implements scheduling of the system image backup to both SDM tape drives and the capability to configure the “Backup Required Alarm.”

The following are the purposes of this activity.

- Automate the backup process and allow the user to schedule the backups for each drive (Dat 0 and Dat 1).
- Allow the user to Configure “Backup required “alarm, so that he can Enable/Disable the backup required alarm.

Scheduling Interface

This is the interface the user employs to add new schedules and disable or modify existing schedules. The options provided by this interface are

- Schedule Dat 0
- Schedule Dat 1

These two options allow the user to add new schedules and disable or modify an existing schedule.

- List Schedules

The List Schedule option will show all the schedule details for each drive.

Other Features

The other features are:

- In case of a failure it will raise a “Backup Failure” alarm.
- It won’t start the system image backup if a “Backup Failure” alarm exists.
- Necessary customer logs will be generated during the execution of the scheduled backup.
- It will support the existing way of taking the backup also.

Alarm Configure Interface

This is an interface for setting the “Backup Required” alarm status. The options provided by this interface are:

- Disable the “Backup Required” alarm
- Enable the “Backup Required” alarm
- List the Current status of “Backup Required” alarm

Note: The existing backup “InProgress” alarm will be there even if the “Backup Required” alarm status is Disabled.

Screen Captures for the Main Menus

Main Menu

```
***       ****************************************
***                 SuperNode Data Manager
```

```
***
***          System Image Backup and Restore Menu
***      ******************************************
***
***
***   0. Exit
***
***   1. Help
***
***   2. Backup & Restore System image
***
***   3. Alarm Configure
***
***
***
***
***   Please enter your selection (0 to 3) ? ==>
```

Backup and Restore Menu

```
***      ******************************************
***                SuperNode Data Manager
***
***          System Image Backup and Restore Menu
***      ******************************************
***
***
***   0. Exit
***
***   1. Previous Menu
***
***   2. Create a System Image on Tape (S-tape)
***
***   3. List Contents of the System Image Tape (S-tape)
***
```

```
***   4. Restore Files from the System Image Tape (S-tape)
***
***   5. Schedule Backup
***
***   Please enter your selection (0 to 5) ? ==>
```

Scheduled Backup Menu

```
***      ******************************************
***                SuperNode Data Manager
***
***           Schedule Backup Configure Menu
***      ******************************************
***
***
***   0. Exit
***
***   1. Previous Menu
***
***   2. Schedule Dat 0
***
***   3. Schedule Dat 1
***
***   4. List Backup Schedules
***
***
***   Please enter your selection (0 to 4) ? ==>
```

Product = CS 2000

A00004713--1+1 Speedometer Support (Succession on DMS)

Functional Description (FN)

This feature updates the Speedometer to support 1+1 configuration in release CSP20. It provides capacity prediction for 1+1 configuration within the accuracy target of +/-10% when the utilization is above 15%. It allows the users to change the value of Rated Power to 1 through table OFCENG.

Hardware Requirements or Dependencies

N/A

Software Requirements or Dependencies

N/A

Limitations and restrictions

None

Interactions

In the releases without this feature, the smallest value of Rated Power allowed is 2. In this feature, the users are able to modify the value of Rated Power to the smallest of 1.

Applicable customer facing sections

Fault Management	
Logs	N/A
Alarms	N/A
Configuration	
Data Schema	N/A
User Interface	N/A
Element Management	N/A
Security	N/A
Service Order	N/A
Office Parameters	X
Accounting (includes AMA billing)	N/A
Performance (includes operational measurements)	N/A

Configuration for A00004713

Hardware and Software Requirements

N/A

Initial Configuration

N/A

Office parameters (OP) (CM & SESM)

Modified office parameter

Parm table	Parameter name	NEW/ CHANGED/ DELETED/ RELOCATED	Domain (CM or Subnet Management
OFCENG	RATED_POWER	CHANGED	CM

Parameter information

Rated_Power

Functional description
This parameter defines the number of PEs engineered in the switch. The Speedometer uses the value of this parameter to calculate capacity prediction.

Provisioning rules
N/A

Range information

Minimum	Maximum	Default
1	7	3

Activation
N/A

Dependencies
N/A

Consequences
N/A

Verification
The users can verify and/or update the value of Rated_Power via table (OFCENG) control.

Memory requirements
No memory impact.

Parameter release history update
N/A

Upgrade Impact

N/A

Data schema (DS) (CM, MIBS, RDB)

N/A

Service Orders (SO) (CM & SESM)

N/A

Software optionality control (SOC)

N/A

Element Management

N/A

Command interface changes

N/A

Security

N/A

Configuration Walkthrough

N/A

Product = CS 2000

A00004868--FTP Proxy for SDM and CBM (Succession on DMS)

Design Description excerpts

Purpose

The purpose of this feature is to provide passthrough (file transfer) to the CM from the ftp client (downstream machine) via SDM/CBM in a Non-DCE environment.

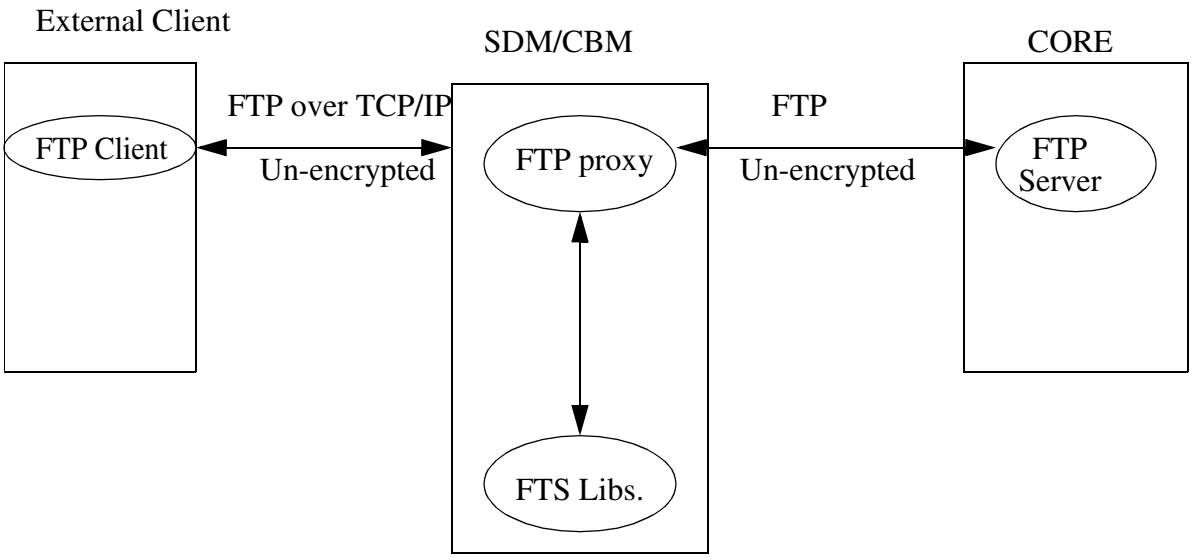
FTPProxy will be used by an external ftp client for transferring files between client and CORE, client and SDM/CBM (In case of CORE it will be without the files ever residing on the SDM/CBM). Certain amount of security will be provided by giving the passthrough (file transfer) facility to the ftp users based on their unix groups. FTP Proxy will provide all of the facility provided by the current File transfer Service(SDM_BASE.fts) implementation on SDM19.

On SDM, SFT application provides the passthrough capability to the ftp users. So, the FTPProxy and SFT application will be mutually exclusive, at one point only either of them can reside on SDM. Whereas on CBM, SFT is not available, so the FTPProxy can reside independent of other CBM applications, but it will be mutually exclusive with SSPFS's ProFTPD service.

FTPProxy feature will be provided to the customer as an optional application on SDM and CBM. It will also include the functionalities such as creating ftp users dynamically and deleting them after the file transfer is over, and parallel sessions will also be supported.

Refer to the following figure for FTP functionality.

FTP Functionality



Logs

New customer logs will be generated to provide information regarding the file transfers between FTP Client and CORE, and who ftp-users are logged on to CORE.

Log format for file transfers

```
Feb 16 02:24:52 sspfs_server ftpd[20103]: SDM739 NONE
INFO FTS ftp-user request for file PML successful
```

Log format for login information

```
Feb 16 02:24:40 sspfs_server ftpd[20103]: SDM739 NONE
INFO FTS ftp-user hari logged on to CORE
successfully.
```

Glossary

Term	Description
AIX	IBM UNIX operating system on the SDM FX
CBM	Core and Billing Manager
CM	Command Module (the CPU of the DMS)
CMFT	Command Module File Transfer Script
Core	DMS switch computing engine
DCE	Distributed Computer Environment
FTP	File transfer protocol
FTS	File transfer System (Nortel proprietary code)
IP	Internet Protocol
SCFT	SSH Core File Transfer
SDM	SuperNode Data Manager
SSH	Secure Shell protocol
SSHD	Secure Shell protocol Daemon

Product = CS 2000

A00005073--SBA Outbound Connection Security (Succession on DMS)

Functional Description

This feature provides optional secure outbound file transfer using OpenSSH sftp client. The sftp client protects all data including sensitive users' password

by encrypting the data before it leaves SDM/CBM and decrypting the data after it arrives the downstream OSS. The sftp also provides data integrity check to ensure that no one has tampered the data during the transfer.

The SBA user can configure the secure file transfer by adding or changing an existing schedule tuple in billmtc. For SN07, the user has to manually accept the downstream host key for each destination before configuring secure outbound file transfer to the destination. The actual configuration details are documented in the configuration section.

This feature also enhances SBA password protection scheme by using SDM/CBM private data manager (documented in A00005074) to store all the passwords for OSS access. The private data manager is responsible for storing the data in an encrypted form.

Hardware Requirements or Dependencies

No new hardware requirements or dependencies are introduced by this feature.

Software Requirements or Dependencies

Software requirements for downstream system

A SSH sftp-server[7] which is compatible with OpenSSH sftp client must be running on the downstream Operations Support System (OSS) in order for SBA to transfer data with OpenSSH sftp client.

Software requirements for SDM.

The OpenSSH and its dependencies should be installed on the SDM/CBM. If this software is unavailable, SBA user will not be able to uses the SFTPW protocol for outbound file transfer. There is no explicit check done by the SBA software to determine if this package/fileset is installed during SFTPW configuration time. If the SBA SFTPW application fails to find the sftp program, it raises a SFTPW alarm and terminates the transfer event immediately.

For CBM, this feature depends on the OpenSSH packages as well as NTutil.

For SDM, this feature depends on SDM_OpenSSH.base and SDM_BASE.util fileset must be installed manually.

Limitations and restrictions

- As described in Section “Software Requirements or Dependencies” on page 1299, that the SFTPW is only available if OpenSSH and the SDM base util software is installed. SBA currently uses OpenSSH software (version 3.7.1p2 or later) for secure file transfer.

7. SFTP server subsystem

- Public keys authentication is not supported in this release. All users are authenticated with userid/password to the downstream OSS.
- The overall billing data traffic rate is lower than that of a FTPW with a given SBA CPU usage. For more information, please refer to the SDM EI section.
- The initial host key acceptance of the downstream processor should be done manually before it can use the SFTPW[8] to transfer files from SDM/CBM. Figure shows how to accept a host key manually. The.ssh/known_hosts file in maint's home directory will be edited by SSH software to include the host key. After that SBA can use sftp to send file to the downstream OSS as maint/root. This procedure must be done for each downstream destination. This step must be done prior to schedule tuple configuration for SFTPW.
- The SSH-2 server running on the downstream OSS must be compatible with OpenSSH sftp client.
- Due to government restrictions on export/import of encryption software, secure file transfer will not be available on SDM/CBM loads that shipped to some countries with restrictions on the strength of encryption.
- Does not secure data transfer for AFT, RTB and sendtape applications.

Host key acceptance

```
In AIX
> login: root
> root's Password: xxxx
> su - maint
> /usr/bin/ssh -l maint wcary2p3
The authenticity of host 'wcary2p3 (47.135.213.53)' can't be established.
RSA key fingerprint is ef:f8:b9:b5:4e:15:71:66:09:82:0d:93:fa:ce:58:ff.
Are you sure you want to continue connecting (yes/no)? yes
```

Interactions

None

Applicable customer facing sections

Fault Management

8. SFTPW - Secure File Transfer Protocol Wrapper which controls sftp client to send files using SSH protocol

Logs	___X__
Alarms	___X___
Configuration	
Data Schema	__N/A_
User Interface	__X__
Element Management	_N/A_
Security	_N/A_
Service Order	_N/A_
Office Parameters	_N/A_
Accounting (includes AMA billing)	_N/A_
Performance (includes operational measurements)	__N/A__
Realtime	___N/A___
SDM Engineering Information	___X___

Glossary

Term	Description
SDM	Supernode Data Manager
CBM	Core Billing Manager
SBA	SDM/CBM billing application
SSH	Secure Shell
FTP	File Transfer Protocol
SFTP	Secure File Transfer Protocol (SSH internal protocol)
OSS	Operations Support System

Fault Management for A00005073

Fault management strategy

In case of file transfer error, SDMB375 is generated on the Core with the proper information. The SDMB375 is not a new log.It is also raises a major or critical alarm on certain error conditions.

Fault management tools and utilities

NA

Logs

Explanation

Log Title:. SDMB375

Name: SDM BILLING FILE TRANSFER

Description: To indicate an error occur in SBA secure file transfer

Event type: N/A

Format

*SDMB375 <date> <time> <seq#> SDM BILLING FILE TRANSFER

STREAM=<stream>:<destination>:<specific error>

Field descriptions

Field	Value	Description
Stream	string SIZE(4)	stream name
destination	string SIZE(15)	The name of the destination
specific error (variable field)	string SIZE varies	sftp specific error message and the possible action should be taken

Action

Follow the recommended action in the specific error field.

Associated Operational Measurements or Performance Measurements

NA

Alarms

On error conditions, an alarm is raised on SDMBIL alarm slot.

Alarm format: SFTW

C

The corresponding log will also be generated.

Configuration for A00005073

Hardware and Software Requirements

- OpenSSH installed on SDM/CBM
- SDM/CBM Private Data Manager running
- SBA installed and InSv

Initial Configuration

Configure and activate an SBA stream.

Office/Subnet parameters (OP/SP) (CM & SESM)

N/A

Upgrade Impact

NA

Data schema (DS) (CM, MIBS, RDB)

N/A

Service Orders (SO) (CM & SESM)

N/A

Software optionality control (SOC)

N/A

Element Management

N/A

Command interface changes

N/A

Security

N/A

Configuration Walkthrough

Host key acceptance for downstream OSS

Host key acceptance

```
In AIX
> login: root
> root's Password: xxxx
> su - maint
> /usr/bin/ssh -l maint wcary2p3
The authenticity of host 'wcary2p3 (47.135.213.53)' can't be established.
RSA key fingerprint is ef:f8:b9:b5:4e:15:71:66:09:82:0d:93:fa:ce:58:ff.
Are you sure you want to continue connecting (yes/no)? yes
```

SBA specific configuration

SBA secure outbound file transfer can be configured by adding or changing an existing schedule tuple after the user has done a host key acceptance. The following shows an example on how a user can configure secure outbound file transfer. The text in bold indicates the field values that are different from FTPW

Prompts for schedule add

```
Valid streams are {'OCC'}.
Press Enter to accept 'OCC'.
Enter Stream: occ

Valid file format types are {'DIRP'}.
Press Enter to accept 'DIRP'.
Enter File_Format_Type:

Destination can have between 1 and 15 alphanumeric characters.
Enter Destination: OOS

Valid protocols are {'FTPW', 'RFTPW' 'SFTPW}.
Press Enter to accept 'FTPW'.
Enter Protocol: SRTFPW

Primary destination must follow IP address format (i.e. N.N.N.N
where N indicates a number between 0 and 255).
Enter Primary_Destination: 47.135.213.53

Primary port can be 22 or between 1025 and 65535.
Press Enter to accept '22'.
Enter Primary_Port:

Alternate destination must follow IP address format (i.e. N.N.N.N
where N indicates a number between 0 and 255).
Enter Alternate_Destination: 47.135.213.53


Alternate port can be 22 or between 1025 and 65535.
Press Enter to accept '22'.
Enter Alternate_Port: 22

... (con't on next figure)
```

Prompts for Schedule add (con't)

```
Start time is in time of day format (hh:mm) where hh is hours between 0
and 23 and mm is minutes between 0 and 59.
Enter Start_Time: 00:00

Stop time is in time of day format (hh:mm) where hh is hours between 0
and 23 and mm is minutes between 0 and 59.
Enter Stop_Time: 23:00

Interval can be between 5 and 1440 minutes.
Press Enter to accept '120'.
Enter Interval: 5

Remote storage directory can have between 1 and 255 characters.
Enter Remote_Storage_Directory: /billing

Remote login can have between 1 and 20 characters.
Enter Remote_Login: test

Remote password can have between 1 and 20 characters.
Enter Remote_Password:
Re-enter Remote_Password:

Maximum retries can be between 0 and 10.
Press Enter to accept '3'.
Enter Maximum_Retries:

Retry wait time can be between 1 and 60 seconds.
Press Enter to accept '1'.
Enter Retry_Wait_Time:

File extension can have between 0 and 3 characters.
Enter 'Blank' for no file extension.
Press Enter to accept 'Blank'.
Enter File_Extension:

Field separator can have 1 character.
Press Enter to accept '.'.
Enter Field_Separator:

WARNING: Billing files associated with this tuple will not
transfer downstream when Active is set to No.

Valid active values are {'No', 'n', 'Yes', 'y'}.
Press Enter to accept 'No'.
Enter Active: y
```

Product = CS 2000

A00005074--OMDD: Outbound Connection Security (Succession on DMS)

Functional Description

The OM Data Delivery (OMDD) application on the SDM/CBM collects OM reports from the core, processes them in to CSV files and sends the CSV files to downstream destinations (OSS). Prior to this activity, the outbound transfer of CSV files from SDM/CBM to downstream was always insecure because it used only the standard ftp protocol to do the transfer. The standard ftp protocol sends out user password as well as data in cleartext, making them vulnerable to reading by a third party by intercepting them in the network.

This activity provides an optional mechanism to prevent OMDD outbound transfers from sending out clear text passwords and data in the network. The mechanism uses the OpenSSH secure ftp client for doing outbound file transfers from SDM/CBM to the downstream destination. OpenSSH encrypts all data (including passwords) exchanged between the SDM/CBM and downstream, thus making them resistant to reading by a third party by intercepting them in the network.

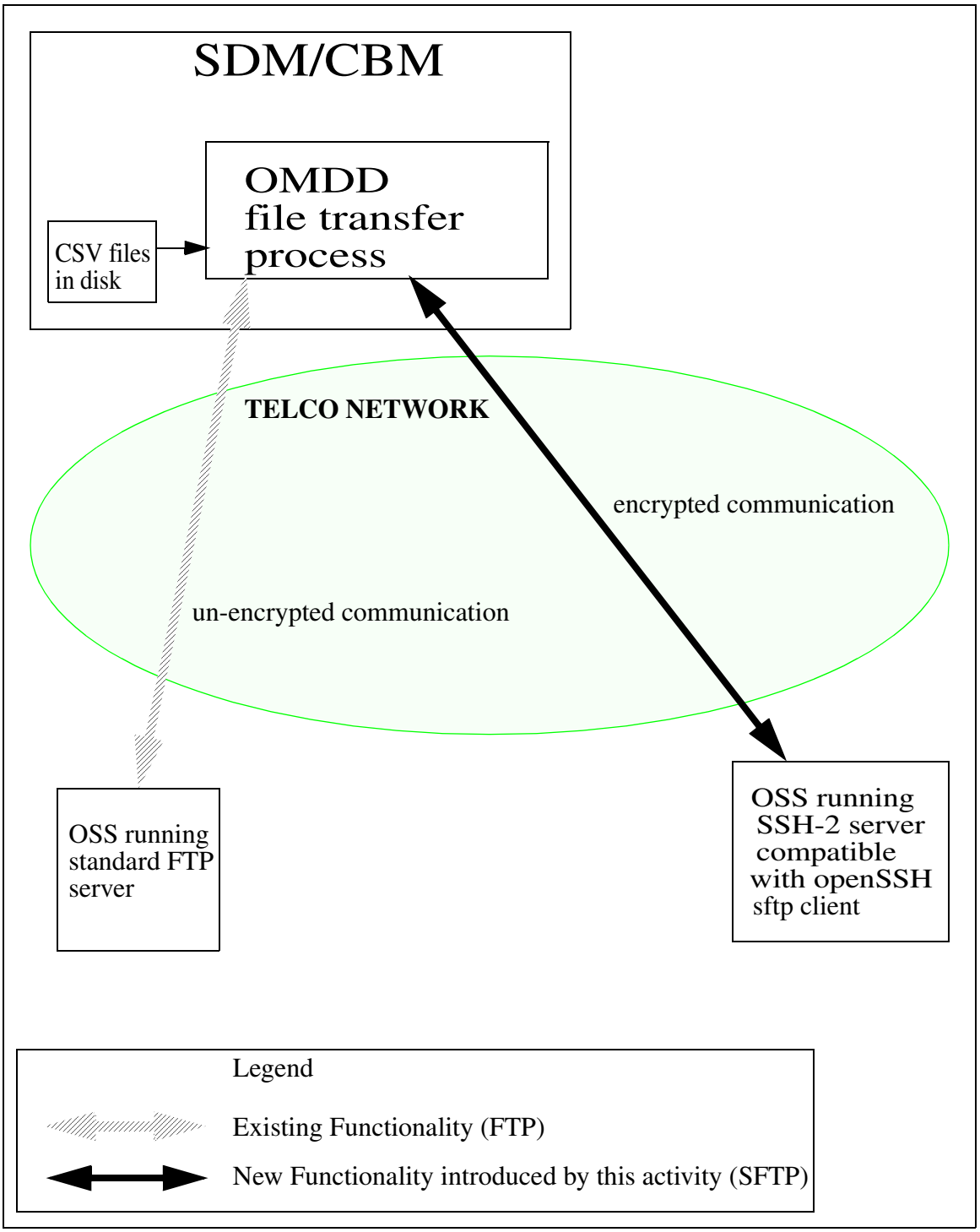
The following figure shows the OMDD outbound file transfer functionality after this activity. It should be noted that secure file transfer is only an optional mechanism and the user can still choose standard ftp for file transfers. This choice can be done while configuring or modifying file transfer destinations.

The user configures file transfer destinations on the SDM/CBM using the OMDD User Interface program (OMUI). It is the configuration tool for OMDD. This activity modifies the Add and Modify File Transfer Destination menus of OMUI. From now on, when a user adds or modifies a file transfer destination, he/she will be asked to select the type of file transfer for the destination in addition to the already existing parameters. The choices for the type of file transfer will be “Standard” and “Secure.” The default choice will be “Standard.”

The following figure shows examples of adding file transfer destinations (both secure and standard) using the OMUI tool.

While doing the actual file transfer, OMDD will invoke either the standard FTP client or the secure FTP client by looking at the choice made by the user at the time of configuration. A customer log SDMO375 will be generated if the OM file transfer fails.

OMDD File Transfer view



Additionally, this feature develops a Private Data Manager on the SDM./CBM for encrypting data by all applications. OMDD will contact the Private Data Manager for storing downstream destination passwords in encrypted format.

Hardware Requirements or Dependencies

No hardware requirements or dependencies are introduced by this feature.

Software Requirements or Dependencies

The customer's downstream machine (the OSS) should be running a SSH-2 server compatible with SFTP client of OpenSSH. The OpenSSH fileset should be installed on the SDM/CBM too.

Limitations and restrictions

- The additional overhead of encrypting/decrypting all data will affect the capacity of OMDD if secure ftp is used.
- Public keys authentication is NOT supported in this release. All users are authenticated with userid/password with the downstream OSS.
- The initial host key acceptance of the downstream processor should be done manually before it can use the SSH protocol to transfer file from SDM/CBM. Figure shows an example how to accept a host key. The /home/maint/.ssh/known_hosts file will be edited by ssh to include the host key. After that user can use SSH for OMDD file transfer. OMDD will use the /home/maint/.ssh/known_hosts file when invoking the sftp client.
- The SSH-2 server running on the downstream OSS should be compatible with the OpenSSH sftp client.
- Due to government restrictions on export/import of encryption software, this feature will not be available on SDM/CBM loads shipped to some countries.

Example of adding the host key of downstream processor to the known_hosts file

```
cbm:/home/maint> ssh user1@47.135.214.66
The authenticity of host '47.135.214.66 (47.135.214.66)' can't be established.
RSA key fingerprint is fd:3b:18:27:1f:85:55:83:ff:e6:16:7e:fd:5e:33:f8.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '47.135.214.66' (RSA) to the list of known hosts.
user1@47.135.214.66's password:
```

User input - Blue
System Output -Black

Interactions

Not Applicable

Applicable customer facing sections

Fault Management	
Logs	__N/A_
Alarms	__N/A_
Configuration	
Data Schema	__N/A_
User Interface	___X__
Element Management	__N/A_
Security	__ N/A_
Service Order	__N/A_
Office Parameters	__N/A_
Accounting (includes AMA billing)	__N/A_
Performance (includes operational measurements)	__N/A_
Realtime	__N/A_

Engineering Information ___X__

Glossary

Term	Description
SDM	Supernode Data Manager
CBM	Core Billing Manager
OMDD	Operational Measurements Data Delivery
OMUI	OMDD User Interface
CSV	Comma Separated Value
SSH	Secure Shell
FTP	File Transfer Protocol
SFTP	Secure File Transfer Protocol
OSS	Operations Support System

Configuration for A00005074

Hardware and Software Requirements

OMDD application running on the SDM/CBM is InSv. OpenSSH is installed on the SDM/CBM.

Initial Configuration

The initial configuration of OMDD is not changed by this activity.

Element Management

New/modified GUIs

GUI name	NEW, CHANGED, or DELETED
OMUI	Changed

GUI information

The OMUI “Add File Transfer Destination” and “Modify File Transfer Destination” menus are modified by this activity.

GUI name: OMUI

OMDD User Interface

Functional description

The “Add File Transfer Destination” menu in OMUI enables the user to configure a destination where OMDD can transfer OM reports. The “Modify File Transfer Destination” menu enables the user to modify an already configured file transfer destination.

This activity modifies the Add and Modify File Transfer Destination menus of OMUI. From now on, when a user adds or modifies a file transfer destination, he/she will be asked to select the type of file transfer for the destination in addition to the already existing parameters. The choices for the type of file transfer will be “Standard” and “Secure.”

If the user chooses “Secure”, a warning message will be printed along with the confirmation prompt. This warning message informs the user that secure file transfer would fail if OpenSSH was not installed on the SDM/CBM.

The following figure shows an example configuration of file transfer destination using the modified menu. The same change is made in the “Modify File Transfer Destination” menu also.

OMUI File Transfer Destination menu

Add File Transfer Destination (for a secure file transfer destination)

File Transfer Destination name > ftd1
Destination IP Address > 1.1.1.1
Type of File Transfer: Standard/Secure > Secure
Destination Port [22] >
Destination Login > user1
Destination Password >
WARNING: File Transfer to this destination will fail if OpenSSH is not installed.
Please install OpenSSH if it is not already installed.
Add File Transfer Destination(Y/N)?

Add File Transfer Destination (for a standard file transfer destination)

File Transfer Destination name > ftd2
Destination IP Address > 1.1.1.2
Type of File Transfer: Standard/Secure > Standard
Destination Port [21] >
Destination Login > user1
Destination Password >
Add File Transfer Destination(Y/N)?

SDM/CBM output - black
User input - blue
Step newly added by this activity - red

Configuration Walkthrough

This activity introduces an additional step in the add and modify file transfer destination menus of OMUI. This does not change the existing configuration methods of OMDD.

Product = CS 2000

A00005190--nSDM (Takoma) OC3 Node and Link Maintenance (Succession on DMS)

Functional Description

A market was identified to replace the aging billing storage device known as the DPP (Distributed Processing Peripheral). The function of the DPP is to receive billing records from the core through an IOC interface and store them on redundant hard disks. A modem link is used to poll the DPP for billing records and transfer them downstream to an OSS.

The chosen platform for DPP replacement was the next generation SDM or Core and Billing Manager (CBM) on the SSPFS platform. However, core connectivity became a problem since DPP's are connected to BRISC cores via IOC connectivity but the CBM only provided IP connectivity.

A prototype was built to prove that OC3 could be used to connect a CBM 800 to an MS in a similar manner to the SDM FX which is connected through DS512 links to the MS.

The OC3 connectivity resolves several issues including security and capacity.

This solution builds on the existing infrastructure that is used for the SDM FX platform and the Node maintenance infrastructure that was developed for the Ethernet connected SDM and the CBM 850.

This activity provides the modifications in node maintenance on the core to support the OC3 connected CBM.

Hardware Requirements or Dependencies

None

Software Requirements or Dependencies

None.

Limitations and restrictions

None.

Interactions

None.

Applicable customer facing sections

Fault Management

- Logs _____N/A
- Alarms _____N/A

Configuration

- Data Schema _____X
- User Interface _____X
- Element Management _____N/A
- Security _____N/A
- Service Order _____N/A
- Office Parameters _____N/A

Accounting (includes AMA billing) _____N/A

Performance (includes operational measurements) _____N/A

Realtime _____X

Engineering Information _____X

Glossary

Term	Description
CBM	Core and Billing Manager

Fault Management for A00005190

Fault management strategy

No change.

Fault management tools and utilities

No change.

Link Condition Change Log

Explanation

Log Title: SDM267

Name: SDM LINK CONDITION CHANGE

Description: CBM custlog log to indicate a change in the condition of a CBM link.

Event type: Info

Format

```
SDM267 NONE INFO SDM LINK CONDITION CHANGE
        Link: Domain <domain num> Port <port num>
        From: <previous link condition>
          To: <new link condition>

SDM267 NONE INFO SDM LINK CONDITION CHANGE
        Link: Domain 0 Port 0
        From: closed
          To: mtc-open
```

Field descriptions

Field	Value	Description
Link: Domain	0 or 1	MS number
Link: Port	0	NTL9X63 port number
From:	closed, mtc-open, open	previous link condition
To:	closed, mtc-open, open	new link condition

Action

None.

Associated Operational Measurements or Performance Measurements

None.

Links Crossed Log

Explanation

Log Title: SDM314

Name: SDM LINKS CROSSED

Description: CBM custlog log to indicate two link connections are physically crossed.

Event type: Major

Format

SDM314 MAJOR FAIL SDM LINKS CROSSED
link **<recv link num>** on domain **<recv domain num>** port **<recv port num>** crossed with link **<send link num>** on domain **<send domain num>** port **<send port num>**

SDM314 MAJOR FAIL SDM LINKS CROSSED
link 0 on domain 0 port 0 crossed with link 1 on domain 1 port 0

Field descriptions

N/A

Action

Reconnect crossed links from MS port to correct ATM card.

Associated Operational Measurements or Performance Measurements

None

Core Heartbeat Alarm

Associated alarm message: No response to core heartbeat

Severity: Critical

Condition: CBM-800 node maintenance heartbeat not responded to in 15 seconds.

Action: Report the full text of the alarm to the support group.

ATM Hardware Alarm

Associated alarm message: ATM card fault: <description>

Severity: Critical, Major, Minor

Condition: ATM diagnostics return card fault

Action: Report the full text of the alarm to the support group.

Configuration for A00005190

Hardware and Software Requirements

Tables IPNETWRK and MSCDINV must be data filled before table SDMINV.

Initial Configuration

No hardware needs to be present to configure an SDM or CBM connected by DS512 or OC3 on the Core.

Office/Subnet parameters (OP/SP) (CM & SESM)

No change.

Upgrade Impact

No change.

Data schema (DS) (CM, MIBS, RDB)

New/modified tables, MIBs, or Database Schema

Table/MIB name	NEW/CHANGED/ or DELETED/	Table Control (NEW/OLD/UNCHANGED)
SDMINV	CHANGED	UNCHANGED

Table/MIB/Remote Database Schema information

Name: SDMINV

DS512 connected SDM inventory table

Functional description

This table contains the PEC codes, location, link information, and IP address information related to a DS512 connected SDM. This activity adds a new PEC for a simplex CBM which is OC3 connected.

Usage sequence and implications (CM Only)

Tables must be datafilled in the following sequence:

Current datafill order unchanged.

Size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
SDMINV	0	1	No change

Fields/OIDs

The following table lists the changed field for table SDMINV.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
SHELFPEC	Changed	none	NTRX50DA NTRX50EB NTRX51EL NTRX51LS	NTRX51LS is being added for the simplex CBM OC3 connected shelf type.

Datafill example

```
>table sdminv
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: SDMINV
>lis all
TOP
SDM CONFIG FLOOR ROW POSITION CABTYPE   CABPEC CABNUM SHELFPEC SHELFPOS
         IPADDR LINKRATE          LINKS
-------------------------------------------------------------------------
  0   SIMP     1   A        1    MISC NT0X02AB      1 NTRX51LS        2
 10  40  15   3    SR256        ( 8 0)$

BOTTOM
```

Translations verification other tools

Not applicable

Service Orders (SO) (CM & SESM)

Not applicable

Software optionality control (SOC)

Not applicable

Element Management

Not applicable.

Command interface changes

MAP level:mapci;mtc;appl;sdm

SDM MAPCI screen CSP19

```
   CM       MS      IOD      Net       PM      CCS              Trks     Ext      APPL
   .      01MBCD   AMA  B     .        .        .                ...      .        .
                    *C*
SDM              OAMAP           SDM           SWMTC   SDMBIL
 0 Quit            .              .               .       .
 2
 3            SDM 0   OffL       Links_OOS: 4
 4
 5 Trnsl
 6
 7 Bsy
 8 RTS
 9 OffL
10
11
12
13
14 QuerySDM
15 Locate
16
17
18 Platform
  admin
Time  15:57  >
```

SDM MAPCI screen CSP20

```
   CM       MS      IOD      Net       PM      CCS              Trks     Ext      APPL
   .      01MBCD   AMA  B     .        .        .                ...      .        .
                    *C*
SDM              OAMAP           SDM           SWMTC   SDMBIL
 0 Quit            .              .               .       .
 2
 3            SDM 0   OffL       Links_OOS: 4 of 4
 4
 5
 6
 7
 8
 9
10
11
12
13
14
15
16
17
18
  admin
Time  15:57  >
```

MAP level description

This map level displays the state information related to the SDM.

It also provide commands to query additional status as well as control the state of a DS512 connected SDM.

To the existing mapci screen, small modifications are being added to support an OC3 connected CBM.

From the customer's perspective, there is little visual difference between the two supported environments. The differences are as follows:

- Only 2 links are supported to a CBM.
- The platform, locate, querysdm status, querysdm config, and querysdm loads commands are not supported on a CBM.
- The querysdm flt command will only display core side faults for a CBM.
- A new field is visible as long as there is heartbeating with the CBM which presents the overall application status of the CBM. i.e."Applications started" and "Applications stopped".

Accessing path: appl:SDM

Access to directory or MAP level and return to CI

mapci;mtc;appl;sdm

Command: QuerySDM

Command type: Listed MENU

Command target: All

Command availability: RES

Command description

This is an existing command to query information concerning the SDM.

The command will be missing parameters when CBM connected and will only return Core side faults on a CBM.

Command syntax

QuerySDM command parameters and variables

platform	Parameters and variables
sdm	QuerySDM: Query information about the SDM. Parms: [<QuerySDM Option> {FLT, LOADS, STATUS, CONFIG}]

QuerySDM command parameters and variables

platform	Parameters and variables
cbm	`QuerySDM: Query information about the SDM.` `Parms: [<QuerySDM Option> {FLT}]`

Qualifications and warnings

No change

Responses

No change in response

Command: Locate

Command type: Listed MENU

Command target: All

Command availability: RES

Command description

Displays the card location of all cards on an SDM FX.\

On a CBM, this command is not supported.

Command syntax

The locate command has no parameters.

Qualifications and warnings

No Change

Responses

<response>

The response for a CBM will be:

```
Locate command is not supported for shelf pec NTRX51LS.
```

Command: rebootsdm

Command type: Unlisted MENU

Command target: All

Command availability: RES

Command description

Sends a message to the SDM instructing it to reboot. This command is not supported on a CBM.

Command syntax

No parameters

Qualifications and warnings

no change

Responses

<response>

The response for a CBM will be:

```
Locate command is not supported for shelf pec NTRX51LS.
```

Command: haltsdm

Command type: Unlisted MENU

Command target: All

Command availability: RES

Command description

Sends a message to the SDM instructing it to halt. This command is not supported on a CBM.

Command syntax

No parameters

Qualifications and warnings

No change

Responses

<response>

The response for a CBM will be:

```
Locate command is not supported for shelf pec NTRX51LS.
```

Security

Not applicable

Product = CS 2000

A00005192--CBM 800 OC3 BRISC connectivity and OC3 node and link maintenance (Succession on DMS)

Functional Description

Description

This feature provides OC3 connectivity between a CBM 800 and the MS of a BRISC or XA-Core. Physical connectivity consists of two OC3 fibers connected between two ATM interface cards on the Solaris Netra-240 and two NTL9X63 paddleboards, one on each MS.

This feature provides the following software components:

- CBM 800 MTS/IP/FTS driver
- CBM 800 link maintenance
- CBM 800 node maintenance

The MTS/IP/FTS driver provides an MTS socket and IP socket interface to allow CBM 800 software components to send and receive MTS and IP messages to and from core software components.

CBM 800 link maintenance sets the conditions of the two OC3 links displayed at the Core level (figure 2) of the cbmmtc UI. Link conditions are set in response to node state change commands invoked from the SDM level of MAPCI (as seen in the following figures) and port / card state changes invoked from the MS Card level of MAPCI. The following table gives the MAPCI node state and the cbmmtc link conditions for various mtce actions.

MAPCI SDM Level

```
 XAC       MS      IOD      Net       PM      CCS      Lns      Trks     Ext      APPL
 AMDI      .     1IOCOS     .      2 SPM   3    RS      .      29CCd    1 Maj    SDM
  *C*            M                *C*      *C*              *C*       M       M
SDM            OAMAP   ATMFW    SDM    SPMCP   SWMTC   SDMBIL   PKT    TOPSIP
 0 Quit          .       .      ISTb     .       .       .       .       .
 2
 3           SDM 0   ISTb        Links_OOS: .
 4
 5 Trnsl
 6
 7 Bsy       SDM:
 8 RTS
 9 OffL
10
11
12
13
14 QuerySDM
15 Locate
16
17
18 Platform
  admin
Time  15:57  >
```

cbmmtc Core Level

```
    CBM       MATE     NET      APPL     Sys    HW     CLLI: SNM2
    IsTb      UnEq      .         .       .      M     Host: pcary1rr
      M
Core
 0 Quit        Core
 2            # Communication Path     State  Core Address     Node Address
 3            1 VIA OC3                  .    192.168.101.196 192.168.101.101
 4                link 0: Open
 5 Logs           link 1: Open
 6
 7
 8                          Note: link conditions are:
 9                          - Closed
10                          - MTC_Open
11                          - Open
12
13
14 QueryCBM
15
16
17 Help
18 refresh
  root
Time  13:43  >
```

Node State and Link Conditions

Mtce Action	Node State	Link 0 Condition	Link 1 Condition
Offline node	Offl	Closed	Closed
Busy node	ManB	Mtc-open	Mtc-open
RTS node	InSv / ISTb	Open	Open
Busy link 0	InSv / ISTb	Closed	Open
Busy link 1	InSv / ISTb	Open	Closed
Busy all links when node state InSv	SysB (NA)	Closed	Closed
Busy all links when node state ManB	ManB (NA)	Closed	Closed
Faults on both links	SysB (NA)	Closed	Closed

The CBM node state in the banner of the second figure may **not** be the same as the SDM node state in the first figure due to the fact that the two node states are different data points. The CBM alarm state in the banner of the second figure will match the SDM alarm state in the first figure when the CBM 800 is in-service.

CBM 800 node maintenance sets the Core Heartbeat State at the Net level of the cbmmtc UI (see the following figure). The heartbeat state will be InSv if at least one of the OC3 links is in a mtc-open or open condition. If faults are raised on both links, the link conditions will change to closed and the heartbeat state will change to SysB. The NET alarm in the banner will also change to SysB.

If an ATM card alarm is raised, the HW alarm in the banner will indicate a HW problem. The ATM HW alarm can be queried from the HW level of the cbmmtc UI.

CBM 800 link mtce generates cust logs for link condition changes and crossed links.

CBM Net Connectivity Level

```
    CBM       MATE  NET     APPL    SYS     HW      CLLI: SNM2
    IsTB      SysB   .       .       .      .       Host: pcary1rr
     M         M
Net
 0 Quit       Core Heartbeat State: .
 2 Core               NTP State:   .
 3
 4 Logs
 5
 6 NTP
 7
 8
 9
10
11
12
13
14 QueryCBM
15
16
17 Help
18 refresh
  root
Time  13:43  >
```

Hardware Requirements or Dependencies

None

Software Requirements or Dependencies

None

Limitations and restrictions

None

Interactions

This feature interacts with the following features:

- A00005337 CBM 800 OC3 BRISC Paddleboard Connectivity
  - provides datafilling of an NTL9X63 paddleboard in a non-cmic slot of a Supernode or SNSE MS shelf.
- A00005190 CBM 800 OC3 Node and Link Maintenance
  - provides core side node and link maintenance components
- A00002822 CBM User Interface Manager
  - provides user interface manager for CBM 800 and CBM 850

Applicable customer facing sections

Fault Management

Logs ___X___

Alarms ___X___

Configuration

Data Schema __NA__

User Interface __NA__

Element Management __NA__

Security __NA__

Service Order __NA__

Office Parameters __NA__

Accounting (includes AMA billing) __NA__

Performance (includes operational measurements) __NA__

Glossary

Term	Description
CBM	Core and Billing Manager on SSPFS platform
CBM 800	OC3 connected simplex CBM
CBM 850	IP connected high availability CBM
SSPFS	Succession Solaris Platform Foundation Software

Fault Management for A00005192

Fault management strategy

Unchanged

Fault management tools and utilities

Unchanged

Link Condition Change Log

Explanation

Log Title: SDM633

Name: SDM LINK CONDITION CHANGE

Description: CBM custlog log to indicate a change in the condition of a CBM link.

Event type: Info

Format

```
SDM633 NONE INFO SDM LINK CONDITION CHANGE
        Link: Domain <domain num> Port <port num>
        From: <previous link condition>
          To: <new link condition>

SDM633 NONE INFO SDM LINK CONDITION CHANGE
        Link: Domain 0 Port 0
        From: closed
          To: mtc-open
```

Field descriptions

Field	Value	Description
Link: Domain	0 or 1	CBM domain number
Link: Port	0	CBM port number
From:	closed, mtc-open, open	previous link condition
To:	closed, mtc-open, open	new link condition

Action

None.

Associated Operational Measurements or Performance Measurements

None

Core Heartbeat Alarm Logs

Associated alarm message: No heartbeat response received.

Severity: Major

Condition: response to CBM 800 heartbeat not received from core.

Action: Check for link faults at cbmmtc HW level. Check for closed link conditions at cbmmtc core level.

Log Title: SDM336 MINOR, SDM636 NONE

Examples

SDM336 MAJOR Alarm raised or updated
Heartbeat alarm
TimeStamp: Tue Apr 27 12:52:52 2004

ComponentID: CLASS=NET;NETTYPE=CORE
Category: Communications
Probable Cause: communicationsProtocolError
Specific Problem: No heartbeat response received.

SDM636 MAJOR Alarm raised or updated
Heartbeat alarm
TimeStamp: Tue Apr 27 15:38:12 2004
ComponentID: CLASS=NET;NETTYPE=CORE
Category: Communications
Probable Cause: noProbableCause
Specific Problem: Heartbeat response received.

Crossed Link Alarm Logs

Associated alarm message: Crossed Link: link 0 (domain 0 port 0) crossed with link 0 (domain 0 port 1)

Severity: Major

Condition: two link connections are physically crossed.

Action: Fix the crossed link connections.

Log Title: SDM314 MAJOR, SDM614 NONE

Examples:

Alarm Raised Log:

SDM314 MAJOR Alarm raised or updated.
Major Crossed Link: link 0 (domain 0 port 0) crossed with link 1 (domain 0 port 1)
TimeStamp: Mon Mar 29 17:47:26 2004
ComponentID: CLASS=HW;HWTYPE=CROSS_LINK_0
Category: Communications
Probable Cause: configurationOrCustomizationError
Specific Problem:

Alarm Cleared Log:

SDM614 NONE Alarm raised or updated.
Cleared Crossed Link: link 0 (domain 0 port 0) crossed with link 1 (domain 0 port 1)
TimeStamp: Mon Mar 29 17:47:26 2004
ComponentID: CLASS=HW;HWTYPE=CROSS_LINK_0
Category: Communications

Probable Cause: noProbableCause
Specific Problem:

OC3 Card Fault Alarm

Associated alarm message: OC3 Card Fault: [receive/transmit] fault on link <num> (domain <num> port <num>)

Severity: Major

Condition: signal on receive/transmit fibre to OC3 card is faulty or not present.

Action: check receive/transmit fibre connection.

Log Title: SDM334 MAJOR, SDM634 NONE

Examples:

Alarm Raised Log:

SDM334 MAJOR Alarm raised or updated.
Major OC3 Card Fault: receive fault on link 0 (domain 0 port 0)
TimeStamp: Mon Mar 29 20:07:21 2004
ComponentID: CLASS=HW;HWTYPE=OC3_FAULT_0
Category: Communications
Probable Cause: equipmentMalfunction
Specific Problem:

Alarm Cleared Log:

SDM634 NONE Alarm raised or updated.
Cleared OC3 Card Fault: receive fault on link 0 (domain 0 port 0)
TimeStamp: Mon Mar 29 19:01:10 2004
ComponentID: CLASS=HW;HWTYPE=OC3_FAULT_0
Category: Communications
Probable Cause: noProbableCause
Specific Problem:

Link Fault Alarm

Associated alarm message: Link Fault: <fault description> on link <num> (domain <num> port <num>)

Severity: Minor

Condition: diagnostics indicate minor link fault

Action: Report the full text of the alarm to the support group.

Log Title: SDM335 MINOR, SDM635 NONE

Examples:

Alarm Raised Log:

SDM335 MINOR Alarm raised or updated.
Minor Link Fault: Bad Incoming CRCs on link 0 (domain 0 port 0)
TimeStamp: Mon Mar 29 19:47:06 2004
ComponentID: CLASS=HW;HWTYPE=LINK_FAULT_0
Category: Communications
Probable Cause: equipmentMalfunction
Specific Problem:

Alarm Cleared Log:

SDM635 NONE Alarm raised or updated.
Cleared Link Fault: Bad Incoming CRCs on link 0 (domain 0 port 0)
TimeStamp: Mon Mar 29 19:47:06 2004
ComponentID: CLASS=HW;HWTYPE=LINK_FAULT_0
Category: Communications
Probable Cause: noProbableCause

Specific Problem:

Related documentation

NA

Product = CS 2000

A00005193 -- 9+1 Performance Measurements Tools Support (Succession on DMS)

Functional Description

This CSP20 feature implements changes required to support the XA-Core 9+1 configuration. Specifically, this feature will allow a Rated Power of 9.

Hardware Requirements or Dependencies

N/A

Software Requirements or Dependencies

N/A

Limitations and restrictions

None

Interactions

For releases prior to this feature, the largest value allowed for the office parm Rated_Power in table OFCENG is 7. With this feature, users are able to modify the value of Rated_Power up to a maximum of 9.

Applicable customer facing sections

Fault Management	
Logs	N/A
Alarms	N/A
Configuration	
Data Schema	N/A
User Interface	N/A
Element Management	N/A
Security	N/A
Service Order	N/A
Office Parameters	X
Accounting (includes AMA billing)	N/A
Performance (includes operational measurements)	N/A

Configuration for A00005193

Hardware and Software Requirements

N/A

Initial Configuration

N/A

Office/Subnet parameters (OP/SP) (CM & SESM)

New/modified office/subnet parameters

Parm table	Parameter name	NEW/ CHANGED/ DELETED/ RELOCATED	Domain (CM or Subnet Management
OFCENG	RATED_POWER	CHANGED	CM

Parameter information

RATED_POWER

Functional description
This parameter defines the number of PEs engineered in the switch. The Speedometer uses the value of this parameter to calculate the capacity prediction for the switch.

Provisioning rules
N/A

Range information
Range Information

Minimum	Maximum	Default
1	9	3

Activation
N/A

Dependencies
N/A

Consequences
N/A

Verification
To verify, users can modify and display the value of RATED_POWER on table OFCENG via table control.

Memory requirements
No memory impact.

Parameter release history update
N/A

Upgrade Impact

N/A

Data schema (DS) (CM, MIBS, RDB)

N/A

Service Orders (SO) (CM & SESM)

N/A

Software optionality control (SOC)

N/A

Element Management

N/A

Command interface changes

N/A

Security

N/A

Configuration Walkthrough

N/A

Product = CS 2000

A00005268 -- SBA: Multi-volume Support for Core Backup (Succession on DMS)

Description

Architectural Description.

Currently 2 volumes can be assigned on a per stream for SBA on the CM as backup storage.These volumes are used to store the billing records whenever the stream goes to backup mode on the CM.This configuration deos not meet the backup storage requirement for some of the markets.

This feature will focus on increasing the backup storage capacity available for SBA on the CM from current 2 volumes

allotted per stream to 69 volumes or the maximum supported by the underlying hardware whichever is less per stream.

High Level Description.

As part of this feature new MAPCI commands will be introduced. The new CI commands will allow user to add / remove more than one volume at a time per stream .

This feature is core only scope and affects TL layer.

Hardware requirements

Under investigation.

Limitations and restrictions

None

Interactions

None.

Logs (LG)

The following logs have been changed as part of this activity.

SDMB531 :

The conf log (SDMB531) has been changed. Following shows a sample output of the current SDMB531 log format.

3PC_TDM07CD SDMB531 MAY06 09:43:32 0500 INFO SDM BILLING CONFIG

STREAM= SBA0:

NEWVOLUMES =

SD00AMA1 SD00AMA2 SD00AMA3 SD00AMA4 SD00AMA5

SD00AMA6 SD00AMA7 SD00AMA8 SD00AMA9 SD00AMA10

SD00AMA11 SD00AMA12 SD00AMA13 SD00AMA14 SD00AMA15

SD00AMA16 SD00AMA17 SD00AMA18 SD00AMA19 SD00AMA20

SD00AMA21 SD00AMA22 SD00AMA23 SD00SNS SD00AMA

SD01AMA1 SD01AMA2 SD01AMA3 SD01AMA4 SD01AMA5

SD01AMA6 SD01AMA7 SD01AMA8 SD01AMA9 SD01AMA10

SD01AMA11 SD01AMA12 SD01AMA13 SD01AMA14 SD01AMA15

OLDVOLUMES =

SD00AMA1 SD00AMA2 SD00AMA3 SD00AMA4 SD00AMA5

SD00AMA6 SD00AMA7 SD00AMA8 SD00AMA9 SD00AMA10

SD00AMA11 SD00AMA12 SD00AMA13 SD00AMA14 SD00AMA15

SD00AMA16 SD00AMA17 SD00AMA18 SD00AMA19 SD00AMA20

SD00AMA21 SD00AMA22 SD00AMA23 SD00SNS SD00AMA

SD01AMA1 SD01AMA2 SD01AMA3 SD01AMA4 SD01AMA5

SD01AMA6 SD01AMA7 SD01AMA8 SD01AMA9 SD01AMA10

SD01AMA11 SD01AMA12 SD01AMA13 SD01AMA14 SD01AMA15

SD01AMA16 SD01AMA17 SD01AMA18 SD01AMA19 SD01AMA20

SDMB820

The logs raised when any of BAK** alarms are raised have also been changed. Following is a sample output of the log generated.

```
3PC_TDM07CD *** SDMB820 MAY06 11:20:51 2876      SDM BILLING
BACKUP
      STREAM= SBA0: WARNING, 50% or less of Backup space is free.
      VOLUMES=
       SD00AMA13    SD00AMA15   SD01AMA11    SD01AMA12
SD01AMA13
```

Data schema (DS)

New/modified tables

New or modified tables

Table name	NEW, CHANGED or DELETED	Table Control (NEW/OLD/UNCHANGED)
SDMBILL	Changed	Unchanged

Office parameters (OP)

None.

Service orders (SO)

No change.

Alarms (AL)

No change.

Command interface (CI)

New/modified commands

Table 1 New or modified commands

Command name	NEW, CHANGED OR DELETED	New name (if renamed)	Directory/MAP level name	MENU/NON-MENU /HIDDEN
CONF	changed		SDMBIL	Menu
ADDVOL	new		SDMBIL	Menu
REMVOL	new		SDMBIL	Menu

Operational measurements (OM)

No change.

AMA/Billing information (AM)

No change.

Software optionality control (SOC)

No change.

Glossary

Term	Description
New term	definition
SBA	Supernode Billing Application
SDM	Supernode Data Manager
CM	Computing Module

Product = CS 2000

A00005322--Spectrum Common Equipment Module (CEM) Overload Enhancement: Asynchronous Transfer Mode Resource Module (ATMRM) Status (PT-AAL1)

Functional Description

This feature introduces several changes into the reporting of ATMRM resource exhaustion and CEM overload conditions. Since the ATMRM resources are integral to call processing on the MG4K/IW variants of the SPM peripheral node, attempts are made to make ATMRM resource exhaustion conditions very visible. To this end, depending upon the severity of the ATMRM resource exhaustion:

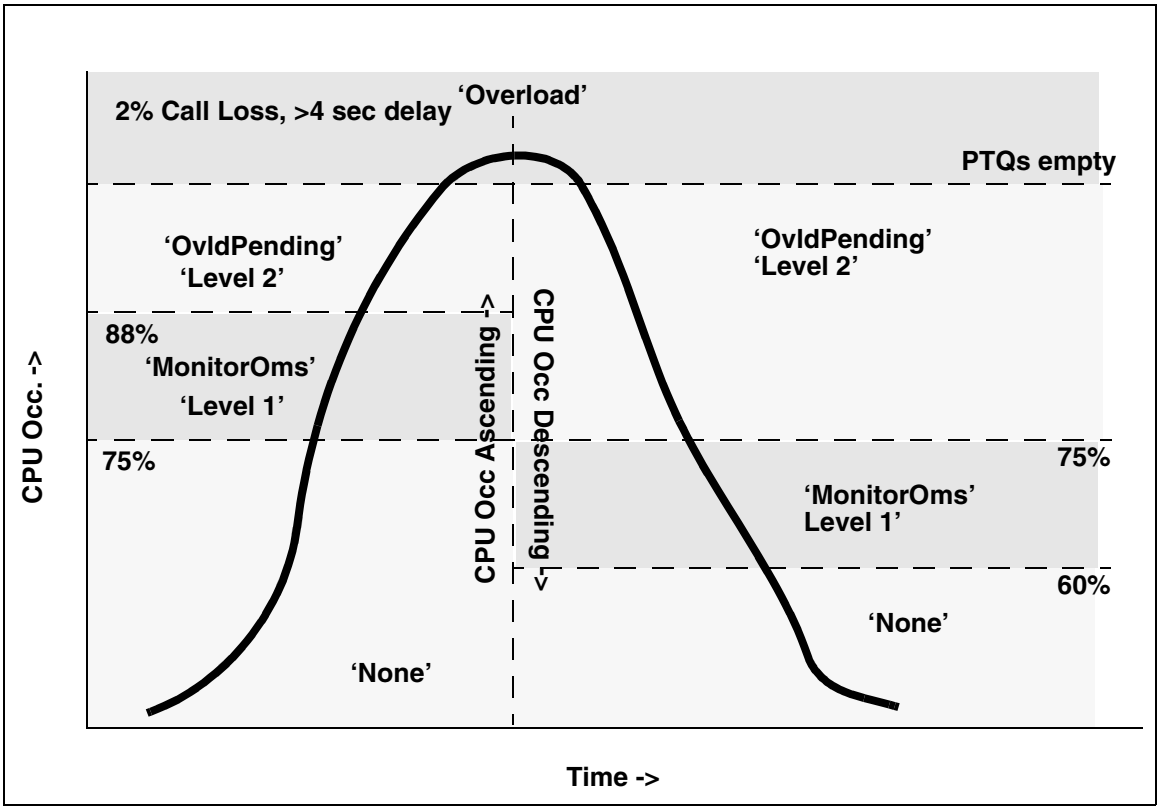
- CEM CALLP can go into Overload which results in SPM399 Overload logs, Minor alarm, CEM state change to ISTb, Node state change to Istb (NODE500, NODE602), MAPCI MIP strings indicating Overload and “querypm flt reason” indicating an overload condition being generated.
- On the ATMRM, a minor alarm will be raised, RM state change to ISTb (SPM500 state change and SPM300 fault reason logs), MAPCI MIP strings indicating Overload and “querypm flt reason” indicating an overload condition will be generated.

The severity of ATMRM resource exhaustion is reported via predefined utilization levels. Each level has a different onset and abatement value to prevent quick entry/exit (jitter) from a single level at a boundary value. The ATMRM resource utilization levels (NONE, LEVEL1 and LEVEL2) are transferred to the CEM and are applied to CEM resources. As a result, the

ATMRM and CEM share resource utilization levels. For the case of CPU occupancy/CALLP flow control, these levels are as follows:

- None: Exit: 75% (Level 1 Onset), Onset: 0% (system initialization) or 60% (Level 1 abatement) - The monitored resource is below 75% utilization since last being in “Level 1” or since system initialization.
- Level 1: Onset: 75%, Exit: 88% (Level 2 onset), Abatement: 60% (Level 1 onset) - The CPU resource utilization was initially above its engineering level of 75% and has not dropped below 60% utilization since the initial 75% level was encountered.
- Level 2: Onset: 88%, Exit: Overload triggered, Abatement: 75% - The CPU resource is dangerously overused. CALLP flow control has been triggered to delay call originations in order to lessen CPU occupancy.
- Overload: Onset: Any call delayed by flowcontrol for more than 4 seconds or more than 2% of the calls have been discarded. Abatement: No calls are being delayed. Overload determination is not resource based, it is determined by the characteristics of the states of the calls in flow control.

CPU Occupancy and Resource Utilization Level



The following table shows the maintenance interaction mapped to CPU resource levels. The shaded entries are the new interactions introduced by this feature. Please note, with introduction of this feature, the ATMRM CPU resource level will effect existing maintenance interactions for the CEM.

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Maintenance Interactions for each ATMRM Resource Utilization Level

Mtc Interaction	No Overload	Level 1 Resource Utilization	Level 2 Resource Utilization	CALLP Overload (call state based)
CEM Flowcontrol	Off	Off	On	On
CEM Alarms	None	None	Minor	Minor
ATMRM Alarms	None	Minor	Minor	Minor
CEM State	InSv	InSv	ISTb	ISTb
ATMRM State	InSv	ISTb	ISTb	ISTb
Node State	InSv	InSv	ISTb	ISTb
CEM MIP	None	“Monitor OMs”	“Overload Pending”	“Overload”
ATMRM MIP	None	“Monitor OMs”	“Overload Pending”	“Overload Pending”
CEM Logs				
SPM399	None	“Monitor OMs”	“Overload Pending”	“Overload”
NODE500	None	None	ISTb State Change	None
NODE602	None	None	“Reached or Nearing Overload”	None
ATMRM Logs				
SPM300	None	“Monitor OMs”	“Overload Pending”	None
SPM500	None	ISTb State Change	None	None

Changing Existing Interaction

New Interaction

Please note, the above table indicates the interactions visible when entering or being in high resource utilization levels. When abating the “Level 1” state and returning to the “No Overload” state, alarms are extinguished, MIP strings are cleared, module states are returned to InSv and the logs indicate overload states have cleared, resources utilization levels have returned to normal, and module states are back to InSv.

Hardware Requirements or Dependencies

None.

Software Requirements or Dependencies

- A00002431 - SP20 “LX82BA Capacity Delivery” required for the new CALLP overflow infrastructure.
- A00002432 - SP20 “SPM Enhanced Overload OMs and Logs” needed for the overload reporting infrastructure.

Limitations and restrictions

SP20 CORE load required for full reporting infrastructure to function.

Interactions

This feature depends upon the reporting infrastructure introduced into the Spectrum by A00002432 - SP20 “SPM Enhanced Overload OMs and Logs” for overload reporting.

The feature also uses the new CALLP flow control infrastructure introduced by A00002431 - SP20 “LX82BA Capacity Delivery”.

Applicable customer facing sections

Fault Management	
Logs	__X__
Alarms	__X__
Configuration	
Data Schema	__N/A_
User Interface	__N/A_
Element Management	__N/A_
Security	__N/A_
Service Order	__N/A_
Office Parameters	__N/A_
Accounting (includes AMA billing)	__N/A_
Performance (includes operational measurements)	__N/A_
Realtime	__N/A_
Engineering Information	__X___

Fault Management for A00005322

Fault management strategy

This feature introduces several changes into the reporting of ATMRM resource exhaustion and CEM overload conditions. Since the ATMRM resources are integral to call processing on the MG4K/IW variants of the SPM peripheral node, attempts are made to make ATMRM resource exhaustion conditions very visible. To this end, depending upon the severity of the ATMRM resource exhaustion:

- CEM CALLP can go into Overload with SPM399 Overload logs, Minor alarm, CEM state change to Istb, Node state change to Istb (NODE500, NODE602), MAPCI MIP strings indicating Overload and “querypm flt reason” indicating an overload condition being generated.
- On the ATMRM, a minor alarm will be raised, RM state change to Istb (SPM500 state change and SPM300 fault reason logs), MAPCI MIP strings indicating Overload and “querypm flt reason” indicating an overload condition will be generated.

The severity of ATMRM resource exhaustion is reported via predefined utilization levels. Each level has a different onset and abatement value to prevent quick entry/exit (jitter) from a single level at a boundary value. The ATMRM resource utilization levels (NONE, LEVEL1 and LEVEL2) are transferred to the CEM and are applied to CEM resources. As a result, the ATMRM and CEM share resource utilization levels. For the case of CPU occupancy/CALLP flow control, these levels are as follows:

- None: Exit: 75% (Level 1 Onset), Onset: 0% (system initialization) or 60% (Level 1 abatement) - The monitored resource is below 75% utilization since last being in “Level 1” or since system initialization.
- Level 1: Onset: 75%, Exit: 88% (Level 2 onset), Abatement: 60% (Level 1 onset) - The CPU resource utilization was initially above its engineering level of 75% and has not dropped below 60% utilization since the initial 75% level was encountered.
- Level 2: Onset: 88%, Exit: Overload triggered, Abatement: 75% - The CPU resource is dangerously overused. CALLP flow control has been triggered to delay call originations in order to lessen CPU occupancy.
- Overload: Onset: Any call delayed by flowcontrol for more than 4 seconds or more than 2% of the calls have been discarded. Abatement: No calls are being delayed. Overload determination is not resource based, it is determined by the characteristics of the states of the calls in flow control.

The following table shows the maintenance interaction mapped to CPU resource levels. The shaded entries are the new interactions introduced by this

feature. Please note, with introduction of this feature, the ATMRM CPU resource level will effect existing maintenance interactions for the CEM.

Maintenance Interactions for each ATMRM Resource Utilization Level

Mtc Interaction	No Overload	Level 1 Resource Utilization	Level 2 Resource Utilization	CALLP Overload (call state based)
CEM Flowcontrol	Off	Off	On	On
CEM Alarms	None	None	Minor	Minor
ATMRM Alarms	None	Minor	Minor	Minor
CEM State	InSv	InSv	ISTb	ISTb
ATMRM State	InSv	ISTb	ISTb	ISTb
Node State	InSv	InSv	ISTb	ISTb
CEM MIP	None	“Monitor OMs”	“Overload Pending”	“Overload”
ATMRM MIP	None	“Monitor OMs”	“Overload Pending”	“Overload Pending”
CEM Logs				
SPM399	None	“Monitor OMs”	“Overload Pending”	“Overload”
NODE500	None	None	ISTb State Change	None
NODE602	None	None	“Reached or Nearing Overload”	None
ATMRM Logs				
SPM300	None	“Monitor OMs”	“Overload Pending”	None
SPM500	None	ISTb State Change	None	None

Changing Existing Interaction

New Interaction

Please note, the above table indicates the interactions visible when entering or being in high resource utilization levels. When abating the “Level 1” state and returning to the “No Overload” state, alarms are extinguished, MIP strings are cleared, module states are returned to InSv and the logs indicate overload states have cleared, resources utilization levels have returned to normal, and module states are back to InSv.

Fault management tools and utilities

This feature is not introducing new mechanisms for fault reporting. Existing CORE based tools are being utilized:

Logs

The CORE base **LOGUTIL** command can be used to view the following logs. These logs are existing log classes, but now are being triggered via resource exhaustion/overload conditions on the ATMRM with new text.

- NODE500 “Node State Change”,
- SPM399 “SPM Overload Report”,
- SPM300 “Device Fault Report”
- SPM500 “Device State Change”.

Depending upon the state of the CEM/ATM RM experiencing the resource exhaustion condition, a minimum of 2 of the above log types will be generated and possibly, all 4 types of logs will be generated. At the very least, the 2 report logs (SPM399 “SPM Overload Report” and SPM300 “Device Fault Report”) will be generated. These two “Report” logs contain the detailed information needed to identify the “Resource Exhaustion” event.

Alarms

This feature introduces new conditions in which Spectrum module alarms are generated. A minor alarm is raised against an ATMRM when it experiences resource exhaustion. When the CEM’s CALLP performance degrades sufficiently, the CEM will raise a minor alarm. When the active CEM raises an alarm, the NODE will raise a similar alarm. To view which node are alarmed:

MAPCI;MTC;PM;POST <Alarm Type: {Minor, Major, Crit}>

To see details of the alarm:

MAPCI;MTC;PM;POST SPM <SPM Number>; querypm flt

A useful mechanism to determine the current alarm state of all devices within a single node, is the “querypm flt reason” MAPCI command. It will elaborate on the reasons behind a device being alarmed. To view the peripheral faults:

MAPCI;MTC;PM;POST SPM <SPM Number>;querypm flt reason

State Changes

To indicate a module’s resource exhaustion/overload state, a module’s maintenance state can be degraded from “InSv” to “Istb”. If the module is the active CEM, a degraded module state will also degrade the node state in a similar manner. To view the degraded nodes:

MAPCI;MTC;PM;POST <State: {SysB, ManB, OffL, CBsy, ISTb, InSv}>

The above command only posts the node by state, not the individual devices. Once the node is posted, the “querypm flt reason” can be used to indicate the device degradation reasons.

Maintenance Operation Strings

To view the current resource exhaustion/overload state of a Spectrum module, the module must be selected.

MAPCI;MTC;PM;POST SPM <SPM Number>;SELECT <Device Type: {CEM, ATM}> <Device Number {0,1}>

On the maintenance status line, the module’s resource exhaustion/overload state will be visible if said condition exists. These status indicators are:

- “Resources OK”,
- “Monitor OMs”,
- “Ovld Pending”,
- “Overload”.

Logs

ATM605

This feature removes the generation of the ATM605 log. The ATM605 is replaced with the SPM300 “Device Fault Report” log.

Explanation

Log Title: ATM 605

Name: ATM Overload Event

Description: This log is generated on the DMS CORE whenever an Spectrum ATMRM enters/leaves pre-defined resource utilization levels. Resource utilization levels are commonly referred to as overload levels.

Event type: Threshold

Format

```
<LABCLLI> ATM605 <MMMdd hh:mm:ss SSSS> INFO  ATM Overload Event
           Location: SPM <xx> ATM RM
           Description: <Description String>
```

Examples

Exiting Level 1 Resource Utilization

```
MSH207BW      ATM605 FEB25 12:58:22 5209 INFO ATM Overload Event
               Location: SPM 4 ATM RM
               Description: ATM RM Not in Overload
```

Entering Level 1 Resource Utilization/Exiting Level 2 Resource Utilization

```
MSH207BW      ATM605 FEB25 14:14:00 5236 INFO ATM Overload Event
               Location: SPM 4 ATM RM
               Description: ATM RM Near Overload
```

Entering Level 2 Resource Utilization

```
MSH207BW      ATM605 FEB25 14:40:09 5009 INFO ATM Overload Event
               Location: SPM 4 ATM RM
               Description: ATM RM In Overload
```

Field descriptions

The following table describes the variable fields (fields within <> in the Format section above):

Field descriptions

Field	Value	Description
LABCLLI	The CLLI of the office where the log is getting generated	
MMMdd hh:mm:ss	MMM - JAN to DEC dd - 01 to 31 hh - 00 to 23 mm - 00 to 59 ss - 00 to 59	Date and Time when the log was generated in the core.
XX	00 to 85	CEM number of the SPM for which the log is generated.

Field descriptions

Field	Value	Description
Description String	1) ATM RM Not in Overload 2) ATM RM Near Overload 3) ATM RM in Overload 4) Invalid ATM Overload Level Received from ATM	The set of possible strings for the ATMRM when traversing various resource utilization levels. String "1" is an error clearing event. The subsequent strings are for error notification events.

The 3 "Description Strings" indicate the 3 following events respectively:

1. Active ATMRM's CPU occupancy has dropped below 60%.
2. Active ATMRM's CPU occupancy initially exceeds 75% and subsequently exceeds 60%.
3. Active ATMRM's CPU occupancy initially exceeds 88% and subsequently exceeds 75%.
4. Unknown error has been encountered - contact Nortel support personnel.

Action

None. Log is being replaced with SPM300 "Device Fault Report".

Associated Operational Measurements or Performance Measurements

None. Log is being replaced with SPM300 "Device Fault Report".

Additional information

Log is being replaced with SPM300 "Device Fault Report".

SPM399

Explanation

Log Title: SPM 399

Name: SPM Overload Report

Description: This log is generated whenever a Spectrum CEM enters/leaves pre-defined overload conditions.

This feature augments the conditions in which this log is generated. With this feature, the CEM overload states are effected by the ATM RM resource utilization levels. As a result, the ATM RM resource utilization levels trigger the generation of this log.

Event type: Trouble

Format

Format has not changed

```
<LABCLLI> <*> SPM399 <MMMdd hh:mm:ss SSSS> TBL  SPM Overload Report
        SPM   <xx> CEM   <y> : <Activity> <state> Time: <hh:mm:ss.SSS>
        Reason: <Reason string>
        Prev: <previous state> Curr: <current state> Diagnostic: <#HHHH>
        Action: <Action string>
        Location: SPM <SPM no> Type: <Type> Fabric: <Fabric>
```

Example

Entering Monitor OMs

```
MSH207BW      SPM399 MAR02 11:59:47 8100 TBL  SPM Overload Report
        SPM   4 CEM   1 : A                       Time: 11:59:43.685
        Reason:     Overload OMs initiated
        Prev: None          Curr: MonitorOMs     Diagnostic: #0000
        Action:     Check SPMACT and SPMOVLD OMs
        Location: SPM   4  Type: SMG4      Fabric: ATM
```

Enter Overload Pending

```
MSH207BW   *  SPM399 MAR02 11:59:51 8600 TBL  SPM Overload Report
        SPM   4 CEM   1 : A                       Time: 11:59:51.040
        Reason:     CEM in Overload Pending state
        Prev: MonitorOMs     Curr: OvldPending    Diagnostic: #2000
        Action:     Check SPMACT and SPMOVLD OMs
        Location: SPM   4  Type: SMG4      Fabric: ATM
```

Entering Overload

```
MSH207BW  **  SPM399 MAR02 11:59:57 4500 TBL  SPM Overload Report
        SPM   4 CEM   1 : A                       Time: 11:59:55.555
        Reason:     CEM experiencing Overload
        Prev: OvldPending    Curr: Overload       Diagnostic: #206e
        Action:     Contact next level of support
        Location: SPM   4  Type: SMG4      Fabric: ATM
```

Exiting Overload

```
MSH207BW   *  SPM399 MAR02 12:12:51 2200 TBL  SPM Overload Report
        SPM   4 CEM   1 : A                       Time: 12:12:45.620
        Reason:     CEM in Overload Pending state
        Prev: Overload       Curr: OvldPending    Diagnostic: #306e
        Action:     Check SPMACT and SPMOVLD OMs
        Location: SPM   4  Type: SMG4      Fabric: ATM
```

Exiting Overload Pending

```
MSH207BW      SPM399 MAR02 12:13:19 2900 TBL  SPM Overload Report
        SPM   4 CEM   1 : A                      Time: 12:13:19.340
        Reason:     Overload Pending cleared
        Prev: OvldPending    Curr: MonitorOMs     Diagnostic: #1000
        Action:     Check SPMACT and SPMOVLD OMs
        Location: SPM   4  Type: SMG4      Fabric: ATM
```

Exiting Monitor OMs

```
MSH207BW      SPM399 MAR02 12:13:28 3600 TBL  SPM Overload Report
        SPM   4 CEM   1 : A                      Time: 12:13:28.020
        Reason:     Overload cleared
        Prev: MonitorOMs     Curr: None           Diagnostic: #0000
        Action:     None
        Location: SPM   4  Type: SMG4      Fabric: ATM
```

Field descriptions

Field contents have not changed.

Field descriptions

Field	Value	Description
LABCLLI	The CLLI of the office where the log is getting generated	
*	Priority of Alarm - Two asterisks (**), one asterisk (*) or empty space	Two asterisks (**) appear for a log of 'Major' severity, one asterisk (*) appears for a log of severity 'Minor' and empty space appears for a log of severity 'No Alarm'.
MMMdd hh:mm:ss	MMM - JAN to DEC dd - 01 to 31 hh - 00 to 23 mm - 00 to 59 ss - 00 to 59	Date and Time when the log was generated in the core.
SSSS	0000 to 9999	Log serial number.
xx	00 to 85	SPM number for which the log is generated.
y	0,1	CEM number of the SPM for which the log is generated.
Activity	A,I	Activity of the CEM. 'A' for Active and 'I' for Inactive.
State	INSV,ISTB,MANB,SYSB	State of the CEM.

Field descriptions

Field	Value	Description
hh:mm:ss.SSS	hh - 00 to 23 mm - 00 to 59 ss - 00 to 59 SSS - 000 to 999	Time when the error/error-clearing event happened in the SPM. This time will be earlier than the time that appears on the first line because the event happens in the SPM first and then the core generates the log.
Reason	1) "Overload OMs initiated" 2) "CEM in Overload Pending state" 3) "CEM experiencing Overload" 4) “Overload Pending cleared” 5) "Overload cleared"	These are the five possible strings that can appear in the ‘Reason’ field of the log. The first three reasons are for error scenarios and the fourth one is for the error-clearing scenario.
Prev	1)”None” 2) “MonitorOMs” 3)”OvldPending” 4)”Overload”	This field gives the overload condition of the SPM before the error/error-clearing event happened.
Curr	1)”None” 2) “MonitorOMs” 3)”OvldPending” 4)”Overload”	This field gives the current overload condition of the SPM.
Diagnostics	“#0000” to “#FFFF”	This field is for the designers who are doing the trouble-shooting. The craft need not look in to this field.
Action	1)”Check SPMACT and SPMOVLD OMs.” 2) “Contact your next level of support.” 3)”None.”	This field gives the craft information on the action that needs to be taken. The string 1) is for logs generated for “Check OMs” and “Overload Pending”. String 2) is generated in addition to String 1) when an “Overload” event occurs. The last string is for logs generated for an error-clearing scenario.
SPM no	00 to 85	SPM number
Type	DMSCP,SMG4,IW	Variant of the SPM
Fabric	ATM,IP,ENET	The switching fabric

The CEM now incorporates the ATM AM’s resource utilization level into the generation of the SPM399. As a result, the ATM RM resource levels will trigger the SPM399 logs under the following condition:

1. Overload OMs initiated - ATM RM’s CPU occupancy initially exceeds 75%, then subsequently exceeds 60%.

2. CEM in Overload Pending state - ATM RM's CPU occupancy initially exceeds 88%, then subsequently exceeds 75%. The overload pending state can also be entered when the CEM has exited overload conditions.
3. CEM experiencing Overload - The ATM RM **cannot** trigger this transition. The ATM RM can influence/contribute to this state, but it cannot be the trigger. This transition is triggered when CEM CALLP has delayed calls for more than 4 seconds, or when over 2% of calls have been tossed. Overload is exited only when there are no more delayed/tossed calls on the CEM.
4. Overload Pending cleared - ATM RM's CPU occupancy initially exceeds 88%, then subsequently drops below 75%.
5. Overload cleared - ATM RM's CPU occupancy has dropped below 60%

Action

The 'Action' field of the log contains the action that is needed to be taken by the craft. For the situations when the SPM is leaving an overload condition, the 'Action' field will have 'None' and no action need be taken.

1. Check SPMACT and SPMOVLD OMs - Consult these OM groups on the DMS CORE. Consultation should indicate that the amount of traffic being presented to the Spectrum exceeds the engineering guidelines. The craft should re-engineer traffic sources to bring traffic levels presented to the Spectrum to within published guidelines.
2. Contact your next level of support - Contact Nortel support personnel.
3. None - For the situations when the SPM is leaving an overload condition, no action is required.

Associated Operational Measurements or Performance Measurements

In the OM group SPMOVLD, the OVLDNUM register is pegged when the SPM enters the 'Overload' condition and register OVLDUSG maintains the number of seconds the SPM was in the 'Overload' condition in the present OM collection interval. Similarly, the register OVLDPNUM is pegged when the SPM enters the 'Overload Pending' condition and register OVLDPUSG maintains the number of seconds the SPM was in the 'Overload Pending' condition in the present OM collection interval.

Looking at the "TRK" OM group for the trunk groups terminating on the overloaded Spectrum should indicate the source of the overload. The "CONNECT" OM indicates the number of calls successfully connected by this Spectrum for this trunk group. The "INCATOT" OM indicates the number total incoming connect requests for this trunk group for this Spectrum. If these two OMs are not equal, then call failures have occurred and need to be further investigated. Depending upon office configuration/traffic scenarios, all trunk groups terminating on this Spectrum may have to have these OM added together for the analysis to be meaningful.

Additional information

a. A00002431 - SP20 “LX82BA Capacity Delivery” - Enhances CALLP Flowcontrol interaction

b. A00002432 - SP20 “SPM Enhanced Overload OMs and Logs”- Enhances overload reporting.

SPM300

Explanation

Log Title: SPM300

Name: SPM300 Device Fault Report

Description: This feature adds new conditions for the generation of this existing log class.

With this feature, when ATM RM resource utilization crosses several pre-defined thresholds, instances of this log will be generated indicating resource utilization levels.

This log replaces the ATM605 log.

Event type: Trouble

Format

The format of this log has not changed. New descriptive strings have been added to describe the ATM RM’s resource utilization levels.

```
<LABCLLI> <*> SPM300 <MMMdd hh:mm:ss SSSS TBL  Device Fault Report
          Location    : SPM :<XX> ATM : <Y> Activity : <Activity1>
          Status      : <Status String>
          Problem Description: <Problem Description String>
          <Slot Number><Activity2>: <Problem Refinement String>
          Action      : <Action String>
          Cardlist    :
            No Cardlist Available.
```

Examples

Clearing ATMRM Resource Utilization Issues

```
MSH207BW      SPM300 FEB25 14:40:19 5900 TBL  Device Fault Report
          Location    : SPM : 4   ATM : 0 Activity : A
          Status      : Info Only
          Problem Description: No Problem
            8A: Resources OK
          Action      : No Action Required.
          Cardlist    :
            No Cardlist Available.
```

Entering Monitor OMs

```
MSH207BW   *  SPM300 FEB25 14:13:59 5000 TBL  Device Fault Report
          Location    : SPM : 4   ATM : 0 Activity : A
          Status      : Fault Raised
          Problem Description: Non Critical
            8A: Monitor OMs - Check SPMACT and SPMOVLD OMs
          Action      : Refer to NTPs for Alarm Clearing Procedures.
          Cardlist    :
            No Cardlist Available.
```

Entering Overload Pending

```
MSH207BW   *  SPM300 FEB25 14:14:08 3100 TBL  Device Fault Report
          Location    : SPM : 4   ATM : 0 Activity : A
          Status      : Fault Raised
          Problem Description: Non Critical
            8A: Ovld Pending
          Action      : Refer to NTPs for Alarm Clearing Procedures.
          Cardlist    :
            No Cardlist Available.
```

Field descriptions

Field descriptions

Field	Value	Description
LABCLLI	The CLLI of the office where the log is getting generated	
*	Priority of Alarm - One asterisk (*) or empty space	One asterisk (*) appears for a log of severity ‘Minor’ and empty space appears for a log of severity ‘No Alarm’.
MMMdd hh:mm:ss	MMM - JAN to DEC dd - 01 to 31 hh - 00 to 23 mm - 00 to 59 ss - 00 to 59	Date and Time when the log was generated in the core.
SSSS	0000 to 9999	Log serial number.
xx	00 to 85	SPM number for which the log is generated.
y	0,1	ATM RM number of the SPM for which the log is generated.
Activity1	A,I	Activity of the ATM RM. ‘A’ for Active and ‘I’ for Inactive.

Field descriptions

Field	Value	Description
Status String	1) “Info Only”, 2) “Fault Raised”	Log reason indication - The first string indicates no issues exists. The second string indicates an error condition.
Problem Description String	1) “No Problem”, 2) “Non Critical”	Severity of the fault - The first string indicates no issues exists. The second string indicates an error condition.
Slot Number	7,8	Slot Number of CEM which maintains the ATMRM
Activity2	A,I	Activity of the CEM. ‘A’ for Active and ‘I’ for Inactive.
Problem Refinement String	1) “Resources OK”, 2) “Monitor OMs - Check SPMACT and SPMOVLD OMs”, 3) “Ovld Pending”	ATM RM Resource Utilization level. First refinement indicates the condition has cleared. The subsequent 2 refinements indicate an error condition.
Action String	1) “Refer to NTPs for Alarm Clearing Procedures.”, 2) “No Action Required.”	Action the craft can preform.

Action

Same actions are to be performed as when similar SPM399 logs are generated. For more details, see “Action” on page 1351.

Associated Operational Measurements or Performance Measurements

Same analysis is to be performed when similar SPM399 logs are generated. For more details, see “Associated Operational Measurements or Performance Measurements” on page 1351.

Additional information

Please consult the same information as when the SPM399 logs are generated. For more details, see “Additional information” on page 1352.

NODE500

Explanation

Log Title: Node 500

Name: Node State Change

Description: This log is generated whenever a Spectrum node or Spectrum CEM changes state.

This feature adds new triggers for the generation of this log. The ATM RM resource levels are factored into the generation of this log in the same manner as the CEM resources are currently factored.

In the case of ATMRM resource exhaustion, when this log is triggered the following logs will also be generated. These other logs provide the reason behind the NODE/CEM state change.

- SPM399 SPM Overload Report
- SPM300 Device Fault Report

Event type: Information

Format

This feature is not changing the format of this log type. There are two formats for this log class: 1) Node State change, 2) CEM state change.

Node State Change

```
<LABCLLI> <*> NODE500 <MMMdd hh:mm:ss SSSS> INFO Node State Change
        Location: SPM  <xx>
        From:     <Node State>  ( <Connectivity State> )
        To        <Node State>  ( <Connectivity State> )
```

CEM State Change

```
<LABCLLI> <*> NODE500 <MMMdd hh:mm:ss SSSS> INFO Node State Change
        Location: SPM  <xx> Unit <y>
        From:     <Node State>  ( <Connectivity State>, <Activity State> )
        To        <Node State>  ( <Connectivity State>, <Activity State> )
```

Examples

Node ISTb State Change

```
MSH207BW   * NODE500 MAR04 09:21:26 7500 INFO Node State Change
        Location: SPM 10
        From:     InSv ( Connected )
          To:     ISTb ( Connected )
```

Node InSv State Change

```
MSH207BW     NODE500 MAR04 09:21:14 7200 INFO Node State Change
        Location: SPM 10
        From:     ISTb ( Connected )
          To:     InSv ( Connected )
```

CEM ISTb State Change

```
MSH207BW   * NODE500 MAR04 09:49:40 0000 INFO Node State Change
        Location: SPM 10 Unit 1
        From:     InSv ( Connected, Active )
          To:     ISTb ( Connected, Active )
```

CEM InSv State Change

```
MSH207BW     NODE500 MAR04 09:21:14 7100 INFO Node State Change
        Location: SPM 10 Unit 1
        From:     ISTb ( Connected, Active )
          To:     InSv ( Connected, Active )
```

Field descriptions

This feature is not changing the format of this log type.

Field descriptions

Field	Value	Description
LABCLLI	The CLLI of the office where the log is getting generated	
*	Priority of Alarm - One asterisk (*) or empty space	One asterisk (*) appears for a log of severity ‘Minor’ and empty space appears for a log of severity ‘No Alarm’.
MMMdd hh:mm:ss	MMM - JAN to DEC dd - 01 to 31 hh - 00 to 23 mm - 00 to 59 ss - 00 to 59	Date and Time when the log was generated in the core.
SSSS	0000 to 9999	Log serial number.
xx	00 to 85	SPM number for which the log is generated.
y	0,1	CEM number of the SPM for which the log is generated.

Field descriptions

Field	Value	Description
Node State	InSv, ISTb	The ISTb condition indicates the NODE/CEM is experiencing ATMRM resource exhaustion. The InSv condition indicates no such condition exists.
Connectivity State	Connected, Isolated	CORE Connectivity Indicator - Nodes/CEM experiencing resource exhaustion should always be"Connected"
Activity State	Active, Inactive	CEM's Activity State - Only Active CEMs should experience resource exhaustion.

Action

In the case of ATMRM resource exhaustion, the following 3 log types will also be generated:

- NODE602 "CEM State Change Reason Report",
- SPM300 "Device Fault Report" and a
- SPM399 "SPM Overload Report".

See the "Action" sections associated with the above 3 log types for corrective action.

Associated Operational Measurements or Performance Measurements

See " Associated Operational Measurements or Performance Measurements" on page 1351 for details

Additional information

Please consult the same information as when the SPM399 logs are generated. For more details, see "Additional information" on page 1352.

NODE602

Explanation

Log Title: Node 602

Name: CEM State Change Reason Report

Description: This log is generated whenever a Spectrum CEM changes state. The fault string "Unit reached or nearing OVERLOAD" is generated only when the active CEM enters the Level 2 overload state. There is no abatement log.

This feature adds new triggers for the generation of this log. The ATM RM resource levels are factored into the generation of this log in the same manner as the CEM resources are currently factored.

In the case of ATMRM resource exhaustion, when this log is triggered, the following logs will also be generated. These other logs provide the reason behind the NODE/CEM state change.

- NODE500 Node State Change
- SPM399 SPM Overload Report
- SPM300 Device Fault Report

Event type: Trouble

Format

This feature is not changing the format of this log type. A new reason string has been added.

```
<LABCLLI> NODE602 <MMMdd hh:mm:ss SSSS> TBL  CEM State Change Reason Report
        Location: SPM  <xx>   CEM :  <y>
        Reason  : CPU: Unit reached or nearing OVERLOAD.
        Location: SPM  <xx>  Type: SMG4      Fabric: ATM
```

Example

```
MSH207BW     NODE602 MAR16 13:31:15 7757 TBL  CEM State Change Reason Report
        Location: SPM:  10   CEM :  0
        Reason  : CPU: Unit reached or nearing OVERLOAD.
        Location: SPM  10  Type: SMG4      Fabric: ATM
```

Field descriptions

This feature is not changing the format of this log type.

Field descriptions

Field	Value	Description
LABCLLI	The CLLI of the office where the log is getting generated	
MMMdd hh:mm:ss	MMM - JAN to DEC dd - 01 to 31 hh - 00 to 23 mm - 00 to 59 ss - 00 to 59	Date and Time when the log was generated in the core.
SSSS	0000 to 9999	Log serial number.
xx	00 to 85	SPM number for which the log is generated.

Field descriptions

Field	Value	Description
y	0,1	CEM number of the SPM for which the log is generated.

Action

In the case of ATMRM resource exhaustion, the following 3 log types will also be generated:

- NODE500 “Node State Change”,
- SPM300 “Device Fault Report” and a
- SPM399 “SPM Overload Report”.

See the “Action” sections associated with the above 3 log types for corrective action.

Associated Operational Measurements or Performance Measurements

See “ Associated Operational Measurements or Performance Measurements” on page 1351 for details

Additional information

Please consult the same information as when the SPM399 logs are generated. For more details, see “Additional information” on page 1352.

SPM500

Explanation

Log Title: Node 500

Name: Device State Change

Description: This class of logs are generated when a Spectrum Resource Module changes state.

This feature does not change the information contained in this log class. This feature adds a new trigger for the generation of this type of log. When the ATM RM experiences initial resource exhaustion, or recovers from resource exhaustion, this log will be triggered. Please note, in the case of ATM RM resource exhaustion, when this log is generated, it will be accompanied by a SPM300 “Device Fault Report” and a SPM399 “SPM Overload Report”.

Event type: Information

Format

This feature does not change the format or contents of this log class.

```
<LABCLLI> <*> SPM500 <MMMdd hh:mm:ss SSSS> INFO Device State Change
          Location: SPM : <xx>   ATM : <y>
          From    : <State String>  (<Activity String>)
          To      : <State String>  (<Activity String>)
```

Examples

Istb Device State Change

```
MSH207BW *  SPM500 FEB25 14:13:59 5135 INFO Device State Change
        Location: SPM : 4   ATM : 0
        From    : InSv (Active  )
        To      : ISTb (Active  )
```

Insv Device State Change

```
MSH207BW    SPM500 FEB25 14:40:19 5817 INFO Device State Change
        Location: SPM : 4   ATM : 0
        From    : ISTb (Active  )
        To      : InSv (Active  )
```

Field descriptions

Field descriptions are not changed by this feature.

Field descriptions

Field	Value	Description
LABCLLI	The CLLI of the office where the log is getting generated	
Priority of Alarm	One asterisk (*) or empty space	One asterisk (*) appears for a log of severity ‘Minor’ and empty space appears for a log of severity ‘No Alarm’.
MMMdd hh:mm:ss	MMM - JAN to DEC dd - 01 to 31 hh - 00 to 23 mm - 00 to 59 ss - 00 to 59	Date and Time when the log was generated in the core.
SSSS	0000 to 9999	Log serial number.
xx	00 to 85	SPM number for which the log is generated.
y	0,1	CEM number of the SPM for which the log is generated.

Field descriptions

Field	Value	Description
State String	InSv, ISTb	Device State - An ATMRM should be InSv when there is no resource exhaustion, else ISTb.
Activity String	Active, Inactive	Identifies the sparing state of the ATM RM. Only the “Active” ATMRM should experience resource exhaustion.

Action

In the case of ATMRM resource exhaustion, the following 2 log types will also be generated:

- SPM300 “Device Fault Report” and a
- SPM399 “SPM Overload Report”.

See the “Action” sections associated with the above 2 log types for corrective action.

Associated Operational Measurements or Performance Measurements

In the case of ATMRM resource exhaustion, the following 2 log types will also be generated:

- SPM300 “Device Fault Report” and a
- SPM399 “SPM Overload Report”.

See “Associated Operational Measurements or Performance Measurements” on page 1351 for details

Additional information

Please consult the same information as when the SPM399 logs are generated. For more details, see “Additional information” on page 1352.

Alarms

This feature does not introduce any new alarms. It provides new conditions for triggering the existing ISTb alarm on both the ATMRM and the CEM.

The resource exhaustion based ISTb alarm for the ATMRM is triggered before the similar alarm for the CEM. The CEM ISTb alarm will only be triggered for ATMRM resource utilization level of Level 2 and/or the CEM reaching a similar resource utilization level.

Format

This feature does not change the format of this existing alarm. The following output is from the "**MAPCI;MTC;PM;POST SPM <xx>;QUERYPM FLT**" command.

```
ATM  <Active ATMRM #> ISTb Act   Alarm: ISTB     Severity: Minor    Action: RPT
```

Field descriptions are not changed by this feature.

Field descriptions

Field	Value	Description
ATM	All valid RM types.	Indicates the RM type generating the alarm.
<Active ATMRM #>	0,1	RM number of the active unit.
ISTb	ISTb	RM device state. Only the "ISTb" state is allowed for the "ISTb" alarm.
Act	Act	Activity of the ATMRM generating the alarm. Only the active ATMRM can generate this log for an overload condition.
Alarm: ISTB	ISTb	Alarm type. Only "ISTb" is allowed.
Severity: Minor	Minor	Alarm severity. Only "Minor" is allowed for an overload condition.
Action: RPT	RPT, NORPT	Indicates whether a log is to be generated for this alarm type. In table MNNODE a tuple for this node exists that indicates for an ISTb alarm, a SPM300 "Node State Change" and/or a SPM500 "Device State Change" log will be generated.

Associated Alarm Message

To look at other output to refine the "ISTb" alarm conditions, use the "**MAPCI;MTC;PM;POST SPM <xx>; QUERYPM FLT REASON**" command.

For a Level 1 ATMRM resource exhaustion condition, the output will be:

```
ATM <Active ATMRM #> ISTb NonCritical faults:
ApplicationFlt: Monitor OMs - Check SPMACT and SPMOVLD OMs
```

For a Level 2 ATMRM resource exhaustion condition, the output will be:

```
ATM <Active ATMRM #> ISTb NonCritical faults:
  ApplicationFlt: Ovld Pending
CEM <Active CEM #> ISTb NonCritical faults:
  CPU: Unit reached or nearing OVERLOAD
```

For a CEM CALLP Overload condition, the output will be:

```
ATM <Active ATMRM #> ISTb NonCritical faults:
  ApplicationFlt: Overload
CEM <Active CEM #> ISTb NonCritical faults:
  CPU: Unit reached or nearing OVERLOAD
```

Severity

Minor

Cause or Condition

The ATMRM resource exhaustion triggered ISTb alarm is triggered by any form of resource exhaustion (i.e. high rates of traffic) in the ATMRM. The CEM alarm is raised when the ATMRM enters Level 2 resource exhaustion (i.e. ATMRM CPU occupancy is initially greater than 88%, then greater than 75%).

Duration

The ATMRM resource exhaustion triggered alarm will exist as long as the ATMRM is experiencing any form of resource exhaustion. The CEM alarm is raised when the ATMRM enters Level 2 resource exhaustion.

Action

As specified in the SPM399 “Overload Report” log.

Association

For full association, see “Maintenance Interactions for each ATMRM Resource Utilization Level” on page 1343.

Maintenance Operation Strings

The Maintenance Operation strings (also known as MIP Strings (Maintenance In Progress)) displays the current maintenance status of the posted device.

This feature extends the current CEM overload MIP strings functionality to the ATMRM.

Format

This feature adds the overload status MIP string to the ATMRM.

To view the current resource exhaustion/overload state of an ATMRM module, the module must be selected.

MAPCI;MTC;PM;POST SPM <SPM Number>;SELECT ATM <Module Number {0,1}>

```
 XAC      MS      IOD      Net      PM      CCS      Lns      Trks     Ext      APPL
  .       .        .        .       .        .        .        .       .        .

ATM                                    SysB     ManB     OffL     CBsy     ISTb     InSv
 0 Quit          PM                      0        0        0        0        0      100
 2               SPM                     0        0        0        0        0       85
 3 ListSet         ATM                   0        0        0        0        0        2
 4
 5              SPM 4    ATM 0    Act    InSv          <MIP String>
 6 Tst
 7 Bsy          Loc : Row G  FrPos 41 ShPos  0 ShId 0 Slot  1   Prot Grp : 1
 8 RTS         Default Load: ATC20CF                          Prot Role: Working
 9 OffL
10 LoadMod     ATM:
11
12 Next
13 Select_
14 QueryMod
15 ListAlm
16 Prot
17 SPERFORM
18
   DOC
Time  12:01  >
```

This feature does not change the format of this display.

Field descriptions

Field	Value	Description
MIP String	"", "/Monitor OMs", "/Ovld Pending".	Indicates the current maintenance operations of the posted device.

- "" (no string): Device is not experiencing resource exhaustion.
- "/Monitor OMs": Resource utilization is at Level 1 ("Fault management strategy" on page 1342 for resource level description,
- "/Ovld Pending": Resource utilization is at Level 2.
- Please note, the "/Overload" MIP string does not exist for the ATMRM. Only CEMs can be in this state as it indicates that CEM CALLP is experiencing overload.

Cause or Condition

The ATMRM resource exhaustion triggered MIP strings is triggered by any form of resource exhaustion (i.e. high rates of traffic) in the ATMRM. The CEM MIP string can be raised when the ATMRM enters any level of resource exhaustion.

Duration

The ATMRM resource exhaustion triggered MIP string will exist as long as the ATMRM is experiencing any form of resource exhaustion The CEM MIP string is raised when the ATMRM enters any level of resource exhaustion.

Action

As specified in the SPM399 “Overload Report” log.

Association

For full association, see “Maintenance Interactions for each ATMRM Resource Utilization Level” on page 1343.

On the maintenance status line, the module’s resource exhaustion/overload state will be visible if said condition exists. These status indicators are:

Related documentation

a. A00002431 - SP20 “LX82BA Capacity Delivery” - Enhances CALLP Flowcontrol interaction, available elsewhere in this document.

b. A00002432 - SP20 “SPM Enhanced Overload OMs and Logs”- Enhances overload reporting, available elsewhere in this document.

Product = CS 2000

A00005363--CAIN and CDR Support for GNS Personal Toll Free Service (Succession on DMS)

Functional Description

Description

Additional information is needed that is not currently collected and presented in CDR records. This information will be made available in new CDR fields, that are used by the Flexible CDR capability. Some of this information comes from new CAIN message processing. The Flexible CDR capability is controlled by the existing SOC UBFR0001.

The processing of this new information is controlled by a new SOC CAIN0202 - CAIN FlexCDR Enhancements.

The new CAIN message processing consists of:

1. Support for a new CAIN parameter, AMABusinessCustomerId in some incoming messages.

2. Support for a digits id (300) for an existing CAIN parameter, AMADigitsDialedWC.
3. Support for recording all the digits for a currently supported digits id (301) for the existing CAIN parameter AMADigitsDialedWC
4. Support for retaining the first occurrence of an existing CAIN parameter, AMASlpID. Currently, only the last occurrence of this parameter is retained.
5. Support for 4new parameters in the CDRTMPLT table: SLPID1ST, BUSCSTID, DGI300 and DGI301. This feature does not create a new predefined template. The customer must either modify their existing template or create a new template which includes the 4new parameters.

Functional Overview

CAIN: AMABusinessCustomerId

Prior to this feature, the AMABusinessCustomerId parameter was not supported by the DMS-250. This feature provides support for this parameter, including enhancements to the CAIN simulator to generate this parameter in the messages listed below. The value for this parameter is 11 digits.

The call processing support consists of parsing the incoming parameter, and making the data available for use by the billing component - it will not affect call processing (either by its value, presence or absence) in any other way. Only the last occurrence of this parameter will be retained for use by the billing component. This parameter will be supported in the DMS-250 being received in the following messages from an SCP:

- Analyze_Route
- Disconnect
- Send_To_Resource

This includes display of this parameter in the VAMP log.

CAIN: AMADigitsDialedWC

Prior to this feature, the AMADigitsDialedWC was not supported for a digits id of 300. This feature adds this support, which consists of parsing the incoming parameter for this digits id, and making the data available for use by the billing component. Only the last occurrence of a AMADigitsDialedWC with a digits id of 300 will be retained for use by the billing component (as is the case today with other such AMADigitsDialedWC digits id). The maximum supported length for the value of this digits id is 24 digits (with the three digit of the digits id makes a maximum total length of 27 digits).

The AMADigitsDialedWC parameter is currently supported by the DMS-250 for various incoming messages from the SCP, and this activity does not alter

that support - that is to say that the DMS-250 will support receiving a AMADigitsDialedWC parameter with a digits id of 300 in all cases that reception of a AMADigitsDialedWC parameter is valid. However, the functionality added by this feature (recording the value received in a AMADigitsDialedWC parameter with digits id = 300) will only be supported for the following messages:

- Analyze_Route
- Disconnect
- Send_To_Resource

This includes display of this new digit id in the VAMP log.

CAIN: AMADigitsDialedWC - 301

Prior to this feature, only the first four digits in the AMADigitsDialedWC parameter with digits id = 301 were recorded (in field PINDIGS). This feature records the entire parameter in the new field DGI301.

CAIN: AMASlpId

Prior to this feature, only the last AMASlpId parameter for a call received in a message from the SCP was retained for use by the billing component. This feature adds support for also retaining the first AMASlpId parameter for a call received in a message. This support applies to all messages from the SCP that contain an AMASlpId parameter. Note that in the case that there is only one such AMASlpId parameter received during a call, the first and last AMASlpId values will be the same. The AMASlpId parameter is currently supported by the DMS-250 for various incoming messages from the SCP, and this activity does not alter that support. The functionality added by this feature (retaining the first AMASlpId) will however only be supported for the following messages:

- Analyze_Route
- Disconnect
- Send_To_Resource

CAIN: Simulator changes

To support the changes to the CAIN simulator for the new parameter and AMADigitsDialedWC digits, the following CAIN simulator tables are changed. Table Control Changes.

Table	Desc
CAINRESP	A new parameter, AMABusinessCustomerId, with a value of 11 digits, is supported in the following operation types: • Analyze_Route • Disconnect • Send_To_Resource This new parameter is also supported in the "non-restricted" message (as are all parameters). For the existing parameter AMADIGITS, a new digits type, 300, is supported.

CDR: Table changes

To allow the recording of Dialed digits, Customerid and the first received Amaslpid, the following changes are made to the CDRTMPLT table.

Table	Desc
CDRTMPLT	4 new parameters for the FIELDS and REORIGCP sub-fields of table CDRTMPLT are added to record the data collected for the AMADigitsDialedWC, AMABusiness-CustomerId, and AMASlpID CAIN parameters.

Sample datafill for table **CDRTMPLT**:

NAME ACTIVE PRIMARY FIELDS REORIGCP

VZN_FLXCDR Y N (SEQNUM) (CIC) (ORIGTIME) (ORIGDATE) (ANSTYPE) (TIMECHNG) (ORIGAMPM) (INCINTL) (DISCTIME) (DISCDATE) (ANISUFF) (DISCAMPM) (INCBILL) (FILL1) (CALLDUR) (PINDIGS) (ANISP) (INFODIG) (BILLNUM) (ACCTCD) (CLGPTYNO) (RLTCDR) (ACCTV) (UNIVACC) (DIALEDNO) (CALLEDNO) (OUTPULNO) (FILL4) (ORIGOPRT) (PREDIG) (CNPREDIG) (OPART) (TPART) (QUEUED) (FILL3) (FILL3) (FILL4) (RTENO) (NETSEC) (OPCHOICE) (COLLTIME) (ADIN) (LNPCHECK) (NUMWBCKT) (WBCKTS) (FINSID) (BILLTYPE) (ORIGGRP) (DISCTYPE) (ORIGMEM) (PASSTHRU) (TERMGRP) (PRESIND) (TERMMEM) (OSRASSOC) (DIGDATA) (FINTKGRP) (TRAP) (COSOVE) (FINTKMEM) (SCPBILL) (FILL3) (FILL3) (FILL3) (FILL2) (FILL3) (FILL2) (TRTMTCD) (COMPCODE) (CRID) (DNIS) (ORIGPVN) (TERMPVN) (ORIGLRN) (PORTEDNO) (CAINCT) (ACG) (DNISNOA) (FILL1) (MLTCOSID) (FILL4) (FILL1) (COSINDEX) (FILL2) (CARRSEL) (SLPID1ST) (BUSCSTID) (AMADGSWC) $ $

CDR: New Field Description

The new data captured by this activity will be formatted into the CDR record using the following layout:

Field Name	Bits	CDR Field Description
AMADGSWC	27	Contains the Digit ID “300” followed by the dialed digits which are contained in the SCP message whenever the digits id = 300. This will be performed as described in section 2.3.2.
BUSCSTID	11	Contains the customer id which is received in the SCP message. This field is populated based on the description in section 2.3.1.
SLPID1ST	9	Contains the first AMASLPID received. This field is populated as described in section 2.3.3.

Sample CDR Log:

```
          RTPE_B115BH    CDR273 FEB04 21:44:14 4200 INFO CDR_CALL_ENTRY
250X15AY       CDR273 FEB09 13:44:20 0800 INFO CDR_CALL_ENTRY

RECCD     F0                          TEMPLID   016
ACTIDX    6                           TOOLGEN   Y
USEEDIT   N                           VARLNGTH  N
SEQNUM    00001                       CIC       5676
ORIGTIME  34992                       ORIGDATE  035
ANSTYPE   03                          TIMECHNG  N
ORIGAMPM  1                           INCINTL   N
DISCTIME  35052                       DISCDATE  035
ANISUFF   1                           DISCAMPM  1
INCBILL   1                           CALLDUR   00013107
PINDIGS   6987                        ANISP     5124599628
INFODIG   1                           BILLNUM   50854321499779000001234
ACCTCD    802000012345                CLGPTYNO  214684552900000
```

```
RLTCDR     Y                                ACCTV      3
UNIVACC    8007654321                       DIALEDNO   508345214997799
CALLEDNO   508543214997790                  OUTPULNO   508345129479970
ORIGOPRT   501                              PREDIG     1
CNPREDIG   1                                OPART      511
TPART      31                               QUEUED     Y
OPCHOICE   232                              COLLTIME   060
ADIN       12                               LNPCHECK   7
NUMWBCKT   16                               WBCKTS     10000000 10000000 00000000
FINSID     111                              BILLTYPE   35
ORIGGRP    0353                             DISCTYPE   1
ORIGMEM    0101                             PASSTHRU   2
TERMGRP    0355                             PRESIND    1
TERMMEM    0101                             OSRASSOC   N
DIGDATA    Y                                FINTKGRP   09999
TRAP       N                                COSOVE     Y
FINTKMEM   62843                            SCPBILL    FE17700B
TRTMTCD    010                              COMPCODE   3
CRID       684149400                        DNIS       214684149400000
ORIGPVN    214684149400000                  TERMPVN    214684466200000
ORIGLRN    2146841494                       PORTEDNO   2146844662
CAINCT     1                                ACG        Y
DNISNOA    103                              MLTCOSID   0001
COSINDEX   0001                             CARRSEL    02
SLPID1ST   032401234                        BUSCSTID   02532401234
AMADGSWC   3002156781212214684595800000
```

Software Optionality Control

The actual recording of the three items, AMADGSWC, BUSCSTID, and SLPID1ST is controlled by a new SOC, CAIN0202 - CAIN FlexCDR Enhancements.

Hardware Requirements or Dependencies

No new hardware dependencies are introduced by these features.

Software Requirements or Dependencies

No new customer software or firmware dependencies are introduced by these features.

Limitations and restrictions

None

Interactions

None.

Applicable customer facing sections

Fault Management

Logs	___X__
Alarms	__na__

Configuration

Data Schema	___X__
User Interface	__na__
Element Management	__na__
Security	__na__
Service Order	__na__
Office Parameters	__na__
Accounting (includes AMA billing)	__X___
Performance (includes operational measurements)	__na__
Realtime	__X___
Engineering Information	__X___

Glossary

Term	Description
AMA	Automatic Message Accounting
CAIN	Carrier AIN
CDR	Call Detail Recording
SCP	Service Control Point
SOC	Software Optionality Control

Fault Management for A00005363

Fault management strategy

Logs are used for fault management.

Fault management tools and utilities

The VPTRACE tool is used to turn on VAMP logs.

Logs

VAMP901

The VAMP901 log is enhanced for the following two purposes:

- to display the new Business Customer ID parameter, and
- the AMA Digits parameter has an additional value possible in the Digits Type subfield (300)

Explanation

Log Title: VAMP901

Name: Variable AIN Message Platform 901 Log

Description: The VAMP901 log report is generated when a message is received via the VAMP framework. The VAMP framework captures the messages only when message logging has been enabled with the VPTRACE tool. For more detailed information, refer to NTP 297-2621-370--UCS DMS-250 NetworkBuilder Application Guide. This log is intended for lab use only and is not suitable for live switches due to the number and size of reports.

Event type: Info

Format

The new Business Customer ID parameter appears in the VAMP901 log with the other parameters. Its display format is shown below.

```
BUSCSTID: <string of digits>
```

Field descriptions

The new field BUSCSTID consists of a string of digits

Field	Value	Description
BUSCSTID	Vector of 11 digits	Digits

Field name: BUSCSTID
Field optionality: optional, variable
Type: Alphanumeric
Size: 7 bytes
Value(s): See field descriptions above
Descriptions: See field descriptions above
NTP table reference: N/A

Action

None

Associated Operational Measurements or Performance Measurements

None

Additional information

None

Related documentation

None

Configuration for A00005363

Hardware and Software Requirements

No new hardware or software requirements are created by this activity.

Initial Configuration

Standard configuration applies

Office/Subnet parameters (OP/SP) (CM & SESM)

Not applicable

Data schema (DS) (CM, MIBS, RDB)

New/modified tables, MIBs, or Database Schema

Table/MIB name	NEW/CHANGED/ or DELETED/	Table Control (NEW/OLD/UNCHANGED)
CAINRESP	changed	unchanged
CDRTMPLT	changed	unchanged

Table/MIB/Remote Database Schema information

Name: CAINRESP

CAIN Simulator Response

Functional description

This feature adds a new parameter, AMABusinessCustomerId, to the operation types:

- Analyze_Route
- Disconnect
- Send_To_Resource

This feature also add a new digits id type (300) to the AMADIGS parameter.

Usage sequence and implications (CM Only)

The current table datafill order is unchanged.

Size

Unchanged

Fields/OIDs

The following table lists the changed fields/OIDs for CAINRESP

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
CAIN_PARM_VALUE	changed	subfield	AMABUSCUSTID	The range of this subfield is expanded to include the AMABusinessCustomerId parameter.
AMA_DIGS_TYPE	changed	subfield	001, 002, 003, 004, 005, 006, 011, 012, 300, 301, 302, 303, 304, 305, 999	The range of this subfield is expanded to include the value of 300

Datafill example

The following example shows sample datafill for table CAINRESP.

```
TABLE: CAINRESP

RESPKEY
                                    DATAAREA
---------------------------------------------------------------------
RESP123
CR 0 RESP INVL ANALYZE_ROUTE  (CLDNO NATL ISDN 2149201234) (AMA_BUS_CUSTID
01234567890) (AMADIGS 300 9876543210) $ $ $
```

Table release history update

Not applicable.

Supplementary information

None.

Translation verification other tools

None.

Name: CDRTMPLT

CDR template table

Functional description

This feature adds 3 new parameters to the FIELDS and REORIGCP subfields of table CDRTMPLT.

Usage sequence and implications (CM Only)

The current table datafill order is unchanged.

Size

Unchanged

Fields/OIDs

The following table lists the changed fields/OIDs for CAINRESP

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
FIELDS	changed	subfield	BUSCSTID, SLPID1ST, DGI300, DGI301.	The range of this subfield is expanded to include the BUSCSTID, SLPID1ST, DGI300 and DGI301 parameters.
REORIGCP	changed	subfield	BUSCSTID, SLPID1ST, DGI300, DGI301.	The range of this subfield is expanded to include the BUSCSTID, SLPID1ST, DGI300 and DGI301 parameters.

Datafill example

The following example shows sample datafill for table CDRTMPLT.

```
TABLE: CDRTMPLT
NAME ACTIVE PRIMARY FIELDS REORIGCP
-----------------------------------------------------------
VZN_FLXCDR Y N (SEQNUM) (CIC) (ORIGTIME) (ORIGDATE)
(ANSTYPE) (TIMECHNG) (ORIGAMPM) (INCINTL) (DISCTIME)
(DISCDATE) (ANISUFF) (DISCAMPM) (INCBILL) (FILL1) (CALLDUR)
(PINDIGS) (ANISP) (INFODIG) (BILLNUM) (ACCTCD) (CLGPTYNO)
(RLTCDR) (ACCTV) (UNIVACC) (DIALEDNO) (CALLEDNO)
(OUTPULNO) (FILL4) (ORIGOPRT) (PREDIG) (CNPREDIG) (OPART)
(TPART) (QUEUED) (FILL3) (FILL3) (FILL4) (RTENO) (NETSEC)
(OPCHOICE) (COLLTIME) (ADIN) (LNPCHECK) (NUMWBCKT)
(WBCKTS) (FINSID) (BILLTYPE) (ORIGGRP) (DISCTYPE) (ORIGMEM)
(PASSTHRU) (TERMGRP) (PRESIND) (TERMMEM) (OSRASSOC)
(DIGDATA) (FINTKGRP) (TRAP) (COSOVE) (FINTKMEM) (SCPBILL)
(FILL3) (FILL3) (FILL3) (FILL2) (FILL3) (FILL2) (TRTMTCD)
(COMPCODE) (CRID) (DNIS) (ORIGPVN) (TERMPVN) (ORIGLRN)
```

(PORTEDNO) (CAINCT) (ACG) (DNISNOA) (FILL1) (MLTCOSID) (FILL4) (FILL1) (COSINDEX) (FILL2) (CARRSEL) (SLPID1ST) (BUSCSTID) (DGI300) (DGI301) (FILL8) $ $

Table release history update

Not applicable.

Supplementary information

None.

Translation verification other tools

None.

Service Orders (SO) (CM & SESM)

Not applicable

Software optionality control (SOC)

The CAIN0202 SOC is added by this feature

SOC option name:	CAIN0202
SOC option title:	CAIN FlexCDR Enhancements
SOC option control type:	state
New SOC option?	Yes
SOC option order code	CAIN0202
Option defined in DRU:	UCS
Affected products:	DMS-250

Element Management

Not Applicable.

Command interface changes

Not Applicable.

Security

Not Applicable.

Configuration Walkthrough

Not applicable

Product = CS 2000

A00005485 -- SAM21 Platform Installation on SSPFS (PT-AAL1, UA-AAL1)

Excerpts from the Design Description

Purpose

To allow the installation of the SAM21 Platform Package from CDROM on to the SSPFS box.

In SN07, the new SSPFS box does not contain a DAT Tape Drive but only a CD/DVD ROM drive. Therefore, the Platform Installation tool will be further enhanced to allow the user to extract the SAM21 Platform Package from CD where it is stored in a “RPM” format.

What this means is that this tool will now be used in ALL Solutions to allow the user to install the SAM21 Platform Loads using a DAT tape, to be backward compatible, and CDROM moving forward. The CDROM will be of ISO format containing the following files:

- SAM21 Platform Fileset (This is used for installation on the AIX SDM)
- SAM21 Platform TAR file
- SAM21 Platform RPM file

If the solution contains an AIX SDM, the user will be prompted for a roo passwd for the SDM so that the fileset will be Secure Copied onto the SDM.

> ***Note:*** The implementation of this activity will also satisfy the problem described by CR.Q00808578 -

This tool will be further expanded to allow the user to install the Call Agent and Message Controller Linux loads from CDROM. It must be noted that the SOS images will not be extracted from CD using this tool.

Product = CS2000

A00005758 -- ESUP over Telnet support (Succession on DMS)

Functional Description (FN)

ESUP, Enhanced SDM Upgrade Procedure, is the recommended upgrade procedure for the SuperNode Data Manager from/to SDM20/CS2E00070.

The Major limitation of ESUP was its restriction on the usage of the Active System console to perform the upgrade. This feature provides the support for performing the ESUP upgrade over remote login sessions (telnet) as well.

This is achieved by the usage of the Open Source third party software 'SCREEN', a full-screen window manager that multiplexes a physical terminal between several processes.

ESUP process is launched with 'SCREEN' support. The usage of 'SCREEN' is transparent to the user.

The framework for a semi-automatic recovery in case of an ESUP failure is also introduced as part of this feature. Semi-automatic recovery here refers to the user-initiated recovery procedure to recover the system from upgrade failures.

Hardware Requirements or Dependencies

No new hardware requirements or dependencies are introduced by this feature.

Software Requirements or Dependencies

Software requirements for downstream system

No new hardware requirements or dependencies are introduced by this feature.

Software requirements for SDM.

Open Source software 'SCREEN' is to be installed on the system.

Limitations and restrictions

'Telnet' is the only remote login supported.

Interactions

No

Applicable customer facing sections

Fault Management

Logs	___N/A__
Alarms	___N/A___

Configuration

Data Schema	__N/A_
User Interface	__X__
Element Management	_N/A_
Security	_N/A_

Service Order _N/A_

Office Parameters _N/A_

Accounting (includes AMA billing) _N/A_

Performance (includes operational measurements) __N/A__

Glossary

Term	Description
SDM	Supernode Data Manager
CBM	Core Billing Manager
OSS	Operations Support System
ESUP	Enhanced SDM Upgrade Procedure

Product = CS 2000

A00006693 -- XA-Core IO Capacity Monitoring Toolset (Succession on DMS)

Functional Description

The IO Capacity monitoring toolset (IOCAP) provide the customer telemetry for messaging over HIOP and HCMIC.

XA-Core counts messages and bytes for each service. Software on the XA-Core accesses the measurements, calculates the messaging occupancy level, and displays the results on the IOCAP MAPCI level and the IOCAP OM group.

This feature will cause no more than 3% capacity degradation to IO capacity.

IOCAP MAPCI display

Following is a prototype of the IOCAP MAPCI display, which will subtend from the CAPACITY level. The display will be updated once per minute.

```
CATMP/HR   SMS/HR VLR_UPD/HR  CAP ENGBHCA CCOVRLD CMICOVRLD PESC
  303001      180     398700  128  233643    OFF       OFF   NO


Service IOUTIL%  TxMsg/s  TxSize RxMsg/s  RxSize
   ETHR      64    15324     107   13234      91
   CMIC      17     4102     202    1254     102
   AMDI       0        0       0       0       0
```

The Service column identifies the type of IO service (Ethernet, CMIC, or AMDI). IOUTIL is the calculated percentage utilization of the available system messaging capacity, based on the known IO system capacity, the average rate through other services on the same card, and the throughput on other cards. TxMsg/s, TxSize, RxMsg/s and RxSize report average transmit and receive message rates and sizes through that service. Because the MAPCI display is updated once per minute, high water mark information will not be displayed.

IOCAPCI tool

The information in the MAP display is also available through the IOCAPCI tool, in addition to the following tools:

- one month's history of hourly high water mark percent utilization for each service (Ethernet, CMIC, and AMDI), similar to DMSMON HIGHCAP.
- one month's history of hourly average percent utilization for each service.
- current hour and last hour utilization and throughput for each service

An example of the CMIC high water mark data follows. A similar output will be available for each service.

```
> iomax cmic
Maximum CMIC Utilization
                                                    Hour
Date    0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23
-------------------------------------------------------------------------------------------------------
-------
2/1     9   7   8   6   5   7   8  11  17  22  28  30  40  55  50  47  61  57  59  62  59  39  31  21
2/2     8   7   9  10   4   5   9  12  16  21  27  29  39  49  53  43  51  56  57  61  57  41  29  18
2/3     5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/4     3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/5     9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/6     5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/7     3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/8     9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/9     5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/10    3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/11    9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/12    5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/13    3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/14    9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/15    5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/16    3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/17    9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/18    5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/19    3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
```

```
2/20    9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/21    5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/22    3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/23    9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/24    5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/25    3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/26    5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/27    3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/28    9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/29    8   7   8  10   8   9   7
1/30    3   8   7   6   9   8   4  12 16  21  27  29  39  49  47  45  55  53  57  56  51  49  29  14
1/31    8   6   5   7   8   7   6   9  11  19  27  31  39  49  53  43  51  55  53  57  56  51  31  21
```

IO capacity OM

The information displayed in the IOCAP MAP command is also recorded in the IOCAP operational measurement, as shown below.

```
IOCAP

CLASS:  HOLDING
START:2003/12/03 09:30:00 WED; STOP: 2003/12/03 09:45:00 WED;
SLOWSAMPLES:          9 ; FASTSAMPLES:          90 ;

INFO (IO_SERVICE_TYPE)
            IOUTIL       IOHWM     TXMSG/S  TXSIZE
           RXMSG/S      RXSIZE    IOTHRESH
    1 ETHR
                64           72        15204      105
             13234           84            0
    2 CMIC
                17           18         1254      102
              1254           63            0
    3 AMDI
                 0            0            0        0
                 0            0            0
```

The IOCAP OM provides measurements of messaging rates and sizes for each service. The IO_SERVICE_TYPE indicates the service provided. IOUTIL refers to percentage utilization of the services on the switch. IOHWM refers to the highest level that the corresponding utilization has reached in the sample period. TxMSG/S, TxSIZE, RxMSG/S and RxSIZE report the average transmit and receive message rates and sizes through the service. The IOTHRESH register is pegged every time the service average utilization for one minute exceeds the value of new OFCENG office parameter IO_WARNING_THRESHOLD. This register is intended to give the customer a flexible warning that they are approaching the need to upgrade their IO system.

Office parameter

A new office parameter in table OFCENG, IO_WARNING_THRESHOLD, indicates the minimum IO service utilization at which the IOTHRESH register in the IOCAP OM will be pegged.

Hardware Requirements or Dependencies

This feature is unavailable for CMIC, Ethernet and AMDI packlets (NTLX05AB, NTLX09AA, NTLX05BA respectively).

This feature is supported on all versions of NTLX04 HIOP cards and NTLX17 HCMIC cards.

Software Requirements or Dependencies

None.

Limitations and restrictions

This feature will be submitted into CSP21 and patched back to CSP20.

When the system is in transition from IOP to HIOP, the utilization of all IO services are not be available.

Interactions

The MAPCI level display will subtend from the CAPACITY MAP level. It will be shown as an option from that level.

Applicable customer facing sections

Fault Management

Logs	__NA__
Alarms	__NA__

Configuration

Data Schema	__NA__
User Interface	__X___
Element Management	__NA__
Security	__NA__
Service Order	__NA__
Office Parameters	__X___

Accounting (includes AMA billing)	__NA__
Performance (includes operational measurements)	__X___

Glossary

Term	Description
New term	Definition

Configuration Management for A00006693

Hardware and Software Requirements

Not applicable.

Initial Configuration

Not applicable.

Office/Subnet parameters (OP/SP) (CM & SESM)

New/modified office/subnet parameters

New or modified parameter

Parm table	Parameter name	NEW/ CHANGED/ DELETED/ RELOCATED	Domain (CM or Subnet Management
OFCENG	IO_WARNING_ THRESHOLD	NEW	XA-Core

Parameter information

IO_WARNING_THRESHOLD

IO_WARNING_THRESHOLD

Functional description

This parameter defines a utilization warning threshold for all IO service types (CMIC, ETHR, AMDI) in the system. The IOCAP monitoring toolset uses the value of this parameter to peg the IOTHRESH register of the IOCAP OM whenever the IO utilization level of any IO service has exceeded this threshold on the switch.

Provisioning rules

There is no formula for provisioning this office parameter. However, this office parameter should be set by the customer in such a manner that will allow sufficient advance warning time for their maintenance personnel to upgrade or reconfigure their IO devices in case the condition reoccurs often.

Range information

Range Information

Minimum	Maximum	Default
1	100	100

Activation
Any change activation for this office parameter is immediate.

Dependencies
Not applicable.

Consequences
If this office parameter is set low, the IOTHRESH register might be in pegged more often than necessary. If this office pararmeter is set high, the customer may not have enough advance notice to upgrade their IO configuration.

Verification
To verify, users can modify and display the value of IO_WARNING_THRESHOLD on table OFCENG via table control.

Memory requirements
No memory impact.

Units per memory block = <10>

Words per memory block = <510>

If the parameter value = <25>

words required = (((parameter value - 1)/units per block) + 1) *words per block = <>

Parameter release history update
New office parameter in CSP20.

Upgrade Impact

Not applicable.

Data schema (DS) (CM, MIBS, RDB)

Not applicable.

Service Orders (SO) (CM & SESM)

Not applicable.

Software optionality control (SOC)

Not applicable.

Element Management

Not applicable.

Command interface changes

The following new directories will be provided in this feature.

Directory: CAPACITY

This existing CAPACITY MAPCI level will be modified to provide a new IOCAP MAPCI level in XA-Core only. The new IOCAP level will provide IO utilization and IO messaging throughput information for HCMIC and HIOP IO cards.

Directory description

This new IOCAP MAPCI level will be giving the IO utilization values and messaging throughput information for each IO service type (CMIC, ETHR and AMDI). The information on this new MAPCI level will be updated once every minute.

Accessing directory: CAPACITY

Access to directory or MAP level and return to CI

To access this directory, type:

> MAPCI; MTC; CAPACITY

To return to the CI environment, type:

> QUIT ALL

Command: IOCAP

This is a new command available under the CAPACITY MAPCI level in XA-Core only.

Command type: Listed MENU

Command target: XA-Core only

Command availability: RES

Command description

This new IOCAP MAPCI level will be giving the IO utilization values and messaging throughput information for each IO service type (CMIC, ETHR and AMDI). The information on this new MAPCI level will be updated once every minute.

Command syntax

IOCAP command parameters and variables

Command	Parameters and variables
IOCAP	none
Parameters and variables	Description

Qualifications and warnings

Not applicable.

Responses

IOCAP response

MAP outputs with associated meanings and actions

Command
Service: The type of IO service of the values shown on the same line is captured. **Meaning:** Possible IO service types are CMIC, ETHR and AMDI. **System or user actions:** Not applicable
IOUTIL%: The average utilization of all active links in the system captured in the previous minute. **Meaning:** The value is given as a percent of total system and can take up to 3 digit. **System or user actions:** Not applicable
TxMsg/s: The average number of transmitted messages captured in the last minute for this IO service type. **Meaning:** The unit is number of transmitted messages per second. **System or user actions:** Not applicable
TxSize: The average size (in bytes) of all transmitted messages in the last minute. **Meaning:** The unit is in bytes. **System or user actions:** Not applicable
RxMsg/s: The average number of received messages captured in the last minute for this IO service type. **Meaning:** The value unit is the number of received messages per second. **System or user actions:** Not applicable

MAP outputs with associated meanings and actions

Command
RxSize: The average size (in bytes) of all received messages in the last minute. **Meaning:** The unit is in bytes. **System or user actions:** Not applicable

This MAPCI level can be used for monitoring current IO throughput. Under normal condition, there is no response required from maintenance personnel. The descriptions of all fields displayed under this level are given above. These responses are seen in XA-core only.

Example

Usage examples for IOCAP command

Description of task:	This new IOCAP MAPCI level will be giving the IO utilization values and messaging throughput information for each IO service type (CMIC, ETHR and AMDI). The information on this new MAPCI level will be updated once every minute.
Command: MAP response:	MAPCI; MTC; CAPACITY; IOCAP See example output below.

An example output of this new MAPCI level is given below.

IOCAP MAPCI Level

```
 XACM      MS      IOD      Net      PM      CCS      Lns     Trks     Ext      APPL
  .        .        .        .       .        .        .       .        .        .

IOCAP
 0 Quit     CATMP/HR UTIL ENGCATMP MAXCATMP ENGLEVEL CCOVRLD CMICOVRLD PESC
 2            120000   75   160000   200000    BELOW     OFF       OFF   NO
 3
 4          Service IOUTIL% TxMsg/s TxSize RxMsg/s RxSize
 5
 6           AMDI     64       15324    107   13234     91
 7           CMIC     17        4102    202    1254    102
 8           ETHR     10        8967    123    3456    123
 9
10         IOCAP:
11
12
13
14
15
16
17
18
 XMAP0
Time  14:12    >
```

Command: QUIT

This command will allow the user to exit IOCAP MAPCI level and to return to IOCAP higher MAPCI level (CAPACITY MAPCI level).

Command type: Listed MENU

This QUIT command is listed in IOCAP menu.

Command target: XA-Core only

This new IOCAP QUIT command is available in XA-Core only.

Command availability: RES

Command description

This command will allow the user to exit IOCAP MAPCI level and to return to IOCAP higher MAPCI level (CAPACITY MAPCI level).

Command syntax

QUIT command parameters and variables

Command	Parameters and variables
QUIT	none

Qualifications and warnings

Not applicable.

Responses

QUIT

MAP outputs with associated meanings and actions

Command
If QUIT is issued, the user will be returned to one MAPCI level higher than their current MAPCI level. If QUIT ALL is issued, the user will be returned to CI level. **Meaning:** Not applicable. **System or user actions:** Not applicable. **Meaning:** The IOCAP MAPCI level is exitted and user is returned to one MAPCI level higher or to CI level. **System or user actions:** Not applicable.

Example

Usage examples for QUIT command

Description of task:	
Description of task	Exit the IOCAP MAPCI level and return the user to CI level or one MAPCI level higher..
Command: MAP response:	Example: QUIT ALL Example: >

Directory: IOCAPCI

Directory description

This new IOCAPCI is provided to allow customers to display the IO utilization history data.

Accessing directory: IOCAPCI

Access to directory or MAP level and return to CI

To access this directory type:

> IOCAPCI

To return to CI environment, type:

> QUIT

Command: IOMAX

Command type: NON-MENU

Command target: XA-Core only

Command availability: RES

Command description

This command displays the hourly high watermark value captured for each IO service type (CMIC, ETHR or AMDI). The value is captured every hour of day for the last 31 days. The data survives all types of restarts (warm, cold and reload).

The date of the month will be in sequence. For every hour in the future (there is no data collected yet), a blank character will be displayed.

Command syntax

The command syntax for this command is as follows.

```
> q iomax
Display IO high watermark report.
```

```
Parms: <service> {CMIC,
                  ETHR,
                  ATM,
                                ALL}
```

IOMAX command parameters and variables

Command	Parameters and variables
IOMAX	service
IOMAX	<Service> (CMIC, ETHR, AMDI, ALL)
Parameters and variables	Description
Service	Possible values are CMIC, ETHR, AMDI or ALL
CMIC	Displays only CMIC hourly max history data
ETHR	Displays only ETHR hourly max history data
AMDI	Displays only AMDI hourly max history data
All	Displays all hourly.max history data for CMIC, ETHR, and AMDI.

Qualifications and warnings

Not applicable.

Responses

IOMAX response

The following is the response if IOMAX CMIC is issued.

CMAP outputs with associated meanings and actions

Command
IOMAX CMIC: history data of CMIC hourly maximum utilization are displayed. **Meaning:** CMIC hourly maximum history data are displayed. **System or user actions:** Not applicable.
IOMAX ETHR: history data of ETHR hourly maximum utilization are displayed. **Meaning:** history data of ETHR hourly maximum utilization are displayed. **System or user actions:** Not applicable.
IOMAX AMDI: history data of AMDI hourly maximum utilization are displayed. Meaning: history data of AMDI hourly maximum utilization are displayed. System or user actions: Not applicable.

CMAP outputs with associated meanings and actions

Command
IOMAX ALL: history data of CMIC, ETHR, AMDI hourly maximum utilization are displayed. Meaning: history data of CMIC, ETHR, AMDI hourly maximum utilization are displayed. System or user actions: Not applicable.

Example

Usage examples for IOMAX command

Description of task	Display the history data of IO hourly max utilization.
Command: MAP response:	Example: IOMAX CMIC Example: Maximum CMIC Utilization Hour Date 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 2/1 9 7 8 6 5 7 8 11 17 22 28 30 40 55 50 47 61 57 59 62 59 39 31 21 2/2 9 9 8 7 7 7 8 7 18 28 18 29 37 48 55 48 58 48 59 59 57 48 27 18 2/3 5 7 9 8 7 8 9 8 15 23 21 29 39 53 49 42 59 51 55 57 53 47 31 21 2/4 3 8 7 6 9 8 4 7 11 19 27 31 38 51 47 45 55 53 57 56 51 49 29 14 2/5 9 9 8 7 7 7 8 7 18 28 18 29 37 48 55 48 58 48 59 59 57 48 27 18 2/6 5 7 9 8 7 8 9 8 15 23 21 29 39 53 49 42 59 51 55 57 53 47 31 21 2/7 3 8 7 6 9 8 4 7 11 19 27 31 38 51 47 45 55 53 57 56 51 49 29 14 2/8 9 9 8 7 7 7 8 7 18 28 18 29 37 48 55 48 58 48 59 59 57 48 27 18 2/9 5 7 9 8 7 8 9 8 15 23 21 29 39 53 49 42 59 51 55 57 53 47 31 21 2/10 3 8 7 6 9 8 4 7 11 19 27 31 38 51 47 45 55 53 57 56 51 49 29 14 2/11 9 9 8 7 7 7 8 7 18 28 18 29 37 48 55 48 58 48 59 59 57 48 27 18 2/12 5 7 9 8 7 8 9 8 15 23 21 29 39 53 49 42 59 51 55 57 53 47 31 21 2/13 3 8 7 6 9 8 4 7 11 19 27 31 38 51 47 45 55 53 57 56 51 49 29 14 2/14 9 9 8 7 7 7 8 7 18 28 18 29 37 48 55 48 58 48 59 59 57 48 27 18 2/15 5 7 9 8 7 8 9 8 15 23 21 29 39 53 49 42 59 51 55 57 53 47 31 21 2/16 3 8 7 6 9 8 4 7 11 19 27 31 38 51 47 45 55 53 57 56 51 49 29 14 2/17 9 9 8 7 7 7 8 7 18 28 18 29 37 48 55 48 58 48 59 59 57 48 27 18 2/18 5 7 9 8 7 8 9 8 15 23 21 29 39 53 49 42 59 51 55 57 53 47 31 21 2/19 3 8 7 6 9 8 4 7 11 19 27 31 38 51 47 45 55 53 57 56 51 49 29 14 2/20 9 9 8 7 7 7 8 7 18 28 18 29 37 48 55 48 58 48 59 59 57 48 27 18 2/21 5 7 9 8 7 8 9 8 15 23 21 29 39 53 49 42 59 51 55 57 53 47 31 21 2/22 3 8 7 6 9 8 4 7 11 19 27 31 38 51 47 45 55 53 57 56 51 49 29 14 2/23 9 9 8 7 7 7 8 7 18 28 18 29 37 48 55 48 58 48 59 59 57 48 27 18 2/24 5 7 9 8 7 8 9 8 15 23 21 29 39 53 49 42 59 51 55 57 53 47 31 21 2/25 3 8 7 6 9 8 4 7 11 19 27 31 38 51 47 45 55 53 57 56 51 49 29 14 2/26 5 7 9 8 7 8 9 8 15 23 21 29 39 53 49 42 59 51 55 57 53 47 31 21 2/27 3 8 7 6 9 8 4 7 11 19 27 31 38 51 47 45 55 53 57 56 51 49 29 14 2/28 9 9 8 7 7 7 8 7 18 28 18 29 37 48 55 48 58 48 59 59 57 48 27 18 2/29 8 7 8 10 8 9 7 1/30 3 8 7 6 9 8 4 12 16 21 27 29 39 49 47 45 55 53 57 56 51 49 29 14 1/31 8 6 5 7 8 7 6 9 11 19 27 31 39 49 53 43 51 55 53 57 56 51 31 21

Usage examples for IOMAX command

Command:
MAP response:

Example: IOMAX ETHR
Example:

Maximum ETHR Utilization

	Hour																							
Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
2/1	9	7	8	6	5	7	8	11	17	22	28	30	40	55	50	47	61	57	59	62	59	39	31	21
2/2	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/3	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/4	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/5	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/6	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/7	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/8	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/9	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/10	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/11	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/12	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/13	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/14	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/15	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/16	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/17	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/18	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/19	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/20	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/21	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/22	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/23	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/24	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/25	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/26	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/27	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/28	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/29	8	7	8	10	8	9	7																	
1/30	3	8	7	6	9	8	4	12	16	21	27	29	39	49	47	45	55	53	57	56	51	49	29	14
1/31	8	6	5	7	8	7	6	9	11	19	27	31	39	49	53	43	51	55	53	57	56	51	31	21

Command:
MAP response:

Example: IOMAX AMDI
Example:

Maximum AMDI Utilization

	Hour																							
Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
2/1	9	7	8	6	5	7	8	11	17	22	28	30	40	55	50	47	61	57	59	62	59	39	31	21
2/2	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/3	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/4	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/5	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/6	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/7	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/8	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/9	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/10	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/11	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/12	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/13	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/14	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/15	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/16	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/17	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/18	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/19	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/20	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/21	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/22	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/23	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/24	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/25	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/26	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/27	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/28	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/29	8	7	8	10	8	9	7																	
1/30	3	8	7	6	9	8	4	12	16	21	27	29	39	49	47	45	55	53	57	56	51	49	29	14
1/31	8	6	5	7	8	7	6	9	11	19	27	31	39	49	53	43	51	55	53	57	56	51	31	21

Usage examples for IOMAX command

Command: MAP response:

Example: IOMAX ALL
Example:

Maximum CMIC Utilization

	Hour																							
Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
2/1	9	7	8	6	5	7	8	11	17	22	28	30	40	55	50	47	61	57	59	62	59	39	31	21
2/2	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/3	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/4	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/5	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/6	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/7	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/8	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/9	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/10	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/11	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/12	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/13	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/14	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/15	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/16	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/17	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/18	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/19	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/20	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/21	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/22	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/23	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/24	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/25	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/26	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/27	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/28	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/29	8	7	8	10	8	9	7																	
1/30	3	8	7	6	9	8	4	12	16	21	27	29	39	49	47	45	55	53	57	56	51	49	29	14
1/31	8	6	5	7	8	7	6	9	11	19	27	31	39	49	53	43	51	55	53	57	56	51	31	21

Maximum ETHR Utilization

	Hour																							
Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
2/1	9	7	8	6	5	7	8	11	17	22	28	30	40	55	50	47	61	57	59	62	59	39	31	21
2/2	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/3	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/4	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/5	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/6	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/7	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/8	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/9	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/10	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/11	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/12	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/13	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/14	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/15	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/16	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/17	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/18	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/19	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/20	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/21	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/22	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/23	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/24	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/25	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/26	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/27	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/28	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/29	8	7	8	10	8	9	7																	
1/30	3	8	7	6	9	8	4	12	16	21	27	29	39	49	47	45	55	53	57	56	51	49	29	14
1/31	8	6	5	7	8	7	6	9	11	19	27	31	39	49	53	43	51	55	53	57	56	51	31	21

Usage examples for IOMAX command

```
Maximum AMDI Utilization
                                                                  Hour
Date    0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23
-------------------------------------------------------------------------------------------------------
2/1     9   7   8   6   5   7   8  11  17  22  28  30  40  55  50  47  61  57  59  62  59  39  31  21
2/2     9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/3     5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/4     3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/5     9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/6     5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/7     3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/8     9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/9     5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/10    3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/11    9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/12    5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/13    3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/14    9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/15    5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/16    3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/17    9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/18    5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/19    3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/20    9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/21    5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/22    3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/23    9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/24    5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/25    3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/26    5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/27    3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/28    9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/29    8   7   8  10   8   9   7
1/30    3   8   7   6   9   8   4  12  16  21  27  29  39  49  47  45  55  53  57  56  51  49  29  14
1/31    8   6   5   7   8   7   6   9  11  19  27  31  39  49  53  43  51  55  53  57  56  51  31  21
```

Command: IOAVG

Command type: NON-MENU

Command target: XA-Core only

Command availability: RES

Command description

This command displays the hourly average value captured for each IO service type (CMIC, ETHR or AMDI). The value is captured every hour of day for the last 31 days. The data survives all types of restarts (warm, cold and reload).

The date of the month will be in sequence. For every hour in the future (there is no data collected yet), a blank character will be displayed.

Command syntax

The command syntax for this command is as follows.

```
> q ioavg
Display IO average report.
Parms: <service> {CMIC,
                  ETHR,
                  ATM,
                                ALL}
```

CIOAVG command parameters and variables

Command	Parameters and variables
IOAVG	service
IOAVG	<Service> (CMIC, ETHR, AMDI, ALL)
Parameters and variables	Description
Service	Possible values are CMIC, ETHR, AMDI or ALL
CMIC	Displays only CMIC hourly average history data
ETHR	Displays only ETHR hourly average history data
AMDI	Displays only AMDI hourly average history data
All	Displays all hourly.average history data for CMIC, ETHR, and AMDI.

Qualifications and warnings

Not applicable.

Responses

IOAVG response

The following is the response if IOAVG CMIC is issued.

MAP outputs with associated meanings and actions

Command
IOAVG CMIC: history data of CMIC hourly average utilization are displayed. **Meaning:** CMIC hourly average history data are displayed. **System or user actions:** Not applicable.
IOAVG ETHR: history data of ETHR hourly average utilization are displayed. **Meaning:** history data of ETHR hourly average utilization are displayed. **System or user actions:** Not applicable.
IOAVG AMDI: history data of AMDI hourly average utilization are displayed. Meaning: history data of AMDI hourly average utilization are displayed. System or user actions: Not applicable.

MAP outputs with associated meanings and actions

Command
IOAVG ALL: history data of CMIC, ETHR, AMDI hourly average utilization are displayed. Meaning: history data of CMIC, ETHR, AMDI hourly average utilization are displayed. System or user actions: Not applicable.

Example

Usage examples for IOAVG command

Description of task	Display the history data of IO hourly average utilization.
Command: MAP response:	Example: IOAVG CMIC Example: Average CMIC Utilization Hour Date 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 2/1 9 7 8 6 5 7 8 11 17 22 28 30 40 55 50 47 61 57 59 62 59 39 31 21 2/2 9 9 8 7 7 7 8 7 18 28 18 29 37 48 55 48 58 48 59 59 57 48 27 18 2/3 5 7 9 8 7 8 9 8 15 23 21 29 39 53 49 42 59 51 55 57 53 47 31 21 2/4 3 8 7 6 9 8 4 7 11 19 27 31 38 51 47 45 55 53 57 56 51 49 29 14 2/5 9 9 8 7 7 7 8 7 18 28 18 29 37 48 55 48 58 48 59 59 57 48 27 18 2/6 5 7 9 8 7 8 9 8 15 23 21 29 39 53 49 42 59 51 55 57 53 47 31 21 2/7 3 8 7 6 9 8 4 7 11 19 27 31 38 51 47 45 55 53 57 56 51 49 29 14 2/8 9 9 8 7 7 7 8 7 18 28 18 29 37 48 55 48 58 48 59 59 57 48 27 18 2/9 5 7 9 8 7 8 9 8 15 23 21 29 39 53 49 42 59 51 55 57 53 47 31 21 2/10 3 8 7 6 9 8 4 7 11 19 27 31 38 51 47 45 55 53 57 56 51 49 29 14 2/11 9 9 8 7 7 7 8 7 18 28 18 29 37 48 55 48 58 48 59 59 57 48 27 18 2/12 5 7 9 8 7 8 9 8 15 23 21 29 39 53 49 42 59 51 55 57 53 47 31 21 2/13 3 8 7 6 9 8 4 7 11 19 27 31 38 51 47 45 55 53 57 56 51 49 29 14 2/14 9 9 8 7 7 7 8 7 18 28 18 29 37 48 55 48 58 48 59 59 57 48 27 18 2/15 5 7 9 8 7 8 9 8 15 23 21 29 39 53 49 42 59 51 55 57 53 47 31 21 2/16 3 8 7 6 9 8 4 7 11 19 27 31 38 51 47 45 55 53 57 56 51 49 29 14 2/17 9 9 8 7 7 7 8 7 18 28 18 29 37 48 55 48 58 48 59 59 57 48 27 18 2/18 5 7 9 8 7 8 9 8 15 23 21 29 39 53 49 42 59 51 55 57 53 47 31 21 2/19 3 8 7 6 9 8 4 7 11 19 27 31 38 51 47 45 55 53 57 56 51 49 29 14 2/20 9 9 8 7 7 7 8 7 18 28 18 29 37 48 55 48 58 48 59 59 57 48 27 18 2/21 5 7 9 8 7 8 9 8 15 23 21 29 39 53 49 42 59 51 55 57 53 47 31 21 2/22 3 8 7 6 9 8 4 7 11 19 27 31 38 51 47 45 55 53 57 56 51 49 29 14 2/23 9 9 8 7 7 7 8 7 18 28 18 29 37 48 55 48 58 48 59 59 57 48 27 18 2/24 5 7 9 8 7 8 9 8 15 23 21 29 39 53 49 42 59 51 55 57 53 47 31 21 2/25 3 8 7 6 9 8 4 7 11 19 27 31 38 51 47 45 55 53 57 56 51 49 29 14 2/26 5 7 9 8 7 8 9 8 15 23 21 29 39 53 49 42 59 51 55 57 53 47 31 21 2/27 3 8 7 6 9 8 4 7 11 19 27 31 38 51 47 45 55 53 57 56 51 49 29 14 2/28 9 9 8 7 7 7 8 7 18 28 18 29 37 48 55 48 58 48 59 59 57 48 27 18 2/29 8 7 8 10 8 9 7 1/30 3 8 7 6 9 8 4 12 16 21 27 29 39 49 47 45 55 53 57 56 51 49 29 14 1/31 8 6 5 7 8 7 6 9 11 19 27 31 39 49 53 43 51 55 53 57 56 51 31 21

Usage examples for IOAVG command

Command: MAP response:

Example: IOAVG ETHR
Example:

Average ETHR Utilization

	Hour																							
Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
2/1	9	7	8	6	5	7	8	11	17	22	28	30	40	55	50	47	61	57	59	62	59	39	31	21
2/2	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/3	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/4	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/5	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/6	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/7	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/8	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/9	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/10	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/11	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/12	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/13	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/14	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/15	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/16	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/17	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/18	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/19	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/20	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/21	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/22	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/23	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/24	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/25	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/26	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/27	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/28	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/29	8	7	8	10	8	9	7																	
1/30	3	8	7	6	9	8	4	12	16	21	27	29	39	49	47	45	55	53	57	56	51	49	29	14
1/31	8	6	5	7	8	7	6	9	11	19	27	31	39	49	53	43	51	55	53	57	56	51	31	21

Command: MAP response:

Example: IOAVG AMDI
Example:

Average AMDI Utilization

	Hour																							
Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
2/1	9	7	8	6	5	7	8	11	17	22	28	30	40	55	50	47	61	57	59	62	59	39	31	21
2/2	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/3	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/4	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/5	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/6	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/7	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/8	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/9	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/10	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/11	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/12	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/13	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/14	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/15	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/16	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/17	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/18	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/19	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/20	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/21	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/22	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/23	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/24	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/25	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/26	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/27	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/28	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/29	8	7	8	10	8	9	7																	
1/30	3	8	7	6	9	8	4	12	16	21	27	29	39	49	47	45	55	53	57	56	51	49	29	14
1/31	8	6	5	7	8	7	6	9	11	19	27	31	39	49	53	43	51	55	53	57	56	51	31	21

Usage examples for IOAVG command

Command: MAP response:

Example: IOAVG ALL
Example:

Average CMIC Utilization

	Hour																							
Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
2/1	9	7	8	6	5	7	8	11	17	22	28	30	40	55	50	47	61	57	59	62	59	39	31	21
2/2	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/3	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/4	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/5	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/6	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/7	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/8	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/9	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/10	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/11	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/12	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/13	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/14	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/15	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/16	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/17	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/18	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/19	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/20	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/21	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/22	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/23	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/24	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/25	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/26	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/27	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/28	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/29	8	7	8	10	8	9	7																	
1/30	3	8	7	6	9	8	4	12	16	21	27	29	39	49	47	45	55	53	57	56	51	49	29	14
1/31	8	6	5	7	8	7	6	9	11	19	27	31	39	49	53	43	51	55	53	57	56	51	31	21

Average ETHR Utilization

	Hour																							
Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
2/1	9	7	8	6	5	7	8	11	17	22	28	30	40	55	50	47	61	57	59	62	59	39	31	21
2/2	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/3	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/4	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/5	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/6	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/7	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/8	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/9	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/10	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/11	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/12	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/13	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/14	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/15	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/16	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/17	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/18	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/19	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/20	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/21	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/22	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/23	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/24	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/25	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/26	5	7	9	8	7	8	9	8	15	23	21	29	39	53	49	42	59	51	55	57	53	47	31	21
2/27	3	8	7	6	9	8	4	7	11	19	27	31	38	51	47	45	55	53	57	56	51	49	29	14
2/28	9	9	8	7	7	7	8	7	18	28	18	29	37	48	55	48	58	48	59	59	57	48	27	18
2/29	8	7	8	10	8	9	7																	
1/30	3	8	7	6	9	8	4	12	16	21	27	29	39	49	47	45	55	53	57	56	51	49	29	14
1/31	8	6	5	7	8	7	6	9	11	19	27	31	39	49	53	43	51	55	53	57	56	51	31	21

Usage examples for IOAVG command

```
Average AMDI Utilization
                                                           Hour
Date      0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23
-----------------------------------------------------------------------------------------------------
2/1       9   7   8   6   5   7   8  11  17  22  28  30  40  55  50  47  61  57  59  62  59  39  31  21
2/2       9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/3       5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/4       3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/5       9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/6       5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/7       3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/8       9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/9       5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/10      3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/11      9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/12      5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/13      3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/14      9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/15      5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/16      3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/17      9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/18      5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/19      3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/20      9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/21      5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/22      3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/23      9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/24      5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/25      3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/26      5   7   9   8   7   8   9   8  15  23  21  29  39  53  49  42  59  51  55  57  53  47  31  21
2/27      3   8   7   6   9   8   4   7  11  19  27  31  38  51  47  45  55  53  57  56  51  49  29  14
2/28      9   9   8   7   7   7   8   7  18  28  18  29  37  48  55  48  58  48  59  59  57  48  27  18
2/29       8     7     8   10    8     9     7
1/30      3   8   7   6   9   8   4   12 16  21  27  29  39  49  47  45  55  53  57  56  51  49  29  14
1/31      8   6   5   7   8   7   6   9  11  19  27  31  39  49  53  43  51  55  53  57  56  51  31  21
```

Command: DISP

Command type: NON-MENU

Command target: XA-Core only

Command availability: RES

Command description

This DISP command displays the utilization and messaging throughput values of each IO service type of the last 60 minutes with option CURR (for example when a command is issued at 2:35, displayed data is from 1:34 to 2:34) or previous full hour with option PREV (for example when a command is issued at 2:35, displayed data is from 1:00 to 2:00). This information survives all types of restarts (warm, cold and reload).

Command syntax

The command syntax for this command is as follows.

```
> q disp
Display table of IO utilization.
Parms: <when> {CURR,
               PREV}
       <service> {CMIC,
                  ETHR,
                  ATM,
```

```
                ALL}
```

DISP command parameters and variables

Command	Parameters and variables
DISP	<when> <service>
DISP	<when> (CURR, PREV) <service> (CMIC, ETHR, AMDI, ALL)
Parameters and variables	Description
When	Possible values are CURR or PREV
CURR	Displays the last 60 minutes utilization and messaging throughput of the specified IO service type
PREV	Displays the previous full hour utilization and messaging throughput of the specified IO service type
Service	Possible values are CMIC, ETHR, AMDI or ALL
CMIC	Displays only CMIC utilization and messaging throughput
ETHR	Displays only ETHR utilization and messaging throughput
AMDI	Displays only AMDI utilization and messaging throughput
ALL	Displays utilization and messaging throughput for CMIC, ETHR, and AMDI.

Qualifications and warnings

Not applicable.

Responses

DISP response

The following is the response if DISP CURR CMIC is issued.

MAP outputs with associated meanings and actions

Command
DISP CURR CMIC: last 60 minutes of CMIC utilization and messaging throughput are displayed. **Meaning:** last 60 minutes data for CMIC utilization and messaging throughput are displayed. **System or user actions:** Not applicable.

MAP outputs with associated meanings and actions

Command
DISP CURR ETHR: last 60 minutes of ETHR utilization and messaging throughput are displayed. **Meaning:** last 60 minutes of ETHR utilization and messaging throughput are displayed. **System or user actions:** Not applicable.
DISP CURR AMDI: last 60 minutes of AMDI utilization and messaging throughput are displayed. Meaning: last 60 minutes of AMDI utilization and messaging throughput are displayed. System or user actions: Not applicable.
DISP CURR ALL: last 60 minutes of CMIC, ETHR, AMDI utilization are displayed. Meaning: last 60 minutes of CMIC, ETHR, AMDI utilization are displayed. System or user actions: Not applicable.

Example

Usage examples for DISP command

Description of task	Display the last 60 minutes of IO utilization and messaging throughput.
Command: MAP response:	Example: DISP CURR CMIC Example: Time IOUTIL% TxMsg/s TxSize RxMsg/s RxSize 16:17 45 23421 34 23421 34 16:18 39 22119 31 21228 32 16:19 38 21228 32 22119 31 16:20 39 23421 31 21221 31 . . . . . . 17:14 41 20023 32 20019 33 17:15 39 21221 31 21228 32 17:16 38 20019 33 23421 34
Command: MAP response:	Example: DISP CURR ETHR Example: Time IOUTIL% TxMsg/s TxSize RxMsg/s RxSize 16:17 45 23421 34 23421 34 16:18 39 22119 31 21228 32 16:19 38 21228 32 22119 31 16:20 39 23421 31 21221 31 . . . . . . 17:14 41 20023 32 20019 33 17:15 39 21221 31 21228 32 17:16 38 20019 33 23421 34
Command: MAP response:	Example: DISP CURR AMDI Example: Time IOUTIL% TxMsg/s TxSize RxMsg/s RxSize 16:17 45 23421 34 23421 34 16:18 39 22119 31 21228 32 16:19 38 21228 32 22119 31 16:20 39 23421 31 21221 31 . . . . . . 17:14 41 20023 32 20019 33 17:15 39 21221 31 21228 32 17:16 38 20019 33 23421 34

Usage examples for DISP command

Command: MAP response:	Example: DISP CURR ALL Example: Time CMICUTIL ETHRUTIL AMDIUTIL 16:17 45 21 34 16:18 39 19 31 16:19 38 18 32 16:20 39 21 31 . . . . . . 17:14 41 23 32 17:15 39 21 31 17:16 38 19 33

Command: STATUS

Command type: NON-MENU

Command target: XA-Core only

Command availability: RES

Command description

This command displays all status information including current version of IOCAPCI tool, timestamp in terms of hour and minute, the current IO utilization values of all IO services (CMIC, ETHR, AMDI), the current value of the IO_WARNING_THRESHOLD office parm.

Command syntax

The command syntax for this command is as follows.

```
> q STATUS
Display current IOCAP status.
```

STATUS command parameters and variables

Command	Parameters and variables
STATUS	no parameter

Qualifications and warnings

Not applicable.

Responses

STATUS response

The following is the response if STATUS is issued.

MAP outputs with associated meanings and actions

Command
STATUS: Status information such as IOCAPCI version, current utilizations and IO_WARNING_THRESHOLD office parm are displayed. **Meaning:** Status information such as IOCAPCI version, current utilizations and IO_WARNING_THRESHOLD office parm are displayed. **System or user actions:** Not applicable.

Example

Usage examples for STATUS command

Description of task	Display status information such as IOCAPCI version, current utilizations and IO_WARNING_THRESHOLD office parm.

Command: MAP response:	Example: DISP CURR CMIC
	Example:
	`> status`
	`IOCAP Version 1.0`
	`Time CMICUTIL ETHRUTIL AMDIUTIL`
	`17:16 32 29 15`
	`IO_WARNING_THRESHOLD office parm is set to 100.`

Security

Not applicable.

Configuration Walkthrough

Not applicable.

Performance Management for A00006693

Performance management strategy

Performance management tools and utilities

The new OM group can be displayed and collected via OMSHOW interface regularly by Telcos to monitor system IO throughput.

Performance Measurements (PM), Operational Measurements (OM), and stats

This feature will provide a new OM group IOCAP.

PM, OM, and stats format

OM Group template (applies only to DMS)

New OM group IOCAP provides information on IO capacity such as utilization and utilization high watermark and IO throughput information on a per IO service type (CMIC, ETHR and AMDI).

OM description

OM group IOCAP provides one tuple per IO service type available in the office. Possible IO service types are CMIC, ETHR and AMDI.

Key field: IO_SERVICE.

Info field: none.

Release history update

The OM group is being created in CSP21 and will be patched backed to CSP20.

Registers

OM group registers display on the MAP terminal as follows:

OM Group Display

IO_SERVICE IOUTIL IOHWM TXMSGPS TXSIZE RXMSGPS RXSIZE IOTHRESH

Group structure

OM group provides one tuple for each IO service type. There are 3 possible IO service types (CMIC, ETHR, AMDI).

Key field: IO_SERVICE indicates the IO service type the information is captured. Possible IO service types are CMIC, ETHR, and AMDI. The service type is displayed as 4 character string (CMIC, ETHR, AMDI).

Info field: None.

Associated OM groups

Not applicable.

Associated functional groups

The following functional groups are associated with OM group: none

OM group registers logic flow chart

Not applicable.

Register (applies only to DMS)

IOHWM

Register description

IOHWM is a high watermark register holding the highest utilization value of the specified IO service type over the OM transfer period.

Register release history update

Register is being created in CSP21 and patched back to CSP20.

Associated registers

None.

Associated logs

None.

Register (applies only to DMS)

IOTHRESH

Register description

IOTHRESH is a peg register holding the number of one minute interval in the transfer period the IO utilization has exceeded the value of the IO_WARNING_THRESHOLD office parm.

Register release history update

Register is being created in CSP21 and patched back to CSP20.

Associated registers

None.

Associated logs

None.

Register (applies only to DMS)

IOUTIL

Register description

IOUTIL is a usage register holding the average utilization value of the specified IO service type. This value is accumulated every minute and the average is calculated for every OM transfer period.

Register release history update

Register is being created in CSP21 and patched back to CSP20.

Associated registers

None.

Associated logs

None.

Register (applies only to DMS)

RXMSGPS

Register description

RXMSGPS is a usage register holding the average total system number of received messages of the specified IO service type. This value is accumulated every minute and the average is calculated for every OM transfer period. The unit is number of messages per second.

Register release history update

Register is being created in CSP21 and patched back to CSP20.

Associated registers

None.

Associated logs

None.

Register (applies only to DMS)

RXSIZE

Register description

RXSIZE is a usage register holding the average incoming message size of the specified IO service type. This value is accumulated every minute and the average is calculated for every OM transfer period. The message size unit is in bytes.

Register release history update

Register is being created in CSP21 and patched back to CSP20.

Associated registers

None.

Associated logs

None.

Register (applies only to DMS)

TXMSGPS

Register description

TXMSGPS is a usage register holding the average total number of outgoing messages of the specified IO service type. This value is accumulated once every minute and the average is calculated for every OM transfer period. The unit is in number of messages per second.

Register release history update

Register is being created in CSP21 and patched back to CSP20.

Associated registers

None.

Associated logs

None.

Register (applies only to DMS)

TXSIZE

Register description

TXSIZE is a usage register holding the value of average size of outgoing messages of the specified IO service type. This value is accumulated once every minute and the average is calculated for every transfer period. The value unit is in bytes.

Register release history update

Register is being created in CSP21 and patched back to CSP20.

Associated registers

None.

Associated logs

None.

Product = CS 2000

A00008902 -- SAM21 Log Changes (PT-AAL1, UA-AAL1)

This feature add two lines at the end of the alarm detail entry, based on the digits of the alarm ID, for example, SCU310. The system will divide the three digits into two groups: the first digit stands for the alarm's category, and the last two digits stand for the alarm's cause. The system uses the mapping table that follows to find the appropriate text strings for the alarm category and the alarm cause, and it then appends those two text strings to the the end of the alarm detail.

Example

OFC_NAME *** SCU310 JUL30 17:48:52 5000 FLT Alarm Raised

Location: sam21 1:CSAM01-02:shelf 1:slot 9:card 1

Time: Thu Jul 30 17:48:45 EST 2002

Reason: CPU load high. One Minute Load is 19.11

Category: processingError

Cause: cpuCyclesLimitExceeded

Mapping Tables

Problem Category mapped to integers

communications	(1)
qualityOfService	(2)
processingError	(3)
equipment	(4)
environmental	(5)

Probable Cause Values mapped to integers

ITU-T X.733 probable causes	
adapterError	**(1)**
applicationSubsystemFailure	(2)
bandwidthReduced	(3)
callEstablishmentError	(4)
communicationsProtocolError	(5)
communicationsSubsystemFailure	(6)
configurationOrCustomizationError	(7)
congestion	(8)
corruptData	(9)
cpuCyclesLimitExceeded	(10)
dataSetOrModemError	(11)
degradedSignal	(12)
dteDCEInterfaceError	(13)

Probable Cause Values mapped to integers

enclosureDoorOpen	(14)
equipmentMalfunction	(15)
excessiveVibration	(16)
fileError	(17)
fireDetected	(18)
floodDetected	(19)
framingError	(20)
heatingOrVentilationOrCoolingSystemProblem	(21)
humidityUnacceptable	(22)
inputOutputDeviceError	(23)
inputDeviceError	(24)
lANError	(25)
leakDetected	(26)
localNodeTransmissionError	(27)
lossOfFrame	(28)
lossOfSignal	(29)
materialSupplyExhausted	(30)
multiplexerProblem	(31)
outOfMemory	(32)
ouputDeviceError	(33)
performanceDegraded	(34)
powerProblem	(35)
pressureUnacceptable	(36)
processorProblem	(37)
pumpFailure	(38)
queueSizeExceeded	(39)
receiveFailure	(40)
receiverFailure	(41)
remoteNodeTransmissionError	(42)

Probable Cause Values mapped to integers

resourceAtOrNearingCapacity	(43)
responseTimeExecessive	(44)
retransmissionRateExcessive	(45)
softwareError	(46)
softwareProgramAbnormallyTerminated	(47)
softwareProgramError	(48)
storageCapacityProblem	(49)
temperatureUnacceptable	(50)
thresholdCrossed	(51)
timingProblem	(52)
toxicLeakDetected	(53)
transmitFailure	(54)
transmitterFailure	(55)
underlyingResourceUnavailable	(56)
versionMismatch	(57)
Probable Cause values 58-100 are currently unused.	
ITU-T X.736 probable causes	
authenticationFailure	**(101)**
breachOfConfidentiality	(102)
cableTamper	(103)
delayedInformation	(104)
denialOfService	(105)
duplicateInformation	(106)
informationMissing	(107)
informationModificationDetected	(108
informationOutOfSequence	(109)
intrusionDetection	(110)
keyExpired	(111)
nonRepudiationFailure	(112)

Probable Cause Values mapped to integers

outOfHoursActivity	(113)
outOfService	(114)
proceduralError	(115)
unauthorizedAccessAttempt	(116)
unexpectedInformation	(117)
unspecifiedReason	(118)

Product = MG 4000

A00002970 -- MG4K Remote Site Provisioning (PT-AAL1, UA-AAL1, Succession on DMS)

Functional Description

SMG4s can be provisioned at multiple sites for a given CS2K. However, the SN06 and previous releases, have a limitation. SMG4s cannot be provisioned at multiple sites on the same floor, row, frame position and shelf position.

This feature aims at rectifying this limitation. As part of the feature enhancements, the following functionalities are introduced :

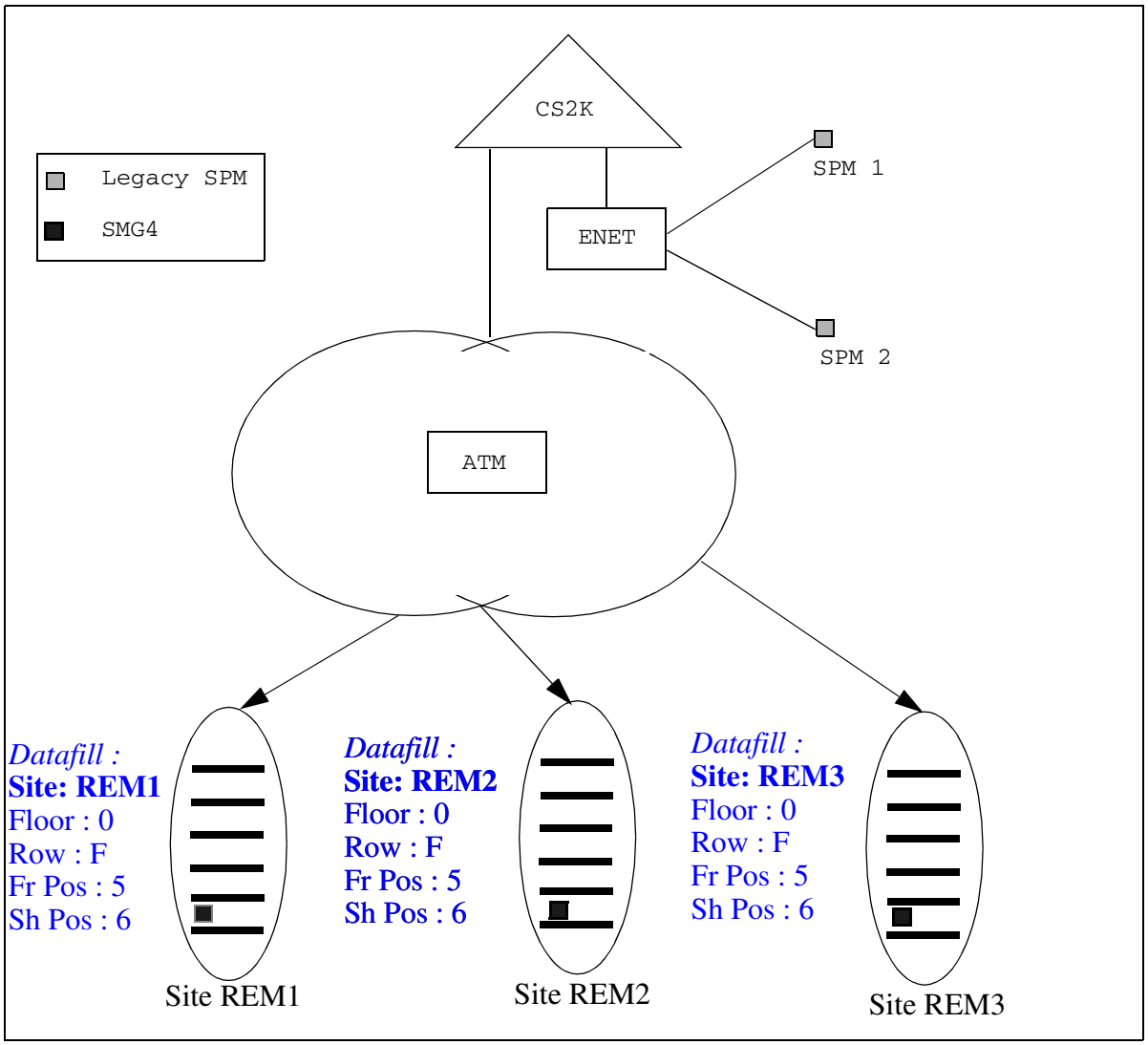
- Introduction of an inservice editable field, ‘SITE’ in Table MNNODE for SMG4s only.
- While datafilling the shelf position in the Table MNSHELF, the new field ‘SITE’(Table MNNODE) is also taken into consideration (for unique check of location) along with the fields, floor(Table MNNODE), row(Table MNSHELF), frame position(Table MNSHELF) and shelf position(Table MNSHELF).
- The ‘SITE’ field datafill in Table MNNODE is also reflected in the existing MAPs, Logs and Tools wherever the site name is displayed.

Functional Overview

This feature introduces an inservice editable field, ‘SITE’, in Table MNNODE. Hence, while datafilling the shelf position for an SMG4 in Table MNSHELF, a uniqueness check is performed taking the site also into consideration apart from the other fields. The other fields that determine the uniqueness of location are floor(TableMNNODE), row(Table MNSHELF), frame position(Table MNSHELF) and shelf position(Table MNSHELF).

Figure , on page 1412 shows how the fields - site, floor, row, frame position and shelf position determine the uniqueness of location of an SPM. Also, it is illustrated in the figure that as a result of this feature, SMG4s can now be provisioned at multiple sites on the same floor, row, frame position and shelf position.

The desired datafill behaviour



The major functionality changes as a result of this feature are:

Table MNNODE changes

A new field, ‘SITE’ has been introduced in the Table MNNODE. This field accepts a four character site name while provisioning (add /modify) the table MNNODE. The allowed values for this field are the sitenames present in Table SITE. Any other sitename, not present in Table SITE, will fail the datafill

operation. An example tuple with the new field, and its relationship with Table SITE is shown in Figure , on page 1413 .

Table MNNODE tuple example with SITE field made editable

```
Table SITE tuples:

NAME LTDSN MODCOUNT OPVRCLLI ALMDATA
-----------------------------------
HOST    0      1          VER90      $
REM1    1      0          RMMVER90   $
REM2    2      0          RMMVER90   $
REM3    3      0          RMMVER90   $
REM4    4      0          RMMVER90   $


Table MNNODE tuple:

SPM 4 SPM_4 SMG4 REM1 0  SYNC LINE 50 (COT 60) (DTMF 60) (ECAN 60) (TONESYN 60)
(MF 60) $ (SYSB CR RPT) (MANB MJ RPT) (ISTB MN RPT) (SYSBNA CR RPT)  (MANBNA MJ
RPT) (COTLOW MN RPT) (DTMFLOW MN RPT) (ECANLOW MN RPT) (TONESLOW MN RPT) (MFLOW
MN RPT) (CMRLOW MN RPT) (SMG4CN MJ RPT) (PATCHFAIL MJ RPT) (ATMBCN CR RPT)
(ST3EHLD MJ RPT) (ST3EHLD24 CR RPT) (SMCHLD MJ RPT) (SMCHLD24 CR RPT) (SPMSRMNTD
MN RPT) (LOCUR MJ RPT) (TMCFAIL CR RPT) $ $ N 0 $ N
```

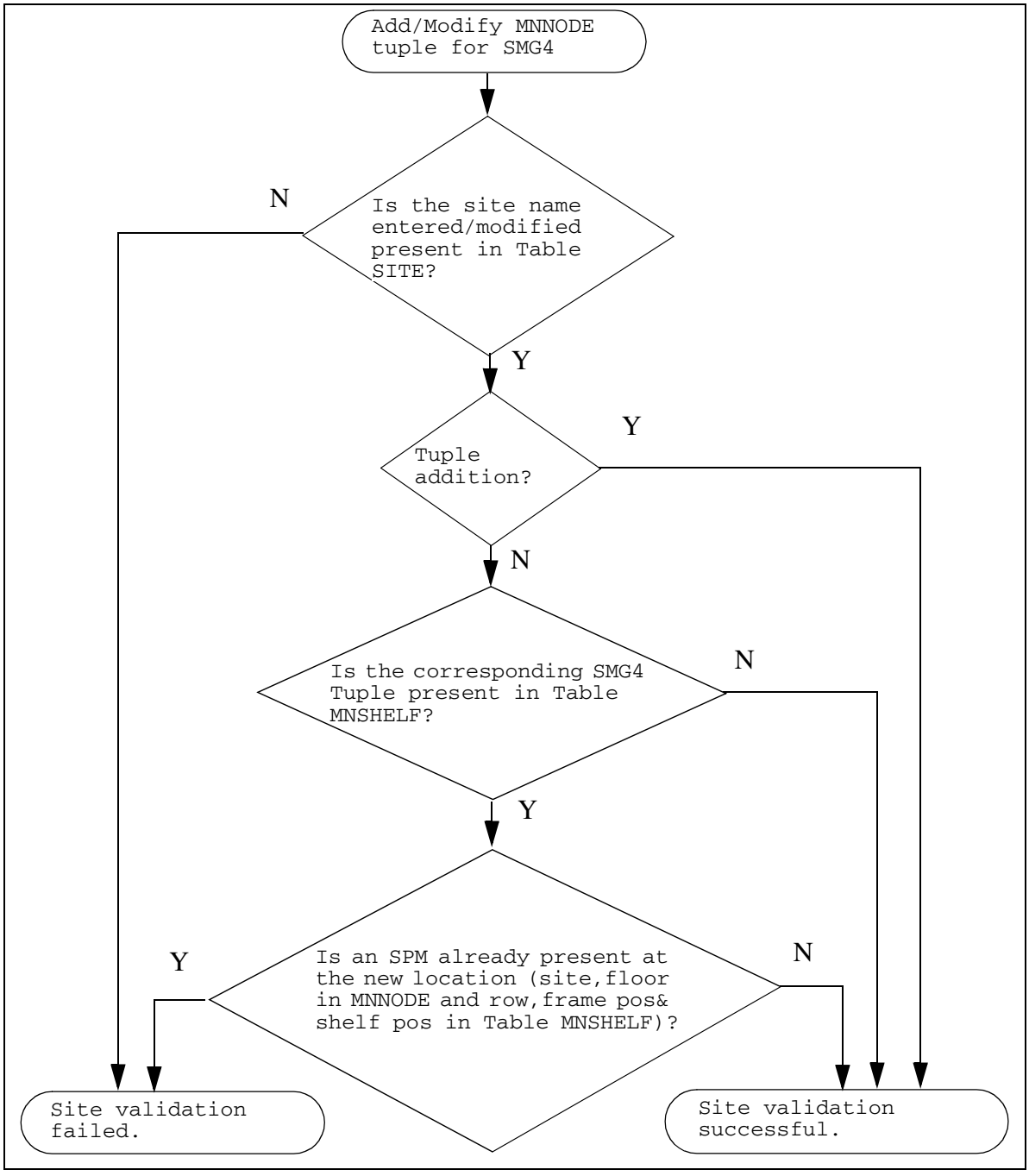
A provisioning example with reference to this feature is shown in “ Appendix for A00002970” on page 1416 of this document.

Over ONP from previous releases, the value of this new field is defaulted to ‘HOST.’ After an ONP, for SMG4s that are located at a remote site, and are already provisioned, the provisioning information in MNNODE has to be modified appropriately.

This new field is independent of the existing field, ‘REMOTE’ in Table MNNODE. This is because FSP alarms on remote SMG4 nodes will be reported at the core based on the REMOTE bool in table MNNODE and are not dependent on this new field, ‘SITE’.

The following flow chart shows a diagram of how the MNNODE datafill operation proceeds after adding this new field.

Flow Chart for Table MNNODE 'SITE' field validation



The new error messages introduced as a result of the site field validation have been described in the Data Schema in the Configuration section of this feature.

Changes in MAPs, Logs and Tools

The feature also takes care of reflecting the data of the newly introduced field, 'SITE' in all the MAPs, Logs and Tools that display the site name for an SPM.

The MAPs and Tools that display site name have been listed in the Configuration section for this feature.

The Logs that display site name have been listed in the Fault Management section for this feature.

Hardware Requirements or Dependencies

None.

Software Requirements or Dependencies

None.

Limitations and restrictions

None.

Interactions

None.

Applicable customer facing sections

No new logs, alarms, MAPs or tools have been introduced as a result of this feature.

Fault Management	
Logs	__X__
Alarms	_N/A_
Configuration	
Data Schema	__X__
User Interface	__X__
Element Management	_N/A_
Security	_N/A_
Service Order	_N/A_
Office Parameters	_N/A_
Accounting (includes AMA billing)	_N/A_
Performance (includes operational measurements)	_N/A_

Glossary

Term	Description
SPM	Spectrum Peripheral Module
SMG4	Succession Multiservice Gateway 4000
CS2K	Call server 2000

Appendix for A00002970

Adding MNNODE tuple with 'SITE' information

'SITE' already present in Table SITE

```
Table SITE datafill :

>lis all
TOP
NAME LTDSN MODCOUNT OPVRCLLI ALMDATA
-------------------------------------
HOST 0 1 VER90 $
REM1 1 0 RMMVER90 $
REM2 2 0 RMMVER90 $
REM3 3 0 RMMVER90 $
REM4 4 0 RMMVER90 $
REM5 5 0 RMMVER90 $
BOTTOM
```

```
Table MNNODE datafill :

>add SPM 62 SPM_62 SMG4 REM5 0 SYNC LINE 0 $ $ $ N 0 $ N N
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
>y
TUPLE TO BE ADDED:
SPM 62 SPM_62 SMG4 REM5 0 SYNC LINE 0 $ $ $ N 0 $ N N
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
>y
TUPLE ADDED
```

‘SITE’ not present in Table SITE

```
Table SITE datafill :

>lis all
TOP
NAME LTDSN MODCOUNT OPVRCLLI ALMDATA
-------------------------------------
HOST 0 1 VER90 $
REM1 1 0 RMMVER90 $
REM2 2 0 RMMVER90 $
REM3 3 0 RMMVER90 $
REM4 4 0 RMMVER90 $
BOTTOM
>add REM5 5 0 RMMVER90 $
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
>y
TUPLE TO BE ADDED:
REM5 5 0 RMMVER90 $
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
>y
TUPLE ADDED
```

```
Table MNNODE datafill :

>add SPM 62 SPM_62 SMG4 REM5 0 SYNC LINE 0 $ $ $ N 0 $ N N
MACHINES NOT IN SYNC - DMOS NOT ALLOWED
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
ENTER Y TO CONTINUE PROCESSING OR N TO QUIT
>y
TUPLE TO BE ADDED:
SPM 62 SPM_62 SMG4 REM5 0 SYNC LINE 0 $ $ $ N 0 $ N N
ENTER Y TO CONFIRM, N TO REJECT OR E TO EDIT.
>y
TUPLE ADDED
```

Fault Management for A00002970

Fault management strategy

This feature introduces a new field, ‘SITE’, in Table MNNODE for SMG4 variant of SPMs.

Hence the logs displaying site name will now show the site name data that is present in Table MNNODE and not ‘HOST’, as it showed prior to this feature.

Fault management tools and utilities

None.

SPM 300 Log

Explanation

Log Title: SPM300

Name: Device Fault Report

Description: This is an existing Log. The only changes occurring as a result of this feature are that the log will now show the '*site*' name as the one that is datafilled in Table MNNODE.

Event type: IDM related logs that are transferred from the local.

Format

Not impacted.

Example 1

```
MG4K106BT   *  SPM300 JUN18 06:21:55 2700 TBL  Device Fault Report
          Location    : SPM : 62   SRM : 0
          Status      : Alarm Raised
          Problem Description: Non Critical
            Sync RM non critical fault(s) still present
          Action      : Refer to NTPs for Alarm Clearing Procedures.
          Cardlist    :
            Site    Flr  Row   FrPos    ShfPos    ShfPec       Slot

            REM1    1    B     13       40        NTLX72BA     1
```

Example 2

```
 MG4K106BB    ***   SPM300    JAN28    22:58:01    6900  TBL   Device Fault Report
                    Location   :     SPM  :  61    DLC : 0
                    Status      : Alarm Raised
                    Problem Description: Critical
                    8I          : Cfg Failure, Intended Recovery Ac
                    Action      : Replace the following cards in the order listed.
                    Cardlist     :
                    Site    Flr  Row   FrPos    ShfPos    ShfPec     Slot
                    REM1    1     B     13      40        NTLX72BA   1
```

Field descriptions

Table , "Field Descriptions," on page 1419 shows the fields in Log 'SPM 300' impacted as a result of this feature.

Field Descriptions

Field	Value	Description
SITE	This field will show the site name present in Table MNNODE, for that SPM.	In SN06 and previous releases, Log ‘SPM 300’ always showed the value, ‘HOST’ under field ‘site’. From Release SN07 onwards it will show the ‘site’ value present in Table MNNODE.

Action

None.

Associated Operational Measurements or Performance Measurements

None.

Additional information

None.

Alarms

None.

Configuration for A00002970

Hardware and Software Requirements

None.

Initial Configuration

None.

Office/Subnet parameters (OP/SP) (CM & SESM)

None.

Upgrade Impact

Dump and Restore

Over ONP from SN06 and previous releases, the new field ‘SITE’ in Table MNNODE (for SMG4s only), is defaulted to 'HOST'.

Element Management Upgrade

Not Applicable.

Data schema (DS) (CM, MIBS, RDB)

New/modified tables, MIBs, or Database Schema

The following table lists the tables being modified as a result of this feature:

Table/MIB name	NEW/CHANGED/ or DELETED/	Table Control (NEW/ OLD/UNCHANGED)
Table MNNODE	CHANGED	UNCHANGED

Table Information

Name: MNNODE

Functional description

The Table control changes in the Table 'MNNODE' would consist of introducing a new inservice editable field, '*site*'.

Fields

The following table lists the fields for table MNNODE which are added/changed as part of this activity:

Table field description

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
SITE	New	Not Applicable	Not Applicable	This field is used to indicate the site location where the SMG4 is located. This is introduced only for SMG4 class of SPM nodes and can be datafilled only by the site names that are provisioned in Table SITE.

Datafill example

The following figure shows the sample datafill for table MNNODE, depicting that the 'site' field has been referenced from Table SITE:

Table MNNODE tuple - Existing and Desired.

MNNODE Tuple prior to this feature:-

```
SPM 4 SPM_4 SMG4 0  SYNC LINE 50 (COT 60) (DTMF 60) (ECAN 60) (TONESYN 60) (MF
60) $ (SYSB CR RPT) (MANB MJ RPT) (ISTB MN RPT) (SYSBNA CR RPT)  (MANBNA MJ
RPT) (COTLOW MN RPT) (DTMFLOW MN RPT) (ECANLOW MN RPT) (TONESLOW MN RPT) (MFLOW
MN RPT) (CMRLOW MN RPT) (SMG4CN MJ RPT) (PATCHFAIL MJ RPT) (ATMBCN CR RPT)
(ST3EHLD MJ RPT) (ST3EHLD24 CR RPT) (SMCHLD MJ RPT) (SMCHLD24 CR RPT)
(SPMSRMNTD MN RPT) (LOCUR MJ RPT) (TMCFAIL CR RPT) $ $ N 0 $ N
```

MNNODE Tuple after the feature:-

```
SPM 4 SPM_4 SMG4 REM1 0  SYNC LINE 50 (COT 60) (DTMF 60) (ECAN 60) (TONESYN 60)
(MF 60) $ (SYSB CR RPT) (MANB MJ RPT) (ISTB MN RPT) (SYSBNA CR RPT)  (MANBNA MJ
RPT) (COTLOW MN RPT) (DTMFLOW MN RPT) (ECANLOW MN RPT) (TONESLOW MN RPT) (MFLOW
MN RPT) (CMRLOW MN RPT) (SMG4CN MJ RPT) (PATCHFAIL MJ RPT) (ATMBCN CR RPT)
(ST3EHLD MJ RPT) (ST3EHLD24 CR RPT) (SMCHLD MJ RPT) (SMCHLD24 CR RPT) (SPMSRMNTD
MN RPT) (LOCUR MJ RPT) (TMCFAIL CR RPT) $ $ N 0 $ N
```

```
Table SITE tuples:

NAME LTDSN MODCOUNT OPVRCLLI ALMDATA
-----------------------------------
HOST   0      1          VER90      $
REM1   1      0          RMMVER90   $
REM2   2      0          RMMVER90   $
REM3   3      0          RMMVER90   $
REM4   4      0          RMMVER90   $
```

New Error Messages

As a result of the feature enhancements, some new error messages are introduced which are described in the following table:

New Error Messages

No.	Table Control operations	Pre - conditions
	Error Messages	
1.	a. Tuple addition in Table MNNODE. b.Tuple modification ('SITE' field) in Table MNNODE.	'SITE' field value not present in Table SITE. (Note: This is an error message already present in Table Control Command Interface.)
	TYPE OF SITE IS SITE_INDEX. **TYPE IS SITE_INDEX {<SITE VALUE 1>,<SITE VALUE2>,<SITE VALUE3>,...}**	

No.	Table Control operations	Pre - conditions
	Error Messages	
2	a. Change SITE name value for a particular tuple.	An SMG4 already provisioned at the changed site location and at the same floor, row, frame position and shelf position.
	The specified site, floor and shelf is already occupied. **See tuple SPM <no.>.**	
3	a. Deleting tuple from Table SITE.	The corresponding site is being referred to in Table MNNODE. (Note: This error message already exists in the Table Control Command Interface.)
	Error: Table MNNODE still references this tuple.	

Usage sequence and implications (CM Only)
The datafill order remains unchanged.

However, the addition of an SMG4 in a new site requires the data to be provisioned in Table SITE first.

Size
Not impacted

Table release history update
Not Applicable

Supplementary information
Not Applicable

Translation verification other tools
Not Applicable

Service Orders (SO) (CM & SESM)

Not Applicable.

Software optionality control (SOC)

Not Applicable.

Element Management

Not Applicable.

Command interface changes

Prior to this feature, the value for site was hardcoded to 'HOST' in the MAPs that displayed site name. This feature now picks up the site value from the corresponding data in Table MNNODE and displays it in the existing MAPs.

A snapshot of all the affected MAPs is shown in this section with modified displays. Also shown in the following figure is the related SMG4 tuple from the Table MNNODE.

An MNNODE tuple with SITE data

MNNODE Tuple for SMG4

```
SPM 60 SPM_60 SMG4 REM1 1 SYNC LINE 50 (COT 60) (DTMF 60) (ECAN 60) (TONESYN 60)
(MF 60) $ (SYSB CR RPT) (MANB MJ RPT) (ISTB MN RPT) (SYSBNA CR RPT)  (MANBNA MJ
RPT) (COTLOW MN RPT) (DTMFLOW MN RPT) (ECANLOW MN RPT) (TONESLOW MN RPT) (MFLOW
MN RPT) (CMRLOW MN RPT) (SMG4CN MJ RPT) (PATCHFAIL MJ RPT) (ATMBCN CR RPT)
(ST3EHLD MJ RPT) (ST3EHLD24 CR RPT) (SMCHLD MJ RPT) (SMCHLD24 CR RPT) (SPMSRMNTD
MN RPT) (LOCUR MJ RPT) (TMCFAIL CR RPT) $ $ N 0 $ N
```

SPERFORM Level MAP display

SPERFORM Level MAP display

```
 XAC       MS      IOD      Net       PM      CCS      Lns      Trks     Ext      APPL
   .        .      DLOG E   16PSLk    4 SPM      .        .        ...      .     ATM_65
                                      *C*                                        *C*
 SPERFORM                             SysB     ManB     OffL     CBsy     ISTb     InSv
  0 Quit           PM                    0        0        1        0        6       24
  2 SPMAct         SPM                   0        0        0        0        5        9
  3 SPUSAGE
  4             SPM   60  ISTb  Loc: Site REM1 Floor  1 Row B  FrPos 14
  5             LOAD NAME : MG419BR
  6             STATUS:             REASON:              LOGS:     TIME:
  7
  8
  9 PFQuery
 10             SPERFORM:
 11
 12
 13
 14
 15 OMInfo
 16
 17
 18
    USER1
 Time  05:27  >
```

Carrier Level Map Display

Carrier Level MAP Display.

```
C      MS     IOD     Net      PM     CCS     Lns     Trks    Ext     APPL
   .       .     DLOG E  16PSLk   4 SPM     .       .       ...     .    ATM_65
                                  *C*                                   *C*
  POST         CLASS    ML   OS ALRM  SYSB  MANB UNEQ OFFL  CBSY PBSY  INSV
  0 Quit       TRUNKS   84    0    0     0     0    0    8     0    0   840
  2 Post_      HSCARR    6    0    0     0     0    0   16     0    0   872
  3             OC3S
  4            N  CLASS  SITE SPM RM OC3S CKT STATE  TR MA
  5 Loop_      0  HSCARR REM1 60  0    0   1 INSV   .. ..
  6 Tst_       1  HSCARR REM1 60  1    0   2 INSV   .S ..
  7 Bsy_       2  HSCARR REM1 60  0    0 176 INSV   .. ..
  8 RTS_       3  HSCARR REM1 60  1    0 177 INSV   .S C.
  9 Offl_
 10            SIZE OF POSTED SET  :  180                   MORE...
 11 Disp_      POST:
 12 Next
 13
 14 Detail_
 15 ListAlm_
 16
 17 Perfmon_
 18
     USER1
 Time  05:50  >
```

Querypm Command Output

Query PM Command output display

```
C      MS     IOD     Net      PM     CCS     Lns     Trks    Ext     APPL
   .       .     DLOG E  16PSLk   4 SPM     .       .       1E..    .    ATM_65
                                  *C*                                   *C*
 SPM                              SysB    ManB    OffL    CBsy    ISTb    InSv
  0 Quit          PM                 0       0       1       0       6      24
  2 Post_         SPM                0       0       0       0       5       9
  3 ListSet
  4 ListRes    SPM   60  ISTb  Class: SMG4
  5 Trnsl
  6            Shlf0 SL A Stat  Shlf0 SL A Stat  Shlf1 SL A Stat  Shlf1 SL A Stat
  7 ATMConn ATM 0  1 A InSv  CEM 1  8 A ISTb  DLC 0  1 I InSv  -----  8 - ----
  8            ATM 1  2 I InSv  OC3 0  9 A InSv  -----  2 - ----  DSP 3  9 A InSv
  9 OfClk      VSP0  3 A InSv  OC3 1 10 I InSv  DSP 1  3 A InSv  DSP 4 10 I InSv
 10            VSP 1  4 A InSv  VSP 2 11 A InSv  DSP 2  4 A InSv  DSP 0 11 A InSv
 11 Disp_      ----- 5 - ----  VSP 3 12 A InSv  VSP 6  5 A InSv  ----- 12 - ----
 12 Next       ----- 6 - ----  VSP 4 13 A InSv  VSP 7  6 A InSv  ----- 13 - ----
 13 Select_    CEM 0 7 I ISTb  VSP 5 14 A InSv  DLC 1  7 A InSv  VSP 8 14 I InSv
 14 QueryPM    QueryPM
 15 ListAlm    SPM 60 ISTb        Location: Site REM1 Floor  1
 16 Clock      ATM  0 InSv Act    Loc: Row B  FrPos 13 ShPos  7 ShId 0 Slot  1
 17 SPERFORM ATM  1 InSv InAct  Loc: Row B  FrPos 13 ShPos  7 ShId 0 Slot  2
 18 Upgrade_ VSP  0 InSv Act    Loc: Row B  FrPos 13 ShPos  7 ShId 0 Slot  3
     USER1        VSP  1 InSv Act    Loc: Row B  FrPos 13 ShPos  7 ShId 0 Slot  4
 Time  06:00  MORE...
```

CktLoc Command Output

CktLoc Command Output

```
C       MS      IOD      Net       PM      CCS      Lns      Trks     Ext      APPL
   .        .      DLOG E  16PSLk    4 SPM      .       .        1E..      .     ATM_65
                                     *C*                                        *C*
 TTP
  0 QUIT       POST  1511  DELQ             BSYQ          DIG
  2 Post_      TTP  6-0007
  3 SEIZE      CKT TYPE      PM NO.           COM LANG      STA S R  DOT TE  RESULT
  4            2W S7 S7 SPM  60   9  1 MG4K60SS7IT2W   1 IDL
  5 BSY                                                      R
  6 RTS
  7 TST
  8
  9 CktInfo
 10 CktLoc
 11 Hold       CktLoc
 12 NEXT        Site Flr RPos  Bay_id   Shf  Description    Slot      EqPEC
 13 RLS         REM1 01  B13   SMGE  1    00  SPM :  60      09        DS1SIG
 14 Ckt_       CKT   RPAD     TPAD     MNL    IANL     EML     PBAL      LOOP    CRES
 15 TrnslVf_         (DB)     (DB)    (DBRM) (DBRM)   (DB)
 16 StkSdr_    9     0.00     0.00      50     50      0.0      --        --      --
 17 Pads
 18 Level_
      USER1
 Time  06:57  >
```

SPMREG CI Tool

SPMREG CI Tool Output

```
CI:
>spmreg
SPMREG:
>dispnode spm 60
 Node record for SPM 60:
-----------------------------------------------------
Alias:  SPM_60
Location: Site - REM1
          Floor- 1

-----------------------------------------------------
NNT Node Name   : SPM60U0
IOUI Node Number: 60
GRID:             SPM 60
Load name given:  N
Loc. info given:  N
Service FTA:     4268 1000

            Unit 0                    Unit 1
            ------                    ------
CPID:    125 60 1 0                125 60 1 1
FTS PC:       0022                      0023
FTA:     4266 1000                 4267 1000
DDM Index:    0012
```

Security

Not Applicable.

Configuration Walkthrough

Not Applicable.

Glossary

Term	Description
SPM	Spectrum Peripheral Module
SMG4	Succession Multiservice Gateway 4000
CS2K	Call server 2000

Appendix for A00002970

Table SITE Description

```
Table SITE tuples:

NAME LTDSN MODCOUNT OPVRCLLI ALMDATA
-------------------------------------
HOST    0      1          VER90      $
REM1    1      0          RMMVER90   $
REM2    2      0          RMMVER90   $
REM3    3      0          RMMVER90   $
REM4    4      0          RMMVER90   $
```

Table SITE field description

S.No.	Field Name	Description
1.	Name	Site Name
2.	LTDSN	Site Index (Unique integer representing SITE.)
3.	MODCOUNT	A count of the number of modules on that site.
4.	OPVRCLLI	CLLI (Common Language Location Identifier) for operator verification at that site.
5.	ALMDATA	Descriptions of the alarm points at that site.

SN07 Feature Deltas

Product = MG9000

A00001893 and A00001894--MG9K Imaging (UA-AAL1)

Functional Description

Currently, there is not a concept of imaging a Media Gateway 9000 (MG9K) device load from the Media Gateway 9000 Element Manager (MG9K EM) or any other application. This means that after a new load is loaded into a Supercore OC3, ITX, ITP, DS1, or ABI device, each device must then be patched up to date. This process can take hours, days and some times months depending on the size of the office, the number of patches and the maintenance window.

This feature will provide a means for the customer to upgrade an MG9K Device, patch the device up to date, image the MG9K Device load with the patches applied and then upgrade the rest of the devices in the office with the imaged load.

This feature will also provide a means for imaging to occur automatically so that after the upgrade, if more patches arrive to the site, the customer can continuously keep a stored, up-to-date, imaged load.

This feature introduces MG9K device imaging from the following Succession applications:

- MG9K Element Manager (MG9K EM)
- Network Patch Manager (NPM)

The MG9K EM will provide an interface for the user to image one MG9K Device at a time. The NPM will provide a mechanism for the user to image a device via a maintenance command through the NPM user interfaces as well as schedule an imaging task through the NPM scheduler.

> ***Note:*** The NPM will provide a mechanism for the user to request images of multiple device loads, but the MG9K EM will only be able to image one device at time per Network Element.

Media Gateway 9000 Element Manager

This feature will change the MG9K Element Manager Graphical User Interface (GUI) at the card level as well as asking the user to provide additional information at start up time for the MG9K EM Server.

Security

This feature does not change any of the login procedures or security level access for the MG9K EM, however, this feature does require that the user have emsadm or emsrw level of security in order to execute the Software Image command. Otherwise the command will be greyed out indicating that the user does not have access to execute the command.

Logs

This feature will introduce a new Information log that will indicate a success or failure of an image as well as a new Audit log that will indicate user access of the image command.

However, it is not the responsibility of this document to discuss the log information as it will be provided in a separate log document for this feature. This information is being provided here so the reader of this document can be aware of the new logs.

MG9K EM Server Configuration

Configuration for the MG9K EM will change when a user executes the mg9kconfig.sh script from the /opt/nortel/mg9ksrv_xx/bin directory on the SSPFS platform.

When a user executes the mg9kconfig.sh script before start up of the MG9K Server, the user will be asked to provide the following information:

- Image Server - the load server where the load images will be stored
- Image Server User ID - the user id for the load server that has ftp access
- Image Server password - the password for the load server user id
- Supercore IMA Image Directory - directory where the image for this load type will be stored.
- SuperCore OC2 Image Directory - directory where the image for this load type will be stored.
- ITP Image Directory - directory where the image for this load type will be stored.
- ITX Image Directory - directory where the image for this load type will be stored.
- DS1 Image Directory - directory where the image for this load type will be stored.

- ABI Image Directory -directory where the image for this load type will be stored.

The mg9kconfig.sh script will provide a default Image Directory for the user that will be located at: /swd/mg9k.

The user can change this information by executing the ./mg9kserver config script located in /opt/nortel/mg9ksrv_xx/bin. This command can be executed after the MG9K server is running. This feature will provide a "*Change Imaging Server Settings*" Menu in this script so that the default software imaging parameters can be changed without executing the entire mg9kconfig.sh script again.

MG9K EM GUI

Refer to the Configuration section of this feature for a discussion of this GUI.

Network Patch Manager

Refer to the Configuration section of this feature for a discussion of NPM.

Hardware Requirements or Dependencies

None

Software Requirements or Dependencies

This feature requires the SN07 MG9K EM, NPM and MG9K Device Software.

Limitations and restrictions

The following items are listed here as limitations from this feature:

- SmartImage is dependant on the default information that is input at configuration time of the MG9K EM Server. If this information is not available, the user will not be able to SmartImage or auto image.
- SmartImage or auto imaging for the customer who does not *specialize* his office. It is for the customer who patches all devices with the same patches.
- The patching criteria looks at the levels of patches in a device load. Therefore is a user patches a device with 4 patches, images the device, then removes the patches and then applies 4 different patches; the level of patches since the last image has not changed and the device will not be imaged.
- Due to the fact that two MG9K EM Servers execute on the same SSPFS box at one time during upgrades; the customer must be aware that when the mg9kconfig.sh script asks for the image user id and image server password, they must be the same for both MG9K EM Servers executing. This is due to the fact that there will only be one secure password file for the imaging server per SSPFS platform. However, the additional

information the user provides via the mg9kconfig.sh script can be different, including the image server IP and load image directories.

Interactions

None

Applicable customer facing sections

Fault Management

Logs	_X____
Alarms	NA____

Configuration

Data Schema	_NA___
User Interface	_X____
Element Management	_NA___
Security	_NA___
Service Order	_NA___
Office Parameters	_NA___

Accounting (includes AMA billing)	_NA___
Performance (includes operational measurements)	_NA___

Glossary

MG9K EM - Media Gateway 9000 Element Manager

NPM - Network Patch Manager

GUI - Graphical User Interface

CLUI - Command Line User Interface

Fault Management for A00001893 and A00001894

No additional tools are implemented by this feature. Customer and Audit logs for this feature are generated via the existing log software in the MG9K Element Manager.

Fault management tools and utilities

This feature utilizes the fault management tools provided by the MG9K Element Manager application. Customer logs are generated by the Element

Manager application and are based on the processing of node logs received from the MG9K gateway.

Audit logs are generated by the Element Manager and are based on maintenance actions performed by the craft person only at the Element Manager console.

Logs

New MGEM 714 Audit Log

This log is generated whenever a user attempts to image an MG9K device.

Format

The following table is an example of the new MGEM 714:

```
Oct  2 14:37:14 wnc0s00v MGEM:joeuser 714 Software
Image Requested MG9K: U16 [16]
```

Field Description for the MGEM log

Field	Description	Example
Date/Time	Date and Time stamp of the log	Oct 2 14:37:14
Host Name	Host machine name	wnc0s00v
Application Name	Specifies the application producing the log	MGEM
User Name	User name attempting the action	joeuser
Log Number	The log number	714
Log Text	Specifies the action attempted and any associated details.	Software Image Requested MG9K: U16[16]

Action

No action is required.

Associated Operational Measurements or Performance Measurements

None.

Additional Information

None.

New NE609 Software Image Log

This new log is generated whenever a user executes an image request.

Format

The following is an example of what the new log might look like:

```
NE609 OCT6 11:06:14 0029 INFO MG9K Software Image
Event

Imaging: NE Number: 7 NE Name: PL7 Card Type: DS1

Image Type:   Card Type

Image Action: Image

Image Status: Image Completed

Time:   Thu Oct 02 18:17:11 EDT 2003
```

Action

If the Image Status field indicates a failure, the user may want to attempt to image the device again.

Associated Operational Measurements or Performance Measurements

None.

Additional Information

None.

Configuration for A00001893-1894

Hardware and Software Requirements

This feature requires the SN07 Media Gateway 9000 Element Manager, the Network Patch Manager and Media Gateway 9000 Device Software as well as the SSPFS platform software.

Upgrade Impact

This feature impacts MG9K Device upgrades by allowing the craft person to upgrade an MG9K Device with a new load, patch the load with all available patches for the load and execute an image.

The execution of the image will create a device load with a ".tar" file extension (ex. SCOA07AA_GZ.tar). This image load will contain the software load *and* the patches.

The user will then have the ability to upgrade the remaining devices in the office with the newly imaged load.

The availability of the image command could potentially reduce the amount of time an upgrade takes significantly.

Dump and Restore

N/A

Element Management Upgrade

This feature will create a ".tar" load file during the imaging process that can be used to upgrade MG9K Devices of the same load type.

Element Management

This feature adds new commands to the Media Gateway 9000 Element Manager Graphical User Interface and the Network Patch Manager Graphical User and Command Line User Interface.

Media Gateway 9000 Element Manager

This feature adds new commands to the Media Gateway 9000 Element Manager Graphical User Interface and the Network Patch Manager Graphical User and Command Line User Interface.

Initial MG9K Element Manager Configuration

This feature will change/update two configuration scripts for the MG9K EM Server; *mg9kconfig.sh* and *mg9kserver config*.

mg9kconfig.sh

Today, the mg9kconfig.sh script must be executed before the MG9K EM Server can be started. Therefore, this script will be modified to ask the user for the following information:

- Image Server - the load server where the load images will be stored
- Image Server User ID - the user id for the load server that has ftp access. **NOTE: the ftp user must have over write privileges on the server**.
- Image Server password - the password for the load server user id
- Supercore IMA Image Directory - directory where the image for this load type will be stored.
- SuperCore OC2 Image Directory - directory where the image for this load type will be stored.
- ITP Image Directory - directory where the image for this load type will be stored.
- ITX Image Directory - directory where the image for this load type will be stored.

- DS1 Image Directory - directory where the image for this load type will be stored.
- ABI Image Directory -directory where the image for this load type will be stored.

The mg9kconfig.sh script will provide a default Image Directory for the user that will be located at: /swd/mg9k.

The following figure shows the final output from the mg9kconfig.sh script that the user will see and verify before starting the MG9K EM Server.

Script output of the mg9kconfig.sh verification

```
************************************************************
 Setup Server As                  : MASTER
Master Server IP Address          : wnc0s00v
 SESM IP Address                  : 47.142.164.250
 Security Authentication Host     : 47.142.164.250
 Oracle IP Address                : 47.142.164.250
 Initialize Database              : YES
 Maintenance Release Upgrade      : NO
 Image Server                     : 47.142.164.250
 Image Server User ID             : maint
SuperCore IMA Image Directory     : /swd/mg9k/sci
SuperCore OC3 Image Directory     : /swd/mg9k/sco
 ITP Image Directory              : /swd/mg9k/itp
 ITX Image Directory              : /swd/mg9k/itx
 ABI Image Directory              : /swd/mg9k/abi
 DS1 Image Directory              : /swd/mg9k/ds1

************************************************************
```

mg9kimpl

The mg9kimpl script exists today and is available so that the user can change information the MG9K EM Server utilizes. This script is accessed by typing **./mg9kserver config**. This feature will provide a "*Change Imaging Server Settings*" Menu in this script so that the default software imaging parameters can be changed without executing the entire mg9kconfig.sh script again. The following figures show how the menu is displayed.

Main Configuration Menu for the MG9K EM Server

Main Configuration Menu

1) Change Distribution Policy
2) Change SESM IP Address
3) Change Oracle IP Address
4) Change Debug Level for logs
5) Change Persistence settings
6) Change ESA data download settings
7) Change Imaging Server settings
8) Display current settings
9) Exit from Main Menu
Please make a selection =>

Image Configuration Menu for the MG9K EM Server

.
Image Configuration Menu

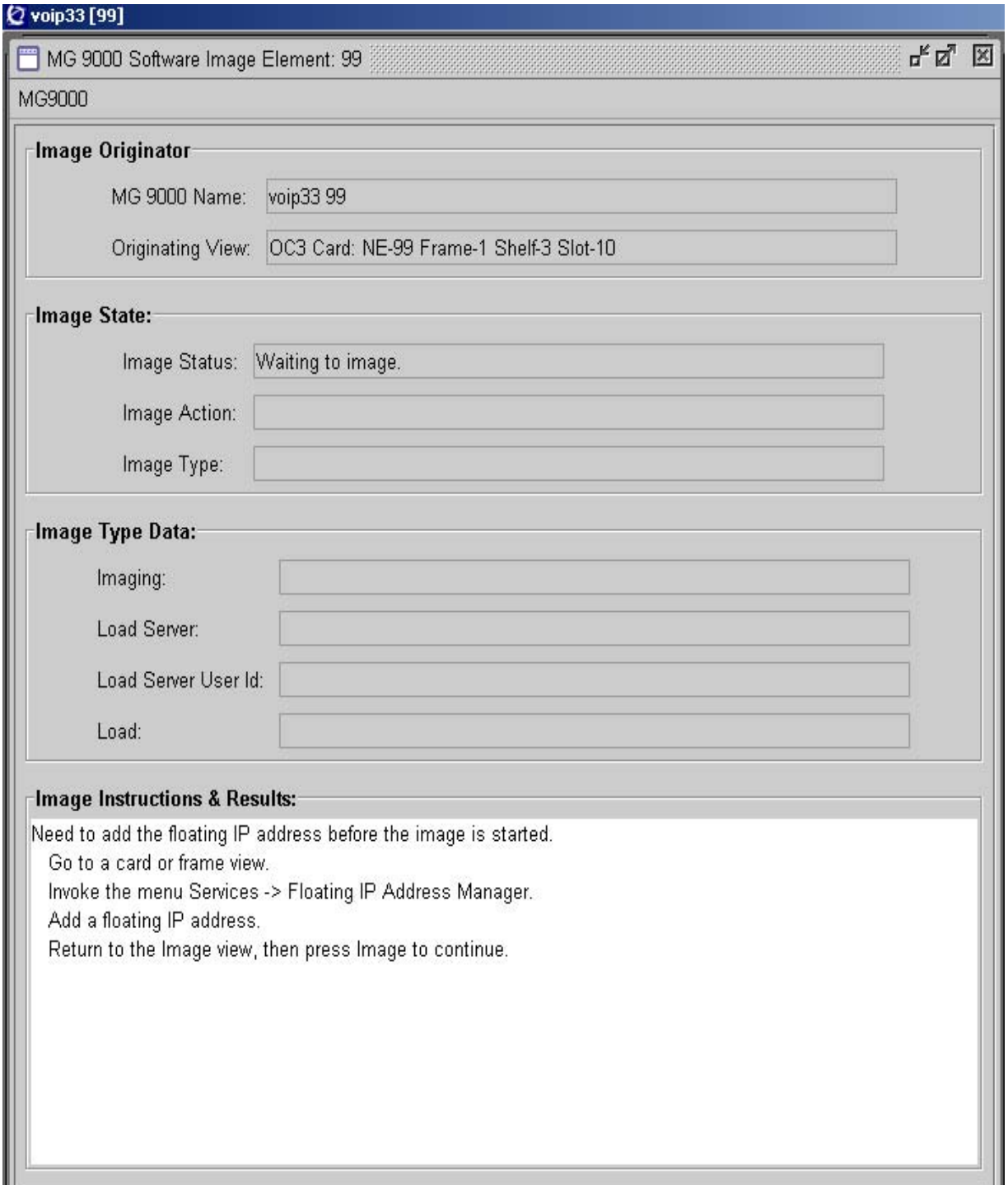
1) Change Image Server IP
2) Change Image Server User ID and password
3) Change Image Server default directories
4) Exit to Main Menu
Please make a selection =>

MG9K EM GUI

This feature changes the MG9K EM GUI at the card level only. An additional item named *Software Image* will be added to the *Actions* menu. The Software Image function is performed on a **per card basis** and is only available for the SuperCore OC3, SuperCore IMA, ITP, ITX, DS1 and ABI cards.

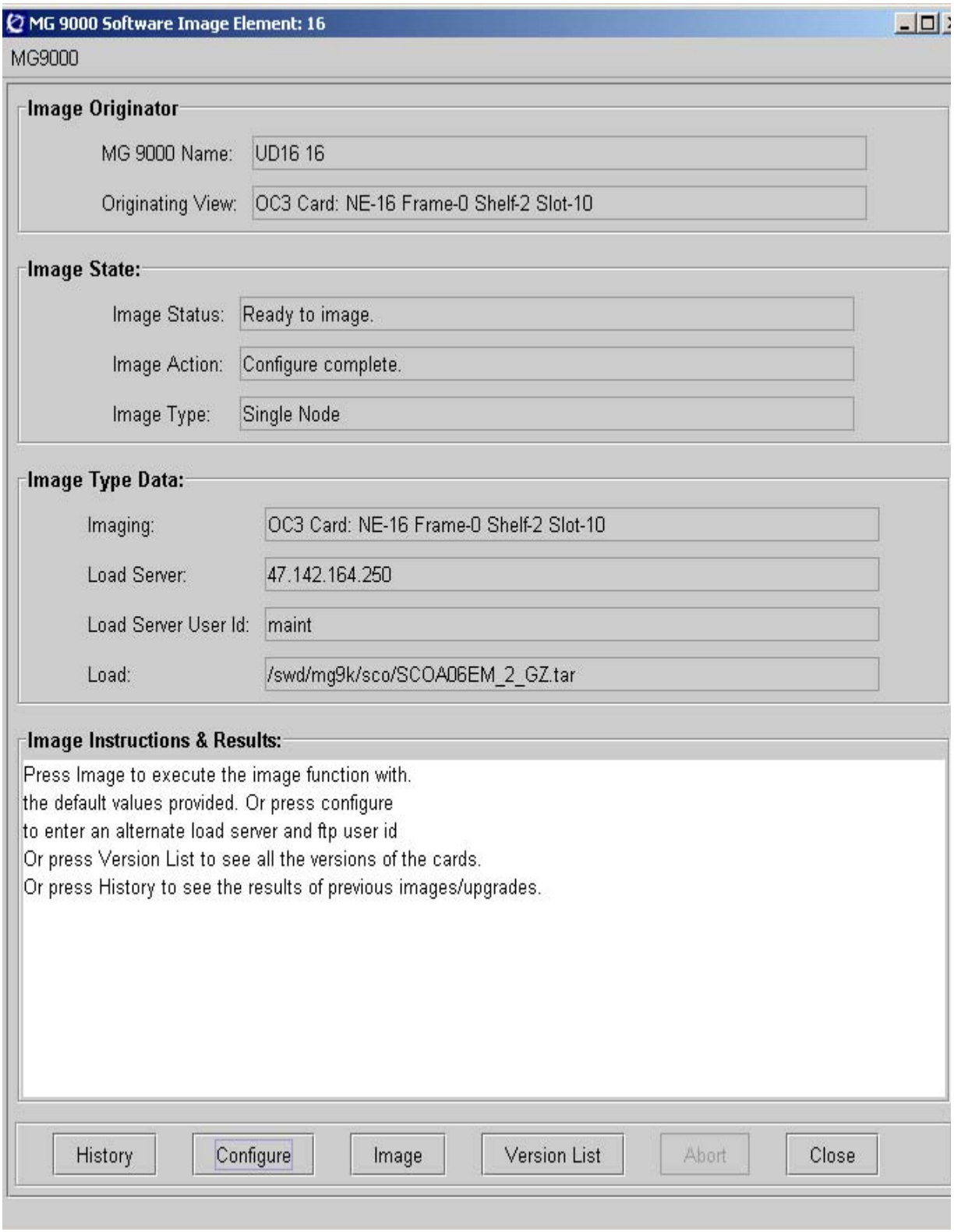
After selecting the Software Image tab, the MG9K Image GUI appears. The next figure shows the message if the Floating IP has not been configured.

Floating IP Not configured



After the floating IP has been configured, the MG9K Image GUI can be re-entered and should look as follows:

MG9K EM Image GUI



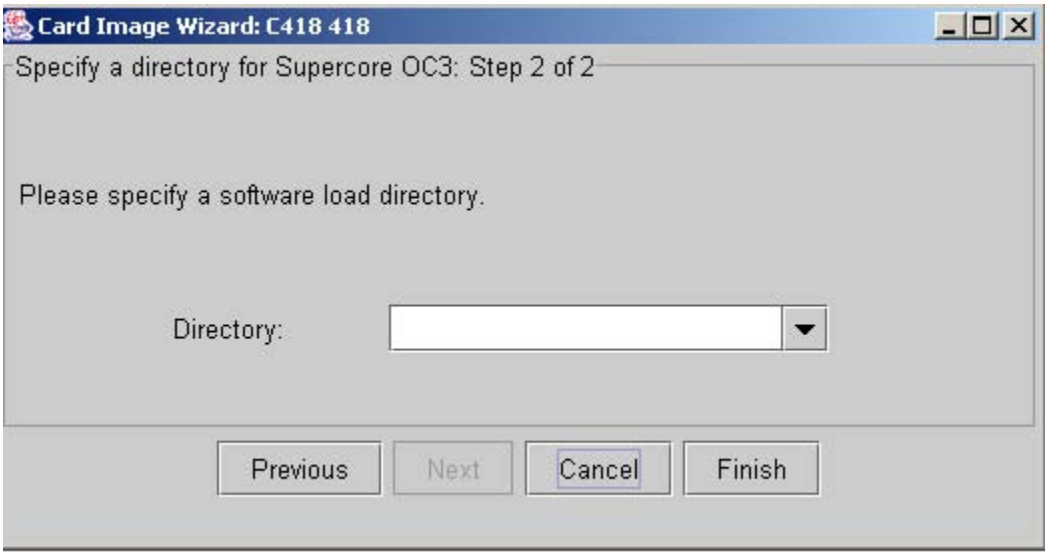
Notice from the preceding figure that there is a *Configure* button. If the user wishes to change the default server IP, server user ID, server password or directory, they can do so by clicking on the *Configure* button.
Note: *Configure* only changes these values for this session. It does not change the default values permanently.

The following two figures show the *Configure* menus.

Server Configure Menu

The Server User Identifer *must* be an FTP user that has overwrite access on the load server.

Server Directory Menu



As part of manual imaging, the MG9K EM will obtain patch information from the Network Patch Manager. This information will help the user to determine if there is any reason the device load should not be imaged. If the NPM determines any of the following conditions, a *Warning* message will be sent to the user:

- the device load contains obsolete patches
- the device load contains patches that are on hold
- the device itself is on hold
- the device load is at a lower patch level then the previously image load.

A *Failure* message will be sent to the user if communication with the NPM cannot be obtained. However, in all of these instances, the user will have the ability to override these conditions and continue with the image.

FTP User Configuration

This feature requires that the FTP server that is used for images have an FTP user configured that has read AND overwrite access to the server. After an image file is created once, every subsequent image of that load will be overwritten. NOTE: only the image file will be overwritten, not the original load file.

Image File

The imaged file name is pre-determined and **CANNOT** be configured. The imaged file name will be based on the name of the load file with a ".tar" extension. For example, if the file name of the load is SCOA07AA_GZ, the imaged load file name will be SCOA07AA_GZ.tar. This is the name of the load file that should be used when the user is ready to upgrade or re-load devices from disk.

The imaged load will be placed in the directory that the user specified during initial configuration of the MG9K EM Server or in the configuration entered via the Image Configuration Panels shown in "Server Configure Menu" on page 1440 and "Server Directory Menu" on page 1440.

Network Patch Manager

The NPM will offer the ability to image an MG9K Device via a new maintenance command; *SmartImage*. This new maintenance command will "look and feel" like the other maintenance commands in the NPM.

Unlike manual imaging from the MG9K EM, the *SmartImage* command utilizes a patching criteria that will determine if the devices that the user wishes to image *should* be imaged. The following sections discuss the patching criteria, NPM GUI and NPM CLUI changes as well as other changes to the NPM that will be necessary for the this feature.

Security

This feature requires the user to have a security level of emsadm in order to execute the *SmartImage* command.

Logs

This feature will not add new log numbers for the SmartImage command. This feature will utilized the NPM maintenance log numbers that are currently available for maintenance commands.

NPM PreDefined Device Sets

This feature will introduce two new predefined device sets to the NPM:

- MG9KDevices
- GWCDevices

Each of these sets will include all of the devices of the device type they reference. For example, MG9K Devices will include all of the MG9K type devices; OC3, ITP, ITX, DS1, and ABI. It will be recommended that the user utilize these sets when executing the *SmartImage* command.

NPM Patching Criteria

Basically, the criteria for the SmartImage command boils down to which device(s) contains the highest patch content.

Because this is the “focus” of the criteria, it is essential that the user be aware of what they are doing when they image a device from the NPM. It is **highly** recommended that the user only use the “device sets” that will be provided as part of this feature. Otherwise, an image of a device could be taken that does not contain the highest patch content.

The tables below show an example of how the patching criteria will work for the SmartImage Command.

The following table shows a list of all the MG9K Devices, registered in the NPM, sorted by loadname.

Sorted devices and loads

Loadname	Device
SCOA07AB	UD16_16_62_OC3_0_2_10
	UD16_16_62_OC3_0_2_11
	UD17_17_72_OC3_0_2_10
	UD17_17_72_OC3_0_2_11

Loadname	Device
ITPA07AB	UD16_16_62_ITP_0_2_12
	UD16_16_62_ITP_0_2_13
	UD16_16_62_ITP_1_2_12
ITPA07AA	UD16_16_62_ITP_1_2_13
ITXA07AB	UD16_16_62_ITX_0_2_14
	UD16_16_62_ITX_0_2_15
	UD17_17_72_ITX_0_2_14
	UD17_17_72_ITX_0_2_15

Once all of the devices are sorted, the NPM looks at specific fields to determine if each device is a candidate for imaging. The following table shows the fields used and what impact they have on each device as it is evaluated.

Patching Criteria

Field	Description	Impact on Imaging
AppLevel	Contains an integer value to indicate the number of patches applied to the device.	If zero patches are applied, the device is not a candidate for imaging.
ActLevel	Contains an integer value to indicate the number of patches activated in the device.	If all the devices for a particular load are at the same applevel, this field is used as a “tie breaker” to determine if a device should be imaged.
Hold	Contains Y or N to indicate whether the device is on hold.	If the device is on hold (Y), the device is not a candidate for imaging.
Patches on Hold	Contains an integer to indicate how many patches are on hold.	If the device contains any patches that are on hold, the device is not a candidate for imaging.
Obsolete Patches	Contains an integer value to indicate how many obsolete patches.	If the device contains any patches that are obsolete, the device is not a candidate for imaging.

The following table shows an example the patching criteria field values for each device.

Patching Criteria Fields

Loadname	Device	App-Level	Act-Level	Patches on Hold	Obsolete Patches	Hold	Include
SCOA07AB	UD16_16_62_OC3_0_2_10	5	0	0	0	N	Y
	UD16_16_62_OC3_0_2_11	5	0	0	0	N	Y
	UD17_17_72_OC3_0_2_10	5	0	0	0	N	Y
	UD17_17_72_OC3_0_2_11	5	0	0	0	N	Y
ITPA07AB	UD16_16_62_ITP_0_2_12	3	0	0	0	N	Y
	UD16_16_62_ITP_0_2_13	2	0	0	0	N	Y
	UD16_16_62_ITP_1_2_12	5	0	0	0	Y	N
ITPA07AA	UD16_16_62_ITP_1_2_13	5	0	0	1	N	N
ITXA07AB	UD16_16_62_ITX_0_2_14	0	0	0	0	N	N
	UD16_16_62_ITX_0_2_15	0	0	0	0	N	N
	UD17_17_72_ITX_0_2_14	0	0	0	0	N	N
	UD17_17_72_ITX_0_2_15	0	0	0	0	N	N

From the Patching Criteria Fields table, let's evaluate which devices were chosen as candidates for imaging. We will look at the devices that were not chosen for imaging later in this section.

Candidates Devices for Imaging

Candidate Devices	
Group 1	UD16_16_62_OC3_0_2_10
	UD16_16_62_OC3_0_2_11
	UD17_17_72_OC3_0_2_10
	UD17_17_72_OC3_0_2_11
Group 2	UD16_16_62_ITP_0_2_12

The five devices from the previous table were chosen because they were not on hold and they had the highest level of patches applied to their load without any of the patches being obsolete or on hold.

Once the candidate device list is determined, the NPM then looks at the previously imaged AppLevel and ActLevel fields for each load.

If the AppLevel for the devices in a group are at a higher or lower level then the previously imaged levels, a device from the group will be chosen for imaging.

If the AppLevel is the same as the Previously Imaged AppLevel, the ActLevel will be used as a “tie breaker” to determine if an image should occur. If the ActLevel is the same, none of the devices will be imaged because the levels are the same level as the previous image.

NOTE: MG9K Devices do not currently support activation type patches, however, this patching criteria will continue to utilize this field as part to the criteria to determine the candidate device list, so that the patching criteria can be keep generic.

Chosen Devices for Imaging

Candidate Devices		Current AppLevel	Current Actlevel	Previous Imaged AppLevel	Previous Imaged ActLevel
Group 1	UD16_16_62_OC3_0_2_10	5	0	4	0
	UD16_16_62_OC3_0_2_11	5	0	4	0
	UD17_17_72_OC3_0_2_10	5	0	4	0
	UD17_17_72_OC3_0_2_11	5	0	4	0
Group 2	UD16_16_62_ITP_0_2_12	3	0	4	0

Once the NPM determines that a group of devices should be imaged, from this point on, the NPM views the devices in each group as “equals” and simply chooses the first device in the group to be imaged; as shown in Table 6.

Chosen Devices for Imaging

Chosen Devices	
1	UD16_16_62_OC3_0_2_10
2	UD16_16_62_ITP_0_2_12

Now that we know which devices will be chosen for imaging, let's take a closer look at why some of the devices were not chosen for imaging.

Devices NOT chosen for imaging

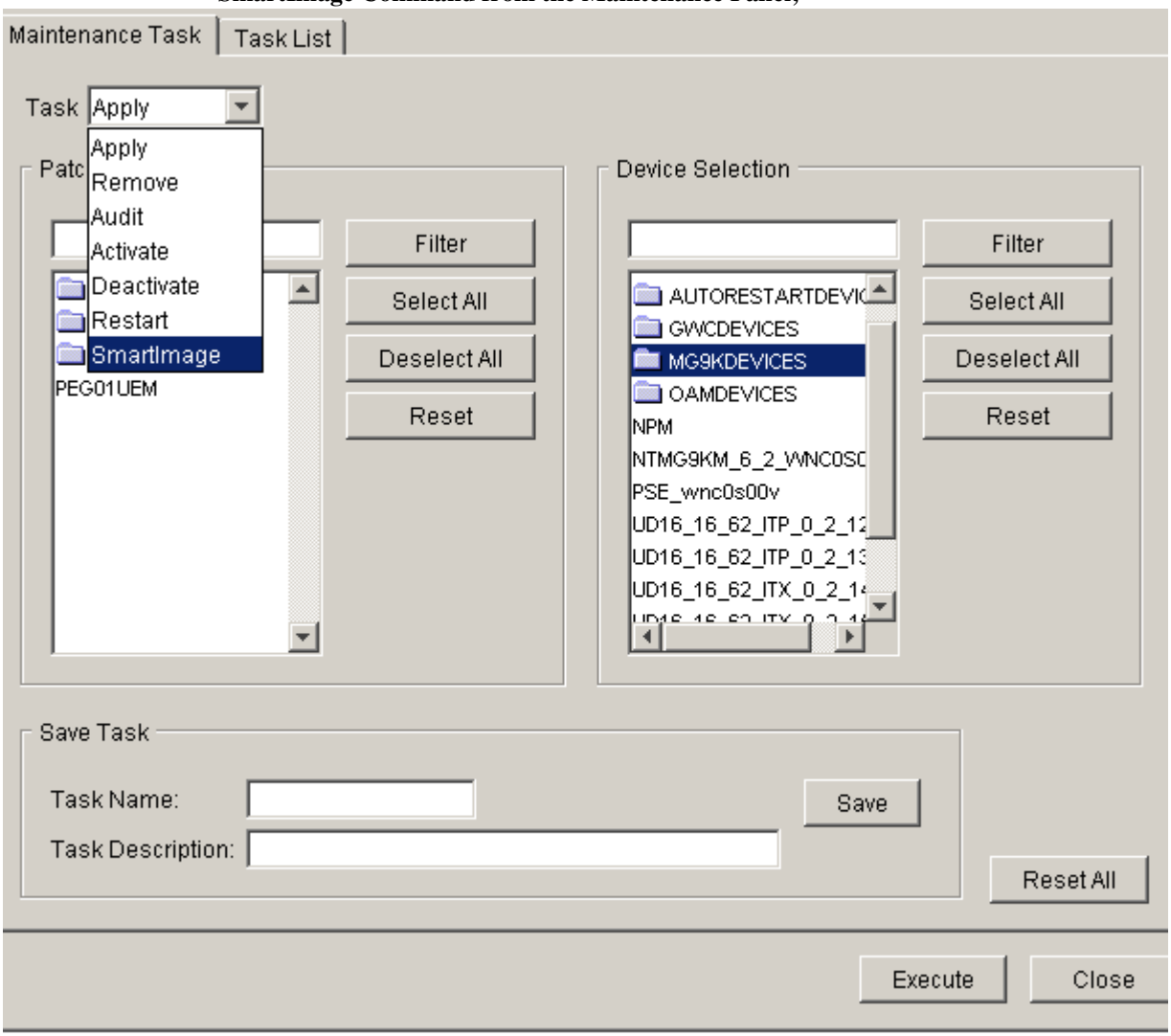
Loadname	Device	AppLevel	ActLevel	Patches on Hold	Obsolete Patches	Hold
ITPA07AB	UD16_16_62_ITP_0_2_13	2	0	0	0	N
	UD16_16_62_ITP_1_2_12	5	0	0	0	Y
ITPA07AA	UD16_16_62_ITP_1_2_13	5	0	0	1	N
ITXA07AB	UD16_16_62_ITX_0_2_14	0	0	0	0	N
	UD16_16_62_ITX_0_2_15	0	0	0	0	N
	UD17_17_72_ITX_0_2_14	0	0	0	0	N
	UD17_17_72_ITX_0_2_15	0	0	0	0	N

- Device UD16_16_62_ITP_0_2_13, was not chosen for imaging because it does not contain as high of a patch content as UD16_16_62_ITP_0_2_12.
- Device UD16_16_62_ITP_1_2_12, was not chosen for imaging because the device is on hold.
- Device UD16_16_62_ITP_1_2_13, was not chosen for imaging because the device load contains an obsolete patch.
- Device UD16_16_62_ITX_0_2_14, UD16_16_62_ITX_0_2_15, UD17_17_72_ITX_0_2_15 and UD17_17_72_ITX_0_2_15 were not chosen for imaging because there are not patches currently applied to either device.

NPM GUI

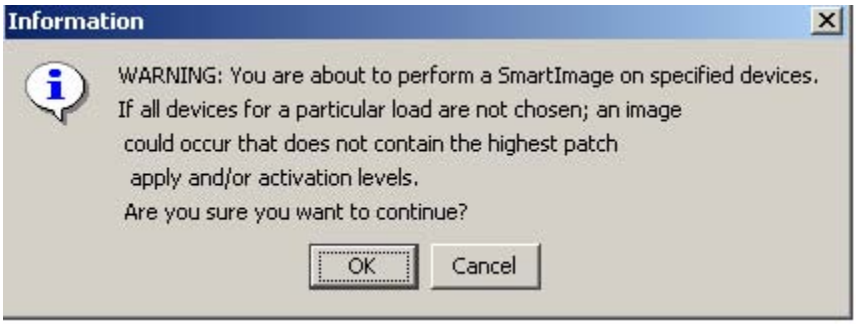
The following figures show example output of the *SmartImage* command and results. (Note the example output here, is not the example that is shown in the table example shown in the previous section.)

SmartImage Command from the Maintenance Panel;

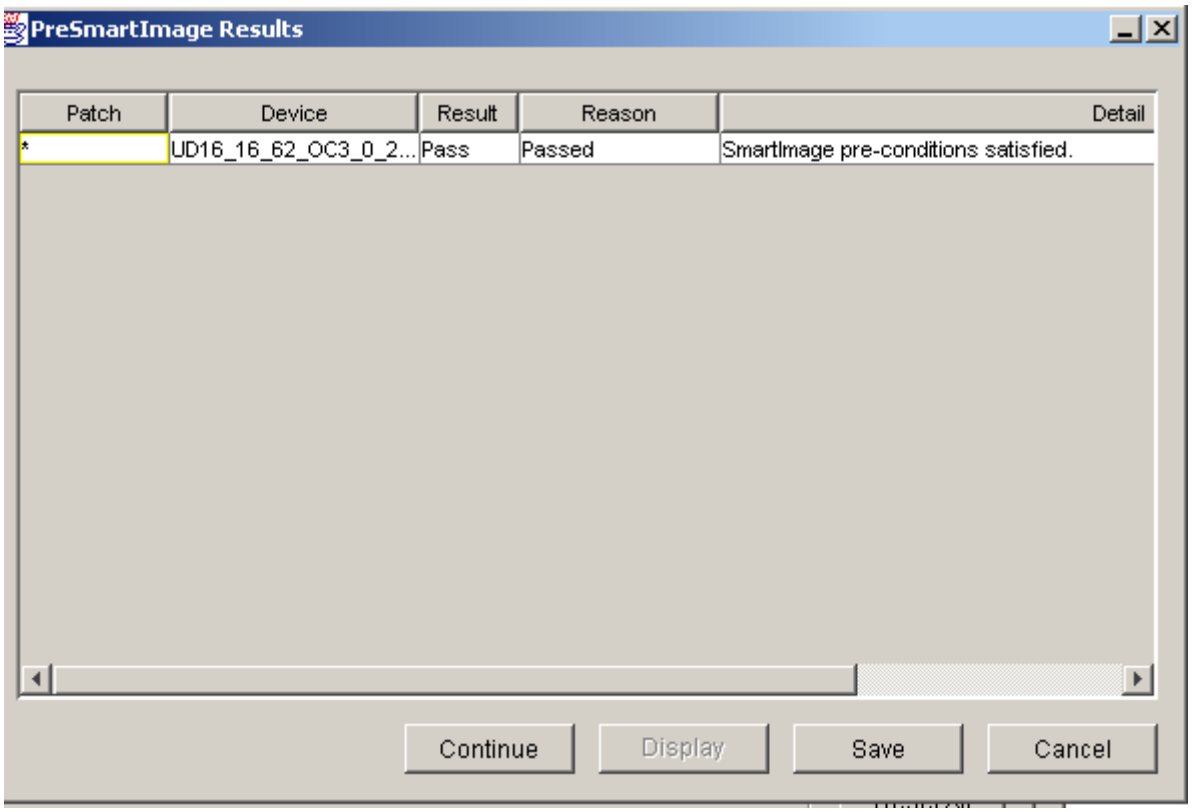


After choosing the *SmartImage* Command and the selected devices, the user can click the *Execute* button. Once this button is clicked a warning message is displayed to the user to ensure that they agree that the devices chosen are the ones that they want evaluated.

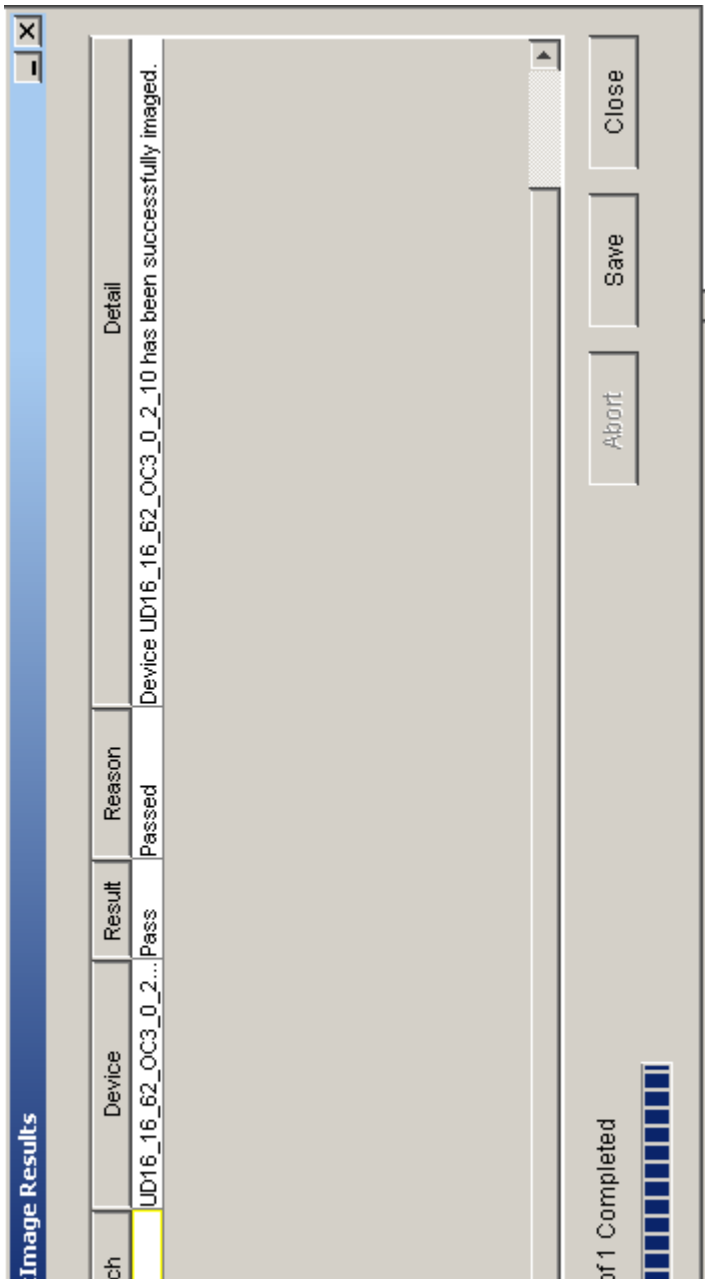
Warning message for the SmartImage Command



Pre-results for the SmartImage Command



Final results from the SmartImage Command



NPM CLUI

This feature changes the NPM CLUI by adding the new SmartImage command. The command will execute just as it does in the NPM GUI. The following is an example of the command and output.

NPM CLUI SmartImage Command Output

```
npm>smartimage SET MG9KDEVICES
WARNING: You are about to perform a smartimage on the specified devices.
Note that if all devices for a particular load are not chosen
for imaging. A device may be chosen that does not contain the
the highest patch content.
If you wish to continue with this maintenance request enter Yes (Y or y).
Otherwise, just enter return.
#y

Patch: *
Device: UD16_16_62_OC3_0_2_10
Result: true
Reason: Passed
Details: SmartImage pre-conditions satisfied.


If you wish to continue with this maintenance request enter Yes (Y or y).
Otherwise, just enter return.
#y

npm>
Patch: *
Device: UD16_16_62_OC3_0_2_10
Reason: Passed
Detail: Device UD16_16_62_OC3_0_2_10 has been successfully imaged.
```

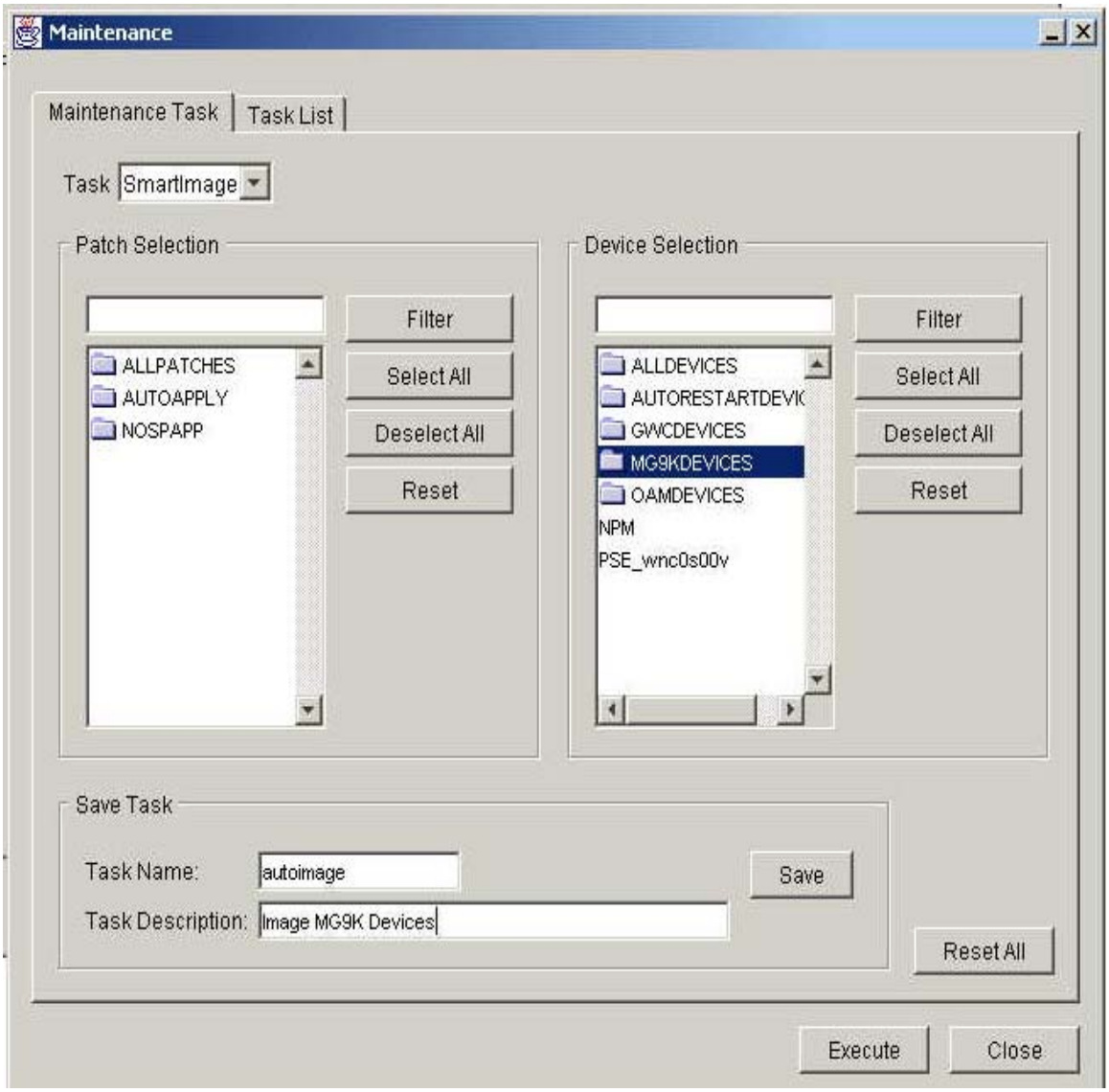
Scheduling SmartImage

The SmartImage command can be scheduled in the NPM via the NPM GUI or NPM CLUI and executed nightly, weekly or monthly. It is recommended that if SmartImage is scheduled on a nightly basis, that autoapply is also scheduled and executed before the SmartImage task is executed.

The following figures show some of the steps involed to schedule the SmartImage task.

Scheduling a SmartImage from the NPM GUI

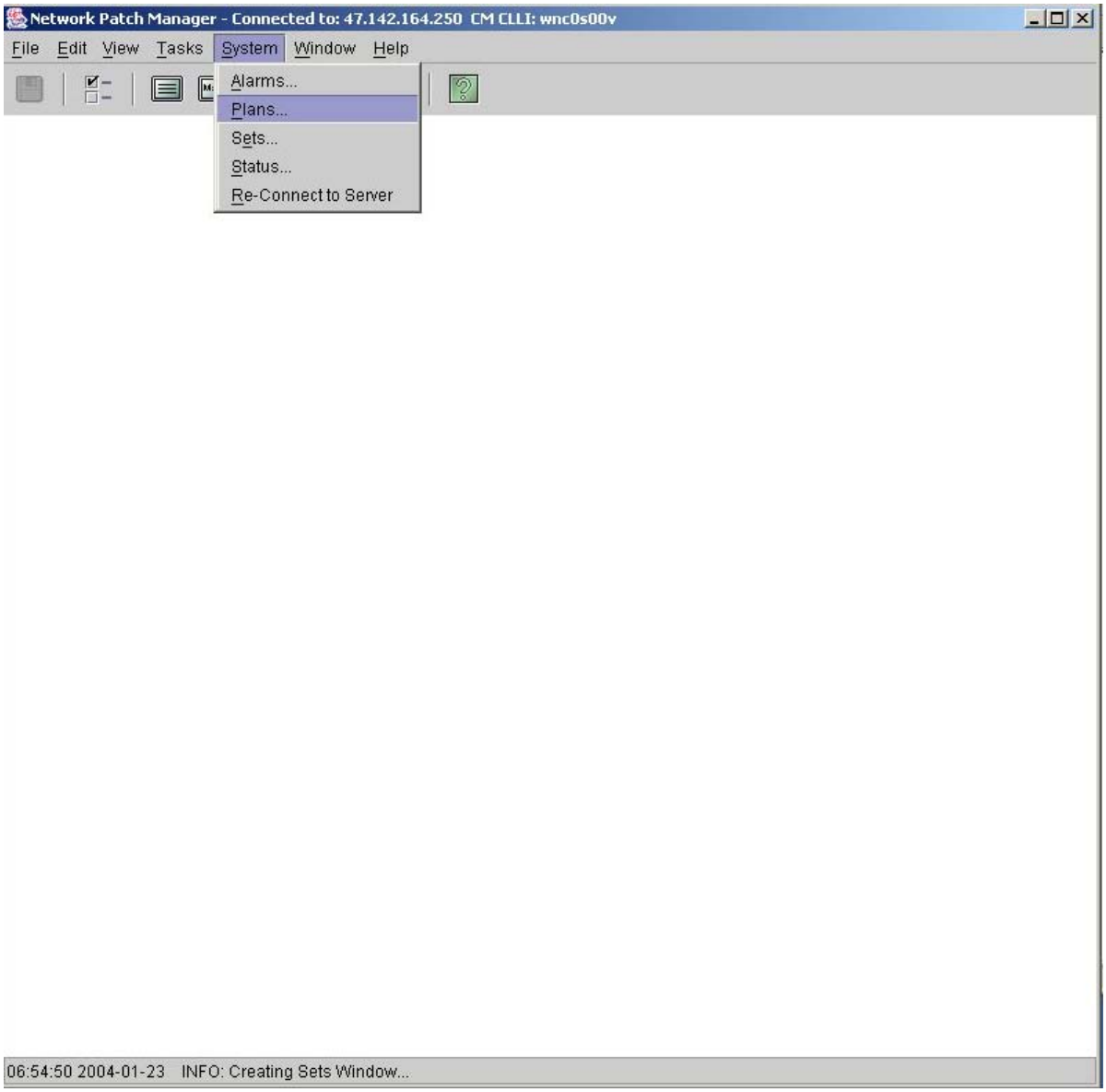
Saving the SmartImage Task



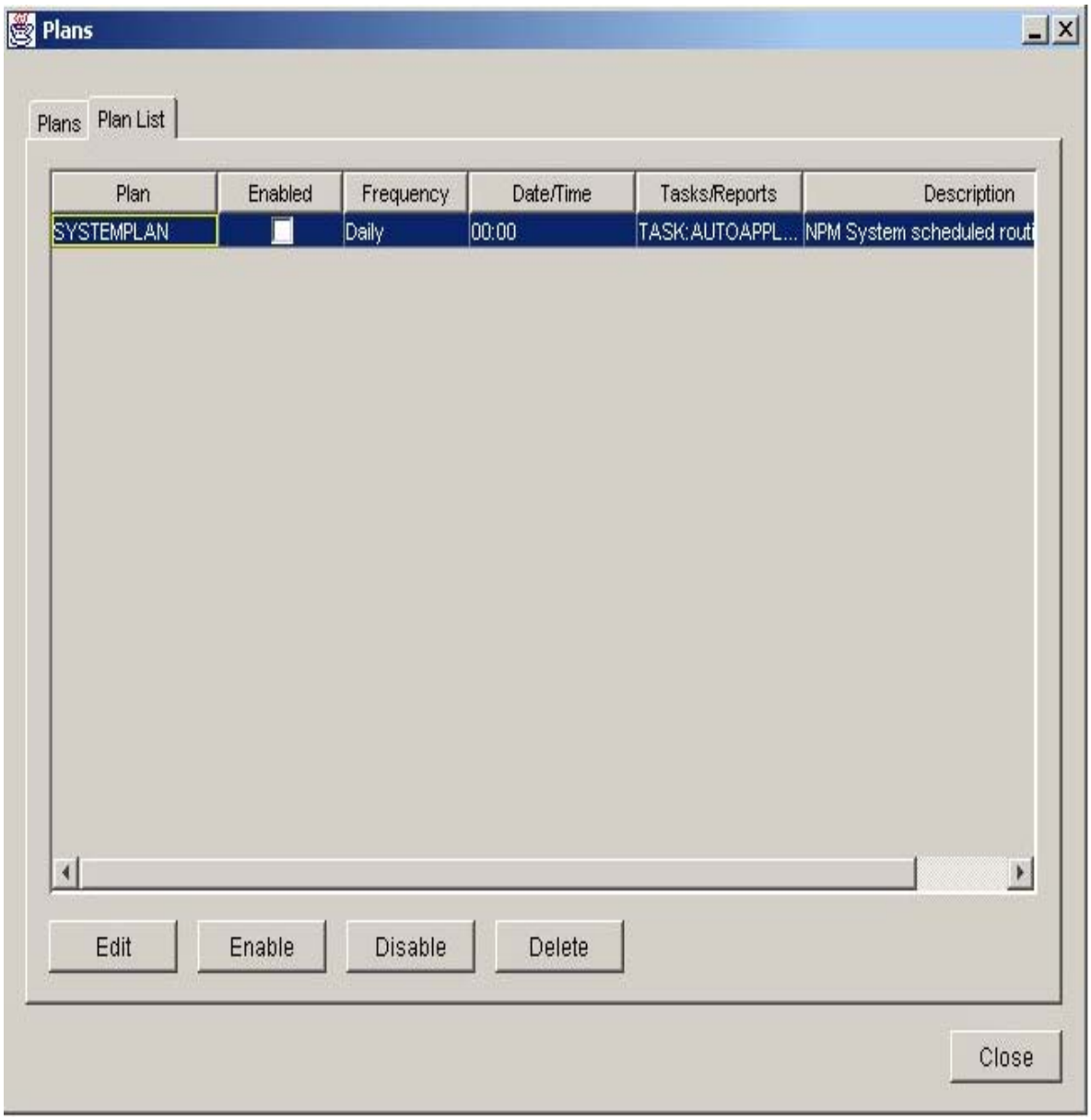
The preceding figure shows the SmartImage Task being saved and called *autoimage*.

After the task is saved it will show up as an available task to be scheduled in the NPM System Scheduler. The following figures show how to get to the NPM System plan and how to edit the plan to include the *autoimage* task.

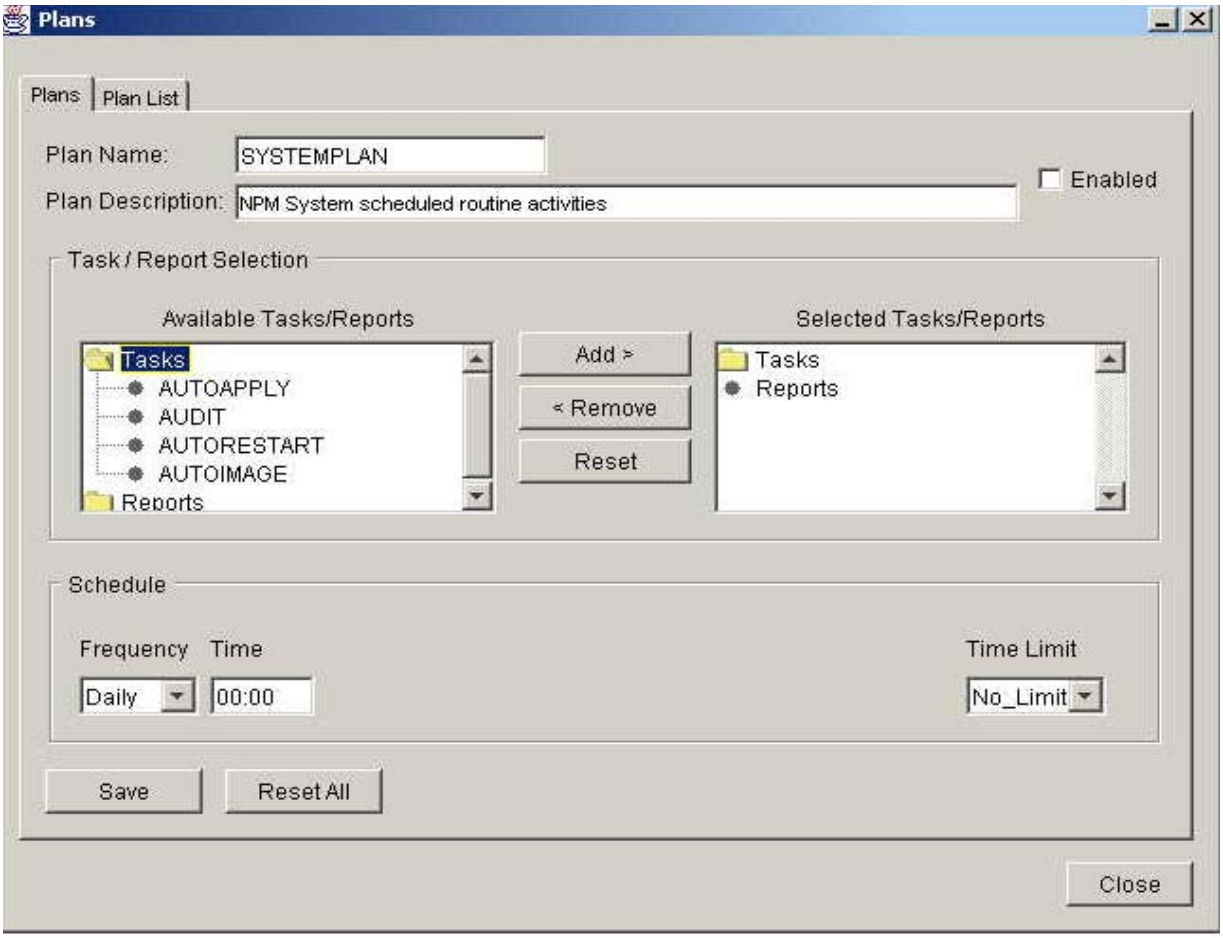
Selection of the System Plans Menu



Selection of the System Plan for editing

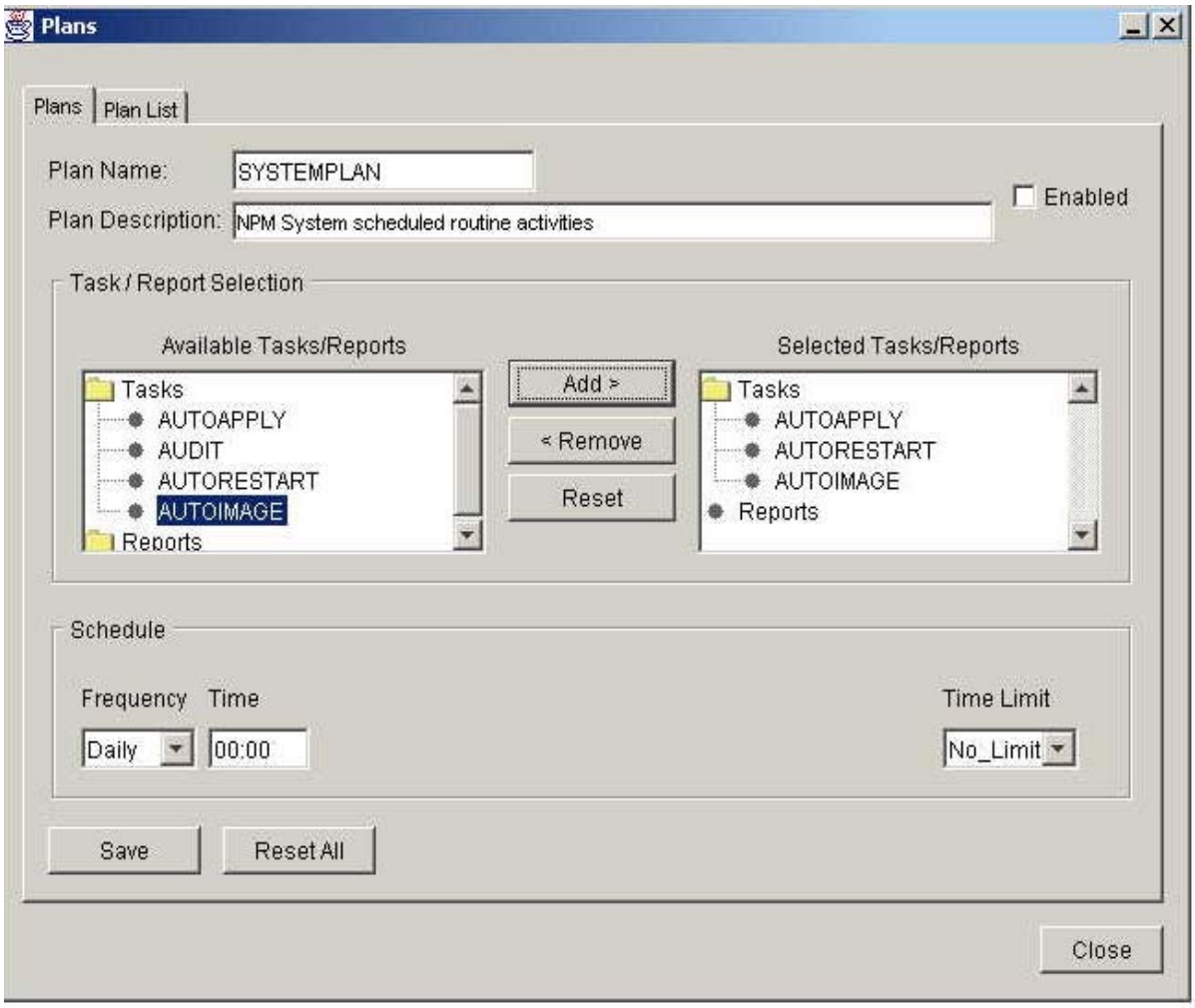


List of Available Tasks



The newly added *AUTOIMAGE* task can be added to the selected number of tasks to execute, as shown in "Selection of the System Plan for editing" on page 1453.

Imaging added to the System Plan



Scheduling a SmartImage task from the NPM CLUI

The following figure shows how to save, add and schedule a *SmartImage* task from the NPM CLUI.

Scheduling SmartImage Task from NPM CLUI

```
npm>newtask MG9K_IMAGE_TASK SMARTIMAGETASK"MG9K AUTO IMAGING
" MG9KDEVICES
Task created successfully.


npm>sched SYSTEMPLAN TASK MG9K_IMAGE_TASK Add
Done.


npm>updplan SYSTEMPLAN Daily"1-24-04 00:00" No_Limit"Nightly Maintenance"
Plan updated successfully.


npm>enableplan SYSTEMPLAN ON
Done.
```

Hardware Requirements or Dependencies

None

Software Requirements or Dependencies

This feature requires the SN07 MG9K EM, NPM and MG9K Device Software.

Limitations and restrictions

Refer to the Limitations and Restrictions listed in the FN section of this feature.

Interactions

None

Product = MG 9000

A00002020 -- ESA Translation Download (UA-AAL1)

Functional Description

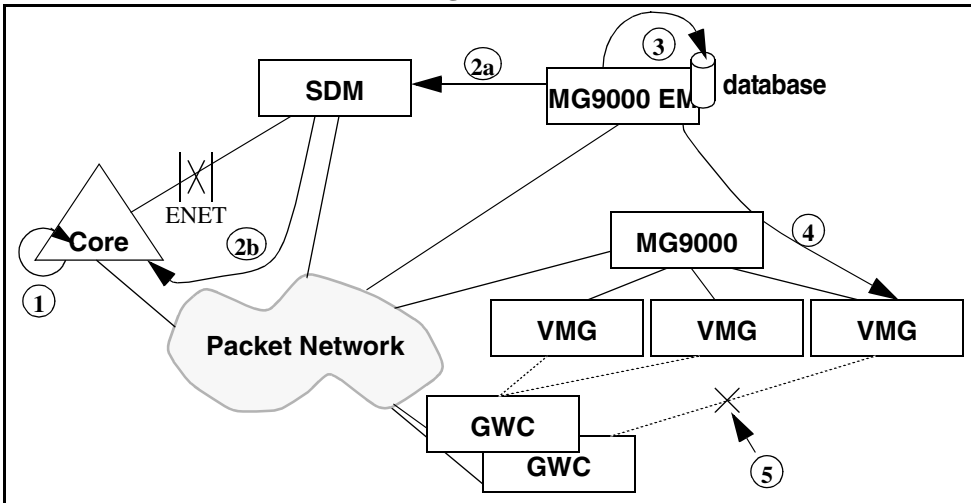
This activity allows the download of information necessary to support Emergency Stand Alone (ESA) call processing across all native (non ABI) lines served by a single MG9000.

The download takes place from the CS2000 core to an MG9000 element manager. The data is generated by the core at 1:00 AM and stored in a file called ESA_SYSTEM_SD$XML on a device specified by OFCENG parameter ESA_GWDATA_DEVICE. It is then downloaded by the MG9000 EM through the SDM.

Prior to this activity, ESA was supported for the MG9000 but all ESA data was provisioned through the MG9000 element manager. This method will continue to be used for VMGs not marked as North American in the MG9000 EM.

Note: Activity "A00002380 - MG9K ABI ESA" is implemented in CCM20 and enhances MG9K ESA to support ABI as well as non native lines. The documentation for that activity affects many of the same areas as this activity but in most cases does not invalidate the documentation found here. One exception is the ESATRAVER command described in the CN section of this document.

MG9000 ESA Functional Behavior Diagram



1 Core generates ESA data file(s) at 1:00 AM every day
2 MG9000 EM initiates ftp through SDM
3 MG9000 EM extracts data for each VMG and saves in Oracle database
4 MG9000 EM audits and updates ESA data in VMG
5 VMG(s) enter ESA when communication with GWC is lost

Related Activities

This activity is one of three activities to enhance ESA for the MG9000 in the SN06.2 time frame. The activity addresses the core code and will be sourced into the SN07 stream and patched back to SN06.2

The other features are

- A00001982 - ESA Enhancements [MG9000]
- A00002019 - ESA EM Enhancements (MG9000 EM]

This activity assumes that deterministic LENs are being used for MG9000 lines.

Hardware Requirements or Dependencies

This activity requires CS2000 with SDM and EIOP.

The maximum size of SFDEV is 5 million words (10 million bytes) so a disk device must be available for large offices. Please see the engineering section of this document.

Software Requirements or Dependencies

Office must convert to using deterministic LENs for MG9000 as described in SN06 activity “A89009298 - MG9000 Lines Preprovisioning”.

Limitations and restrictions

ESA data will be built by the core every 24 hours at 1:00 AM or as the result of a manual command. Changes to CS2000 line data will not be reflected in the MG9000 until the data has been

- built by the core
- downloaded by the MG9000 Element Manager (EM)
- downloaded to the MG9000

Individual MG9000 VMGs can drop into ESA independently of other VMGs on the same MG9000. Emergency 911 lines should be provisioned on each VMG with table ESAPXLA provisioned to route 911 calls to these lines.

The ESA_SYSTEM_SD$XML file is not normally viewed by the telco. The DMS PRINT and EDIT commands will only partially display the file. The file must be transferred, using FTP, to a PC or UNIX, to be viewed completely.

Interactions

The MG9000 EM downloads the ESA data file from the core daily. The time for this download should be set so the data has been freshly built. The default values in the core and MG9000 EM are set to ensure the data is downloaded soon after being built.

Applicable customer facing sections

Fault Management

Logs	__X___
Alarms	_____

Configuration

- Data Schema __X___
- User Interface __X___
- Element Management _____
- Security _____
- Service Order _____
- Office Parameters __X___

Accounting (includes AMA billing) _____

Performance (includes operational measurements) _____

Realtime _____

Engineering Information __X___

Glossary

Term	Description
ABI	Access Bridging Interface
CS2000	Call Server 2000
EIOP	Ethernet Input/Output Packlet
EM	Element Manager
ESA	Emergency Stand Alone
MG9000	Media Gateway 9000
SDM	SuperNode Data Manager
VMG	Virtual Media Gateway

Fault Management for A00002020

New ESA logs are generated whenever an attempt to generate an ESA data file succeeds or fails.

Existing ESA logs are generated when internal ESA data structures overflow.

Fault management tools and utilities

LOGUTIL

Logs

ESA 120 - ESA Data Generation

Explanation

Log Title: ESA120

Name: ESA Data Generation

Description:

An ESA120 is generated if the CS2000 successfully generates an MG9000 ESA data file in SFDEV. The file generation is initiated every 24 hours or from a manual command.

Event type: informational

Format

```
ESA120 mmmdd hh:mm:ss ssdd INFO ESA DATA GENERATION

ESA120 MAY20 01:00:40 2400 INFO ESA DATA GENERATION
```

Field descriptions

Field	Value	Description
ESA DATA GENERATION	constant	Successfully generation of file with MG9000 ESA data.

Action

Informational log only. Note that the MG9000 EM must download the ESA data to the MG9000 for it to be used during an emergency stand alone event.

Associated Operational Measurements or Performance Measurements

None.

Additional information

None.

ESA 121 - ESA Data Generation Fail

Explanation

Log Title: ESA121

Name: ESA Data Generation Fail

Description:

An ESA121 is generated if the CS2000 fails to generate an MG9000 ESA data file in SFDEV. The file generation is initiated every 24 hours or from a manual command. If the MG9000 goes into emergency stand alone then the last ESA data file successfully downloaded will be used.

Event type: non-critical failure.

Format

```
ESA121 mmmdd hh:mm:ss ssdd INFO ESA DATA GENERATION FAIL
MG9000 ESA WILL USE PREVIOUS DATA FILE

ESA121 MAY20 01:00:48 3500 INFO ESA DATA GENERATION FAIL
MG9000 ESA WILL USE PREVIOUS DATA FILE
```

Configuration for A00002020

Office has converted to using deterministic LENs for MG9000 as described in SN06 activity “A89009298 - MG9000 Lines Preprovisioning”.

Initial Configuration

This section describes only the configuration necessary for the core to make ESA data available to the MG9000 EM. It does not describe MG9000 EM or MG9000 operation. Please refer to section “ Related Activities” in the FN section for further information.

Table LGRPINV should contain a number of logical groups of lines added by the MG9000 EM. LGRPs with a GRPTYPE of “S” are in one to one correspondence with MG9000 VMGs.

Table ESAPXLA should be provisioned with special dialing codes needed while in ESA. Pretranslator datafill is required for every customer group and LGRP combination. A special entry called ESAPOTS is provided for non-IBN lines

OFCENG parameter ESA_GWDATA_DEVICE specifies the device on the core where the ESA data is generated. The default value is SFDEV but the telco should consider using a disk device for offices with large numbers of MG9000 lines.

Collection of ESA data for LGRPs with GRPTYPE “S” is automatically triggered at 1:00 AM every night.

Office/Subnet parameters (OP/SP) (CM & SESM)

New/Modified Office parameters

Parm Table	Parameter Name	New/Changed/Deleted/Relocated	Domain (CM or Subnet Management
OFCENG	ESA_GWDATA_DEVICE	New	CM

Parameter Information

ESA_GWDATA_DEVICE

Emergency Stand Alone Gateway Data Device

Functional Description

Every night at 1:00 AM the CM generates a data file containing ESA data for all MG9000 gateways in the office. The file is called ESA_SYSTEM_SD$XML and is stored on the device indicated by parameter ESA_GWDATA_DEVICE. The file is later retrieved by the MG9000 Element Manager which will erase its existing ESA data only if a valid file is received.

It is highly recommended that a disk device be used even though the default device is SFDEV. Any change to ESA_GWDATA_DEVICE must be also be made on the MG9000 EM.

The file should not be manually modified since it is system generated. It is not normally viewed by the telco but may be transferred to UNIX or PC using FTP and viewed with a text editor. FTP should be used in binary mode.

The DMS PRINT and EDIT/TYPE commands will only partially display the file.

Provisioning Rules

This parameter can be set to SFDEV or any valid disk volume name.

SFDEV is not recommended due to its limited size and usage by many other applications. The ESA_SYSTEM_SD$XML file can be rather large - approximately 86 KB per 1000 gateway lines. The maximum size of SFDEV (as provisioned in table DSLIMIT) is 5 million words (10 million bytes) and there is no guarantee that all of this will be available for the ESA file.

Range Information

Minimum	Maximum	Default
1 character	28 characters	SFDEV

Activation

If office parameter ESA_GWDATA_DEVICE is changed the following steps are recommended. The data device name property on the MG9000 EM must be updated or the MG9000 will continue to use the ESA data last successfully downloaded from the CM.

1. Change the ESA_GWDATA_DEVICE parameter to its new value.
2. Execute the ESACOLL command in the ESATOOLS CI increment.
3. Verify that an ESA120 log has been generated. This indicates the ESA data file has been successfully generated. It may take several minutes.
4. Verify that file ESA_SYSTEM_SD$XML exists on the new device.
5. ***Important:*** Using the MG9000 EM, Change the ESA.DataDeviceName property to the same device as used in the core. See documentation for activity A00002019.
6. Using the MG9000 EM graphical user interface, manually initiate a download of ESA data. See documentation for activity A00002019.
7. Erase the ESA_SYSTEM_SD$XML file from the OLD device to ensure the MG9000 will not use this file at a later date.

Dependencies

The MG9000 EM must be manually configured to look for the ESA_SYSTEM_SD$XML file on the new device by using the ESA.DataDeviceName property. Please refer to activity A0002019 in the SN06.2 OSS Guide, PLN-62AT-OSS.

If this parameter is left at its default value of SFDEV, then there is a dependency on table DSLIMIT, where memory is allocated for SFDEV under entry STOREFS. Example:

```
>table dslimit
JOURNAL FILE UNAVAILABLE - DMOS NOT ALLOWED
TABLE: DSLIMIT
>list all
TOP
                          DSOWNER   DSMAX  DSUSED
-------------------------------------------------
                          STOREFS 5000000  146592
                          NPOFIMP   45000    3040
                           NTDEVS 3000000  237472
BOTTOM
```

For STOREFS, DSMAX - DSUSED = memory available for the ESA data file

Consequences

If data collection does not complete successfully using this device, an ESA121 log is output, and the data file will be unusable by the MG9000 EM. The MG9000 will continue to use the ESA data last successfully downloaded.

Verification

Please refer to section " Activation" for complete activation and verification instructions.

Memory Requirements

No memory impact for the parameter itself. See EI section for data file store impact.

Parameter release history update

This parameter is new for this release.

Upgrade Impact

Dump and Restore

No additional impact.

Element Management Upgrade

Please refer to A00002019 MG9000 EM Enhancements in the SN06.2 OSS Guide, PLN-62AT-OSS.

Data schema (DS) (CM, MIBS, RDB)

New/modified tables, MIBs, or Database Schema

Table name	NEW/CHANGED/ or DELETED/	Table Control (NEW/OLD/UNCHANGED)
ESAPXLA	CHANGED	UNCHANGED

Table Database Schema information

Name: ESAPXLA

Emergency Stand Alone Pretranslation Table

Functional description

Table ESAPXLA lists special dialing codes to be used during emergency stand alone operation and the translation result for these codes. Provisioning is allowed for every IBN customer group and LGRP combination with translator name ESAPOTS being used for non-IBN lines.

Note that 911 lines must be available on each LGRP since individual VMGs can enter ESA without other VMGs on the MG9000. Translations for each LGRP must be provided in table ESAPXLA so 911 will terminate properly.

Usage sequence and implications (CM Only)

A new table dependency has been added. LGRPINV is a read only table that is filled as the result of MG9000 EM provisioning. It must be provisioned before table ESAPXLA.

Table provisioning order:

- HUNTMEM
- LGRPINV (Read Only table under control of MG9000 EM)
- ESAPXLA

Size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
ESAPXLA	0	32 x N x M[a]	No Change. Each new XLANAME/LGRP combination uses 16 bytes for a header. Each tuple uses an additional 16 bytes.

a. N is the number of LGRPs and M is the number of XLANAME entries used including ESAPOTS for POTS lines.

Fields

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
PXLAKEY	CHANGED	NODE	PMTYPE	LGRP selection added. Similar to existing LCM and DLM selectors.

Datafill example

```
TABLE ESAPXLA
LIST ALL
```

```
TOP
                                    PXLAKEY                    RESULT
-------------------------------------------------------------------------
 ESAPOTS   LGRP REM1 00 0              411                 T REORDER
 ESAPOTS   LGRP REM1 00 0              611                 H 55 1 N
 ESAPOTS   LGRP REM1 00 0              911                 L REM1 0 0 2 5 N 0
 IBNXLA    LGRP REM1 00 0             9                  A ESAPOTS Y
```

Table release history update

Add support for LGRP PMTYPE for MG9000.

Supplementary information

MG9000 LGRPs do not currently have the capability to support trunks so references to table ESARTE or ESAHNPA are not allowed.

The “L” selector allows terminations to a line with a given line equipment number (LEN). The LEN must be on an MG9000 at the same site as the LGRP in the tuple key.

The “H” selector allows terminations to hunt members given the hunt group number specified in table HUNTGRP and the hunt member number specified in table HUNTMEM. The hunt member must be on the same LGRP as used in the tuple key.

Translation verification other tools

Please refer to section “ Command: ESATRAVER”.

Service Orders (SO) (CM & SESM)

No change.

Software optionality control (SOC)

MG9000 ESA supports use of the duplicate office code support SOC (Y78520DO).

Element Management

No changes since SN06.2.

Command interface changes

Directory: ESATOOLSDIR

Directory description

The ESATOOLS CI increment provides a number of customer tools to verify and operate on CS2000 ESA data. This activity will

1. Enhance the ESATRAVER command to work with MG9000 lines.

2. Create a command that will generate an ESA data file for MG9000 lines.

Note that any ESA data must be downloaded to the MG9000 EM and MG9000 before it will affect ESA operation.

Accessing directory: ESATOOLSDIR

Access to directory or MAP level and return to CI

To access the ESATOOLS CI increment, type ESATOOLS from the command prompt. To exit ESATOOLS back to the CI environment, type QUIT.

Command: ESATRAVER

Note: Activity "A00002380 - MG9K ABI ESA" is implemented in CCM20 and enhances MG9K ESA to support ABI as well as non native lines. The ability to support ESATRAVER for ABI has changed some of the messages printed by that command.

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

ESATRAVER is a command in the ESATOOLS CI increment which is used to verify ESA translations data in the Call Server.

Command syntax

ESATRAVER command parameters and variables

Command	Parameters and variables
ESATRAVER	<ORIG> {TR <CLLI> STRING, L <LINE> STRING} <DIGITS> STRING <TRACE> {T, NT, B}
Parameters and variables	**Description**

ESATRAVER command parameters and variables

Command	Parameters and variables
ORIG	TR <CLLI> : For trunk originations, enter TR and the CLLI name of the trunk group L <LINE> : For line originations, enter L and the 7-digit directory number of the line
DIGITS	Enter the dialled digits to be verified.
TRACE	T = Trace NT = NoTrace B = Both

Qualifications and warnings

The ESATRAVER command syntax has not changed. The software has been enhanced to allow verification of lines originating and terminating on an MG9000 gateway.

Since the MG9000 does not support trunks, the TR <CLLI> parameter does not apply.

SETRCC command interactions.

SETRCC is an existing command in ESATOOLS that is used to collect trunk group data on an RCC. The SETRCC command must be run for an RCC before the ESATRAVER command can be used on a line or trunk on that RCC.

Since an LGRP does not have trunks, the SETRCC command is not required prior to issuing the ESATRAVER command on a line on an LGRP.

If SETRCC is done on a particular RCC, ESATRAVER on an LGRP line will not use the collected trunk group data and will not affect the data in any way. ESATRAVER on an LGRP line can be followed by ESATRAVER on a line or trunk on that RCC without reissuing the SETRCC command.

Responses

Warning: Cannot verify term LGRP accessible from orig LGRP.

Command: ESATRAVER
Output: Warning: Cannot verify term LGRP accessible from orig LGRP. **Meaning:** The ESATRAVER command has determined that both the originating and terminating lines are in LGRPs with the same site names, but cannot determine which Gateway controls these lines. Both LGRPs must belong to the same Gateway for this call to complete while the Gateway is in ESA mode. It is also possible for one LGRP to be in ESA mode while another on the same MG9000 is not. In this case, the call would not complete. **User actions:** The user must verify at the Element Manager that both LGRPs are controlled by the same Media Gateway.

Originator and destination are not on the same remote site

Command: ESATRAVER
Output: Originator and destination are not on the same remote site **Meaning:** For an LGRP line originator, this response means that both the originating and terminating line are on LGRPs, but the site names are different, so the termination is not valid**.** **User Actions:** If the user wishes these dialled digits to terminate to a valid LGRP line, then an entry must be made in table ESAPXLA to direct this call to a valid line**.**

NO MATCH

Command: ESATRAVER
Output: NO MATCH **Meaning**: This is a generic error message that indicates that the digits dialled do not translate to a valid terminator from this originator. For an LGRP line originator, this response indicates that the terminator is not an LGRP line. **User Actions**: If the user wishes these dialled digits to terminate to a valid LGRP line, then an entry must be made in table ESAPXLA to direct this call to a valid line.

Command: ESACOLL

Command type: Listed NON-MENU

Command target: All

Command availability: RES

Command description

The ESACOLL command will cause ESA data to be generated for all MG9000 lines in the office. The command will create or replace file ESA_SYSTEM_SD$XML on the device specified by OFCENG parameter ESA_GWDATA_DEVICE.

The file is generated asynchronously and the command prompt will return once file generation has been initiated.

An ESA120 log is output if file generation is initiated successfully and the actual generation is successful. An ESA121 log is output if file generation is initiated but then fails.

Command syntax

No command arguments are required.

Qualifications and warnings

A failure message will be output if the ESACOLL command was unable to initiate building of the ESA data file.

“ESA static data generation failed to initiate.”
“Possible conflict with system or user request.”

Responses

ESA Data Generation Initiated

This response is generated if generation of the ESA data file was initiated.

“ESA static data generation initiated.”
“See file ESA_SYSTEM_SD$XML on device SFDEV.”

Example

```
>ESATOOLS
>ESACOLL
Warning: All MG9000 ESA data will be rebuilt.
Please confirm (“YES”, “Y”, “NO”, or “N”):
>Y
ESA static data generation initiated.
See file ESA_SYSTEM_SD$XML on device SFDEV.
```

Security

The MG9000 EM will have to FTP the ESA data file from the core. Refer to feature A00002019 in the SN06.2 OSS Guide, PLN-62AT-OSS.

Configuration Walkthrough

Refer to feature A00002019 in the SN06.2 OSS Guide, PLN-62AT-OSS.

1. Verify tuples with GRPTYPE of “S” have been provisioned in table LGRPINV by the MG9000 EM. Verify that the shelf number (the “0” in “REM1 00 0”) for all “S” type LGRPs are 3 or under. If this is not the case the office has not converted to deterministic LENs for MG9000.

```
>table lgrpinv
>lis 2

TOP
      GRPNO          SRVRNAME GRPTYPE                                    LGRPOPTS
-------------------------------------------------------------------------------
REM1  00 0            GWC 110       S                                         $
REM1  00 1            GWC 110       S                                         $
```

2. Provision special dialing codes in table ESAPXLA for POTS (XLANAME = ESAPOTS) as well as for XLANAMEs used by IBN customer groups with members in the LGRP.

```
>table ESAPXLA
>lis all

TOP
                                   PXLAKEY                   RESULT
-------------------------------------------------------------------
 ESAPOTS LGRP REM1  00 0              411               T REORDER
 ESAPOTS LGRP REM1  00 0              911 L REM1  00 2 03 01 N 0
```

3. Set ESA_GWDATA_DEVICE
   Note: This step is not necessary if SFDEV is being used to hold MG9000 ESA data. It is recommended that a disk device be used so that SFDEV is available for other uses. Please refer to “Activation” for details on how to change the office parameter.

4. Generate ESA data file using ESATOOLS.

```
>ESATOOLS
>ESACOLL
Warning: All MG9000 ESA data will be rebuilt.
Please confirm (“YES”, “Y”, “NO”, or “N”):
>Y
ESA static data generation initiated.
See file ESA_SYSTEM_SD$XML on device D000ESA.
```

```
... have prompt back - wait for ESA120/ESA121 log

LOGUTIL ESA
Done.
RTP206BT      ESA120 MAY20 11:12:21 8500 INFO ESA DATA GENERATION


>DISKUT
>LISTFL D000ESA
ESA_SYSTEM_SD$XML

QUIT ALL
```

5. ESA data file will be automatically generated every day at 1:00 AM.

Product = MG9000

A00002380 -- ESA for ABI: MG9000 and XPM (UA-AAL1)

Functional Description

This activity provides the ability for the Succession Call Server 2000 (CS2000) to support Emergency Stand Alone calling on the following DMS-100 Legacy Extended Peripheral Modules (XPM) subtending a Media Gateway 9000 (MG9K):

- LGC, LGCI
- LTC, LTCI
- SMA2

Hardware Requirements or Dependencies

There are no hardware requirements or dependencies for this feature.

Software Requirements or Dependencies

This ESA activity on the MG9000 is dependent upon the following activity for successful completion.

A00003567: MG 9000 Element Mgr Support for ABI ESA

The primary function of this component is to pull ESA data from the Core, organize this information in the EM in a meaningful way for the MG9K, and put it into the ESA subsystem on the ABI in a usable format.

The following activities support ITP ESA. ABI ESA and ITP ESA have a common design and the ITP documents should be considered as preliminary

reading. The ABI ESA documentation supersedes the ITP ESA documentation.

A00002020: ESA Translation Download [ITP - CM]

A00002019: ESA EM Enhancements [ITP - MG9000 EM]

A00001982: ESA Enhancements [ITP - MG9000]

The following activities are related to this activity.

A00003486: Gateway Location Information [CM]

A00003693: ESA for ABI ON SMS

Limitations and restrictions

Entering ESA

- Only calls that are in an active state (i.e. talking state) will survive warm entry into ESA mode.
- Calls that are intraswitched on RLCMs, OPMs, or OPACs can survive warm entry (not just network switched calls).
- Calls that won't survive entry into ESA mode may be released over a period of time (not immediately).
- Any P-phone DN key is capable of surviving warm entry (not just the PDN).
- The message waiting lamp is not extinguished during warm entry should an analog or P-phone terminal be so equipped.
- The lamp associated with the members of an SCA MADN group is not extinguished during warm entry should one member be in an active state (i.e. talking state).

During ESA

- Coin loop-start lines will be supported in ESA; however, ESA will supervise coin return upon call completion. The MG9K only supports CDF (Coin Dial First) and Coinless Coin phones.
- ESA between physical MG9000 master shelves (separate MGs) is not allowed.
- All members of a MADN group will be allowed to originate calls.
- Dialing a MADN member will result in a termination to the first idle MADN member and only this member. Not all MADN members will receive ringing.

- ESA is unavailable when DCC packs are out of service.
- ESA call processing is only supported between VMGs (ABIs or ITPs) currently in ESA on the same MG9000. Partial ESA (one VMG in ESA and another VMG not in ESA but on the same MG9000--commonly called *one up, one down*) is not supported.
- Emergency service (i.e. 911) translations are supported, but not emergency service features.
- No maintenance actions (whether from LCI, EMs, card-pulls, etc.) are recommended while in an ESA operational mode.
- Hunting is linear to those DNs physically residing on a VMG. Hunting on a hunt group that is divided across several VMGs does not guarantee true linear hunting for the entire group.
- Dialing directly to a DNH hunt member will cause a termination to that member. If the member is not available, hunting will be done only on the group members local to that VMG.
- If the “H” selector is used in table ESAPXLA then a call dialed with those digits will hunt through all hunt group members on the VMG. The Sequence Number, which normally causes hunting to start from a specific member, is not supported.
- The ESAPXLA table in the Core should be provisioned with the emergency service numbers (i.e. 911) needed while in ESA. Each VMG (as represented by an ABI XPM or LGRP) must be provided with its own emergency service line as well as table ESAPXLA translations terminating to the DN of that line.
- Basic call processing is supported on P-phone lines in ESA only for the primary DN.
- The PDN, Hold, RLS and digit keys are the only recognized keys supported for P-phones while in ESA.
- Hand-set and hands-free operation is supported for P-phones in ESA.
- Basic call processing during ESA is supported for analog and P-phone lines on RLCMs, OPMs, and OPACs. Intraswitching is not supported.

Exiting ESA

- Warm exit from ESA is not supported. Any call attempts or stable calls that coincide with exit from ESA will be torn down by the controlling MGC.
- Service codes are only supported on a limited basis for ESA. Emergency service 911 calls (or any other call using a service code) will not be preserved over ESA exit.

Interactions

While ABI ESA will be supported for the Legacy XPMs noted on page , it will not supersede Legacy ESA for Remote Switching Center (RSC) XPMs. RSCs that subtend an ABI XPM will enter existing Legacy ESA when an isolation occurs. They will not be controlled by ABI ESA. All existing RSC ESA functionality will remain intact.

Applicable customer facing sections

Fault Management

- Logs _ x ___
- Alarms _____

Configuration

- Data Schema _ x ___
- User Interface _ x ___
- Element Management _____
- Security _____
- Service Order _____
- Office Parameters _ x ___

Accounting (includes AMA billing) _____

Performance (includes operational measurements) _____

Glossary

Term	Description
ABI	Access Bridging Interface
AUL	Automatic Lines
CM	Computing Module
DCC	Data Controller Card
DLH	Distributed Line Hunt
DN	Directory Number
DNH	Directory Number Hunt
EM	Element Manager
ESA	Emergency Stand Alone

Term	Description
GW	Gateway
GWC	Gateway Controller
IBN	Integrated Business Network
ITP	Integrated Telephony Processor
LCI	Local Craft Interface
LGC	Line Group Controller
LGRP	Logical Group
LTC	Line/Trunk Controller
MADN	Multiple Appearance Directory Number
MG	Media Gateway
MG9K	Media Gateway 9000
MGC	Media Gateway Controller
MLH	Multi-line Hunt
OPAC	Outside Plant Access Cabinet
OPM	Outside Plant Module
PDN	Primary Directory Number
POTS	Plain Old Telephone Service
RLCM	Remote Line Concentrating Module
RLS	Release Key
RSC	Remote Switching Center
SCA	Single Call Arrangement
SMA2	Subscriber-Carrier Module Access 2
VMG	Virtual Media Gateway
XPM	Extended Peripheral Module

Fault Management for A00002380

Fault management strategy

Exiting ESA for the ABI will be controlled by the CM. Whenever an attempt to exit ESA is made, a new MAP indicator will be displayed on the posted ABI-hosted XPM (see Configuration section for more details of the new map

indicator). In addition, PM181 informational logs are output whenever an attempt to exit ESA occurs.

Fault management tools and utilities

LOGUTIL is used to inform the craftsperson of the ABI exiting esa. The logs to look for when the ABI is exiting ESA are PM181 logs.

Logs

Existing PM181 logs are generated with new strings.

An ESA120 or ESA121 is output when an attempt is made to generate MG9000 ESA data. This is an existing capability, and the format of these logs has not changed.

Explanation

Log Title: PM181

Name: Informational log for PMs (peripheral modules)

Description: The PM181 logs are generated when the ABI of an ABI-hosted XPM is attempting to or successfully exit(s) esa. The log has no alarm level.

Event type: INFO

Format

This format of the PM181 is not documented in the NTP 297-9051-840, “DMS-100 Family MMP Log Report Reference Manual Volume 6 of 7 MMP15 and up”.

```
PM181 mmmdd hh:mm:ss dddd INFO pmid
Node:statxt, Unit0 actxt:statxt1, Unit1 actxt:statxt1
<string1>
<string2>
ABI Cards:
Site Flr RPos    Bay_id   Shf    Slot NE   IP address
site nn cn       ccc 00   nn     nn   nn    nn nn nn nn
site nn cn       ccc 00   nn     nn   nn    nn nn nn nn
```

Examples

```
PM181 APR14 15:25:52 8700 INFO LGC 2
Node:SysB,Unit0 Inact:SysB(PM entered ESA)Unit1 Act:SysB(PM entered ESA)
ABI discovered in ESA
ABI Cards:
Site Flr RPos    Bay_id   Shf    Slot NE   IP address
GRNR  01  CC02  MG9F  002   03     04 6    47 142 133 45
GRNR  01  CC02  MG9F  002   03     04 6    47 142 133 45
```

```
PM181 APR14 15:25:52 8700 INFO LGC 2
Node:SysB,Unit0 Inact:SysB(PM entered ESA)Unit1 Act:SysB(PM entered ESA)
COLD ABI ESA attempt started by SYSTEM
ABI Cards:
Site Flr RPos    Bay_id   Shf    Slot NE   IP address
GRNR  01  CC02  MG9F  002   03     04 6    47 142 133 45
GRNR  01  CC02  MG9F  002   03     04 6    47 142 133 45
```

```
PM181 APR14 15:25:52 8700 INFO LGC 2
Node:SysB,Unit0 Inact:ManBUnit1 Act:ManB
COLD ABI ESA attempt started by Username : John
ABI Cards:
Site Flr RPos    Bay_id   Shf    Slot NE   IP address
GRNR  01  CC02  MG9F  002   03     04 6    47 142 133 45
GRNR  01  CC02  MG9F  002   03     04 6    47 142 133 45
```

```
PM181 APR14 15:25:52 8700 INFO LGC 2
Node:SysB,Unit0 Inact:SysB(PM entered ESA)Unit1 Act:SysB(PM entered ESA)
COLD ABI ESA Failed XPM Recovery - Reason : NO RESPONSE FROM EXIT MSG
ABI Cards:
Site Flr RPos    Bay_id   Shf    Slot NE   IP address
GRNR  01  CC02  MG9F  002   03     04 6    47 142 133 45
GRNR  01  CC02  MG9F  002   03     04 6    47 142 133 45
```

```
PM181 APR14 15:25:52 8700 INFO LGC 2
Node:SysB,Unit0 Inact:SysB(PM entered ESA)Unit1 Act:SysB(PM entered ESA)
COLD ABI ESA Failed XPM Recovery - Reason : NO RESPONSE FROM QUERY MSG
ABI Cards:
Site Flr RPos    Bay_id   Shf    Slot NE   IP address
GRNR  01  CC02  MG9F  002   03     04 6    47 142 133 45
GRNR  01  CC02  MG9F  002   03     04 6    47 142 133 45
```

```
PM181 APR14 15:25:52 8700 INFO LGC 2
Node:SysB,Unit0 Inact:SysB(PM entered ESA)Unit1 Act:SysB(PM entered ESA)
ABI ESA enter reason: ABI Looparound message failed
ABI ESA Cold Exit
ABI Cards:
Site Flr RPos    Bay_id   Shf    Slot NE   IP address
GRNR  01  CC02  MG9F  002   03     04 6    47 142 133 45
GRNR  01  CC02  MG9F  002   03     04 6    47 142 133 45
```

```
PM181 APR14 15:25:52 8700 INFO LGC 2
Node:SysB,Unit0 Inact:SysB(PM entered ESA)Unit1 Act:SysB(PM entered ESA)
ABI ESA enter reason: ABI megaco failed
ABI ESA Cold Exit
ABI Cards:
Site Flr RPos    Bay_id   Shf    Slot NE   IP address
GRNR  01  CC02  MG9F  002   03     04 6    47 142 133 45
GRNR  01  CC02  MG9F  002   03     04 6    47 142 133 45
```

Field descriptions

Field	Value	Description
date	mmmdd	month and day
time	hh:mm:ss	hour:minute:second
log_no	dddd	standard log number
pmid	LGC 0	pm name and external pm number
statxt	{InSv, SysB, ManB, Cbsy}	state of XPM node
actxt	Act, InAct	activity of the XPM unit
statxt1	{InSv, SysB, ManB, Cbsy}	state of XPM unit
string1	ABI discovered in ESA	ABI ESA information
string2	ABI ESA Warm Entry/Cold Exit	ABI ESA information which is optional

Action

Depends on XPM recovery:

- ABI discovered in esa does not require any action.
- Cold ABI esa attempt does not require any action.
- Cold ABI esa failed XPM recovery requires the craftsperson to inform their first-level support that there was a communication failure between the CM and the ABI.
- ABI ESA Cold Exit does not require any action.

Alarms

No alarms are generated by PM 181 logs.

ESA Failed to Exit

Alarm Format		
	Fault Type	"Failed to exit ESA"
Associated Alarm Message	"Failed to exit ESA"	
Severity	MAJOR. Call functional will not be establish if this card is brought out of ESA	
Cause or Condition	The messaging is down on the card.	

Duration	Alarm will remain set until card restarts.
Cause / Prevent a SWACT	This alarm does go through Node Maintenance; it will cause a SWACT of any card; it will prevent a SWACT of any card.
Action / Clearing Procedure	none.
Association	There are no related Core logs, other alarms, or performance measurements.

New fault type for the ESA alarm

New fault type, failed to enter ESA, will be added to the MG9000 ESA alarm for the ABI ESA. This alarm will be displayed at MG9000 Element Manager and MG9000 LCI.

Alarm Format	**Log Id**	"ESA302"
	Fault Type	"Failed to enter ESA"
Associated Alarm Message	"Failed to enter ESA"	
Severity	Critical. ESA call processing will not function at all, and there is no dial tone provided.	
Cause or Condition	The links between MG9000 and XPM are down.	
Duration	Alarm will remain set until the links between MG9000 and XPM recover.	
Cause / Prevent a SWACT	This alarm does not go through Node Maintenance; it will not cause a SWACT of any card; it will not prevent a SWACT of any card.	
Action / Clearing Procedure	Establish the links between MG9000 and XPM by manually restart both active and inactive ABI cards by the craftperson.	
Association	There are no related Core logs, other alarms, or performance measurements.	
Interfaces	MG9000 Element Manager and MG9000 LCI	

Related documentation

[1] NTP 297-9051-840, "DMS-100 Family MMP Log Report Reference Manual Volume 6 of 7 MMP15 and up".

[2] Activity A00002020 - ESA Translation Download, available elsewhere in this document.

Configuration for A00002380

Hardware and Software Requirements

North American office with MG9000 ABI.

Initial Configuration

MG9000 ABI configured.

Office/Subnet parameters (OP/SP) (CM & SESM)

New/modified office/subnet parameters

Parm table	Parameter name	NEW/CHANGED/DELETED/RELOCATED	Domain (CM or Subnet Management
OFCENG	ESA_GWDATAUPD_HOUR	New	CM
OFCENG	ESA_GWDATAUPD_BOOL	New	CM

Parameter Information

ESA_GWDATAUPD_HOUR

Emergency Stand Alone Gateway Data Update Hour.

Functional Description

A file called ESA_SYSTEM_SD$XML is generated every 24 hours for use during MG9000 ESA. ESA_GWDATAUPD_HOUR specifies the time the file should be generated. The time is given in one hour increments using a 24 hour clock.

Provisioning rules

It is recommended that ESA_GWDATAUPD_HOUR is set in the early morning after bulk provisioning has been applied but several hours before office traffic picks up.

Range information

Minimum	Maximum	Default
0	23	6

Activation
Immediate with the condition that MG9000 ESA data has not already been collected in the same calendar day. Collection is allowed only once per calendar day except when done manually by the ESACOLL command in the ESATOOLS CI increment.

Dependencies
File ESA_SYSTEM_SD$XML will not be generated if no MG9000 ABI or ITP (LGRP) lines exist in the office or if table OFCENG parameter ESA_GWDATAUPD_BOOL is set to “N”.

File ESA_SYSTEM_SD$XML will be generated on the device specified by OFCENG parameter ESA_GWDATA_DEVICE.

Consequences
The MG9000 element manager pulls the ESA data every 24 hours. It is desirable for this to happen shortly after the data has been generated in the CM. Please refer to activity A00002019 - ESA EM Enhancements in the SN06.2 OSS Guide, PLN-62AT-OSS.

Verification
An ESA120 log is output upon success generation of the XML data file used during MG9000 ESA. Wait until the time specified in the office parameter either in this calendar day or if ESA data collection has already occurred, the next calendar day. Verify an ESA120 log is generated within 10 minutes of this time.

Memory requirements
No memory impact.

Parameter release history update
Initial creation. Default collection time of 6:00 AM ensures release upgrade from the SN06.2 patched version of “A00002020 - ITP ESA” will not change the ESA data collection time.

ESA_GWDATAUPD_BOOL
Emergency Stand Alone Gateway Data Update Boolean.

Functional description
Office parameter ESA_GWDATAUPD_BOOL controls the generation of file ESA_SYSTEM_SD$XML. This file is used during MG9000 ESA for ABI and ITP (LGRP) lines. Note that the file will not be generated if no MG9000 based lines are present regardless of the setting of this parameter.

Provisioning rules
This parameter is normally set to “Y” in North American Offices with MG9000 based lines. It is not necessary to set it to “N” if no MG9000 based lines are present.

Range information

Values	Default
{Y/N}	Y

Activation
Immediate. MG9000 ESA data will be generated at the time specified by OFCENG parameter ESA_GWDATAUPD_HOUR.

Follow the steps in “ Configuration Walkthrough” on page 1490 when the parameter is changed to “Y”.

Consequences
ESA_SYSTEM_SD$XML can contain many megabytes of data. Verify that space is available on the device specified by OFCENG parameter ESA_GWDATA_DEVICE.

The MG9000 EM will attempt to pull the ESA_SYSTEM_SD$XML file if any MG9000s use “enhanced ESA”. Stale data may be used if the CM is no longer generating this data. An EM alarm may be generated if the file can not be found on the CM. The craftsperson should ensure that the MG9000 EM has all VMGs using “basic ESA” if this office parm is set to “N”.

Verification
Erase file ESA_SYSTEM_SD$XML from the device specified by ESA_GWDATA_DEVICE and wait until the time specified by ESA_GWDATAUPD_HOUR. Ensure that the file has been generated and an ESA120 log output.

Memory requirements
CS2000 places a file called ESA_SYSTEM_SD$XML on SFDEV or a disk device. The device is specified by OFCENG parameter ESA_GWDATA_DEVICE and occurs in all North American Offices with MG9000 lines.

Only one such file exists on a device at any time. The size of the file is a function of the number of MG9000 VMGs in the office and the number of lines on each VMG. Items such as entries in table ESAPXLA and hunt groups have a smaller impact.

A sample data file with 350 lines on a VMG has a size of 30KB. The telco should ensure that enough space is available for 30KB times the number of MG9000 VMGs in the office. An MG9000 VMG can be identified with an “S” GRPTYPE in table LGRPINV.

If SFDEV is being used the craftsperson should look at the STOREFS entry of the DSLIMIT table. This entry is the maximum store that can be used for SFDEV can not be set above 5 million words (10 million bytes).

Parameter release history update
Initial creation.

Upgrade Impact

Dump and Restore

ESA_GWDATAUPD_HOUR is new in this release. If a patched version of the ITP ESA activity is used this parameter will be updated automatically during an ONP.

Element Management Upgrade

Addressed in activity A00003567: MG 9000 Element Mgr Support for ABI ESA.

Data schema (DS) (CM, MIBS, RDB)

New/modified tables, MIBs, or Database Schema

Table/MIB name	NEW/CHANGED/ or DELETED/	Table Control (NEW/OLD/UNCHANGED)
ESAPXLA	Changed	Unchanged

Table/MIB/Remote Database Schema Information

Name: ESAPXLA (CM table)
Emergency Stand Alone Pretranslation Table

Functional description
Table ESAPXLA lists special dialing codes to be used during emergency stand alone operation and the translation results for these codes. Provisioning is allowed for every IBN customer group and ABI XPM combination with translator name ESAPOTS being used for non-IBN lines.

Note that 911 lines must be available for each ABI since individual ABIs can enter ESA while other ABIs and LGRPs on the MG9000 do not. Translations

for each ABI must be provided in table ESAPXLA so that 911 will terminate properly.

Usage sequence and implications (CM Only)
Usage of the "L" selector requires that tables LENLINES, IBNLINEs, and KSETLINES be provisioned before table ESAPXLA. Usage of the "H" selector requires that table HUNTMEM be provisioned before table ESAPXLA. These are existing requirements.

Prior to this activity only RCC and RLCM type peripherals could be used in table ESAPXLA. This activity allows LGC/LTC and SMA type peripherals to be used. These peripherals are provisioned in table LTCINV. This is not expected to add a new dependency since LENLINES also depends on LTCINV and is already required.

Size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
ESAPXLA	0	32 x N x M[a]	No Change. Each new XLANAME/LGRP combination uses 16 bytes for a header. Each tuple uses an additional 16 bytes.

a. N is the number of LGRPs and M is the number of XLANAME entries used including ESAPOTS for POTS lines.

Fields/OIDs
The following table lists fields/OIDs for table ESAPXLA.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
PXLAKEY	CHANGED	NODE	PMTYPE	ABI selection added. Allows any XPM supported by ABI ESA as part of an ESAPXLA tuple key. ABI XPMs have the EXTDS512 option in table LTCINV.

Datafill example

```
ESAPOTS   ABI        LGC   0            201 L REM1   00 0 02 08 N 0
ESAPOTS   ABI        LGC   0            400             T REORDER
ESAPOTS   ABI        LGC   0            402           A ESAPOTS Y
REM1XLA   ABI        LGC   0            202             T SRPDXLA
REM2XLA   ABI        LGC   0            800             T REORDER
REM2XLA   ABI        LGC   0            801         H     3   9 N
```

Table release history update
Add ESA support for MG9000 ABI XPMs.

Supplementary information
MG9000 ABIs do not support trunks in ESA so references to table ESARTE or ESAHNPA are not allowed.

The “L” selector allows terminations to a line with a given line equipment number (LEN). The LEN will be screened to ensure it has MG9000 ESA support.

The “H” selector allows terminations to hunt members given the hunt group number specified in table HUNTGRP and the hunt member number specified in table HUNTMEM. The hunt member will be screened to ensure it has MG9000 ESA support.and is served by the same ABI XPM as used in the tuple key.

Translation verification other tools
Please refer to section “ Command: ESATRAVER”.

Service Orders (SO) (CM & SESM)

No change.

Software optionality control (SOC)

No change.

Element Management

Please refer to documentation for activity A00003567: MG 9000 Element Mgr Support for ABI ESA.

Command Interface Changes

Directory: ESATOOLSDIR

Directory description
The ESATOOLS CI increment provides a number of customer tools to verify and operate on CS2000 ESA data. This activity will enhance the ESATRAVER command to work with MG9000 ABI lines.

Accessing directory: ESATOOLSDIR

Access to directory or MAP level and return to CI

To access the ESATOOLS CI increment, type ESATOOLS from the command prompt. To exit ESATOOLS back to the CI environment, type QUIT.

Command: ESATRAVER

Please note that this section includes changes for ESATRAVER related to MG9000 LGRPs and ABI XPMs. It supersedes any prior ESATRAVER documentation for MG9000. In particular, the ESATRAVER description in activity “A00002020 - ESA Translation Download” is no longer accurate.

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

ESATRAVER is a command in the ESATOOLS CI increment which is used to verify ESA translations data in the Call Server.

Command syntax

ESATRAVER command parameters and variables

Command	Parameters and variables
ESATRAVER	<ORIG> {TR <CLLI> STRING, L <LINE> STRING} <DIGITS> STRING <TRACE> {T, NT, B}
Parameters and variables	**Description**
ORIG	TR <CLLI> : For trunk originations, enter TR and the CLLI name of the trunk group L <LINE> : For line originations, enter L and the 7-digit directory number of the line
DIGITS	Enter the dialled digits to be verified.

ESATRAVER command parameters and variables

Command	Parameters and variables
TRACE	T = Trace NT = NoTrace B = Both

Qualifications and warnings

The ESATRAVER command syntax has not changed. The software has been enhanced to allow verification of lines originating and terminating on MG9000 ABI XPMs. It is already capable of handling MG9000 LGRPs.

Since the MG9000 does not support trunks, the TR <CLLI> parameter does not apply.

SETRCC command interactions.

SETRCC is an existing command in ESATOOLS that is used to collect trunk group data on an RCC. The SETRCC command must be run for an RCC before the ESATRAVER command can be used on a line or trunk on that RCC.

Since MG9000 does not support trunks in ESA, the SETRCC command is not required prior to issuing the ESATRAVER command on a line on an MG9000.

If SETRCC is done on a particular RCC, an MG9000 ESATRAVER will not use the collected trunk group data and will not affect the data in any way. An MG9000 ESATRAVER can be followed by ESATRAVER on a line or trunk on that RCC without reissuing the SETRCC command.

Responses

Warning: Cannot verify MG9000 Terminator accessible from Originator.

Command: ESATRAVER
Output: Warning: Cannot verify MG9000 Terminator accessible from Originator. **Meaning:** The ESATRAVER command has determined that both the originating and terminating lines are MG9000 based but can not verify that they can call each other during ESA. The main reason for this is that the lines are served by different MG9000s. LGRP to LGRP calls are necessarily on the same site but there is no such restriction with calls involving an ABI line. ESATRAVER between LGRP lines at different sites will not show as completing and will not receive this warning message. **User actions:** The user must verify at the Element Manager that both lines are controlled by the same MG9000.

NO MATCH

Command: ESATRAVER
Output: NO MATCH **Meaning**: This is a generic error message that indicates that the digits dialled do not translate to a valid terminator from this originator. For an MG9000 line originator this response indicates that the terminator is not on an MG9000. For MG9000 LGRP to LGRP calls it can also mean the two LGRPs are on different sites. **User Actions**: ESATRAVER should be used with originating and terminating lines that can call each other during ESA.

Security

The security issue of the FTP transfer of file ESA_SYSTEM_SD$XML from the CM to the MG9000 EM is considered in activity A00002019 - ESA EM Enhancements.

Configuration Walkthrough

Please refer to activityA00002019 ESA EM Enhancements for information on configuring the MG9000 EM.

1. Verify tuples exist in table LTCINV with the EXTDS512 option. This indicates the XPM has ABI capability.

```
TABLE: LTCINV
>top
        LGC    0
               10     LTEI     0      4       1     C     31 6X02NA  QLI20AZ
  (          POTS    POTSEX) (         KEYSET    KSETEX) (      RMM_TERM     RSMEX)$
                  (          4  0) (          4  1) (          4  2) (          4  3)$
                                   (      UTR15 ) (    MSG6X69 ) (        ISP 16)$
     NORTHAM      SX05AA $ SX05AA $
                                                          0
                              SXFWAJ01
                              (EXTDS512 HOST 1 2 192 2 7 65 GWC 3) $
     6X40FB                                               N
```

2. Provision special dialing codes in table ESAPXLA for POTS (XLANAME = ESAPOTS) as well as for XLANAMEs used by IBN customer groups with member lines on the ABI XPM.

```
>table ESAPXLA
>lis all

TOP
                                    PXLAKEY                    RESULT
-------------------------------------------------------------------
 ESAPOTS ABI LGC 0                411 T REORDER
 ESAPOTS ABI LGC 0                911 L HOST 00 2 03 01 N 0
```

3. Set OFCENG parameter ESA_GWDATA_DEVICE.
   Note: This step is not necessary if SFDEV is being used to hold MG9000 ESA data.It is recommended that a disk device be used so that SFDEV is available for other uses.

4. Set OFCENG parameter ESA_GWDATAUPD_HOUR. This step is not necessary if the default generation time of 6:00 AM is acceptable.

5. Verify OFCENG parameter ESA_GWDATAUPD_BOOL is set to “Y”.

6. Generate ESA data file using ESATOOLS.

```
>ESATOOLS
>ESACOLL
Warning: All MG9000 ESA data will be rebuilt.
Please confirm (“YES”, “Y”, “NO”, or “N”):
>Y
ESA static data generation initiated.
ESA 120 log will be output upon successful generation of
file ESA_SYSTEM_SD$XML on device D000ESA.

... have prompt back - wait for ESA120/ESA121 log

LOGUTIL ESA
Done.
RTP207BT      ESA120 NOV20 11:12:21 8500 INFO ESA DATA GENERATION


>DISKUT
>LISTFL D000ESA
ESA_SYSTEM_SD$XML

QUIT ALL
```

ESA data file will be automatically generated every 24 hours at the time specified by ESA_GWDATAUPD_HOUR. An ESA120 log is output when the data is successfully generated.

Product = MG 9000

A00003074 -- MG9000 Manager Capacity Increase (UA-AAL1)

Functional Description

In the SN07 release the MG9000 Manager will be required to support a maximum capacity of 110,000 H.248 native lines and 75 MG9000 network

elements. The pre-SN07 maximum capacity for the MG9000 Manager is 55,000 lines and 60 MG9000 network elements. The recovery time for the 55,000 line configuration is 90 minutes per SN06 Engineering Guidelines. This feature by requirement will meet or exceed the current documented SN06 recovery time, under the new extended capacity requirements.

The reason for the long recovery times is that per the current software architecture, managed objects have to be instantiated within the EM to allow OAM&P. To achieve the SN07 requirements specific managed objects in the MG9000 Manager design will be collapsed. These objects will have their data persisted to the Oracle database and their business logic collapsed into a container class. This design simplifies the recovery of the “leaf nodes” in the system, which require the most memory footprint and instantiation resources during application startup.

Included as part of this design, all configurable MG9000 data will be persisted and restored from the Oracle database. There will also be work required to support maintenance release and major release upgrades.

Hardware Requirements or Dependencies

This feature will apply to all supported hardware platforms, per SN07 Succession Server Platform Foundation Software specification.

Software Requirements or Dependencies

None

Limitations and restrictions

MG9000 provisioning actions will not be accepted in the event of a loss of communication with the Oracle Database hosted on the CS2M host.

Interactions

None.

Applicable customer facing sections

Fault Management

Logs	__N/A____
Alarms	__N/A____

Configuration

Data Schema	__N/A____
User Interface	___X___
Element Management	__N/A____

Security	__N/A____
Service Order	__N/A____
Office Parameters	__N/A____
Accounting (includes AMA billing)	__N/A____
Performance (includes operational measurements)	__N/A____
Realtime	__X____
Engineering Information	___X___

Configuration for A00003074

Upgrade Impact

Dump and Restore

In order to upgrade to SN07.0, the customer must currently be running the SN06.2 release.

In order to bring the data from SN06.2 to SN07 during an SN06.2 to SN07 upgrade, the customer must export the SN06.2 data in the SN06.2 Subnet View for the individual gateway node and then import the gateway node into SN07. The export files from SN06.2 must be saved on another device if rollback of a gateway is anticipated. The SN06.2 export data is used to repopulate the node in the SN07 Mg9k Element Manager.

Prior to performing a maintenance release (MR) upgrade (i.e. SN07 to SN07MR), the customer should backup the Oracle database on the CS2M machine. This is a normal backup of the oracle database on the CS2M machine.

Element Management Major Release Upgrade

Changes to the SN06.2 to SN07 upgrade are

- After upgrading to SN07, new hardware for SCO, SCI, ITX, ITP, and ABI can be upgraded.
- If attempting to rollback to SN06.2, the new SN07 boards have to be removed and replaced with the old hardware boards prior to downgrading the loads on the cards. Failure to do so could damage the hardware.
- During the time when the DCC cards have been upgraded to SN07 but the NE resides in the SN06.X Subnet View, the SN06.X OM Collector will not collect any OMs due to security features added in the SN07 MG9k card

software. The NE should be removed from the SN06.X OM Collector collection list.

- When the user installs the MG9000 Master server software, the “pkgadd” command now performs an additional check. If two releases of the MG9000 server software are already installed, the installation fails and the user sees the following message:

  The package cannot be installed. The following releases of the MG9000 EM Master server are already installed:

  NTmg9ks_6_45.pkg

  NTmg9ks_6_221_0.pkg

  At most two releases of the MG9K EM Master server software should be installed on a given SSPFS at any time. Before installing the new package, you must remove one of the packages listed above. Please remove the package that is no longer being used. To remove a package, use the “pkgadd” command.

- When the user installs the MG9000 mid-tier server software, the “pkgadd” command now performs the same check. If two releases of the MG9000 mid-tier software are already installed, the installation fails and the user sees the following message:

  The package cannot be installed. The following releases of the MG9000 EM mid-tier server are already installed:

  NTmg9km_6_45.pkg

  NTmg9km_6_221_0.pkg

  At most two releases of the MG9K EM mid-tier server software should be installed on a given SSPFS at any time. Before installing the new package, you must remove one of the packages listed above. Please remove the package that is no longer being used. To remove a package, use the “pkgadd” command.

Element Management Maintenance Release (MR) Upgrade

Compared to previous releases, the SN07 maintenance release (MR) upgrade process has the following differences:

- Prior to the MR upgrade, the user should backup the entire Oracle database.
- The user does not export each NE prior to the upgrade.

The SN06.2 MR upgrade process is documented in section “Upgrading the MG 9000 Manager software to a maintenance release” of document NN10048-461 entitled “Upgrading the MG9000” (version SN07). Below is a summary of the MR upgrade process for SN07.

- Backup the entire Oracle database.

- Upgrade the hardware, if necessary. Ensure the connection from the MG 9000 Manager to the MG 9000 is up.
- Stop the GUI clients.
- Stop the mid-tier server.
- Stop the Performance Collector and Formatter (PCF) OM collection application.
- Stop the master server.
- Remove the old master server package.
- If required, perform an MR upgrade on the SSPFS software.
- Install, configure, and start the MR release master server. When you configure the master server, typically you should use the same settings from the previous installation of the master server. You will NOT be prompted with the questions “Is this an MR upgrade?” and “Do you want to initialize the database?”. The software knows the correct actions to take.
- Remove the old midtier server package.
- Install, configure, and start the MR release midtier server. When you configure the midtier server, typically you should use the same settings from the previous installation of the midtier server.
- Launch the new client. The client will display any NEs that were provisioned prior to the MR upgrade.
- Reconnect any third party application that retrieves alarms for delivery to Operations Support System (OSS) fault management systems.
- Install and start the MR release OM collection application.

OSS Changes

Prefix Changes

With SN07 the northbound interfaces need to change the prefix for event channel, and fault manager entries. In SN06.2, the prefix was Subnet_62. With the SN07 release the prefix for applicable CORBA Naming Service entries should be changed to Subnet_7.

Example ORB entry changes:

SN06.2

EventChannel = “Subnet_62.ec.Oss”

FaultServiceManager = “Subnet_62.Services.FaultServiceManager”

SN07

EventChannel = “Subnet_7.ec.Oss”

FaultServiceManager = “Subnet_7.Services.FaultServiceManager”

Customer Log Changes

New customer logs are added to inform users when data has not been saved in the database. These are cases where the data is provisioned successfully in all appropriate places except for the database. The logs indicate when this situation occurs for termination data, when an attempt to correct the database fails, and when the database is corrected. The MGEM logs apply to all components on the MG9K EM except for terminations and the VMG logs apply to termination data. The logs and examples are below:

- MGEM 704 - An attempt to correct the database has failed.

```
MGEM 704 Warning INFO

Database unavailable, correction failed

Failed database correction on VMG.  The database will
be corrected when it is available.  Check the
database for problems.
```

```
MGEM 704 Warning INFO

Database unavailable, correction failed

Failed database correction to MODIFY TERM ESA DATA on
VMG LCE023-0-3, termination tp/04/01 with DN
9192234567.  The database will be corrected when it
is available.  Check the database for problems.
```

- MGEM 705 - An attempt to correct the database has passed.

```
MGEM 705 Warning INFO

Database corrected

Data is corrected on VMG.
```

- VMG 600 - Termination data was successfully provisioned in all appropriate areas except for the database.

```
VMG 600 Warning INFO
```

```
Database unavailable, update failure

Failed database update to MODIFY TERM DN on VMG
LCE023-0-3, termination tp/04/01 with DN 9192234567
and gateway ESA flag value of 0. The database will be
corrected when it is available.  Check the database
for problems.
```

- VMG 601 - An attempt to correct termination data in the database has passed.

```
VMG 601 Warning INFO

Database corrected

Data is corrected for MODIFY TERM DN on VMG LCE023-
0-3, termination tp/04/01 with DN 9192234567.
```

External Interface Changes

With SN07 the TL1 Adaptor for SN07 connects to 2363 port. Thus third party equipment should connect to port 2363 for SN07.

In SN07, the EM's SNMP listening port is 8002.

Element Management

New/modified GUIs

MG9000 Menu changes

In SN06.2 and earlier releases, the MG9000 menu tab in the subnet view has a menu item for ExportNE. However, as of SN07, the menu item for ExportNE no longer exists. When upgrading from SN07 to a later release, the user no longer exports the NE data.

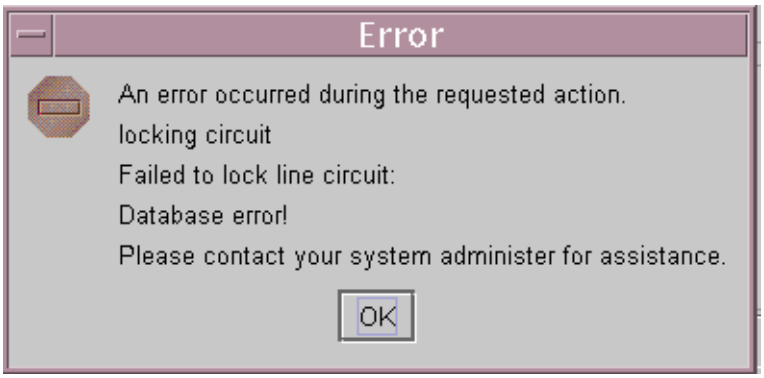
New Status Icon

Consider a scenario in which an MG9K is upgraded from an EM running version SN06.2 to an EM running version SN07. After the upgrade, the SN06.2 version of the EM notices that the MG9K is reporting its traps to an IP address and port that is different from its own SNMP listening port. Essentially, the SN06.2 EM is no longer managing that MG9K.

When an EM has an MG9K provisioned but is no longer managing that MG9K, the EM's GUI should provide an indication to the user regrading the status of that MG9K. More specifically, in the GUI's subnet view, the following status icon will appear on top of the NE icon:

New database error

With this feature, some data that used to reside in memory will now be persisted in the database. If a database error is encountered during MG9000 EM GUI actions, an error message will be displayed to inform the user that the operation has failed due to a database error. The following GUI is an example of such an error message:



Product = MG 9000

A00003531 -- MG9K EM - Frame location enhancements (UA-AAL1)

Functional Description

This feature consists of following deliverables:

1. Office Frame number is displayed in MG9K EM Alarm browser, IEMS alarm browser and any other alarm browser/s provided by OSS.
2. Internal frame number is hard-coded to zero in VMG name, while provisioning VMG.
3. In MG9K-EM Frameview, frames are displayed without gap. However, any gap present between shelves will continue to be displayed.
4. With this change, MG9K-EM Frame view is displayed in a cleaner way. Some of the examples for this cleaner display are;

- MG9K-EM Craft-person can see Master frame as and when he/she opens the Frame view, even when Master frame has two or more empty frames to its left side.
- MG9K-EM Craft-person can see adjacent frames, without scrolling to right in Frameview, even when there is gap between the frames.

5 In MG9K-EM Frameview, Master frame is shown far left and all subtending frames are shown to the right of Master frame going by following logic.

- Show Master frame far left.
- Show other frames, whose frame number is higher than that of Master frame on right of Master frame, in increasing order of their Internal frame number (IFN).
- And then, show other frames, whose IFN is lower than that of Master frame, in increasing order of their IFNs.

As a result of the deliverables #3 and #4, Frameview may not be a mirror reflection of actual line-up of frames in MG9K.

Note that, as in SN6.2, in MG9K-EM Frame view, Internal frame number is shown at the bottom of each frame and Office frame number is shown at the top of each frame. With this, Craft-person can map the MG9K-EM Frame view to actual line-up of frames in MG9K.

6 Office Frame number is used in place of Internal frame number in OMC CSV OM file (a stretch deliverable)

7 A *complete* flow through provisioning is supported for ITP VMGs. With this, Frame location information, which is specified in MG9K-EM while provisioning ITP VMGs, is sent to SESM. SESM in turn, updates XA-CORE table LGRPINV.

8 With these changes, Craft-person need not manually fill Frame location information in the table LGRPINV. Craft-person just need to provision Frame location information at MG9K-EM

9 A *partial* flow through provisioning is supported for ABI VMGs. With this, Frame location information, which is specified in MG9K-EM while provisioning ABI VMGs, is sent to SESM. However, SESM does not in turn updates XA-CORE table GWINV.

10 There is no impact on the way Craft-person handles ABI VMGs, because of these changes. i.e., he/she still needs to manually fill Frame location information in the table GWINV, apart from provisioning Frame location information at MG9K-EM.

Note: GWINV is a new table, which will be supported in SN07 through the Core feature A00003486 (Gateway location information).

MG9K-EM Frame view

This section gives example screen shots for the deliverable #3 and #4, which are explained in the beginning of this section. For this, two different scenarios are considered.

Scenario 1

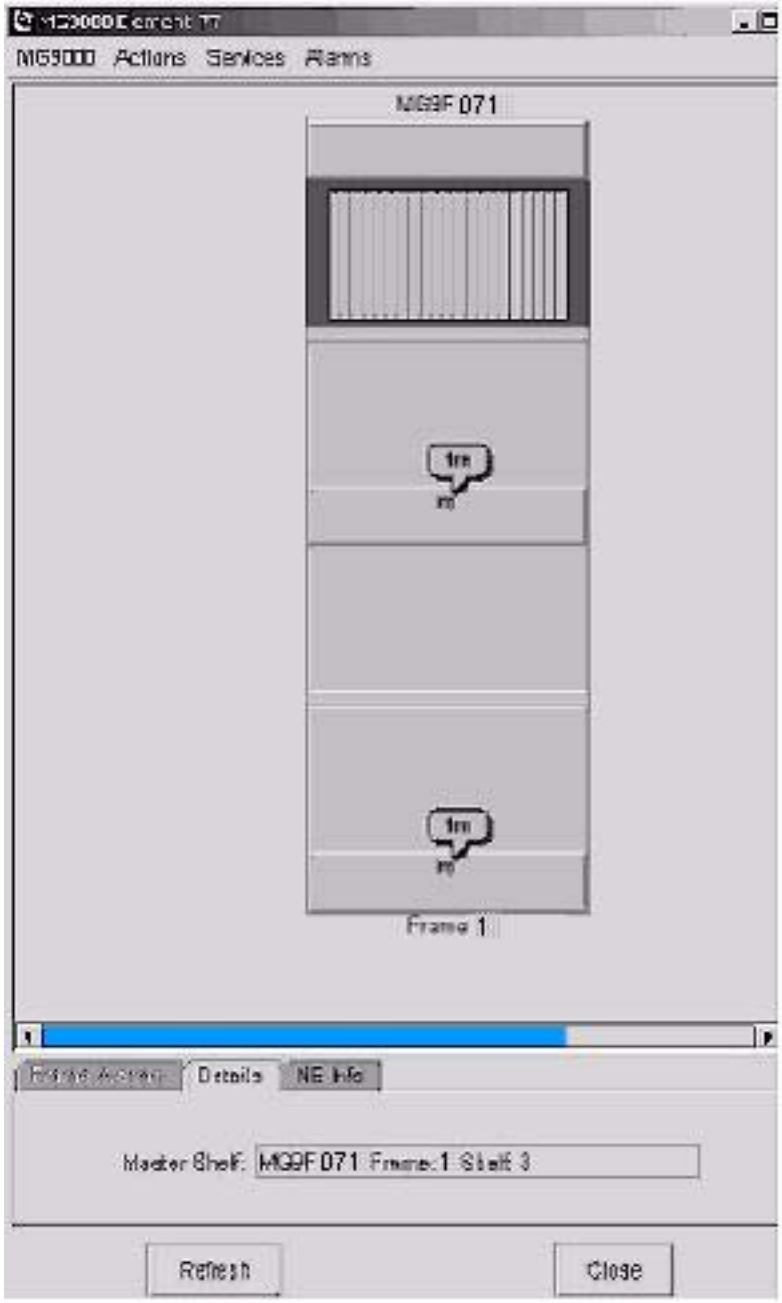
Let us consider a scenario wherein frames are lined-up from left to right as follows;

- First frame is numbered as 1 and is Master frame
- Second frame is numbered as 3 and is subtending frame

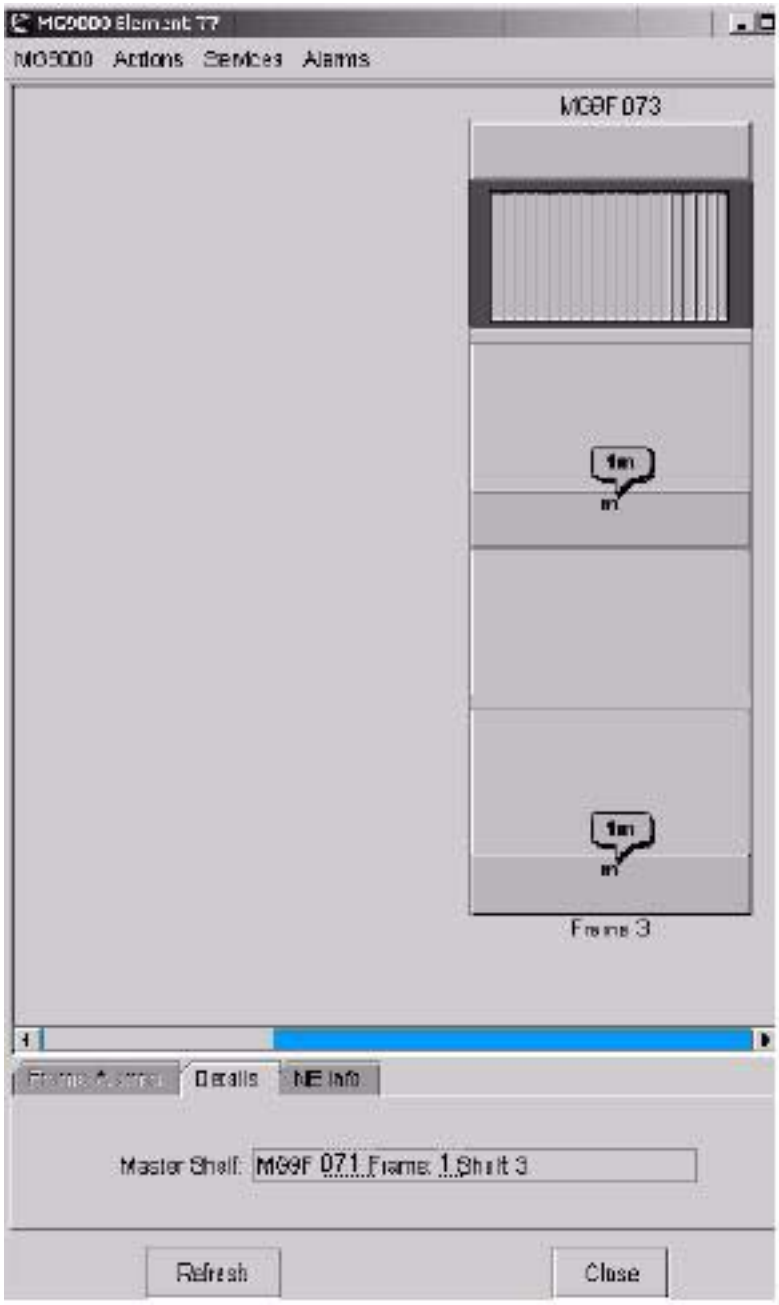
For this scenario, in SN06.2, craft-person need to use horizontal scroll bar to see the non-empty frames (frame #1 and frame #3) and MG9K-EM Frame view would looks like figure "MG9K-EM Frame view in SN06.2 and prior – when Frame view comes up" on page 1501 and figure "MG9K-EM Frame view in SN06.2 and prior – Horizontally scrolled far right" on page 1502.

For this scenario, in SN07, craft-person see the non-empty frames as and when he/she opens the Frameview and MG9K-EM Frame view would looks like figure "MG9K-EM Frame view in SN07" on page 1503.

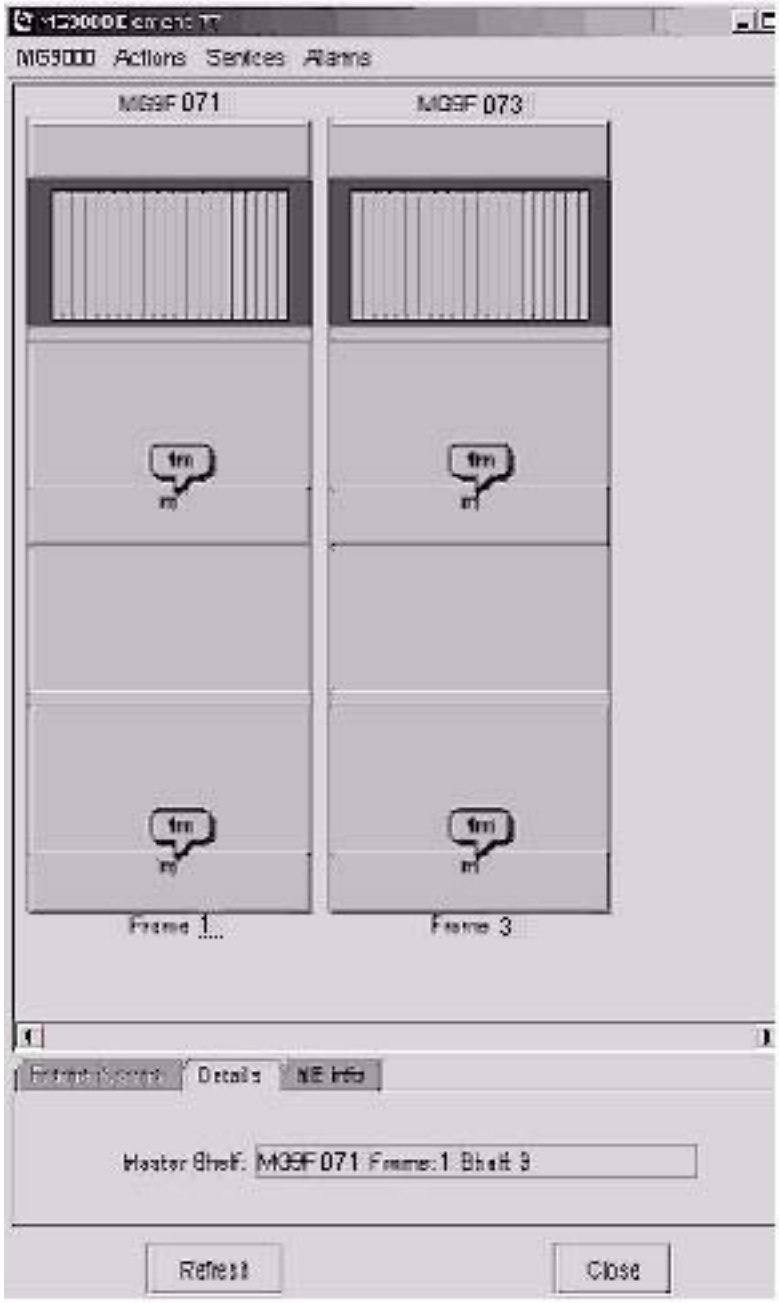
Even when frames are lined-up from right to left, in both SN06.2 and SN07, Frame view will look the same way as in left to right lineup.



MG9K-EM Frame view in SN06.2 and prior – when Frame view comes up



MG9K-EM Frame view in SN06.2 and prior – Horizontally scrolled far right



MG9K-EM Frame view in SN07

Scenario 2

Let us consider a scenario wherein frames are numbered as follows;

- First frame is numbered as 5 and is Master frame
- Subsequent three subtending frames are numbered as 7, 0 and 2.

For this scenario, in SN06.2, frames would be shown in increasing order of their Internal frame numbers. i.e, as [frame #0][frame #2][frame #5][frame #7]).

For this scenario, in SN07, frames would be shown as [frame #5][frame #7][frame #0][frame #2]); refer to the logic given in the beginning of this section, point #4.

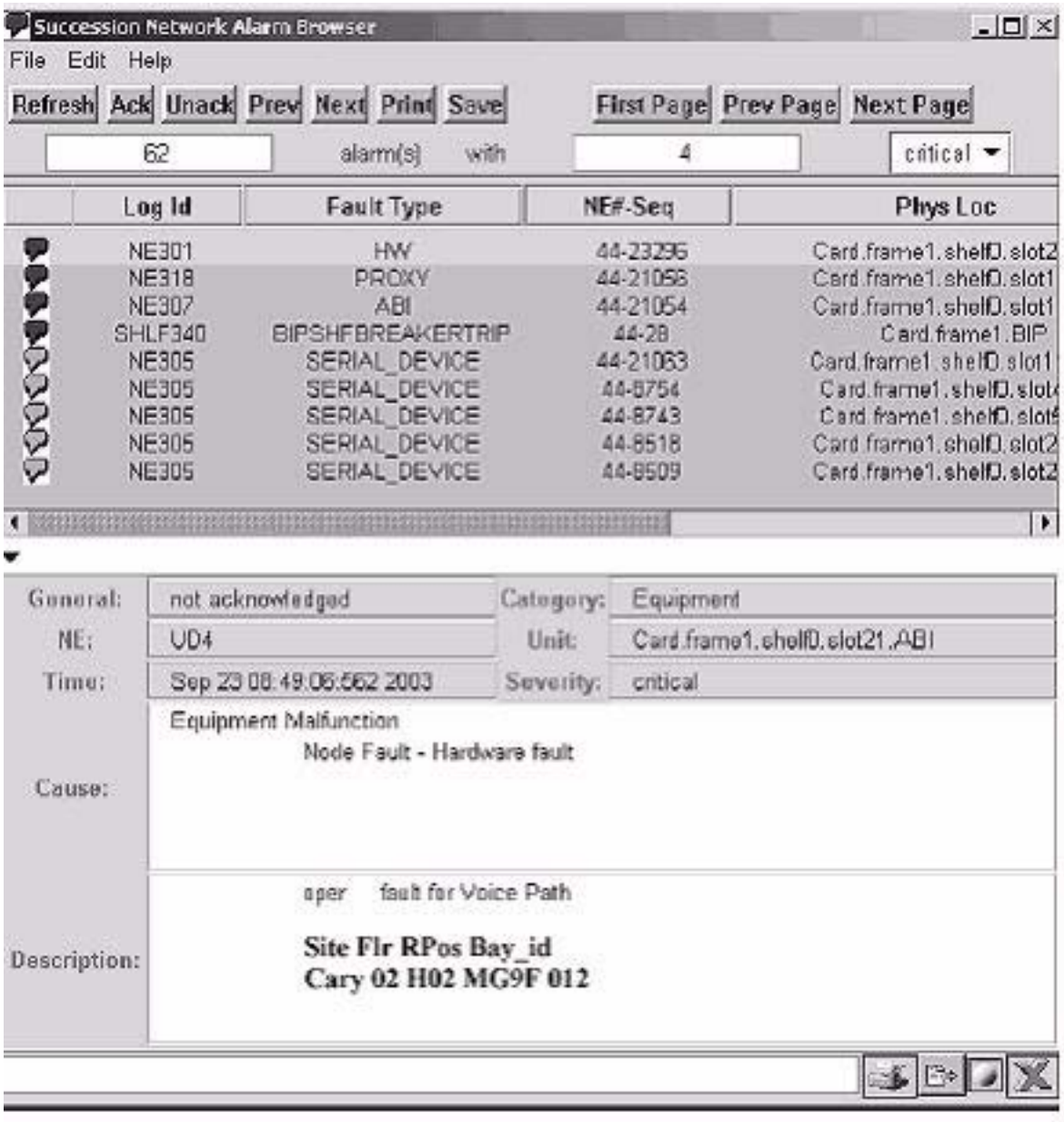
MG9K-EM Alarm browser

The following figure "MG9K-EM Alarm browser GUI" is an example screen shot for the deliverable #1, which is explained in the beginning of this section. Note that, without Frame location information being provisioned, 'Description' field in the Alarm browser is shown with default filler 'F' in following format:

```
Site    Flr   RPos   Bay_id

FFFF    FF    FFFF   MG9F FFF

i.e.

<Site=FFFF><3 blank space><Flr=FF><2 blank
space><RPos=FFFF><3 blank space><Bay-id=MG9F FFF>
```

When Frame location information is (re)provisioned for a Master frame, all alarms (both Gateway alarms and EM alarms) reported on components in the frame are updated with latest frame location information.

When Frame location information is (re)provisioned for a subtending frame, only Gateway alarms reported on components in the frame are updated with latest frame location information.



MG9K-EM Alarm browser GUI

Hardware Requirements or Dependencies

None

Software Requirements or Dependencies

This feature depends on MG9K changes for the deliverable #5, mentioned in the beginning of this section.

Limitations and restrictions

1 VMGs which are provisioned in SN05/SN06+ with non-zero Internal frame number, continue to exist as they are. i.e., they continue to exist with non-zero Internal frame number.

2 Frame location information is sent from MG9K-EM to SESM only at VMG provisioning time. So, any changes done to Frame location information from MG9K-EM after VMG is provisioned, is not sent to SESM. Frame location information present at XACore can be changed, even after VMG is provisioned. Any mismatch, which is introduced as result of such changes, is not audited or corrected.

3 A complete flow through provisioning is not supported for ABI VMGs Hence, for ABI VMGs, Craft-person need to manually enter Frame location information in XA-CORE table GWINV.

Interactions

This feature is an extension of the SN06.2 feature A00002704 and leverages the work of A00002704, to deliver the items 1 to 6 mentioned in the beginning of this section, which have impact on the end user.

Applicable customer facing sections

Fault Management:

Logs	_N/A____
Alarms	_X_____

Configuration:

Data Schema	_N/A____
User Interface	_X[1]____
Element Management	_X____
Security	_N/A____
Service Order	_N/A____
Office Parameters	_N/A____

Accounting (includes AMA billing) _NA___

1. Alarm browser GUI would show Frame location information.

Performance (includes operational measurements) _X___

Glossary

Term	Description
CSV	Comma separated values. One format of storing performance data
EM alarm	Alarm generated internally by MG9K EM. Ex; When communication from MG9K EM to MG9K goes down, MG9K-EM generates an alarm with specific problem “Comm Channel Down - Communication Lost to the NE”.
Frame location information	It consists of frame type, floor position, row position, frame position, shelf position
Internal (logical) frame number	Frame number, which is unique within a MG9K
Gateway alarm	Alarm reported from gateway.
Master frame	It has the master shelf.
NE	Network element
Office frame number	Frame number, which is unique within an office
OM data	Operational Measurement data. A.k.a performance data
MG9K frame line-up	MG9K frames are lined-up either left to right or right to left. When frames are lined-up left to right, new frames are positioned/added to right of existing frames, as MG9K grows and frames are numbered from left to right. That means, Master frame will be the left-most frame in the NE. When frames are lined-up right to left, new frames are positioned/added to left of existing frames, as MG9K grows and frames are numbered from right to left. That means, Master frame will be the right-most frame in the NE.
Subtending frame	It has the subtending shelves of a MG9K
VMG	Virtual Media Gateway is a logical representation of a gateway

References

A00003486 Gateway location information FN

Configuration for A00003531

Hardware and Software Requirements

NA

Initial Configuration

NA

Office / Subnet parameters (OP/SP) (CM & SESM)

NA

Upgrade Impact

None

Data schema (DS) (CM, MIBS, RDB)

No new schemas, tables, or table columns are introduced by this feature. No existing external interfaces are changed.

Service Orders (SO) (CM & SESM)

None

Software optionality control (SOC)

NA

Element Management

New/modified GUIs

GUI Name	NEW, CHANGED or DELETED
MG9K-EM Frame-view	Changed
MG9K-EM “Provision a Virtual Media Gateway” GUI	Changed
MG9K-EM Alarm browser GUI	Changed

GUI information

GUI name: MG9K-EM Frame-view

Functional description
Following changes will be done in this GUI;

a. Frames are displayed without gap.

b. Master frame is shown on far left and all subtending frames to the right of Master frame.

With these changes, MG9K-EM Frame view is displayed in a cleaner way. Advantage of this cleaner display are;

a. MG9K-EM Craft-person can see Master frame as and when he/she opens the Frame view, even when Master frame has two or more empty frames to its left side.

b. MG9K-EM Craft-person can see adjacent frames, without scrolling to right in Frameview, even when there is gap between the frames.

As a result of these changes, Frameview may not be a mirror reflection of actual line-up of frames in MG9K. Note that, as in SN06.2, in MG9K-EM Frame view, Internal frame number is shown at the bottom of each frame and Office frame number is shown at the top of each frame. With this, Craft-person can map the MG9K-EM Frame view to actual line-up of frames in MG9K.

GUI Usage and implications
NA

GUI size
No changes in SN07.

GUI fields
No changes in SN07.

Usage example
Let us consider two scenarios.

Scenario 1:
Here, frames are lined-up from left to right as follows;

- frame-1 is the Master frame
- frame-0 and 2 are not cabled
- frame-3 is subtending frame

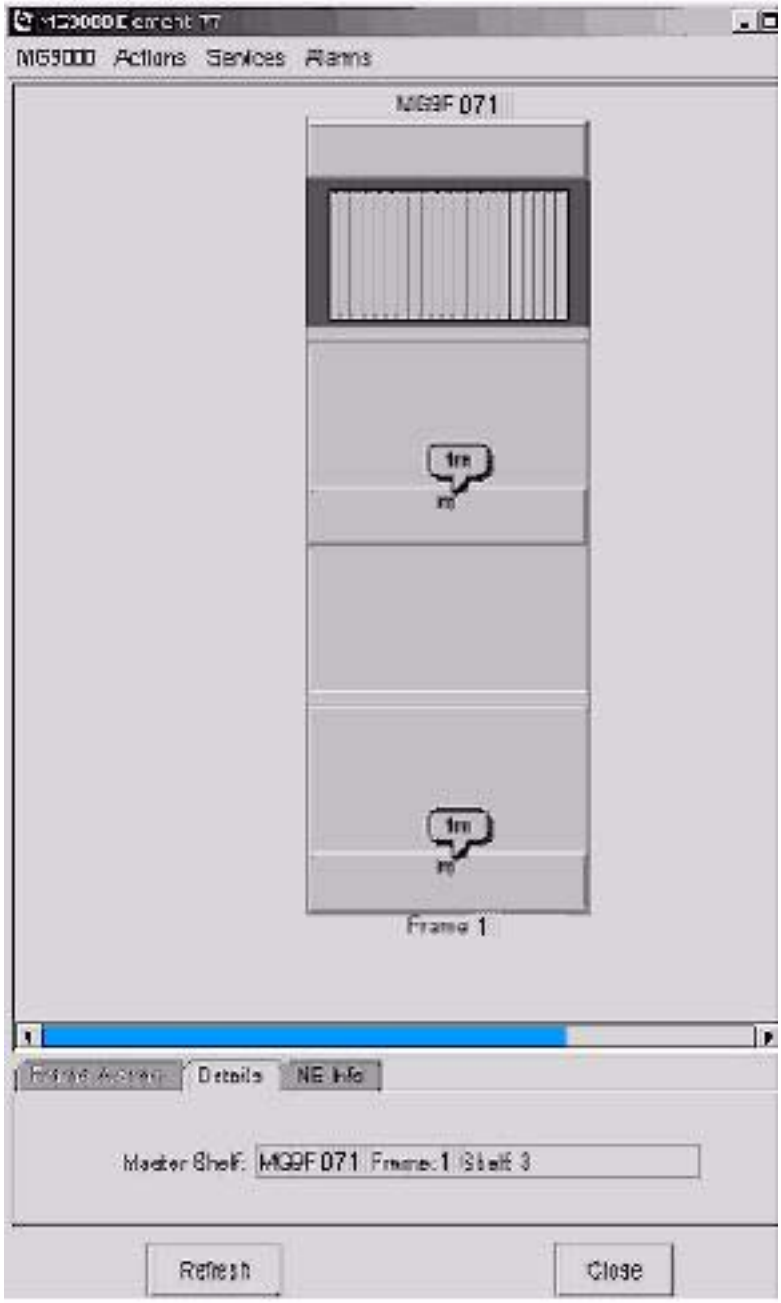
Scenario 2:
Here, frames are lined-up from right to left as follows (see explanation given for this type of line-up in 12.12);

- frame-1 is the Master frame
- frame-0 and 2 are not cabled
- frame-3 is subtending frame

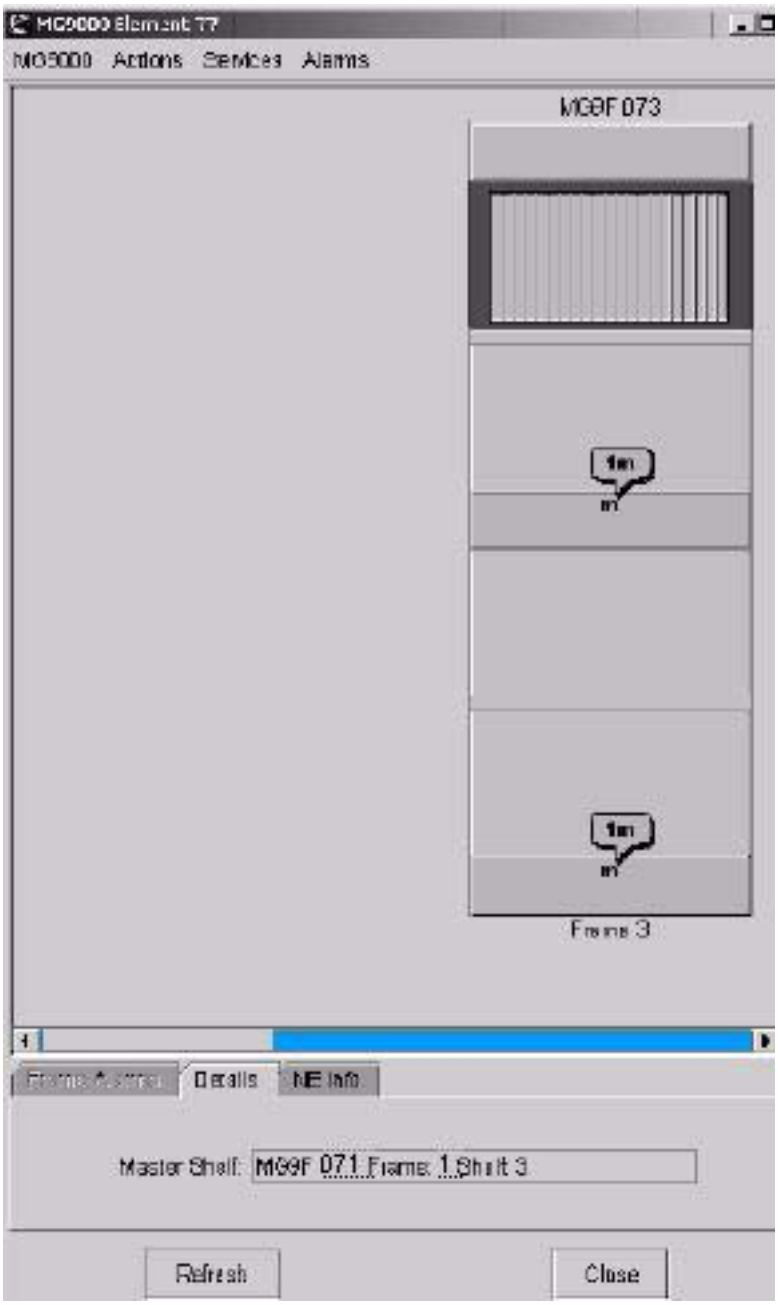
For both scenarios, in SN06.2, the craft-person needs to use horizontal scroll bar to see the non-empty frames (frame-1 and frame-3) and MG9K-EM Frame view would look like figures “MG9K-EM Frame view in SN06.2 and prior when Frame view comes up” on page 1511 and “MG9K-EM Frame view in SN06.2 and prior when horizontally scrolled far right” on page 1512.

For both scenarios, in SN07, the craft-person can see the non-empty frames as and when he/she opens the Frameview and MG9K-EM Frame view would look like figure “MG9K-EM Frame view in SN07” on page 1503.

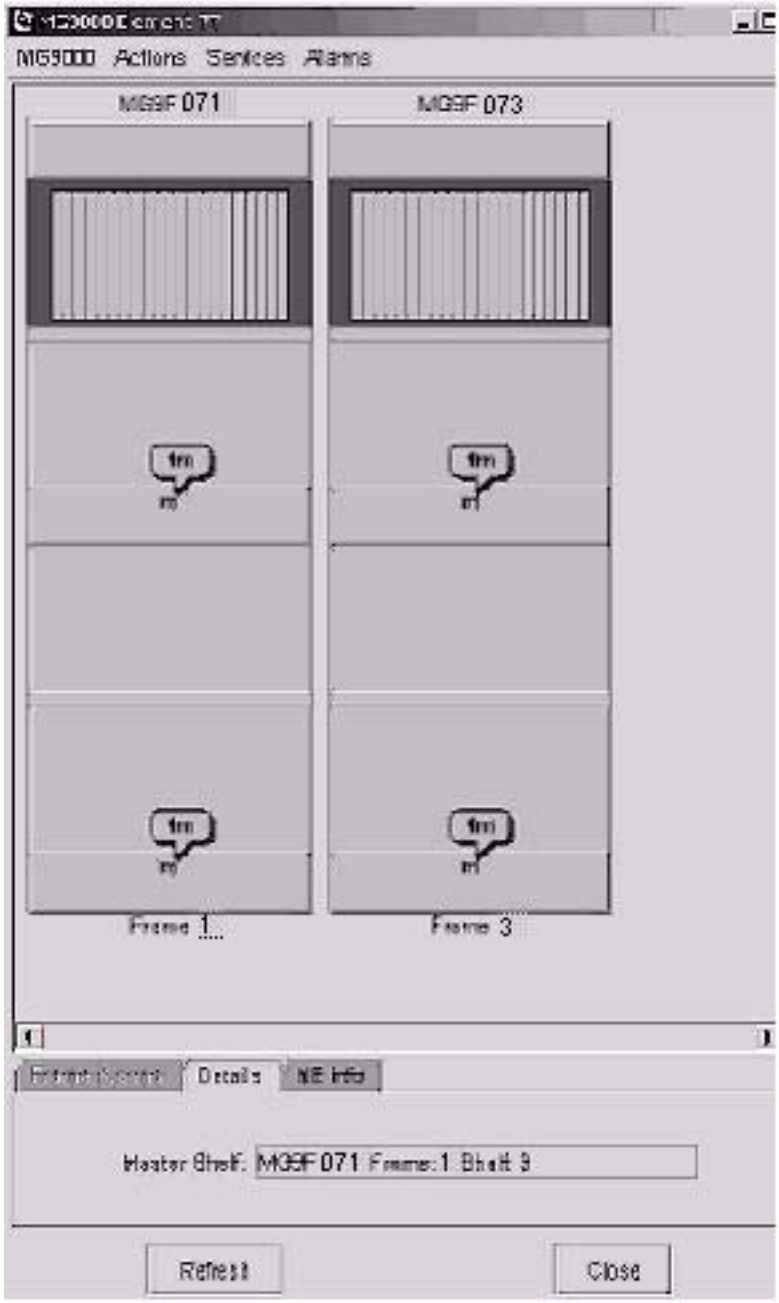
MG9K-EM Frame view in SN06.2 and prior when Frame view comes up



MG9K-EM Frame view in SN06.2 and prior when horizontally scrolled far right



MG9K-EM Frame view in SN07



GUI release history update
SN07, following changes will be done to MG9K-EM Frameview GUI;

a. frames are displayed without gap.

b. Master frame is shown on far left and all subtending frames to the right of Master frame.

Supplementary information
None

CLUI Interface
NA

GUI name: MG9K-EM "Provision a Virtual Media Gateway" GUI

Functional description
Following changes will be done in this GUI:

Internal frame number is hard-coded to zero in VMG name, while provisioning VMG. So, VMG name of a VMG which is provisioned in SN07, will be as follows;

<SITE_name><Office frame number><Internal frame number = 0><Shelf number>

An example VMG name is 'SLOA007-0-1'.

GUI Usage and implications
No changes in SN07.

GUI size
No changes in SN07.

GUI fields
Following table describes fields of this GUI.

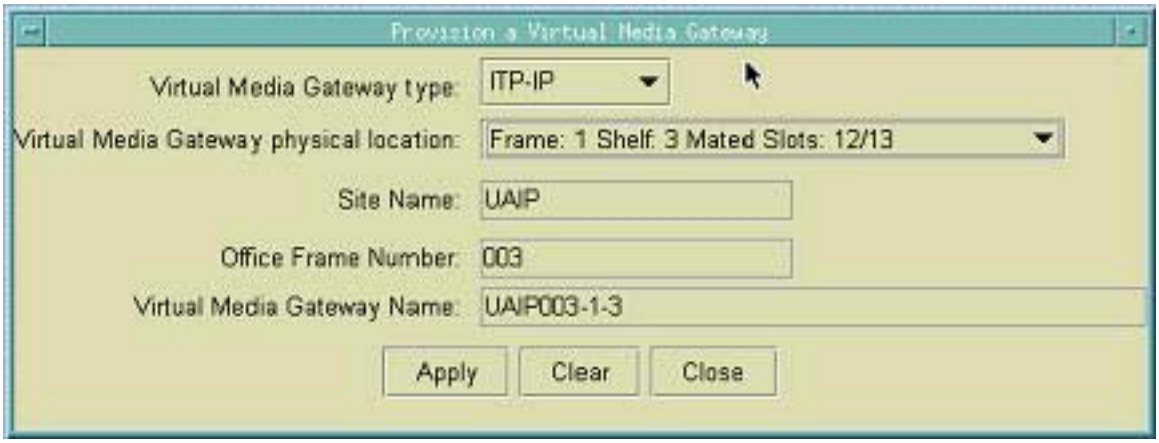
Field	New or Changed	Subfield	Entry	Explanation and action	Associated MIB entry
Virtual Media Gateway Name	Changed	NA	No change in SN07	Internal frame number is hard-coded to zero in VMG name, while provisioning VMG.	No change in SN07

There is no change in SN07 for other GUI fields.

Usage example

The field “Virtual Media Gateway” is not configurable by MG9K-EM Craft-person. This field is populated based on value of the fields “Virtual Media Gateway type” and “Virtual Media Gateway physical location”. Note that, in figure “MG9K-EM “Provision a Virtual Media Gateway” GUI in SN06.2 and prior” , Internal frame number of 1 is used to construct VMG name and in figure “MG9K-EM “Provision a Virtual Media Gateway” GUI in SN07” , Internal frame number is hardcoded to zero while constructing VMG name.

MG9K-EM “Provision a Virtual Media Gateway” GUI in SN06.2 and prior



MG9K-EM “Provision a Virtual Media Gateway” GUI in SN07

GUI release history update

SN07, following changes will be done to MG9K-EM GUI:

- Internal frame number is hard-coded to zero in VMG name

Supplementary information
None

CLUI Interface
NA

GUI name: MG9K-EM Alarm browser GUI

Functional description
In SN07, following changes will be done in "Description" field of this GUI;

- Once Frame location information is provisioned, for new alarms, Frame location detail is appended to the data which is shown in this field in SN06.2.
- If Frame location information is not provisioned, default filler F's are appended in following format to the data which is shown in this field in SN06.2.

```
Site Flr RPos Bay_id

FFFF       FF FFFF  MG9F FFF

i.e., <Site=FFFF><3 blank space><Flr=FF><2 blank
space><RPos=FFFF><3 blank space><Bay-id>

<Bay-id> = MG9F<One blank space><FFF>
```

GUI Usage and implications
As explained in the previous "Functional description" section, data shown in "Description" field of this GUI depends on whether Frame location information is provisioned or not.

GUI size
No changes in SN07.

GUI fields

Following table describes the fields of this GUI.

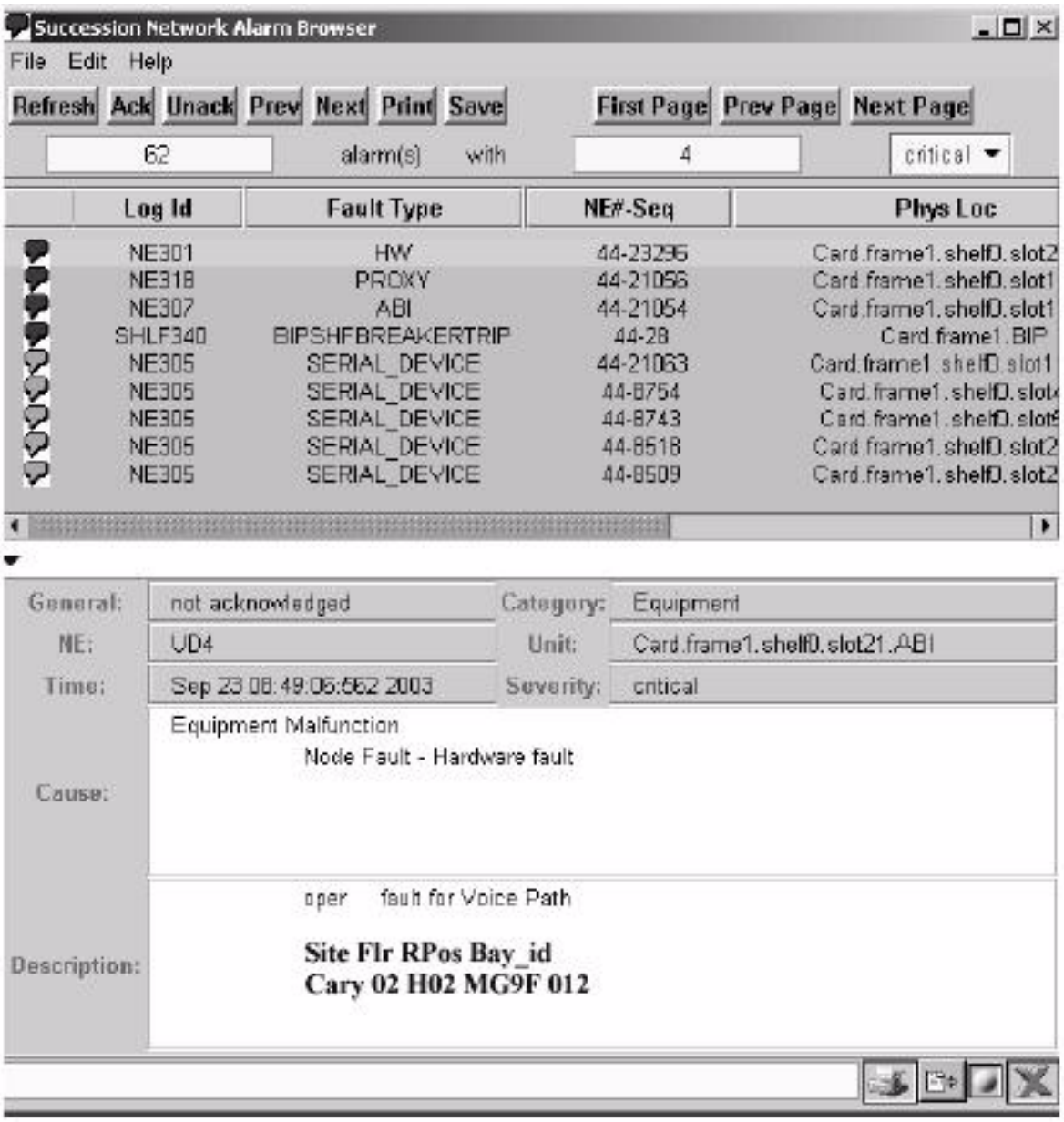
Field	New or Changed	Subfield	Entry	Explanation and action	Associated MIB entry
Description	Changed	NA	No change in SN07	Refer to 12.8.2.3.1	No change in SN07

There is no change in SN07 for other GUI fields.

Usage example

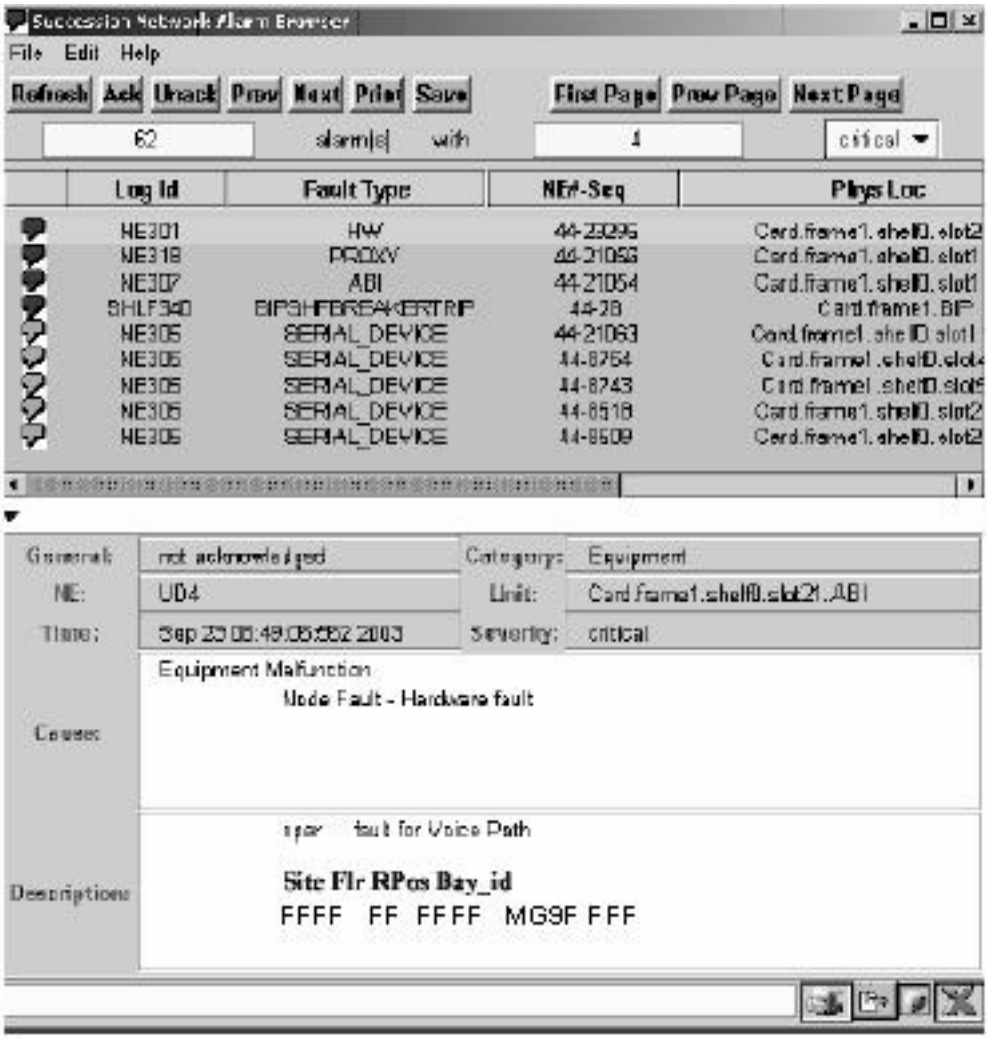
After Frame location information is provisioned for frame 1, if an alarm is raised on an entity say card, which is present in frame 1, then in SN07, it will look as in the following figure.

MG9K-EM Alarm browser GUI in SN07 when Frame location information is provisioned for frame 1



If an alarm is raised on an entity say card, which is present in frame 1, for which Frame location information is not provisioned, then in SN07, it will look as in the following figure.

MG9K-EM Alarm browser GUI in SN07 when Frame location information is not provisioned for frame



GUI release history update

SN07, following changes will be done in Description field of this GUI;

- Once Frame location information is provisioned, for new alarms, Frame location detail is appended to the data which is shown in this field in SN06.2. If Frame location information is not provisioned, default fillers F's are appended to the data which is shown in this field in SN06.2.

Supplementary information
The frame location information within the alarm browser (and LOGs) will exist as a snapshot. If the frame location information is changed, the alarm browser will not be updated with the new frame location information. Also, Alarms which are generated/reported before corresponding frame is re-provisioned, are displayed in Alarm browsers without any change.

CLUI Interface
NA

Command interface changes

None

Security

None.

Note: Even though, MG9K OM Collector need access to MG9K EM Oracle database tables, DEM_APPS and FRAME_LOC, no changes need to be done in authentication.

Configuration Walkthrough

NA

Glossary

Term	Description
Frame location information	It consists of frame type, floor position, row position, frame position, shelf position
Internal (logical) frame number	Frame number, which is unique within a MG9K
MG9K frame line-up	MG9K frames are lined-up either left to right or right to left. When frames are lined-up left to right, new frames are positioned/added to right of existing frames, as MG9K grows and frames are numbered from left to right. That means, Master frame will be the left-most frame in the NE. When frames are lined-up right to left, new frames are positioned/added to left of existing frames, as MG9K grows and frames are numbered from right to left. That means, Master frame will be the right-most frame in the NE.

Term	Description
NE	Network Element. Each NE has a Master shelf and zero or more subtending shelves/s, whose ITP cards are connected to the ITX card present in Master shelf.
Office (External) frame number	Frame number, which is unique within an office
Subtending frame	It has the subtending shelves of a MG9K

References

A00003531_MG9000_Frame_Location_FN

A00003486 Gateway location information FN

Performance for A00003531

Performance management strategy

OM Collector (OMC) fetches performance data from MG9K through FTP, converts the performance data to CSV format and writes the converted data into a file. In subsequent sections of this document, this file is termed as “OMC CSV file”. OSSs which are present towards north bound interface of OMC, make use of these OMC CSV files.

Performance management tools and utilities

OMC CSV file contains data in the following format:

<ScalarTableName-1>
<performance parameter name 1>, <performance parameter name 2>...
Value1, Value2...

<NonScalarTableName-2>
<performance parameter name 1>, <performance parameter name 2>...
Source, Value1, Value2...

An example data in a SN06.2 OMC CSV file is as follows;

Miscellaneous
snmpInvalidMsgs,snmpInBadCommunityNames,snmpInPkts
0,0,1769

norCarrSonetMediumIntervalTable
Source,norCarrSonetMedIntervalOpt,nnorCarrSonetMedIntervalLBC
Frame2.Shelf0.Slot10.Port1,99,100
Frame2.Shelf0.Slot11.Port401,100,100

Here, the table ‘Miscellaneous’ is a Scalar table. That means, it’s Performance parameters are Scalar SNMP attributes. So, they are not identified by any ‘source’. Whereas, the table norCarrSonetMediumIntervalTable is a non-scalar table. That means, it’s Performance parameters are non-scalar SNMP attributes. So, they are identified by appropriate source, namely Frame number, Shelf number, Card number and Port number.

In SN06.2, OMC CSV file uses Internal frame number for values of Performance parameters of non-scalar table. In above example, number 2 shown next to ‘Frame’ is Internal frame number of the ‘source’ of the performance parameter.

In SN07, OMC CSV file will use Office frame number for values of Performance parameters of non-scalar table. So, if Frame location information is provisioned for frame-2, example data which is shown above, will be as follows in SN07.

```
Miscellaneous
snmpInvalidMsgs,snmpInBadCommunityNames,snmpInPkts
0,0,1769

norCarrSonetMediumIntervalTable
Source,norCarrSonetMedIntervalOpt,nnorCarrSonetMedIntervalLBC
Frame080.Shelf0.Slot10.Port1,99,100
Frame080.Shelf0.Slot11.Port401,100,100
```

In this SN07 example, number ‘080’ shown next to ‘Frame’ is Office frame number.

If Frame location information is not provisioned for frame-2, example data which is shown above, will be as follows in SN07.

```
Miscellaneous
snmpInvalidMsgs,snmpInBadCommunityNames,snmpInPkts
0,0,1769

norCarrSonetMediumIntervalTable
Source,norCarrSonetMedIntervalOpt,nnorCarrSonetMedIntervalLBC
FrameFFF.Shelf0.Slot10.Port1,99,100
FrameFFF.Shelf0.Slot11.Port401,100,100
```

Performance Measurements (PM), Operational Measurements (OM), and stats

None

SN07 Feature Deltas

Product = MG 9000

A00003567 -- MG9000 Manager - ABI ESA Support (UA-AAL1)

Functional Description

In SN07, ESA capability will be introduced for ABI lines. ABI ESA provides the ability to support basic XPM calls within the MG9000. The MG9000 ABI cards will terminate CSide links of the extending XPMs and give them ESA capability if the MG9000 is out of communication with its assigned Gateway Controller (GWC).

The element manager will build on existing ITP ESA functionality for retrieving the ESA translation data from the core and pushing it to the MG9000. Data common to ITP and ABI VMGs will be handled as in SN06.2. Additionally, new data specific to ABI cards will be retrieved from the core and sent to the MG9000. This data will include, node, BNV and term type entries. This new data will allow the MG9000 to support the associated call processing features for ABI while in ESA mode.

As in SN06.2, this feature provide the following:

- Ability to retrieve the ESA data organized on a VMG basis from the core. This data will be retrieved through the SDM platform on a 24 hour basis. This data will also be retrievable from the SDM on a manual basis. Another manual command on the core will have to be used to generate the core ESA data, the MG9000 EM will not be able to invoke the core's ESA data build.
- The ability to push the required ESA data down to the MG9000 by formatting an XML data file and sending it via FTP to the associated VMGs ABI card using a floating IP address.
- Upgrades of ESA data.

Additionally, this feature will add support for secure FTP for the data transfer between the EM and the MG9000. Currently this transfer occurs over standard non-secure FTP. Functionality will be added to:

- Provide a means to set a password and/or username. This is currently proposed to be via a gui accessible via the EM server. (details TBD)
- Allow data transfer to and from the MG to take place via secure FTP. This change will be transparent to the user. Secure FTP will be used for the OM Collector utility and ESA data ftp to the MG9000.

Hardware Requirements or Dependencies

No additional ESA requirements are needed for this feature besides the standard CS2000 hardware, the MG9000 EM and the MG9000 Gateway.

Software Requirements or Dependencies

This feature is providing ABI ESA support capability for the MG9000 EM, as well as secure interface support. It has dependences on the following features:

- A00002380: ESA for ABI: MG9000, XPM and CM
- A00003737 - LCI Remote Access and Security

Limitations and restrictions

- The ESA data from the core will be downloaded to the MG9000 only once every 24 hours. This is the same manner in which the core handles loading the RSC with ESA data.
- The MG9000 EM will not allow the modification of any ESA data retrieved from the core.
- The MG9000 EM will not be providing a ESATRVR test tool. This test tool will be supplied by the core.
- The MG9000 EM will provide a mechanism to manually pull the latest ESA data from the Core. This mechanism will not push the ESA data down to the MG9000. The craftsperson will have to manually push the ESA data down to the MG9000 for each VMG. This is to prevent overloading the MG9000 with new data. Also, this mechanize will only work provided that the craftsperson has used the Core command to generate the latest Core xml data file for the EM to retrieve, the EM does not have the ability to invoke this Core command.

Interactions

N/A

Applicable customer facing sections

Fault Management

Logs	_X___
Alarms	_X___

Configuration

Data Schema _____

User Interface _____

Element Management _X___

Security _____

Service Order _____

Office Parameters _____

Accounting (includes AMA billing) _____

Performance (includes operational measurements) _____

Glossary

Term	Description
XPM	Ex Peripheral Module
EM	Element Manager
ESA	Emergency Stand Alone
GUI	Graphical User Interface
GWC	Gateway Controller
MG9000	Media Gateway 9000
MIB	Managed Information Base
SNMP	Simple Network Management Protocol
VMG	Virtual Media Gateway

Fault Management for A00003567

Fault management strategy

This feature uses existing MG9KEM fault management structure.

Fault management tools and utilities

Alarm Browser - Reports alarms from registered events. When an alarm is generated, it is displayed in the Alarm Browser along with the date and time, the NE Id, the resource (where the alarm was generated), the severity and probable cause. Highlighting the alarm displays the description of the alarm in the text box at the bottom of the Alarm Browser.

Log Adaptor - Generates logs from registered events. The log names and numbers are predetermined and are matched with the incoming event. A log with the corresponding name and number which contains the date, time, physical location, severity and any other pertinent information is generated and placed into a separate file.

Logs and Alarms

A new alarm (nnESADownloadFault) will be added to indicate a failure to download ESA data to given VMG. This alarm will only be generated for autonomous download attempts. This was indicated by a log in previous releases. This alarm is EM generated and will be problems such as failure to setup the FTP connection to gateway or failure to login. It is different than the inconsistent data (nnESAFault) alarm generated by the hardware while the file transfer is in progress.

The alarm will be cleared by the EM when a successful download takes place.

The new alarm will be displayed at the Alarm Browser at the subnet as well as the well as the alarm browser for each corresponding network element. A log is also generated.

In addition, all the alarms and logs generated for the ITP ESA also apply to ABI ESA.

Explanation

nnESADownloadFault

Title: nnESADownloadFault

Name: ESA

Description: This log is generated when the EM is unable to download ESA data to a VMG.

Severity: Critical

Event type: ESA data download failure

Format

The Log Delivery application for this feature generates logs in the Number 2 Switch Control Center (SCC2) format and the NT standard (STD) format.

nnESADownloadFault

***ESA302 Tue Jul 09 14:50:26 EDT 2003 TBL NnESADOWNLOADFAULT

NE Number: 8 NE Name: co8
State: not acknowledged
Type: Equipment
Cause: Failed to set up FTP connection: login failure!!

Time: Jul 09 14:50:26:616 2003
Severity: critical
Mo: Card.f0.s2.l13.ITP
Description: EM failed to push ESA to VMG

Field descriptions

nnESADownloadFault

Field descriptions ESA302

Field	Value	Description
office identification	String	Identifies the switch that generates the log. This field is optional. The maximum length of this field is 12 characters.
alarm	***,**,*, or blank	Indicates the alarm type of the log report. ***=critical, **=major, *=minor, blank = no alarms/warning
threshold	+ or blank	Indicates if a threshold is set for the log report. Plus (+) sign indicates that a threshold was set; if a blank, a threshold was not set.
report identification	AAAA nnn	Identifies the log subsystem that generates the report. This field uses 2-4 alphabetical characters and the number 100-999 of the log report in this subsystem. For this log AAAA= MGC and nnn=600.
day	String	Identifies the day of the week.
mmmmdd	January-December (01-31)	Identifies the month and date the report generates.

Field descriptions ESA302

Field	Value	Description
hh:mm:ss	00-23 00-59 00-59	Identifies the hour, the minute, and the second the report generates.
zone	PST, EST, MST, CST, AST	Identifies the time zone.
yyyy	0000-9999	Year
ssdd	0000-9999	Defines a different sequence number for each log report generated.
event type	TBL, INFO, etc	Trouble, Service Summary, State Change, Information, Threshold and Expert. TBL for this log.
event id	String	The Log Title.
NE Number	integer	Number of the NE
NE Name	string	Name of the NE
nnESA Fault Type	string	The type of the fault: ESA data download failed
nnUemgEventTime	DateandTime	The Date and Time the event occurred in the following format: day mmmmdd hh:mm:ss zone yyyy
nnUemgAlarmSeverity	String	Warning
MediaGatewayName	string	The name of the Media Gateway control group which found ESA data inconsistent
Description	string	ESA data download failed

Action

nnESADownloadFault:

Check failure cause in alarm or log text and perform manual downloading actions from the corresponding VMG view. The alarm will be cleared by the EM when the download is successful.

Associated Operational Measurements or Performance Measurements

None.

Configuration for A00003567

Hardware and Software Requirements

This functionality is for MG9000 EM that has SN07 or higher software version.

Initial Configuration

No changes to the initial configuration.

Upgrade Impact

Dump and Restore
N/A

Element Management Upgrade

ABI ESA functionality is only applicable if the MG9000 is at a software release of SN07 or higher.

Element Management

GUI information

New or modified GUIs

GUI name	NEW, CHANGED, or DELETED
ESA Configuration View	Changed
Subnet View	Changed

ESA Configuration View

Functional description
In release SN07, this view will be enabled for ABI as well as ITP VMGs.For the ABI VMGs only enhanced ESA capability will be supported.

GUI usage and implications
From MG9kEMS software UE9000 MG Element Manager View, when you click Services submenu ‘Switched Line Services Manager’, this action invokes Switched Line Services for MG9000 Element View. The ESA Config Panel View which is displayed when the “ESA Config” tab is selected.

GUI size
Not Applicable

GUI fields
The following table lists the new fields in the ESA Config View:

GUI field descriptions

Field	New or Changed	Subfield	Entry	Explanation and action	Associated MIB entry
ESA Mode	Changed	N/A	“Enhanced (North American)” or “Basic”	The “Enhanced” will use the ESA data provided by the Core. This will be used by both ABI and ITP VMGs The “Basic” will work in the same manner that ESA is configured in SN06 using the MG9000 EM for ITP VMGs but will not be supported for ABI VMGs.	None
ESA Capability	Not Changed	N/A	“Yes” or “No”	“Yes” means that the selected VMG is capable of going into ESA. “No” means that the VMG is not capable of going into ESA.	nnEsaConfigAdmin Status
ESA Dialing Plan	Not Changed	N/A	add “7 and 10 Digit Dialing”	7 and 10 digit dialing is supported in SN06.2. It is supported only for “Enhanced” ESA mode. It will be disabled.	nnEsaConfigDialing Plan

GUI field descriptions

Field	New or Changed	Subfield	Entry	Explanation and action	Associated MIB entry
ESA Notify Tone	Not Changed	N/A	“Yes” or “No”	“Yes” means that a notify tone is given to alert user that in ESA mode. “No” means that there is no indication to the user that in ESA mode. It will be disabled if “Enhanced” is selected.	nnEsaConfigNotifyTone
Default Pretranslator Name	Not Changed	N/A	Default Pretranslator name which is from Core	This field is the Default Pretranslator name that is associated with the selected VMG.It will be disabled if “Enhanced” is selected.	nnEsaConfigDefPretranslationId
ESA Operational Status	Not Changed	N/A	“Not in ESA” or “In ESA”	“Not in ESA” means that the VMG is not in ESA mode. “In ESA” means that the VMG is in ESA mode.	nnEsaConfigOperStatus
Download	Not Changed	N/A	N/A	When user clicks on this button, it will perform a manual downloading the EM ESA data to Gateway in order to resync the MG9000 with EM latest Core data for selected VMG.The button will be disabled if “Basic” is selected.	None
Customer Group	Not Changed	N/A	N/A	Click on this button, “ESA Customer Group List” View will be displayed. It will be disabled if “Basic” is selected.	None

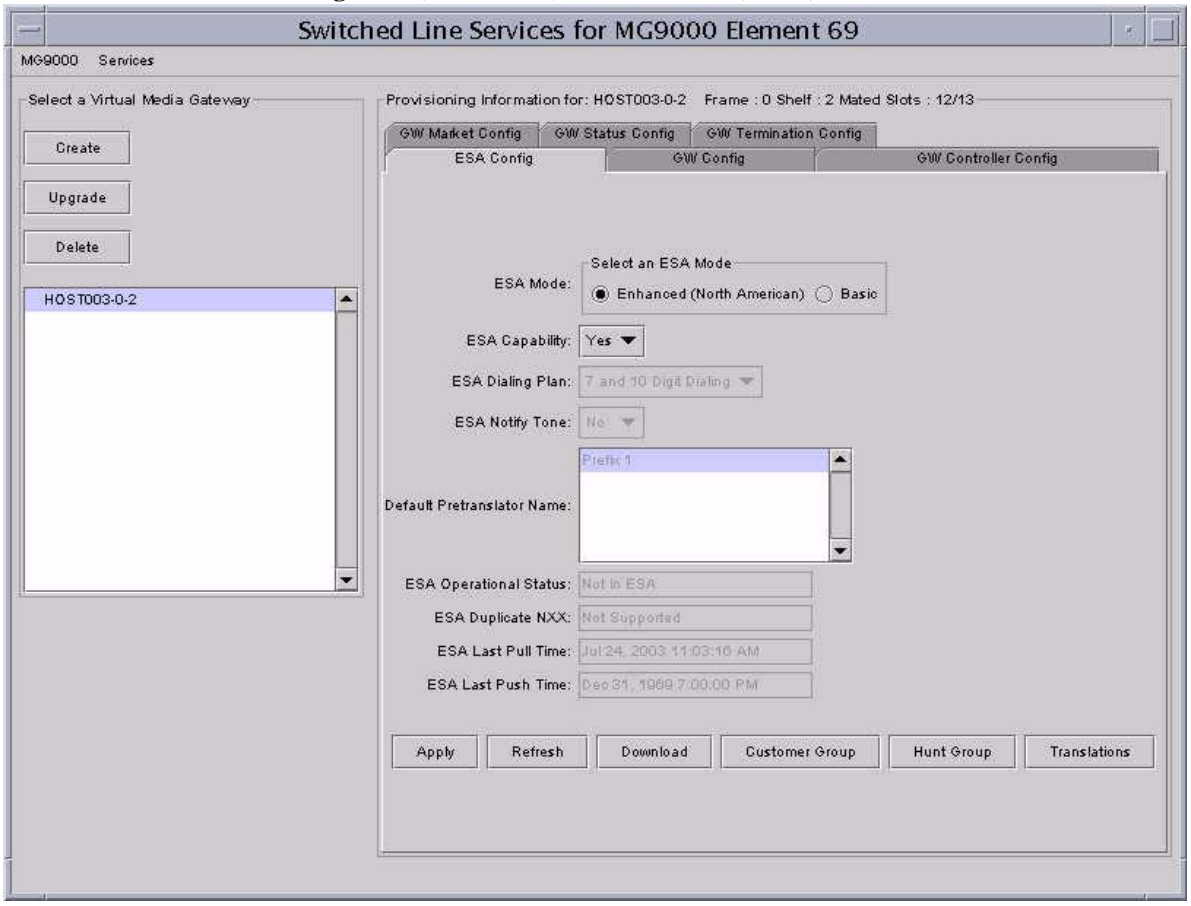
GUI field descriptions

Field	New or Changed	Subfield	Entry	Explanation and action	Associated MIB entry
Hunt Group	Not Changed	N/A	N/A	Click on this button, “ESA Hunt Group List” View will be displayed. It will be disabled if “Basic” is selected.	None
Translations	Not changed	N/A	N/A	Click on this button, “ESA Translation List” View will be displayed. It will be disabled if “Basic” is selected.	None

Usage example

The following example shows sample datafill in ESA Config View:

ESA Config View (Enhanced (North American) ESA)



Subnet View

Functional description

GUI usage and implications

GUI size

Not Applicable

Usage example

The following screenshot shows the additions to the subnet view.

Subnet View

Usage example
The following figure shows the sample datafill in GW Termination Config View:

GUI release history update
MG9000 EM Update: The ESA config GUI is modified to support ABI ESA, for enhanced ESA only. Subnet view changed to show DMS icon and subtending nodes.

Supplementary information
None.

CLUI Interface
N/A

Supplementary information
None.

CLUI Interface
N/A

Security

N/A

Configuration Walkthrough

SDM Configuration:

Please ensure that the SDM has the latest available fileset as part of the CS2E06 SDM load, for the package SDM_BASE.fts for the application ‘File Transfer Service”.

MG9K EM Configuration:

Set up the SSH authentication

This feature requires a key exchange between the MG9K EM server and the SDM for downloading the ESA data.

Procedure

1. Configure the SDM IP and SDM USER for this system. Log in to the MG9K EM server as ‘root’ and run the command:

   $ *cli*

   Select "Configuration", then select "OAMP Application Configuration", then select "Configure SDM IP and User" and set the SDM IP to the correct IP address of the SDM.

   Set the SDM user name to be “*esauser*”

2. For the user, ‘mgems’ on the MG9K EM server, generate the ssh key pair needed for data transmission between the MG9K EM and the SDM. As the ‘root’ user, execute the following commands:

   # *su - mgems*

   $ *ssh-keygen -t rsa*

   Accept the default location and enter an empty passphrase. This will create the following key file:

   /export/home/mgems/.ssh/id_rsa.pub

3. The key information contained in the file /export/home/mgems/.ssh/id_rsa.pub must be placed in the following file on the SDM:

   /home/esauser/.ssh/authorized_keys2

   — Secure copy the id_rsa.pub file to the SDM, using the command

   $ *scp /export/home/mgems/.ssh/id_rsa.pub root@$SDM_IP:/home/esauser/tempkey*

   Answer "yes" to the prompt "Are you sure you want to continue connecting (yes/no)?", then enter the password of the ‘root’ SDM user.

   — Secure append the public key to the authorized keys list on the SDM, using the command

   $ *ssh root@$SDM_IP ’cat /home/esauser/tempkey >> /home/esauser/.ssh/authorized_keys2’*

   Enter the password of the ‘root’ SDM user when prompted for it.

Once completed, the MG9K EM will have the required access to the SDM for downloading the ESA data.

Set up ESA data download properties

ESA properties must be set up appropriately to download the right ESA data file from the Core at the right time. The Core will have an office parm configured to a specific time to start the collection of ESA data on the Core daily. The download of the ESA data is a nightly process and the corresponding time on the EM must be configured such that there is at least half an hour delay between this time and the Core configured time.

There are 3 ESA data download properties that need to be properly configured. These include the time that will be used for nightly downloads, the name of the device on the Core where the ESA data file will be stored and the name of the ESA data file itself. These properties have the following default values:

ESA.DataDownloadTime=1:30 AM

ESA.DataDeviceName=/SFDEV

ESA.DataFileName=ESA_SYSTEM_SD$XML

ESA.DataFileNameUnix=ESA_SYSTEM_SD.XML

Notes:

- The ESA.DataFileNameUnix property is not editable. This is dynamically derived from the ESA.DataFileName property by the MG9K EM software.
- The ESA.DataFileName on the core should adhere to the following naming conventions:
  a. There can only be one '$' sign in the name separating the 'name' part from the 'extension' part. (Please see the default value for an example).
  b. No spaces are allowed in the file name.

Use the following procedure only if you need to change the default values of the ESA properties.

Procedure

Telnet into the MG9K EM server and launch the 'mg9kserver' script, located under the "bin" directory under the server where it is installed. The menu walk through is described as follows only to be used as an example:

 # ./mg9kserver config

Main Configuration Menu

1) Change Distribution Policy

2) Change SESM IP Address

3) Change Oracle IP Address

4) Change Debug Level for logs

5) Change Persistence settings

6) Change ESA data download settings

7) Display current settings

8) Exit from Main Menu

Please make a selection => 6

ESA Configuration Menu

1) Change ESA data download time

2) Change ESA data device name

3) Change ESA data file name

4) Exit to Main Menu

Please make a selection => 1

Please enter the new ESA data nightly download time?

Default: [1:30 AM] => 5:30 PM

ESA Configuration Menu

1) Change ESA data download time

2) Change ESA data device name

3) Change ESA data file name

4) Exit to Main Menu

Please make a selection => 2

Please enter the new ESA data device name on the core?

Default: [/SFDEV] => /ESADEV

ESA Configuration Menu

1) Change ESA data download time

2) Change ESA data device name

3) Change ESA data file name

4) Exit to Main Menu

Please make a selection => 3

Please enter the new ESA data file name on the core?

Default: [ESA_SYSTEM_SD$XML] => ESADATA$XML

Name of the ESA data file on the EM: ESADATA.XML

ESA Configuration Menu

1) Change ESA data download time

2) Change ESA data device name

3) Change ESA data file name

4) Exit to Main Menu

Please make a selection => 4

Once completed, the new ESA data download properties will become effective on the future downloading of the ESA data.

Core Configuration:

Overview

ESA data file will be downloaded from the core using FTP. Hence, it is important to ensure that enough TCP connections are configured on the core for the FTP Server sessions.

The maximum number of FTP sessions is controlled by the “CM” tuple in TABLE IPHOST in the “CM”. The “CM” tuple is usually the first tuple in the table. This tuple contains the following fields:

NODENAME: Node name = CM.

CMINDEX: Index = 0.

TCPCONN: The total number of TCP connections allowed. This number must be greater than or equal to (*FTPCLCON* + *FTPSVCON*) * 2.

FTPCLCON:The maximum number of FTP client sessions allowed. SFT is not impacted by this value.

FTPSVCON:The maximum number of FTP server sessions allowed. SFT shares this resource with other CM FTP users.

Care must be taken when determining the value of *FTPSVCON*. Other telnet applications may have been configured and the value of *FTPSVCON* should be incremented taking this into account.

If *FTPSVCON* is incremented, ensure that *TCPCONN* is large enough to support the total of *FTPCLCON* and *FTPSVCON*. Each FTP session will consume 2 TCP connections. This will be enforced by the *IPHOST* table control.

Product = MG 9000

A00003571 -- MG9000 Manager - New MG9000 Card Support (UA-AAL1)

Functional Description

This activity supports the release of the following PECCODEs for ITP, ITX, ABI and SCO cards in the MG9000EM:

- Internet Telephony Processor (ITP): NTNY30CA (IP & AAL1 modes)
- Internet Telephony Extender (ITX): NTNY41BA
- Super Core OC3 (SCO): NTNY45CA
- Access Bridging Interface (ABI): NTNY43BA (IP & AAL1 modes)

The user interface for the ITP, ITX, SCO and ABI are not impacted by this feature.

The new VMG of type ABI-IP is added to the VMG provisioning creation. The areas for ‘Silence Suppression (VoIP)’ and ‘QoS Threshold (VoIP Only)’ will be un-gray for this new VMG type (same configuration rules as the current ITP-IP VMG type).

A new field ‘Bearer Address’ will be added in the GW Config pannel. This field will be editable for ABI-IP Vmg type and it will be gray out for all other VMG types but it will display the same IP address use in the CIPOA Address field.

The ‘CIPOA Address’ label will be renamed ‘Signalling Address’.

The OVLD alarm and logs format are used to report the failures of the ‘Stream Control Transmission Protocol’ (SCTP) reported by the ABI.

The MG9000 is reporting SCTP Operational measurementes via a OM collector interface (please refer to A00003767 ‘IP ABI PPVM ROBUSTNESS & MSG LOSS’ for more infromation on OM fields an data collected).

Hardware Requirements or Dependencies

This activity supports the following new card releases:

— Internet Telephony Processor (ITP): NTNY30CA (IP & AAL1 modes)

— Internet Telephony Extender (ITX): NTNY41BA

— Super Core OC3 (SCO): NTNY45CA

— Access Bridging Interface (ABI): NTNY43BA (IP & AAL1 modes)

Software Requirements or Dependencies

This activity is released in SN07 MG9000 Element manager and has the correspondent SN07 MG9000 gateway release features:

— A00004109: CALLP CHANGES TO SUPPORT NEW ITP

— A00003767: IP ABI PPVM ROBUSTNESS & MSG LOSS

— A00003729: IP ABI CALLP AND CONNECTIONS

Limitations and restrictions

The new release of ITP and ABI cards are ONLY supported in the SN07 or higher release for MG9000EM and MG9000.

Due to the change of MIBs the fields in the ‘Silence Suppression (VoIP Only)’ area: Voice *Activity Detection Mode* and *Confort Noise Generator Mode,* for upgrades to SN07 the values VAD and CNG in the MG9000EM will be downloaded to the GW after the NE audit has completed. Before the audit is executed the GW will have the defaults values.

Interactions

None

Applicable customer facing sections

Fault Management

Logs	___X__
Alarms	___X__

Configuration

Data Schema	_____
User Interface	_____
Element Management	___X__
Security	_____
Service Order	_____
Office Parameters	_____

Accounting (includes AMA billing)	_____
Performance (includes operational measurements)	_____

Fault Management for A00003571

Fault management strategy

This Feature adds three new alarms and three new logs that report failures of the ‘Stream Control Transmission Protocol’ (SCTP) in the ABI cards to the MG9000 element manager. The correspondent software is developed in the MG9000 and in the LCI.

Fault management tools and utilities

No additional tools are developed by this feature. The customer logs are generated by the element manager when the alarm notification is received from the MG9000 gateway.

Logs

Explanation

Title: External Packet Network Reliable Messaging Link(s) Failed
Name: OVLD
ID:808
Description: An external messaging link has closed and cannot send/receive message

Severity: Critical
Event type: Threshold

Format

*** OVLD808 Mar08 11:56:14 1052 THRESHOLD MG9K PM Fault
Location: 8-co8-Frame000.Shelf2.Slot4
Notification Id: 832
State:not acknowledged
Category: SCTP protocol Alarm
Cause: Equipment Malfunction
Time: Thu Jan 01 04:53:18 EST 1970
Component Id: Card.Frame0.Shelf2.slot4.ABI
Specifc Problem: SCTP message association closed
Description: SCTP message link has closed
Site Flr EPos bay_id
Cary 03 H03 MG9F 012

OVLD808 Mar08 11:56:14 1052 THRESHOLD MG9K PM Fault
Location: 8-co8-Frame000.Shelf2.Slot4
Notification Id: 832
State: Cleared
Category: SCTP protocol Alarm
Cause: Equipment Malfunction
Time: Thu Jan 01 04:53:18 EST 1970
Component Id: Card.Frame0.Shelf2.slot4.ABI
Specifc Problem: SCTP message association closed
Description: SCTP message link has closed
Site Flr EPos bay_id
Cary 03 H03 MG9F 012

Explanation

Title: External Packet Network Reliable Messaging Link(s) Severely Degraded
Name: OVLD
ID:809
Description: Message loss is high enough such that the message link is in a degraded service state. For ABI, this would mean that some calls are failing and perhaps maintenance actions are failing (e.g. static data download, etc.)
Severity: Major
Event type: Threshold

Format

** OVLD809 Mar08 11:56:14 1052 THRESHOLD MG9K PM Fault

Location: 8-co8-Frame000.Shelf2.Slot4
Notification Id: 830
State: not acknowledged
Category: SCTP protocol Alarm
Cause: Equipment Malfunction
Time: Thu Jan 01 04:53:18 EST 1970
Component Id: Card.Frame0.Shelf2.slot4.ABI
Specifc Problem: SCTP message loss threshold crossed
Description: SCTP Message Loss
Site Flr EPos bay_id
Cary 03 H03 MG9F 012

OVLD809 Mar08 11:56:14 1052 THRESHOLD MG9K PM Fault
Location: 8-co8-Frame000.Shelf2.Slot4
Notification Id: 830
State: Cleared
Category: SCTP protocol Alarm
Cause: Equipment Malfunction
Time: Thu Jan 01 04:53:18 EST 1970
Component Id: Card.Frame0.Shelf2.slot4.ABI
Specifc Problem: SCTP message loss threshold crossed
Description: SCTP Message Loss
Site Flr EPos bay_id
Cary 03 H03 MG9F 012

Explanation

Title: External Packet Network Reliable Messaging Link(s) Degraded Degraded
Name: OVLD
ID:810
Description: Message retransmissions are high enough that system is starting to see performance degradation. Potentially, this could mean increased latency, reduced messaging through the system, buffer overflows and perhaps heading toward congestion.
Severity: Minor
Event type: Threshold

Format

* OVLD810 Mar08 11:56:14 1052 THRESHOLD MG9K PM Fault
Location: 8-co8-Frame000.Shelf2.Slot4
Notification Id: 834
State: not acknowledged
Category: SCTP protocol Alarm
Cause: Equipment Malfunction
Time: Thu Jan 01 04:53:18 EST 1970

Component Id: Card.Frame0.Shelf2.slot4.ABI
Specifc Problem: SCTP retransmission messages crossed threshold.
Description: SCTP retransmission messages too high.
Site Flr EPos bay_id
Cary 03 H03 MG9F 012

OVLD810 Mar08 11:56:14 1052 THRESHOLD MG9K PM Fault
Location: 8-co8-Frame000.Shelf2.Slot4
Notification Id: 834
State: Cleared
Category: SCTP protocol Alarm
Cause: Equipment Malfunction
Time: Thu Jan 01 04:53:18 EST 1970
Component Id: Card.Frame0.Shelf2.slot4.ABI
Specifc Problem: SCTP retransmission messages crossed threshold.
Description: SCTP retransmission messages too high.
Site Flr EPos bay_id
Cary 03 H03 MG9F 012

Field descriptions

For All three alarms.

Field descriptions

Field	Value	Description
event type	INFO,TBL, etc...	Describes event type
event id	string	Name of the log
Location	NE Number-NE Name-Physical Location	Gives the complete location of the orig
Notification Id	number	Alarm Id
State	string	Indicates state of alarm. Can be one of {not acknowledged, acknowledged, cleared}
Category	string	Indicates type of fault. In this case it will be “NorNodeFault”
Cause	string	Cause of failure: In this case it will be “Equipment Malfunction”
Time	string	Date/Time indicating when the condition occurred

Field descriptions

Component Id	string	Indicates the type of equipment having the fault.
Specific Problem	String	String indicating the specific problem that caused the fault
Description	string	Provides specific text for the fault (as provided by the MG)

Action

TBD.

Associated Operational Measurements or Performance Measurements

none

Additional information

none

Alarms

- "External Packet Network Reliable Messaging Link(s) Failed" - critical
  - General conditions: an external messaging link has closed and cannot send/receive message
  - SCTP triggers: reflected by the abnormal closing of an SCTP association (ABORT)
  - This alarm will be reported by OVLD 808 and log OVLD 808
- "External Packet Network Reliable Messaging Link(s) Severely Degraded" - major
  - General conditions: message loss is high enough such that the message link is in a degraded service state. For ABI, this would mean that some calls are failing and perhaps maintenance action are failing (e.g. static data download, etc).
  - SCTP triggers: reflected by message loss over the predetermined message loss threshold.
  - This alarm will be reported by OVLD 809 and log OVLD 809
- "External Packet Network Reliable Messaging Link(s) Degraded" - minor
  - General conditions: message retransmissions are high enough that system is starting to see performance degradation. Potentially, this could mean increased latency, reduced messaging through the system, buffer overflows and perhaps heading toward congestion.
  - SCTP triggers: reflected by message retransmission over the predetermined message retransmission threshold.

— This alarm will be reported by OVLD 810 and log OVLD 810.

OVLD alarms for SCTP failures

Alarm ID	Alarm Description
OVLD 808	External Packet Network Reliable Messaging Link(s) Failed
OVLD 809	External Packet Network Reliable Messaging Link(s) Severely Degraded
OVLD 810	External Packet Network Reliable Messaging Link(s) Degraded

Related documentation

N/A

Product = MG 9000

A00003591--MG9000 OC3 Channelization support from EM (UA-AAL1)

Functional Description

This feature enables the user to view and modify (only the administrative and configuration status can be modified) the channelized carrier (OC3) configuration . This document discusses the changes in EM for this feature from the user perspective.

Hardware Requirements or Dependencies

No new requirements. This product runs on the same hardware as the existing MG9k Element Manager application.

Software Requirements or Dependencies

No new requirements. This activity is packaged with the existing MG9k EM software application.

This feature will be shipped as part of the SN07 stream for the MG9k EM.

Limitations and restrictions

None

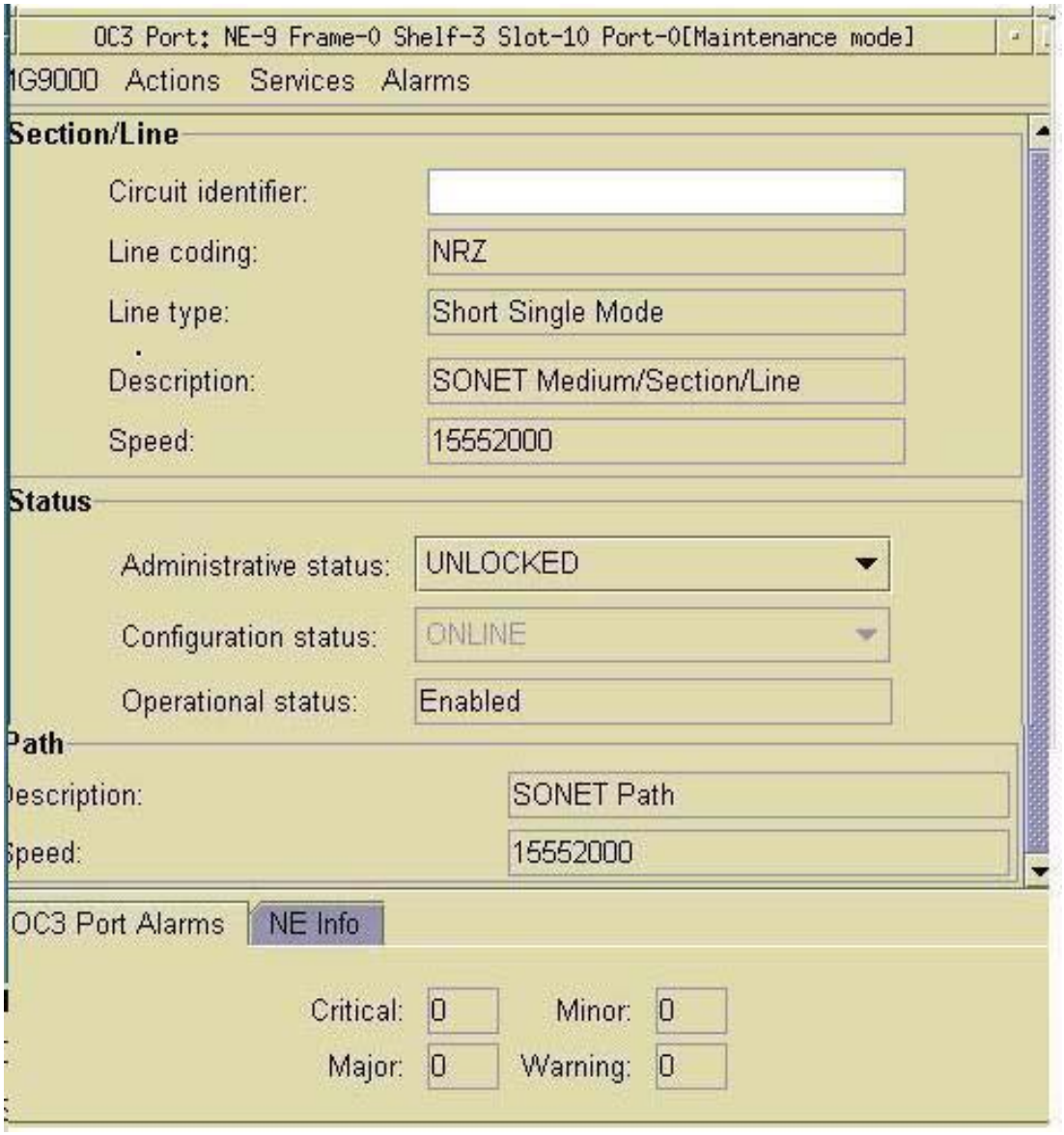
Interactions

This feature introduces new screens and modifications to the existing GUI.

Carrier configuration Display

The screen remains unchanged for concatenated sonet and SDH carrier. The following figure shows the carrier configuration details for the concatenated sonet carrier.

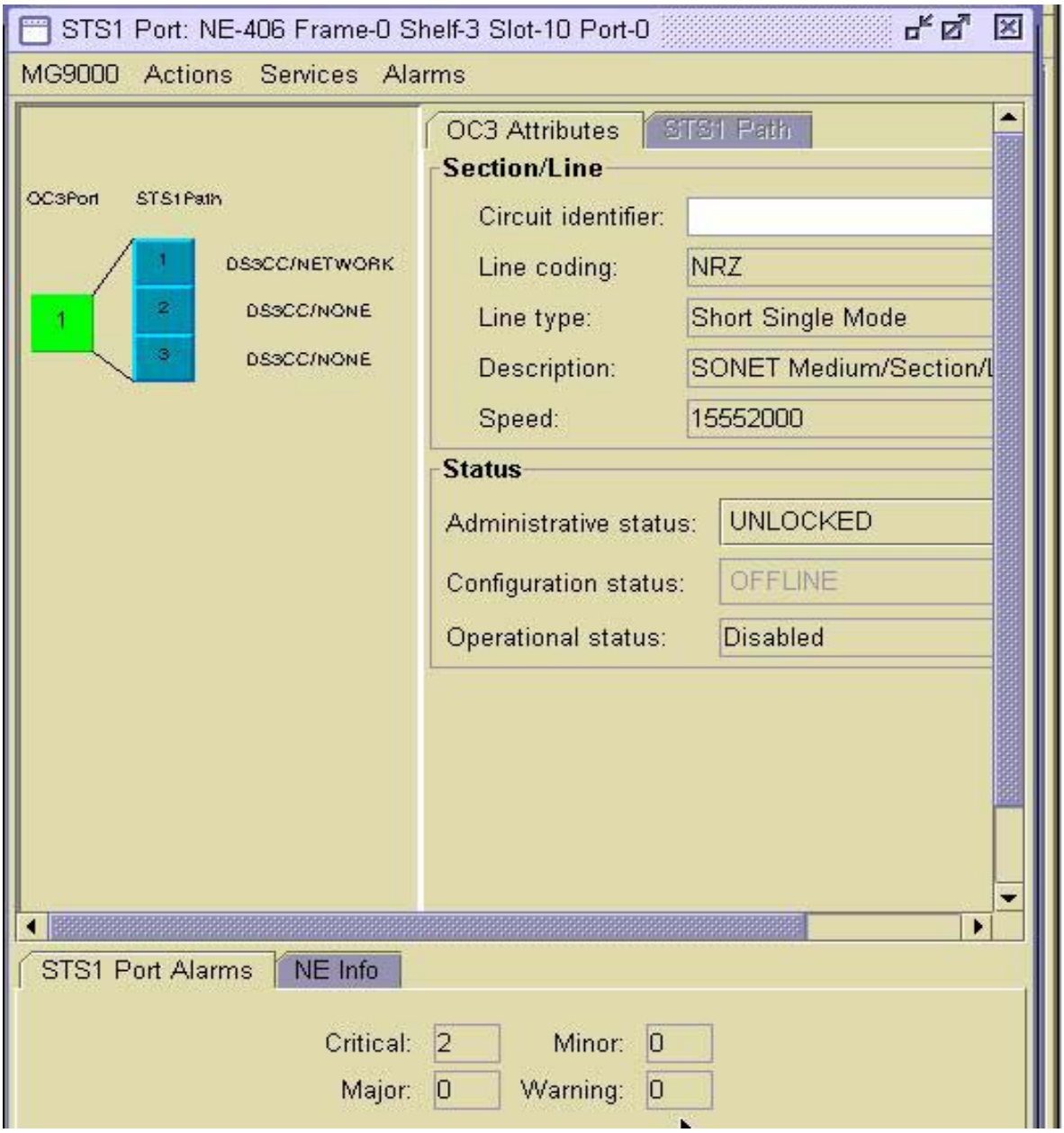
OC3c Carrier details



If the carrier is in ‘channelized mode’, clicking on the OC3 Port icon in the OC3 card view will display the screen as shown in the following figure. This new screen shows totally three icons for STS1 path details. By default OC3

section/Line description/status is displayed in a tab as shown in the following figure. Double clicking on the STS1 path will display STS1 path information and its status as shown in "STS1 path description and status" on page 1550. The user will be able to lock/unlock and online/offline the OC3 section/Line and all the 3 STS1 paths individually.

Section/Line Configuration details for channelized carrier



The label next to the STS1 paths help the user to identify the network carrier and the payload on the paths. The payloads can be STS1, DS3CC and

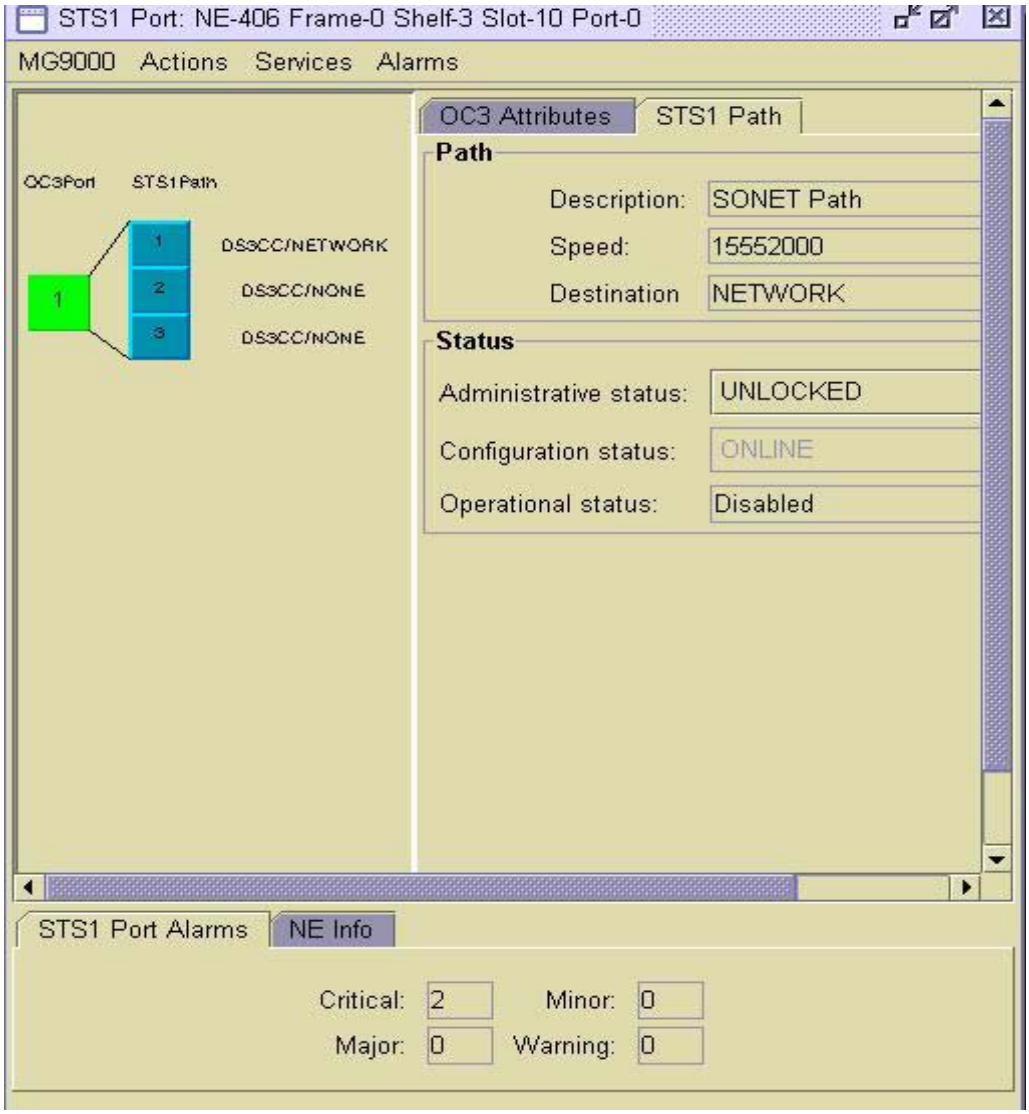
DS3PLCP. If the payload is DS3PLCP, f or network carrier the label would be DS3PLCP/NETWORK and for inactive carrier it would be DS3PLCP/NONE.

The OC3 Section/Line can be locked only after locking all the 3 STS1 paths.When the user tries to lock OC3Section/Line, a warning message “The Network Path should be locked before locking OC3 Section/Line. Are you sure the network path is locked?” will be popped up to the user. If the network path is not locked, the user can cancel OC3Section/Line lock request and lock the network path, then attempt locking OC3Section/Line

For unlocking Network Carrier, the OC3 Section/Line should be unlocked first. When the user tries to unlock the network path, a warning message ”The OC3Section/Line should be unlocked before unlocking the network path. Are you sure the OC3Section/Line is unlocked?” will be displayed to the user. If the OC3Section/Line is not unlocked, the user can cancel network path unlock request and unlock theOC3Section/Line, then attempt unlocking network path

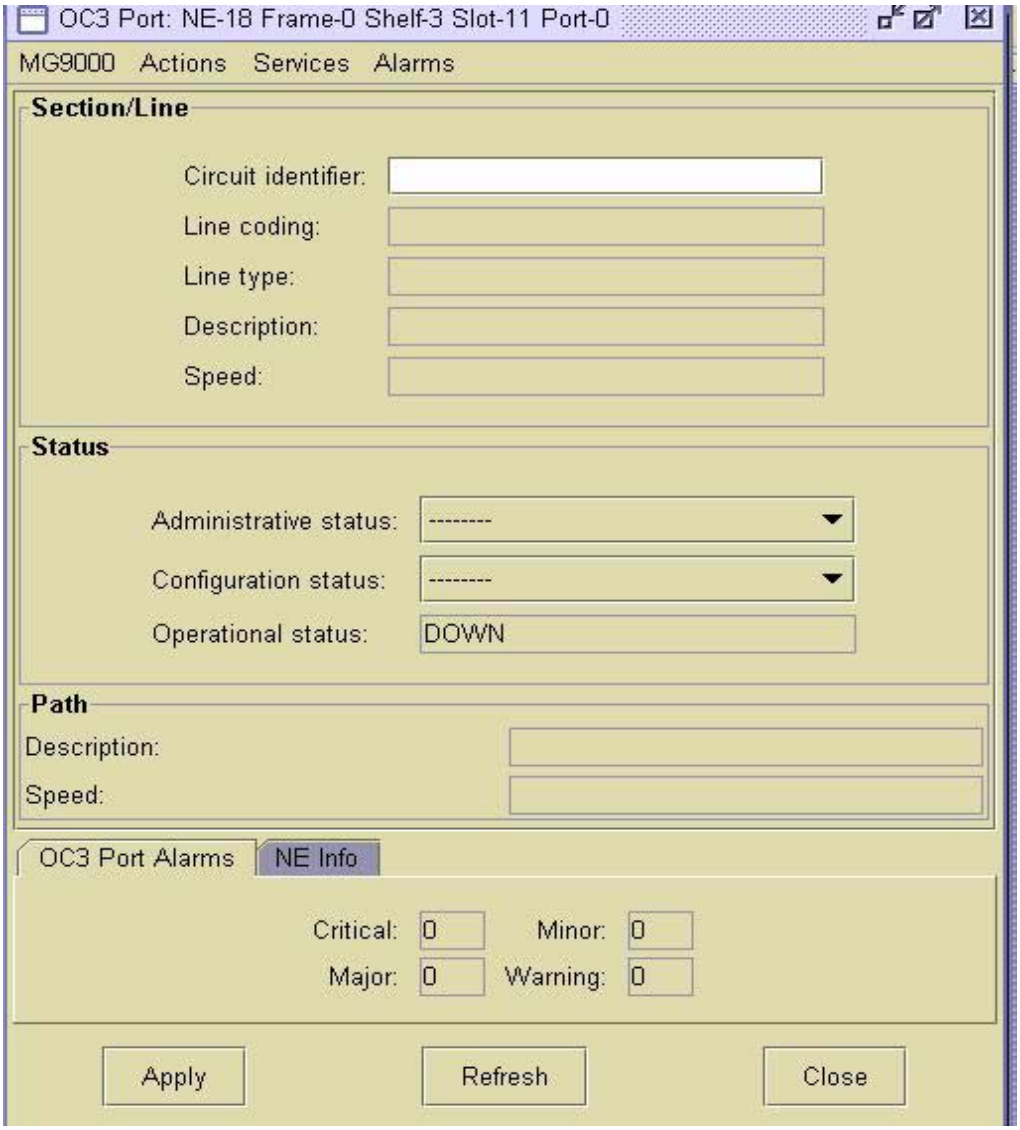
A non-network carrier can not be unlocked.

STS1 path description and status



The following figure shows the default screen if the carrier is not provisioned.

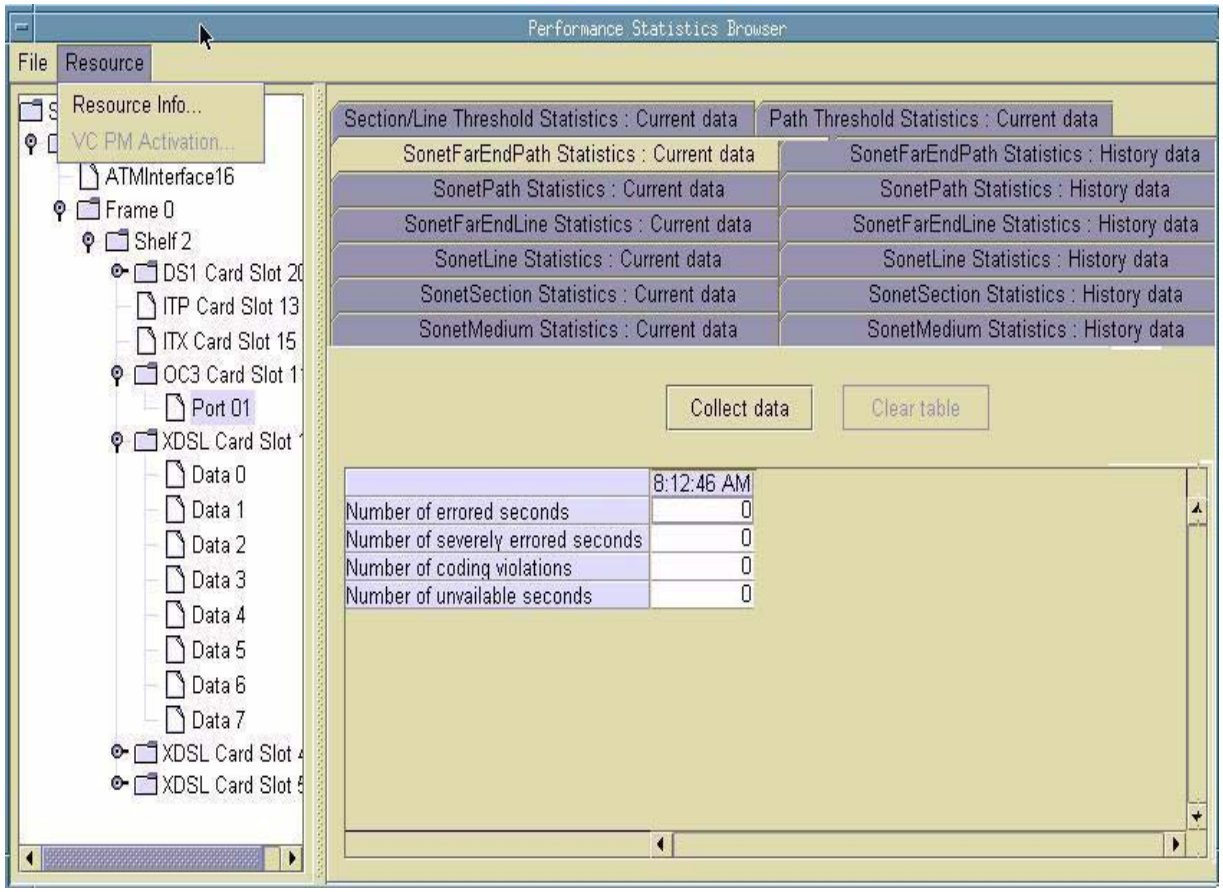
Default screen if the carrier is not provisioned



Performance Parameters

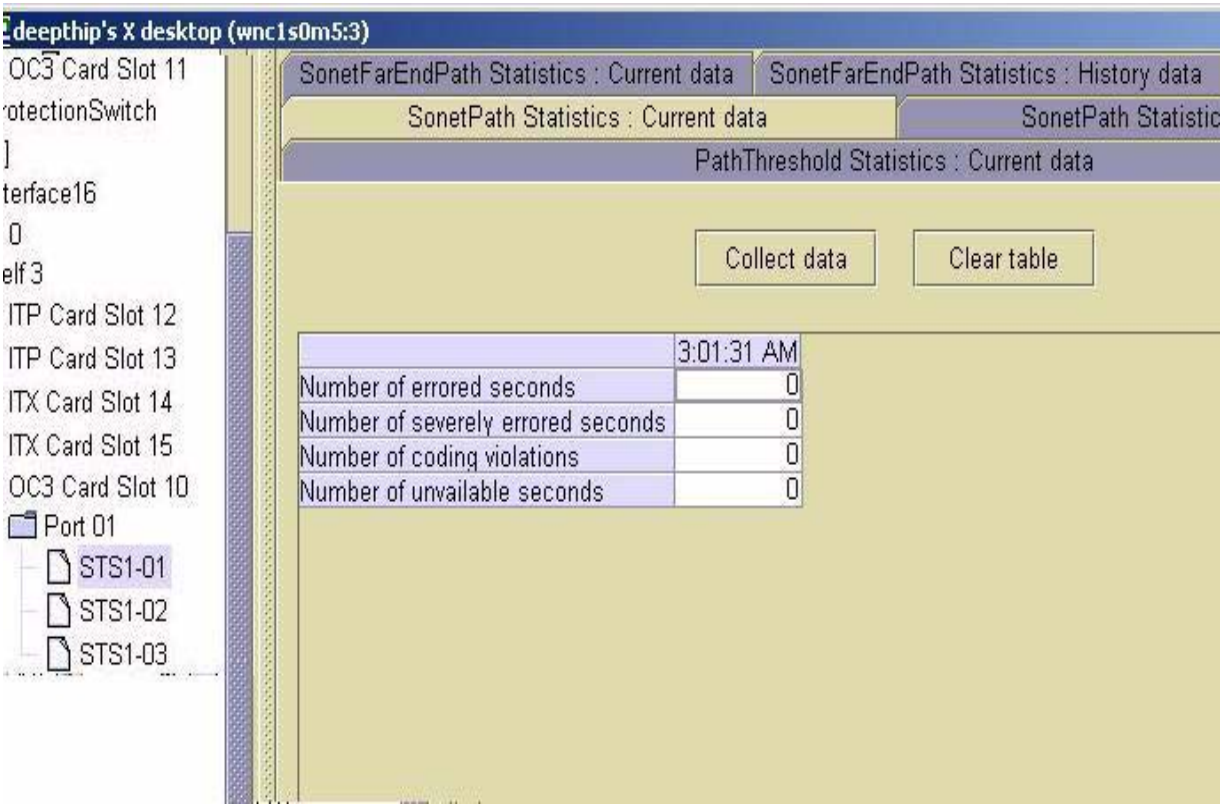
If the carrier is configured in concatenated mode (Sonet or SDH), there is no change in the performance parameter screen.

OC3 section/Line , STS3 path peformance parameters



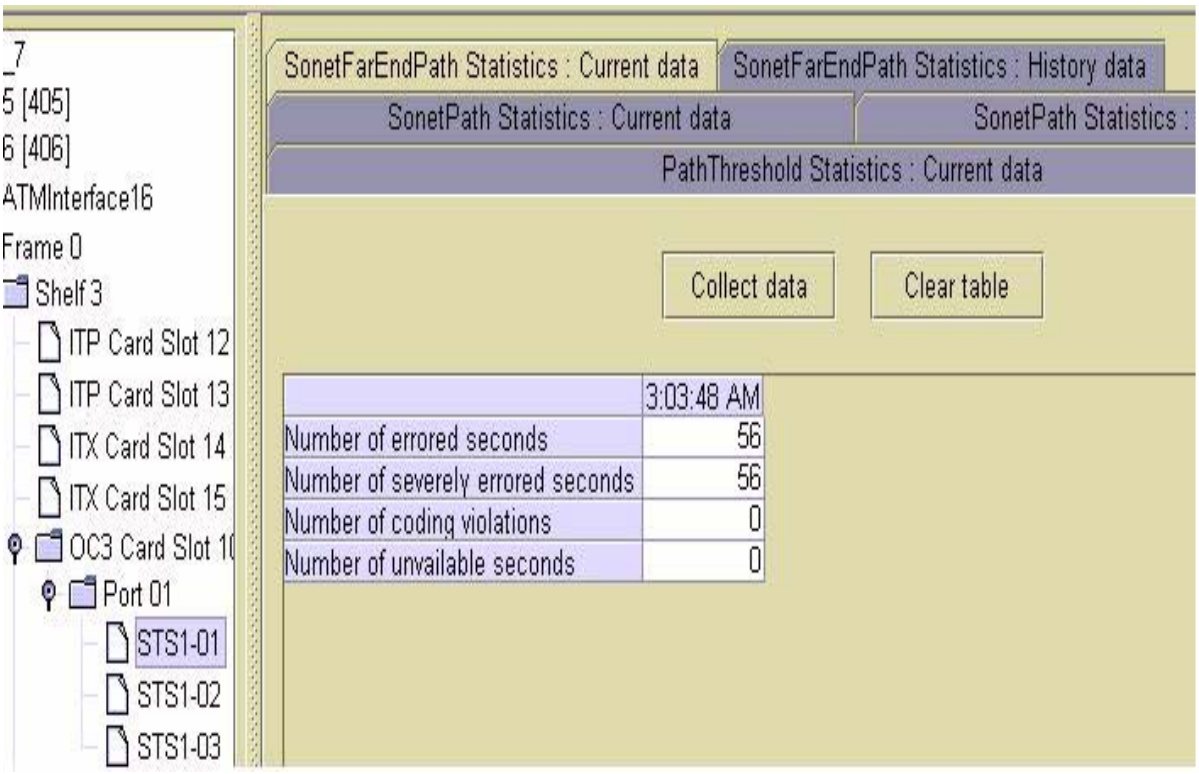
If the carrier is in channelized mode, clicking on OC3 port will display OC3 section/Line information. Three STS1 subnodes will be displayed below Port for STS1 information. Clicking on each of STS1 will display its path performance details. DS3 path performance parameters will be displayed if DS3 is payload is supported on STS1.If the payload is STS1 the nodes label will be STS1-0x and if DS3 payload is selected on the STS1 path the nodes label will be STS1-DS3-0x. Refer to the following figure.

STS1 Path performance parameter



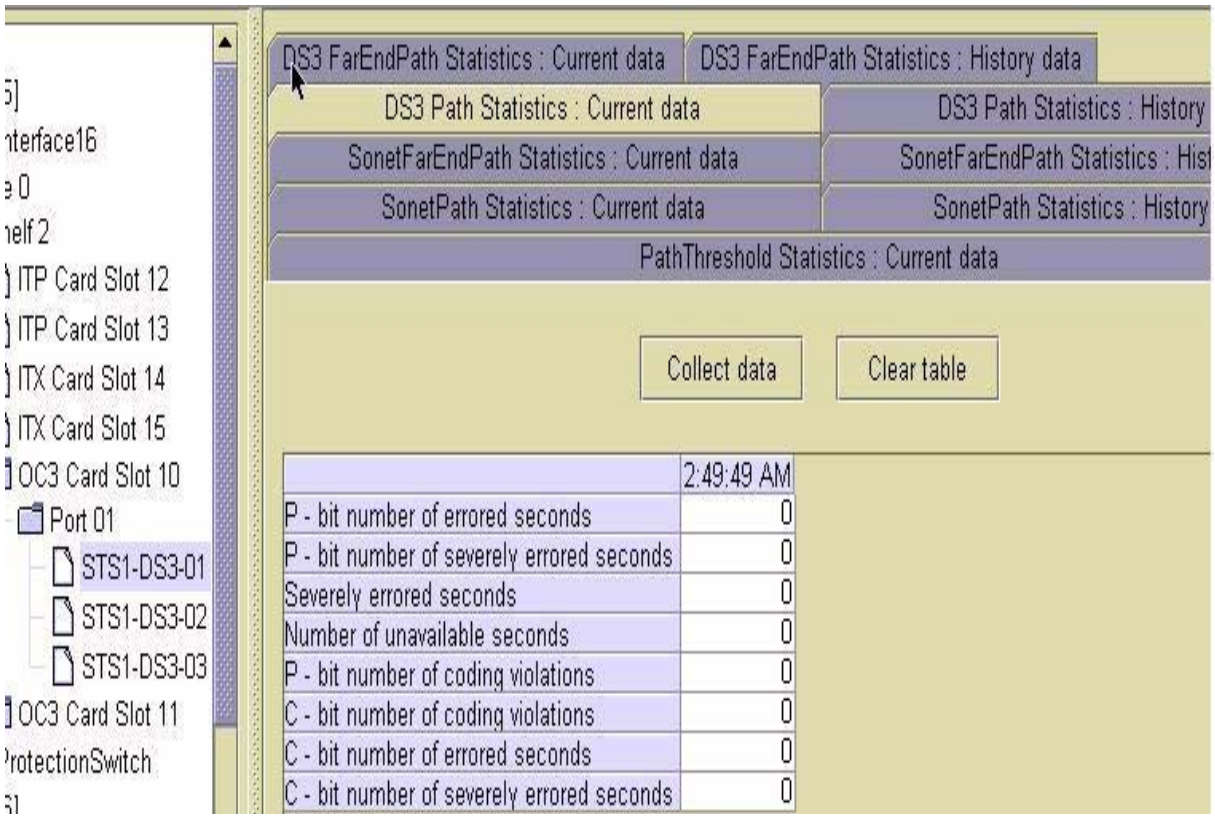
The following figure shows STS1 FarEndPath Statistics.

STS1 FarEndPath Statistics



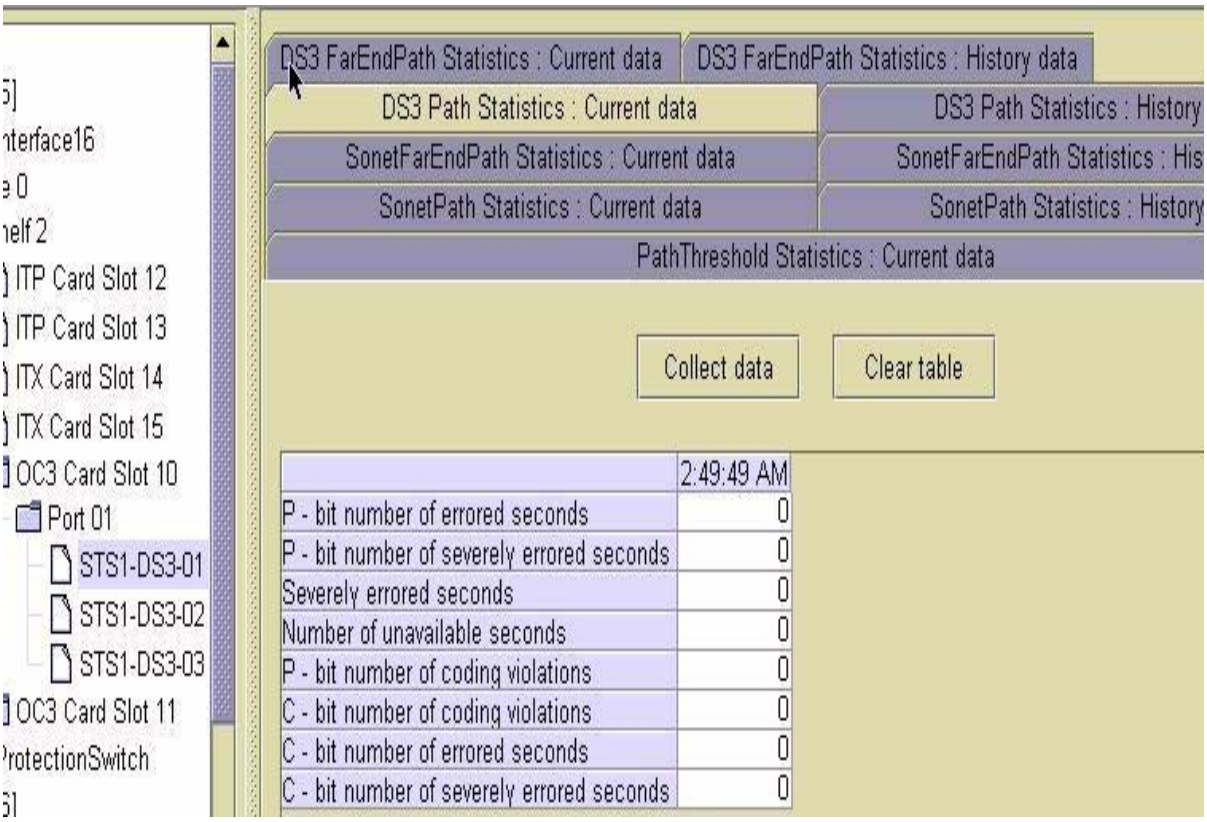
The following figure shows DS3 Path Performance parameters.

DS3 Path Performance parameters



The following figure shows DS3 FarEndPath performance parameters.

DS3 FarEndPath performance parameters



STS1 and DS3 alarms

From the user perspective, the alarm display will not change.The alarms will be raised for both STS1 path and DS3 payload.Now the STS1 path and DS3 alarms will be included in the OC3 port alarm count.The DS3 alarms to expect at EM will be LOF, RAI and AIS. The alarm description will let the user know whether the alarm belongs to DS3 or STS1.

The following figure shows DS3 Alarm information

DS3 Alarm information

Upgrade and Downgrade

The user should not try downgrading the MG9K when the carrier is channelized The MG9K in SN07 has new hardware to support channelization, so SN06.2 and below load should not be used on this MG9k. If a SN06.2 MG9K has to be upgraded to SN07, it should have the new hardware.

Error scenarios

The SNMP set errors will be handled.

Glossary

STS1	Synchronous Transport Signal Level 1
STS3	Synchronous Transport Signal Level 3
EM	Element Manager
DS3	Digital Signal Type 3
OC3c	Concatenated carrier

OC3	Channelized carrier.
LOF	Loss Of Frame
RAI	Remote Alarm Indication
AIS	Alarm Indication Signal

Applicable customer facing sections

Fault Management	
Logs	__X__
Alarms	__X____
Configuration	
Data Schema	__X___
User Interface	__X___
Element Management	__X___
Security	_____
Service Order	_____
Office Parameters	_____
Accounting (includes AMA billing)	_____
Performance (includes operational measurements)	___X__

Fault Management for A00003591

Fault management strategy

The standard MG9K EM Fault Management strategy will apply to the new faults raised by this feature. Alarms will be displayed by the MG9K EM Alarm Browser, logged in NT standard format to the SSPFS CUST logs and forwarded to northbound OSS.

For the “A00003591 - OC3 Channelization ” feature there will be new faults added when the payload selected DS3

Fault management tools and utilities

Alarm Browser - Reports alarms from registered events. When an alarm is generated, it is displayed in the Alarm Browser along with the date and time, the NE Id, the resource (where the alarm was generated), the severity and probable cause. Highlighting the alarm displays the description of the alarm in the text box at the bottom of the Alarm Browser.

Log Adaptor - Generates logs from registered events. The log names and numbers are predetermined and are matched with the incoming event. A log with the corresponding name and number which contains the date, time, physical location, severity and any other pertinent information is generated and placed into a separate file.

The DS3 alarms will be displayed here.

Faults, Alarms and Logs

There will be new faults generated and cleared by MG9000 when the carrier is channelized and payload selected on the STS1 path is DS3CC or DS3PLCP.

The alarms that can be generated for DS3 will be AIS, LOF and RAI. These faults will be generated when there is a Loss of Frame or some problem at the remote end.

Alarms

Explanation

AlarmIndicationSignal

Title: AlarmIndicationSignal

Name: ds3ais

Description: This log is generated when a AlarmIndicationSignal fault is received from the Gateway.

LossOfFrame

Title: Loss Of Frame

Name: ds3lof

Description: This log is generated when a LossOfFrame fault is received from the Gateway.

RemoteAlarmIndication

Title: RemoteAlarmIndication

Name: ds3rai

Description: This log is generated when a RemoteAlarmIndication fault is received from the Gateway.

Format

The Log Delivery application for this feature generates logs in the Number 2 Switch Control Center (SCC2) format and the NT standard (STD) format explained in the PLOA_SLOA_LOG_ALARMS DID.

STD Format

- **AlarmIndicationSignal**

  MGCA333 MAR08 06:14:43 3409 TBL MG9K NorCarrFault
  Location: 406-c406-FrameFFF.Shelf3.Slot10.Port00.Channel01
  Notification Id: 294
  State: not acknowledged
  Category: Communication Alarm
  Cause: Communications Subsystem Failure
  Time: Jan 01 05:39:05 1970
  Component Id: Port.frame0.shelf3.slot10.OC3.oc3.sts1path1
  Specific Problem: NorCarrFault - DS3 - Alarm Indication Signal - Check f
  ar-end carrier faults
  Description: (DS3) DS3 AIS
  Site Flr RPos Bay_id
  FFFF FF FFFF MG9F FFF

- **LossOfFrame**

  MGCA334 MAR08 06:12:43 8306 TBL MG9K NorCarrFault
  Location: 406-c406-FrameFFF.Shelf3.Slot10.Port00.Channel01
  Notification Id: 292
  State: not acknowledged
  Category: Communication Alarm
  Cause: Loss Of Frame
  Time: Jan 01 05:37:08 1970
  Component Id: Port.frame0.shelf3.slot10.OC3.oc3.sts1path1
  Specific Problem: NorCarrFault - DS3 - Loss Of Frame
  Description: (DS3) DS3 LOF
  Site Flr RPos Bay_id
  FFFF FF FFFF MG9F FFF

- **RemoteAlarmIndication**

  MGCA335 MAR08 06:18:43 1111 TBL MG9K NorCarrFault
  Location: 406-c406-FrameFFF.Shelf3.Slot10.Port00.Channel01
  Notification Id: 296
  State: not acknowledged
  Category: Communication Alarm
  Cause: Communications Subsystem Failure
  Time: Jan 01 05:43:02 1970
  Component Id: Port.frame0.shelf3.slot10.OC3.oc3.sts1path1
  Specific Problem: NorCarrFault - DS3 - Remote Indication Signal - Check
  far-end carrier faults

Description: (DS3) DS3 RAI
Site Flr RPos Bay_id
FFFF FF FFFF MG9F FFF

SCC2 Format

- **AlarmIndicationSignal**
  MGCA333 5915 TBL MG9K NorCarrFault
  Location: 406-c406-FrameFFF.Shelf3.Slot10.Port00.Channel01
  Notification Id: 300
  State: not acknowledged
  Category: Communication Alarm
  Cause: Communications Subsystem Failure
  Time: Jan 01 05:54:38 1970
  Component Id: Port.frame0.shelf3.slot10.OC3.oc3.sts1path1
  Specific Problem: NorCarrFault - DS3 - Alarm Indication Signal - Check far-end carrier faults
  Description: (DS3) DS3 AIS
  Site Flr RPos Bay_id
  FFFF FF FFFF MG9F FFF

- **LossOfFrame**
  MGCA334 5013 TBL MG9K NorCarrFault
  Location: 406-c406-FrameFFF.Shelf3.Slot10.Port00.Channel01
  Notification Id: 298
  State: not acknowledged
  Category: Communication Alarm
  Cause: Loss Of Frame
  Time: Jan 01 05:53:23 1970
  Component Id: Port.frame0.shelf3.slot10.OC3.oc3.sts1path1
  Specific Problem: NorCarrFault - DS3 - Loss Of Frame
  Description: (DS3) DS3 LOF
  Site Flr RPos Bay_id
  FFFF FF FFFF MG9F FFF

- **RemoteAlarmIndication**
  MGCA335 6016 TBL MG9K NorCarrFault
  Location: 406-c406-FrameFFF.Shelf3.Slot10.Port00.Channel01
  Notification Id: 301
  State: not acknowledged
  Category: Communication Alarm
  Cause: Communications Subsystem Failure
  Time: Jan 01 05:54:53 1970
  Component Id: Port.frame0.shelf3.slot10.OC3.oc3.sts1path1
  Specific Problem: NorCarrFault - DS3 - Remote Indication Signal - Check far-end carrier faults
  Description: (DS3) DS3 RAI
  Site Flr RPos Bay_id

FFFF FF FFFF MG9F FFF

Action

AlarmIndicationSignal

This alarm will be cleared when an AlarmIndicationSignal with faultdefinition - clear is received.

LossOfFrame

This alarm will be cleared when an AlarmIndicationSignal with faultdefinition - clear is received..

RemoteAlarmIndication

This alarm will be cleared when an RemoteAlarmIndication with faultdefinition - clear is received..

Associated Operational Measurements or Performance Measurements

None.

Configuration for A00003591

Hardware and Software Requirements

NA

Initial Configuration

NA

Office/Subnet parameters (OP/SP) (CM & SESM)

NA

Upgrade Impact

NA

Data schema (DS) (CM, MIBS, RDB)

New/modified tables, MIBs, or Database Schema

This feature uses new MIBs - channelized carrier configuraton details introduced by a Gateway feature A00003604

Service Orders (SO) (CM & SESM)

NA

Software optionality control (SOC)

NA

Element Management

The Element manager will display channelization carrier configuration details from SN07 release.

New/modified GUIs

GUI name	NEW, CHANGED, or DELETED
OC3STS1PortView	New
Performance browser	changed

GUI information

GUI name: Carrier configuration display

OC3STS1PortView

Functional description

If the carrier is channelized, the port view will display OC3 Section/Line and three STS1 path information. When the user clicks on the OC3 port on the OC3CardView, if the carrier is channelized, three ilog graphics will be displayed on the graphical panel in the portview for STS1 path information. The OC3Section/Line information is displayed by default in a tab. Double clicking on the ilogs will display STS1 path information in a separate tab.

The OC3 Section/Line details is unchanged for channelized carrier details. The STS1 path information displayed will be Circuit identifier, Description, speed, NETWORK field and status of the STS1 path. The status includes administrative, operational and configuration status. The user can lock/unlock or online/offline the OC3 Section/Line and three STS1 path separately. To lock OC3 Section/Line, all the three STS1 paths should be locked first. To unlock nertwork carrier the OC3 Section/Line should be unlocked. In the release SN07 traffic will be sent on only one STS1 path and that path is the network carrier. The STS1 path description will mention DS3 payload if the DS3 is opted on the STS1. For the network carrier, the destination will be NETWORK. For other STS1 paths the destination will be NONE. The STS1 path label will mention if DS3(plcp or clearchannel) payload is supported on STS1.

The carrier can be changed from OC3c to OC3 and viceversa dynamically from LCI. But a coldstart has to be sent to EM from Gateway after changing the carrier to EM know that the carrier has been modified

GUI size

New or modified GUIs

Abbreviated GUI name	Minimum instances	Maximum instances	Information on memory
channelized OC3 carrier	3	3 per MG9000	NA

GUI fields

N/A

GUI release history update

None

Supplementary information

The carrier can be provisioned (concatenated/channelized) from LCI. The EM will display the carrier details. The EM user will be able to change only the administrative(lock/unlock) and configuration state. The user will not be able to provision the carrier from EM.

CLUI Interface

NA

Performance parameters for channelized carrier

GUI name: channelized carrier performance parameter

Performance browser

Functional Description

If the carrier is in channelized mode, the performance browser will display the OC3 Section/Line, STS1 path performance parameters and DS3 path information(if DS3 payload is selected). The information remains unchanged for OC3c.

In the performance browser, if the carrier is channelized, clicking on OC3 port will just display OC3 Section/Line performance parameters. Three nodes will be displayed under OC3 port for 3 STS1 paths information.Clicking on each of STS1 path will display STS1 path and DS3 performance parameters statistics. If DS3 payload is selected on the STS1 paths, the DS3 performance parameters will be displayed.

New Alarms

The STS1 and DS3 alarms will be handled at EM. The new alarms will be

LOP, UNEQ, PLM, AIS and RDI for STS1 and LOF, RAI and AIS for DS3.

Upgrade and Downgrade

To support channelization in SN07, the DCC card uses new hardware. So, SN06.2 and below, GW load should not be loaded on this card. A SN06.2 MG9K should have new hardware to be loaded with SN07 load.

Command interface changes

NA

Security

NA

Configuration Walkthrough

NA

Product = MG 9000

A00003737--LCI Remote Access, Enhancements and MG9000 Security (UA-AAL1)

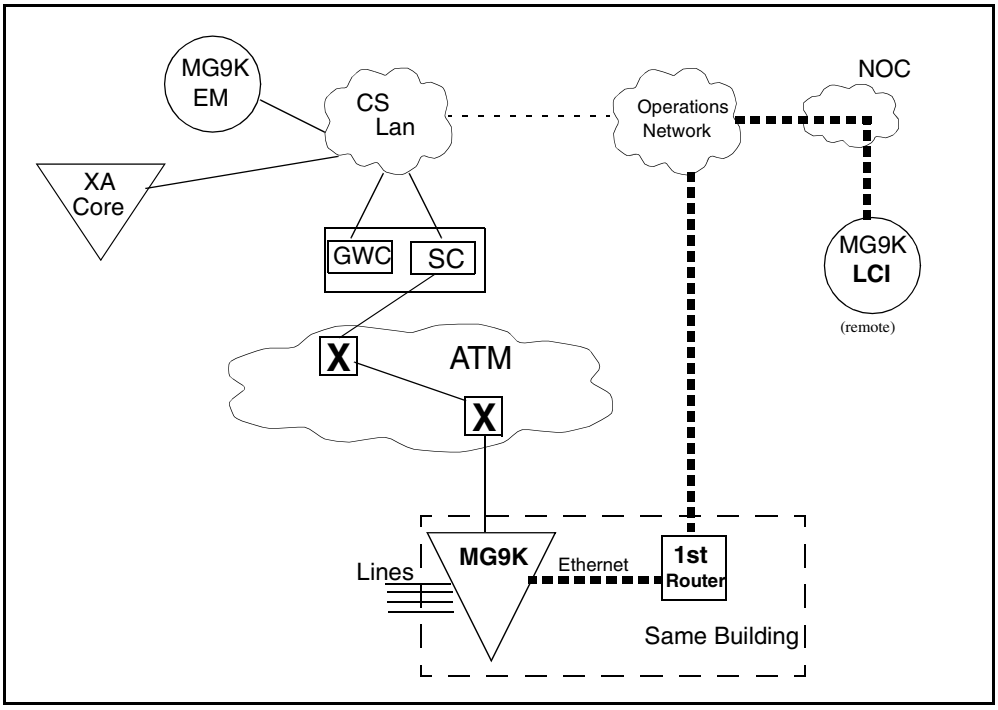
Functional Description

Feature A00003737 supplys the MG9K customer with a means for querying the ESA state and the SNMP alarm log history for a node that has lost Element Manager connectivity. The Element Manager remains as the master interface for maintaining the MG9000, with this newly added backup functionality being made available from the Local Craft Interface.

The customer requested remote access to the MG9000 LCI. Feature A00003737 provides this new functionality by allowing the ethernet addresses on the DCC cards to be provisionable. Thus, if they choose to support remote access, integrating the newly assigned address into their operations network.

As a result of adding remote access, interfaces (FTP, Telnet, Web Access) into the MG9k need to be secured using the Secure Sockets Layer.

The diagram below provides a simplified overview highlighting the location of the MG9k and its access points (atm/ethernet) within the Succession network.



Hardware Requirements or Dependencies

NA

Software Requirements or Dependencies

FTP, used for collecting Operational Measurement files and pushing down provisioning data for configuring ESA, has been replaced with Secure Shell FTP (SSH FTP). Any FTP requests into the MG9K will be required to use a Secure FTP client that supports the behavior as described by the IETF document “SSH File Transfer Protocol.”

Currently the webserver running on the controller cards (DCC), uses HTTP (not secure) for the trasmission of web content between the MG and a web client. Instead of HTTP, HTTPS will be used. This is the secure and encrypted transmission of the web content between the user’s client and the webserver (DCC). The Local Craft Interface will use this protocol for all of it’s actions (commissioning, debug, password maintenance, dual homing management, ESA status’). All MG9K supported web browsers already include support for HTTPS - no customer change required.

FOR GNPS (support) ONLY:

Remote Telnet access has been disabled as a result of the Security portion of this feature. Instead, support groups are to use a Secure Shell client for

accessing Dsh. SSH works (from a users stand point) just like telnet. Run the SSH client command at the prompt on a computer that is connected to the same network as the node you are trying to access. All client-server communication is encrypted. Previously telnet allowed anonymous user access; SSH requires userid and password authentication. This is either the default password all MG9000 loads are shipped with, or a customer provisioned password. Once a user has ssh'd into the DCC card, they can telnet internally just as before. Also, SSH clients automatically try to connect to port 22 (default ssh port). The MG9K ssh server is running on port 24. This must be specified by the user of the client. Example (using openSSH client): ssh -l admin -p 24 47.1.1.1

Here we are attempting to ssh to "47.1.1.1" to port 24 as user "admin".

Limitations and restrictions

No new limitations/restrictions other than the secure client usage mentioned throughout the document.

Interactions

In previous releases, FTP and LCI communication was not secure. Now, using SSL, these data transmissions are secured. Regardless, the customer interface's look and feel remain unchanged. Required additional user-machine interactions are described in the subsequent sections.

Applicable customer facing sections

Fault Management

Logs	___NA___
Alarms	___NA__

Configuration

Data Schema	___NA___
User Interface	___NA___
Element Management	___X___
Security	___X___
Service Order	___NA___
Office Parameters	___NA___

Accounting (includes AMA billing)	__NA____
Performance (includes operational measurements)	__NA____

Glossary

Term	Description
SSL	Secure Socket Layer
HTTPS	Hypertext Transfer Protocol Secured
SSH	Secure Shell -an open protocol for securing network communications
SSH FTP	SSH File Transfer protocol - secured file transfers

Configuration for A00003737

Hardware and Software Requirements

Any FTP requests into the MG9K will be required to use a Secure FTP client that supports the behavior as described by the IETF document “SSH File Transfer Protocol.”

Initial Configuration

Ethernet

As part of the MG9000 initial commission steps, the user connects (ethernet) a laptop to the face plate (10.0.0.1) and will navigate via the LCI to the DCC card in which they wish to provision ethernet data. After selecting the specific card, the user will choose the “Provision Ethernet” item off the menu. Once the screen is displayed, any existing, if previously provisioned, data will be presented to the user. Otherwise, the desired IP address, subnet mask and default gateway may be entered and submitted.

Security

For all the newly secured interfaces (FTP, LCI, Ethernet), in order for secure communication to commense, a key (used for encrypting and decrypting data) exchange needs to occur. The user will be prompted with an inquiry of whether they accept the keys that were offered from the MG9k. These are accepted by simply entering “yes” or “no” at any of the various application client’s prompt.

ESA

In order to be able to query the ESA status of a node via the LCI, VMGs need to have been previously provisioned at the Element Manager.

Office/Subnet parameters (OP/SP) (CM & SESM)

NA

Upgrade Considerations

None

Data schema (DS) (CM, MIBS, RDB)

New/modified tables, MIBs, or Database Schema

The following MIB data has been added for Ethernet address retrieval via SNMP, however it is currently unused.

```
NorNodeDirectIpEntry ::= SEQUENCE
{
norNodeDirectIpAddress IpAddress, -- rw
norNodeDirectIpSubnetMask IpAddress, -- rw
norNodeDirectIpDefGateway IpAddress, -- rw
}
norNodeDirectIpAddress OBJECT-TYPE
SYNTAX IpAddress
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"The actual direct IP address of the card."
::= { norNodeDirectIpEntry 1 }

norNodeDirectIpSubnetMask OBJECT-TYPE
SYNTAX IpAddress
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"The actual direct IP address of the card."
::= { norNodeDirectIpEntry 1 }

norNodeDirectDefGateway OBJECT-TYPE
SYNTAX IpAddress
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"The actual direct IP address of the card."
::= { norNodeDirectIpEntry 1 }
```

Service Orders (SO) (CM & SESM)

NA

Software optionality control (SOC)

NA

Element Management

LCI

Ethernet Provisioning screen (screen shot)

ESA Query Tool screen (screen shot)

SNMP Alarm Log screen (screen shot)

Password Provisioning screen (screen shot)

New/modified GUIs

GUI name	NEW, CHANGED, or DELETED
ESA Query Tool (LCI)	New
Ethernet Provisioning (LCI)	New
SNMP Alarm Log (LCI)	New
Password Change (LCI)	New

GUI information

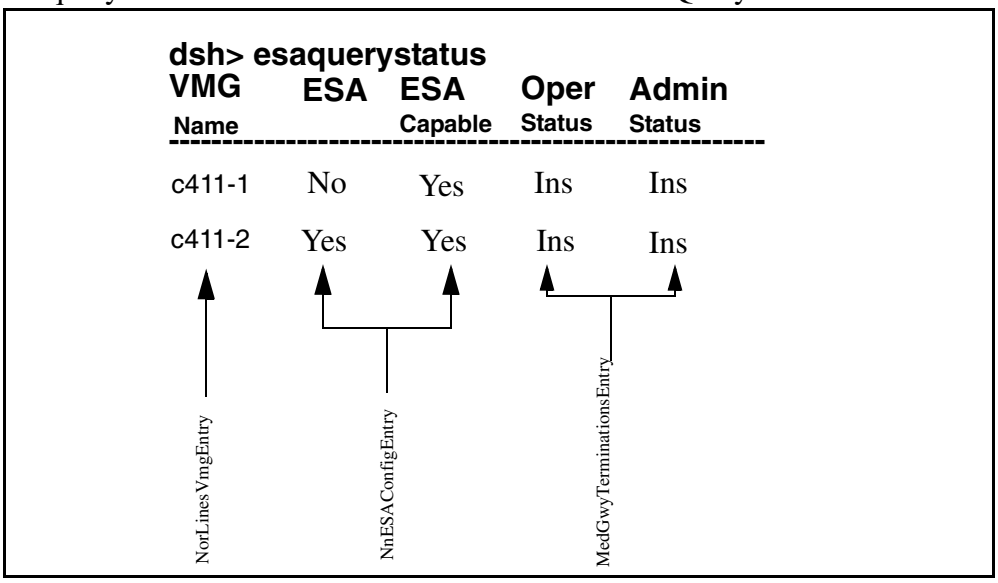
GUI name: ESA Query Tool

Emergency Stand Alone Query Tool

Functional description

The esa query tool is a newly needed tool that will be integrated into the LCI. It's purpose is to inform the node owner whether a MG9K that has lost it's communication with the Element Manger is in ESA and still processing calls. An MG9K can contain multiple shelves, all of which are broken up into multiple VMGs, each of which may or may not be in ESA. Thus, the query tool needs to provide a list of all the VMGs for a node and the ESA status for each. A "yes" or "no" indication for whether a VMG is in ESA is not necessarily enough information for the node owner to know whether the VMG really needs to be in ESA. Example, an Element Manager communication loss doesn't always mean that MG9K and GWC communication is lost. ie. cable cut beyond the Sam21. In this case the GWC will continue to control the MG9K and call processing will be unaffected. For this reason, 4 fields described below will be displayed from the esa query tool so the user has a better idea of what is actually going on.

A “query” button exists at the bottom of the screen. Query is used for



refreshing provisioned data from the MG9000, thus updating the screen.

GUI fields

VMG name - Virtual Media Gateway name that relates to all callp services on a specific frame and shelf

ESA - Emergency Stand Alone indicates whether specified VMG is presently in ESA

ESA Capable - indicates whether this particular VMG has been configured for ESA

Oper Status - Operational Status displays whether the VMG should be in a active and inservice state as specified by the VMG administrator

Admin Status - Administration Status indicates whether the VMG is presently active and inservice

GUI name: Ethernet IP Provisioning screen

Functional description

The purpose of this new screen is to allow the user to provision the ethernet ports to a specified IP address. This is so customers can gain remote access to the ethernet port for FTP and LCI management.

As part of the MG9000 initial commission steps, the user connects (ethernet) a laptop to the face plate (10.0.0.1) and will navigate via the LCI to the DCC card in which they wish to provision ethernet data. After selecting the specific

card, the user will choose the “Provision Ethernet” item off the menu. Once the screen is displayed, any existing, if previously provisioned, data will be presented to the user. Otherwise, the desired IP address, subnet mask and default gateway may be entered and submitted. Upon completion, the installer will connect the newly provisioned ethernet port to their network.

As with all LCI screens, a “submit” and a “query” button exists at the bottom of the screen. Submit is used for sending any data entered on the screen onto the MG9000 as a provisioning request. Results from the request are returned to the user and presented in the text area located at the bottom of the LCI GUI. Query is used for refreshing provisioned data from the MG9000, thus updating the screen.

GUI fields

IP Address - used to display previously provisioned address for the ethernet port on the selected card. Or allow a customer to specify a new address for the port.

Subnet Mask - subnet mask used by network administrators to indicate how they wish an IP address (host) to be interpreted

Default Gateway - defines the 1st hop in the routing of packets (i.e. the first hop being the initial router that the ethernet will be connected to).

Supplementary information

Aside from making the IP address assignable, the DCC cards will retain the address that they are shipped with, 10.0.0.1. This ensures that the DCC remains addressable if the users forget the IP address they provisioned to any given Controller card.

The LCI supports software downloading through the 10.0.0.1 interface. Software download will not be supported through the customer provisioned IP address in SN07.

Engineering rules:

1. The 1st router in the customer’s network must be configured to ignore/not route 10.0.0.x gratuitous ARPs since ALL DCCs on their network will have 10.0.0.1 as an IP address along with the IP address they provision.
2. The MG9k ethernet port must terminate to a router within the same building.

GUI name: SNMP Alarm Log screen

Functional description

The purpose of this new screen is to allow the user to query and display the SNMP alarm from the active DCC. This information provides the customer

with a history of all the major events that have occurred on a node. Helpful for debugging - all the events that took place to bring the node to its current state.

After the user navigates to this new screen, the data is automatically retrieved and displayed.

GUI fields

Data displayed on the screen will describe the events/faults that occurred, the associated timestamps, and the location from where they took place.

GUI name: Password Provisioning screen

Functional description

The purpose of this new screen is to allow the customer with a means for changing the default password that all MG9ks are shipped with. This password is used for LCI and SSH FTP authentication.

A “submit” button exists at the bottom of the screen. Submit is used for sending any data entered on the screen onto the MG9000 as a provisioning request. Results from the request are returned to the user and presented in the text area located at the bottom of the LCI GUI.

GUI fields

Password - the new desired password for the node

Retype Password - reentered password from above. If it is fat fingered, then an error message will be returned indicating so and the password change will not take affect.

Supplementary information

If the customer forgets the password they provisioned, one of the DCC card’s will have to be pulled and have a serial dongle attached. (Customer should call GNPS for assistance) Once the card is plugged back in they will have access to Dsh where they can reset the password.

OSSGate Interface Changes

NA

Security

Network configuration

No additional information.

Key management

Keys are automatically generated when an intelligent card is plugged into a shelf and powered up. Keys are stored in flash memory after initial generation, thus persisting after card restarts. When persistent store on the MG9K is cleared, the key files are also cleared. Post restart, the keys will then be regenerated and stored.

Protocol

Standard SSL, SSH and HTTPS protocols.

Authentication

FTP, HTTP and Telnet are either secured or replaced by an equally functional, yet secured application using the Secure Sockets Layer. Any data transfered for any of the mentioned applications between the MG9k and a client in the network is encrypted. Access to these applications requires the user's to authenticate themselves via a valid userid and password prior to gaining access.

Product = MG 9000

A00004109--MG9K Hardware Upgrade and Call Processing Changes (UA-AAL1)

Please refer to feature A00003571 for FN-related information. Only the Fault Management section of A00004109 appears here.

Fault Management for A00004109

Fault management strategy

The overall fault management for the MG9K hasn't really been impacted by feature A00004109. Earlier documentation can be referenced for the overall fault management scope. This feature does introduce new functionality to support new ITP and ABI and as such, new alarms are used with these new cards.

Fault management implementation

It is perceived in the near future that sites will be supporting multiple platforms. For example, AAL1 and IP traffic. With the introduction of the new ITP/ABIs, this can be easier accomplished since these cards can support AAL1 and IP. With this new flexibility there is also a new risk however. In the event of a card needing replacing, it is possible that the ITP/ABI could be replaced with that of an older variety. For example, a NTNY3011CA (new ITP) could need to be replaced with NTNY3011BA (old IP-only ITP).

However, with multiple-platform sites, it is likely that multiple types of spare cards will be on hand (i.e. spare ATM-only ITPs, spare IP-only ITPs, and spare new-type ITPs). It is therefore conceivable that an incorrect replacement card could be used as the replacement.

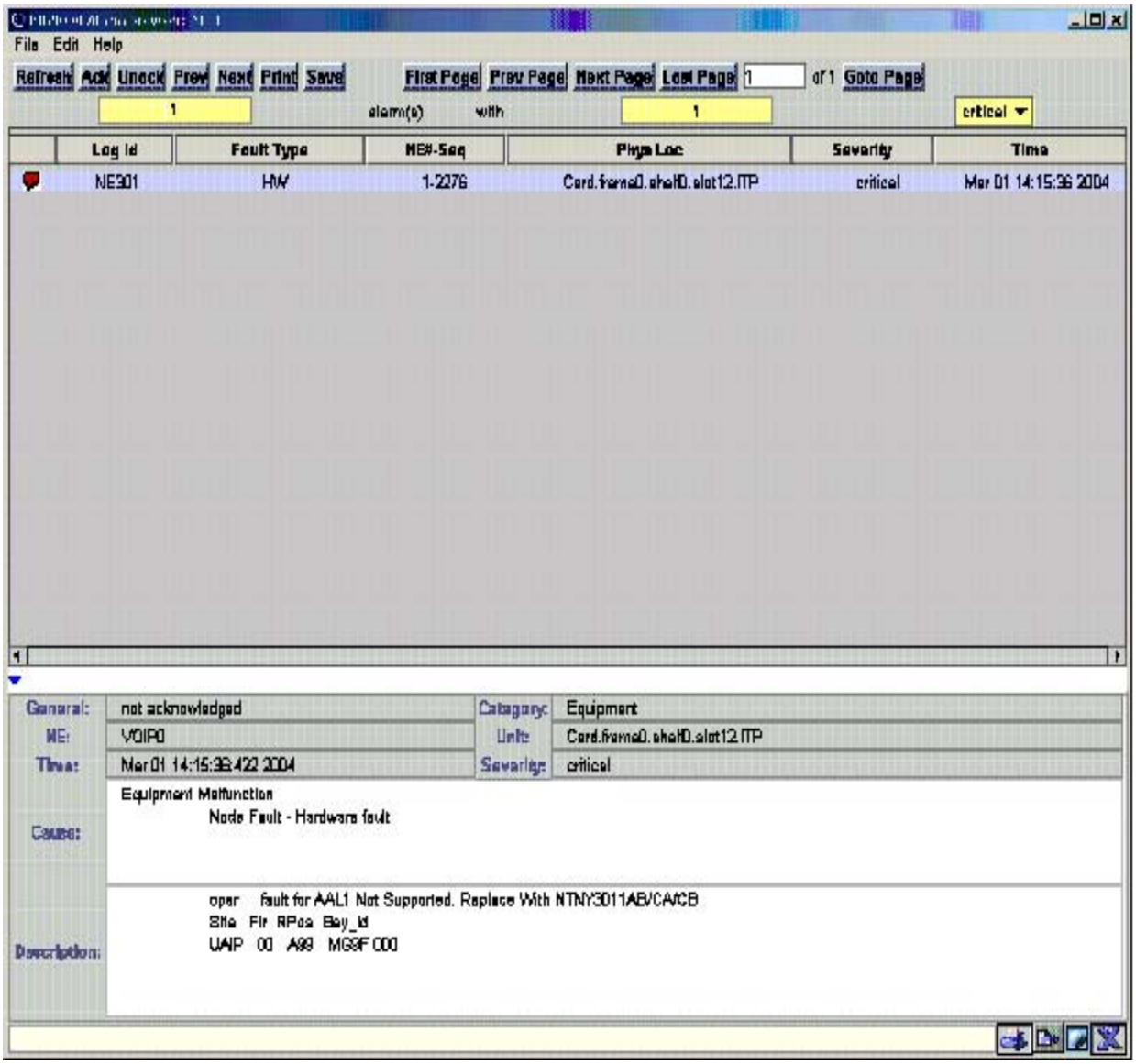
If in fact, an incorrect card is used, an alarm will be sent to the EM and the card will be disabled (via failing BALdatasync). If this alarm is present, verify card type used for the replacement and replace the card. The required card type is given in the text of the alarm.

Alarms

If an incorrect ITP/ABI is paired with the active card application type (IP/ATM) a HW alarm will be present at the EM. This alarm defines the type of error and instructions on clearing the fault. The following figure shows a screen shot of the EM Alarm Browser GUI with the HW Mismatch alarm present (IP case). "ATM ITP Mismatch Alarm" on page 1577 shows the same alarm but in the ATM case.

IP ITP Mismatch Alarm

ATM ITP Mismatch Alarm



Note: AAL1 is supported on all types of ABI cards. Therefore, there isn't an alarm that will state AAL1 is not supported. However, IP-ABI requires the use of "CA" or newer ABI cards.

Integrated Element Manager GUI Fields

The following table shows the relevant alarm fields for the DSP failure alarm.

.

Alarm Field descriptions

Field	Value
Severity	Critical
Category	Equipment
LogNumber	NE301
EventType	Equipment Malfunction
EventLabel	Node Fault-Hardware Fault
BodyText	Fault for <AAL1/IP> Not Supported. Replace Card with NTNYxxXX/XX.

For ABI:
xx = 43
XX/XX/XX = AB/BA/BB

For ITP:
xx = 3011
XX/XX/XX = AB/BA/CA/CB

Glossary

Term	Description
ABI	Access Bridge Interface
EM	Element Manager
HW	Hardware
ITP	Internet Telephony Processor
MG9000	Media Gateway 9000
SN07	Succession 07 Stream

Product = MG 9000

A00005016 -- VMG Out of Service Alarms (Succession on DMS)

Functional Description

This document provides the functional description for support of additional VMG alarms on the MG 9000 and Media Gateway 9000 Manager.

In SN06.2, there is only one alarm that is raised if a VMG has been provisioned that is in an Out of Service state. Unfortunately, the state of VMG Out of Service is symptomatic of many problems that could be occurring:

- missed steps in LCI commissioning
- bad IP address input during VMG provisioning
- mismatch provisioning between MG9000 EM and the core during ABI provisioning
- network router issues
- ITP/ABI is locked or disabled
- GWC locked
- card is still initializing

This feature addresses the problem that resolution of a single VMG OOSV alarm is too complex, especially at VMG provisioning time. Instead of the single fault raised in SN06.2 - VMG300 - VMG OOS, there will instead be a number of faults, each describing a different root cause for why the MG9K is not in service. Raising different alarms helps the user to narrow their resolution /debugging efforts to what is specifically broken.

In addition, because these different alarm reasons are logged, there will now be extra information in the logs when the VMG goes out of service as to why it did so (manually set to out of service vs. GWC unreachable vs. GWC not responding).

As a result of this feature, when a VMG goes out of service, the Alarm Browser will show the VMG300 alarm only in very unusual circumstances - instead, one or more of the following faults will be raised:

- rootTermStatusChange (1), -- generic reason
- vMGAdminStatusOutOfService (2), - VMG was administratively set to out of service
- cardLocked (3), -- card is locked
- cardDisabled (4), -- card is initializing
- cardInitializing (5), -- card is initializing
- lineMtceOnPairNotReady (8), -- Line maintenance is not ready
- megacoMtceOnPairNotReady (8), -- Megaco maintenance is not ready

- gWCUnreachable (53), -- pings to reach GWC failed
- noGWCReply (54), -- GWC didn't reply to ServiceChange
- aal1BearerSubsystemOnPairNotReady (56),
- ipBearerSubsystemOnPairNotReady (57),

All faults are cleared when a VMG goes to an In Service state.

While the VMG300 alarm was always critical in SN06.2, the following faults will be raised at a severity level of warning instead of critical to indicate that there was a (likely) user-initiated reason the VMG is out of service:

- Initializing - this fault will be raised during the initial period after an ITP/ABI card pair has been restarted or when the ITP/ABI is waiting for an initial registration response from the GWC, after which the VMG will either be in service (all faults cleared) or a different alarm will be raised.
- Card Locked - if the active ITP or ABI has been locked.
- VMG Admin Status Out Of Service - if the VMG has been set to out of service in the Gateway Status Config tab of the Switched Lines Services GUI.

All of the other faults will have a severity of critical.

The Switched Lines Services GUI will show what VMG alarms are currently raised against the VMG in a new field in the GW Status Config screen.

More information on the purpose and clearing procedures of the new faults is in the Fault Management section of this DDOC.

Interactions

None

Applicable customer facing sections

Fault Management

Logs	_X____
Alarms	_X____

Configuration

Data Schema/MIBs	___NA___
User Interface	____X___
GUI	____X___
Element Management	____NA__

Security	____NA__
Service Order	____NA__
Office Parameters	____NA__
SOC	____NA__
Upgrades impact	____NA__
Accounting (includes AMA billing)	____NA__
Performance	____NA__
Realtime	____NA__
Engineering Information	____NA__

Hardware Requirements or Dependencies

N/A

Software Requirements or Dependencies

N/A

Limitations and restrictions

After SWACTs and card pair restarts, any alarms that had been raised against the VMG before the restart or SWACT are cleared and new faults are raised to match the present VMG fault state of the active card.

Interactions

N/A

Glossary

VMG Virtual Media Gateway

Fault Management for A00005016

Fault management strategy

The standard MG9K EM Fault Management strategy will apply to the new faults raised by this feature. Alarms will be displayed by the MG9K EM Alarm Browser, logged in NT standard format to the SSPFS CUST logs and forwarded to northbound OSS.

For the “New VMG Out of Service Alarms” feature there will be new faults added to provide the reason why a VMG is out of service.

Fault management tools and utilities

Alarm Browser - Reports alarms from registered events. When an alarm is generated, it is displayed in the Alarm Browser along with the date and time, the NE Id, the resource (where the alarm was generated), the severity and probable cause. Highlighting the alarm displays the description of the alarm in the text box at the bottom of the Alarm Browser.

Log Adaptor - Generates logs from registered events. The log names and numbers are predetermined and are matched with the incoming event. A log with the corresponding name and number which contains the date, time, physical location, severity and any other pertinent information is generated and placed into a separate file.

Gateway Status Config in Switched Lines Services GUI - the current list of Megaco faults will also be displayed here.

Faults, Alarms and Logs

There will be new VMG Out Of Service faults raised and cleared by the MG9000 to indicate the specific reason the VMG is out of service.

Some of these faults will have a severity of WARNING. These faults will be raised for issues that are most likely caused by user intervention: locking cards, setting VMG administrative state to Out of Service and restarting cards.

All of the other faults raised must assume that there is a problem that is preventing the VMG from going into service and have a severity of CRITICAL, same as the existing VMG300 fault.

Alarms

Explanation

vmgAdminStatusOutOfService

LogID: VMG322

Title: vmgAdminStatusOutOfService

Name: VMG Admin State is OOS

Description: Admin State Out Of Service - Call Processing Out of Service

Severity: Warning

Event type: TBL (Trouble)

vmgInitializing

LogID: VMG325

Title: vmgInitializing

Name: VMG Initializing

Description: VMG Initializing - Call Processing Out of Service.

Severity: Warning

Event type: TBL (Trouble)

vmgOOSCardLocked

LogID: VMG323

Title: vmgOOSCardLocked

Name: VMG OOS-card locked

Description: Card Locked - Call Processing Out of Service.

Severity: Warning

Event type: TBL (Trouble)

vmgOOSCardDisabled

LogID: VMG324

Title: vmgOOSCardDisabled

Name: VMG OOS-card disabled

Description: Card Disabled - Call Processing Out of Service.

Severity: Critical

Event type: TBL (Trouble)

vmgOOSLineMtcNotReady

LogID: VMG328

Title: vmgOOSLineMtcNotReady

Name: VMG OOS- Line Maintenance is not Ready

Description: Line Maintenance Not Ready - Call Processing Out of Service.

Severity: Critical

Event type: TBL (Trouble)

vmgOOSMegacoMtcNotReady

LogID: VMG329

Title: vmgOOSMegacoMtcNotReady

Name: VMG OOS- Megaco Maintenance is not Ready

Description: Megaco Maintenance Not Ready - Call Processing Out of Service.

Severity: Critical

Event type: TBL (Trouble)

vmgOOSGWCUnreachable

LogID: VMG373

Title: vmgOOSGWCUnreachable

Name: VMG OOS- GWC is not reachable

Description: GWC Unreachable - Call Processing Out of Service.

Severity: Critical

Event type: TBL (Trouble)

vmgOOSNoReplyFromGWC

LogID: VMG374

Title: vmgOOSNoReplyFromGWC

Name: VMG OOS- no reply from GWC

Description: GWC Reachable But No Reply To Service Change - Check LGRP/GWC state - Call Processing Out of Service

Severity: Critical

Event type: TBL (Trouble)

vmgOOSAAL1BearerOnPairNotReady

LogID: VMG376

Title: vmgOOSAAL1BearerSubsystemOnPairNotReady

Name: VMG OOS- AAL1 bearer subsystem not ready

Description: AAL1 Bearer Not Ready - Call Processing Out of Service.

Severity: Critical

Event type: TBL (Trouble)

vmgOOSIPBearerOnPairNotReady

LogID: VMG377

Title: vmgOOSIPBearerSubsystemOnPairNotReady

Name: VMG OOS- IP bearer subsystem not ready

Description: IP Bearer Not Ready - Call Processing Out of Service.

Severity: Critical

Event type: TBL (Trouble)

Format

The Log Delivery application for this feature generates logs in the Number 2 Switch Control Center (SCC2) format and the NT standard (STD) format explained in the PLOA_SLOA_LOG_ALARMS DID.

The following sections show the STD format for each of the faults.

vmgAdminStatusOutOfService

```
250Q MG9K     ***  VMG322 MAY18 10:44:31 4200 TBL  MG9K NnMegacoFault
        Location: 18-c418_sanity-Frame006.Shelf2.Slot12
        Notification Id: 469
        State: not acknowledged
        Category: Equipment Alarm
        Cause: Equipment Malfunction
        Time: Jan 01 19:31:52 1970
        Component Id: Card.frame1.shelf2.slot12.ITP
        Specific Problem: NnMegacoFault - VMG Admin Status Out Of Service
        Description: Admin State Out Of Service - Call Processing Out of Service
        Site   Flr  RPos  Bay_id
        HOST   03   A0    MG9F 006
```

vmgInitializing

```
250Q MG9K     ***  VMG325 MAY18 10:44:31 4200 TBL  MG9K NnMegacoFault
        Location: 18-c418_sanity-Frame006.Shelf2.Slot12
        Notification Id: 469
        State: not acknowledged
        Category: Equipment Alarm
        Cause: Equipment Malfunction
        Time: Jan 01 19:31:52 1970
        Component Id: Card.frame1.shelf2.slot12.ITP
        Specific Problem: NnMegacoFault - VMG is Initializing
        Description: VMG Initializing - Call Processing Out of Service.
        Site   Flr  RPos  Bay_id
        HOST   03   A0    MG9F 006
```

vmgOOSCardLocked

```
250Q MG9K     ***  VMG323 MAY18 10:44:31 4200 TBL  MG9K NnMegacoFault
        Location: 18-c418_sanity-Frame006.Shelf2.Slot12
        Notification Id: 469
        State: not acknowledged
        Category: Equipment Alarm
        Cause: Equipment Malfunction
        Time: Jan 01 19:31:52 1970
        Component Id: Card.frame1.shelf2.slot12.ITP
        Specific Problem: NnMegacoFault - Card is Locked
        Description: Card Locked - Call Processing Out of Service.
        Site   Flr  RPos  Bay_id
        HOST   03   A0    MG9F 006
```

vmgOOSCardDisabled

```
250Q MG9K     ***  VMG324 MAY18 10:44:31 4200 TBL  MG9K NnMegacoFault
        Location: 18-c418_sanity-Frame006.Shelf2.Slot12
        Notification Id: 469
        State: not acknowledged
        Category: Equipment Alarm
        Cause: Equipment Malfunction
        Time: Jan 01 19:31:52 1970
        Component Id: Card.frame1.shelf2.slot12.ITP
        Specific Problem: NnMegacoFault - Card is Disabled
        Description: Card Disabled - Call Processing Out of Service.
        Site   Flr  RPos  Bay_id
        HOST   03   A0    MG9F 006
```

vmgOOSLineMtcNotReady

```
250Q MG9K     ***  VMG328 MAY18 10:44:31 4200 TBL  MG9K NnMegacoFault
        Location: 18-c418_sanity-Frame006.Shelf2.Slot12
        Notification Id: 469
        State: not acknowledged
        Category: Equipment Alarm
        Cause: Equipment Malfunction
        Time: Jan 01 19:31:52 1970
        Component Id: Card.frame1.shelf2.slot12.ITP
      Specific Problem: Specific Problem: NnMegacoFault - Line Maintenance is not ready
        Description: Line Maintenance Not Ready - Call Processing Out of Service
        Site   Flr  RPos  Bay_id
        HOST   03   A0    MG9F 006
```

vmgOOSMegacoMtcNotReady

```
250Q MG9K     ***  VMG329 MAY18 10:44:31 4200 TBL  MG9K NnMegacoFault
        Location: 18-c418_sanity-Frame006.Shelf2.Slot12
        Notification Id: 469
        State: not acknowledged
        Category: Equipment Alarm
        Cause: Equipment Malfunction
        Time: Jan 01 19:31:52 1970
        Component Id: Card.frame1.shelf2.slot12.ITP
        Specific Problem: NnMegacoFault - Megaco Maintenance is not ready
        Description: Megaco Maintenance Not Ready - Call Processing Out of Service.
        Site   Flr  RPos  Bay_id
        HOST   03   A0    MG9F 006
```

vmgOOSGWCUnreachable

```
250Q MG9K     ***  VMG373 MAY18 10:44:31 4200 TBL  MG9K NnMegacoFault
        Location: 18-c418_sanity-Frame006.Shelf2.Slot12
        Notification Id: 469
        State: not acknowledged
        Category: Equipment Alarm
        Cause: Equipment Malfunction
        Time: Jan 01 19:31:52 1970
        Component Id: Card.frame1.shelf2.slot12.ITP
        Specific Problem: NnMegacoFault- Ping to reachGWC failed
        Description: GWC Unreachable - Call Processing Out of Service.
        Site   Flr  RPos  Bay_id
        HOST   03   A0    MG9F 006
```

vmgOOSNoReplyFromGWC

```
250Q MG9K     ***  VMG374 MAY18 10:44:31 4200 TBL  MG9K NnMegacoFault
        Location: 18-c418_sanity-Frame006.Shelf2.Slot12
        Notification Id: 469
        State: not acknowledged
        Category: Equipment Alarm
        Cause: Equipment Malfunction
        Time: Jan 01 19:31:52 1970
        Component Id: Card.frame1.shelf2.slot12.ITP
        Specific Problem: NnMegacoFault - GWC did not reply to service change
        Description: GWC Reachable But No Reply To Service Change - Check LGRP/GWC
state - Call Processing Out of Service.
        Site   Flr  RPos  Bay_id
        HOST   03   A0    MG9F 006
```

vmgOOSAAL1BearerOnPairNotReady

```
250Q MG9K     ***  VMG376 MAY18 10:44:31 4200 TBL  MG9K NnMegacoFault
        Location: 18-c418_sanity-Frame006.Shelf2.Slot12
        Notification Id: 469
        State: not acknowledged
        Category: Equipment Alarm
        Cause: Equipment Malfunction
        Time: Jan 01 19:31:52 1970
        Component Id: Card.frame1.shelf2.slot12.ITP
        Specific Problem: NnMegacoFault - AAL1 bearer subsystem not ready
        Description: AAL1 Bearer Not Ready - Call Processing Out of Service.
        Site   Flr  RPos  Bay_id
        HOST   03   A0    MG9F 006
```

vmgOOSIPBearerOnPairNotReady

```
250Q MG9K     ***  VMG377 MAY18 10:44:31 4200 TBL  MG9K NnMegacoFault
        Location: 18-c418_sanity-Frame006.Shelf2.Slot12
        Notification Id: 469
        State: not acknowledged
        Category: Equipment Alarm
        Cause: Equipment Malfunction
        Time: Jan 01 19:31:52 1970
        Component Id: Card.frame1.shelf2.slot12.ITP
        Specific Problem: NnMegacoFault - IP bearer subsystem not ready
```

```
Description: IP Bearer Not Ready - Call Processing Out of Service.
Site   Flr  RPos  Bay_id
HOST   03   A0    MG9F 006
```

Action

vmgAdminStatusOutOfService

To clear this, change the Admin status in the Gateway Status Config tab of the Switched Lines Services GUI to In Service

vmgInitializing

This alarm is raised at initial VMG creation, while waiting for a reply form the GWC when the VMG Admin status is changed to InService or as the active ABI/ITP is coming up out of a restart. There is no clearing procedure for this alarm. During a restart, this is raised as long as 15 minutes. During the first 15 minutes after a restart of an ITP pair, no other out of service VMG alarms are raised against the VMG, except the Card Locked and Admin State Out of Service faults. If the VMG is still Out of Service 15 minutes after the restart, the alarm will be cleared and replaced by the appropriate VMG fault indicating the fault condition at that time.

vmgOOSCardLocked

To clear this, unlock the active ITP or ABI.

vmgOOSCardDisabled

This alarm indicates the ITP or ABI card's status is disabled. The ITP or ABI card view or Alarm Browser will provide more information about what is preventing the card from going enabled. When the card's status goes to enabled, this alarm will be cleared.

vmgOOSLineMtcOnPairNotReady

This alarm indicates Line Maintenance on the ITP or ABI is not ready for call processing support. If this is raised when the card is enabled, then this is most likely a software error condition. If the ITP or ABI is disabled, the Line Maintenance fault is usually raised as well. Locking and unlocking the card might cause this condition to clear.

vmgOOSMegacoMtcOnPairNotReady

This fault would be raised because of a software error condition. Locking and unlocking the card might cause this condition to clear.

vmgOOSGWCUnreachable

This alarm indicates the GWC is not responding to pings from the ITP or ABI and either the VMG has never reached an Enabled state or ESA capability is not turned on for this VMG.

It could mean a number of things:

- If this VMG has never been in service, it could be because an invalid VMG IP address was provisioned. If the address is incorrect, then delete and re-add the VMG with the correct IP address
- It could be an issue with the network interface or edge router - most likely there will also be a Wanbuilder Heartbeat alarm - resolve the issue with that alarm
- If there is not a Wanbuilder Heartbeat alarm and Wanbuilder Heartbeat was turned on for the Call Control subnet (ITPs) or ABI subnet (ABIs) then this is likely a network issue - do pings/traceroutes to isolate the issue further
- Also verify that the pair of GWC cards is unlocked. If the active GWC is locked, it will not respond to pings.

vmgOOSNoReplyFromGWC

This alarm indicates the GWC is not responding to Megaco messages for this VMG and either the VMG has never reached an Enabled state or ESA capability is not turned on for this VMG.

It could mean a number of things, including:

- The LGRP for this VMG is not in a ready state. Check the LGRP state using MAPCI ; PM on the core.
- If this is a VMG for an ABI pair that has never been in service, it could mean that the core or MG9K EM is provisioned with the incorrect address for this VMG. Correct the VMG IP address in the datafill in the core or re-provision the VMG with the correct address in the MG9K EM.
- GWC pair has been set to man busy or has issues - check the GWC status in CS2M.

vmgOOSAAL1BearerOnPairNotReady

This usually indicates a software error situation on either the DCC or ITP. Lock and unlocking the ITP, ABI or DCC card(s) involved might clear this.

vmgOOSIPBearerOnPairNotReady

This is usually because the Call Control Subnet was not provisioned on the DCC. Go to LCI and provision the Call Control Subnet. As such, this fault is usually card to see if that clears the issue. If the Call Control Subnet has been provisioned and this fault does not clear, then this is likely a software error - lock and unlock the ITP/ABI card to see if that clears the issue.

VMG300

Most of the time, this alarm will be raised only for transient situations, and should either be cleared or replaced by a different alarm within 15 seconds. The two exceptions to this are:

- if the active card is at SN07 or greater, but the inactive card is on a pre-SN07 software release.
- the ITP or ABI pair is on SN07, but the DCC is on a pre-SN07 release

Until the inactive card and DCC are upgraded to SN07 or greater, the active card will raise only the VMG300 fault when the VMG is out of service. To clear this, follow the instructions for the various faults in this section until the alarm is cleared.

Associated Operational Measurements or Performance Measurements

None.

Related documentation

Configuration for A00005016

Hardware and Software Requirements

NA

Initial Configuration

NA

Office/Subnet parameters (OP/SP) (CM & SESM)

NA

Upgrade Impact

NA

Data schema (DS) (CM, MIBS, RDB)

New/modified tables, MIBs, or Database Schema

As part of this feature the following modification was made to the UEMG Megaco Enterprise MIB:

The previous definition of nnMegacoFaultType had only one type in it:

```
nnMegacoFaultType OBJECT-TYPE
    SYNTAX     INTEGER
               {
                 rootTermStatusChange     (1)
               }
    MAX-ACCESS accessible-for-notify
    STATUS     current
    DESCRIPTION
       "Type of Megaco Fault"
::= { nnMegacoNotifObjects 1 }
```

```
This has been replaced by the following definition:

nnMegacoFaultType ::= TEXTUAL-CONVENTION
    STATUS     current
    DESCRIPTION
       "Enumeration of Fault Types Megaco Maintenance will throw."
    SYNTAX     INTEGER
               {
                 rootTermStatusChange     (1),          -- generic reason
                 vMGAdminStatusOutOfService (2),  - VMG was administratively set to
out of service

                 cardLocked (3),          -- card is locked
                 cardDisabled (4),        -- card is disabled
                 cardInitializing (5),        -- card is initializing
                      lineMtceOnPairNotReady (8),    -- Line maintenance is not ready
                 megacoMtceOnPairNotReady (9),    -- Megaco maintenancec is not ready

                 gwcLinkStatusDown (51), -- first hop layer 2 down
                 edgeRouterUnreachable(52),  -- pings to reach first hop failed
                 gWCUnreachable (53),      -- pings to reach GWC failed
                 noGWCReply (54),          -- GWC didn't reply to ServiceChange
                 bearerSubsystemOnPairNotReady (55),
                 aal1BearerSubsystemOnPairNotReady (56),
                 ipBearerSubsystemOnPairNotReady (57),
                                 --- skip 58
                carrier NotProvisioned (59), -- physical interface not provisioned
                 carrierNotReady (60), -- physical interface not ready
                networkInterfaceNotProvisioned (61),   -- layer 2 not provisioned
                 networkInterfaceNotReady (62),    -- layer 2 not ready
           messagingInterfaceNotProvisioned  (63),  -- call control not provisioned
                 messagingInterfaceNotReady (64),  -- call control not ready
                                 --- skip 65 and 66
             bearerInterfaceNotProvisioned  (67),  -- bearer subnet not provisioned
         bearerInterfaceNotReady (68),  -- bearer subnet not ready
               .
               .  (more types)

             }
```

The new MIB definition can be found at the following location:

http://triweb/smg5000/mibDir/mibTxt/NORTEL-UEMG-MEGACO.mib

Service Orders (SO) (CM & SESM)

NA

Software optionality control (SOC)

NA

Element Management

The Switched Line Services Screen will now have a new field on the GW Status Config tab “Fault status”. This field will show what, if any, faults have been raised against the VMG.

New/modified GUIs

New or modified GUIs

GUI name	NEW, CHANGED, or DELETED
GW Status Config Tab under the Switched Line Services screen	CHANGED

GUI information

GUI name: GW Status Config

GateWay Status Configuration tab.

Functional description

A new field will be added to the Gateway Status Configuration tab to show what alarms have been raised against the VMG.

The status screen will in most cases automatically be updated when alarms are raised against the VMG. In addition, when the user presses the Refresh button, the correct fault status will be displayed, based on what VMG alarms have been raised to the EM.

GUI size

New or modified GUIs

Abbreviated GUI name	Minimum instances	Maximum instances	Information on memory
GW Status Config	1	1 per MG9000	NA

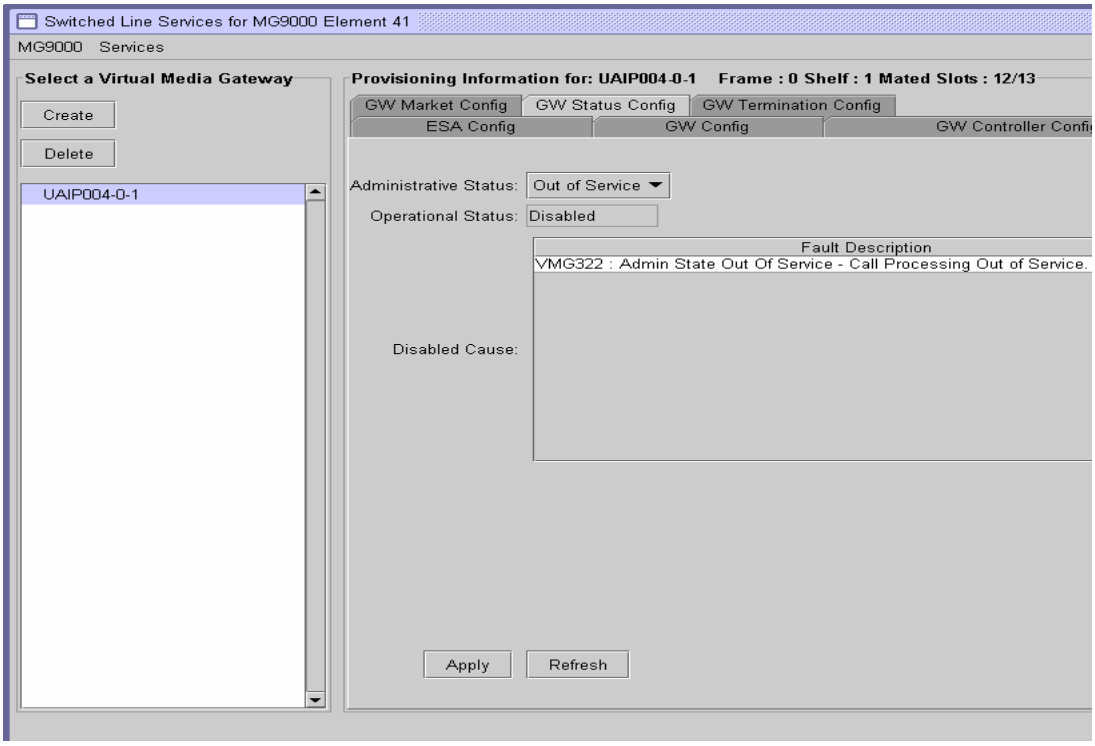
GUI fields

The following table lists the new field for GUI GW Status Config.

GUI field descriptions

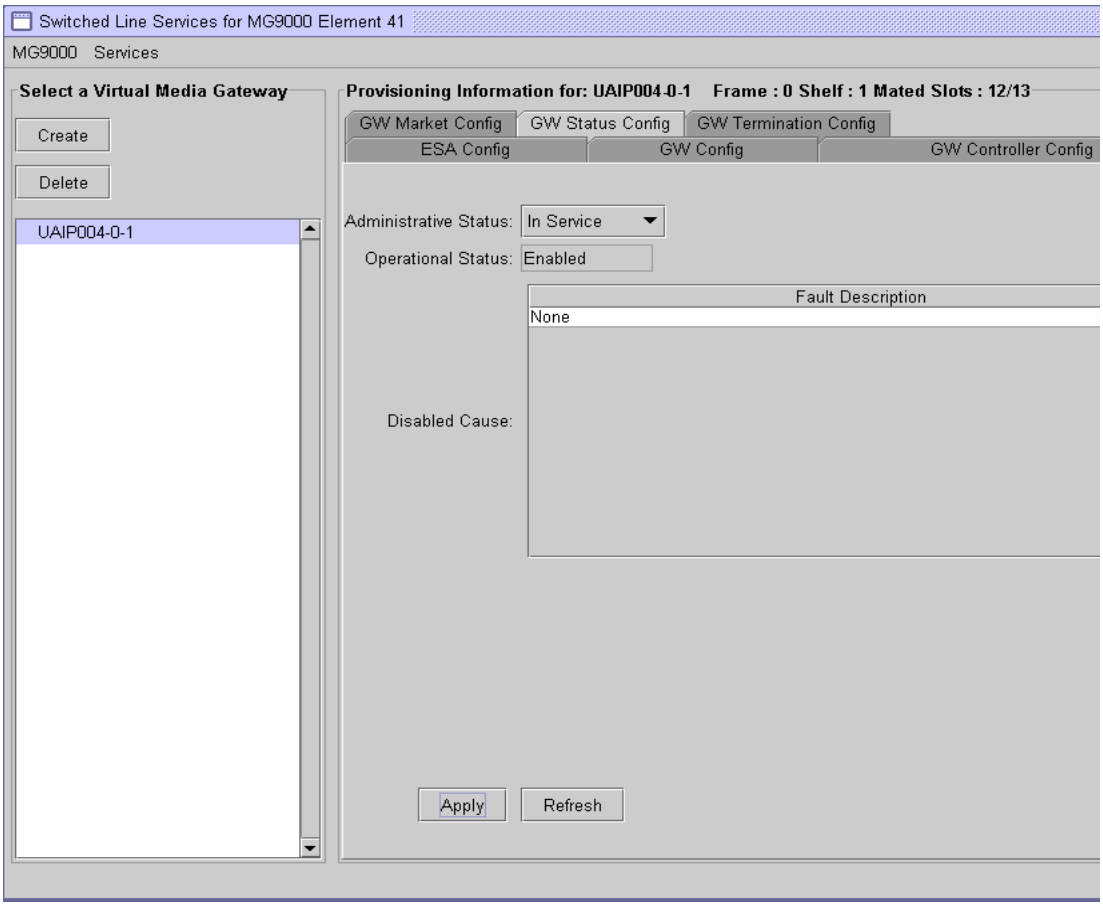
Field	New or Changed	Subfield	Entry	Explanation and action	Associated MIB entry
outOfService State	New	No	Fault Status for VMG	Displays the VMG faults raised for this VMG. If there are no faults, then this field will display “None”	None

Usage example



This example shows a VMG with Administrative Status Out of Service. In this state, the Disabled Cause field will show one alarm as show above.

The example below shows a VMG that is in an Enabled state.



GUI release history update
None

Supplementary information
None

CLUI Interface
NA

Command interface changes

NA

Security

NA

Configuration Walkthrough

NA

Product = MG 9000

A00005317--WanBuilder Heartbeat Ping (UA-AAL1)

This feature adds robustness to the WanBuilder inband messaging links by allowing the subsystem to perform corrective actions when communication fails. WanBuilder Heartbeat Ping monitors the inband messaging links (OAM, CallControl and DS512) and reacts to failure by raising an alarm, swapping SVCs or causing a SWACT, for example.

Problem Correction

In some cases, the UEMG's primary SVC is to the inactive Shelf Controller but the SAM21 is unaware of the mix-up. In this case, the SVCs are up and “green” on the SAM21 GUI, but inband messaging fails. WanBuilder Heartbeat Ping will correct the situation by swapping the SVCs.

The DCC takes its provisioning for the IP address to ping for each connection type from the LCI. It sends a message to each ITP or ABI telling it to start heartbeat. If heartbeat fails on one ITP or ABI, the DCC heartbeat controller requests a status update from all ITPs or ABIs. After collecting the status updates, the controller decides upon a course of action.

If all heartbeats for a given connection type (OAM, Call Control or DS512) are failing, there are two actions that can be taken. The first step is to swap the SVCs, while the second, more drastic step is to raise an alarm which may result in a SWACT of the DCCs. The SWACT decision is left to node maintenance's service evaluation.

If heartbeat is failing for one or more VMGs within a connection type, but not for all of them, an alarm can be raised on ITPs/ABIs that are failing heartbeat. Again, this may result in a SWACT of the ITP or ABI.

Provisioning

The heartbeat address is an newly added field on each Connection page. It is an optional field and if not provisioned, heartbeat is not enabled.

Product = MG 9000

A00005375 -- New Shelf Discovery Alarms (UA-AAL1)

For this corrective CAF, only the Fault Management section is provided.

Fault Management for A00005375

Fault management strategy

The standard MG9K EM Fault Management strategy will apply to the new faults raised by this feature. Alarms will be displayed by the MG9K EM Alarm Browser, logged in NT standard format to the SSPFS CUST logs and forwarded to northbound OSS.

For the “New Shelf Discovery Alarms” feature there will be new faults added to provide the reason when shelf discovery failed due to a particular card or due to an incompatible card.

Fault management tools and utilities

Alarm Browser - Reports alarms from registered events. When an alarm is generated, it is displayed in the Alarm Browser along with the date and time, the NE Id, the resource (where the alarm was generated), the severity and probable cause. Highlighting the alarm displays the description of the alarm in the text box at the bottom of the Alarm Browser.

Log Adaptor - Generates logs from registered events. The log names and numbers are predetermined and are matched with the incoming event. A log with the corresponding name and number which contains the date, time, physical location, severity and any other pertinent information is generated and placed into a separate file.

Faults, Alarms and Logs

There will be new Shelf faults raised and cleared by the MG9000 to indicate the specific reason the shelf discovery failed.

Alarms

Explanation

SHELFCOMPATIBILITY

Title: shelfCompatibility

Name: Incompatible Shelf

Description: This log is generated when a shelfCompatibility fault is received from the MG9kEM server.

CARDDISCOVERY

Title: cardDiscovery

Name: Card Discovery failure

Description: This log is generated when a cardDiscovery fault is received from the MG9kEM server.

CARDDISCPOWIO

Title: cardDiscPowIo

Name: Discovery failure for IO card

Description: This log is generated when a cardDiscPowIo fault is received from the MG9kEM server.

CARDDISPOWSIC

Title: cardDiscPowSic

Name: Discovery failure for SIC card

Description: This log is generated when a cardDiscPowSic fault is received from the MG9kEM server.

CARDDISCSLOT2

Title: cardDiscSlot2

Name: Discovery failure for card in Slot 2

Description: This log is generated when a cardDiscSlot2 fault is received from the MG9kEM server.

CARDDISCSLOT3

Title: cardDiscSlot2

Name: Discovery failure for card in Slot 3

Description: This log is generated when a cardDiscSlot3 fault is received from the MG9kEM server.

CARDDISCSLOT4

Title: cardDiscSlot4

Name: Discovery failure for card in Slot 4

Description: This log is generated when a cardDiscSlot4 fault is received from the MG9kEM server.

CARDDISCSLOT5

Title: cardDiscSlot5

Name: Discovery failure for card in Slot 5

Description: This log is generated when a cardDiscSlot5 fault is received from the MG9kEM server.

CARDDISCSLOT6

Title: cardDiscSlot6

Name: Discovery failure for card in Slot 6

Description: This log is generated when a cardDiscSlot6 fault is received from the MG9kEM server.

CARDDISCSLOT7

Title: cardDiscSlot7

Name: Discovery failure for card in Slot 7

Description: This log is generated when a cardDiscSlot7 fault is received from the MG9kEM server.

CARDDISCSLOT8

Title: cardDiscSlot8

Name: Discovery failure for card in Slot 8

Description: This log is generated when a cardDiscSlot8 fault is received from the MG9kEM server.

CARDDISCSLOT9

Title: cardDiscSlot9

Name: Discovery failure for card in Slot 9

Description: This log is generated when a cardDiscSlot9 fault is received from the MG9kEM server.

CARDDISCSLOT10

Title: cardDiscSlot10

Name: Discovery failure for card in Slot 10

Description: This log is generated when a cardDiscSlot10 fault is received from the MG9kEM server.

CARDDISCSLOT11

Title: cardDiscSlot11

Name: Discovery failure for card in Slot 11

Description: This log is generated when a cardDiscSlot11 fault is received from the MG9kEM server.

CARDDISCSLOT12

Title: cardDiscSlot12

Name: Discovery failure for card in Slot 12

Description: This log is generated when a cardDiscSlot12 fault is received from the MG9kEM server.

CARDDISCSLOT13

Title: cardDiscSlot13

Name: Discovery failure for card in Slot 13

Description: This log is generated when a cardDiscSlot13 fault is received from the MG9kEM server.

CARDDISCSLOT14

Title: cardDiscSlot14

Name: Discovery failure for card in Slot 14

Description: This log is generated when a cardDiscSlot14 fault is received from the MG9kEM server.

CARDDISCSLOT15

Title: cardDiscSlot15

Name: Discovery failure for card in Slot 15

Description: This log is generated when a cardDiscSlot15 fault is received from the MG9kEM server.

CARDDISCSLOT16

Title: cardDiscSlot16

Name: Discovery failure for card in Slot 16

Description: This log is generated when a cardDiscSlot16 fault is received from the MG9kEM server.

CARDDISCSLOT17

Title: cardDiscSlot17

Name: Discovery failure for card in Slot 17

Description: This log is generated when a cardDiscSlot17 fault is received from the MG9kEM server.

CARDDISCSLOT18

Title: cardDiscSlot18

Name: Discovery failure for card in Slot 18

Description: This log is generated when a cardDiscSlot18 fault is received from the MG9kEM server.

CARDDISCSLOT19

Title: cardDiscSlot19

Name: Discovery failure for card in Slot 19

Description: This log is generated when a cardDiscSlot19 fault is received from the MG9kEM server.

CARDDISCSLOT20

Title: cardDiscSlot20

Name: Discovery failure for card in Slot 20

Description: This log is generated when a cardDiscSlot20 fault is received from the MG9kEM server.

CARDDISCSLOT21

Title: cardDiscSlot21

Name: Discovery failure for card in Slot 21

Description: This log is generated when a cardDiscSlot21 fault is received from the MG9kEM server.

Format

The Log Delivery application for this feature generates logs in the Number 2 Switch Control Center (SCC2) format and the NT standard (STD) format explained in the PLOA_SLOA_LOG_ALARMS DID.

SHELFCOMPATIBILITY

- **STD Format:**

SHLF392 MAR08 04:58:42 8781 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 125
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 03:05:03 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Shelf Compatibility
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

- **SCC2 Format:**

SHLF392 8168 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 3
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:30:17 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Shelf Compatibility
Description: asf
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

CARDDISCOVERY

- STD Format:

SHLF393 MAR08 04:55:43 6680 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 126
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:40:06 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

- **SCC2 Format:**

SHLF393 6612 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 4
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:40:06 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

CARDDISCPOWIO

- **STD Format:**

SHLF393 MAR08 04:36:50 8513 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 127
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:43:46 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Power IO
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

- **SCC2 Format:**

SHLF393 887 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 5
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:41:13 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Power IO
Description: asdf
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

CARDDISCPOWSIC

- **STD Format:**

SHLF393 MAR08 04:36:50 8513 TBL MG9K NorShelfFault

Location: 8-CO8-Frame123.Shelf2
Notification Id: 128
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:43:46 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Power SIC
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

- **SCC2 Format:**

SHLF393 9279 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 6
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:41:31 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Power SIC
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

CARDDISCSLOT2

- **STD Format:**

SHLF393 MAR08 04:36:50 8513 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 129
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:43:46 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 2
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

- **SCC2 Format:**

SHLF393 9178 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2

Notification Id: 7
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:41:58 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 2
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

CARDDISCSLOT3

- **STD Format:**

SHLF393 MAR08 04:36:50 8513 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 130
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:43:46 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 3
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

- **SCC2 Format:**

SHLF393 9178 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 8
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:41:58 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 3
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

CARDDISCSLOT4

- **STD Format:**

SHLF393 MAR08 04:36:50 8513 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 131

State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:43:46 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 4
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

- **SCC2 Format:**

SHLF393 9178 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 9
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:41:58 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 4
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

CARDDISCSLOT5

- **STD Format:**

SHLF393 MAR08 04:36:50 8513 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 132
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:43:46 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 5
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

- **SCC2 Format:**

SHLF393 9178 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 10
State: not acknowledged
Category: Equipment Alarm

Cause: Equipment Malfunction
Time: Jan 01 02:41:58 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 5
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

CARDDISCSLOT6

- STD Format:

SHLF393 MAR08 04:36:50 8513 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 133
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:43:46 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 6
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

- **SCC2 Format:**

SHLF393 9178 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 11
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:41:58 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 6
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

CARDDISCSLOT7

- **STD Format:**

SHLF393 MAR08 04:36:50 8513 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 134
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction

Time: Jan 01 02:43:46 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 7
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

- **SCC2 Format:**

SHLF393 9178 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 12
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:41:58 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 7
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

CARDDISCSLOT8

- **STD Format:**

SHLF393 MAR08 04:36:50 8513 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 135
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:43:46 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 8
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

- **SCC2 Format:**

SHLF393 9178 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 13
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:41:58 1970
Component Id: Shelf.frame0.shelf2

Specific Problem: NorShelfFault - Card Discovery Slot 8
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

CARDDISCSLOT9

- **STD Format:**

SHLF393 MAR08 04:36:50 8513 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 136
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:43:46 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 9
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

- **SCC2 Format:**

SHLF393 9178 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 14
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:41:58 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 9
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

CARDDISCSLOT10

- **STD Format:**

SHLF393 MAR08 04:36:50 8513 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 137
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:43:46 1970

Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 10
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

- **SCC2 Format:**

SHLF393 9178 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 15
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:41:58 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 10
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

CARDDISCSLOT11

- **STD Format:**

SHLF393 MAR08 04:36:50 8513 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 138
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:43:46 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 11
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

- **SCC2 Format:**

SHLF393 9178 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 16
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:41:58 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 11

Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

CARDDISCSLOT12

- **STD Format:**

SHLF393 MAR08 04:36:50 8513 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 139
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:43:46 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 12
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

- **SCC2 Format:**

SHLF393 9178 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 17
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:41:58 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 12
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

CARDDISCSLOT13

- **STD Format:**

SHLF393 MAR08 04:36:50 8513 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 140
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:43:46 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 13
Description: testing

Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

- **SCC2 Format:**

SHLF393 9178 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 18
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:41:58 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 13
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

CARDDISCSLOT14

- **STD Format:**

SHLF393 MAR08 04:36:50 8513 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 141
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:43:46 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 14
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

- **SCC2 Format:**

SHLF393 9178 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 19
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:41:58 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 14
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

CARDDISCSLOT15

- **STD Format:**

SHLF393 MAR08 04:36:50 8513 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 142
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:43:46 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 15
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

- **SCC2 Format:**

SHLF393 9178 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 20
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:41:58 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 15
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

CARDDISCSLOT16

- **STD Format:**

SHLF393 MAR08 04:36:50 8513 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 143
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:43:46 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 16
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

- **SCC2 Format:**

SHLF393 9178 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 21
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:41:58 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 16
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

CARDDISCSLOT17

- **STD Format:**

SHLF393 MAR08 04:36:50 8513 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 144
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:43:46 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 17
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

- **SCC2 Format:**

SHLF393 9178 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 22
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:41:58 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 17
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

CARDDISCSLOT18

- **STD Format:**

SHLF393 MAR08 04:36:50 8513 TBL MG9K NorShelfFault

Location: 8-CO8-Frame123.Shelf2
Notification Id: 145
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:43:46 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 18
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

- **SCC2 Format:**

SHLF393 9178 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 23
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:41:58 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 18
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

CARDDISCSLOT19

- **STD Format:**

SHLF393 MAR08 04:36:50 8513 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 146
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:43:46 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 19
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

- **SCC2 Format:**

SHLF393 9178 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 24

State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:41:58 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 19
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

CARDDISCSLOT20

- **STD Format:**

SHLF393 MAR08 04:36:50 8513 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 147
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:43:46 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 20
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

- **SCC2 Format:**

SHLF393 9178 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 25
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:41:58 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 20
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

CARDDISCSLOT21

- **STD Format:**

SHLF393 MAR08 04:36:50 8513 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 148
State: not acknowledged

Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:43:46 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 21
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

- **SCC2 Format:**

SHLF393 9178 TBL MG9K NorShelfFault
Location: 8-CO8-Frame123.Shelf2
Notification Id: 26
State: not acknowledged
Category: Equipment Alarm
Cause: Equipment Malfunction
Time: Jan 01 02:41:58 1970
Component Id: Shelf.frame0.shelf2
Specific Problem: NorShelfFault - Card Discovery Slot 21
Description: testing
Site Flr RPos Bay_id
HOST 00 A0 MG9F 123

Action

SHELFCOMPATIBILITY
To clear this, insert a compatible card in the slot. for example put a NY30AA card if the active mate card is a NY30AA

CARDDOSCOVERY
Insert a good card

CARDDISCPOWIO
Insert a good IO card

CARDDISCPOWSIC
Insert a good SIC card.

CARDDISCSLOT2
Insert a good card in the slot.

CARDDISCSLOT3
Insert a good card in the slot.

CARDDISCSLOT4
Insert a good card in the slot.

CARDDISCSLOT5
Insert a good card in the slot.

CARDDISCSLOT6
Insert a good card in the slot.

CARDDISCSLOT7
Insert a good card in the slot.

CARDDISCSLOT8
Insert a good card in the slot.

CARDDISCSLOT9
Insert a good card in the slot.

CARDDISCSLOT10
Insert a good card in the slot.

CARDDISCSLOT11
Insert a good card in the slot.

CARDDISCSLOT12
Insert a good card in the slot.

CARDDISCSLOT13
Insert a good card in the slot.

CARDDISCSLOT14
Insert a good card in the slot.

CARDDISCSLOT15
Insert a good card in the slot.

CARDDISCSLOT16
Insert a good card in the slot.

CARDDISCSLOT17
Insert a good card in the slot.

CARDDISCSLOT18
Insert a good card in the slot.

CARDDISCSLOT19
Insert a good card in the slot.

CARDDISCSLOT20
Insert a good card in the slot.

CARDDISCSLOT21
Insert a good card in the slot.

Associated Operational Measurements or Performance Measurements

None.

Product = MG 9000

A00006639--MG9K Overload OM pegs (UA-AAL1)

Description

When a Media Gateway 9000 (MG9K) begins to reach an overload threshold call connections request are denied. This condition can occur on an ITP, ABI or at the nodal level (DCC). A log is currently generated corresponding to the line or trunk which requested the connection.

Overload condition occurs when the MG9K has reached a threshold where subsequent calls with the exception of calls marked ‘essential or emergency’ must be denied to prevent further catastrophic degration of the MG9K node.

In SN07 an Operational Measurement (OM) register will be incremented for every connection which is denied. A new OM group GWOVLOM will be defined and the register OVERLOAD will be incremented upon connection denial.

In SN07 feature ‘A00004430 - SVC Failure OMs’ introduced the ability to peg OMs for ATM switched virtual circuits call failures. It pegs the logical group of the MG9K for calls which involve lines hosted off the ITP boards and it pegs the hosting legacy XPM peripherals directly connected to the ABI DS512 pack for calls involving lines subtending the ABI board.

To be consistent in pegging OMs, this feature will follow the same model.

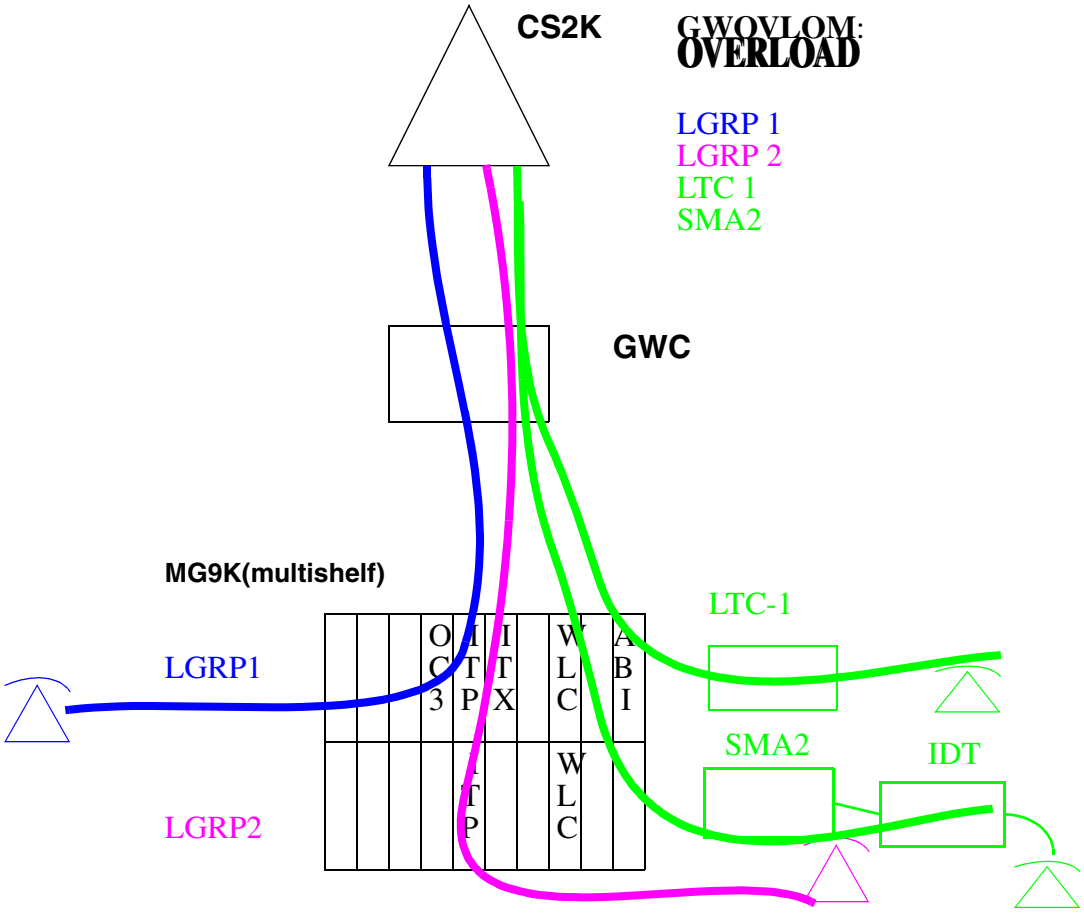
When a connection is denied for a call originated or terminated on an ITP board, i.e. a native MG9K call, the register associated with the logical group will be pegged. MG9Ks are indentified as ‘logical groups’ because the CS2K is not aware on the MG9Ks on a nodal basis. In SN06.2 the feature ‘A00002607 ABI XPMSITE and MG9K Location support on the Core’ provided the first step towards recognizing ABI XPM and MG9K on a nodal basis. However currently only ABI ‘nodes’ are recognized in the CS2K.

If the connection is denied for a call which originates or terminates on an agent which is subtending an ABI board, the OM peg will occurr on the hosting XPM which is directly connected to the DS512 pack on the ABI board. Currently the hosting XPMs which can be pegged are LTCs, SMA2s, LGCs.

For ABI connection failures line or RCC trunk could be rejected and pegging will be done for either one on the hosting XPM node.

The following figure shows the level where the OM register will be pegged.

CS2K Identification of MG9k and ABI lines Pegs



OM group GWOVLOM with OVERLOAD register

```
omshow gwovlom active
GWOVLOM

CLASS: ACTIVE
START:2004/03/05 13:30:00 FRI; STOP: 2004/03/05 13:56:48 FRI;
SLOWSAMPLES:       17 ; FASTSAMPLES:       161 ;

     KEY (GWOVL_OM_PM_INFO1)
     INFO (GWOVL_OM_TUPLE_DATA1)
      OVERLOAD


  68
  MG9K ABI SMA2   1
          0
  73
  MG9K ABI SMA2   0
          0
  87
  MG9K ABI SMA2   2
          0
  89
  MG9K ABI LTC 2
          0
114
     MG9K HOST 04 0
          0
  116
     MG9K HOST 01 2
          0
  117
     MG9K SLOA 31 3
           0
```

Hardware Requirements or Dependencies

This feature has no hardware requirements or dependencies.

Software Requirements or Dependencies

This feature is no additional software dependencies.

Limitations and restrictions

There are no new limitations or restrictions introduced by this feature.

Interactions

No new interactions are introduced by this feature.

Applicable customer facing sections

Fault Management

- Logs _N/A_
- Alarms _N/A_

Configuration

- Data Schema _N/A_
- User Interface _N/A_
- Element Management _N/A_
- Security _N/A_
- Service Order _N/A_
- Office Parameters _N/A_

Accounting (includes AMA billing) _N/A_

Performance (includes operational measurements) __X__

Glossary

Term	Description
MG9K	Media Gateway 9000
ITP	Integrated Telephony Processor
DCC	Data Communication Card
OM	Operational Measurement
ATM	Asynchronous Transfer Mode

Product = MediaServer 2000

A00004873--MS2000 CLUI Enhancements (UA-AAL1)

Description

In SN06.2, the MS2000 (Media Server 2000) Series Node CLUI was introduced to configure the MS2010 device. The CLUI is delivered to the customer as part of the SESM load that is bundled as part of the CS2M load. The tool requires that the SESM server is in service.

The tool is launched with the command:
/opt/nortel/NTsesm/bin/ms2000.sh

The existing MS2000 Series Node CLUI will be enhanced in SN07 to handle configuration for the MS2020 ATM device. The following new functionality will be added to the MS2000 CLUI:

1) Ability to configure MS2020 device

2) Force Lock of a Device

3) Ability to change the SNMP Community Strings

4) Ability to change the MS2000 web interface user name and password.

5) Ability to configure the NTP (Network Time Protocol) settings for the MS2000 device.

Sample Usage

Forced Lock Menu change

Here is an example of logging into the device issuing a force lock command.

```
***** Media Server 2000 Series CLUI Main Menu *****
1) Display list of MS 2000 series nodes
2) Node Maintenance and Configuration
3) Backup INI file for all nodes
4) Copy a file to the SDM
5) Configure CLUI tool
x) EXIT
Enter Selection (1 - 5, x)
> 2

Enter the IP address of the MS 2000 node
> 47.142.134.127
```

```
*** MS2020 Maintenance and Configuration Menu for Node : 47.142.134.127 ***
1) Display this nodes current configuration
2) Configure this node
3) Download load files to this node
4) Backup the INI file for this node
5) Perform a soft reset on this node
6) Lock or Unlock this node
x) EXIT
Enter Selection (1 - 6, x)
> 6

*** MS2020 Lock Menu for node : 47.142.134.127 ***
*** Current State : unlocked(2)
1) Graceful Lock Node
2) Force Lock Node
3) Unlock Node
x) EXIT
Enter Selection (1 - 2, x)
> 2

                        *** WARNING ***
Performing a forced lock on the node will take it out of service immediately.
Active calls will be dropped!
Perform forced lock? (y/n)
> y
The MS2020 node has been locked.
Press <enter> to continue
```

Configuration menus for MS2020 devices

An example of logging into the box follows. The menu initially displays the name as MS2000 Series CLUI. Once we go to the configure level and enter in a device IP, the CLUI determines the device type and displays the menu specifically for the MS2020.

To be added later.

```
wnc0s0jm:/opt/nortel/NTsesm/bin> ./ms2000.sh
*********************************************************
**  Nortel Media Server 2000 Series Configuration Tool  **
**                    version 2.00                     **
*********************************************************
Enter user name > ptm
Enter password  >
ORBWrapper orb initialized


***** Media Server 2000 Series CLUI Main Menu *****
1) Display list of MS 2000 series nodes
2) Node Maintenance and Configuration
3) Backup INI file for all nodes
4) Copy a file to the SDM
5) Configure CLUI tool
x) EXIT
Enter Selection (1 - 5, x)
> 2
```

```
Enter the IP address of the MS 2000 node
> 47.142.147.134

*** MS2020 Maintenance and Configuration Menu for Node : 47.142.147.1 ***
1) Display this nodes current configuration
2) Configure this node
3) Download load files to this node
4) Backup the INI file for this node
5) Perform a soft reset on this node
6) Lock or Unlock this node
x) EXIT
Enter Selection (1 - 6, x)
>
```

Here we choose to display this nodes configuration. The displayed data is identical to the MS2010 device but adds the 2 ATM parameters at the bottom.

```
*** MS2020 Maintenance and Configuration Menu for Node : 47.142.147.1 ***
1) Display this nodes current configuration
2) Configure this node
3) Download load files to this node
4) Backup the INI file for this node
5) Perform a soft reset on this node
6) Lock or Unlock this node
x) EXIT
Enter Selection (1 - 6, x)
> 1

*** Current configuration for 47.142.147.1 ***
    IP Address                      : 47.142.144.1
    SubNet Address                  : 127.0.0.1
    Default Gateway                 : 127.0.0.1
    MG Control Protocol             : controlProtocol-MGCP(1)
    Software Version                : softwareVersion
    Lock State                      : shuttingDown(1)
    Megaco Call Agent IP Address    : 1.2.3.4
    Is Megaco Call Agent Used       : yes(1)
    Number of Conference Ports      : 1
    Number of TestTrunk Ports       : 1
    Number of Lawful Intercept Ports : 5
    Number of Announcement Ports    : 5
    APS IP Address                  : 127.0.0.1
    Primary Language                : amsLangCantonese(1)
    Secondary Language              : amsLangCantonese(1)
    AMS Profile                     : enabled(1)
    Syslog Server IP                : 127.0.0.1
    SNMP Trap Manager IP            : 127.0.0.1
    Is Trap Manager Used            : no(0)
    ATM Default Application Type    : aal1(1)
    Transmission mode               : sdh(0)

Press <enter> to continue
```

There are certain data tables that can be datafilled for AAL2 devices that are not available for AAL1. In this example we chose to configure the device and the CLUI determines it is an MS2020 AAL1 device.

```
*** MS2020 Maintenance and Configuration Menu for Node : 47.142.147.1 ***
1) Display this nodes current configuration
2) Configure this node
3) Download load files to this node
4) Backup the INI file for this node
5) Perform a soft reset on this node
6) Lock or Unlock this node
x) EXIT
Enter Selection (1 - 6, x)
> 2

***** MS2020 AAL1 Configuration Menu *****
1) General node configuration
2) Configure ATM loopback table
x) EXIT
Enter Selection (1 - 2, x)
```

We now change the configuration to AAL2 by entering the General node configuration menu item.

```
***** MS2020 AAL1 Configuration Menu *****
1) General node configuration
2) Configure ATM loopback table
x) EXIT
Enter Selection (1 - 2, x)
> 1
*** Configuring MS2020 at 47.142.147.1 ***

Enter the desired value at the prompt. The current setting is displayed
in brackets. To chose the default setting press Enter. Enter '?' for
help with the format.
Megaco Call Agent IP Address [1.2.3.4]
>
Using current value 1.2.3.4

Number of Conference Ports [1]
>
Using current value 1

Number of TestTrunk Ports [1]
>
Using current value 1

Number of Lawful Intercept Ports [5]
>
Using current value 5

Number of Announcement Ports [5]
>
Using current value 5

APS IP Address [127.0.0.1]
>
Using current value 127.0.0.1

Primary Language [amsLangCantonese(1)]
>
```

```
Using current value amsLangCantonese(1)

Secondary Language [amsLangCantonese(1)]
>
Using current value amsLangCantonese(1)

AMS Profile [enabled(1)]
>
Using current value enabled(1)

Syslog Server IP [127.0.0.1]
>
Using current value 127.0.0.1

SNMP Trap Manager IP [127.0.0.1]
>
Using current value 127.0.0.1

Is Trap Manager Used [no(0)]
>
Using current value no(0)

ATM Default Application Type [aal1(1)]
> ?
SYNTAX: INTEGER  { aal1 ( 1 ) , aal2-i-366-2 ( 2 ) , aal2-umts ( 3 ) }
                          *** NOTE ***
For enumerated types, enter the string value rather than the numeric value.
For example: For Primary Language, enter the string name "isoLangFrench".

> aal2-i-366-2
Value validated and set to aal2-i-366-2

Transmission mode [sdh(0)]
>
Using current value sdh(0)


Would you like to write these values to the MS2020 node? (y/n)
> y

***** MS2020 AAL2 Configuration Menu *****
1) General node configuration
2) Configure ATM loopback table
3) Configure ATM port table
4) Configure AAL2 PVC table
x) EXIT
Enter Selection (1 - 4, x)
>
```

As the example above shows, the ATM default application type was changed to AAL2. As a result of this change, new menu items appear in the Configuration menu. The user now has the option to configure the ATM port and AAL2 PVC tables.

Entering into the configuration for the port table we get another menu. In the following example we select to list the port table from the Configure Port Menu.

```
***** MS2020 AAL2 Configuration Menu *****
1) General node configuration
2) Configure ATM loopback table
3) Configure ATM port table
4) Configure AAL2 PVC table
x) EXIT
Enter Selection (1 - 4, x)
> 3

***** MS2020 ATM Port Configuration Menu *****
1) List current table
2) Add Port entry
3) Delete Port entry
x) EXIT
Enter Selection (1 - 3, x)
> 1

*** Port Table for MS2020 at 47.142.147.1 ***

    Table Entry 0
    ***********
    Port Number           : atmPortAdministrativeState.0:-->unlocked(2)
    Administrative State  : atmPortOperationalState.0:-->enabled(1)
    Operational State     : atmPortNumber.0:-->port0(0)
    Port Address          : atmPortAddress.0:-->atmPortAddress
    Alarm Status          : atmPortAlarmStatus.0:-->los(1)

    Table Entry 1
    ***********
    Port Number           : atmPortAdministrativeState.1:-->unlocked(2)
    Administrative State  : atmPortOperationalState.1:-->enabled(1)
    Operational State     : atmPortNumber.1:-->port1(1)
    Port Address          : atmPortAddress.1:-->atmPortAddress
    Alarm Status          : atmPortAlarmStatus.1:-->los(1)

    Table Entry 2
    ***********
    Port Number           : atmPortAdministrativeState.2:-->unlocked(2)
    Administrative State  : atmPortOperationalState.2:-->enabled(1)
    Operational State     : atmPortNumber.2:-->port2(2)
    Port Address          : atmPortAddress.2:-->atmPortAddress
    Alarm Status          : atmPortAlarmStatus.2:-->los(1)

***** MS2020 ATM Port Configuration Menu *****
1) List current table
2) Add Port entry
3) Delete Port entry
x) EXIT
Enter Selection (1 - 3, x)
>
```

Each of the configuration menus for the data tables behaves in the same manner. Adding entries will prompt for the needed data, deleting entries will prompt the user for the entry number to delete.

Setting Network Time Protocol

Do not have MIB from AudioCodes yet to implement this.

Setting SNMP Community Strings

Do not have MIB from AudioCodes yet to implement this.

Applicable customer facing sections

Fault Management	
Not applicable	__X___
Logs	_____
Alarms	_____
Configuration	
Not applicable	_____
Data Schema/MIBs	_____
User Interface	__X___
GUI	_____
Element Management	_____
Security	_____
Service Order	_____
Office Parameters	_____
SOC	_____
Upgrades impact	_____
Accounting (includes AMA billing)	_____
Not Applicable	__X___
Billing changes	_____
Performance	__X___
Not Applicable	_____
Operational Measurements	_____
Performance Measurements	_____
Realtime	_____
Not applicable	__X___
Engineering Information	_____
Not applicable	__X___

Hardware Requirements or Dependencies

Software Requirements or Dependencies

Limitations and restrictions

Interactions

Glossary

Term	Description
MS2020	Media Server 2020, ATM Media Server

Product = Network Patch Manager

A00003560 -- Patching SSPFS, CBM, and IEMS via the NPM (UA-AAL1)

Functional Description

The Network Patch Manager is responsible for patching many Succession Network components previous to SN07. These components include:

GWC cards
MG9K-based cards
SESM
SAM21 EM
NPM
PSE
QCA
MG9K server
MG9K midtier
OM Collector

Beginning with this feature in SN07, the Network Patch Manager is used to patch additional components in Succession Networks as well as components

in non-Succession configurations. These new components include the following:

CBM - Core Billing Manager
SSPFS platform
IEMS - Integrated Element Management System

NPM Installation and Configuration

Prior to SN07, the NPM is always installed on the SSPFS machine that contains the CS2000 Management load. Beginning with this feature in SN07, the NPM is delivered as part of the SSPFS platform and not the CS2000 Management load.

In existing customer sites where an NPM is moving from one physical box to another physical box, a migration process is required to ensure the new NPM contains any necessary previous data. This migration process includes the following:

- saving any customer-specific predefined reports that are stored in the NPM database
- saving all patch files from the golden directory
- movement of the data in the previous bullets from the old machine to the new machine
- re-datafilling of the predefined reports into the new NPM
- saving of the patch files in the golden directory on the new machine

In a given customer site, only one NPM should be installed. The SSPFS installation/upgrade/configuration scripts assist in identifying which SSPFS-based machine should have the NPM software installed. In general, the SSPFS-based machine that is to contain the IEMS application is the machine that should have the NPM installed. If an IEMS is not part of a customer site installation, the NPM should be installed on the same machine as the CBM application.

The various supported configurations are now discussed.

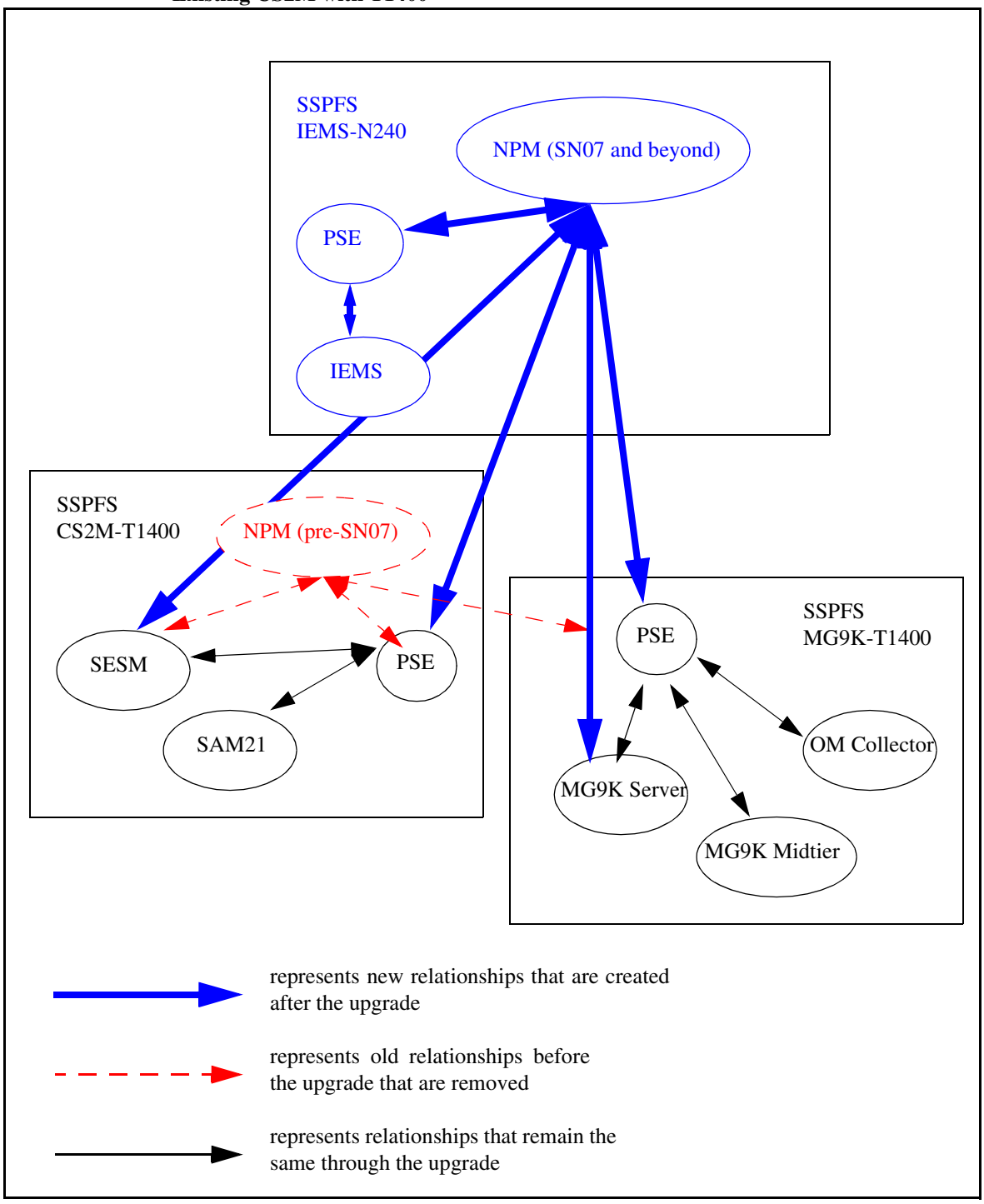
Existing CS2M on a T1400

In this configuration, an existing CS2000 customer site is being upgraded to SN07. The site has an existing T1400 SSPFS-based machine with NPM already installed and running with pre-SN07 software. Figure , on page 1632 shows this site with a new N240 being installed that contains the IEMS and NPM running SN07. After the upgrade, the CS2M-based T1400 continues to run in the customer site (with SN07 CS2M software) without the NPM since it would be installed on the new N240 machine. In addition if MG9K EM components are present, these SSPFS-based machines continue to run on T1400(s) with the new SN07 software.

It should be noted in the figure that other patchable components may exist but are not shown to reduce the complexity of the diagram. In addition, the MG9K EM components running on 1 T1400 in the figure may run on separate T1400s. The components not listed in the figure may include:

- optional QCA application running on the T1400 that communicates with the PSE local to the T1400
- the CBM component being introduced in SN07 may be installed on the N240 along with the NPM and IEMS

Existing CS2M with T1400



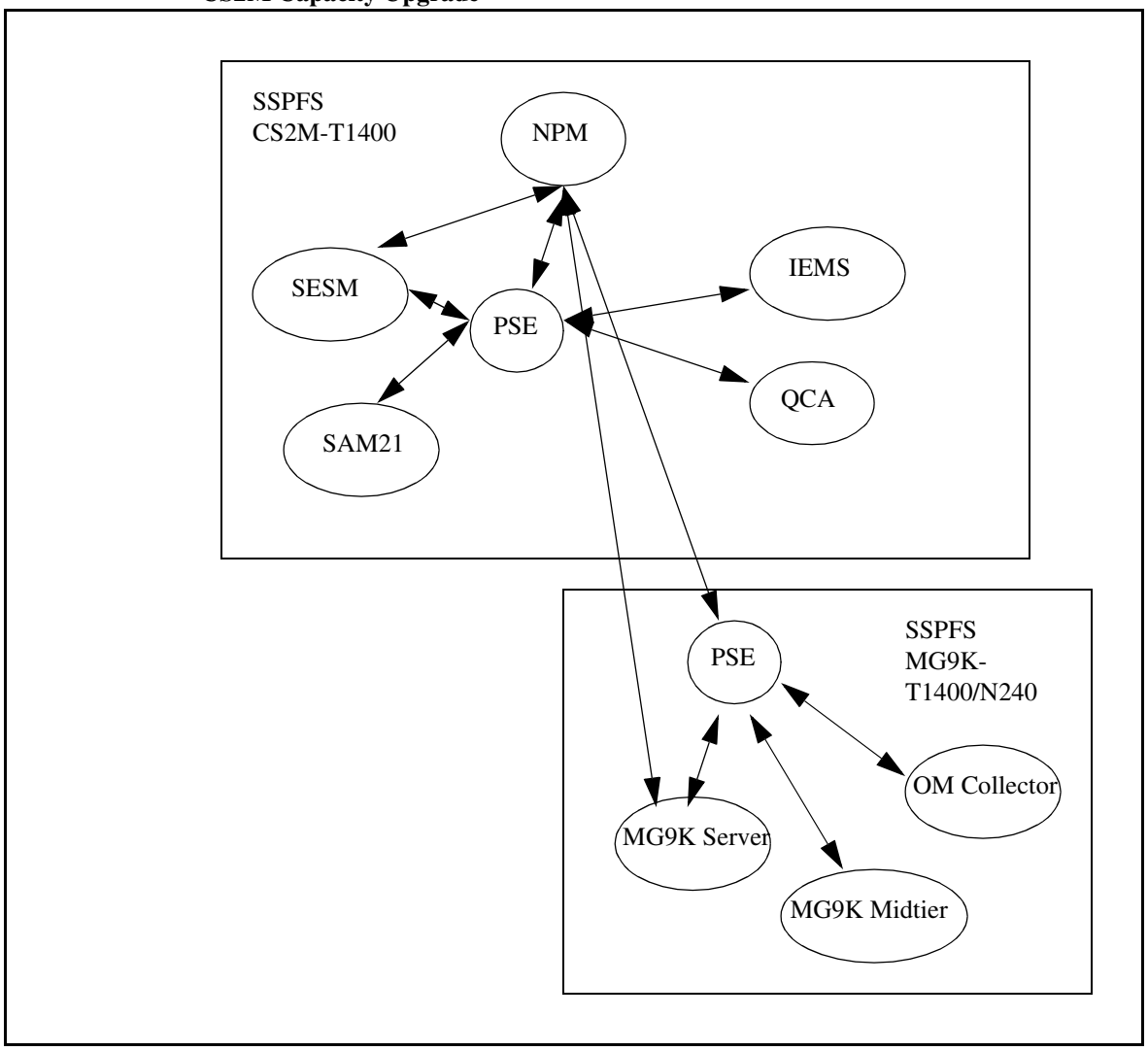
The following steps are required during the upgrade process in this configuration:

- the new N240 machine is commissioned with the SN07 versions of the IEMS and NPM installed on the machine
- the CS2M machine is upgraded to SN07, this process consists of the following:
  - the PSE on the CS2M T1400 machine is configured to look at the CORBA name service on the new N240 machine
  - the SESM application is upgraded, the EPM component within SESM now looks at the name service hostname associated with the local PSE to find the location of the NPM (this step ensures the GWCs associated with the EPM are registered with the new NPM)
  - the NPM is not upgraded in the CS2M T1400 machine (i.e. effectively it is uninstalled)
- the MG9K machine (if present) is upgraded to SN07, this process consists of the following:
  - the PSE on the MG9K-based T1400 machine(s) are configured to look at the CORBA name service on the new N240 machine
  - the MG9K components are upgraded, the EPM component within the MG9K-server component now looks at the name service hostname associated with the local PSE to find the location of the NPM (this step ensures the MG9K-based cards associated with the EPM(s) are registered with the new NPM)

Existing CS2M gets a Capacity Upgrade

In this configuration, an existing CS2000 customer site has software that is being upgraded from pre-SN07 software to SN07 software and also has hardware that is being upgraded from a T1400 to an SN240. With this scenario, the IEMS component is loaded into the existing CS2M machine. Hence, there is only one place where the NPM can reside. The following figure shows this configuration. Optionally shown in the figure is an MG9K-based machine that can run on a T1400 or N240 machine. Regardless of the number of MG9K-based machines or hardware, the NPM and PSEs are configured in the same way.

CS2M Capacity Upgrade



The following steps are required during the upgrade process in this configuration:

- the CS2M T1400 machine is upgraded to an N240 machine
- the SSPFS software on the N240 machine is upgraded to SN07
  - — SSPFS software is upgraded
  - — the PSE on this machine is upgraded to SN07 (since the NPM and PSE will coreside on this box, no configuration of a CORBA name service host is necessary on this machine)
  - — the old version of NPM is unloaded and the SN07 version is loaded
- IEMS is installed on the N240
- CBM is installed on the N240

- the remainder of the applications on the CS2M machine are upgraded to SN07
- the MG9K machine(s) (if present) are upgraded to SN07, from a patching perspective there are no modifications to the existing upgrade procedure

New CS2M Office gets an N240

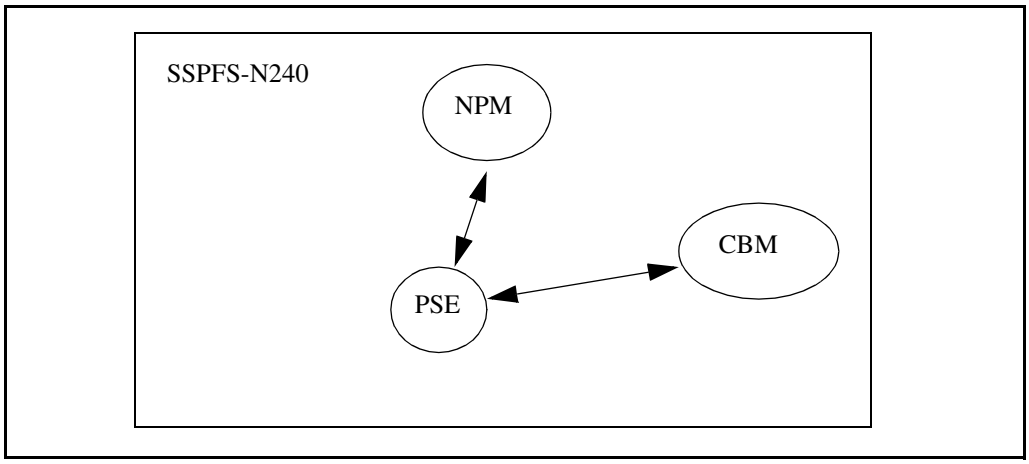
This scenario is similar to the configuration in Figure , on page 1634 . The only difference is this scenario is a ‘new install’ instead of an upgrade. The following steps are required during this ‘new install’ process:

- the SSPFS SN07 software on the N240 machine is installed
  - SSPFS software is installed
  - the SN07 PSE on this machine is installed (since the NPM and PSE will coreside on this box, no configuration of a CORBA name service host is necessary on this machine)
  - the SN07 NPM is installed
- IEMS is installed on the N240
- CBM is installed on the N240
- the remainder of the applications on the CS2M machine are installed with SN07 software
- the MG9K machine(s) (if present) are installed with SN07 software, from a patching perspective there are no modifications to the existing installation procedure

TDM/Wireless

Beginning in SN07, existing TDM/wireless customers will be receiving an N240 SSPFS-based machine to handle CBM (SDM in the AIX-based configuration) instead of the SDM (Supernode Data Manager). Since there is only one SSPFS-based machine in this configuration, the NPM can only reside on this machine. In SN07 the process of receiving the new N240 machine is treated as a new install from a patching software perspective since the NPM and PSE components did not exist in this configuration prior to SN07. The following figure shows this configuration.

TDM/Wireless Installation



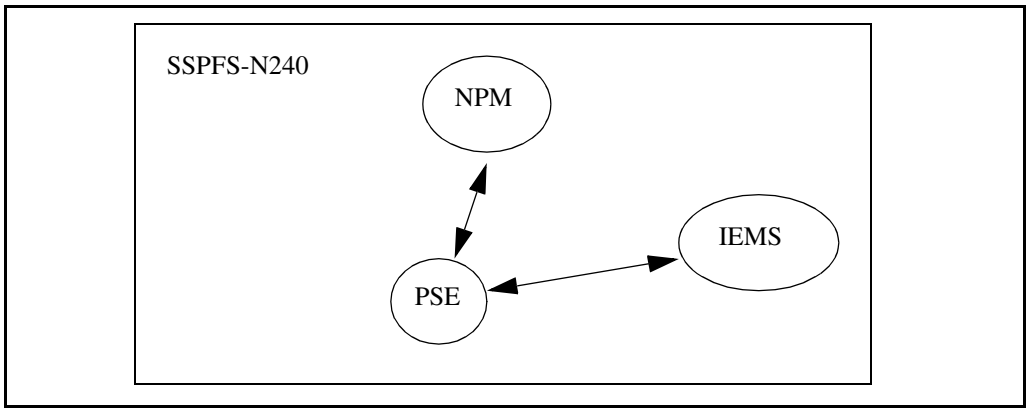
The following steps are required during this ‘new install’ process:

- the SSPFS SN07 software on the N240 machine is installed
  - SSPFS software is installed
  - the SN07 PSE on this machine is installed (since the NPM and PSE will coreside on this box, no configuration of a CORBA name service host is necessary on this machine)
  - the SN07 NPM is installed
- CBM is installed on the N240

Stand-alone IEMS

Beginning in SN07, a stand-alone IEMS configuration is supported. This configuration is similar to section “ TDM/Wireless” from a patching software perspective as it is a ‘new install’. Since there is only one SSPFS-based machine in this configuration, the NPM can only reside on this machine. The following figure shows this configuration.

Stand-alone IEMS



The following steps are required during this ‘new install’ process:

- the SSPFS SN07 software on the N240 machine is installed
  - SSPFS software is installed
  - the SN07 PSE on this machine is installed (since the NPM and PSE will coreside on this box, no configuration of a CORBA name service host is necessary on this machine)
  - the SN07 NPM is installed
- IEMS is installed on the N240

Only One NPM

There should only be one NPM server installed in each site. This feature attempts to ensure only one NPM is installed via the following ways.

- SSPFS profiles
  No NPM should be installed on an MG9K-based machine. An NPM is preferred to be installed on the IEMS-based machine.
- verification of the PSE NS hostname when the NPM server is started
  When the PSE is configured, the configuration step asks for the hostname/ip address of the NPM server location. This feature modifies the NPM server to look at that configuration value. If the value is ever different from the local machine, the NPM fails to start.

While these steps help prevent more than one NPM from being installed, it is not a guarantee that it will prevent the scenario from occuring.

Patching Maintenance

When the new NPM patchable applications are installed (CBM, SSPFS, and IEMS), the NPM automatically becomes aware of the components. These components appear in reports and the device list of the GUI. The following functions that exist for other targets in previous releases are now available for IEMS, CBM, and SSPFS.

- apply
- remove
- audit
- restart (IEMS only)
- set/report creation
- plans/automation
- alarms

IEMS

Similar to the existing OAM Java-based applications like SESM, SAM21EM, and MG9K EM components, the IEMS requires 2 steps for application and 2 steps for removal of patches.

application

- apply command from the NPM GUI or CLUI (sets patch to applied/disabled)
- restart command from the NPM GUI or CLUI on IEMS (sets patch to applied/enabled)

removal

- remove command from the NPM GUI or CLUI (sets patch to removed/enabled)
- restart command from the NPM GUI or CLUI on IEMS to disable the patch (sets patch to removed/disabled)

Beginning in SN06.2, the restart operation from the NPM GUI and CLUI can be automatically scheduled via NPM plans (autorestart). This capability is similar to the automatic application of patches.

SSPFS and CBM

Patches that are created and require application to the SSPFS and CBM components require one step from the NPM GUI or CLUI. Likewise for the removal operation. A single apply command or remove command from the NPM GUI or CLUI is sufficient for complete application or removal. If the associated application requires a restart or recreation of an existing process for application or removal, the ‘restart’ action is initiated during the single apply or remove request.

In some cases, an SSPFS or CBM patch may require additional action outside of the NPM GUI or CLUI for complete application or removal. In these cases, the patch is marked as non-autoappliable and contains special application instructions that describes the extra actions that are required.

For application of these patches, the patch appears as applied/disabled after the NPM apply command from the NPM GUI/CLUI. The extra actions described in the special application instructions automatically trigger the patch to become applied/enabled when the actions have been successfully completed. This behavior is also applicable for the remove scenario.

Full Matrix

The following table shows a complete list of patchable applications/devices that are supported by the NPM in SN07. The table indicates the necessary

commands required to fully apply or remove patches and whether automation is supported.

Target/Command Matrix

	Full Application		Full Removal			
Target	Apply Cmd Required	Restart Cmd Required to enable	Remove Cmd Required	Restart Cmd Required to disable	autoapply supported	autorestart supported
MG9K Cards (OC3, SCI, SCO, ITP, ITX, DS1, ABI)	yes	no	yes	no	yes	n/a
GWC Cards	yes	no	yes	no	yes	n/a
SESM	yes	yes	yes	yes	yes	yes
SAM21 EM	yes	yes	yes	yes	yes	yes
NPM	yes	yes	yes	yes	yes	yes
PSE	yes	yes	yes	yes	yes	yes
QCA	yes	yes	yes	yes	yes	no
MG9K server	yes	yes	yes	yes	yes	yes
MG9K midtier	yes	yes	yes	yes	yes	yes
OM Collec-tor	yes	yes	yes	yes	yes	yes
IEMS	yes	yes	yes	yes	yes	yes
SSPFS	yes	no[a]	yes	no[a]	yes	n/a
CBM	yes	no[a]	yes	no[a]	yes	n/a

a. In some cases SSPFS or CBM patches may require reboot of applications or machines. These patches are marked as non-autoappliable and require human intervention.

Patch File Format Modifications

For the NPM to track different software with various behaviors, the patch file format is modified with this feature. While the specific details of the patch file format are not in this section, they can be found in the CN document associated with this feature.

Patch Calculation for CBM and SSPFS Patches

Prior to SN07, all NPM-based patching uses a loadname associated with a given device or application to perform patch calculation in determining what patches calculate for any given office. All previous SN07 patch types will continue to use the loadname for calculation purposes.

Beginning in SN07 with this feature, CBM and SSPFS patches that are tracked by the NPM use a new record in addition to the loadname. A functional component record (fc) is introduced into the patch file and the NPM database. This new record is tracked against CBM/SSPFS patches and CBM/SSPFS applications.

The NPM ‘getpatch’ command and ‘apply’ command are updated with this feature to check for the presence of functional component records in a patch file. If these records are present, the records are compared against the the fc’s associated with the devices in the office in addition to the loadname. Both the loadname and functional component records must match for the given patch to calculate for the office.

QCA Patches with Autorestart=“n”

The optional QCA application became patchable via the NPM beginning in SN06.2. With this feature and the patch file format modifications, all QCA patches have the autorestart flag set to ‘n’ by default. This modification is necessary to ensure that the QCA application does not lose service by virtue of an NPM automated task triggering the action. As the QCA application tracks critical customer data, the prevention of unforseen data is paramount.

Applicable customer facing sections

Fault Management

Not applicable	_X____
Logs	_N/A__
Alarms	_N/A__

Configuration

Not applicable	_____
Data Schema/MIBs	_X____
User Interface	_X____

GUI	__N/A_
Element Management	__N/A_
Security	_N/A__
Service Order	_N/A__
Office Parameters	_N/A__
SOC	_N/A__
Upgrades impact	__X___
Accounting (includes AMA billing)	_____
Not Applicable	__X___
Billing changes	_____
Performance	_____
Not Applicable	__X___
Operational Measurements	_____
Performance Measurements	_____

Hardware Requirements or Dependencies

None.

Software Requirements or Dependencies

None.

Limitations and restrictions

Please refer to " Only One NPM" on page 1637 for limitations on preventing more than one NPM being installed in a site.

Interactions

A00003615 - SSPFS Patching
A00002133 - CBM Patching

Product = Passport 15000

CD003116 -- Recurring fan alarms and shelf temperature alarm enhancements (UA-AAL1, PT-AAL1)

This feature includes both repeating fan failure alarms and additional enhancements to shelf and fabric alarms on a P15K shelf.

In P15K releases prior to PCR 6.1, P15K lights the ‘minor’ and ‘major’ alarm LEDs on the frame, and raises a ‘major’ software alarm, when a fan fails. P15K does not generate additional indicators when additional fans fail. It is possible that maintenance personnel may not fix a single fan failure immediately. Hence, even though P15K fans are quite reliable, there is a potential for service impacts if additional fans fail.

This feature implements repeating fan failure alarms once every 8 hours until the fan failure is corrected and the alarm is cleared. The alarm severity of first three alarms in the alarm sequence is ‘major’. If the fan failure condition is still not cleared, starting with the fourth alarm in the alarm sequence, the alarm severity will be ‘critical’.

Customers can turn off the repeating fan alarm behavior through provisioning data.

In addition to the repeating fan failure alarms, this feature also includes the following additional functionality:

- When the fabric reaches 65 deg C, a ‘major’ alarm is raised
- When the shelf reaches 70 deg C, a ‘critical’ alarm is raised
- The 5 minute PM data will include the highest fabric temperature reached in the 5 minute interval.

SN07 limitation

If a CP switchover happens during the repetition of fan failure alarms, the standby CP takes over. At this point, the new CP detects the fan failure for the first time and the repetition sequence is re-initiated. Both the criticality of the alarm and the repetition sequence number in the comment text get reset.

Product = Passport 15000

CD003592 & CD003266 -- MG9K connectivity over DS3 for UA-AAL1 (UA-AAL1)

In some cases, deployment of MG9K in remote wire centres requires DS3 connection to Passport 15K either to reduce cost, or due to unavailability of OC-3 facilities.

This feature development is to support MG9K connectivity to P15K ATM Core over channelized OC3 interface over fiber network. The fiber network

will be used to mux/demux DS3 traffic. MG9k will connect to the fiber network over 1+1 protected channelized OC-3 link. P15K will connect to a 4p DS3 sparing panel over 1+1 protected DS3 link from redundant 12p DS3 ATM FP.

NP templates will also be developed to provision the DS3 interface on P15K for this application.

Application note:

The connection between sparing panel to an Add/drop mux is over a simplex DS3 cable.

Product = Passport 15000

Q00560863 -- Succession ATM Software Migration Tool Support for Unprotected SONET bridged interface pairs (UA-AAL1, PT-AAL1)

Passport 15000 Hitless Software Migration (HSM) capability is hitless for GR253 SONET APS protected ports. However, for Succession PT-AAL1 and UA-AAL1 solutions, Call Server ports (XA-Core, SAM21) are not SONET protected. Multiple unprotected links are used for connecting Call Server ports which utilize higher layer protection software for protection.

When all CS ports are routed through a single Passport 15000, HSM results in Call Server outage. Passport 15000 HSM behavior on 16pOC3 unprotected SONET port pairs is enhanced to avoid Call Server outage in this network configuration, by providing new provisionable attributes and HSM behavior on this FP. In SN07, Succession ATM Software Migration (SASM) tool supports the unprotected SONET bridged interface pairs feature.

Product = Passport 15000

Q00675702 -- Graphical User Interface for Release Name Change (UA-AAL1, PT-AAL1)

Currently customers can customize the MDM login screen to display the Succession release name (e.g. SNxx) string manually by editing a configuration file in MDM. This feature enhancement enables customers to update this string automatically when the new Succession releases are delivered or provide a graphical user interface to change the Succession release name string at an appropriate point in the release upgrade process.

Product = Passport 15000

Q00800761 -- Resynchronization of MDM after restore (UA-AAL1, PT-AAL1)

Currently a redundant pair of MDM servers are used to manage Passport 15K Succession ATM Core. If one of the MDM servers fails, the failed MDM server can be recovered from a previous backup. This enhancement provides procedures to synchronize the recovered MDM server with the functioning MDM server with minimum impact on network observability.

Product = Passport 15000

Q00828166 -- P15K audit logs in real-time to the SCC2 log stream - Phase 1 (UA-AAL1, PT-AAL1)

This enhancement sends an SCC2 log whenever an operator starts a provisioning session, issues activate command and commits a new provisioning view on the Passport.

Product = Passport 15000

Q00766794, Q00766796 and Q00812294 -- 5 and 30 min PMs Enhancements (UA-AAL1, PT-AAL1)

Additional 5 and 30 min performance measurements are supported for P15K in the Succession Core:

- Max fabric temperature during the 5 minute interval. OSS can then compute the temperature gradient and take appropriate corrective actions.
- Number of active alarms and their severity during the 5 min interval. Network personnel can spot any unusual activity on the switch and alert the local maintenance personnel to take pro-active corrective actions
- Maximum CPU utilization for each of the FPs in the 5 minute period
- Successfully transferred cells by service category

Product = TOPS

A00002740 -- TOPS International DA Call Completion (Succession on DMS)

Functional Description

This feature allows DA calls with an international requested number to be completed using manual DA Call Completion (DACC) or Automated DACC (ADACC).

Overview

TOPS needs an international indicator to process a called number as international/overseas. When a call is signalled with an international called number, there is either a prefix or parameter to indicate international. When an international called number is entered by an operator at position, a functions key is first entered to indicate the number is international. Currently, when TOPS receives a requested number from the DA Service provider (DAS), it is assumed to be domestic (or local). This feature requires the DAS to provide a predetermined international indicator along with an international requested number. Thus, the **DAS must be upgraded** prior to activating this feature.

This feature enhances TOPS to look for the international prefix on requested numbers from the DAS. When found, TOPS will translate the requested number as international for call completion.

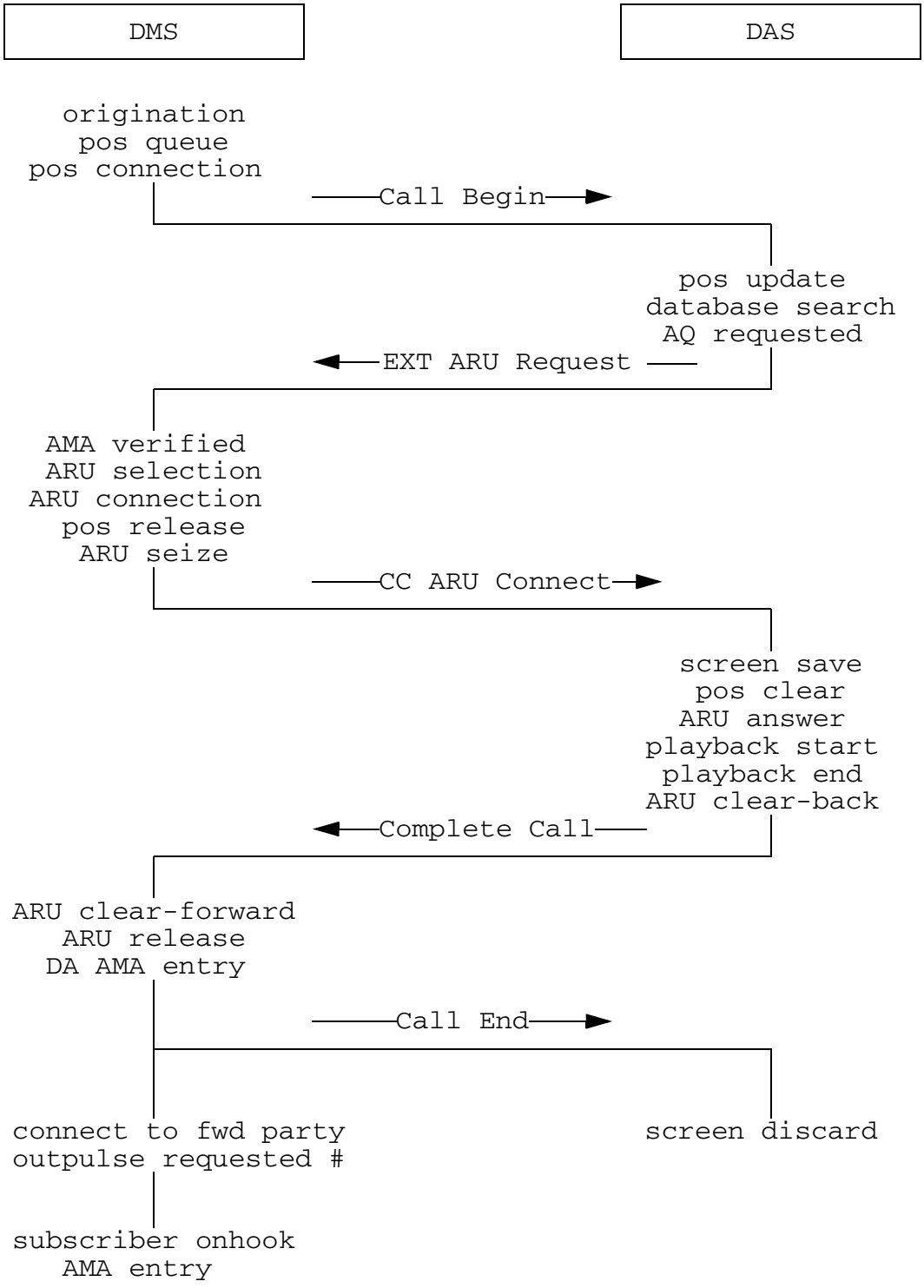
Since this feature is dependent upon DAS changes, there are a variety a scenarios which can or cannot be supported based on the level of DAS support. For full IDACC support, ensure the vendor supports the international prefix in all messages which contain the requested number.

The initial release of this feature only supported the ADACC scenario as documented in a00002740.aa01; these limitations have been reproduced in an appendix of this document. A second release (a00002740.aa02) added the ability to restrict overseas ADACC by adding it to table TDBDAOPT. This version captures the full functionality TOPS can provide for IDACC calls.

IDACC Callflow using ADACC

International listing numbers are supported via an international indicator prepended to the listing number. This international prefix indicator is datafillable via a new parameter in TOPSPARM, as described later in this document.

When TOPS receives a listing number from the DAS with the pre-determined international prefix, the listing is treated as an international number. The following callflow illustrates the ADACC scenario, and notes the IDACC specifics below.



Auto-quote with Call Completion, DA Call

In the EXT ARU Request message, the DAS sends the international indicator, the country code, and the listing number (prefix+CC+listing). TOPS recognizes the international prefix and records the listing number as international. The prefix is then removed from the listing to enable existing translations to be used.

When the Complete Call message is received, TOPS will generate a DA AMA record[1] with the requested number showing the country code and listing number. It will also contain an international indicator.

```
*HEX ID:AA  STRUCTURE CODE:40106C  CALL CODE:194C  SENSOR TYPE:036C
 SENSOR ID:0000000C  REC OFFICE TYPE:036C  REC OFFICE ID:0000000C
 DATE:30410C  TIMING IND:00000C  STUDY IND:0200000C  SERVICE OBSERVED:0C
 SIG DIGITS NEXT FIELD:010C  ORIG OPEN DIGITS 1:01036321005C
 ORIG OPEN DIGITS 2:FFFFFFFFFF  ORIGINATING CHARGE INFO:FFFF
 CONNECT TIME:0854090C  ELAPSED TIME:000000112C  SERVICE FEATURE:000C
 STATION SIGNALING IND:9C  SCREENING CODE:000C  CALLED NUMBER INPUT:1C
 CALLING NUMBER SOURCE:1C  MODULE CODE:042C
 CALL RECORD SEQUENCE NUMBER:0000035C  MODULE CODE:311C  ORIG CALL TYPE:036C
 MODULE CODE:032C  OPERATOR IDS:1050915009999C
 ACC OPERATOR WORK TIME:00060C  MODULE CODE:037C  LINE NUMBER TYPE:001C
 DOMESTIC/INTL INDICATOR:2C  SIG DIGITS NEXT FIELD:011C
 TERM OPEN DIGITS 1:10123444444C  TERM OPEN DIGITS 2:FFFFFFFFFF
 MODULE CODE:310C  KEYING ACTIONS:111111111C  MODULE CODE:055C
 SERVICE ID:001C  MEANS OF INFORMATION INPUT:1C  MEANS OF LSDB ACCESS:1C
 LSDBS BOC ID:12138C  LSDB ACCESSES:FF  LISTING RESPONSE:1C
 LISTING STATUS:999999900C  REQUEST COUNTER:001C  MODULE CODE:104C
   TRUNK FACILITY ID:102950000C  MODULE CODE:000C
```

TOPS can then utilize ADACC to complete the call if all ADACC checks pass.

In addition to existing ADACC checks in tables DABILL, DATRKOPT, ADACCOPT and ICNTRY (for direct routes to country), table TDBDAOPT includes a new option for International/Overseas calls. Thus, for IDACC calls to complete using ADACC, the ADACCSRV field of TDBDAOPT must include the new option, OVERSEAS, or be set to ALL.

1. This AMA structure is not changed by this feature; however, DA AMA records can now include the international indicator and country code. Although the country code is included with the listing number in the 'TERM OPEN DIGITS' fields, the number of country code digits is not specified for open numbering dialling plans for this 'new' DA record (194) nor for the existing call completion record (192).

Note: Please ensure existing datafill for table TDBDAOPT field ADACCSRV which is set to 'ALL' should be completing International/Overseas calls.

Table DOMBILL still enforces billing restrictions for domestic calls and table OVSBILL is now used for billing restrictions for international calls.

Table VROPT has a parameter, DACC_LOCAL_TOLL_ACTIVATION, in which international/overseas calls are now part of the TOLL and ALL options for this parameter.

Auto-collect as sent from the DAS also includes a TOLL/ALL option in which now include international/overseas calls.

When ADACC processing can be applied to the IDACC call, existing translations are performed using the operator FOREIGN entry in table IOPRTRAN.

If outpulsing to a SS7 ISUP trunk (ANSI or ETSI), the NOA of the IAM will contain ‘international’ as shown below.

```
OUTGOING  10:25:30.038  NODE TYPE= LTC_NODE
S512: ENCAP MS_CARD= 6 MS_PORT= 3  NODE= 4123
N= 001D  TN= 01CC  MSGTAG= 00  ROUTE= 101B  ERROR= 00  LENGTH= 2A
GENT= CKT     T915TO95ETSI    1
F 01 00 01 00 0A 03 0A 10 01 00 01 02 03 00 01 00 06 04 10 01 21 43 45 0A 07
3 10 01 63 23 01 50 00

              CCS7 MESSAGE TYPE:  ISUP_IAM
              DATA BYTES:         00 01 00 0A 03 0A 10 01 00 01
                                  02 03 00 01 00 06 04 10 01 21
                                  43 45 0A 07 03 10 01 63 23 01
                                  50 00

              NATURE OF CONNECTION:    ISUP_NO_SATELLITE,  NO_ISUP_CONT_CHK
                                       ISUP_NO_HALF_ECHO_SUP

              FORWARD CALL INDICATORS: ISUP_Call Type:       ISUP_INTERNATIONAL_CALL
                                       E_to_E_Method:        NO_E_TO_E_METHOD_AVAIL
                                       ISUP_Interworking:    NO_INTERWORKING
                                       E_to_E_Info_Check:    NO_E_TO_E_INFO
                                       ISDN_UP_Ind:          NOT_ISUP_ALL_THE_WAY
                                       ISDN_UP_Pref_Ind:     ISDN_UP_PREF_ALL_THE_WAY
                                       ISDN_Access_Ind:      ACCESS_NON_ISDN
                                       Trans_Called_Num_Ind: NUMBER_NOT_TRANSLATED
                                       Routing_Attempt_Ind:  NO_ROUTING_ATTEMPT

              CALLING PARTY CATEGORY:  #0A - ISUP_CPC_SUBSCRIBER_1

              MAND.VARIABLE PART:      Generic Base USI:
                                         TRANSMISSION MEDIUM REQ:   TMR_NIL
                                         INFORMATION TRANSFER CAP:  GEN_ITC_SPEECH
                                         CODING STANDARD:           STD_CCITT
                                         INFORMATION TRANSFER RATE: ITR_64KB
                                         TRANSFER MODE:             MODE_CIRCUIT
                                         LAYER1 INFORMATION:        LAYER1_G711_ALAW
                                         USER RATE:                 USER_RATE_NIL
                                         SYNCHRONIZATION:           SYNCHRONE
                                         NEGOTIATION:               NEGOT_NOT_INBAND
```

```
                                    MESSAGE PRIORITY:          1

                                     CALLED PARTY:
                                   EVEN_ODD_IND  :            EVEN_NUM_NIBBLES
                                    NATURE_OF_ADD :        #04 - INTERNAT_NUMBER
                                    NUMBERING_PLAN :    ISDN_TELEPHONY_NUM_PLAN
                                    ADDRESS_INFORMATION = 10123444
                                    INTERNAL_NET_NUMBER : ALLOWED

              OPTIONAL PART:          CALLING PARTY:
                                     EVEN_ODD_IND:              EVEN_NUM_NIBBLES
                                      NATURE_OF_ADD : UNIQUE_NATIONAL_SIG_NUMBER
                                   ADDR_PRES_RESTRICTED_IND : PRESENTATION_ALLOWED
                                     NUMBERING_PLAN : ISDN_TELEPHONY_NUM_PLAN
                                     SCREENING_IND  : USER_PROVIDED_NOT_SCREEN
                                    CLG_PTY_INCOMPL_IND : CALLING_PARTY_COMPLETE
                                     ADDRESS_INFORMATION = 1036321005
```

When the call ends, the call completion AMA record is generated as shown below. No changes were made to this AMA record.

```
*HEX ID:AA  STRUCTURE CODE:40106C  CALL CODE:192C  SENSOR TYPE:036C
 SENSOR ID:0000000C  REC OFFICE TYPE:036C  REC OFFICE ID:0000000C
 DATE:30410C  TIMING IND:00000C  STUDY IND:0200000C  SERVICE OBSERVED:0C
 SIG DIGITS NEXT FIELD:010C  ORIG OPEN DIGITS 1:01036321005C
 ORIG OPEN DIGITS 2:FFFFFFFFFF  ORIGINATING CHARGE INFO:FFFF
 CONNECT TIME:0854304C  ELAPSED TIME:000000052C  SERVICE FEATURE:000C
 STATION SIGNALING IND:9C  SCREENING CODE:000C  CALLED NUMBER INPUT:4C
 CALLING NUMBER SOURCE:1C  MODULE CODE:042C
 CALL RECORD SEQUENCE NUMBER:0000036C  MODULE CODE:316C  LOCAL INDICATOR:1C
 MODULE CODE:311C  ORIG CALL TYPE:002C  MODULE CODE:032C
 OPERATOR IDS:1050915009999C  ACC OPERATOR WORK TIME:00040C
 MODULE CODE:033C  DOMESTIC/INTL INDICATOR:2C  SIG DIGITS NEXT FIELD:011C
 TERM OPEN DIGITS 1:10123444444C  TERM OPEN DIGITS 2:FFFFFFFFFF
 COMPLETION IND:001C  RATE IND:7C  OSS CALL COMPLETION CONDITIONS:1121710C
 ALTERNATE ROUTE NUMBER:FFFF  MODULE CODE:310C  KEYING ACTIONS:221111111C
 MODULE CODE:104C  TRUNK FACILITY ID:102950000C  MODULE CODE:000C
```

Enabling International DACC

In ISN07 and above loads, this feature is controlled by a SOC option and a TOPSFTR parameter. The intent is to only turn SOC on once and then use TOPSFTR to activate/deactivate the functionality.

SOC Option

SOC Option	
ENSV0108	DA Intl Call Compltn

ENSV0108 requires ENSV0101, OSB00101, OSDA0101, and OSDA0102.

Table TOPSFTR

FTRNAME	FTRENABL
International_DA_Call_Comp	Y

Table TOPSFTR can be set to Y to activate or N to deactivate.

The SOC option and TOPSFTR parameter can be set regardless of the other; however, a warning message will be generated if the other is not set as needed.

TOPSFTR parameter, cellular_automatic_da_call_comp, must also be set to Y to utilize table TDBDAOPT field ADACCSRV.

Defining the International_DACC_Prefix

The international DACC prefix is datafillable in table TOPSPARM. It contains the actual prefix digits (0-999). It can be 1, 2, or 3 digits.

Table TOPSPARM

PARMNAME	PARMVAL
INTERNATIONAL_DACC_PREFIX	00

This example datafill will mark requested numbers arriving with a ‘00’ prefix as international. Thus, a requested number of 123456789 sent from DAS as 00123456789 will be translated as international. The 00 prefix will be removed, the 123 will be checked for a country code and the rest stored as the called number. International translations will be called using the country code and called number; the prefix is not used for translations.

Restricting ADACC Overseas calls

Table TDBDAOPT includes a field, ADACCSRV, which indicates the types of calls that can be completed via ADACC. It includes INTER, INTRATOLL, INTRALCL, ALL, and NONE. A new option, OVERSEAS, is added to the range. Thus, IDACC calls can be eligible for ADACC service if the datafill includes either OVERSEAS or ALL.

Table TDBDAOPT

TDBDAIDX	ADACCSRV	BILLOPT	ADASERV
0	ALL	ALL	N
1	INTRALCL	ALL	N
2	NONE	ALL	N
3	OVERSEAS	ALL	N
4	INTER, INTRATOLL, OVERSEAS	ALL	N

In the example, calls which index tuples 0, 3, or 4 are eligible for IADACC service.

Table TDBDAOPT is indexed by table TOPSDB, which can be indexed by tables DNSCRN, TOPEACAR, and COANISCR.

Note: ADACCSRV is only used for carrier calls. Thus, the call must be either an EA call (north american) or GCA call (international).

Manual DA Call Completion and Operator Functions

IDACC is supported for manual DA call completion at an TOPS operator position or OSSAIN Service Node (SN).

The international requested number can be obtained from either a DAS message or the operator/SN entering the requested number. For all cases, the international requested number must arrive to TOPS with the datafilled international prefix indicator.

Thus, the international prefix indicator must be prepended to the international requesting number in all DAS messages, when the operator enters the requested DN at position, or when the SN sends in a DN request. In all cases, TOPS will scan the requested number for the international prefix.

Note: This means TOPS operators and SN applications will need to be able to recoginize an international listing and prepend the prefix for TOPS to treat the number as interational. An operator must enter prefix+cc+number when entering an international requested number. SNs must send prefix+cc+number in the called DN update message.

When the international prefix is found, TOPS will treat the requested number as international/overseas and will utilize overseas tables such as OVSBILL instead of DOMBILL.

Note: The DA forward function available at some operator positions currently only supports domestic numbers. Since this function is intended for emergency calls only, there is currently no need to enhance this function to include international numbers. In addition, the DA forward function uses a called number for outpulsing; the IDACC feature is for requested numbers. If a requested number is entered prior to the DA forward function, then the requested number is overwritten.

Interactions

The following note the interactions with the existing DA system.

Local-Toll Activation

Table VROPT has a parameter, DACC_LOCAL_TOLL_ACTIVATION, which is used for activating call completion for local and/or toll calls. Currently, the parameter can be set to NONE, LOCAL, TOLL, ALL. NONE and LOCAL are not affected; however, the TOLL and ALL settings will now included International requested numbers.

Auto-Collect

Auto-collect is for business numbers which allow the subscriber to automatically bill collect. No verification is required for these collect calls. This option can be applied to the requested number in the DAS and sent to TOPS with the requested number. This functionality is currently provided with the following options: none, local, toll, all, and surcharge. All options remain the same except for the toll and all options. International requested numbers are now included in the toll and all auto-collect options.

Billing Restrictions

All existing DA and TA billing restrictions will be maintained with the addition of utilizing table OVSBILL for international requested numbers in comparision to table DOMBILL for domestic calls.

Invalid Country Code

Country codes must be datafilled in table CCTR to be valid. International requested numbers with invalid country codes can still be announced and generate an AMA record but cannot be completed. Calls with invalid country codes are not allowed to utilize ADACC and will be presented to an operator.

Direct and Alternate Routes

ADACC requires a direct route to complete international calls. If a direct route is not available, the call will be presented to an operator to select an alternate route, if available.

Software Requirements or Dependencies

This feature is dependent upon base TOPS and DA functionality being present and activated. It also requires the ADACC functionality.

ENSV0108 is the SOC option for this functionality. It requires ENSV0101, OSB00101, OSDA0101 and OSDA0102.

Limitations and restrictions

- Table TDBDAOPT field ADACCSRV is only for carrier calls.
- DA forward key function supports domestic/local numbers only. It has not been enhanced to support international numbers.
- This feature will remove the international prefix from the requested number so that existing translations can be used. It is not outpulsed nor included in any log or AMA record. The prefix is intended to only mark the call as international for translations and thus is removed for all other purposes. External listing announcements controlled by the DAS vendor may include the prefix in the announcement according to the vendor implementation. Contact DAS vendor for specifics.
- International Requested numbers will be treated as toll (same as Domestic numbers) for activation and auto-collect.
- ADACC requires direct routes to the country. If a direct route is not available, this feature is not supported.
- LNP is not supported in Global loads.

Glossary

Term	Description
IADACC	International Automated Directory Assistance Call Completion
ADACC	Automated Directory Assistance Call Completion

Appendix A for A00002740: International ADACC (IADACC) Limitations

IADACC is described as the functionality and limitations provided by TOPS when the DAS vendor only supports the EXT ARU Request message for International DA Call Completion (IDACC).

For IADACC, TOPS **can** support the following:

- International Indicator recognition

- International DA AMA record generation
- Call completion to the international number based on TDBDAOPT

TOPS **cannot** support the following with IADACC:

- Manual DA call completion (DACC) - DA call which receives an international listing then the operator switches service to Toll to complete the call. This is not supported.
- Multiple Requests - DA call at position with international listing; GEN AMA for first listing; obtain second listing. This is not supported.
- Verbal quotes - Operator verbally quotes listing to subscriber and releases call. This is not supported.
- Recalls / Reconnects - DA call obtains listing and is released to announcement; call recalls back to position; if a GEN AMA, service switch or position release is performed then the call is not supported. (If a second listing is obtained, without gen ama for first listing, and is then released to announcement, the call can be supported.)
- Transfer with context scenarios are not supported.
- Alternate Routes are not supported since they require manual call completion which is not supported. Automated DA Call Completion (ADACC) requires direct routes.
- IADACC Error handling is limited since manual call completion is not available. Any scenario in which ADACC cannot service the international call is not supported.
- Any scenario utilizing DAS protocol messages - AMA transfer, Service Request, Position Request, and Position Release are not supported.

Product = TOPS

A00002765 -- Station Paid Routing (Succession on DMS)

Functional Description

This feature enhances the Unbundling Translations and Routing functionality by adding the ability to refine the XLAGRP based upon the calling service class and the billing method. With this feature, outgoing translations can now be applied specifically to a coin station-paid call.

The implementation of this feature allows the full range of calling service class and billing methods to be utilized in XLAGRP refinements. New table XLACLASS allows XLAGRP refinements based on a range including coin, station, hotel, and restricted. New table XLABILL allows XLAGRP

refinements based on a range including paid, collect, third, cards, special calling, special called.

Background

In TOP09, AF7159 introduced the XLAGRP refinement mechanism for unbundling translations and routing. It created tables XLAGRP, XLASPID, XLAODIGS, and TOPSDP to setup the refinement structure including SPID (Service Provider Identification) and originating digits.

Translations Group (XLAGRP) names are datafilled in table XLAGRP, which allows the operating company the ability to datafill various names to represent groupings for translation purposes as needed. These XLAGRP names are then used in the refinement tables to arrive at a final XLAGRP to be used in table TOPSDP (TOPS Dial Plan).

Table TOPSDP centralizes translation and screening attributes. The index into table TOPSDP is chosen in a flexible manner, giving the operating company the ability to fit their individual network needs. Obtaining an XLAGRP and indexing into table TOPSDP is referred to as the ***XLAGRP*** method of performing translations and screening for TOPS calls.

AF7159 provided an initial XLAGRP to be defined in table TOPSTOPT, which is indexed based on a trunk group. It also provided XLAGRP refinements for SPID and originating digits.

In TOP12, A59006822 enhanced the XLAGRP method with additional definitions for the initial XLAGRP and additional refinements. It allowed the initial XLAGRP to be defined in table TOPEATRK for EA calls and in table OPRINFO for operator calls. It also provided XLAGRP refinements for Carrier Identification Code (CIC) and EA region, which is based on either a LATA or a ZONE as defined by feature 59006827.

This feature supports all existing XLAGRP methods and enhances the refinement characteristics by adding calling service class and billing methods.

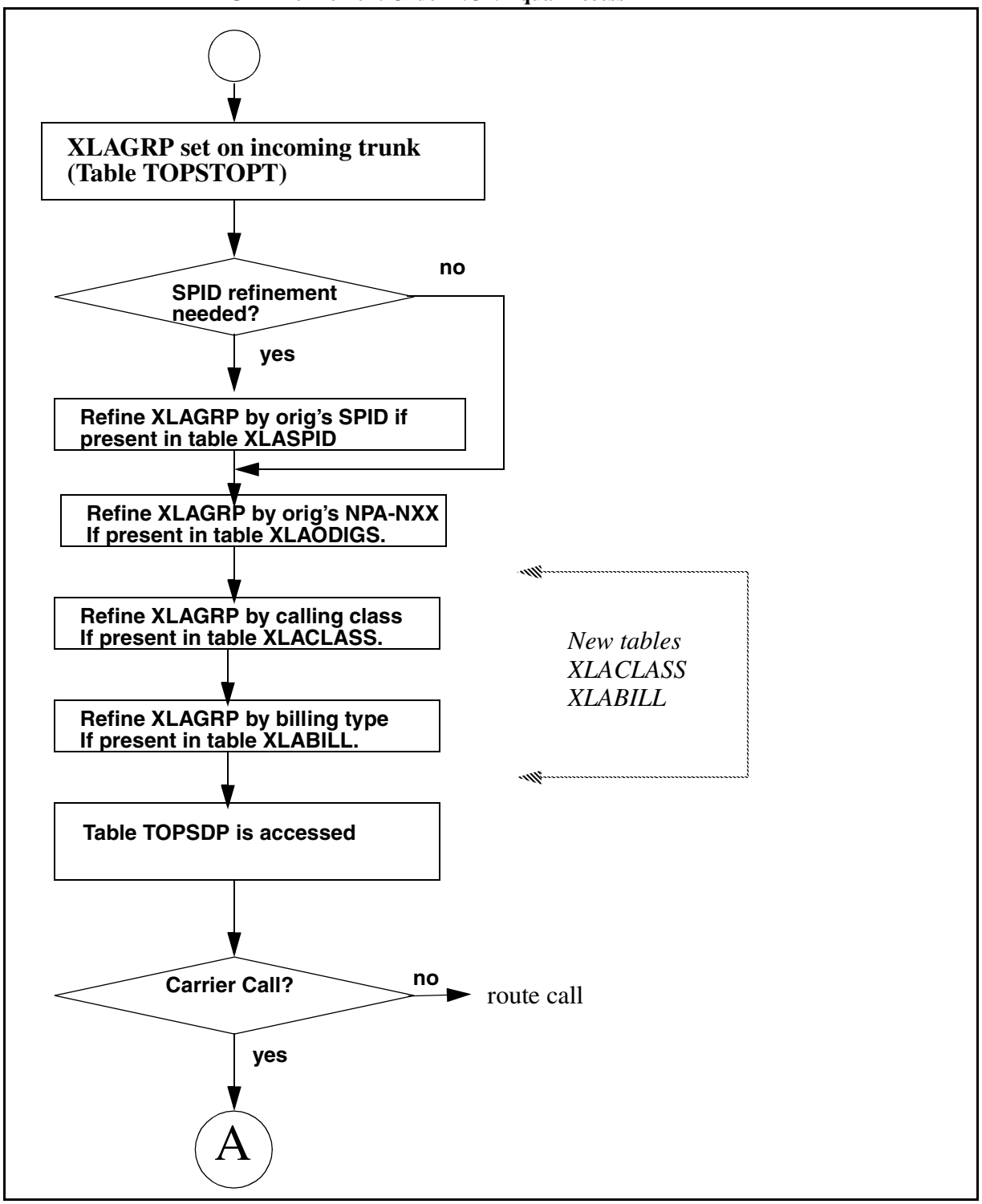
New XLAGRP Refinement Order

To preserve the existing XLAGRP refinement datafill, the new refinements are added at the end of the existing order list for non-EA calls. Thus XLACLASS then XLABILL will refine after XLAODIGS. For EA calls, XLACLASS and XLABILL will refine after XLAODIGS as well. Although this inserts the new refinement tables in the middle of refinement for EA calls, it saves the extra datafill needed in XLACLASS and XLABILL to accommodate those XLACIC and XLAEAREG XLAGRPs.

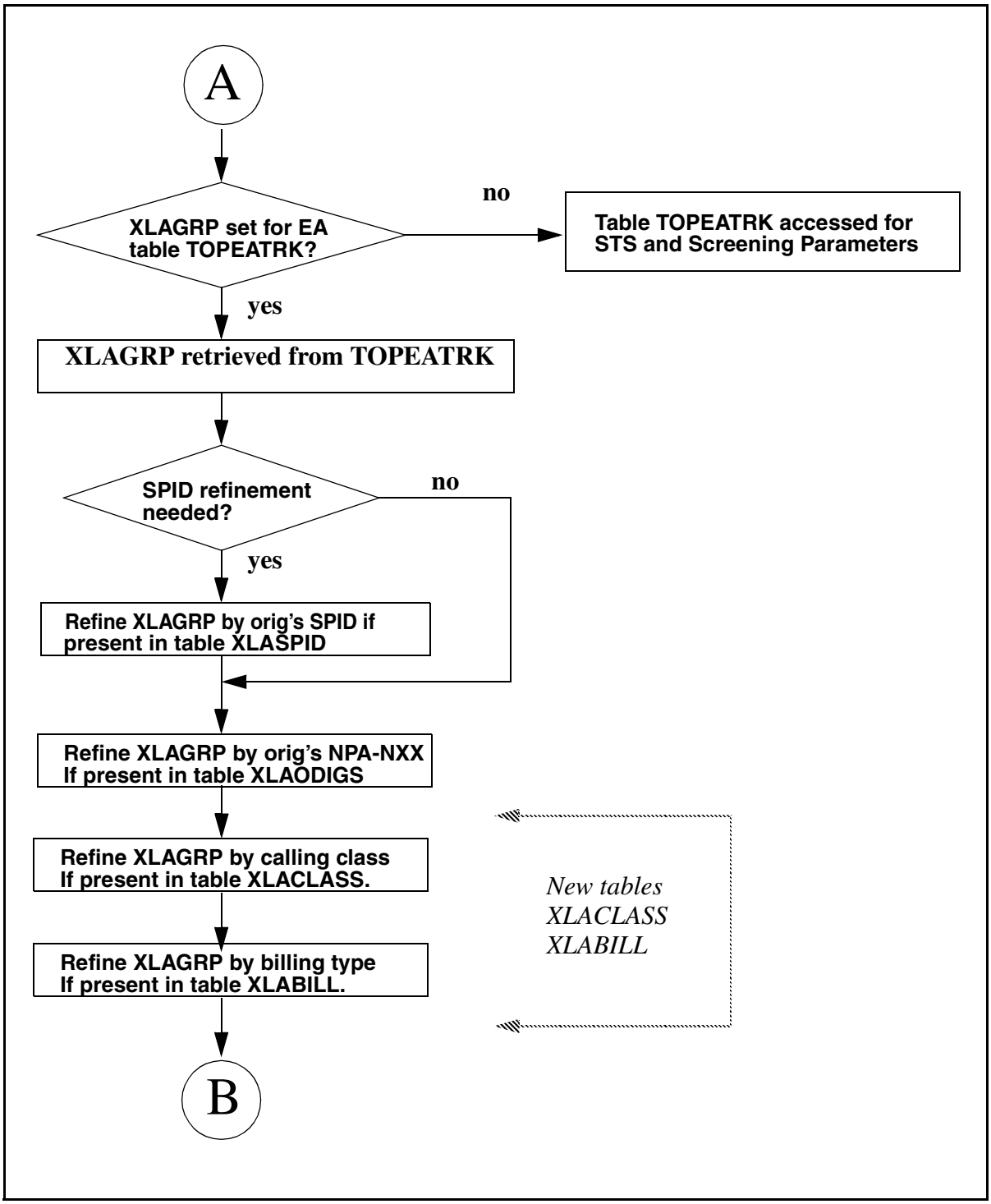
The following diagrams illustrate the existing XLAGRP refinement order with the new tables, XLACLASS and XLABILL, included.

The figures below outline the refinement order for both EA and NON-EA calls:

XLAGRP Refinement Order NON Equal Access



XLAGRP Refinement Order For Equal Access Calls



XLAGRP Refinement Order For Equal Access Calls

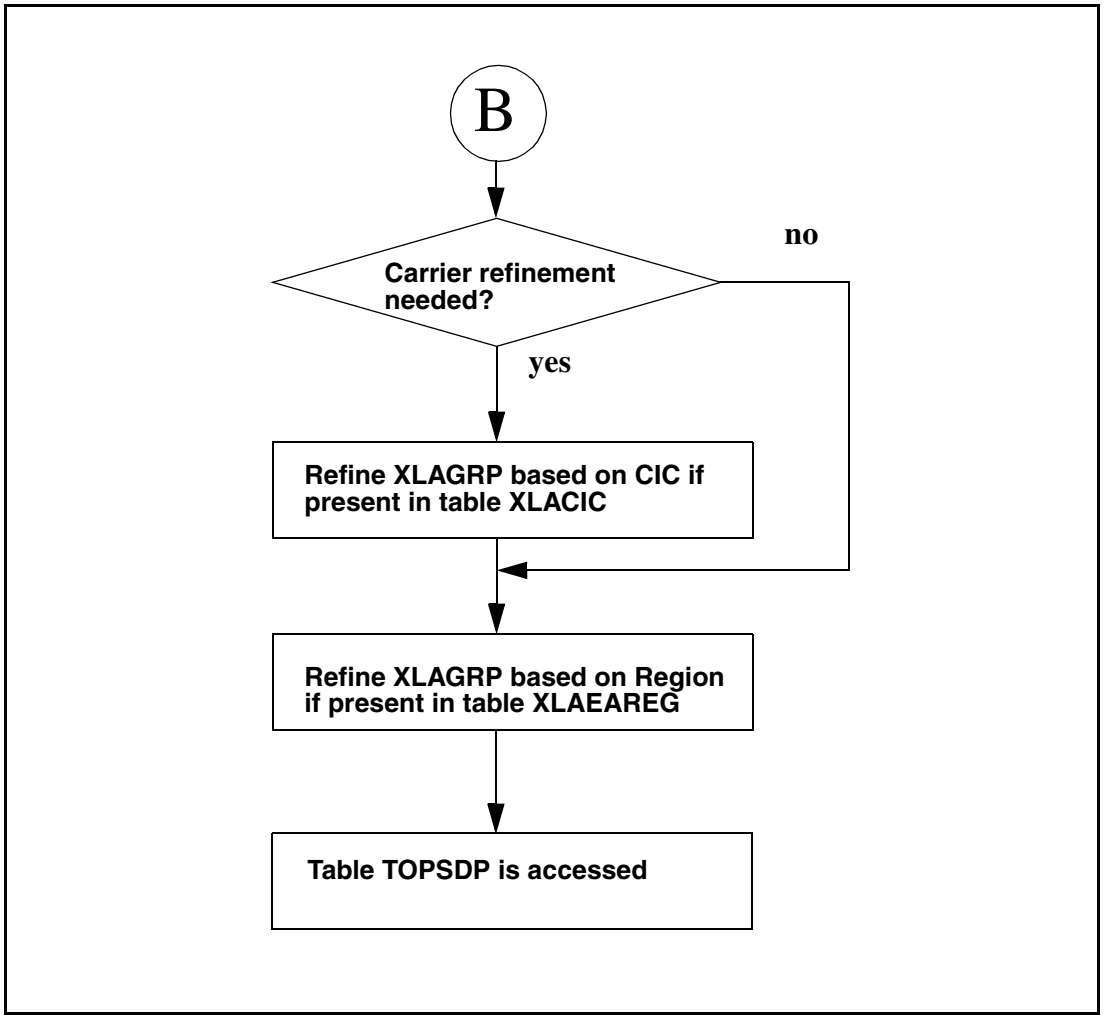


Table XLACLASS

Table XLACLASS allows the XLAGRP to be refined based upon the calling service class. The index of the table is the existing XLAGRP and the calling service class. It then provides a new XLAGRP if a match is found.

Example of Table XLACLASS

XLAGRP	CLGCLASS	NEWXLGRP
TRK1	COIN	TRK1COIN
TRK1	STATION	TRK1STA

The XLAGRP names in fields XLAGRP and NEWXLAGRP must first be datafilled in table XLAGRP.

Field CLGCLASS supports a range of {UNKNOWN, STATION, COIN, HOTEL, RESTRICTED}.

Table XLABILL

Table XLABILL allows the XLAGRP to be refined based upon the billing type. The index of the table is the existing XLAGRP and the bill type. It then provides a new XLAGRP if a match is found.

Example of Table XLABILL

XLAGRP	BILLTYPE	NEWXLGRP
TRK1COIN	PAID	TRK1COINPAID_ROUTE
TRK1COIN	COLLECT	TRK1COIN_NOROUTE

The XLAGRP names in fields XLAGRP and NEWXLAGRP must first be datafilled in table XLAGRP.

Field BILLTYPE supports a range of {UNSPEC, PAID, COLLECT, THIRD, CCARD, SPLCLG, SPLCLD}.

Note: Station paid and person paid are both handled by the PAID criteria. Both are PAID calls but may have a different rate applied. Since this refinement is to capture the billing method not the rate, station and person ratings are treated the same. This applies to all billing types.

Table Flow Example

This example section illustrates the new refinement tables and how they achieve special routing for coin station paid calls. It is simplified by using an incoming trunk group with non-EA calls. A59006822 fully details XLAGRP methods for EA and operator calls. It is further simplified by not having SPID or originating digit refinements. These are fully documented in AF7159.

TOPSTOPT

GRPKEY	ACDDATA	DISPCLG	ADASERV	ADASANS	ANITOCLI	OLNSQRY	DCIBIDX	LNPCLGAM	XLA SCHEM		SPIDPRC	TRKSPID	
									NEWXLA	XLAGRP		DFLTSPID	SPID
TRK1	QMSCAM	N	NONE	NA	N	NONE	0	N	Y	**TRK1**	N	N	

XLASPID does not have a match

XLAODIGS does not have a match

XLACLASS

XLAGRP	CLGCLASS	NEWXLGRP
TRK1	COIN	TRK1COIN
TRK1	STATION	TRK1STA

XLACLASS

XLAGRP	CLGCLASS	NEWXLGRP
TRK1COIN	PAID	TRK1COINPAID_ROUTE
TRK1COIN	COLLECT	TRK1COIN_NOROUTE

TOPSDP

XLAGRP	STS	OPERPRTN	ORIGSCRN	OPERSCRN	MCCSPRTN	MCCSSCRN	LCANAME
TRK1	619	PRTNM1	SCR1	OPR1	PRTNM1	MCCS1	LCA00001
TRK1COINPAID_ROUTE	619	PRTNM1	SCR1	OPR1	PRTNM1	MCCS1	LCA00001
TRK1COIN_NOROUTE	619	NPRT	NSCR	NSCR	NPRT	NSCR	NLCA
TRK1COIN	619	NPRT	NSCR	NSCR	NPRT	NSCR	NLCA

- STS - This is the service translations scheme which is also the index into code translations (i.e. Table HNPACONT).

- OPERPRTN - This is the operator pretranslator name that is used for performing pretranslations from the operator position. It is used to index into Table STDPRTCT.
- ORIGSCRN - This is the class of service screening name that is used for screening based upon the location of the originator. It is used to index into Table CLSVSCRC.
- OPERSCRN - This is the class of service screening name that is used for screening when an operator or service node is associated with the call. It is also used to index into Table CLSVSCRC.
- MCCSPRTN - This is the pretranslator name that is used for performing pretranslations for the Mechanized Calling Card Service (MCCS) sequence calls. It is used to index into Table STDPRTCT.
- MCCSSCRN - This is the class of service screening name that is used for screening when performing the call screening for Mechanized Calling Card Service (MCCS) sequence calls. It is used to index into Table CLSVSCRC.
- LCANAME - This is the local call area screening name which is used to determine if the call is local. It is used to index into table LCASCRCN or LCAINFO.

For non-EA COIN PAID calls arriving on TRK1, the initial XLAGRP is determined from table TOPSTOPT and refinements are performed as follows. The current XLAGRP is noted after the arrow.

1. Table TOPSTOPT provides the initial XLAGRP name

----> TRK1

2. SPID refinements are not needed, no change

3. Originating digits are not found in XLAODIGS, no change

4. Table XLACLASS finds TRK1 COIN, changes XLAGRP

---> TRK1COIN

5. Table XLABILL finds TRK1COIN PAID, changes XLAGRP

----> TRK1COINPAID_ROUTE

The final XLAGRP for this non-EA COIN PAID call is TRK1COINPAID_ROUTE. This XLAGRP is indexed in table TOPSDP to find the screening and translations indices.

Note: In this example, if the coin call was billed collect then the final XLAGRP would have been TRK1COIN_NOROUTE which can be setup in table TOPSDP to have screening and translations indices which do not route or route to treatment. Also note that the XLAGRP, TRK1COIN, can be added to TOPSDP and be setup for indices which do not route. This ability limits the amount of datafill needed to only allow coin paid calls to complete. Thus, the refinement TRK1COIN COLLECT in XLABILL is not needed nor the TRK1COIN_NOROUTE XLAGRP. These were only included here to illustrate the options.

Activation

When activating feature A00002765 in a site where XLAGRPs are already in use, the following is recommended.

- For a new trunk group to begin using the XLAGRP translations and is not dependent on existing translations, a new XLAGRP name should be assigned to the trunk group and the new XLAGRP used in the refinement tables as needed. This has no interaction with existing translations since existing XLAGRPs will not find matches in the new tables.
- For an existing trunk group with XLAGRP translations (or a new trunk group which will use existing XLAGRP translations), it is recommended to work backwards in the refinement order. By adding the final XLAGRP first, no matches will be found until the first refinement using the existing XLAGRP is datafilled. For example, if TRK1 has XLA1 defined in TOPSTOPT and has existing translations for SPID where (XLA1 SPID XLA1SPID) is datafilled in table XLASPID, then to create a coin station_paid route for these calls, first add new XLAGRPs (XLA1SPIDCOIN and XLA1SPIDCOINPAID) to table XLAGRP then add to table XLABILL (XLA1SPIDCOIN PAID XLA1SPIDCOINPAID) [so far no changes will occur]. Then add to table XLACLASS (XLA1SPID COIN XLA1SPIDCOIN) - [once this is added coin station_paid calls will route using XLA1SPIDCOINPAID].

  Note: Ensure all XLAGRPs have datafill in table TOPSDP; be sure that XLA1SPIDCOIN can still route correctly. These are the calls which are coin but not paid for that trunk group with that SPID. TOPSDP will need to point to something that goes to treatment (if desired) otherwise they will route to the last route found in standard translations.

Hardware Requirements or Dependencies

NA

Software Requirements or Dependencies

UNBN0101, OSB00101

Limitations and restrictions

- XLACLASS is limited to a range containing UNKNOWN, STATION, COIN, HOTEL, RESTRICTED.
- XLABILL is limited to a range including UNSPEC, PAID, COLLECT, THIRD, CCARD, SPLCLG, SPLCLD.
- Station billing and person billing may have different rates but are both treated the same in table XLABILL. For example, station paid and person paid will both refine under the PAID criteria.
- This feature is intended to be used with the dollar pre-pay coin functionality. Limitations for this function include:
  - — External rater not support with OSSAIN
  - — External rater, Coin signalling, ACTS not supported in Global loads

Interactions

This feature can alter the translations and route selected for calls using the XLAGRP method.

Glossary

Term	Description
XLAGRP	Translations Group

References

REF #	Description of Reference
297-8403-903	TOPS Unbundling User's Guide

Configuration for A00002765

Upgrade Impact

Dump and Restore

Although these new tables are potentially patched to prior loads, there are no changes between the patched tables and the open stream tables. Therefore, the tables will restore intact.

Data schema (DS)

New tables

Table name	NEW/CHANGED/ or DELETED/	Table Control (NEW/OLD/UNCHANGED)
XLACLASS	New	New
XLABILL	New	New

Table information

The following further describe new tables XLACLASS and XLABILL.

Name: XLACLASS

XLAGRP Translation Refinement for Calling Service Class

Functional description

This feature provides the mechanism to refine the XLAGRP based on the calling service class when using the XLAGRP method of translations through new table XLACLASS.

Usage sequence and implications

Tables must be datafilled in the following sequence:

- XLAGRP
- TOPSDP
- XLACLASS

Size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
XLACLASS	0	40950 Maximum tuples is the maximum XLAGRPs (8190) times the class range (5)	Allocated dynamically when new XLAGRP added to table.

Fields

The following table lists fields for XLACLASS.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
XLAGRP	New	N/A	N/A	Is the current XLAGRP associated with the call.
CLGCLASS	NEW	N/A	N/A	The Calling Service Class has the following range: {UNKNOWN, STATION, COIN, HOTEL, RESTRICTED}
NEWXLGRP	NEW	N/A	N/A	The new XLAGRP.

Datafill example

The following example shows sample datafill for table XLACLASS.

Example of Table XLACLASS

XLAGRP	CLGCLASS	NEWXLGRP
TRK1	COIN	TRK1COIN
TRK1	STATION	TRK1STA

Table release history update

Table XLACLASS is implemented in TOP20 for SN07 loads.

Supplementary information

This table was patched back to previous loads. When this table ONPs, it will remain intact. No changes are made between the patched table and the table in the open stream.

Translation verification other tools

XLACLASS does not use translation verification tools.

Name: XLABILL

XLAGRP Translation Refinement for Billing Types

Functional description

This feature provides the mechanism to refine the XLAGRP based on the billing type when using the XLAGRP method of translations through new table XLABILL.

Usage sequence and implications (CM Only)

Tables must be datafilled in the following sequence:

- XLAGRP
- TOPSDP
- XLABILL

Size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
XLABILL	0	57330 Maximum tuples is the maximum XLAGRPs (8190) times the bill range (7)	Allocated dynamically when new XLAGRP added to table.

Fields

The following table lists fields for XLABILL.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
XLAGRP	New	N/A	N/A	Is the current XLAGRP associated with the call.
BILLTYPE	NEW	N/A	N/A	The Billing Type has the following range: {UNSPEC, PAID, COLLECT, CCARD, THIRD, SPLCLG, SPLCLD}
NEWXLGRP	NEW	N/A	N/A	The new XLAGRP.

Datafill example

The following example shows sample datafill for table XLABILL.

Example of Table XLABILL

XLAGRP	BILLTYPE	NEWXLGRP
TRK1COIN	PAID	TRK1COINPAID_ROUTE
TRK1COIN	THIRD	TRK1COIN_NOROUTE
TRK1COIN	COLLECT	TRK1COIN_NOROUTE

Table release history update

Table XLABILL is implemented in TOP20 for SN07 loads.

Supplementary information
This table was patched back to previous loads. When this table ONPs, it will remain intact. No changes are made between the patched table and the table in the open stream.

Translation verification other tools
XLABILL does not use translation verification tools.

Product = TOPS

A00003687 -- Integration (Succession on DMS)

Functional Description

This feature enhances Table TOPSTLDN, introduced in SN06, to make it easier to deploy and maintain TOPS feature A00000816: "TOPS Wireless ADACC with Release." The enhancement is to allow the temporary local directory number (TLDN) to be chosen based on the identity of the originating mobile switching center (MSC). MSC is a generic term for a wireless (cellular) end office.

This feature also allows TOPS to send short text messages to a wireless phone using Short Message Service (SMS). TOPS can send short text messages using either Interim Standard 41 (IS-41) or Global System for Mobile Communications (GSM) specifications. IS-41 and GSM provide different definitions of a Mobile Application Part (MAP) layer which sits on the Transaction Capabilities Application Part (TCAP) layer of Signalling System #7 (SS7).

This feature also adds some preparatory work for supporting ADACC with Release in a GSM environment. This function cannot be used at this time.

Finally, this feature removes operational measurement (OM) group IS41TOPS and replaces it with three new OM groups. The new groups can be used for GSM as well as IS-41 and for SMS as well as wireless ADACC.

Background

TOPS support of wireless intelligent network (WIN) capabilities
In SN06, TOPS feature A00000816: "TOPS Wireless ADACC with Release" added the capability to release cellular directory assistance (DA) calls back to the originating MSC for call completion. This release is accomplished using IS-41 messages to transmit the requested directory number (DN) from TOPS to the MSC. The MSC then releases the trunk to TOPS and connects forward to the requested DN. Prior to this SN06 feature, such calls were "hairpinned,"

meaning the trunks to and from TOPS stayed in the voice path between the calling and called parties for the duration of the call.

The IS-41 TCAP messages used for the TOPS DA call completion call flow are part of the Wireless Intelligent Network (WIN) modifications to IS-41. These modifications are described in standard IS-771.

A successful IS-41/IS-771 ADACC with Release call flow is depicted in Figure " Successful TOPS IS-41 ADACC with release, introduced in SN06" on page 1670.

TOPS support of short message service (SMS)

TOPS positions can already send short text messages using an e-mail interface over the Internet. Such an SMS message might contain the address of the requested listing on a DA call. The TOPS switch is not aware of these messages.

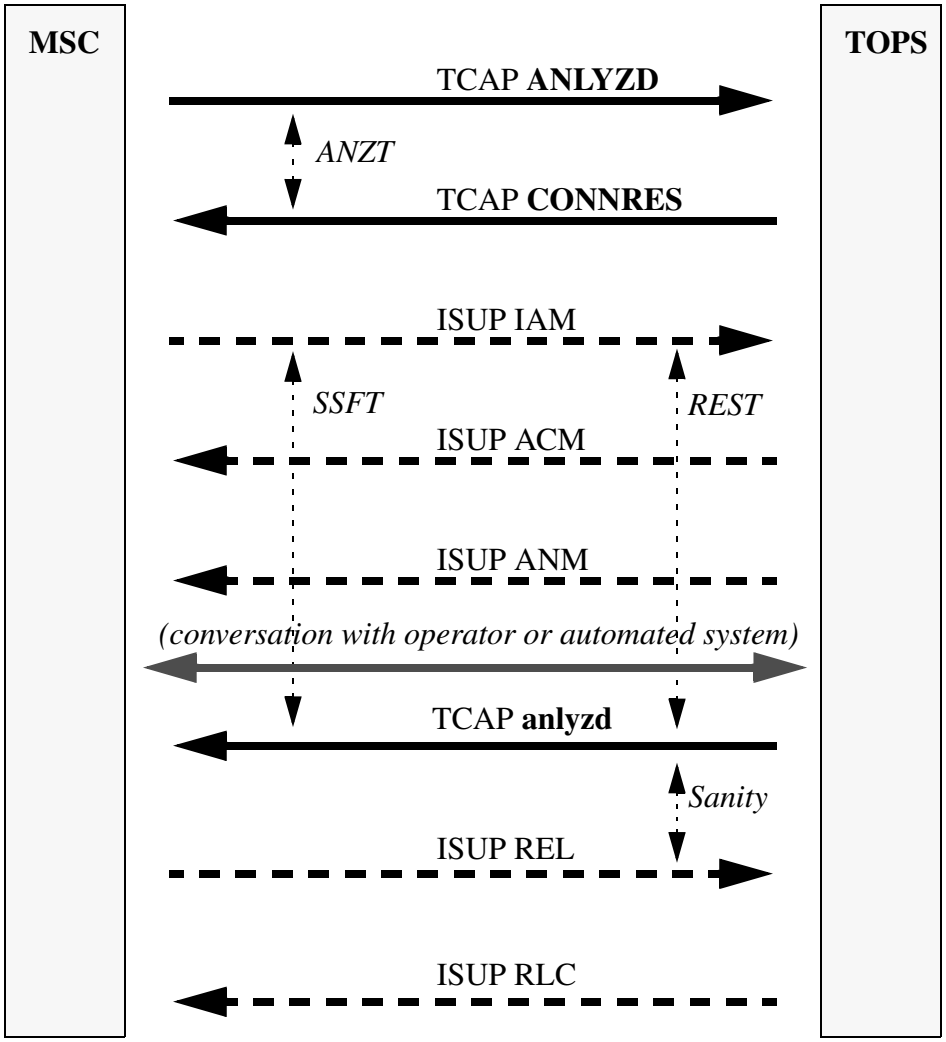
TOPS switches have supported SS7 TCAP applications for a long time, and SS7 TCAP is a common way to transport SMS in today's wireless networks. This feature allows TOPS to send SMS using either IS-41 or GSM, which are based on SS7 TCAP. By using TCAP to send TOPS SMS, the customer can avoid IP security and connectivity issues. The customer can also track the performance of TOPS SMS via operational measurements (OMs) and logs.

Specifications

This feature is based on the following IS-41 and GSM specifications:

- ANSI-41D (Wireless Intersystem Operations, formerly IS-41)
- 3GPP TS 29.002 V4.C.0: Mobile Application Part (MAP) specification, phase 4

Successful TOPS IS-41 ADACC with release, introduced in SN06



In the above diagram,

- A horizontal solid arrow and a message type in **bold** represents a TCAP message as defined in the IS-41 WIN specifications.
- A horizontal dashed arrow represents an ISUP message.
- A vertical dashed arrow on the MSC side represents an IS-41-defined timer. A vertical dashed arrow on the TOPS side represents an internal TOPS timer.
- The horizontal double-ended arrow represents two-way speech path between the wireless caller and TOPS.

Feature overview

This feature contains the following components. The work is divided into two areas, with some changes affecting both.

Wireless ADACC with Release

- Modified DMS table TOPSTLDN (TOPS Temporary Local Directory Number) which allows the customer to datafill TLDNs to be used in TOPS IS-41 call flows. Previously, any TLDN could be sent to any wireless end office. This feature allows TLDNs to be chosen on a per MSC basis. This helps the telco when they are activating WIN TOPS call flows in new MSCs (and desire a smaller or different TLDN range) but do not wish to affect existing MSCs.
- New table MSCIDMAP (MSC Identifier Mapping) which provides a mapping from MSC identifiers (MSCIDs) to entries in Table TOPSTLDN. This mapping allows the telephone company to control which TLDNs are sent to which MSCs.
- Addition of a new RLT type, RLT_GSM, to Table ISUPTRK. This table already allows datafill of three different RLT types: RLT_REL, RLT_FAR, and RLT_IS41. **Value RLT_GSM is for future use and cannot be datafilled at this time.**
- Removal of tuple NUM_OF_IS41TOPS_EXT_BLKS in Table OFCENG. This parameter controlled the number of extension blocks allocated for TOPS IS-41 calls. This parameter had to be set manually. It is replaced by to NUM_OF_WIN_TOPS_EXT_BLKS in Table OFCAUT. Table OFCAUT automatically allocates extension blocks for IS-41 and GSM calls. Also, the name of the EXT block is changed from IS41TOPS_EXT_BLK to WIN_TOPS_EXT_BLK. This name shows up when using OMSHOW to view the registers in OM group EXT.
- Addition of tuple RLT_FOR_GSM in Table TOPSFTR. This tuple will be used to control GSM ADACC with Release. **Tuple RLT_FOR_GSM is for future use and cannot be set to 'Y' at this time.** GSM ADACC with Release is under the control of existing Software Optionality Control (SOC) option OSEA0104, and tuple RLT_FOR_GSM acts as an on/off switch once the SOC option is enabled. This SOC option also controls IS-41 ADACC with Release.

Short message service (SMS)

- TOPS support of the following TCAP SMS messages, as described in the specifications listed in section " Specifications" on page 1669. These messages allow TOPS to send short text messages to wireless phone callers and receive acknowledgment from the message center (MC).
  - — IS-41 SMSDeliveryPointToPoint INVOKE (from TOPS to MC)

— IS-41 SMSDeliveryPointToPoint RETURN RESULT (from MC to TOPS)

— GSM ForwardShortMessage (from TOPS to MC)

— GSM ForwardShortMessage Ack (from MC to TOPS)

- New field, WIRELESS, in Table TOPSTOPT. This field allows the customer to mark a trunk group as connecting to a wireless network. If so, the customer can datafill whether the network uses IS-41 or GSM for TCAP messaging. This field is used when TOPS sends a short message on a non-WIN call. On a WIN call the network type is already known.
- New TOPS parameter in Table TOPSPARM, SMS_LOG_MC_FAILURE. This parameter controls whether a TOPS131 log is generated when the message center returns a negative acknowledgment following a TOPS SMS attempt. A negative acknowledgment always pegs OMs in new groups SMSTOPS and TC7WRLSS, but the TOPS131 log can provide additional information.
- New TOPS parameter in Table TOPSPARM, SMS_TIMEOUT. This parameter controls the duration of the timer which is set when TOPS sends an SMS. If TOPS does not receive a response from the message center when the timer expires, the message is considered timed out, and resources are freed. See " TOPS short message service (SMS)" on page 1677 for more information.
- A new SS7 global title translation name, MDNMCGT. This translation name is used to route IS-41 and GSM short messages to the correct message center (MC).
- New DMS table TOPSMCDB for lab testing of TOPS SMS.
- Two additional DMS SS7 subsystems, TIS41SIM and TGSMSIM, to be used for TOPS lab testing.

Changes affecting both areas

- Creation of three new operational measurement (OM) groups to record events for IS-41 SMS, GSM SMS, IS-41 WIN, and GSM WIN[2]. The new groups will record application level events as well as transport level events. The new OM groups are SMSTOPS, WINTOPS, and TC7WRLSS. These three groups replace group IS41TOPS, which is removed.
- Update to TOPS131 log added in SN06. This feature allows the log to be used for GSM as well as IS-41, and for short message service as well as ADACC service.

2. GSM WIN is known as Customised Applications for Mobile network Enhanced Logic (CAMEL). TOPS uses the term Wireless Intelligent Network (WIN) to describe both IS-41 WIN and GSM CAMEL calls flows. These call flows attach a TOPS operator or service node to provide a transient service, and then the MSC releases TOPS and the wireless call proceeds.

- A new DMS Signaling System #7 (SS7) subsystem, GSMTOPS. This subsystem resides on the TOPS node and will initially be used to send and receive GSM SMS messages. The subsystem number is datafilled in Table C7LOCSSN.

This feature does not introduce any TOPS Automatic Message Accounting (AMA) changes.

TLDN selection by mobile switching center identifier (MSCID)

Changes to Table TOPSTLDN

Prior to this feature, Table TOPSTLDN defined one large pool of TLDNs to be used on WIN calls. Several tuples might be present in Table TOPSTLDN, but these tuples were combined together to make a single pool. When an IS-41 AnalyzedInformation (ANLYZD) message arrived from an MSC, TOPS would pick any idle TLDN from the overall pool and send it to the MSC in the ConnectResource (CONNRES) message. These messages are shown in Figure on page 1670.

This strategy works for a few MSCs but is not sufficient when deploying the feature across many MSCs. If hundreds of MSCs from across a region are using TOPS IS-41, they must all share the same TLDN pool. This means that when the customer is initially provisioning their network for TOPS IS-41, they must ensure that every TOPS TLDN is available and usable in every MSC as well as in every intermediate tandem switch on the way to the TOPS switch.

A better approach is to allow differentiation of TLDN chosen based on the identity of the originating MSC. To do this requires a change in Table TOPSTLDN as well a new table, MSCIDMAP, which is described in the next section.

This feature changes Table TOPSTLDN such that each group of TLDNs is identified by a pool ID. A maximum of 2,000 pools can be datafilled, and a maximum of 2,000 TLDNs can be datafilled. The pool ID is used in Table MSCIDMAP. The following figures show the change to Table TOPSTLDN.

Note that each tuple defines a range of TLDNs. In Table , “Table TOPSTLDN in SN06, prior to this feature,” on page 1674, the following ranges of TLDNs are defined:

- 2012201234 to 2012201234: 1 TLDN
- 2013364400 to 2013364899: 500 TLDNs
- 2018591400 to 2018591489: 90 TLDNs

Table TOPSTLDN in SN06, prior to this feature

```
TABLE: TOPSTLDN
                   KEY
---------------------
2012201234 2012201234
  20133644   20133648
 201859140  201859148
```

This feature identifies each range of TLDNs with a pool ID, and expands the TLDNs to 10 digits for better readability. So the datafill in Figure on page 1674 would appear as follows in SN07. This datafill still represents 591 TLDNs.

Table TOPSTLDN in SN07

```
TABLE: TOPSTLDN
POOLID   FROMDIGS     TODIGS
---------------------------
0      2012201234 2012201234
1      2013364400 2013364899
2      2018591400 2018591489
```

TLDN ranges in Table TOPSTLDN are allowed to overlap. This helps the customer when they are verifying the function on a new MSC while other MSCs are processing live traffic. The following figure shows overlapping TLDN ranges.

Table TOPSTLDN in SN07

```
TABLE: TOPSTLDN
POOLID   FROMDIGS     TODIGS
---------------------------
0      2012201200 2012201259
1      2012201250 2012201269
2      2012201200 2012201200
```

TLDN methodology

The telco's goal should be to have one large TLDN pool, or several smaller TLDN pools, serving all MSCs. This allows the TLDNs to be selected quickly. So the goal should be to minimize the number of tuples in Table MSCIDMAP (see next section).

The main reason for these tables is to assist in deployment of TOPS wireless intelligent network services. Established MSCs might be using hundreds of

TOPS TLDNs, while a new MSC might need TLDNs from the same pool, but only a small subset while the feature is being set up. Once the feature is verified on the new MSC, the MSC's datafill can be changed so it uses the main pool.

The telco providing operator services will reserve the TOPS TLDNs for these call types. Even in a nationwide network it should be possible to find enough TLDNs, since the TLDNs chosen probably begin with the NPA-NXX of the TOPS switch. If the TOPS switch supports several NXXs, this makes finding available DNs easier.

2,000 is the maximum number of TLDNs which can be datafilled on a TOPS switch. Due to the short holding time of under one second, a couple hundred TLDNs should be enough to handle heavy WIN TOPS traffic. If problems begin to occur, TLDNs can remain held for up to 30 seconds before the TLDN selection code re-uses them.

Dump and restore for Table TOPSTLDN

When upgrading from SN06 to a later release, each TOPSTLDN tuple from the SN06 side is restored with sequential pool IDs starting at 0, and each TLDN is expanded to 10 digits. So the Figure on page 1674 and Figure on page 1674 represent a dump and restore from SN06 to a later release.

New table MSCIDMAP

This feature introduces Table MSCIDMAP which allows the selection of TLDNs on a per-MSC basis.

The MSC Identifier (MSCID) is defined in IS-41D, chapter 5, section 6.5.2.82. It consists of a market identifier (16 bits) and a switch number (8 bits). It is a mandatory field in the IS-41 ANLYZD message which initiates a TOPS IS-41 ADACC with Release call.

When TOPS receives an ANLYZD, it selects an idle TLDN from Table TOPSTLDN and sends it back to the MSC in the TCAP CONNRES message. This feature allows TOPS to select a TLDN based on the MSCID in the ANLYZD. This is done using new Table MSCIDMAP. Table MSCIDMAP maps the MSCID from the ANLYZD to a list of TLDN pool IDs from Table TOPSTLDN. TOPS then selects an idle TLDN from one of these pools.

The following figure shows sample datafill in Table MSCIDMAP. Up to 255 TLDN pool IDs can be datafilled against a given MSCID.

Table MSCIDMAP

```
TABLE: MSCIDMAP
MSCID          POOLIDS
----------------------
12  100  (0) (1) (2) $
65    2      (0) (1) $
65    3          (0) $
66   27          (1) $
66   29      (1) (2) $
700   2          (2) $
```

Switch number wildcarding

Because a TOPS switch might be serving hundreds if not thousands of MSCs, Table MSCIDMAP is designed with some wildcarding capabilities. It is not necessary to datafill every switch number within a market ID. If a tuple is datafilled with just the market ID, and no switch number, the tuple will match all MSCIDs with the same market ID.

It is also possible to datafill several market ID and switch number combinations for the same market ID, and then add a market ID wildcard tuple for all other switch numbers using the same market ID.

The following figure shows examples of switch number wildcarding. All MSCIDs beginning with market ID 65 will match the first tuple, except MSCID (65, 3) which matches the second tuple.

Table MSCIDMAP with switch number wildcarding

```
TABLE: MSCIDMAP
MSCID          POOLIDS
----------------------
65  $    (0) (1) (2) $
65  3          (0) $
66 27          (1) $
66 29      (1) (2) $
67  $      (0) (2) $
```

Market ID wildcarding

Tuple {$, $} matches any MSCID not otherwise matched in Table MSCIDMAP. If present, it is the default tuple. If the MSCID in the TCAP ANLYZD message does not match any other tuple in Table MSCID (including any tuples with wildcarded switch numbers), tuple {$, $} is used.

Table MSCIDMAP with default tuple

```
TABLE: MSCIDMAP
MSCID          POOLIDS
----------------------
 $  $    (0) (1) (2) $
65  3          (0) $
66  $          (1) $
66 29       (1) (2) $
67  $       (0) (2) $
```

Failure to match MSCID

If the MSCID for a given call does not match any tuple in Table MSCIDMAP (either explicitly or via wildcarding), a RETURN ERROR is sent to the MSC so the wireless 411 call is disconnected. A TOPS131 log is generated indicating no TLDNs are available.

A failure to match implies that the market ID wildcard tuple is not present, since this tuple matches any MSCID.

Dump and restore

When performing a switch upgrade from an SN06 TOPS switch to a later release, the following steps are performed automatically:

1. Table TOPSTLDN is restored as described in “ Changes to Table TOPSTLDN” on page 1673.
2. If TOPSTLDN contains any datafill on the restore side, a {$, $} tuple is created in Table MSCIDMAP containing all pools from Table TOPSTLDN.

This will create one large pool serving all MSCs, which is equivalent to the SN06 function of Table TOPSTLDN.

TOPS short message service (SMS)

Message flow

This feature allows TOPS to send short text messages into the SS7 network. TOPS sends these messages when requested by the operator position or automated service node.The message flow is summarized below. Later subsections show message diagrams, OMs pegged, etc.

- A TOPS call arrives from a wireless (cell) phone. TOPS knows the calling party is using a wireless phone if at least one of the following conditions hold:
  - The call originated with a WIN message transaction (ANLYZD/CONNRES)

— New TOPSTOPT field WIRELESS indicates the calling trunk group is from a wireless network (non-WIN)

When presenting the call to the Open Position Protocol (OPP) compliant position or Open Automated Protocol (OAP) compliant service node, TOPS indicates that the calling party is using a wireless phone.

- The operator position sends a short text message and a destination directory number (DN) to TOPS switch using OPP, or the service node sends a short text message and a destination DN using OAP.
- TOPS checks whether the destination DN is the same as the calling number. This feature allows TOPS to send an SMS to the calling party only. TOPS denies the SMS attempt with an appropriate OPP or OAP message if the destination DN is not equal to the calling number.
- TOPS decides whether to send SMS using IS-41 or GSM. This decision is made as follows:
  - — If the TOPS call originated using IS-41 WIN, TOPS already knows the originating wireless network type, and TOPS uses IS-41.
  - — If the TOPS call did not originate using IS-41 WIN, TOPS looks at the calling trunk group datafill in Table TOPSTOPT. New field WIRELESS in Table TOPSTOPT indicates whether the calling trunk is IS-41 or GSM. TOPS chooses to use IS-41 or GSM based on the contents of this field.
  - — If the TOPS call did not originate using IS-41 WIN, and calling trunk group is not marked as wireless in Table TOPSTOPT, TOPS sends a failure indication to the operator position or service node using OPP or OAP, respectively. The call is not a wireless phone call, and TOPS did not indicate to the position or service node that the call is from a wireless phone. The position or service node should not request an SMS when the calling phone is not a wireless phone.
- Once TOPS has decided which standard to use, TOPS composes an outgoing TCAP INVOKE containing the short message.
- To route the TCAP INVOKE, TOPS looks in the global title translation tables C7GTTYPE and C7GTT. This feature adds a new SS7 translation name, MDNMCGT, for routing short messages to the message center (MC). TOPS uses the destination number to index the global title translation tables. This will route the SMS to the calling party's home message center.
- TOPS sends the TCAP INVOKE. If the message is sent successfully, TOPS returns a success indication to the position or service node using OPP or OAP, respectively. If the message is not sent successfully, TOPS indicates the failure to the position or service node.

- TOPS starts an internal timer equal to the new SMS_TIMEOUT parameter in Table TOPSPARM. If this timer expires, a log and OM are generated to notify the telephone company.
- When the acknowledgment from the message center arrives, TOPS pegs an OM and/or generates a log based on the response (success or failure). TOPS does not send a notification to the position if the SMS succeeded or failed.

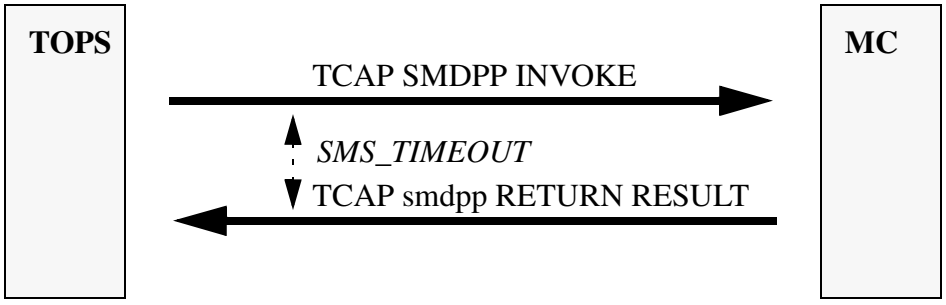
The following sections show diagrams of SMS messaging for IS-41 and GSM.

Successful IS-41 SMS transaction

In this scenario, TOPS sends the SMS to the message center, which responds with a positive acknowledgement. According to IS-41, the absence of a Cause Code parameter indicates success.

TOPS pegs OMs SMSSENT and SMSSUCC in group SMSTOPS (key IS41). TOPS also pegs OMs INVOKES and RETRESR in group TC7WRLSS (key SMS_IS41).

Successful TOPS IS-41 SMS to message center



Unsuccessful IS-41 SMS transaction

In this scenario, TOPS sends the SMS to the message center, but failures occur in the network, or the message center cannot process the SMS. TOPS receives a negative acknowledgment from an intervening node or from the message center, depending on where the error occurred. The message center's response contains a Cause Code field indicating why the message could not be delivered.

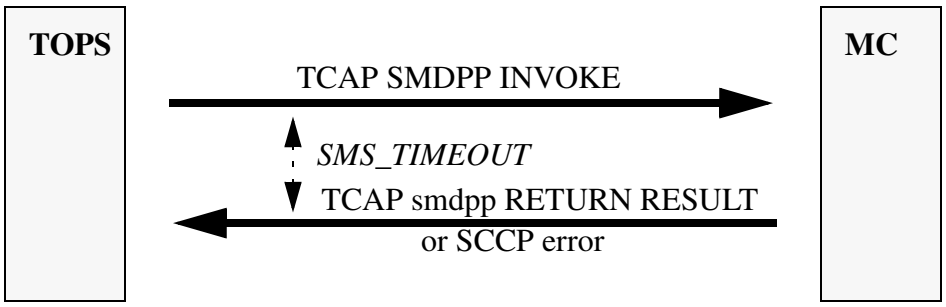
Possible reasons for failure include network problems, terminal (cell phone) problems, radio interface problems, and other miscellaneous problems (e.g. message format).

TOPS pegs OMs SMSSENT and SMSFAIL in group SMSTOPS (key IS41). TOPS also pegs one of the failure reason OMs (SMSNETWK, SMSTERM,

SMSRADIO, and SMSMISC). TOPS also pegs OMs INVOKES and RETRESR in group TC7WRLSS (key SMS_IS41).

TOPS generates a TOPS131 log indicating the reason for failure, as directed by new Table TOPSPARM parameter SMS_LOG_MC_FAILURE.

Unsuccessful TOPS IS-41 SMS to message center (smdpp contains cause code)



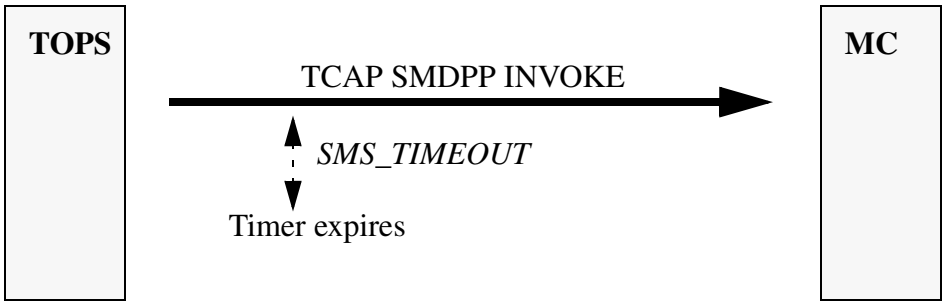
SMS time-out (IS-41)

In this scenario, TOPS sends the SMS to the message center but receives no reply within the time-out period (as defined by parameter SMS_TIMEOUT in Table TOPSPARM).

TOPS pegs OMs SMSSENT and SMSTIME in group SMSTOPS (key IS41). TOPS also pegs OM INVOKES in group TC7WRLSS (key SMS_IS41).

TOPS generates a TOP131 indicating an SMS time-out occurred.

SMS time-out (IS-41)

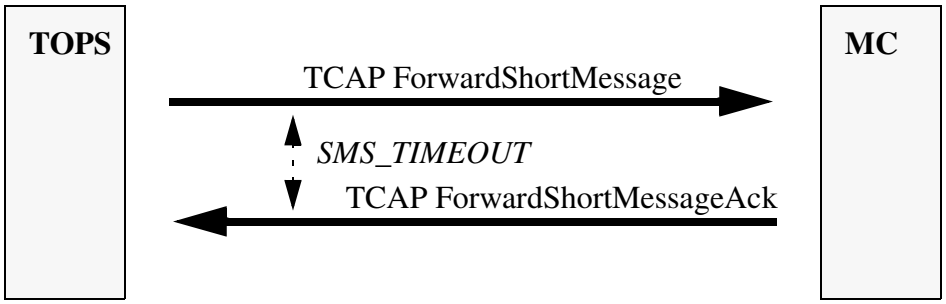


Successful GSM SMS transaction

In this scenario, TOPS sends the SMS to the message center, which responds with a positive acknowledgement.

TOPS pegs OMs SMSSENT and SMSSUCC in group SMSTOPS (key GSM). TOPS also pegs OMs INVOKES and RETRESR in group TC7WRLSS (key SMS_GSM).

Successful TOPS GMS SMS to message center



Unsuccessful GSM SMS transaction

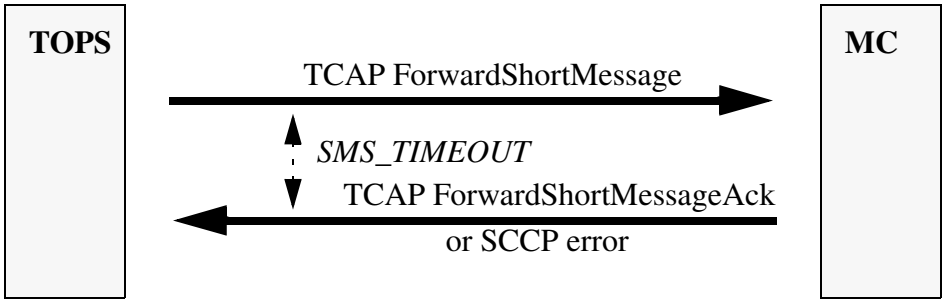
In this scenario, TOPS sends the SMS to the message center, but failures occur in the network, or the message center cannot process the SMS. TOPS receives a negative acknowledgment from an intervening node or from the message center, depending on where the error occurred. The message center's response contains the error cause and any diagnostic information.

Possible reasons for failure include network problems, terminal (cell phone) problems, radio interface problems, and other miscellaneous problems (e.g. message format).

TOPS pegs OMs SMSSENT and SMSFAIL in group SMSTOPS (key GSM). TOPS also pegs one of the failure reason OMs (SMSNETWK, SMSTERM, SMSRADIO, and SMSMISC). TOPS also pegs OMs INVOKES and RETRESR in group TC7WRLSS (key SMS_GSM).

TOPS generates a TOPS131 log indicating the reason for failure, as directed by new Table TOPSPARM parameter SMS_LOG_MC_FAILURE.

Unsuccessful TOPS GSM SMS to message center (ack contains cause code)



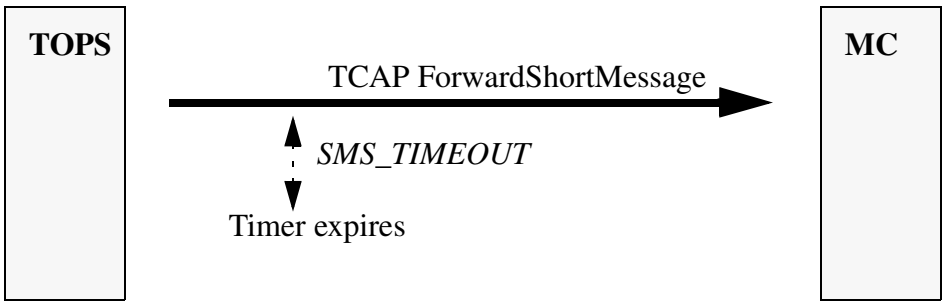
SMS time-out (GSM)

In this scenario, TOPS sends the SMS to the message center but receives no reply within the time-period (as defined by parameter SMS_TIMEOUT in Table TOPSPARM).

TOPS pegs OMs SMSSENT and SMSTIME in group SMSTOPS (key GSM). TOPS also pegs OM INVOKES in group TC7WRLSS (key SMS_GSM).

TOPS generates a TOP131 indicating an SMS time-out occurred.

SMS time-out (GSM)



TOPS SMS engineering considerations

Short messages sent by TOPS can be up to 200 characters in length. When headers and ancillary fields are added in, the overall message length can reach 250 bytes. Each time a position or automated node sends a SMS which is then forwarded to the SS7 network, the SMS is actually sent twice: once using OPP or OAP over IP from the position or service node to the switch, and once over the SS7 links into the network.

If a switch is supporting 300 active operators handling 20-second directory assistance calls, and an SMS containing the listing is sent on each call, this

represents 54,000 calls per hour at 250 bytes per call. The total is 13.5 megabytes per hour which is equivalent to 3.75 kilobytes per second.

Both the IP links to the positions and service nodes as well as the SS7 links to the network must be able to handle this increased messaging. Call durations, numbers of operators, and SMS-to-call ratio should be taken into account when deploying this feature.

Operator and automated node interaction

Operators and automated service nodes receive an immediate indication that the SMS was successfully sent or could not be sent. They do not receive the later acknowledgment from the message center. The reason is that the SMS might be sent at the end of the call, and TOPS call throughput would be diminished if the operator or automated service node had to wait for the acknowledgment from the message center before leaving the call.

TOPS still tracks the message center results of the SMS (using OMs and logs) but the operator or service node is not aware of the outcome.

Another effect is that the response from the message center might arrive after the AMA record for the call is generated. So this feature does not record in AMA whether the SMS was successfully received by the message center.

IS41TOPS OM group modification

In SN06, the original TOPS IS-41 feature added OM group IS41TOPS. This group recorded application-level and transport-level events for the IS-41 ADACC with release call flow.

This SN07 feature is adding support of GSM and SMS. The number of registers to record application-level and transport-level events for combinations of the two applications (RLT and SMS) and the two protocol standard (IS-41 and GSM) requires more than 32 registers, which is the maximum number of registers in an OM group.

So this feature creates the following three groups. All three groups use a key field with values IS-41 and GSM, so all three groups are used for both wireless network standards.

- SMSTOPS: This group records application-level events for the TOPS short message service.
- WINTOPS: This group records application-level events for wireless ADACC with release. This group uses WIN in the name since wireless intelligent network capabilities are used to provide ADACC with release for both IS-41 and GSM.

- TC7WRLSS: This group records transport-level events such as types of TCAP messages sent and received, SS7 errors, etc. on TOPS wireless calls (SMS and WIN, as well as IS-41 and GSM).

All events formerly pegged in IS41TOPS are now pegged in the new groups. The following table shows the new representations of the IS41TOPS OMs.

IS41TOPS register (SN06)	New group (SN07), key IS41 or WIN_IS41	New register (SN07)
ANINFINV	WINTOPS	WINBEGIN
ANINFIN2	WINTOPS	WINBEGI2
CONNRES	WINTOPS	REQCONN
CONNRES2	WINTOPS	REQCONN2
ANINFRR	WINTOPS	CONNECT
ANINFRR2	WINTOPS	CONNECT2
ANINFRD	WINTOPS	DISCONN
ANINFRD2	WINTOPS	DISCONN2
RESTIMR	WINTOPS	RESTIMR
RESTIMR2	WINTOPS	RESTIMR2
TLDNTIME	WINTOPS	TLDNTIME
SANTIMR	WINTOPS	SANTIMR
CFRABAN	WINTOPS	ABANDON
CFRDISC	WINTOPS	ERRDISC
CFRFAIL	WINTOPS	ERRCONN
CFRSSFT	WINTOPS	ERRSSFT
RETERRS	TC7WRLSS	RETERRS
RETERRR	TC7WRLSS	RETERRR
REJECTS	TC7WRLSS	REJECTS
REJECTR	TC7WRLSS	REJECTR
NOTLDNS	WINTOPS	NOTLDNS
NODATA	WINTOPS	NODATA
RXLAFAIL	WINTOPS	RXLAFAIL
MBFULL	TC7WRLSS	MBFULL

IS41TOPS register (SN06)	New group (SN07), key IS41 or WIN_IS41	New register (SN07)
RTFNOXLA	TC7WRLSS	RTFNOXLA
RTFNOXLS	TC7WRLSS	RTFNOXLS
RTFSUBCG	TC7WRLSS	RTFSUBCG
RTFSUBFL	TC7WRLSS	RTFSUBFL
RTFUNEQ	TC7WRLSS	RTFUNEQ
RTFNETFL	TC7WRLSS	RTFNETFL
RTFNETCG	TC7WRLSS	RTFNETCG
RTFMISCE	TC7WRLSS	RTFMISCE

For more information on the groups created by this feature, refer to the Performance chapter of this document.

Customer visible changes

As mentioned in “ Feature overview” on page 1671, this feature has several customer-visible changes.

Wireless ADACC with Release

- Table TOPSTLDN (changed) and Table MSCIDMAP (new): Together, these tables map MSC identifiers to TLDN pool(s) used when selecting a TLDN at the beginning of an IS-41 WIN call. See “ TLDN selection by mobile switching center identifier (MSCID)” on page 1673, as well as the Configuration chapter of this document.
- Changed tables OFCENG, OFCAUT, and ISUPTRK: The TOPS IS-41 extension block parameter is removed from Table OFCENG and added to Table OFCAUT. In Table ISUPTRK, a value is created for future use. See the Configuration section of this document.
- Table TOPSFTR: This feature adds a new tuple, `RLT_FOR_GSM`, which controls GSM ADACC with Release. GSM ADACC with Release is under the control of existing SOC option OSEA0104.

Short message service (SMS)

- Changed table TOPSTOPT: A new field, `WIRELESS`, is added for defining the wireless network type on a non-WIN wireless call.
- Changed table TOPSPARM: Two new TOPS parameters, `SMS_LOG_MC_FAILURE` and `SMS_TIMEOUT`, are added. See the Configuration chapter of this document.

- SS7 datafill and maintenance: Action is required on the TOPS switch to define and activate the new SS7 subsystem, GSMTOPS, in order to send and receive GSM SMS TCAP messages. Please refer to " Datafill changes for SMS" on page 1691.
- SS7 global title translation name: A new translation name, MDNMCGT, is added to allow TOPS to route IS-41 and GSM short messages to message centers. This translation name is datafilled in existing table C7GTTYPE. Please refer to " Datafill changes for SMS" on page 1691.
- Existing OM groups: This feature creates a new SS7 subsystem, and many existing OM groups have registers which are pegged when this new subsystem is in use. See " Operational measurements (OMs)" on page 1693 for more information.
- Test tool: This feature adds a TOPS SMS test tool consisting of new Table TOPSMCDB and new SS7 subsystems TIS41SIM and TGSMSIM. See " TOPS message center (TOPSMC) test tool" on page 1695 for more information.

Changes affecting both areas

- Changed operational measurement (OM) group IS41TOPS: OM group IS41TOPS is replaced by three new OM groups: SMSTOPS, WINTOPS, and TC7WRLSS. See section , as well as the Performance chapter of this document.
- Changed log TOPS131: This log appears when problems occur during the course of a wireless TOPS RLT call. Additional text reasons are added for SMS failures. See the Fault Management chapter of this document.
- Existing logs: This feature generates existing TCAP logs (such as the TCAP100) when errors occur in TCAP message formats, or unexpected TCAP messages are received. See Nortel Networks Log Report Reference Manual (297-8021-840) for more information about TCAP logs.

Hardware Requirements or Dependencies

Not applicable.

Software Requirements or Dependencies

Not applicable.

Limitations and restrictions

General restrictions

- TOPS Wireless ADACC with Release is supported in North American TOPS offices only.

TOPS Wireless Intelligent Network restrictions

- Only one form of RLT (ISUP, IS-41, or GSM) can be employed a given trunk group. A trunk group cannot support both IS-41 and GSM RLT.
- A maximum of 4,096 market identifiers can be datafilled in Table MSCIDMAP (see " New table MSCIDMAP" on page 1675).
- A maximum of 32,767 MSCIDs can be datafilled in Table MSCIDMAP. An MSCID is a combination of a market ID and a switch number.
- TOPS does not support GSM CAMEL calls at this time. The `RLT_GSM` value in field RLT of Table ISUPTRK is for future use.
- Pool IDs cannot be added to Table TOPSTLDN unless they already exist in Table MSCIDMAP.
- TLDN pools in Table TOPSTLDN cannot be changed or deleted if they are in use in Table MSCIDMAP. This helps prevent the customer from altering a TLDN's internal store while the TLDN is in use.
- It is not possible to add a wildcard market ID and non-wildcard switch number tuple to Table MSCIDMAP.

TOPS SMS restrictions

- The SMS can be sent to the calling party only.
- In North America, the length of the SMS destination number must be 10 digits.
- The position or service node cannot send a second SMS while the first is in progress.
- SMS is supported on IP positions only, due to the maximum length of the SMS (200 bytes). Service nodes already use an IP datapath.
- SMS is not supported in the Time Division Multiplex (TDM) operator centralization (OC) environment[3], again due to length. If the OC environment uses a TDM data path, the SMS cannot be transmitted from the host switch to the remote switch, so the SMS attempt is denied. To support sending the SMS from the host to the remote, OC-IP must be employed.
- SMS is supported in the Operator Services System Automated Intelligent Network (OSSAIN) centralization environment, known as OSAC. OSAC already uses an IP data path so SMS messages can be transmitted.
- Since TOPS might not have the International Mobile Subscriber Identity (IMSI) or Mobile Identification Number (MIN), there is no provision for routing SMS based on these numbers.

3. TDM OC uses the TOPS Message Switch (TMS) for the OC data path.

- Since TOPS only sends SMS to the calling party, there is no provision for prepending the country code prior to global title translation. The routing is based on the national number only.
- TOPS does not support SMS notification, a supplementary service which informs the message originator that the SMS was delivered to the destination phone. TOPS indicates in outgoing SMS TCAP messages that SMS notification is not required. If TOPS receives an SMS notification message, it is ignored.
- The AMA record does not indicate if the SMS was successfully acknowledged by the message center. For more information, see " Operator and automated node interaction" on page 1683.

Interactions

Interactions with cell phone users

Interactions involving wireless (cell) phone features and IS-41 or GSM processing on the MSC are outside the scope of this feature. This feature is limited to TOPS behavior given the following inputs:

- IS-41 and GSM messaging
- ISUP messaging
- Behavior of operator or automated service node

Interactions with intelligent TOPS peripherals

This feature allows Open Position Protocol (OPP) compliant operator positions to send short messages into the SS7 network via the TOPS switch. This feature also allows Open Automated Protocol (OAP) compliant automated service nodes to send short messages via the TOPS switch. To support these capabilities, OPP and OAP are updated. Please refer to the latest releases of OPP and OAP for information on the transport of SMS from the operator position or service node to the TOPS switch.

Wireless number portability

Wireless number portability allows a wireless customer to keep their dialable Mobile Directory Number (MDN) while moving to another service provider. Their nondialable IS-41 mobile identification number (MIN) or GSM international mobile subscriber identity (IMSI) changes, but their MDN remains the same.

The MDN is sent to TOPS as the calling party number when originating a call from a cell phone which has been ported. When a land line calls a ported cell phone, the original ("donor") MSC uses WNP capabilities to determine where the call should be routed.

This has the following effects on the call flows and functions of this feature.

Wireless intelligent network

TOPS WIN call setup is based on the initial WIN message and the originating trunk group. Whether the calling party has ported or not, the originating MSC sends an IS-41 ANLYZD or GSM InitialDP to start the call, and TOPS knows which protocol to use when handling the call.

The call arrives on an ISUP trunk group in Table ISUPTRK. IS-41 RLT or GSM RLT is datafilled against the trunk group, so the calling party number is not a consideration.

In a different case, a wireless caller uses TOPS WIN to connect to another wireless phone which has been ported. The TOPS WIN call flow is not changed. TOPS forwards the MDN of the called wireless phone to the MSC using the **analyzd** or Connect message. The MSC must then determine if the MDN has been ported. In other words, the WNP work is done after TOPS leaves the call, and TOPS does not need to indicate if a number is ported.

Short message service

At this time, TOPS can only send an SMS to the calling party. The MDN is sent as the calling party number. So TOPS sends the SMS to the MDN, which routes the SMS to the message center associated with the “donor” switch. The donor switch’s MC then does the work to determine that the MDN has been ported. The donor switch’s MC then forwards the SMS to the proper MC. So again, TOPS is not affected by WNP.

Applicable customer facing sections

Fault Management	
Logs	___X__
Alarms	__N/A_
Configuration	
Data Schema	___X__
User Interface	__N/A_
Element Management	__N/A_
Security	__N/A_
Service Order	__N/A_
Office Parameters	___X__
Accounting (includes AMA billing)	__N/A_
Performance (includes operational measurements)	___X__
Realtime	___X__

Engineering Information ___X__

Glossary

Acronym	Expansion
ACM	ISUP Address Complete message
ADACC	Automated DA Call Completion
AMA	Automatic Message Accounting
ANLYZD	IS-41 AnalyzedInformation message
ANM	ISUP Answer message
CONNRES	IS-41 ConnectResource message
DA	Directory Assistance
GSM	Global system for mobile communications
IAM	ISUP Initial Address message
IMSI	International Mobile Subscriber Identity
IP	Intelligent Peripheral
IP	Internet Protocol
IS-41	Interim Standard 41
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
MC	Message Center
MDN	Mobile Directory Number
MIN	Mobile Identification Number
MSC	Mobile Switching Center
OAP	Open Automated Protocol
OC	Operator Centralization
OPP	Open Position Protocol
OSAC	OSSAIN Centralization
OSSAIN	Operator Services System Advanced Intelligent Network
RLT	Release Link Trunking
RTP	Release To Pivot
SCCP	Signaling Connection Control Part

Acronym	Expansion
SCP	Service Control Point
SMS	Short Message Service
SS7	Signaling System #7
TCAP	Transaction Capabilities Application Part
TDM	Time Division Multiplex
TLDN	Temporary Local Directory Number
TMS	TOPS Message Switch
TOPS	Traffic Operator Position System
WNP	Wireless Number Portability

Datafill changes for SMS

Enabling TOPS SMS requires datafill and other action in the following categories:

- **SS7**: Enable the IS41TOPS and GSMTOPS subsystems.
- **Global title translation:** Update Table C7GTTYPE and C7GTT to route SMS TCAP messages to the proper message centers.
- **Trunk group**: Mark incoming wireless calls as IS-41 or GSM on a trunk group basis in Table TOPSTOPT.

These actions are described in this appendix.

SS7 datafill and maintenance

The following items are required to enable TOPS IS-41 and GSM TCAP messaging.

- Table C7LOCSSN: Add tuples for the IS41TOPS and GSMTOPS subsystems. Define two different subsystem numbers which will be used by MSCs to send TCAP messages to TOPS.
- MAP operation: From the SCCPLOC level of the MAP (MAPCI;MTC; CCS;CCS7;SCCPLOC), post and return to service the IS41TOPS and GSMTOPS subsystems.
- Table C7RTESET: TOPS SMS will not work unless there are CCS7 route set(s) defined to the message centers of calling parties. Depending on the configuration of the SS7 network, it might be possible to reuse the ISUP trunk route sets for TOPS SMS.

Global title translation

This feature adds an SS7 translation name, MDNMCGT, which is used for routing outgoing TOPS SMS messages to the appropriate message center. MDNMCGT is datafilled in Table C7GTTYPE and is already present in Nortel Networks MTX switches.

The following figures show datafill for Table C7GTTYPE and Table C7GTT. This datafill routes all TOPS SMS (whether IS-41 or GSM) messages to a service transfer point (STP) which already has significant SMS translation datafill. This TOPS datafill offloads the SMS global title translation to the customer's existing STP named STPA. The datafill assigns a global title number of 17 which is commonly used for mobile directory number (MDN) to message center (MC) routing.

Table C7GTTYPE

```
TABLE: C7GTTYPE
GTTNAME GTTYPE GTTID
----------------------------
TOPSSMS ANSI7 17 (MDNMCGT) $
```

Table C7GTT

```
TABLE: C7GTT
GTTKEY GTTRSLT
----------------------------------------
TOPSSMS 0 9 PCONLY (TOPSTOSTPA_RS 0) $ GT
```

Trunk group datafill

On a WIN call, the wireless network type is already known, since IS-41 messages were exchanged to begin the call. On a non-WIN wireless call (e.g. 0-, or 411 when WIN is not supported) the call arrives with standard trunk signalling and no indication that the calling party is using a cellular phone.

This feature allows customers to mark trunk groups as carrying wireless (cellular) traffic, and to further indicate whether the wireless network connected by the trunk group is IS-41 or GSM. TOPS uses this datafill when composing a short message. The trunk group datafill determines whether TOPS composes the SMS using IS-41 or GSM.

This requires the customer to segregate incoming trunk groups into IS-41 wireless, GSM wireless, and non-wireless categories. This is necessary since there is no ISUP signal which indicates that the calling party is using a cellular phone. Also, with wireless number portability (WNP), the NPA-NXX of the calling party number can no longer be used to determine the network type based on the originating MSC. A WNP user may have ported their mobile directory number from an IS-41 switch to a GSM switch or vice versa.

The following diagram shows three trunk groups in Table TOPSTOPT. One is from a wireline end office, one is from an IS-41 end office, and one is from a GSM end office.

Table TOPSTOPT

```
TABLE: TOPSTOPT
GRPKEY ORGAREA DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX LNPCLGAM
XLASCHEM SPIDPRC TRKSPID BILLSCRN ANIFSPL MAXCONNS DISPSPID WIRELESS
-------------------------------------------------------------------------
LANDLINE_EO   N Y NONE NA Y N NONE 0 N N N N N N 0 N N
WIRELESS_IS41 N Y NONE NA Y N NONE 0 N N N N N N 0 N Y IS41
WIRELESS_GSM  N Y NONE NA Y N NONE 0 N N N N N N 0 N Y GSM
```

Operational measurements (OMs)

This feature creates three new OM groups: SMSTOPS, WINTOPS, and TC7WRLSS. The registers in these groups count specific events occurring during TOPS IS-41 and GSM call processing. Please refer to " IS41TOPS OM group modification" on page 1683 and the Performance chapter of this document for more information on these new OM groups.

The following appendix describes this feature's effects on existing OM groups.

SS7 operational measurements

Several existing OM groups are defined for pegging events relating to SS7 and TCAP messaging. These groups usually start with "C7" or "TCAP." More information about these groups can be found in NTP 297-8021-814: "Operational Measurements Reference Manual."

Two existing TCAP OM groups, TCAPUSAG and TCAPERRS, are useful when tracking this feature, since these OM groups have SS7 subsystem as their key. To track TOPS IS-41 events, use subsystem name IS41TOPS as the key. To track TOPS GSM events, use subsystem name GSMTOPS as the key.

OM group TCAPUSAG contains several registers which are pegged during the course of a wireless TOPS call in addition to the pegs in the new groups introduced by this feature. The following table maps the OM registers in group TCAPUSAG to messages sent and received during a wireless TOPS call.

TCAPUSAG mapping to TOPS IS-41 and GSM ADACC event

Register	Description and applicability to TOPS IS-41 ADACC
TCMSGOUT, TCMSGOU2	Total TCAP messages originating on this node Pegged for all IS-41 and GSM TCAP messages sent by TOPS
TCMSGIN, TCMSGIN2	Total TCAP messages terminating at this node Pegged for all IS-41 and GSM TCAP messages received by TOPS
TCUNIDIR, TCUNIDI2	Total TCAP msgs sent/rcvd w/ package type UNIDIRECTIONAL Not pegged on wireless TOPS calls
TCQWPERM , TCQWPER2	Total TCAP msgs sent/rcvd w/ package type QUERY W/ PERM Pegged when TOPS receives ANLYZD. Also pegged when TOPS sends an SMS.
TCQNPERM, TCQNPER2	Total TCAP msgs sent/rcvd w/ package type QUERY W/O PERM Not pegged on wireless TOPS calls
TCCWPERM , TCCWPER2	Total TCAP msgs sent/rcvd w/ package type CONV W/ PERM Pegged when TOPS receives CONNFAILRPT
TCCNPERM, TCCNPER2	Total TCAP msgs sent/rcvd w/ package type CONV W/O PERM Pegged when TOPS sends CONNRES and RESETTIMER
TCRESPNS, TCRESPN2	Total TCAP msgs sent/rcvd w/ package type RESPONSE Pegged when TOPS sends anlyzd. Also pegged when TOPS receives response from message center.
TCINVKL, TCINVKL2	Total components sent/rcvd of type INVOKE LAST Pegged when TOPS received ANLYZD and CONNFAILRPT; also when TOPS sends CONNRES and RESETTIMER; also when TOPS sends an SMS.
TCINVKNL, TCINVKN2	Total components sent/rcvd of type INVOKE NOT LAST Not pegged on wireless TOPS calls
TCRSLTL, TCRSLTL2	Total components sent/rcvd of type RETURN RESULT LAST Pegged when TOPS sends anlyzd
TCRSLTNL, TCRSLTN2	Total components sent/rcvd of type RETURN RESULT NOT LAST Not pegged on wireless TOPS calls
TCRTERR, TCRTERR2	Total components sent/rcvd of type RETURN ERROR Pegged when TOPS sends AnalyzedInformation RETURN ERROR

TCAPUSAG mapping to TOPS IS-41 and GSM ADACC event

Register	Description and applicability to TOPS IS-41 ADACC
TCREJECT, TCREJEC2	Total components sent/rcvd of type REJECT Pegged when TOPS sends AnalyzedInformation REJECT, or receives SMS REJECT
TCABORT, TCABORT2	Total TCAP msgs sent/rcvd w/ package type ABORT Not pegged on wireless TOPS calls

TOPS message center (TOPSMC) test tool

This feature introduces a test tool for verifying TOPS short message service. The test tool consists of two service control point (SCP) processes, one for IS-41 and one for GSM, which simulate message centers (MCs). These SCP processes run on the TOPS switch.

The simulated message centers are reached using the SS7 network. When an operator or automated node creates an SMS, TOPS formats the SMS into a TCAP message. TOPS uses either IS-41 or GSM, depending on the wireless network type of the calling party. TOPS then uses global title translation to send the TCAP message into the SS7 network.

The message arrives at one of the SCP simulators, which uses the destination number to index new Table TOPSMCDB (TOPS Message Center Database) to determine the disposition of the message. Possible results are:

- Successful acknowledgment sent back to TOPS switch
- Negative acknowledgment with cause code sent back to TOPS switch
- TCAP REJECT with reject reason sent back to TOPS switch
- Time-out (no response)

When TOPS receives the response (or the `SMS_TIMEOUT` timer expires), TOPS pegs OMs in new groups SMSTOPS and TC7WRLSS. In failure situations TOPS generates a TCAP log or a TOPS131 log.

Recall that the protocol chosen (IS-41 or GSM) is based on WIN messaging. If the call is not a WIN call, the protocol chosen is based on incoming trunk group datafill in Table TOPSTOPT. If the protocol is IS-41, but the global title translation datafill routes the SMS to the GSM simulator, the GSM simulator will generate a TCAP log and reject the SMS before accessing Table TOPSMCDB. The same is true for sending a GSM SMS to the IS-41 MC simulator.

The components are as follows, and the remainder of this appendix describes them in more detail.

- Table TOPSMCDB: This table allows datafill of destination numbers and SMS dispositions for these numbers.
- SS7: New subsystems TIS41SIM and TGSMSIM
- Global title translation: C7GTTYPE and C7GTT datafill is required to route SMS messages to the simulators.

Table TOPSMCDB

Table TOPSMCDB allows datafill of up to 64 SMS destination numbers. The disposition of the short message attempt is datafilled against each number. Table TOPSMCDB can serve short messages based on IS-41 and GSM.

The available dispositions are as follows:

- SUCCESS: A successful SMS acknowledgment is sent back to TOPS.
- ERROR: A negative acknowledgment with a cause code is sent back to TOPS. The cause codes are different for IS-41 and GSM, so datafilling ERROR requires the datafill of an IS-41 cause code and a GSM cause code.
- REJECT: Setting a disposition of REJECT causes a TCAP REJECT message to be sent back to TOPS. Since IS-41 and GSM share TCAP REJECT reasons, separate fields are not necessary. The reject reason consists of two fields, a problem type and a problem code.

If an SMS arrives at a simulator and the destination number is not found in Table TOPSMCDB, the SMS is ignored. Eventually the TOPS SMS timer will expire and the SMSTOPS OM TIMEOUT will be pegged. The TOPS SMS timer is set by parameter SMS_TIMEOUT in Table TOPSPARM.

A final TOPSMCDB field, DELAYSEC, indicates how long the simulators should wait before sending the SMS response. This is used to simulate real-world exchanges with message centers. It is datafilled for all dispositions.

Note: The simulator is not multi-threaded. SMS messages arriving during the DELAYSEC delay are not processed until the delay time has expired. If several SMS messages arrive at once, they are processed sequentially. So the response time for the later short messages can easily exceed normal SMS time-out values.

The following figure shows three destination numbers in Table TOPSMCDB.

Table TOPSMCDB

```
TABLE: TOPSMCDB
DESTDIGS RESPAREA DELAYSEC
-------------------------------------------------
6199421465 ERROR SMSNOTSUPPORT FACILITYNOTSUPPORT 2
9194321234 REJECT GENPROB BADCOMPSTRUCT 2
9199910000 SUCCESS 2
```

SS7 datafill and maintenance

The following items are required to enable the TOPS IS-41 and GSM message center simulators.

- Table C7LOCSSN: Add tuples for the TIS41SIM and TGSMSIM subsystems.
- MAP operation: From the SCCPLOC level of the MAP (MAPCI;MTC; CCS;CCS7;SCCPLOC), post and return to service the TIS41SIM and TGSMSIM subsystems.
- Table C7RTESET: Datafill of Table C7RTESET is optional, since it is possible to define an internal SS7 link to the simulators, as described in the next section.

  It is also possible to set up looparound SS7 links, or to set up a looparound which goes through an STP. When setting up looparound links, datafill in C7RTESET and other SS7 tables (e.g. C7LKSET) is required. Using looparound links, or links to a second test switch where the TOPS MC simulators are running, is a more realistic way to test the SMS function.

Global title translation

The following figure shows datafill which will route all SMS attempts to the TOPS MC IS-41 simulator using internal SS7 links. The tuple in Table C7GTT can be split into several tuples in order to send some SMS attempts to the IS-41 MC simulator while other SMS attempts go to the GSM MC simulator.

Table C7GTTYPE

```
TABLE: C7GTTYPE
GTTNAME GTTYPE GTTID
----------------------------
TOPSSMS ANSI7 17 (MDNMCGT) $
```

Table C7GTT

```
TABLE: C7GTT
GTTKEY GTTRSLT
-----------------------------
TOPSSMS 0 9 SSNONLY TIS41SIM $
```

Fault Management for A00003687

Fault management strategy

The TOPS131 log was added in SN06 by feature A00000816: "TOPS Wireless ADACC with Release." TOPS generates this log in failure situations when interacting with a cell phone caller and a Mobile Switching Center (MSC).

This SN07 feature updates the text title string in the log. The log was formerly titled "TOPS IS-41 Trouble." To make it more general, it is now titled "TOPS Wireless Trouble." An additional line of text is added to identify whether the trouble occurred on an IS-41 or GSM call.

This feature also adds some new reasons to the Reason field.

Fault management tools and utilities

LOGUTIL and related log tables (LOGCLASS, LOGDEV) can be used to view and collect logs relating to TOPS wireless applications.

Logs

Explanation

Log Title: TOPS131

Name: TOPS Wireless Trouble (changed from TOPS IS-41 Trouble)

Description: This log is generated in the TOPS switch when problems occur on a wireless ADACC with release call, or when problems occurs when TOPS tries to send a short text message using Short Message Service (SMS).

In the ADACC case, the log indicates TOPS attempted to provide ADACC with Release Link Trunking (RLT) to a wireless customer, but an unexpected problem prevented this.

This log is not generated when the call is disconnected prior to call completion due to normal reasons (e.g. calling party abandons, or operator can't locate DA listing and ends call).

In the SMS case, this log indicates an SMS did not reach the cell phone user. The log text gives an indication of the problem.

Event type: Major. Each log can represent the loss of one call, or that requested information could not be provided. On RLT calls, the wireless customer is disconnected prior to call completion to the requested number.

Format

TOPS131 <mmmdd hh:mm:ss ssdd> TBL TOPS Wireless Trouble
CKT <CPID>
MSC route set: <serving MSC route set from Table C7RTESET>
Called digits: <digits>
Reason: <reason text>
Wireless type: <IS-41 or GSM>

Example:

```
TOPS131 OCT01 15:07:54 7100 TBL TOPS Wireless Trouble
MSC route set:     RTP8_STPA_N_RS
Called digits:     201-220-1234 (TLDN)
Reason:            Failure at MSC
Wireless type:     IS-41
```

Example:

```
TOPS131 OCT01 15:07:54 7100 TBL TOPS Wireless Trouble
CKT  RTPC_RTP8_ISUP    2
MSC route set:     RTP8_STPA_N_RS
Called digits:     619-322-1234 (Destination number)
Reason:            SMS failure: Network problem (2)
Wireless type:     IS-41
```

Field descriptions

This feature does not change TOPS131 fields CKT, MSC route set, or Called digits. This feature adds additional text reasons to the Reason field as indicated in the table in this section. This feature also adds a new field, Wireless type, which indicates whether the log was generated on an IS-41 or GSM call.

The Reason field describes the category of the error. When the log is generated due to a negative acknowledgment from the message center, the exact byte value of the cause code is included in parentheses at the end of the Reason field. The meaning of the byte value can be found in the specifications as follows:

- IS-41-D: Chapter 5, section 6.5.2.125 (SMS Cause Code), table 171
- GSM: 3GPP TS 29.002 V4.12.0 (2003-06), sections 7.6.1 and 12.2.3.

Field descriptions

Field	Value	Description
Reason	SMS failure: Network problem <nn>	The message center encountered a network problem and could not process the TOPS SMS.
Reason	SMS failure: Terminal problem <nn>	The message center could not process the TOPS SMS due to problems with the terminal (cell phone) specified by the destination number.
Reason	SMS failure: Radio interface problem <nn>	The message center could not process the TOPS SMS due to problems with the radio interface to the cell phone.
Reason	SMS failure: Miscellaneous problem <nn>	The message center could not process the TOPS SMS for a reason other than the above three. One example is if the format of the TOPS SMS was not understood by the message center.
Reason	SMS failure: Time-out	A response was not received to the TOPS SMS within the time period defined in Table TOPSPARM parameter SMS_TIMEOUT.
Reason	SMS failure: Global title translation	Tables C7GTTYPE and C7GTT cannot accommodate the destination number listed in the log.
Reason	No transaction IDs	No transaction ID could be obtained when TOPS attempted to send an INVOKE, whether for IS-41 WIN, GSM CAMEL, or SMS. This means the message could not be sent.
Reason	WIN: Wireless protocol mismatch	The wireless network protocol established by the IS-41 ANLYZD or GSM InitialDP message did not match the trunk group datafill (RLT_IS41 or RLT_GSM) in Table ISUPTRK when the call arrived. The call cannot proceed because the version of IS-41 or GSM RLT is unknown.
Wireless type	IS-41	The log was generated on a TOPS IS-41 call.
Wireless type	GSM	The log was generated on a TOPS GSM call.

Action

The action taken depends on the contents of the reason field as follows.

Reason to action mapping

Reason text	Action
SMS failure: *(any SMS failure except GTT)*	Examine SS7 and TCAP logs on the TOPS switch and at the message center. Use an operator position to send SMS messages and verify the messages arrive at the message center. Use message center tools to verify SMS can be forwarded to the cell phone. If time-outs are occurring, investigate whether the SMS_TIMEOUT parameter in Table TOPSPARM needs to be increased.
SMS failure: Global title translation	Check datafill in Tables C7GTTYPE and C7GTT for the destination number listed in the log. Look for tuples containing MDNMCGT (mobile directory number to message center global title).
No transaction IDs	Contact Nortel Networks. TOPS automatically allocates transaction IDs when needed.
WIN: Wireless protocol mismatch	Correct the datafill mismatch in Table ISUPTRK. The MSC specified in the log is sending one kind of protocol to TOPS, but is datafilled in Table ISUPTRK as another kind.

Associated Operational Measurements or Performance Measurements

Reason to OM mapping

TOPS131 reason text	OM
SMS failure: Network problem	Group SMSTOPS, register SMSNETWK
SMS failure: Terminal problem	Group SMSTOPS, register SMSTERM
SMS failure: Radio interface problem	Group SMSTOPS, register SMSRADIO
SMS failure: Miscellaneous problem	Group SMSTOPS, register SMSMISC
SMS failure: Time-out	Group SMSTOPS, register SMSTIME
SMS failure: Global title translation	Group TC7WRLSS, register GTTFAIL
No transaction IDs	Group TC7WRLSS, register NOTRIDS
WIN: Wireless protocol mismatch	None

Additional information

Since short messaging can fail in many expected situations (such as wireless phone powered off, destination number not subscribed to SMS, etc.), the TOPS131 logs can be throttled. A new parameter in Table TOPSPARM, SMS_LOG_MC_FAILURE, determines when TOPS131 logs are generated as a result of SMS failure. TOPS131 to be generated in some SMS failure scenarios but not others. See the Configuration chapter for more information.

Alarms

No new or changed alarms.

Related documentation

Not applicable.

Configuration for A00003687

Hardware and Software Requirements

The Mobile Switching Centers (MSCs) and the TOPS switches must have SS7 connectivity. ISUP voice trunk connectivity is necessary for Wireless ADACC with Release.

The customer's SS7 network must have global title translations set up such that short messages from the TOPS node can route to the correct message centers.

The MSCs must have MSC and network translations set up such that the TOPS TLDN routes the call to the TOPS node for service processing.

Initial Configuration

Not applicable.

Office parameters (OP)

Existing Table OFCENG parameter NUM_OF_IS41TOPS_EXT_BLKS is replaced with new Table OFCAUT parameter NUM_OF_WIN_TOPS_EXT_BLKS. This parameter provisions the WIN TOPS extension block (formerly IS41TOPS_EXT_BLK; now WIN_TOPS_EXT_BLK). The extension block serves both IS-41 and GSM TOPS calls, so it has been renamed to be more general. Since it has been moved to Table OFCAUT, it is now allocated automatically.

New/modified office/subnet parameters

Parm table	Parameter name	NEW/ CHANGED/ DELETED/ RELOCATED	Domain (CM or Subnet Management
OFCAUT	NUM_OF_WIN_TOPS_EXT _BLKS	New	CM
OFCENG	NUM_OF_IS41TOPS_EXT_ BLKS	Deleted	CM

Parameter information

NUM_OF_WIN_TOPS_EXT_BLKS

Number of Wireless Intelligent Network TOPS Extension Blocks

Functional description

This parameter controls how many extension blocks are allocated for use by Wireless Intelligent Network (WIN) TOPS calls.

WIN TOPS extension blocks are used for TOPS calls originating from IS-41 wireless networks as well as calls originating from GSM wireless networks. Each extension block stores data about a wireless call while TOPS is waiting for the MSC to outpulse to TOPS on a voice trunk.

Provisioning rules

This parameter is located in Table OFCAUT, so additional EXT blocks are allocated automatically when needed.

By default, WIN TOPS extension blocks are allocated in groups of 100 using the capabilities of Table OFCAUT.

Range information

Minimum	Maximum	Default
0	32767	0 (no WIN TOPS extension blocks allocated)

Activation

The parameter is allocated automatically. No restarts are necessary.

Dependencies

None.

Consequences
Since the parameter is under the control of Table OFCAUT, it should not be underprovisioned. If there are not enough extension blocks, TOPS131 logs will appear, and wireless calls will be routed to treatment in the MSCs.

By default, WIN TOPS extension blocks are allocated in blocks of 100, so the extension blocks should normally be overprovisioned, using slightly more memory than is required during peak periods.

Verification
To verify that the WIN TOPS extension blocks are allocated, use the CI command `OMSHOW EXT ACTIVE WIN_TOPS_EXT_BLK`.

Memory requirements
Each WIN TOPS extension block requires 128 words. So the total memory used by the EXT blocks is (`NUM_OF_WIN_TOPS_EXT_BLKS` * 128 words).

Parameter release history update
SN06: Parameter `NUM_OF_IS41TOPS_EXT_BLKS` created.

SN07: Parameter `NUM_OF_IS41TOPS_EXT_BLKS` removed and parameter `NUM_OF_WIN_TOPS_EXT_BLKS` added to accommodate IS-41 and GSM.

Upgrade Impact

Dump and Restore

Not applicable. `NUM_OF_WIN_TOPS_EXT_BLKS` starts with a default value of 0 and is increased automatically as needed.

Element Management Upgrade

Not applicable.

Data schema (DS)

New/modified tables

Table name	NEW/CHANGED/ or DELETED/	Table Control (NEW/OLD/UNCHANGED)
ISUPTRK	Changed	Unchanged
MSCIDMAP	New	New
TOPSFTR	Changed	Unchanged
TOPSMCDB	New	New

Table name	NEW/CHANGED/ or DELETED/	Table Control (NEW/OLD/UNCHANGED)
TOPSPARM	Changed	Unchanged
TOPSTLDN	Changed	Unchanged
TOPSTOPT	Changed	Unchanged

Table information

Name: ISUPTRK

ISUP Trunk

Functional description

Table ISUPTRK is a TOPS table which associates TOPS options and features with ISUP trunk groups. TOPS ISUP calls use standard ISUP trunk group datafill in Table TRKGRP, and Table ISUPTRK was created to allow datafill of TOPS options and features without affecting standard ISUP trunk group datafill.

Usage sequence and implications (CM Only)

A trunk group must be datafilled in Table TRKGRP and Table TRKSGRP before it can be datafilled in Table ISUPTRK. This sequence is unchanged.

Size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
ISUPTRK	Unchanged	Unchanged	Unchanged

Fields

The following table lists changed fields for Table ISUPTRK.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
RLT	Changed	Unchanged	NONE, RLT_REL, RLT_FAR, RLT_IS41, RLT_GSM	Release link trunking: Value RLT_GSM is added by this feature. When the user selects RLT_GSM, they are presented with the existing subfields added in SN06 for value RLT_IS41: RLT_VERSION, RESETTIMER, and TIMERVAL **Note that RLT_GSM cannot be datafilled at this time. RLT_GSM is for future use.**

Datafill example

The following example shows sample datafill for Table ISUPTRK. The RLT type is set to GSM, the RLT version is set to 1, and the reset timer is enabled and set to 20 seconds.

RLT_GSM is for future use and cannot be datafilled at this time.

```
TABLE: ISUPTRK
          GRPKEY              CONNTYPE  LCANAME          BILLCD CALLSRC
ANI2CLI             RLT SNTPDRST DNLKUP DISPLAY ININTWRK BRANDCHC
-------------------------------------------------------------------------
       MSC_DACC1     CELL_MOBILE  IEC     NLCA      TOPSBC   0    ORIG
      Y RLT_GSM  1 Y 20        N      N       0     NONE        N
```

Table release history update

SN06: Value RLT_IS41 plus subfields RLT_VERSION, RESETTIMER, and TIMERVAL added to RLT field to accommodate WIN TOPS calls using IS-41.

SN07: Value RLT_GSM added to RLT field to accommodate WIN TOPS calls using GSM. The same subfields are used.

Supplementary information

No dump and restore necessary, since value RLT_GSM did not exist in SN06.

Translation verification other tools

Not applicable.

Table information

Name: MSCIDMAP

Mobile Switching Center Identifier Mapping

Functional description

This table maps Mobile Switching Center Identifiers (MSCIDs) to TLDN pool identifiers from Table TOPSTLDN. This allows the customer to control TLDN allocation on a per-MSC basis.

An MSCID consists of a Market ID (16 bit value) and a Switch ID (8 bit value). Less than 1,000 market IDs are in use today in the United States, so the datafill of Table MSCIDMAP is held to a maximum of 4,096 different market IDs to limit data store usage.

The switch ID can be any number from 0 to 255. The total number of tuples which can be datafilled is 32,767 (the DMS maximum for any table).

Wildcarding can be used to limit datafill in this table. The market ID and switch ID can be wildcarded as follows:

Market ID	Switch number	Meaning
$	$	Match all MSCIDs not otherwise found in table. This combination, when datafilled, serves as the default.
<0 to 65535>	$	Match exact market ID and any switch number, providing exact MSCID and exact switch number is not datafilled.
<0 to 65535>	<0 to 255>	Match exact market ID and switch number
$	<0 to 255>	Not allowed. A wildcard market ID cannot be datafilled with a specific switch number.

Usage sequence and implications (CM Only)

Table TOPSTLDN must be datafilled before Table MSCIDMAP.

Size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
MSCIDMAP	0	32767	128 words per tuple.

Fields

The following table lists fields for Table MSCIDMAP.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
MARKETID	New	None	{0 to 65535}, or '$'	Market Identifier (vector). First part of two-part key MSCID.
SWITCHID	New	None	{0 to 255}, or '$'	Switch Identifier (vector). Second part of two-part key MSCID.
POOLLIST	New	None	Vector of up to 255 TLDN pool identifiers from Table TOPSTLDN	Temporary local directory number pool list. Pointer to TLDN pool IDs in Table TOPSTLDN.

Datafill example

The following example shows sample datafill for Table MSCIDMAP.

```
TABLE: MSCIDMAP
MSCID              POOLIDS
-----------------------
$ $     (0) (1) (2) (3) $
64 $            (0) (2) $
64 5            (0) (1) $
312 444     (0) (1) (2) $
312 445     (0) (1) (2) $
```

Table release history update

Created in SN07

Supplementary information

During dump and restore from SN06 to a later load, Table TOPSTLDN is checked. If it has any entries, they are restored using sequential pool IDs beginning with pool ID 0. Then a single tuple with the key {$, $} is added to Table MSCIDMAP. This is a wildcard tuple which matches all MSCIDs and which contains all pool IDs from restored Table TOPSTLDN.

Translation verification other tools

Not applicable.

Table information

Name: TOPSFTR

TOPS Feature

Functional description

Table TOPSFTR is a TOPS table which allows optional TOPS functions to be activated and deactivated easily. Once the SOC option has been turned on for a TOPS feature, the customer can use Table TOPSFTR to turn the function on and off.

This feature adds tuple RLT_FOR_GSM, which controls GSM ADACC with Release. **This tuple is for future use and cannot be set to 'Y' at this time.**

Usage sequence and implications (CM Only)

Tuple RLT_FOR_GSM must be set to Y in order for TOPS to process wireless calls using GSM CAMEL.

Size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
TOPSFTR	Unchanged	Increased by 1	Unchanged

Fields

The following table lists fields for Table TOPSFTR.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
FTRNAME	Changed	None	RLT_FOR_GSM	Feature name: **This tuple is for future use.** It will allow the customer to enable GSM TOPS ADACC with release. In order to activate the feature, the SOC option OSEA0104 must be on, and this tuple must be set to Y.
FTRENABL	Unchanged	None	Y/N	Feature enable: Activates or deactivates an optional TOPS feature. The tuple's default value is N.

Datafill example
The following example shows sample datafill for Table TOPSFTR. The TOPS WIN and TOPS SMS features have been activated.

```
TABLE: TOPSFTR
               FTRNAME FTRENABL
------------------------------
          RLT_FOR_GSM        Y
```

Table release history update
Table initially added in TOPS15.

Supplementary information
None.

Translation verification other tools
Not applicable.

Table information

Name: TOPSMCDB

TOPS Message Center Database

Functional description
This table provides datafill for a TOPS SMS SS7-based message center simulator. An operator position or automated node can send SMS messages using either IS-41 TCAP or GSM TCAP. When the simulator receives the SMS, it looks up the data stored against the SMS destination number to determine the disposition of the SMS. The simulator can successfully acknowledge the SMS, send back a failure message, or ignore the SMS so the TOPS SMS time-out code executes.

Usage sequence and implications (CM Only)
There is no requirement to datafill tables in a specific order.

Size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
TOPSMCDB	0	64	2 words per tuple

Fields

The following table lists fields for TOPSMCDB.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
DESTDIGS	New	None	1-18 digits	Digilator field containing the destination number
RESULT	New	See below	SUCCESS, REJECT, or ERROR	Tells disposition of SMS to this destination number
PROBTYPE	New	Subfield of RESPAREA when RESULT set to REJECT	GENPROB, TRANSPROB, ERRPROB, RESPPROB, INVPROB	Defines problem type.
PROBCODE	New	Subfield of RESPAREA when RESULT set to REJECT	tbd: Numerous codes, depending on contents of PROBTYPE, will copy them in here later	Defines problem code. The choices for problem code vary based on the problem type.
IS41CODE	NEW	Subfield of RESPAREA when RESULT set to ERROR	tbd: Numerous cause codes defined in IS-41, will copy them in here later	Contains cause code to send for IS-41 message center negative acknowledgment. Several dozen cause codes are defined in IS-41.
GSMCODE	New	Subfield of RESPAREA when RESULT set to ERROR	tbd: Numerous cause codes defined in GSM, will copy them in here later	Contains cause code to send for GSM message center negative acknowledgment. Several dozen cause codes are defined in GSM.
DELAYSEC	New	None	0 to 255	Delay in seconds before sending response. Helps simulate real-world response time.

Datafill example

The following example shows sample datafill for Table TOPSMCDB.

```
TABLE: TOPSMCDB
DESTDIGS RESPAREA DELAYSEC
-------------------------------------------------
6199421465 ERROR SMSNOTSUPPORT FACILITYNOTSUPPORT 2
9194321234 REJECT GENPROB BADCOMPSTRUCT 2
9199910000 SUCCESS 2
```

Table release history update
Created in SN07

Supplementary information
None.

Translation verification other tools
Not applicable.

Table information

Name: TOPSPARM

TOPS Parameter

Functional description
Table TOPSPARM is a TOPS-specific version of the office parameter tables. This feature adds two new parameters, SMS_MC_LOG_FAILURE and SMS_TIMEOUT.

SMS_MC_LOG_FAILURE

The telco can use the first parameter, SMS_LOG_MC_FAILURE, to limit the number of TOPS131 logs generated in SMS failure situations. There are many normal situations in which the message center (MC) will return an error code. These might include wireless phone powered off, or destination number not subscribed to SMS. The telco might not wish to have TOPS131 logs generated for these situations. Note that OMs in group SMSTOPS are pegged for these situations.

SMS_LOG_MC_FAILURE is a set field consisting of the following values. These values are related to the cause code returned by the MC when an SMS fails. This parameter only controls the TOPS131 log upon receipt of a negative acknowledgment from the MC. The TOPS131 is always generated as a result of global title translation failure, SS7 routing failure, or SMS time-out.

- NONE: Do not generate the TOPS131 for any of the following reasons.
- NETWK: Generate the TOPS131 when a negative acknowledgment is received from the MC with the Cause Code set to a network problem value.

- TERM: Generate the TOPS131 when a negative acknowledgment is received from the MC with the Cause Code set to a terminal problem value.
- RADIO: Generate the TOPS131 when a negative acknowledgment is received from the MC with the Cause Code set to a radio interface problem value.
- MISC: Generate the TOPS131 when a negative acknowledgment is received from the MC with the Cause Code set to a general problem value.
- ALL: Generate the TOPS131 for all of the above reasons.

SMS_LOG_MC_FAILURE can be set to NONE, ALL, or any combination of NETWK, TERM, RADIO, and MISC.

The default value of SMS_LOG_MC_FAILURE is ALL.

SMS_TIMEOUT

The second parameter, SMS_TIMEOUT, controls how long TOPS waits before marking an SMS attempt as timed out. The time-out period is datafilled in seconds. The default value of SMS_TIMEOUT is 30 seconds, since operators and automated nodes do not wait while the SMS attempt is in progress, and the SMS acknowledgment can be received after the call is ended.

The time-out value is required since the position or service node cannot send a second SMS while the first SMS transaction is in progress. Also, the time-out ensures DMS resources are cleaned up if the SMS is lost in the network.

Usage sequence and implications (CM Only)

There is no requirement to datafill tables in a specific order.

Size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
TOPSPARM	Increased by 2	Increased by 2	Unchanged

Fields

The following table lists fields for Table TOPSPARM.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
PARMNAME	Changed	None	SMS_LOG_MC_FAILURE is added to the range of TOPS parameters.	This parameter controls when the TOPS131 log is generated in certain SMS failure situations.
PARMVAL	Unchanged	None	Set of {NONE, NETWK, TERM, RADIO, MISC, ALL}	This parameter can be set to NONE, ALL, or any combination of the four remaining values. Its default value is ALL, meaning generated the TOPS131 in all failure situations.
PARMNAME	Changed	None	SMS_TIMEOUT is added to the range of TOPS parameters.	This parameter controls the amount of time in seconds before TOPS marks an SMS attempt as timed out.
PARMVAL	Unchanged	None	0 to 255	Parameter SMS_TIMEOUT can be set to values 0 to 255. Its default value is 30.

Datafill example

The following example shows sample datafill for Table TOPSPARM.

```
TABLE: TOPSPARM
PARMNAME PARMVAL
-------------------------
SMS_LOG_MC_FAILURE   ALL $
SMS_TIMEOUT             30
```

Table release history update

Table initially added in BCS31.

Supplementary information

When performing a dump and restore from an SN06 load to an SN07 or later load, SMS_LOG_MC_FAILURE will be restored with a value of ALL, and SMS_TIMEOUT will be restored with a value of 30.

Translation verification other tools
Not applicable.

Table information

Name: TOPSTLDN

TOPS Temporary Local Directory Numbers

Functional description
Table TOPSTLDN provides all TLDNs which can be used by TOPS when providing a Wireless Intelligent Network (WIN) service such as ADACC with release. When a cell phone caller initiates a wireless directory assistance (DA) call and TOPS receives an IS-41 AnalyzedInformation or a GSM InitialDP, TOPS selects an idle TLDN from Table TOPSTLDN and sends it back to the originating mobile switching center (MSC).

Tuples in Table TOPSTLDN define pools of TLDNs from a low TLDN to a high TLDN. Each pool has a numerical index, the pool ID. A new table, MSCIDMAP, maps MSC identifiers (MSCIDs) to one or more pool IDs. When an MSC sends an AnalyzedInformation or InitialDP, the MSCID in the message is used to index Table MSCIDMAP to determine a pool ID. Then an idle TLDN is selected from the pool in Table TOPSTLDN and sent back to the MSC.

A maximum of 2,000 TOPS TLDNs can be defined. The holding time of a TOPS TLDN is very short (around one second), so this number of TLDNs should be able to accommodate heavy TOPS WIN traffic.

Usage sequence and implications (CM Only)
Table TOPSTLDN must be datafilled before Table MSCIDMAP.

Size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
TOPSTLDN	0	2000	Memory for all 2000 tuples (10 words each) is allocated when the first tuple is added. Memory is deallocated when the last tuple is deleted.

Fields
The following table lists fields for Table TOPSTLDN.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
POOLID	New	None	0-1999	Pool Identifier: an integer field identifying the pool of TLDNs.
FROMDIGS	Changed	None	10 digits	From Digits: the start of the TLDN range for this tuple.
TODIGS	Changed	None	10 digits	To Digits: the end of the TLDN digit range for this tuple.

Datafill example

The following example shows sample datafill for Table TOPSTLDN.

```
TABLE: TOPSTLDN
POOLID   FROMDIGS     TODIGS
----------------------------
0       2012201234 2012201234
1       2013364400 2013364899
2       2018591400 2018591489
```

Table release history update

SN06: Added by Feature A00000816

SN07: Modified to use a pool ID as the key field.

Supplementary information

During dump and restore from SN06 to a later release, if Table TOPSTLDN contains datafill on the SN06 side, it is restored into Table TOPSTLDN on the restore side with sequential pool IDs beginning with 0.

See the Functional Description chapter for illustrations of Table TOPSTLDN before and after a dump and restore.

Translation verification other tools

Not applicable.

Table information

Name: TOPSTOPT

TOPS Trunk Options

Functional description

This table contains various options datafilled against trunk groups used by TOPS.

Usage sequence and implications (CM Only)

There is no requirement to datafill tables in a specific order.

Size

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
TOPSTOPT	Unchanged	Unchanged	Negligible (additional 4 bits per tuple)

Fields

The following table lists fields for Table TOPSTOPT.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
WIRELESS	New	None	Y/N If Y, then a further refinement, NETTYPE, appears.	Wireless: Indicates if the trunk group carries wireless (cellular) traffic. This field controls whether TOPS can use wireless functions on a non-WIN (non-CAMEL) call. If the field is set to Y, all traffic is assumed to be from a wireless phone.
NETTYPE	New	None	IS41 or GSM	Network type: Indicates if the wireless network type connected by the trunk group is IS-41 or GSM.

Datafill example

The following example shows sample datafill for Table TOPSTOPT.

```
TABLE: TOPSTOPT
GRPKEY ORGAREA DISPCLG ADASERV ADASANS ANITOCLI OLNSQRY DCIBIDX LNPCLGAM
XLASCHEM SPIDPRC TRKSPID BILLSCRN ANIFSPL MAXCONNS DISPSPID WIRELESS
-------------------------------------------------------------------------
TEAOSSIC N Y NONE NA Y N NONE 0 N N N N N N 0 N N
TOSSIC N Y NONE NA Y N NONE 0 N N N N N N 0 N Y IS41
TBELLBIC N Y NONE NA N NONE 0 N N N N N N 0 N Y GSM
```

Table release history update
SN07 - Added field WIRELESS.

Supplementary information
The default value of WIRELESS on a dump and restore is N. Currently this field is only used when sending a TOPS SMS on a non-WIN (non-CAMEL) call. On an IS-41 WIN or GSM CAMEL call, the originating wireless network type is already known through signaling.

Translation verification other tools
Not applicable.

Service Orders (SO)

Not applicable.

Software optionality control (SOC)

No new SOCs are added by this feature. Regarding the two main components of this feature:

- GSM ADACC with Release is under the control of an existing SOC (OSEA0104, which also controls IS-41 ADACC with Release).
- TOPS SMS is not under the control of SOC.

Element Management

Not applicable.

Command interface changes

Not applicable.

Security

Not applicable.

Configuration Walkthrough

Tables C7GTTYPE and C7GTT must be datafilled before TOPS can send short messages into the SS7 network. These must use a global title translation number for MDN to Message Center (MDNMCGT) routing such that when the

TOPS-sent SMS arrives at the STPs, it is routed to the calling party's message center.

Since SMS has been supported over SS7 for some time, much of the necessary SMS global title translation datafill is probably already present. TOPS might require large amounts of MDNMCGT datafill, but a more likely scenario is that large blocks of MDNMCGT global title translations can be off-loaded to existing STPs using a small number of MDNMCGT tuples in the TOPS switch.

Performance for A00003687

Performance management strategy

This feature is an extension of SN06 feature A000000816: "Wireless ADACC with Release." This feature provides additional functions involving TCAP messaging between mobile switching centers (MSCs), message centers (MCs), and TOPS. The main tools used to monitor the performance of these features are operational measurements (OMs).

OM group IS41TOPS was created by feature A00000816 in SN06. With the functional additions of this SN07 feature, OM group IS41TOPS is no longer sufficient. This feature creates three new OM groups (SMSTOPS, WINTOPS, and TC7WRLSS) and removes group IS41TOPS.

Events which previously pegged registers in group IS41TOPS will now peg registers in OM groups WINTOPS and TC7WRLSS. For more information including a complete mapping of old to new registers, see the Functional Description chapter of this document.

Performance management tools and utilities

The new OM group is accessed using the OMSHOW command from the Maintenance and Administrative Position (MAP).

Operational Measurements (OMs)

This feature creates the following OM groups:

- SMSTOPS
- WINTOPS
- TC7WRLSS

This feature removes the following OM group:

- IS41TOPS

All events formerly pegged in group IS41TOPS are now pegged in groups WINTOPS and TC7WRLSS.

OM group SMSTOPS

Register	Meaning
SMSSENT, SMSSENT2	SMS sent
SMSSUCC, SMSSUCC2	SMS success
SMSFAIL, SMSFAIL2	SMS failure
SMSTIME, SMSTIME2	SMS time-out
SMSNETWK	SMS failure due to network problems
SMSTERM	SMS failure due to terminal (cell phone) problems
SMSRADIO	SMS failure due to radio interface problems
SMSMISC	Miscellaneous SMS failure

OM group WINTOPS

Register	Meaning
WINBEGIN, WINBEGI2	IS-41 AnalyzedInformation or GSM InitialDP received
REQCONN, REQCONN2	IS-41 ConnectResource or GSM EstablishTemporaryConnection sent
DISCONN, DISCONN2	IS-41 AnalyzedInformation with action code of “disconnect call” or GSM DisconnectTemporaryConnection sent. This event is not part of the normal IS-41 call flow, but it is part of the normal GSM call flow. If this is pegged for IS-41, it means ADACC with release was not provided.
CONNECT, CONNECT2	IS-41 AnalyzedInformation or GSM Connect sent
WINEND, WINEND2	GSM Application End received; no equivalent IS-41 message
ERRCONN	MSC could not connect to TOPS using TLDN
ERRDISC	TOPS disconnected unexpectedly while providing operator assistance. IS-41 only; when this occurs in a GSM call, WINEND is pegged but not DISCONN or CONNECT.
ERRSSFT	MSC’s service switching function timer expired. Should not happen if TOPS Reset TImer is datafilled properly in Table ISUPTRK.
ABANDON	Wireless caller disconnected prior to receiving ADACC with release.
RESTIMR, RESTIMR2	ResetTimer sent (IS-41 and GSM)

OM group WINTOPS

Register	Meaning
NOTLDNS	No TLDNs available in Table TOPSTLDN
NODATA	TOPS could not find EXT block associated with incoming TLDN call from MSC
RXLAFAIL	TOPS call could not obtain original called digits and defaulted to 411
SANTIMR	MSC did not release trunk to TOPS, or MSC did not send Application End
TLDNTIME	A TLDN was allocated for an MSC call which never arrived. The TLDN is allocated to a new call.

OM group TC7WRLSS

Register	Meaning
INVOKES, INVOKES2	TCAP INVOKE sent
INVOKER, INVOKER2	TCAP INVOKE receives
RETRESS, RETRESS2	TCAP RETURN RESULT sent
RETRESR, RETRESR2	TCAP RETURN RESULT received
RETERRS	TCAP RETURN ERROR sent
RETERRR	TCAP RETURN ERROR received
REJECTS	TCAP REJECT sent
REJECTR	TCAP REJECT received
ABORTS	TCAP ABORT sent
ABORTR	TCAP ABORT received
NOTRIDS	No transaction identifiers
MBFULL	Incoming message from MSC ignored due to heavy traffic
RTFNOXLA	SCCP routing failure: No translation of such nature
RTFNOXLS	SCCP routing failure: No translation for this specific address
RTFSUBCG	SCCP routing failure: Subsystem congestion
RTFSUBFL	SCCP routing failure: Subsystem failure
RTFUNEQ	SCCP routing failure: Unequipped user

OM group TC7WRLSS

Register	Meaning
RTFNETFL	SCCP routing failure: Network failure
RTFNETCG	SCCP routing failure: Network congestion
RTFMISCE	SCCP routing failure: Failure other than the above seven
GTTFAIL	Global Title Translation failure

OM format

These OMs apply to events occurring on the TOPS switch during the course of a wireless (cellular) phone originated call to TOPS. In large TOPS offices, many such calls can occur during the reporting period, so several of the OMs introduced by this feature include extension registers. The extension registers are noted in the OM register text.

OM Group SMSTOPS

OM description

SMSTOPS

Short Message Service - TOPS

Release history update

Created in SN07

Registers

OM group registers display on the MAP terminal as follows:

OM Group Display

SMSSENT	SMSSENT2	SMSSUCC	SMSSUCC2
SMSFAIL	SMSFAIL2	SMSTIME	SMSTIME2
SMSNETWK	SMSTERM	SMSRADIO	SMSMISC

Group structure

OM group SMSTOPS provides one tuple for each wireless network type.

Key field: IS41 and GSM. There are two tuples in OM group SMSTOPS: one for IS-41 SMS and one for GSM SMS.

Info field: None

Associated OM groups

Registers in groups SMSTOPS and TC7WRLSS are pegged when TOPS sends an SMS and receives an acknowledgment.

Associated functional groups

None

Associated functionality codes

None

OM group registers logic flow chart

Register SMSSENT is pegged when TOPS sends a short message into the SS7 network.

Register SMSSUCC is pegged when TOPS receives a positive acknowledgment from the message center.

Register SMSFAIL is pegged when TOPS receives a negative acknowledgment from the message center.

Register SMSTIME is pegged when TOPS receives no acknowledgment from the message center within a customer-defined time period.

Patterns

- Every SMS attempt will peg SMSSENT plus one of the other registers. If an acknowledgment arrives after the time period has expired, the success or failure OM is pegged in addition to the time-out OM.
- The value of register SMSSENT should be close to the value of register SMSSUCC, with any slight inequality due to reporting period boundaries. If the value of SMSSUCC is significantly less than the value of SMSSENT, SMS failures are occurring either at TOPS, within the SS7 network, or at the message center.

Register SMSFAIL

Register description

Short Message Service Failure

SMSFAIL is a peg register. It is incremented whenever TOPS receives a negative acknowledgment from the message center following an SMS attempt.

Register release history update

Created in SN07

Associated registers

Extension register SMSFAIL2

Associated logs
TOPS131 or TCAP100, depending on type of failure

Register SMSMISC

Register description
Short Message Service Miscellaneous failure

SMSMISC is a peg register. It is incremented whenever TOPS receives a negative acknowledgment from the message center saying the message could not be delivered due to a miscellaneous failure (not network, terminal, or radio interface).

Register release history update
Created in SN07

Associated registers
None

Associated logs
TOPS131

Register SMSNETWK

Register description
Short Message Service Network failure

SMSNETWK is a peg register. It is incremented whenever TOPS a negative acknowledgment from the message center saying the message could not be delivered due to a network failure.

Register release history update
Created in SN07

Associated registers
None

Associated logs
TOPS131

Register SMSRADIO

Register description
Short Message Service Radio interface failure

SMSRADIO is a peg register. It is incremented whenever TOPS receives a negative acknowledgment from the message center saying the message could not be delivered due to a radio interface failure.

Register release history update

Created in SN07

Associated registers

None

Associated logs

TOPS131

Register SMSSENT

Register description

Short Message Service Sent

SMSSENT is a peg register. It is incremented whenever TOPS sends an SMS to a message center.

Register release history update

Created in SN07

Associated registers

Extension register SMSSENT2

Associated logs

None

Register SMSSUCC

Register description

Short Message Service Success

SMSSUCC is a peg register. It is incremented whenever TOPS receives a successful acknowledgment from a message center following an SMS attempt.

Register release history update

Created in SN07

Associated registers

Extension register SMSSUCC2

Associated logs

None

Register SMSTERM

Register description

Short Message Service Terminal failure

SMSTERM is a peg register. It is incremented whenever TOPS receives a negative acknowledgment from the message center saying the message could not be delivered due a terminal (cell phone) failure.

Register release history update

Created in SN07

Associated registers

None

Associated logs

TOPS131

Register SMSTIME

Register description

Short Message Service Time-out

SMSTIME is a peg register. It is incremented whenever TOPS receives no acknowledgment from a message center following an SMS attempt in the allotted time-out period. The time-out period is datafilled in Table TOPSPARM (parameter `SMS_TIMEOUT`).

Register release history update

Created in SN07

Associated registers

Extension register SMSTIME2

Associated logs

TOPS131

OM Group WINTOPS

OM description

WINTOPS

Wireless Intelligent Network - TOPS

Release history update

Created in SN07

Registers

OM group registers display on the MAP terminal as follows:

OM Group Display

WINBEGIN	WINBEGI2	REQCONN	REQCONN2
DISCONN	DISCONN2	CONNECT	CONNECT2
WINEND	WINEND2	RESTIMR	RESTIMR2
ABANDON	ERRCONN	ERRDISC	ERRSSFT
NOTLDNS	NODATA	RXLAFAIL	SANTIMR
TLDNTIME			

Group structure

OM group WINTOPS provides one tuple for each wireless network type.

Key field: IS41 and GSM. There are two tuples in OM group WINTOPS: one for IS-41 WIN and one for GSM CAMEL (Customized Applications for Mobile network Enhanced Logic).

Info field: None

Associated OM groups

Registers in groups WINTOPS and TC7WRLSS are pegged when TOPS provides a Wireless Intelligent Network service such as wireless ADACC with release.

Associated functional groups

None

Associated functionality codes

Functionality codes associated with OM group

Functionality	Code
TOPS Wireless RLT	00034426

OM group registers logic flow chart

For a description of when these OMs are pegged, refer to the IS-41 call flow figure at the beginning of the Functional Description chapter.

Patterns

- Every WIN call flow, whether successful or not, will peg WINBEGIN.
- A successful WIN call flow (IS-41 or GSM) pegs registers WINBEGIN, REQCONN, and CONNECT.

- A successful GSM CAMEL call flow also pegs registers DISCONN and WINEND.
- Registers ABANDON and RESTIMR are pegged under normal circumstances and do not indicate problems.
- Register DISCONN on an IS-41 WIN call does not necessarily indicate a problem. In IS-41, it is always pegged in conjunction with another register. The other register indicates if a problem has occurred.
- Problems are indicated by the following registers: ERRCONN, ERRDISC, ERRSSFT, NOTLDNS, NODATA, RXLAFAIL, SANTIMR, and TLDNTIME.

Register ABANDON

Register description

Abandon

ABANDON is a peg register. It is incremented on a WIN call when the calling party disconnects before receiving ADACC with release.

This is a common occurrence. The wireless caller can hang up while in queue for operator, or hang up because the operator couldn't find the listing, or hang up without accepting call completion. In all of these cases, ABANDON is pegged.

Register release history update

Created in SN07

Associated registers

None

Associated logs

None

Register CONNECT

Register description

Connect

CONNECT is a peg register. It is incremented when TOPS directs the MSC to connect to the requested number. In IS-41, this is when TOPS sends the AnalyzedInformation RETURN RESULT. In GSM, this is when TOPS sends the Connect.

Register release history update

Created in SN07

Associated registers
Extension register CONNECT2

Associated logs
None

Register DISCONN

Register description
Disconnect

DISCONN is a peg register. It is incremented when TOPS directs the MSC release the trunk to TOPS. In IS-41, this is when TOPS sends the AnalyzedInformation RETURN RESULT with an Action Code of "disconnect call.". In GSM, this is when TOPS sends the DisconnectTemporaryConnection.

This register is not normally pegged on an IS-41 call. When it is, it indicates the caller did not receive ADACC with release.

This register is pegged on all successful GSM wireless ADACC with release calls.

Register release history update
Created in SN07

Associated registers
Extension register DISCONN2

Associated logs
None

Register ERRCONN

Register description
Error Connect

ERRCONN is a peg register. It is incremented on a WIN call when the MSC cannot connect to TOPS using the TLDN provided by TOPS. This might be due to translation or circuit failures at the MSC or in the network.

Register release history update
Created in SN07

Associated registers
None

Associated logs
TOPS131

Register ERRDISC

Register description
Error Disconnect

ERRDISC is a peg register. It is incremented on a WIN call when TOPS unexpectedly releases its trunk to the MSC. This register is only pegged on an IS-41 call. On a GSM call, registers WINBEGIN, REQCONN, and WINEND are pegged, but not DISCONN and CONNECT.

Register release history update
Created in SN07

Associated registers
None

Associated logs
TOPS131

Register ERRSSFT

Register description
Error Service Switching Function Timer

ERRSSFT is a peg register. It is incremented on a WIN call when the MSC's SSFT timer expires. This timer ensures TOPS does not take too long to process the WIN call. TOPS can reset this timer using the ResetTimer message. This message is controlled by datafill in Table ISUPTRK.

Register release history update
Created in SN07

Associated registers
None

Associated logs
TOPS131

Register NODATA

Register description
No TCAP data

This is a peg register which is incremented whenever TOPS cannot locate a call's IS-41 or GSM TCAP data in the temporary table. See the error scenarios in the Functional Description chapter of this document for more information.

Register release history update

Created in SN07.

Associated registers

Register RXLAFAIL is always pegged when register NODATA is pegged, since the original called number cannot be determined, and a default of 411 must be used.

Associated logs

TOPS131

Register NOTLDNS

Register description

No temporary local directory numbers

This is a peg register which is incremented whenever TOPS cannot obtain an idle temporary local directory number (TLDN) from Table TOPSTLDN. See the error scenarios in the Functional Description chapter of this document for more information.

Register release history update

Created in SN07.

Associated registers

None.

Associated logs

TOPS131

Register REQCONN

Register description

Request Connection

This is a peg register which is incremented whenever TOPS sends an IS-41 ConnectResource or GSM EstablishTemporaryConnetcion to the MSC.

Register release history update

Created in SN07.

Associated registers

Extension register REQCONN2

Associated logs

None.

Register RESTIMR

Register description

ResetTimer

This is a peg register which is incremented whenever TOPS sends an IS-41 or GSM ResetTimer to the MSC.

Register release history update

Created in SN07.

Associated registers

Extension register RESTIMR2

Associated logs

None.

Register RXLAFAIL

Register description

Retranslation Failure

This is a peg register which is incremented when a TOPS IS-41 or GSM call arrives, but TOPS cannot find the original called number and must use a default of 411. This register can be pegged in conjunction with NODATA, if the reason the original called number cannot be found is that there is no extension block.

Register release history update

Created in SN07.

Associated registers

None.

Associated logs

A TOPS131 is generated if the reason for using the default 411 is that the TCAP data was not found.

Register SANTIMR

Register description

TOPS sanity timer expiration

This is a peg register which is incremented whenever the TOPS IS-41 or GSM call end sanity timer expires. TOPS starts this timer after sending the IS-41 AnalyzedInformation RETURN RESULT or GSM Connect to the MSC. If the MSC does not release the trunk and end the TOPS call before the timer expires, TOPS ends its call and frees resources.

Register release history update

Created in SN07.

Associated registers

None.

Associated logs

TOPS131

Register TLDNTIME

Register description

TLDN time-out

This is a peg register which is incremented whenever the TOPS IS-41 or GSM SCP process finds a TLDN which has been allocated for more than 30 seconds. The TLDN is idled, then selected for use by the next TOPS IS-41 or GSM call. This allows the TLDN list to be cleaned up if some MSC calls end before routing to TOPS.

Register release history update

Created in SN07.

Associated registers

None.

Associated logs

None.

Register WINBEGIN

Register description

Wireless Intelligent Network Begin

This is a peg register which is incremented whenever TOPS receives an IS-41 AnalyzedInformation or a GSM InitialDP from an MSC. This signifies the beginning of the WIN TOPS call.

Register release history update

Created in SN07.

Associated registers

Extension register WINBEGI2

Associated logs

None.

Register WINEND

Register description

Wireless Intelligent Network End

This is a peg register which is incremented whenever TOPS receives a GSM Application End from the MSC. This signifies the end of a successful WIN TOPS call.

This message is not used in the IS-41 call flow, so this OM is not pegged for IS-41 TOPS calls.

Register DARLT in group TOPSISUP can also be used to count instances of successful ADACC with RLT.

Register release history update

Created in SN07.

Associated registers

Extension register WINEND

Associated logs

None

OM group TC7WRLSS

OM description

TC7WRLSS

TOPS - Common Channel Signalling System #7 - Wireless

Release history update

Created in SN07

Registers

OM group registers display on the MAP terminal as follows:

OM Group Display

INVOKES	INVOKES2	INVOKER	INVOKER2
RETRESS	RETRESS2	RETRESR	RETRESR2
RETERRS	RETERRR	REJECTS	REJECTR
ABORTS	ABORTR	NOTRIDS	MBFULL
RTFNOXLA	RTFNOXLS	RTFSUBCG	RTFSUBFL
RTFUNEQ	RTFNETFL	RTFNETCG	RTFMISCE
GTTFAIL			

Group structure

OM group TC7WRLSS provides one tuple for each combination of wireless network type and TOPS wireless application.

Key field: There are four tuples as follows:

- SMS_IS41
- SMS_GSM
- WIN_IS41
- WIN_GSM

Info field: None

Associated OM groups

Registers in groups SMSTOPS and WINTOPS are also pegged during wireless TOPS calls.

Associated functional groups

None

Associated functionality codes

Functionality codes associated with OM group

Functionality	Code
TOPS Wireless RLT	00034426

OM group registers logic flow chart

SMS TOPS calls

Register INVOKES is pegged when TOPS sends a short message into the SS7 network.

Register RETRESR is pegged when TOPS receives a positive or negative acknowledgment from the message center (MC). Group SMSTOPS has registers indicating SMS failure has occurred.

The remainder of the registers are pegged in failure scenarios. If registers GTTFAIL or NOTRIDS are being pegged, this means SMS messages are not being sent due to failure at TOPS. If registers beginning with “RTF” (route failure) are being pegged, failures are occurring in the SS7 network before the SMS arrives at the MC.

WIN TOPS calls

A successful WIN TOPS call should peg only registers INVOKES, INVOKER, and RETRESS.

The remainder of the registers are pegged in failure scenarios. If registers GTTFAIL or NOTRIDS are being pegged, this means WIN TOPS messages are not being sent due to failures at TOPS. If registers beginning with “RTF” (route failure) are being pegged, failures are occurring in the SS7 network before the TOPS message arrives at the MSC.

Register ABORTR

Register description

Abort Received

ABORTR is a peg register. It is incremented whenever TOPS receives a TCAP ABORT.

Register release history update

Created in SN07

Associated registers

None

Associated logs

TCAP100

Register ABORTS

Register description

Abort Sent

ABORTS is a peg register. It is incremented whenever TOPS sends a TCAP ABORT.

Register release history update

Created in SN07

Associated registers

None

Associated logs
TCAP100

Register GTTFAIL

Register description
Global Title Translation Failure

GTTFAIL is a peg register. It is incremented whenever TOPS cannot look up GTT information for a destination number. The GTT information is datafilled in Tables C7GTTYPE and C7GTT. When TOPS cannot obtain this information, it cannot send the SMS into the network. The operator or automated node receives a failure indication.

A TOPS131 log is generated containing the destination number which caused the failure. Table C7GTT must be updated to include the destination number.

Register release history update
Created in SN07

Associated registers
None

Associated logs
TOPS131

Register INVOKER

Register description
INVOKE Received

INVOKER is a peg register. It is incremented whenever TOPS receives a TCAP INVOKE.

Register release history update
Created in SN07

Associated registers
Extension register INVOKER2

Associated logs
None

Register INVOKES

Register description
INVOKE Sent

INVOKES is a peg register. It is incremented whenever TOPS sends a TCAP INVOKE.

Register release history update

Created in SN07

Associated registers

Extension register INVOKES2

Associated logs

None

Register MBFULL

Register description

Mailbox full

This is a peg register which is incremented whenever a TOPS IS-41 or GSM TCAP message arrives at the TOPS SCP interrupt handler but cannot be sent to the TOPS SCP process due to heavy switch load. This means TOPS is receiving more IS-41 or GSM traffic than it can handle.

On wireless DA calls, the incoming message is ignored, which will result in calls going to treatment in the MSC. It is not anticipated that TOPS IS-41 or GSM messaging will ever be high enough to peg this register. If this register is pegged, contact Nortel Networks to increase the number of internal mailboxes available to the TOPS IS-41 SCP application.

Register release history update

Created in SN07.

Associated registers

None.

Associated logs

None. Generating a log under these circumstances would further degrade switch performance.

Register NOTRIDS

Register description

No transaction identifiers

NOTRIDS is a peg register. It is incremented whenever TOPS attempts to send an IS-41 or GSM TCAP message but cannot because no transaction identifiers (TRIDs) are available. Each TCAP operation requires a TRID to process the response.

TRIDs are allocated automatically by the DMS, so if this register is pegged, contact Nortel Networks.

Register release history update

Created in SN07

Associated registers

None

Associated logs

TOPS131

Register REJECTR

Register description

REJECT received

REJECTR is a peg register. It is incremented whenever TOPS receives a TCAP REJECT from the MSC or MC. This indicates a problem with the TCAP message sent by TOPS, so Nortel Networks should be contacted.

Register release history update

Created in SN07

Associated registers

None

Associated logs

TCAP100

Register REJECTS

Register description

REJECT sent

REJECTS is a peg register. It is incremented whenever TOPS sends a TCAP REJECT to the MSC. This indicates a problem with the TCAP message sent by the MSC, so the MSC's vendor should be contacted.

Register release history update

Created in SN07

Associated registers

None

Associated logs
TCAP100

Register RETERRR

Register description
RETURN ERROR received

RETERRR is a peg register. It is incremented whenever TOPS receives a TCAP RETURN ERROR from the MSC. This might indicate a problem on the MSC or TOPS switches, so logs at both switches should be investigated.

Register release history update
Created in SN07

Associated registers
None

Associated logs
TCAP100

Register RETERRS

Register description
RETURN ERROR sent

RETERRS is a peg register. It is incremented whenever TOPS sends a TCAP RETURN ERROR to the MSC. This might indicate a problem on the MSC or TOPS switches, so logs at both switches should be investigated.

Register release history update
Created in SN07

Associated registers
None

Associated logs
TCAP100

Register RETRESR

Register description
RETURN RESULT received

RETRESR is a peg register. It is incremented whenever TOPS receives a TCAP RETURN RESULT from the MC.

Register release history update
Created in SN07

Associated registers
Extension register RETRESR2

Associated logs
None

Register RETRESS

Register description
RETURN RESULT sent

RETRESS is a peg register. It is incremented whenever TOPS sends a TCAP RETURN RESULT to the MSC.

Register release history update
Created in SN07

Associated registers
Extension register RETRESS2

Associated logs
None

Register RTFMISCE

Register description
SCCP routing failure: Miscellaneous failure

This is a peg register which is incremented when the TOPS IS-41 SCP process receives a UDTS message containing a diagnostic other than the next seven.

Register release history update
Created in TOPS19 (SN06).

Associated registers
None.

Associated logs
A TCAP101 log is generated containing the incoming UDTS message.

Register RTFNETCG

Register description
SCCP routing failure: Network congestion

This is a peg register which is incremented when the TOPS IS-41 or GSM SCP process receives a UDTS message containing a diagnostic indicating “network congestion”.

Register release history update

Created in SN07.

Associated registers

None.

Associated logs

A TCAP101 log is generated containing the incoming UDTS message.

Register RTFNETFL

Register description

SCCP routing failure: Network failure

This is a peg register which is incremented when the TOPS IS-41 or GSM SCP process receives a UDTS message containing a diagnostic indicating “network failure”.

Register release history update

Created in SN07.

Associated registers

None.

Associated logs

A TCAP101 log is generated containing the incoming UDTS message.

Register RTFNOXLA

Register description

SCCP routing failure: No translation of such nature

This is a peg register which is incremented when the TOPS IS-41 or GSM SCP process receives a UDTS message containing a diagnostic indicating “no translation of such nature”.

Register release history update

Created in SN07.

Associated registers

None.

Associated logs

A TCAP101 log is generated containing the incoming UDTS message.

Register RTFNOXLS

Register description

SCCP routing failure: No translation for this specific address

This is a peg register which is incremented when the TOPS IS-41 or GSM SCP process receives a UDTS message containing a diagnostic indicating “no translation for this specific address”.

Register release history update

Created in SN07.

Associated registers

None.

Associated logs

A TCAP101 log is generated containing the incoming UDTS message.

Register RTFSUBCG

Register description

SCCP routing failure: Subsystem congestion

This is a peg register which is incremented when the TOPS IS-41 or GSM SCP process receives a UDTS message containing a diagnostic indicating “subsystem congestion”.

Register release history update

Created in SN07.

Associated registers

None.

Associated logs

A TCAP101 log is generated containing the incoming UDTS message.

Register RTFSUBFL

Register description

SCCP routing failure: Subsystem failure

This is a peg register which is incremented when the TOPS IS-41 or GSM SCP process receives a UDTS message containing a diagnostic indicating “subsystem failure”.

Register release history update
Created in SN07.

Associated registers
None.

Associated logs
A TCAP101 log is generated containing the incoming UDTS message.

Register RTFUNEQ

Register description
SCCP routing failure: Unequipped user

This is a peg register which is incremented when the TOPS IS-41 or GSM SCP process receives a UDTS message containing a diagnostic indicating "unequipped user".

Register release history update
Created in SN07.

Associated registers
None.

Associated logs
A TCAP101 log is generated containing the incoming UDTS message.

Product = TOPS

A00003704 -- OSSAIN Enhancements for SN07 (Succession on DMS)

Functional Description

The feature enhances the OSSAIN product with the following:

- Short Messaging Service
- Wireless Directory Assistance Call Completion Release Link Trunking
- Alternate Hosting for Passive Operators
- Alter Speech Path for no ANI Calls
- Passive Operator Message Capacity Enhancement
- DA SN Request for DAS Only Service

- Alter Speech Path during Passiver Function Provider Connections
- OSAC Session Pool State Inform Message Usage
- Authorization Codes
- AMA Service ID Usage
- Resource Increases
- OSSAIN Open Automated Protocol (OAP) Version 9.0 and SOC

Short Messaging Service (SMS) is fully designed under feature A00003687; however this feature provides the needed OSSAIN changes to support SMS for SNs. This includes informing the SN of a wireless caller, and processing an SMS message received from the SN.

Wireless Directory Assistance Call Completion Release Link Trunking (RLT) is designed under feature A00000816 and A00003687; however, this feature will add the wireless RLT functionality for OSSAIN SN calls.

Alternate Hosting for Passive Operators is supported by this feature. It allows an alternate host to be selected for passive operator requests which cannot be serviced by the primary host.

Alter Speech Path for no-ANI Calls is supported by this feature. Incoming IT trunks which do not forward ANI but use DA SN functionality require the ability to split/join the calling party as needed.

Passive Operator Message Capacity Enhancement reduces the amount of OPP messaging sent to position when a SN releases itself from the call.

DA SN Request for DAS-only service allows a SN to request DAS services without attaching an operator.

Alter Speech Path during Passive Function Provider Connections allows a SN to forward an optional datablock to the switch to indicate the switch should alter the speech path when connecting a passive operator.

OSAC Session Pool State Inform Message Usage allows the SN to be informed of OSN state changes for SN originated session pools. It disables the message from being used for other origination types such as subscriber originated.

Authorization Codes allow a SN to send an authorization code to TOPS to be included in AMA for calling cards, commercial credit cards, and authcodes.

AMA Service ID ensures the service id sent from the SN will be used in AMA records instead of one defined in datafill in either table AMASRVID or TQMSSERV.

Resource Increases ensures OAP can support increases to the number of operators, positions, services, and call queues. This feature also allows OAP to send a 10 digit Account Code.

OAP Protocol Version 9.0 adds support for the above new functions. With the addition of version 9.0, the number of back releases will be increased to also support version 5.0. Version 9.0 is included in SOC option, OSAN0102; however, it has a new TOPSFTR entry, OSSAIN_RELEASE_20, to activate the functionality.

Short Messaging Service (SMS)

SMS functionality, as provided by feature A00003687, can be used to send text messages to a wireless caller. It allows an operator or a SN to forward SMS text messages to TOPS; TOPS will forward the message on to a Message Center (MC); and the MC forwards it to the subscriber. In order for a SN to send a SMS message to TOPS, OAP enhancements are needed and provided by this feature.

To send SMS messages, a SN will need to know if the caller is wireless. TOPS will use phone class type of ‘mobile’ for all wireless callers supported.

Thus, for wireless (mobile) calls, a SN can utilize a new OAP operation to send SMS message to the caller. The new operation, **SMS Request Operation**, includes one new datablock. The new datablock, **SMS Datablock**, contains the following fields:

- existing field, **Directory Number Digit Count**, to record number of digits in the destination number
- existing field, **Directory Number**, to record the destination number
- new field, **SMS Text Block Length**, to indicate length of text message
- new field, **SMS Text Block**, to include the text message up to 200 bytes

The switch will respond with either one of the following responses:

- **SMS Success Response**
- **SMS Error Response**

The responses indicate the switch has processed the message and attempted to forward it to the Message Center. Any responses from the Message Center are not forwarded to the SN.

New OM registers are added to existing OM group, OAPCP10, to record the usage of this new operation and it’s responses.

Note: OAP will not restrict the allowed character set for SMS messages.

Wireless Directory Assistance Call Completion (DACC) RLT

Features A00000816 and A00003687 provide wireless services which include DACC and RLT for the TOPS environment. This feature supports RLT for wireless DACC calls in the OSSAIN environment

Alternate Hosting for Passive Operators

Alternate hosting, as provided by feature NC0152, is supported in OSSAIN for passive operators with this feature's release. If a passive operator is requested from a host which either is not available or the call deflects/overflows, than table OCHOSTQ is consulted to determine if an alternate host is datafilled.

If an alternate host is defined in table OCHOSTQ for the passive operator's call queue, then it will be used based on the options datafilled. The options include datalink failure, deflection, and queue overflow. If one of these options occurs and is datafilled, then the call will route to the alternate host datafilled. Only one alternate host can be datafilled for all options per call queue.

Thus, if a passive operator request was received by TOPS and the call was sent to a host which deflected the call (for example), then TOPS would check table OCHOSTQ, per the call queue, and determine if an alternate host is available for deflect purposes. If found, TOPS would request an operator from the alternate host giving the passive operator request a second chance.

OSSAIN supports both standalone and OC environments for alternate hosting as defined by existing table OCHOSTQ and OCPARMS parameter, SWITCH_NAME.

Alter Speech Path for no ANI calls

A SN is able to alter the speech path for a calling party with no directory number. This is necessary for IT trunks which do not send ANI but do use Service Nodes for DA Automation.

Passive Operator Message Capacity Enhancement

This feature enhances the AN1926: OSSAIN Simultaneous Interactions design by reducing the number of OPP messages sent to position when the SN releases itself. The original design sent all call details when the position was connected and again when the SN was released. The new design will only send call details when the SN is released if it is necessary due to a change.

DA SN Route to DAS-only Service

A DA SN may need to route a call to the DAS environment without attaching an operator. It may do this to utilize DAS automated functions such as announcements and call completion.

This feature changes the TOPSAUTO option of table OAFUNDEF to include a DAS option. Since the DAS option will require a CT4Q and refinement

option similar to TOPSOPER, the TOPSAUTO option is now broken into refinement areas for each automated system.

When the DAS automated function is used, the call will be routed to the DAS without an operator being attached. If ADASPLUS is available for the call, the DAS Call Begin message will contain the ADASPLUS eligibile indicator.

Table OAFUNDEF

FUNCID	FUNCNAME	FUNCAREA
1	DAS_NO_OPER	TOPSAUTO DAS DAS_ONLY N
2	DAS_OPER	TOPSOPER DAS_OPER N
3	AABS	TOPSAUTO AABS AABS_CT4Q
4	DA_SN	SN DASERV N N N N Y CQ17 N

```
TYPE IS FUNCTYPE_VAR_AREA              MULTIPLE WITH
        FUNCTYPE                       {SN,TOPSOPER,TOPSAUTO} REFINEMENTS:
        {SN}                          MULTIPLE WITH
            ... unchanged

        {TOPSAUTO}                         MULTIPLE WITH
            AUTOSYS_AREA             MULTIPLE WITH
              AUTOSYS                {AABS,MCCS,ACTS,BRANDING,DAS} REFINEMENTS:
              {AABS}                 MULTIPLE WITH
                OPRONFL              TQMS_SR_CALL_TYPE_FOR_QUEUEING
              {MCCS}                 MULTIPLE WITH
                OPRONFL              TQMS_SR_CALL_TYPE_FOR_QUEUEING
              {ACTS}                 MULTIPLE WITH
                OPRONFL              TQMS_SR_CALL_TYPE_FOR_QUEUEING
              {BRANDING}             MULTIPLE WITH
                OPRONFL              TQMS_SR_CALL_TYPE_FOR_QUEUEING
              {DAS}                  MULTIPLE WITH
                DASCT4Q              TQMS_SR_CALL_TYPE_FOR_QUEUEING
                QMS_AREA             MULTIPLE WITH
                   QREFINMT                {N,Y} REFINEMENTS:
                   {Y}                     MULTIPLE WITH
                        CQORDER            {PREOPR,POSTAUTO,RECALL,ASST}
                   {N}                     QMS_REFINE_N_REFINEMENT

        {TOPSOPER}                         MULTIPLE WITH
            ... unchanged
```

Alter Speech Path during Passive Function Provider Connections

Since OSSAIN functionality gives as much control as possible to the Service Node (SN), there are times when a SN sends in a request message that can be processed a tad too late.

For example, for DA SN, a passive operator request can result in the caller being placed into queue for a brief period of time. When an operator becomes available, he/she is connected to the call and the SN is notified. The SN may respond by sending speech path change requests to alter the speech path for the calling party so they do not hear the call arrival tones and the operator does not hear the music on hold announcement.

Since there is a small amount of processing time, current functionality does allow the subscriber to hear call arrival tones and the operator to hear part of the music on hold announcement (all varying based upon processing time).

Following is a possible DAA passive operator call scenario and OAP messaging:

1. Subscriber dials a DA call. TOPS connects a service node voice link to the call and routes the call to a DAA node.
2. TOPS sends the Session Begin message to the DAA node.
3. The DAA node (active node) collects the city and listing information from the subscriber.
4. DAA node sends TOPS a Passive Function Provider Request.
5. TOPS responds by sending a Call Queue Information DB indicating the call has been queued.
6. At this point the DAA node begins playing an announcement to the subscriber indicating their queued condition.
7. Once a position becomes available, TOPS informs the DAA node by sending a Passive Operator Being Connected Message.
8. Shortly after the above message, TOPS sends the Passive Operator Connected Message.
9. The DAA node sends TOPS a Speech Path Request message instructing TOPS to make the subscriber voice path 0-way.

Here is the problem. Before TOPS can execute the Node's instruction the call arrival tones have already been played. Note the operator may also hear part of the music on hold announcement.

10. The DAA node plays the city and listing information to the operator.

OAP 9.0 will allow the Speech Path DB as an optional datablock to the Passive Function Provide Request operation. The speech path status field is increased to support a new range which will indicate to alter the speech path when the operator is connected.

OSAC Session Pool State Inform Message Usage

For Operator Services Nodes (OSN) in an OSAC remote, this feature restricts the usage of the Session Pool State Inform message to SN originated session pools only. Thus, when a session pool, datafilled as SN origtype in table OASESNPL of the OSAC remote, changes state (busy or return to service), the SN will be informed so it does not attempt to originate a session to the remote.

When other session pool originators (subscriber, OSACORIG, OSACTERM) change state in the remote, the SN does not need to be notified. This feature removes the attempt to notify the SN of state changes for these other session pools.

Authorization Codes

There are a few scenarios in which a SN may need to send TOPS an authorization code to be placed into the AMA record. This feature enhances OAP to provide such a means.

OAP version 9.0 will support a new datablock and fields to provide authorization codes from the SN to TOPS.

To support both alphanumeric and numeric codes, the new OAP field allows up to 20 ASCII characters. The SN will need to ensure any BCD formatted authcode is converted prior to populating OAP. TOPS will read the field as ASCII and convert to other formats as needed.

The SN will also need to populate OAP with the type of authorization code being sent. Currently included in existing AMA records, and available in OAP, are the following:

- Calling cards - Module Code 611 with generic context id 80002 supports up to 15 digits to record authorization code received from the bank.
- Commerical Credit cards - Module Code 611 with generic context id 80002 supports up to 15 digits[4] to record the authorization code received from the bank.
- Authcode - Module Code 102 supports 14 digits to record the authorization code entered by the subscriber and validated by the bank.

  Note: This feature enhances OAP to allow a SN to send authorization codes up to 20 bytes; however, it does not enhance AMA records. Thus, the above restrictions apply unless expansions are supported through another feature.

4. Some clearing houses use an alphanumeric authorization code; however, TOPS currently only supports a 15 digit code in AMA for all card calls. Thus, if the bank sends an alphanumeric code, TOPS will convert the string to a digits format for the existing AMA record. It will not accept characters outside of the DIGIT range (0-F). A new AMA field is needed for this purpose. The service provider is encouraged to seek other feature work which supports a new AMA field for this purpose.

AMA Service ID Usage

TOPS currently allows a user-defined service id to be placed into AMA. TOPS can obtain the service id from datafill or from an OAP message. This feature ensures a service id sent from a SN via OAP is used regardless of datafill defined in tables AMASRVID or TQMSSERV.

Resource Increases

This feature ensures OAP can support resource increases for the following:

- Operator IDs up to 65,535
- Position IDs up to 9999
- Call Queue IDs up to 8190
- Account Codes up to 10 digits for user-entered group billing

Note: Although this feature ensures OAP can send and receive these higher ranges, it does alter TOPS base nor AMA functionality. To utilize these new ranges, ensure TOPS base and AMA modications have been completed.

OAP Protocol Version 9.0

OAP protocol version 9.0 includes all new OAP information provided by this feature and discussed in this document. The enhancements include:

New / changed Fields

- New field, SMS Text Block
- New field, SMS Text Block Length
- Existing field, Speech Path Status is expanded to include options to indicate to alter speech path when the operator is connected
- New field, Authorization Number Type (Format)
- New field, Authorization Code Length
- New field, Authorization Code

New / Changed Datablocks

- New datablock, SMS DB
- New datablock, Authorization Number DB

New / Changed Operations

- New operation, SMS Request
- New operation, SMS Success Response
- New operation, SMS Error Response

- Existing operation, Passive Function Provide Request has a new optional datablock, Speech Path DB.
- Existing operation, Class Charge Request, has a new optional datablock, Authorization Code DB.

  Note: OAP 5.0 will be supported along with OAP 9.0. This feature changes support for 3 versions back to 4 versions back.

Please reference *OSSAIN OAP Specification Document - NIS Q235-1 (version 2.0)* for details of the changes.

SOC and Table TOPSFTR

OAP 9.0 and functionality described in this document are controlled by existing SOC option OSAN0102; however, table TOPSFTR is changed to included a new entry for OSSAIN_RELEASE_20. TOPSFTR can be used to turn this feature's functionality on/off as needed.

Hardware Requirements or Dependencies

None

Software Requirements or Dependencies

- OSSAIN Enhancements, SOC option OSAN0102
- OSSAIN base functionality, SOC option OSAN0101
- TOPS base functionality, SOC option OSB00101

Limitations and restrictions

- SNs using SMS will affect the EIU provisioning.
- Although this feature ensures OAP can handle resource increases as noted, it does not modify TOPS base nor AMA functionality necessary to utilize the new ranges.
- New TOPSAUTO function, DAS can be used for transferring; however, like all TOPSAUTO functions, it is not available for triggering/recalls nor passive operator requests.

Interactions

The new DAS function in table OAFUNDEF does not interact with existing ADAS+ functionality. ADAS+ can be setup for the DAS function, but is not required to obtain DAS-only service.

Glossary

Term	Description
ANI	Automated Number Identifier
CT4Q	Call Type For Queuing
DAA	Directory Assistance Automation
DACC	Directory Assistance Call Completion
DB	DataBlock
EIU	Ethernet Interface Unit
OAP	OSSAIN Open Automated Protocol
OSAC	OSSAIN Centralization
OSN	OSAC Service Node
OSSAIN	Operator Services Systems Advanced Intelligent Network
RLT	Release Link Trunking
SMS	Short Messaging Service
SN	Service Node

Product = TOPS

A00005160--OSSAIN XA-Core Data Messaging Capacity Enhancements (Succession on DMS)

Functional Description

This activity makes it possible for OSSAIN data messaging to use XA-Core Ethernet interfaces such as the HIOP and the new HCMIC card. Prior to this activity, all OSSAIN messaging used the EIU (Ethernet Interface Unit). The EIU has insufficient capacity to support some service providers' requirements for OSSAIN.

This section includes background material on both OSSAIN and XA-Core Ethernet interfaces.

OSSAIN background

The OSSAIN product uses a messaging protocol between TOPS (Traffic Office Position System) switches and external service nodes (SNs), allowing the SNs to provide services for and control switch functionality associated with directory and operator services calls. In an OSAC (OSSAIN centralization) configuration, one or more centralized SNs provide services for multiple TOPS switches. These TOPS switches are referred to as OSAC hosts and OSAC remotes, and they exchange messages with each other as well as with SNs. All of this messaging uses the UDP protocol at the transport level.

Until recently, OSSAIN was used mainly for toll and assistance (TA) calls. Now service providers are beginning to use OSSAIN for directory assistance automation (DAA) as well. Since most TOPS switches handle many more DA than TA calls, and since DAA calls may use OSSAIN for both front end and back end automation, service providers are requiring more OSSAIN messaging capacity than EIUs can provide. Throughput of an EIU is between roughly 10 and 40 KBytes/second in each direction, depending on how heavily the LPP or FLIS is used for other applications besides OSSAIN. And because of the way EIU selection is done, adding more EIUs for OSSAIN may not increase the messaging capacity. For more information about EIU capacity, refer to *OSSAIN User's Guide* (297-8403-901) and *Ethernet Interface Unit User Guide* (297-8991-910).

XA-Core Ethernet interface background

In the XA-Core architecture, I/O processor cards in the core can be used to provide Ethernet LAN connectivity. These cards communicate directly with the PEs (processing elements) using a shared memory system. The first-generation card was the IOP, a host card that accommodates specialized packlets for different interfaces. An IOP with Ethernet packlet(s) is called an EIOP. The second-generation card is the HIOP. HIOP cards do not host packlets. Three versions of HIOP have been developed—one with only an Ethernet interface, and two with both Ethernet and AMDI (for ATM). Next-generation HCMIC cards with CMIC, RTIF, and Ethernet interfaces are under test at the time of this writing.

XA-Core Ethernet interface cards are datafilled in switch table CMIPADDR. The datafill includes two active host CM IP addresses, which the switch dynamically associates with physical links. As long as at least two links are in-service, the two IP addresses are always associated with different links. If a link fails while another is in-service, the IP address that was associated with the failed link is automatically reassigned to a different one. Unsolicited ARP (Address Resolution Protocol) replies are used to inform the network of the association between IP addresses and physical interfaces.

XA-Core I/O cards are maintained from the switch at MAP level MAPCI;MTC;XAC;IO. Their functional components, including Ethernet

ports and links, are maintained at level MAPCI;MTC;XAC;ETHR. *Port* refers to a hardware interface on the card, and *link* represents the transmission medium connecting the XA-Core to other nodes. For more information, refer to documentation for the following features:

A59019176	XA-Core ethernet packlet - OA&M
A59029980	HIOP Maintenance Software
A00002012	XA-Core CMIC/RTIF HIOP Maintenance Software

New functionality

This feature adds new fields to switch table OANODINV, the inventory table for OSSAIN SNs and OSAC nodes, to allow the service provider to specify the data path to be used for messaging with each node. Thus it is possible for a TOPS switch to use EIU for messaging with some OSSAIN nodes and XA-Core Ethernet interface cards for messaging with others. This enables a gradual transition, on a node-by-node basis, to using XA-Core Ethernet interface cards.

Which data path the switch uses is transparent to the far-end node, except that the far-end node must be configured to use a different IP address for the switch depending on which data path the switch uses when messaging with that node.

For the EIU data path, far-end nodes are configured to send messages to the IP address in the CMIPADDR tuple of table IPNETWRK. This is existing functionality, and is unchanged.

For the XA-Core Ethernet interface data path, each far-end node is configured to send messages to one of the two active CM host IP addresses datafilled in table CMIPADDR. That address is also datafilled against the node in table OANODINV, and is used as the source IP address when the switch sends messages to the node.

Under normal conditions of no failure, traffic should be balanced over the physical links. This is accomplished by configuring half of the far-end nodes to use one of the active CM host IP addresses, and the other half to use the other active CM host IP address.

TOPS does not restrict which XA-Core Ethernet interface cards can be used. However, some of the earlier XA-Core I/O cards have been or will soon be manufacture discontinued, and the product platform on which TOPS runs may have restrictions on which cards are supported. Contact your Nortel Networks representative for more information.

This activity also adds a new OM group, TDGTHRU (TOPS Datagram Throughput), which counts the number of UDP messages sent and received in

each of several “buckets” or message size ranges. The OM group has tuples for several TOPS applications, and it has separate tuples for OSSAIN using EIU and OSSAIN using XA-Core Ethernet interface. The pegs are meant to help in studies of messaging bandwidth utilization of TOPS applications.

Capacity engineering considerations

Paper studies suggest that if the LPP or FLIS that houses the EIU is used primarily for OSSAIN messaging, an OSAC remote can process roughly 100,000 DA busy hour calls/hour, with DA front and back end automation using Nortel Networks service nodes, before it approaches EIU messaging capacity limits. If the LPP or FLIS is also used heavily for ISUP signaling or other applications, the OSSAIN traffic limit may be closer to 25,000 calls/hour. Capacity decreases if the SNs send a significant number of SMS (Short Message Service) requests to the switch. Other features may also decrease capacity.

Similar studies suggest that a pure OSAC host can process roughly a million busy hour OAP sessions for its remotes if the EIU in the host is used primarily for OSSAIN traffic. Using Nortel Networks service nodes, separate OAP sessions are used for DA front end and back end automation, so this translates to 500,000 DA calls/hour. If the LPP or FLIS housing the EIU in the OSAC host is also used heavily for ISUP signaling or other applications, the OSAC host’s limit is closer to 125,000 DA calls/hour from its OSAC remotes. The host’s capacity decreases if it is also processing standalone OSSAIN calls.

> ***Note:*** Messaging patterns may be different if service nodes from other vendors are used. Nortel Networks does not have message flows for calls that are serviced by other vendors’ SNs, and does not do capacity engineering for these SNs.

Ethernet throughput capacity of XA-Core interface cards depends on factors such as the extent to which other interfaces on the card are used and the sizes of the individual messages. Committed throughput numbers for NTLX04CA (HIOP) and NTLX17AA (HCMIC) were not available at the time of this writing, but both cards will have Ethernet throughput capacity much higher than the EIU, even if other interfaces on the card are used.

It is anticipated that in offices that are not using XA-Core interfaces for Succession packet call signaling, a pair of NTLX04CA or NTLX17AA cards (for redundancy) can easily accommodate both CBM (Core and Billing Manager, the next-generation Supernode Data Manager replacement) and all existing DA traffic, using OSSAIN for both front and back end automation, with no capacity concerns.

In TOPS CS2000 switches in which OSSAIN messaging is sharing the available Ethernet interface bandwidth with high-runner Succession call signaling, the CS2000 capacity for handling non-TOPS calls is decreased. At

the time of this writing, Succession CS2000 capacity numbers published by Nortel Networks were based on office models that did not include OSSAIN. Contact your Nortel Networks representative for the status of capacity engineering work for CS2000 switches that use Ethernet interface cards for both OSSAIN and Succession packet call signaling.

Hardware Requirements or Dependencies

This functionality is available only on XA-Core equipped with Ethernet interface cards such as HIOP (NTLX04CA) or HCMIC (NTLX17AA).

Software Requirements or Dependencies

This functionality is first available in the SN07 and ISN07 core software loads.

Limitations and restrictions

From an end user's perspective, this activity introduces no limitations or restrictions that were not present in OSSAIN using EIU.

From a service provider's perspective, the following limitations and restrictions apply:

- Use of XA-Core Ethernet interface cards is supported only for OSSAIN applications that use the UDP protocol. It is not supported for OSSAIN QMS MIS, which uses TCP.
- Unlike EIUs, XA-Core Ethernet interface cards do not provide screening capabilities. (EIUs can be configured to protect the core by screening out incoming messages from unwanted IP addresses, including addresses that do not match datafilled nodes and addresses of nodes that are off-line or have been declared babblers.)

  Since call processing can be adversely affected if the core is flooded with unwanted messages, it is especially important that the network be properly configured with firewalls and router filters when XA-Core Ethernet interfaces are used.
- In TOPS CS2000 switches in which OSSAIN is sharing the Ethernet interface cards with high-runner Succession calls, OSSAIN decreases the capacity of the CS2000 for non-TOPS calls. CS2000 capacity numbers published by Nortel Networks engineering groups do not apply in this case, unless the office model has specifically included OSSAIN calls.
- The XA-Core does not provide a way to reserve portions of its total Ethernet interface bandwidth for specific applications. All applications compete for the same bandwidth.
- This limitation applies when (a) an OSAC remote switch is being changed to use XA-Core Ethernet interface to communicate with a centralized SN, and (b) either the OSAC host is below SN07/ISN07, the centralized SN is at an OAP release below 9, or both. In this situation, if the service node is

incorrectly configured (in the service node) to use the wrong IP address for the OSAC remote, the mismatch is not detected when the links to the centralized SN are returned to service in the OSAC remote. The OSAC remote will present calls to the centralized SN. The incorrectly configured SN will probably not attempt to send the switch any messages regarding these calls. Depending on datafill for OSSAIN time-outs and on how quickly callers abandon these calls, there may be no logs in the OSAC remote indicating any problem. However, the incorrectly configured SN should be raising alarms using its own event reporting system if this happens.

This is not a new problem with XA-Core Ethernet interface; however, the configuration mismatch may be more likely to be introduced with this feature, since the service provider now has to be aware of more than one IP address for any particular switch.

The OSAC and OAP protocols are enhanced in SN07 and OAP Release 9 to eliminate this limitation. If the SN is at OAP 9 or higher, and both the OSAC remote and host are at SN07 or higher, then the OSAC remote cannot RTS its links to the centralized SN if the SN has incorrect datafill for the OSAC remote's IP address.

Interactions

Existing OSSAIN services are not affected by the choice of which data path the switch uses for Ethernet connectivity.

Applicable customer facing sections

An X indicates that the corresponding DDOC section is applicable. N/A indicates it is not.

Fault Management	
Logs	N/A
Alarms	N/A
Configuration	
Data Schema	X
User Interface	X
Element Management	N/A
Security	X
Service Order	N/A
Office Parameters	N/A
Configuration Walkthrough	X
Accounting (includes AMA billing)	N/A
Performance (includes operational measurements)	X

Realtime	X
Engineering Information	X

Glossary

This activity does not introduce new or non-standard terms. For convenience, this section expands standard acronyms used in this FN.

Term	Description
AMDI	ATM Multi-mode Data Interface
ARP	Address Resolution Protocol
ATM	Asynchronous Time Multiplexing
CBM	Core and Billing Manager
CM	Computing Module
CMIC	Computing Module Interface Card
CS2000	Communication Server 2000
DA	Directory Assistance
DAA	Directory Assistance Automation
EIOP	Ethernet Input Output Processor
EIU	Ethernet Interface Unit
FLIS	Fiber Link Interface Shelf
HCMIC	High Performance Computing Module Interface Card
HIOP	High Speed Input Output Processor
IOP	Input Output Processor
IP	Internet Protocol
ISUP	Integrated Services Digital Network
LAN	Local Area Network
LPP	Link Peripheral Processor
MAP	Maintenance and Administration Position
OAP	Open Automated Protocol
OSAC	OSSAIN Centralization
OSSAIN	Operator Services System Advanced Intelligent Network
QMS MIS	Queue Management System Management Information System

Term	Description
RTIF	Reset (or Remote) Terminal Interface
SMS	Short Message Service
SN	Service Node
TA	Toll and Assistance
TCP	Transmission Control Protocol
TOPS	Traffic Office Position System
UDP	User Datagram Protocol
XA-Core	Extended Architecture Core

Fault Management for A00005160

Fault management strategy

This feature does not change the fault management strategy for XA-Core Ethernet interface cards or for the OSSAIN product. It does modify the reason texts that can appear in two OSSAIN log reports.

Fault management tools and utilities

Unchanged.

Logs

This activity modifies the values that can appear in the existing OAIN606 and OAIN607 logs. It does not add any new logs or change the format of any existing logs.

Explanation

Log Title: OAIN606

Name: UNDELIVERABLE MESSAGE

Description: This log is generated when OSSAIN data communication software cannot route an incoming message to the appropriate software to process it. The reason text in the log indicates why the message could not be routed.

Event type: INFO

Format

The format is unchanged. Following is an example.

```
RTPC07BZ  OAIN606 MAR12 13:56:45 8500 INFO UNDELIVERABLE MESSAGE
        MESSAGE PROTOCOL RELEASE:   5
        MESSAGE PROTOCOL INCREMENT: 0
        SENDERS PROTOCOL RELEASE:   5
        SENDERS PROTOCOL INCREMENT: 0
        NODE NAME: TO_RTPV                          NODE ID: 70
        SESSION POOL NAME:                          SESSION POOL ID: 0
        SESSION ID: 0
        MESSAGE CLASS: OSAC NODE CLASS              MESSAGE CLASS ID: 22
        NETWORK ADDRESS : 47 245 9 1 : 5290
        REASON: MSG RECEIVED AT UNEXPECTED DESTINATION ADDRESS
        MESSAGE:
        160000003600120000050005460064 00FF0082A1
        260002026401020 20B0282041A0005E016002000
        000300FFF52F0109FFFFFFFFFFFFFFFFFFFFFFFF
        00FF00FF00FF00FF00FF00FF00FF00FF00FF00FF
        00FF00FF00FF00FF00FF00FF00FF00FF00FF00FF
```

Field descriptions

The overall field descriptions are unchanged. The values that can appear in the REASON field are changed as follows:

- INVALID NETWORK ADDRESS

  This value, which could appear in earlier releases, no longer appears as of SN07/ISN07. It is replaced by MSG RECEIVED WITH UNEXPECTED SOURCE ADDRESS

- MSG RECEIVED WITH UNEXPECTED SOURCE ADDRESS

  This new reason indicates that the source IP address, port, or both in the incoming message do not match switch datafill for the node whose node name and ID are shown in the log. The NETWORK ADDRESS field shows the actual source address. The most likely explanation is incorrect datafill for the node's IP address at the switch at which the log is generated. Another possibility is that the security of the service provider's network may have been compromised, and a rogue node may be sending OAP messages to the switch.

- MSG RECEIVED AT UNEXPECTED DESTINATION ADDRESS

  This new reason indicates that a message incoming from the node whose name and ID are shown in the log was delivered to a core IP address other than the one datafilled in the switch for the far-end node. The NETWORK ADDRESS in the log is the actual destination address at which the message was received.

  The most likely explanation is that the node that sent the message is configured to have the wrong one of the core's IP addresses. If the switch where the log was generated is datafilled to use an EIU for messaging with the far-end node, the IP address in table IPNETWRK at the switch should be configured in the far-end node as the switch address. If the switch is datafilled to use XA-Core Ethernet interface for messaging with the node,

the CM IP address datafilled against the node in table OANODINV in the switch should be configured in the node as the switch IP address.

Another possibility is that the security of the service provider's network may have been compromised in a way that causes messages to be misrouted.

Note the REASON field can also have other values, which are unchanged by this feature.

Action

Check parallel datafill between the node that sent the message and the switch at which the log was generated. Check for logs or alarms at the node that sent the message. If the problem is not resolved, contact the next level of support.

Associated Operational Measurements or Performance Measurements

Unchanged.

Explanation

Log Title: OAIN607

Name: TRANSPORT INTERFACE ERROR

Description: This log indicates that OSSAIN software encountered an error when interfacing with lower-layer transport software in the switch.

Event type: INFO

Format

The format is unchanged. Following is an example.

```
RTPC07BZ  OAIN607 FEB29 13:03:30 7499 INFO TRANSPORT INTERFACE ERROR
        NODE NAME: TEST_NODE1                       NODE ID: 185
        SESSION POOL NAME:                          SESSION POOL ID: 0
        MESSAGE CLASS:                              MESSAGE CLASS ID: 256
        NETWORK ADDRESS : 47 142 224 185 : 7000
        REASON: XAETHR TRANSMIT FAILURE
        MESSAGE:
        000100000026001208000900002000000008300FF
        00FF00FF00FF00FF00FF00FF00FF00FF00FF00FF
        00FF00FF00FF00FF00FF00FF00FF00FF00FF00FF
        00FF00FF00FF00FF00FF00FF00FF00FF00FF00FF
        00FF00FF00FF00FF00FF00FF00FF00FF00FF00FF
```

Field descriptions

The overall field descriptions are unchanged. This activity adds one new value that can appear in the REASON field:

- XAETHR TRANSMIT FAILURE

This value indicates that the OSSAIN attempted to send a message using the XA-Core Ethernet interface, but the lower-layer transport software reported back to OSSAIN that the message could not be sent. The cause of the problem is more likely to be in lower-layer software or hardware than in OSSAIN code.

Action

Investigate the underlying transport facilities. Check logs for any that might suggest the root cause of the transport failure. Investigate at MAP levels MAPCI;MTC;XAC;IO and MAPCI;MTC;XAC;ETHR. The peg counts in CI XAIPTOOL may be useful.

Associated Operational Measurements or Performance Measurements

Unchanged.

Additional information

OSSAIN does not generate an OAIN607 log if the reason for failure to send an OAP message via XA-Core Ethernet interface is that no route exists for the source IP address. In this case, the problem is definitely with the underlying transport, and OAIN logs would only clutter up the reporting and possibly make it more difficult to troubleshoot the underlying problem. The underlying transport always raises an XAC alarm when there is no route for messages from a CM host IP address.

Related documentation

Refer to 297-8403-901, OSSAIN User's Guide, for information about OSSAIN fault management.

Configuration for A00005160

Hardware and Software Requirements

A data network must be engineered and commissioned to enable UDP and ICMP echo messaging between OSSAIN/OSAC switches and OSSAIN service nodes. Refer to " Security" on page 1785 for information relevant to configuring the data network. Refer to the FN section of this DDOC for more information about capacity engineering.

XA-Core Ethernet interface cards should be commissioned on the switch before attempting to convert OSSAIN nodes to use them.

OSSAIN service nodes, provided either by Nortel Networks or by a third party vendor, must be in place.

Initial Configuration

For overall information about configuring OSSAIN, refer to the *OSSAIN User's Guide* (297-8403-901) and to SN-specific documentation.

If this feature is being commissioned on a switch that does not already have XA-Core Ethernet interfaces, it is important to develop an overall IP address plan that will last when the switch begins to use Succession functionality. Refer to Nortel Networks system engineering documentation for more information.

Also refer to engineering documentation for specific information about commissioning XA-Core Ethernet interface cards. Existing CI XAIPTOOL may be useful in working with XA-Core Ethernet interfaces.

Note this feature does not restrict whether the CM IP address used for XA-Core Ethernet interfaces is in the same or a different subnet than the CM IP address used with EIUs.

Migration from EIU to XA-Core Ethernet interface at a switch can be done gradually, on a per far-end node basis. OSAC hosts and remotes do not have to be converted at the same time. For example, an OSAC remote can send messages via its EIU to the host's XA-Core Ethernet interface IP address, and the host responds using its XA-Core Ethernet interface to the IP address that the remote uses with its EIU. Also, an OSAC host or remote can use XA-Core Ethernet interface for messaging with some service nodes, and EIU for messaging with others. A service node can communicate with some switches that use XA-Core Ethernet interface and with others that use EIU.

See " Configuration Walkthrough" on page 1786 for the steps in converting a switch to use XA-Core Ethernet interface rather than EIU for messaging with a specific far-end node (SN or OSAC switch).

Office/Subnet parameters (OP/SP) (CM & SESM)

Not applicable.

Upgrade Impact

Dump and Restore

No customer action is required. On an ONP from pre-SN07 to SN07 or later, OSSAIN nodes are automatically datafilled in table OANODINV to use the EIU data path.

Element Management Upgrade

Not applicable.

Data schema (DS)

New/modified tables

Table name	NEW/CHANGED/ or DELETED/	Table Control (NEW/ OLD/UNCHANGED)
Table OANODINV	changed	unchanged
Table CMIPADDR	changed	unchanged
Table QMSMIS	changed	unchanged

Table information

Name: Table OANODINV

Operator Services System Advanced Intelligent Network Node Inventory

Functional description

This table maps an OSSAIN node identifier to a unique node name. It defines the transport layer protocol used for messaging to the given node and specifies protocol related network address information. This table also allows datafilling OSSAIN node specific information.

Usage sequence and implications (CM Only)

The following tables must be datafilled before OANODINV:

- ENSITES
- ENTYPES
- OANODNAM
- CMIPADDR, for OANODINV tuples with field DATAPATH = XAETHR

Current datafill sequence is unchanged for tables that are datafilled after table OANODINV.

Size

This activity increases the store for each OANODINV tuple by 4 bytes.

Abbreviated table name	Minimum tuples	Maximum tuples	Information on memory
OANODINV	0	768 (unchanged)	Approximately 1038 bytes per tuple.

Note: The amount of store used by table OANODINV depends on the NODEID values that are datafilled in table OANODNAM. To avoid wasting store, avoid datafilling higher NODEID values than needed.

Fields

The following table shows the top-level fields for table OANODINV.

Table OANODINV field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
NODENAME	unchanged			
NODEAREA	refinements changed	This field consists of subfield ONPMTYPE and refinements		
ONPMTYPE	unchanged	This is a selector field.	OSN, OSNM, or OSAC (unchanged)	unchanged
AUDTRIES	unchanged			
AUDRTIMR	unchanged			
AUDFREQ	unchanged			

ONPMTYPE = OSN

If the entry in subfield ONPMTYPE is OSN, datafill refinements as shown in the following table.

OSN refinement field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
ENNODENO	unchanged			
PROTOCOL_ AREA	unchanged			
ADDRESS_ AREA	unchanged			
DATAPATH_ AREA	New	This field consists of subfield DATAPATH and refinements		

OSN refinement field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
DATAPATH	New	This is a selector field.	EIU or XAETHR	Data path. Enter EIU if the data path for this OSN is to use Ethernet Interface Unit. Enter XAETHR if the data path for this OSN is to use XA-Core Ethernet interface cards, and also datafill refinement field CMIPADDR.
CMIPADDR	New	This is a refinement field, present only if selector DATAPATH = XAETHR	four numbers, each 0 to 255	Computing Module Internet Protocol Address. Enter an IP address from the ACTIVEIP field of a CMHOST tuple in table CMIPADDR. To distribute messaging over the physical links, datafill one ACTIVEIP address for half of the nodes and the other ACTIVEIP address for the other half.
HOSTNAME	unchanged			
FAIL_DET	unchanged			
ONODTYPE	unchanged			
ONODLOC	unchanged			
ONODSITE	unchanged			
ONODINFO	unchanged			

ONPMTYPE = OSNM

If the entry in subfield ONPMTYPE is OSNM, datafill refinements as shown in the following table.

OSNM refinement field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
ENNODENO	unchanged			
PROTOCOL_ AREA	unchanged			

OSNM refinement field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
ADDRESS_ AREA	unchanged			
NMTCPORT	unchanged			
DATAPATH_ AREA	New	This field consists of subfield DATAPATH and refinements		
DATAPATH	New	This is a selector field.	EIU or XAETHR	Data path. Enter EIU if the data path for this OSNM is to use Ethernet Interface Unit. Enter XAETHR if the data path for this OSNM is to use XA-Core Ethernet interface cards, and also datafill refinement field CMIPADDR.
CMIPADDR	New	This is a refinement field, present only if selector DATAPATH = XAETHR	four numbers, each 0 to 255	Computing Module Internet Protocol Address. Enter an IP address from the ACTIVEIP field of a CMHOST tuple in table CMIPADDR. To distribute messaging over the physical links, datafill one ACTIVEIP address for half of the nodes and the other ACTIVEIP address for the other half.
FAIL_DET	unchanged			
TSTTIME	unchanged			
RTSTIME	unchanged			
ONODTYPE	unchanged			
ONODLOC	unchanged			
ONODSITE	unchanged			
ONODINFO	unchanged			

ONPMTYPE = OSAC

If the entry in subfield ONPMTYPE is OSAC, datafill refinements as shown in the following table.

OSAC refinement field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
RELATION_ AREA	A refinement of this field is changed	This field consists of subfield RELATION and refinements		
RELATION	unchanged	This is a selector field. If SELF is entered, there are no refinements. If OTHER is entered, datafill the refinement fields shown below.	SELF or OTHER	unchanged
ENNODENO	unchanged			
PROTOCOL_ AREA	unchanged			
ADDRESS_ AREA	unchanged			
DATAPATH_ AREA	New	This field consists of subfield DATAPATH and refinements. This field is present only if selector RELATION = OTHER.		
DATAPATH	New	This is a selector field.	EIU or XAETHR	Data path. Enter EIU if the data path for this OSAC node is to use Ethernet Interface Unit. Enter XAETHR if the data path for this OSAC node is to use XA-Core Ethernet interface cards, and also datafill refinement field CMIPADDR.

OSAC refinement field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
CMIPADDR	New	This is a refinement field, present only if DATAPATH = XAETHR	four numbers, each 0 to 255	Computing Module Internet Protocol Address. Enter an IP address from the ACTIVEIP field of a CMHOST tuple in table CMIPADDR. To distribute messaging over the physical links, datafill one ACTIVEIP address for half of the nodes and the other ACTIVEIP address for the other half.
ONODTYPE	unchanged			
ONODLOC	unchanged			
ONODSITE	unchanged			
ONODINFO	unchanged			

Datafill example

The following example shows sample datafill for table OANODINV. A bold font is used to highlight the new fields introduced by this activity.

```
NODENAME  NODEAREA                                    AUDTRIES AUDRTIMR AUDFREQ
-------------------------------------------------------------------------------
SWITCH_A  OSAC SELF                                          4        5      30
SWITCH_B  OSAC OTHER 0 UDP IPV4 172 16 10 2 XAETHR 172 16 1 108
                     SWITCH 3 B 11 CITYB REMOTEOSAC 4        5      30
SWITCH_C  OSAC OTHER 1 UDP IPV4 172 16 20 5 EIU
                     SWITCH 1 A 12 CITYC HOSTOSAC   4        5      30
BRAND_01  OSNM 0 UDP IPV4 172 16 1 200 7000 EIU
               Y 2 240 60 SN 2 BB 3 CITYA BRANDING1 4        5      60
DEBIT_01  OSNM 1 UDP IPV4 172 16 1 210 7001 XAETHR 172 16 1 109
               Y 2 240 30 SN 2 BB 8 CITYA DEBIT1    4        5      60
DAA_01    OSN 1 UDP IPV4 172 16 20 205 XAETHR 172 16 1 108
              SWITCH_C Y 2 SN 1 DD 33 CITYC DAA1    4        5      60
DAA_02    OSN 0 UDP IPV4 172 16 20 206 EIU
              SWITCH_C Y 2 SN 1 DD 34 CITYC DAA2    4        5      60
```

Table release history update

The DATAPATH_AREA field, with selector subfield DATAPATH and refinement CMIPADDR, is added for OSN, OSNM, and OSAC OTHER tuples. The CMIPADDR refinement field is present only if DATAPATH = XAETHR.

Supplementary information

When XAETHR is entered as the data path, the IP address in the OANODINV CMIPADDR refinement field must be used by the far-end node as the destination address for OSSAIN messages. This same IP address will be the source IP address for OSSAIN messages sent to the far-end node.

The XAETHR data path cannot be datafilled in table OANODINV unless the IP address in refinement field CMIPADDR has been previously added to table CMIPADDR, as the ACTIVEIP entry in a CMHOST tuple. If an attempt is made to violate this restriction, the following error message is displayed:

```
The CMIPADDR entry in OANODINV must match an ACTIVEIP
entry in a CMHOST tuple in table CMIPADDR.
```

The XAETHR data path cannot be datafilled in table OANODINV if the node is identified in table QMSMIS as a server for OSSAIN QMS MIS. If an attempt is made to change the OSSAIN QMS MIS server's data path to XAETHR, the following error message is displayed:

```
This node is datafilled in table QMSMIS. DATAPATH XAETHR
is not supported for an OSSAIN QMS MIS server.
```

Translation verification tools

Table OANODINV does not use translation verification tools.

Name: Table CMIPADDR

Computing Module Internet Protocol Addresses

> ***Note:*** The only changes are a new cross-check with table OANODINV and a new error message. However, because earlier releases of Nortel Networks documentation may have missed some of the details about this table, this feature goes into some detail in documenting the fields.

Functional description

Table CMIPADDR contains the IP addresses and subnet masks associated with the XA-Core, as well as the gateway router IP address and the edge device IP addresses and subnet masks.

Usage sequence and implications (CM Only)

Table CMIPADDR is datafilled during commissioning of the Ethernet interfaces in an XA-Core switch. Changing the gateway or host address information after that may cause data mismatches between various nodes in the IP network.

This activity (A00005160, OSSAIN XA-Core Data Messaging Capacity Enhancements) adds the following dependency: Table CMIPADDR must be

datafilled before a tuple with DATAPATH = XAETHR can be added to table OANODINV.

Size

Current size unchanged.

Fields

The following table lists the top-level fields for table CMIPADDR.

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
KEY	unchanged	This field consists of subfields KEYCLASS and ENTRYNO.		
KEYCLASS	unchanged		GATEWAY, CMHOST, AMDIHOST, ETHRLNK	Key class. Indicates the class of tuple being datafilled. Enter GATEWAY to datafill the IP address of a gateway router. There can be only one GATEWAY tuple. Enter CMHOST to datafill an active IP address for the XA-Core. There can be two CMHOST tuples (total two active host IP addresses). Enter ETHRLNK to datafill a physical Ethernet link. There can be up to 8 ETHRLNK tuples, with each tuple corresponding to a physical link. AMDIHOST was added to allow datafill of an IP address to be used with an AMDI link for CLIP (Classical IP) over ATM. This value cannot be datafilled in SN07 or ISN07.
ENTRYNO	unchanged		0 to 7	Entry number. This is used to create a unique key. The KEYCLASS limits the ENTRYNO values that can be datafilled: GATEWAY: 0 to 0 CMHOST: 0 to 1 AMDIHOST: N/A ETHRLNK: 0 to 7

Table field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
DATA	unchanged	This field consists of selector field SELCLASS and refinements.		
SELCLASS	unchanged	This is a selector field	GW, HOST, AMDI, ETHR	Selector class. The KEYCLASS in the key must match the SELCLASS entry as follows: GATEWAY: GW CMHOST: HOST AMDIHOST: AMDI ETHRLNK: ETHR

SELCLASS = GW

If the entry in subfield SELCLASS is GW, datafill refinements as shown in the following table.

GW refinement field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
GTWYIP	unchanged		four numbers, each 0 to 255	Gateway IP address. Enter an address for a gateway router. This address is downloaded to the Ethernet interface card or packlet. ***Note 1:*** VRRP and similar redundancy schemes allow a pair of routers to use a single IP address. ***Note 2:*** The GTWYIP entry may be the same as an address entered for an edge device in an ETHRLINK tuple, in case there is an Ethernet LAN but no WAN. It may not be the same as any other IP address in table CMIPADDR.
NETID	unchanged		0 to 1	Network (i.e., subnet) identifier. Enter 0. In SN07 there can be only one Ethernet-based subnet for the core.

SELCLASS = HOST

If the entry in subfield SELCLASS is HOST, datafill refinements as shown in the following table.

HOST refinement field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
ACTIVEIP	unchanged		four numbers, each 0 to 255	Active IP address for the XA-Core. This will be one of the IP addresses used by applications and advertised outside of the core. The active IP addresses are dynamically associated with physical interfaces. If an active IP address is bound to a physical interface that suffers a failure, it will be automatically rebound to a different interface in the same subnet.
NETMASK	unchanged		1 to 30	Subnet mask. Enter the number of leading ‘1’s in the mask.
NETID	unchanged		0 to 1	Network (i.e., subnet) identifier. Enter 0. In SN07 there can be only one Ethernet-based subnet for the core.

SELCLASS = AMDI

This value cannot be datafilled in SN07/ISN07.

SELCLASS = ETHR

If the entry in subfield SELCLASS is ETHR, datafill refinements as shown in the following table.

ETHR refinement field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
SLOTID	unchanged	This field consists of subfields SLOT and SIDE		
SLOT	unchanged		0 to 18	Slot. The physical slot number on the XA-Core shelf where the Ethernet interface card resides. (For EIOP, this is where the IOP resides.) ***Note:*** Refer to XA-Core engineering documentation for packfill restrictions.

ETHR refinement field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
SIDE	unchanged		UNKNOWN, FRONT, REAR	Side. The location on the XA-Core shelf where the Ethernet interface card resides. Enter FRONT or REAR. ***Note:*** Refer to XA-Core engineering documentation for packfill restrictions.
PACKLET	unchanged		NONE, LOWER, UPPER	Packlet. For EIOP, enter the location of the Ethernet packlet on the IOP card. For other Ethernet interfaces such as HIOP and HCMIC, enter NONE.
CARDIP	unchanged		four numbers, each 0 to 255	Card IP address. This address is used only within the interface card or packlet, and is not advertised.
CARDNETM	unchanged		1 to 30	Card subnet mask. Enter the number of leading ‘1’s in the mask.
MTCIP	unchanged		four numbers, each 0 to 255	Maintenance IP address. This is used by the core for maintenance of the interface card or packlet from the core. This address is not advertised.
MTCNETM	unchanged		1 to 30	Maintenance subnet mask. Enter the number of leading ‘1’s in the mask.
EDGEIP	unchanged		four numbers, each 0 to 255	Edge device IP address. This is the address of the device to which the Ethernet interface is directly attached. This address is used by the core in performing integrity checks, using ICMP echo requests, on the point-to-point link between the Ethernet interface card or packlet and the edge device to which it is attached. Assuming the edge device is a Passport 8600, datafill the physical IP address of the CallP VLAN/subnet on the Passport 8600 that the HIOP or HCMIC subtends.
NETID	unchanged		0 to 1	Network (i.e., subnet) identifier. Enter 0. In SN07 there can be only one Ethernet-based subnet for the core.

Datafill example

The following example shows sample datafill for table CMIPADDR.

```
KEY         DATA
---------------------------------------------------------
GATEWAY 0   GW (172 16 0 1) 0
CMHOST 0    HOST (172 16 14 108) 20 0
CMHOST 1    HOST (172 16 14 109) 20 0
ETHRLNK 1   ETHR 12 REAR NONE (172 16 14 104) 20
            (172 16 14 110) 20 (172 16 0 2) 0
ETHRLNK 2   ETHR 6 REAR NONE (172 16 14 106) 20
            (172 16 14 112) 20 (172 16 0 3) 0
```

Table release history update

Table CMIPADDR was introduced and modified in CSP16 by the following features:

- A59025829, IRM Plan B
- A59029386, CLIP on the XA-Core
- A59029980, Succession HIOP Maintenance Software

In CSP20 (SN07), new cross-checks and error messages are added by the following features:

- A00002510, LANCOMM IP over IRM - adds cross-checks with table IPNETWRK.
- A00005160, OSSAIN XA-Core Data Messaging Capacity Enhancements (this feature) - adds cross-checks with table OANODINV.

Supplementary information

In SN07/ISN07, only one subnet is supported for the core Ethernet interfaces. All active IP, maintenance IP, and card IP addresses must be unique, and they must all have the same netmask and the same subnet.

A GATEWAY or CMHOST tuple can be changed or deleted only if all links associated with the subnet are off-line. An ETHRLNK tuple can be changed or deleted only if the link is off-line.

Warning: Changes to the GATEWAY or CMHOST IP addresses or subnet information in this table after the initial commissioning may cause data mismatches between various nodes in the IP network.

This activity (A00005160, *OSSAIN XA-Core Data Messaging Capacity Enhancements*) adds the following error message. This message is printed if an attempt is made to delete or change a CMHOST tuple whose active IP address is datafilled in table OANODINV.

```
ERROR: The active IP address in this tuple is referenced
by table OANODINV. The tuple cannot be changed or deleted
as long as table OANODINV references it.
```

Note: Much other datafill may depend on the OANODINV tuple. To avoid having to delete and re-add all this other datafill if it is necessary to change the IP address plan, one can temporarily change the DATAPATH field in the OANODINV tuple to EIU. However, this does not imply that the CMHOST tuples can be changed without major impact on the OSSAIN application.

Translation verification and other tools

Table CMIPADDR does not use translation verification tools.

Name: Table QMSMIS

QMS MIS Link Definition Table

Note: The only changes are a new cross-check and a new error message.

Functional description

Table QMSMIS defines the links used by a Queue Management System Management Information System (QMS MIS) application and also defines the audit frequency for the links.

Usage sequence and implications (CM Only)

Current datafill order unchanged.

Size

Current size unchanged.

Fields/OIDs

The following table lists the top-level fields for table QMSMIS.

QMSMIS field descriptions

Field	New or Changed	Subfield or refinement	Entry	Explanation and action
INDEX	unchanged			
DATALINK	unchanged			

Datafill example

The following example shows sample datafill for table QMSMIS.

```
INDEX                                                    DATALINK
-------------------------------------------------------------------
OSSAIN                          ETHERNET MIS_OSSAIN 24 7001
TOPS                                  MPC (3 3 1) (4 4 2) $
```

Table release history update

Cross-checks are added to enforce that an OSSAIN QMS MIS server cannot be datafilled in table OANODINV with data path XAETHR.

Supplementary information

If an attempt is made to datafill an OSSAIN tuple whose node has data path XAETHR in table OANODINV, the following error message is displayed:

```
This node has DATAPATH XAETHR in table OANODINV. OSSAIN QMS
MIS servers must use the EIU. XA-Core Ethernet data path
is not supported for OSSAIN QMS MIS.
```

Translation verification and other tools

Tools unchanged.

Service Orders (SO) (CM & SESM)

Not applicable.

Software optionality control (SOC)

SOC option name:	OSSAIN Base
SOC option title:	OSSAIN Base
SOC option control type:	state
New SOC option?	No
SOC option order code	OSAN0101
Option defined in DRU:	TOPS
Affected products:	SN0x, ISN0x

Element Management

Not applicable.

Command interface changes

Command: QUERYPM (in OAINPMDIR directory)

Command type: Listed MENU

Command target: All

Command availability: RES

Command description

The QUERYPM command is available in a number of different MAP levels. In general, it is used to display information about the posted peripheral module (PM).

This feature changes the output that is displayed when the QUERYPM command is issued with no arguments in the OAINPMDIR directory. The OAINPMDIR directory is entered from the MAPCI;MTC;PM level by posting an OSN, OSNM, or OSAC node. These node types are used for the TOPS OSSAIN application.

Command syntax

The command syntax is unchanged. In the OAINPMDIR directory, the QUERYPM command may be entered with no parameters or with the constant FLT parameter. This feature only changes the output when QUERYPM is entered with no parameters.

Qualifications and warnings

None.

Responses

This feature changes only the success response. It does not change the error responses.

The success response displays information about the posted node, from table OANODINV. None of the information that was displayed prior to this feature is changed in format or meaning. This feature adds a new line to the success response, corresponding to new information in table OANODINV.

The new line displays the data path used for the posted node. The data path can be EIU or XAETHR. EIU refers to the Ethernet Interface Unit. XAETHR refers to XA-Core Ethernet interface cards such as HIOP and HCMIC. If the node uses an XAETHR data path, the display also shows the active CM host IP address that the switch uses in messaging with the node.

The success response does not require any user action. It is visible on both XA-Core and BRISC. On BRISC the data path will always be EIU. On XA-Core, it can be either EIU or XAETHR.

Example

The following figure shows an example success response for a posted node with connectivity through XA-Core Ethernet cards using active host IP address 172.16.1.109. The figure uses a bold font to highlight the new line that has been added to the display.

```
NODENAME: DAA_01
NODEID:   1
PROTOCOL: UDP
IPADDR:   172.16.20.205
DATAPATH: XAETHR (172.16.1.109)
ONODTYPE: SN
ONODLOC:  1 DD 33
ONODSITE: CITYC
HOSTNAME: SWITCH_C
```

Actual data values depend on datafill in table OANODINV.

Command: BUFSTATS (in OSSAINCI directory)

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

OSSAINCI is an existing directory that provides non-menu commands that are used primarily by Nortel Networks customer support personnel. The OSSAINCI directory is accessed by entering the directory name. Most of the commands are related to tracing of OSSAIN messages. The new BUFSTATS command is not related to tracing; it is related to buffer resources.

The BUFSTATS command allows the user to view information about the queues and buffer pools that are used for processing messages incoming to OSSAIN via an XA-Core Ethernet interface. It also allows the user to reset the low water marks associated with the free queues.

Command syntax

BUFSTATS command parameters and variables

Command	Parameters and variables
BUFSTATS	DISPLAY, RESET
Parameters and variables	**Description**
DISPLAY	Displays information about buffer resources
RESET	Resets low water marks associated with free queues used by the application.

Qualifications and warnings

Low water marks are approximate. (Realtime and possible blocking involved in keeping them accurate would be counter-productive.) In-queue counts are also approximate, but are closer to accurate than low water marks.

Displaying buffer stats frequently during peak traffic hours can cause blocking.

Responses

MAP outputs with associated meanings and actions

Response to command BUFSTATS with no parameters, or with DISPLAY parameter

The system displays information about the queues. Following is an example. The numbers will vary.

```
XAETHR Free Qs/Pools
====================
Bytes/buff  Alloc  Count   LWM
----------  -----  -----  -----
   64        300    270    114
  128        300    281     70
  320        150    150    147

XAETHR Inuse Qs
===============
Use     Count
-----   -----
CallP     45
Mtce       3
```

Meaning:

Bytes/buff	number of message body bytes in buffers
Alloc	number of buffers allocated
Count	approximate number of buffers currently in queue
LWM	low water mark
Use	kind of messages the queue/pool is used for

User actions:

No user action is required.

MAP outputs with associated meanings and actions

Success response to command BUFSTATS with RESET parameter

```
LWMs have been reset for all FreeQs
```

Meaning:

The System has reset the low water marks of the free queues.

User actions:

No user action is required.

Example

Usage example for OSSAINCI BUFSTATS command

Description of task:	Study free queue low water marks during a defined study period.
At the beginning of the study period:	
Command: MAP response: Command: MAP response: Command: MAP response:	>OSSAINCI OSSAIN: >BUFSTATS RESET LWMs have been reset for all FreeQs >LEAVE CI:
At the end of the study period:	
Command: MAP response: Command: MAP response: Command: MAP response	>OSSAINCI OSSAIN: >BUFSTATS DISPLAY <*display similar to that in "MAP outputs with associated meanings and actions" on page 1782*> >LEAVE CI:

Command: SCREENTAB (in OSSAINCI directory)

Command type: NON-MENU

Command target: All

Command availability: RES

Command description

OSSAINCI is an existing directory that provides non-menu commands that are used primarily by Nortel Networks customer support personnel. The OSSAINCI directory is accessed by entering the directory name. Most of the commands are related to tracing of OSSAIN messages. The new SCREENTAB command is not related to tracing; it is related to an internal table that the switch maintains.

The SCREENTAB command allows Nortel Networks support personnel to view the contents of the internal table. The internal table does not affect any functionality in the SN07/ISN07 releases. It is for possible future use.

Command syntax

SCREENTAB command parameters and variables

Command	Parameters and variables
SCREENTAB	none

Qualifications and warnings

None.

Responses

MAP outputs with associated meanings and actions

Response to command SCREENTAB

The system displays information about the internal table. Following is an example. The numbers will vary.
 	
`idx (hex)  entry  collisions`
`---------  --------------------------  ----------`
`00B9  2F8EE0B9  (47.142.224.185)  0`
`0201  2FF50E01  (47.245.14.1)  0`
 	
Meaning:
 	
idx — index into internal hash table
entry — data in internal hash table
collisions — number of hash collisions to access entry
 	
User actions:
 	
No user action is required.

Example

Usage example for OSSAINCI SCREENTAB command

Description of task:	View contents of internal hash table.

Usage example for OSSAINCI SCREENTAB command

Command: MAP response:	>OSSAINCI OSSAIN:
Command: MAP response:	>SCREENTAB *<display similar to that in Table on page 1784>*
Command: MAP response	>LEAVE CI:

Security

A secure network is assumed. The risk in using OSSAIN in an insecure network is greater with XA-Core Ethernet interface cards than with the EIU. This is because the EIU can offer some protection to the core by screening out messages from unwanted IP addresses. With XA-Core Ethernet interface cards, anyone with access to the central office LAN has direct access to the core.

Network configuration

Firewalls and routers must allow UDP datagrams to and from the IP addresses and ports used for OSSAIN.

- IP addresses
  - — In the core, OSSAIN may use the active CMHOST IP addresses datafilled in table CMIPADDR, the IP address in the CMIPADDR tuple of table IPNETWRK, or both. Which core IP addresses OSSAIN uses is based on datafill in table OANODINV.
  - — IP addresses of OSSAIN and OSAC nodes are datafilled in the IPV4ADDR field of table OANODINV.
  - — If OSSAIN is configured to use EIUs, it uses them as routers.
- Ports
  - — OSSAIN uses UDP ports 5289 through 5293 in the core, regardless of whether it is configured to use EIUs or XA-Core Ethernet interfaces.
  - — UDP ports used in service nodes for OSSAIN messaging are datafillable in the following tables and fields:
    - – table OANODINV, field NMTCPORT in OSNM refinement
    - – table OASESNPL, fields CPPORT and MTCPORT in various refinements

Note: Although an OSAC remote switch does not have have datafill for a centralized service node's maintenance port, it does send messages to and receive messages from this port. The centralized service node is datafilled in the OSAC remote as an OSN node, and in the OSAC host as an OSNM node. The OSAC remote sends datagrams to and receives datagrams from the centralized service node at the NMTCPORT datafilled in the OSAC host, as well as at the session pool ports datafilled in both switches.

OSSAIN also requires that the data network support ICMP echo requests and replies to and from the IP addresses used for OSSAIN nodes (both OSAC switches and service nodes).

This activity does not restrict whether the active host IP addresses in table CMIPADDR are in the same or a different subnet than the CM IP address used by the EIU.

Key management

N/A.

Protocol

N/A.

Authentication

N/A.

Configuration Walkthrough

This section outlines steps for converting OSSAIN to use XA-Core Ethernet interface, rather than EIU, for messaging with a single far-end node (SN or OSAC switch). This procedure has the following prerequisites:

- The secure, engineered data network must be up. Firewalls and routers must be configured to allow ICMP echo and UDP messaging between the XA-Core Ethernet interface to be used and the far-end node. (Refer to " Security" on page 1785 for information about UDP ports used for OSSAIN.)
- The XA-Core Ethernet interfaces must be commissioned.
- If an SN is involved (it will be unless it's an OSAC link being changed), the method for changing the switch IP address on the SN must be understood. This method is different for different service nodes.

Once the prerequisites are satisfied, there are several ways the change could be made. The sequence shown here is straightforward and will not cause sessions in progress to fail; however, it may cause SysB alarms in switches in the OSAC network. These alarms will clear automatically once the conversion is successfully completed. If avoiding such alarms is a priority, more steps may be needed. For example, if an OSAC host is being converted to use XA-Core

Ethernet interface for messaging with a particular SN, it will need to briefly off-line the SN, and this will raise alarms in the OSAC remotes unless the SN's session pools and the SN itself have first been busied in the remotes.

1. At the switch that is to start using XA-Core Ethernet interface cards:

a. Drain all session pools datafilled against the far-end node. This is done at the SesnPool level (SESNPOOLDIR) of the DMS MAP. Wait for the session pools to transition to ManB.

Note: Drain is not supported for OSN node types. If an OSAC remote is being converted to use XA-Core Ethernet interface for an OSN, temporarily route the traffic elsewhere rather than draining

b. Off-line all session pools datafilled against the far-end node.

c. At the OAINPMDIR directory, busy and off-line the far-end node.

d. In table OANODINV, modify the tuple for the far-end node to use XAETHR data path, and datafill the CMIPADDR field.

2. At the far-end node, change its configuration to use the new IP address for the switch.

— If the far-end node is an SN, follow SN-specific procedures for this step.

— If the far-end node is an OSAC switch, follow the steps given here at that switch. These steps assume that switch A is the one being changed to use XA-Core Ethernet interfaces, and switch B is the one where the following steps are performed.

a. Busy and off-line all session pools associated with switch A; then busy and off-line switch A at the OAINPMDIR directory.

b. Modify the tuple for switch A in table OANODINV, changing the IPV4ADDR field to the IP address that was datafilled in switch A against switch B in the CMIPADDR field of table OANODINV.

c. At the OAINPMDIR MAP directory, Busy and RTS switch A. Ensure that all session pools to switch A are SysB.

3. At the switch that is to start using XA-Core Ethernet interface cards:

a. Busy and RTS the far-end node.

4. Check logs at both ends and make test calls.

5. Configure firewalls and routers in the data network to disallow messaging between the CM IP address datafilled in table IPNETWRK and the far-end node, if desired.

Note: Refer to the FN section of this DDOC (A00005160, *OSSAIN XA-Core Data Messaging Capacity Enhancements*) for a limitation regarding inconsistent IP address datafill detection. This limitation exists only in

OSAC remote switches, and only if the OSAC host switch is below SN07/ISN07, the service node is below OAP release 9, or both.

Performance Management for A00005160

Performance management strategy

Performance management for the OSSAIN product is described in 297-8403-901, *Operator Services System Advanced Intelligent Network (OSSAIN) User's Guide*.

This feature (A00005160, *OSSAIN XA-Core Data Messaging Capacity Enhancements*) adds one new OM group in the DMS Core. The new OM group can be used in analyzing messaging throughput of TOPS applications that send and receive UDP datagrams.

Performance management tools and utilities

Standard DMS tools for managing OMs.

Operational Measurements (OM)

OM Group template

OM description

OM group TDGTHRU

TOPS Datagram Throughput

Release history update

The OM group is being created in TOPS20/SN07/ISN07.

Registers

OM group registers display on the MAP terminal as follows:

OM Group TDGTHRU Display

SND48	SND48X	SND96	SND96X
SND160	SND160X	SND224	SND224X
SND296	SND296X	SND368	SND368X
SND512	SND512X	SNDLG	SNDLGX
RCV48	RCV48X	RCV96	RCV96X
RCV160	RCV160X	RCV224	RCV224X
RCV296	RCV296X	RCV368	RCV368X
RCVLG	RCVLGX		

Each register counts the number of messages in a particular size range that a TOPS application sent or received during the reporting period. The numbers

in the register names indicate the size ranges or “buckets,” as explained in Table , “TOPUDPTH Registers,” on page 1798.

Group structure

OM group TDGTHRU provides 1 tuple for each of the four fixed key values as shown here.

Key field: TOPS_DGRAM_IDX specifies the TOPS application and data path to which the peg counts in the tuple apply. The fixed key values are listed here along with their meanings:

Key values for OM group TDGTHRU

Key Value	Meaning
OA_EIU	OSSAIN application using Ethernet Interface Unit
OA_XAETHR	OSSAIN application using XA-Core Ethernet interface
POS_IPXPM	TOPS position application using IP-XPM
OC_IPXPM	Operator Centralization application using IP-XPM

Info field: None

Associated OM groups

None.

Associated functional groups

None.

Associated functionality codes

Functionality codes associated with OM group

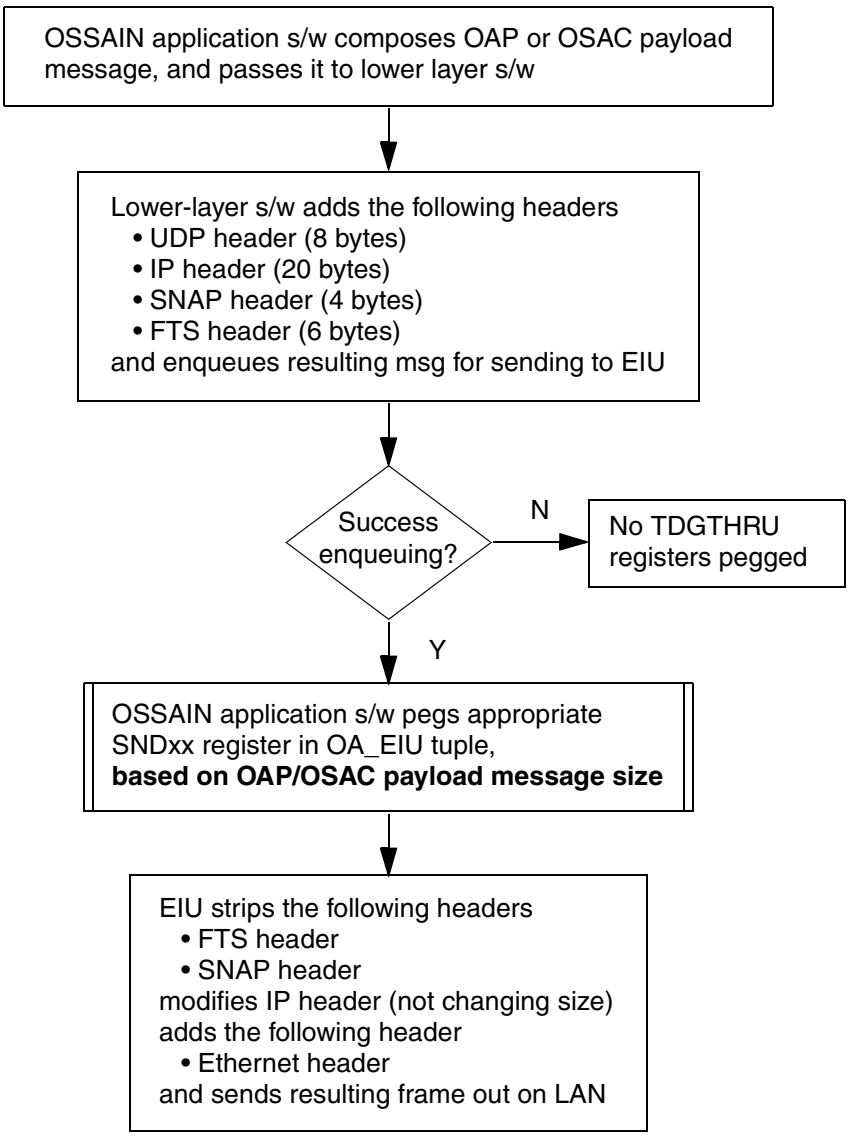
Functionality	Code
Base TOPS	OSB0101

OM group registers logic flow charts

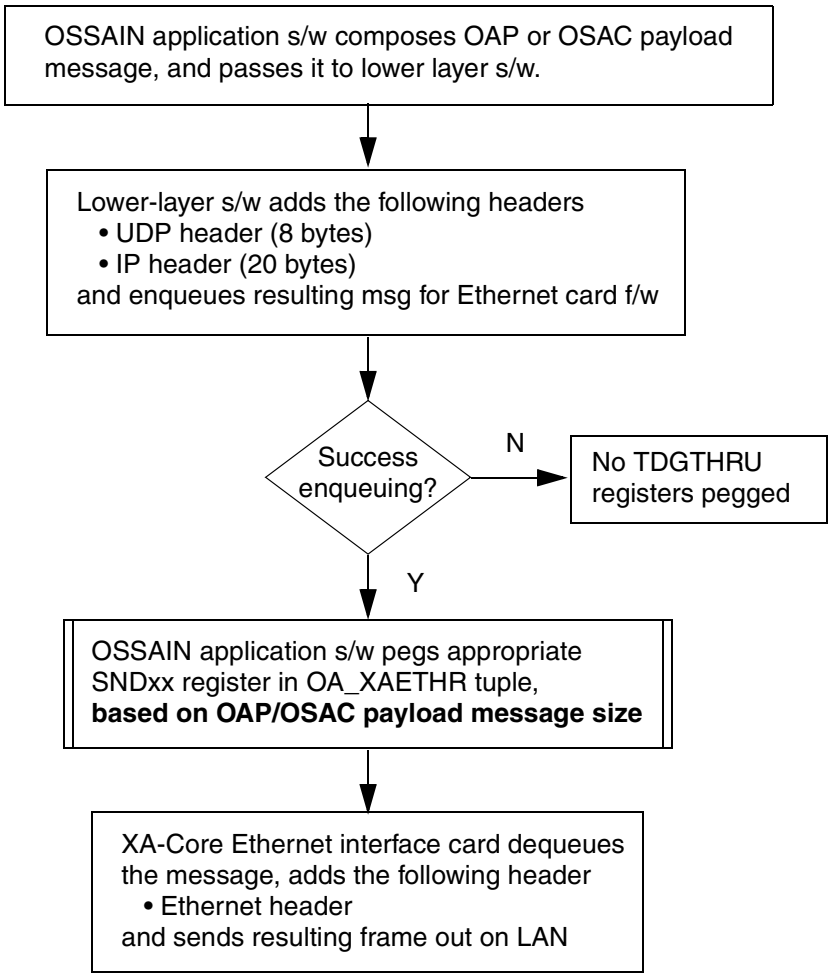
This section includes 8 flow charts: one for pegging SNDxxx registers and one for pegging RCVxxx registers, for each of the four tuples.

For more information about the specific registers, please refer to Table , “TOPUDPTH Registers,” on page 1798.

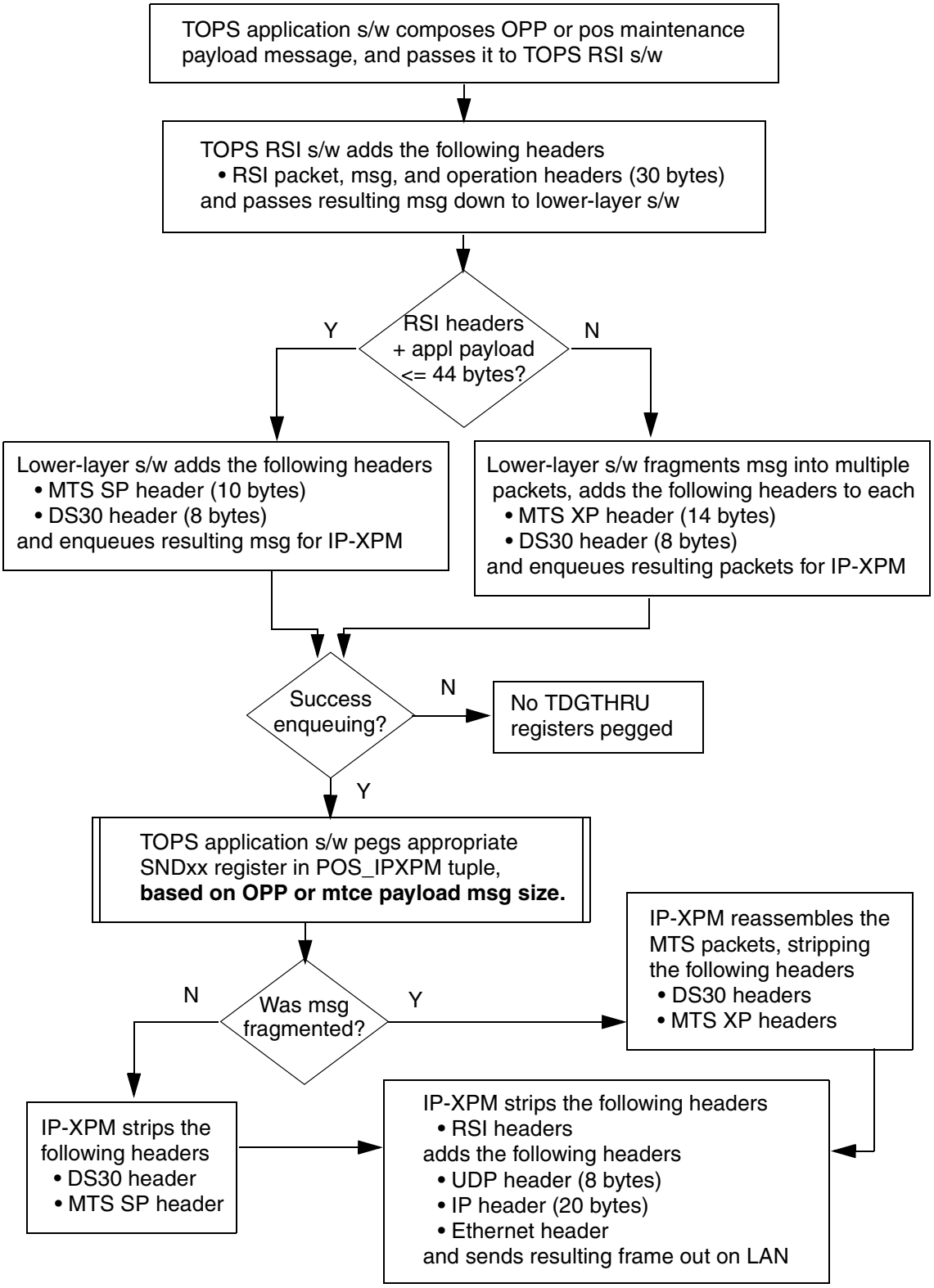
Flow chart for pegging send (SND) registers in OA_EIU tuple



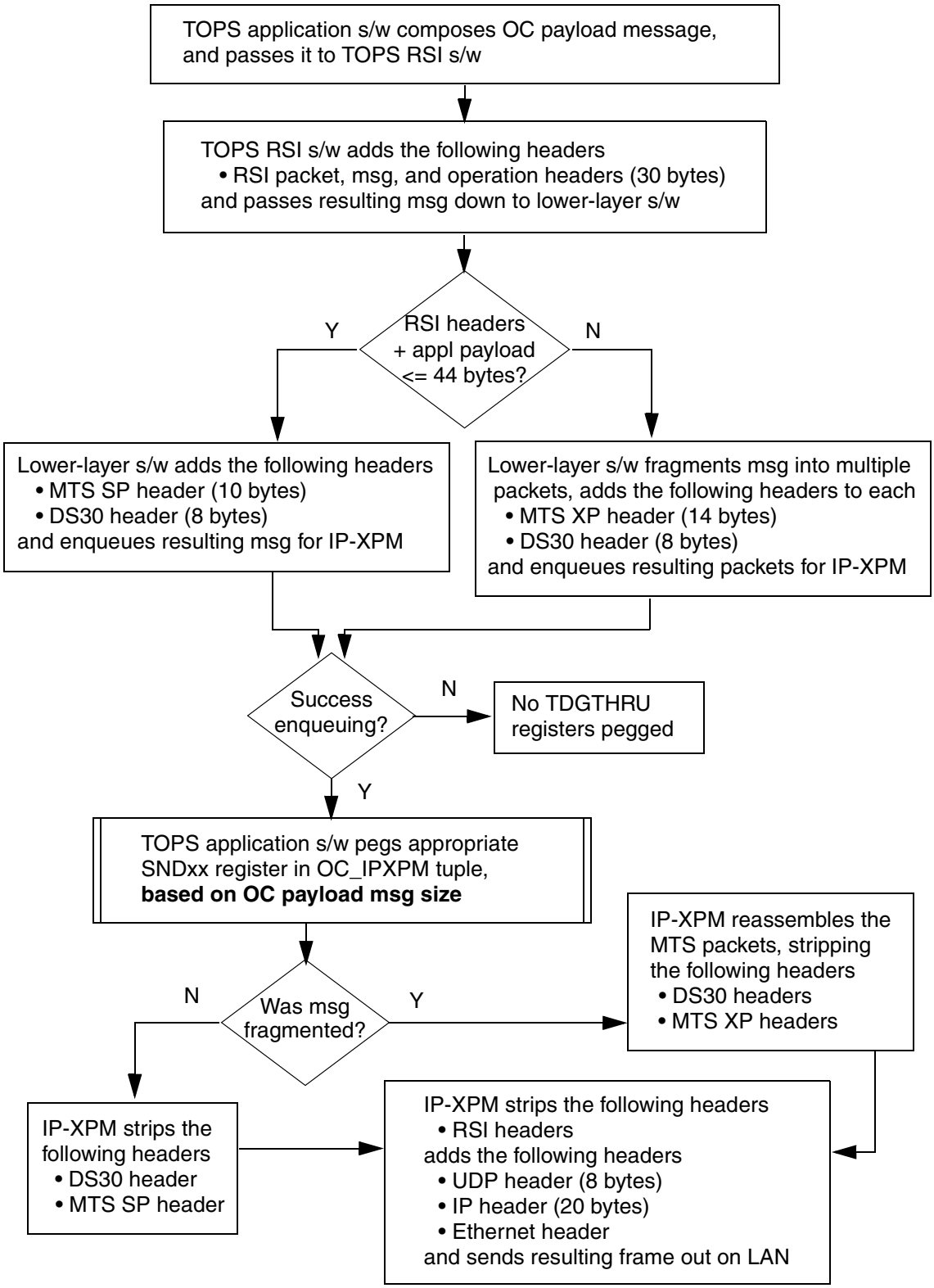
Flow chart for pegging send (SND) registers in OA_XAETHR tuple



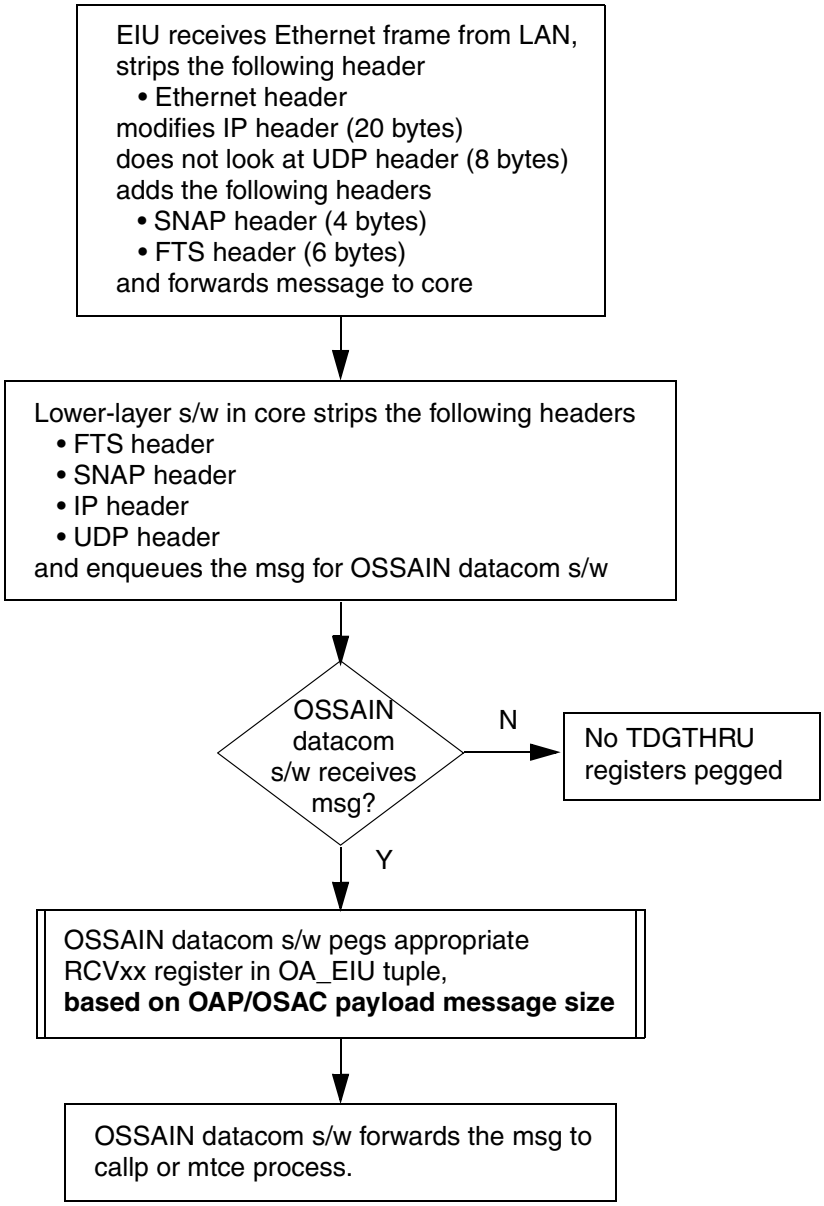
Flow chart for pegging send (SND) registers in POS_IPXPM tuple



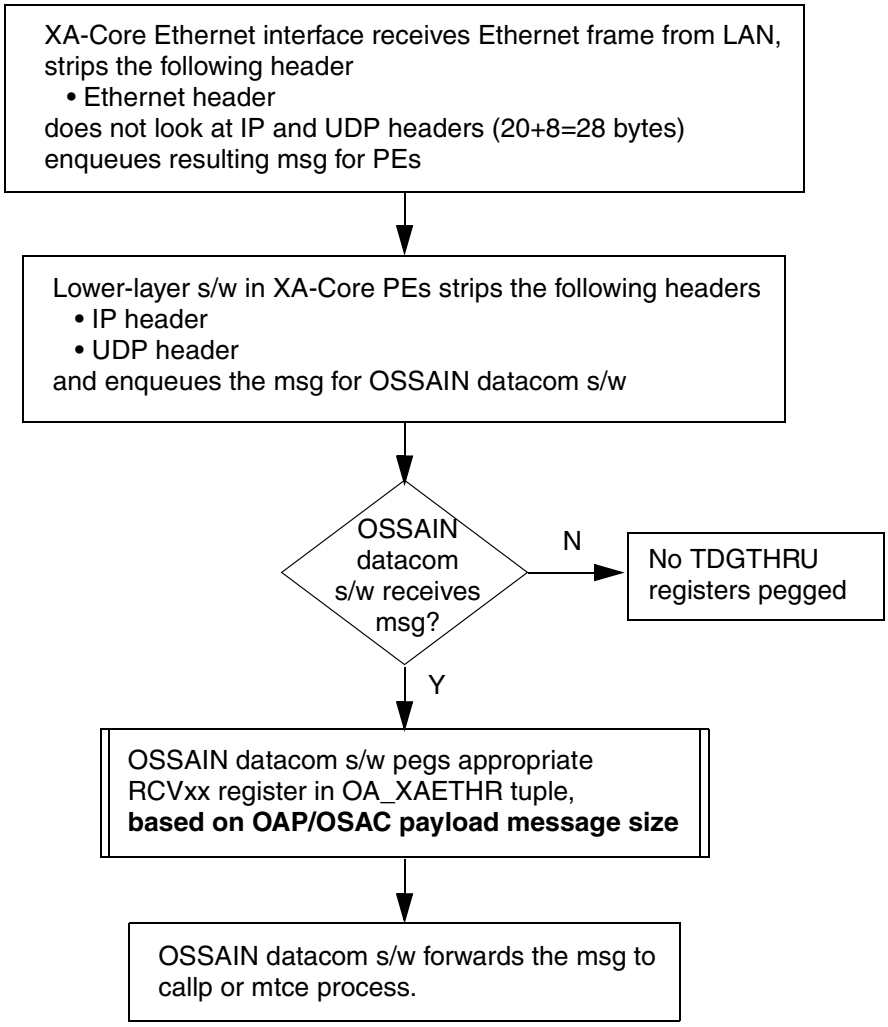
Flow chart for pegging send (SND) registers in OC_IPXPM tuple



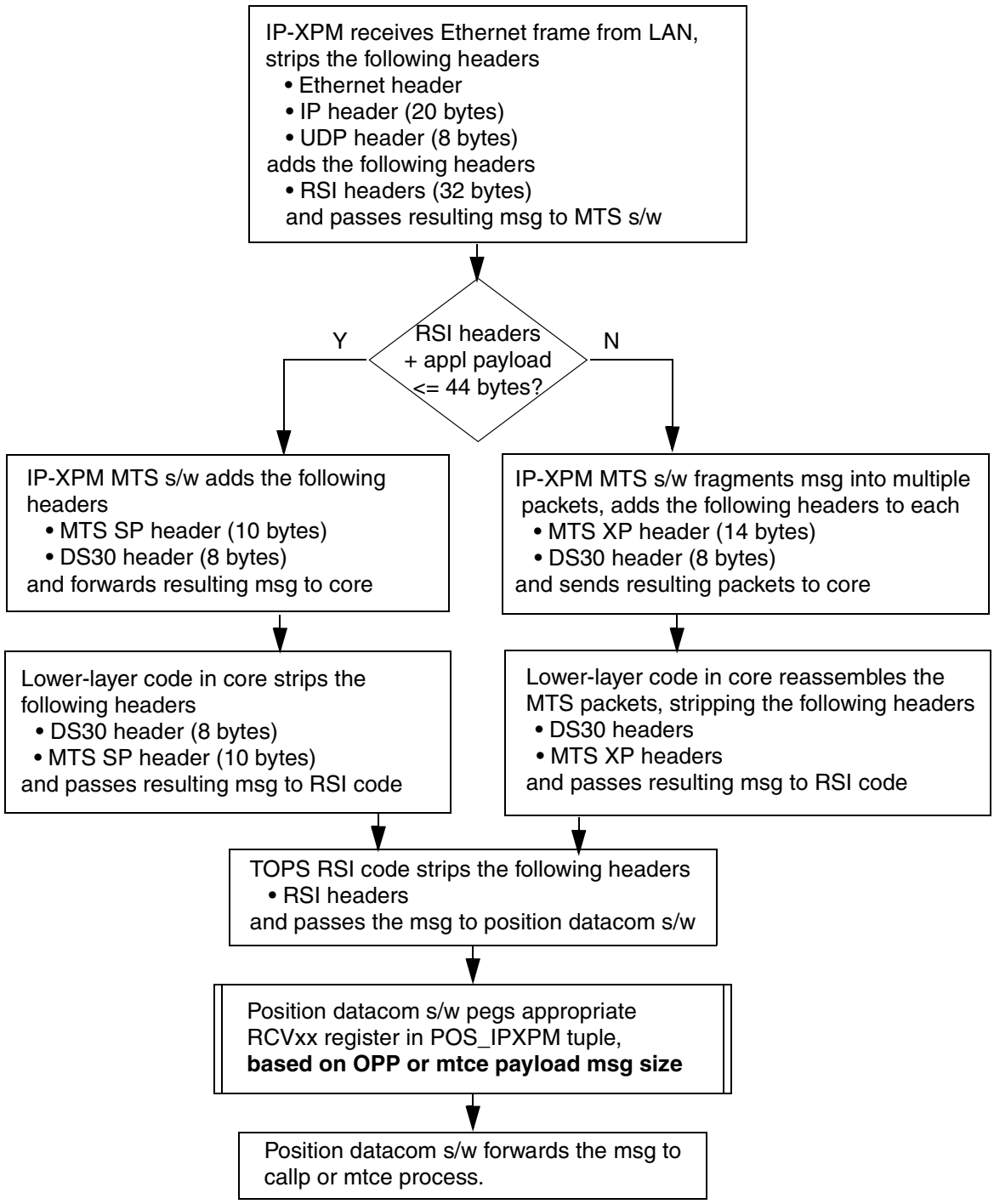
Flow chart for pegging receive (RCV) registers in OA_EIU tuple



Flow chart for pegging receive (RCV) registers in OA_XAETHR tuple

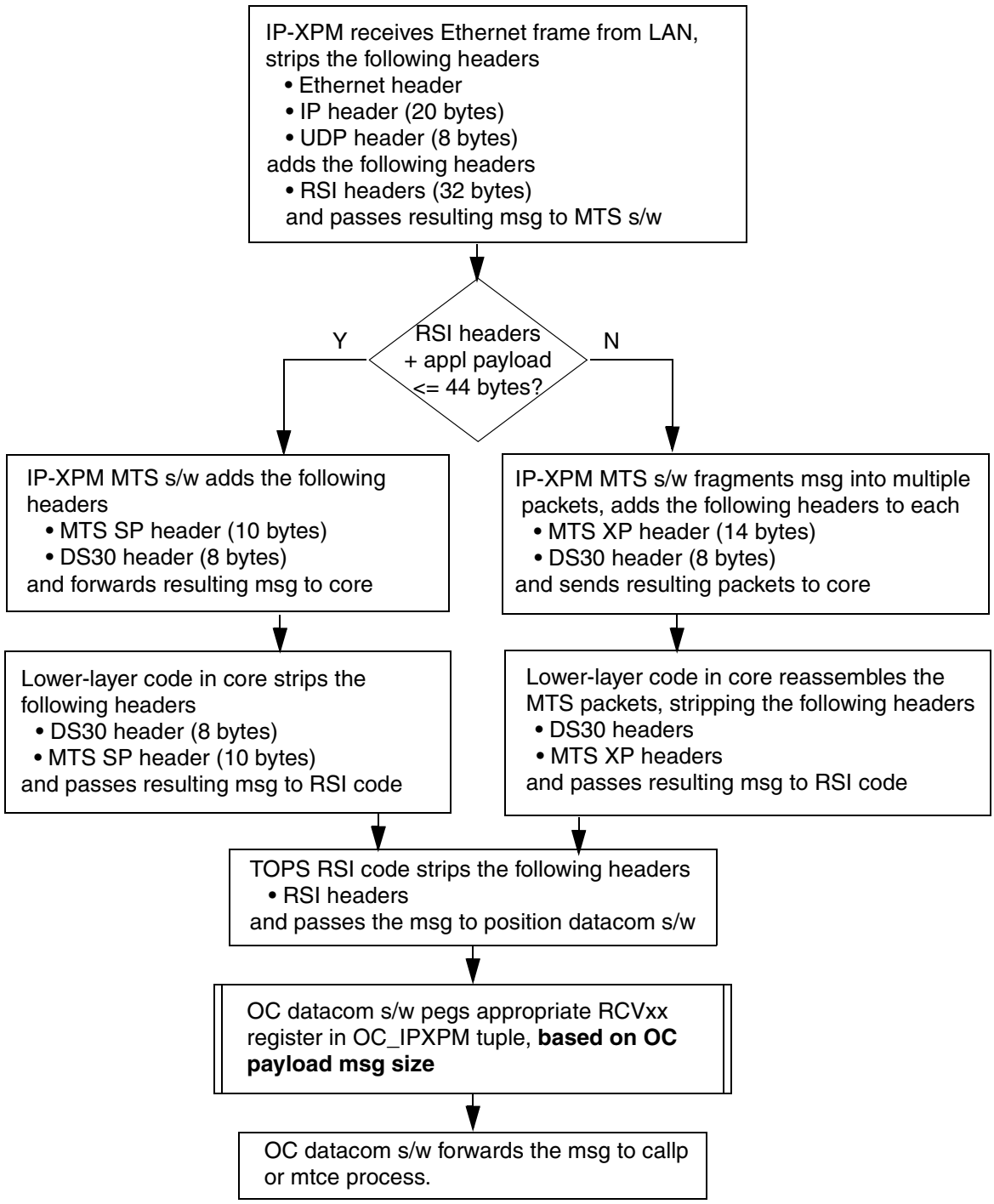


Flow chart for pegging receive (RCV) registers in POS_IPXPM tuple



Note: Failure at any point before the message gets to position datacom s/w results in no registers being pegged in group TDGTHRU.

Flow chart for pegging receive (RCV) registers in OC_IPXPM tuple



Note: Failure at any point before the message gets to OC datacom s/w results in no registers being pegged in group TDGTHRU.

Registers

Register description

Each register in this group counts the number of messages in a specific size range that were sent by or received by a particular TOPS application, using a particular Ethernet interface.

These registers may be useful for estimating the resources that TOPS applications need for their UDP messaging. Depending on what resources are being studied, it may or may not be necessary to take into account various headers that are added and stripped at various points in the message processing. Message sizes used in pegging registers in this group include only the TOPS application payload part of the message. Refer to the flow charts in "OM group registers logic flow charts" beginning on page 1789 for details.

The following table explains each register.

TOPUDPTH Registers

Short Register Name	Long Name	Explanation
SND48 and SND48X	Send 48 Bytes	Peg register. Counts the number of messages sent from the core, of size <= 48 bytes. SND48X is an extension register.
SND96 and SND96X	Send 96 Bytes	Peg register. Counts the number of messages sent from the core, of size > 48 bytes and <= 96 bytes. SND96X is an extension register.
SND160 and SND160X	Send 160 Bytes	Peg register. Counts the number of messages sent from the core, of size > 96 bytes and <= 160 bytes. SND160X is an extension register.
SND224 and SND224X	Send 224 Bytes	Peg register. Counts the number of messages sent from the core, of size > 160 bytes and <= 224 bytes. SND224X is an extension register.
SND296 and SND296X	Send 296 Bytes	Peg register. Counts the number of messages sent from the core, of size > 224 bytes and <= 296 bytes. SND296X is an extension register.

TOPUDPTH Registers

Short Register Name	Long Name	Explanation
SND368 and SND368X	Send 368 Bytes	Peg register. Counts the number of messages sent from the core, of size > 296 bytes and <= 368 bytes. SND368X is an extension register.
SND512 and SND512X	Send 512 Bytes	Peg register. Counts the number of messages sent from the core, of size > 368 bytes and <= 512 bytes. SND368X is an extension register.
SNDLG and SNDLGX	Send Large	Peg register. Counts the number of messages sent from the core, of size > 368 bytes. SNDLGX is an extension register.
RCV48 and RCV48X	Receive 48 Bytes	Peg register. Counts the number of messages received by the core, of size <= 48 bytes. RCV48X is an extension register.
RCV96 and RCV96X	Receive 96 Bytes	Peg register. Counts the number of messages received by the core, of size > 48 bytes and <= 96 bytes. RCV96X is an extension register.
RCV160 and RCV160X	Receive 160 Bytes	Peg register. Counts the number of messages received by the core, of size > 96 bytes and <= 160 bytes. RCV160X is an extension register.
RCV224 and RCV224X	Receive 224 Bytes	Peg register. Counts the number of messages received by the core, of size > 160 bytes and <= 224 bytes. RCV224X is an extension register.
RCV296 and RCV296X	Receive 296 Bytes	Peg register. Counts the number of messages received by the core, of size > 224 bytes and <= 296 bytes. RCV296X is an extension register.

TOPUDPTH Registers

Short Register Name	Long Name	Explanation
RCV368 and RCV368X	Receive 368 Bytes	Peg register. Counts the number of messages received by the core, of size > 296 bytes and <= 368 bytes. RCV368X is an extension register.
RCVLG and RCVLGX	Receive Large	Peg register. Counts the number of messages received by the core, of size > 368 bytes. RCVLGX is an extension register.

Register release history update

All registers in this group were created in TOPS20/SN07/ISN07.

Associated registers

None.

Associated logs

None

Succession baseline information

Baseline information

This chapter provides information on all Succession Logs/faults, and on all Succession operational measurements (OMs), organized by network element. Some information appears in NE-specific Appendices to this document. Those appendices are referenced in the text of this chapter where appropriate.

Logs/Faults information

A log report is a record of a message that your system generates whenever a significant event has occurred in the switch or one of its peripherals. Log reports include status and activity reports, as well as reports on hardware or software faults, test results, changes in state, and other events or conditions likely to affect the performance of the switch. Either a system action or a manual action can generate a log report.

> ***Note:*** Some of the element managers use a graphical user interface (GUI), so they display faults on the workstation monitor screen rather than generating log reports.

Alarms are generated by the system when problems or conditions are detected that can change the performance or working state of a network or network element. Daily operation of the network requires monitoring for alarms and checking that functions continue without interruption. Alarms provide notification that a system hardware or software-related event has occurred.

Using Syslog in Succession

In SN06 an alternative is introduced to log/fault delivery from each separate element management system. Syslog can be used to aggregate some of the individual fault/log streams into the SCC2/NT STD stream on the CS 2000 Core Manager/SDM.

Succession will be using syslog in several ways:

- Alarms/Faults - custlog stream - Many element managers and network elements, including SDM Platform, CS 2000 SAM21 Manager, STORM, CS 2000 GWC Manager, UAS Manager, MDM (for PP15K MSS), and some CS 2000 Management Tools applications, use syslog as one mechanism for notify other systems of fault events. One consumer of those

fault events is the SCC2/NT STD log converter provided on the CS2000 Core Manager/SDM. The SCC2/NT STD log converter will collect events from those sources via the custlog format and merge those events into the SCC2/NT STD stream with the CS2000 Core fault events.

- Audit trail - Succession is also using syslog to capture the user audit trail our network elements and element mangers. The audit trail contains a history of significant user and OSS activity. Syslog is the only protocol which will contain the audit trail.
- Security log - Succession is also using syslog to capture the security logs from our network elements and element mangers. The security log contains both success and failure history of authentication and authorization activities. This stream will also contain security related events from IPSec/KCE and other key negotiation systems. Syslog is the only protocol which will contain the security log stream.
- Debug log - some components use syslog for diagnostic and debug information used by the Nortel support personnel. This stream is not exported beyond the EMSs and is not configured or documented for end user or customer access.

Alarm reporting for DMS and SPM-based equipment

The alarm reporting system integrates event detection and alarm notification functions. An alarm becomes active when reduced service, reliability, or a test condition occurs in the network or network element. The alarm remains active until a system event or activity performed by operating company personnel clears the alarm condition. The alarm system includes audible notification and visual display through warning lights and the MAP terminal. Many alarms generate automatic logs reports when raised or cleared.

For DMS and SPM-based equipment, the MAP terminal displays alarm codes in the banner and the subsystem status summary field (SSSF). The alarm banner displays alarm codes that indicate the effect of the alarm event on the network or network element. The SSSF displays alarm codes that indicate equipment faults of system states.

Alarm reporting for Passport 15000

The Preside MDM collects Passport 15000 and Preside MDM alarm and log data through Ethernet connections to each. The Preside MDM includes both graphical and command-line user interfaces to perform the various network management activities. Within the Preside MDM, device states, device subcomponents, and links are represented by a specific color. The mapping from state to color is user configurable. Alarms are presented on the Preside MDM with a color to distinguish the alarm severity. The color to alarm severity mappings are configurable.

Alarms generated by the Passport 15000 are sent to the Preside MDM. For the PT-AAL1 solution, the MDM sends alarms to the CS 2000 Core Manager for conversion to SCC2 or DMS STD format and subsequent forwarding to the OSS. For the UA-AAL1 solution, alarms are made available to the OSS through the MDM's fault APIs. These alarms are viewable through MDM surveillance tools, which includes Alarm display, Network Viewer, and Component Information Viewer.

Preside MDM alarm display
The Preside MDM tool provides a common format for viewing logs for Passport 15000 devices. The Alarm Display supports both Alarm Log and Active Alarm display modes, and provides both accept and reject filters to allow you to view a specific subset of alarms. This tool also provides access to diagnostic information for a selected alarm by using Alarm Help. In addition, the Alarm Display has an Alarm Acknowledgment utility that allows you to indicate that an alarm is being investigated. The indication shows the user who is responsible for the acknowledgement (or non- acknowledgement) and the reason for the acknowledgement (or non- acknowledgement).

For additional information about the Preside MDM, refer to the following documents:

- 241-6001-011, *Preside MDM Fault Management Guide*
- 241-6001-501, *Preside MDM Proxy Alarms Reference Guide*
- 241-6001-801, *Preside MDM Overview*

Log Delivery Service application
The Log Delivery Service application collects logs generated by the Communications Server 2000 (CS2000) and from the CS2000 Core Manager log stream, formats these logs, and can deliver them as a single stream to the downstream Operational Support Systems (OSS).

The CS2000 log feed includes logs for itself and all peripherals managed by it, such as: MG 4000, IW-SPM, DPT-SPM and SPM. Logs are generated locally on the CS2000 Core Manager for its own faults and status changes and are merged with the CS2000 feed. The Log Delivery Service application provides log reports in ASCII text format at a single interface for inbound or outbound TCP/ connections.

Passport Log Streamer application
In conjunction with the Log Delivery Service application, the Passport Log Streamer application allows the CS2000 Core Manager to also receive Preside MDM and Passport 15000 logs. When Passport Log Streamer comes into service it will connect with the Preside MDM and register for alarm events. All

active alarms currently tracked by the MDM will be transferred to the CS2000 Core Manager at this time.

When the Passport Log Streamer receives an event, it converts the event into an SCC2 or DMS STD format and sends the log to the CS 2000 Core Manager Log Delivery Application.

Log formats

The Log Delivery service provides reports in either Switching Control Center 2 (SCC2) or Standard (STD) format. Some of the high-level differences between SCC2 format logs and STD format logs are as follows:

- SCC2 has no CS2000 identifier as found in the top left hand corner of the STD log. This field is datafilled on the CS2000 in table OFCVAR, tuple LOG_OFFICE_ID.
- SCC2 logs do not contain the date in the header on which the log was generated.
- SCC2 logs only give the minutes past the hour in which the log was generated, while the STD log gives the hour, minutes, and seconds.
- A critical severity log is represented by *C in SCC2 format, and by *** in STD format.
- If applicable, the SCC2 log will have the name of the component and/or peripheral generating the log in the log header.
- When ECORE_FORMAT (table OFCVAR on the CS2K) is enabled, SCC2 formatted logs display the optional parameter NodeName on a new line immediately following the header. This new line is not indented and has the following format: Log from node <NodeName>.
- SCC2 headers (having less information) are less likely to have the Equipment Identifier field found in some logs wrapped to the next line. (See NT STD format definition section below).

See the following example to see the difference in the formats, using a CARR811 log.

Standard format:

```
ASN06SWITCH   * CARR811 FEB24 00:45:05 3320 TBL  CARRIER SPM  39
   CKT: 63  CarrName: SPM39_STS1P_1_VT15P_1_DS1P_28
   Carrier: STS1P  1 VT15P 28 DS1P   1
   UAS-N  Threshold Crossing Alert:         10
   Accumulation Interval:  0:00:10    Period: 15 minutes
   Location: SPM 39  Type: SMG4      Fabric: ATM
```

SCC2 format:

```
* 45 CARR811 3320 TBL  CARRIER SPM  39
```

```
CKT: 63  CarrName: SPM39_STS1P_1_VT15P_1_DS1P_28
Carrier: STS1P  1 VT15P 28 DS1P   1
UAS-N  Threshold Crossing Alert:         10
Accumulation Interval:  0:00:10    Period: 15 minutes
Location: SPM 39  Type: SMG4      Fabric: ATM
```

NT Standard log format and definitions

NT Standard log format:
<LogOfficeId>_<NodeName>_<POA><Threshold><LogName><ReportNumber>_<DateIndicator>_<TimeIndicator>_<SequenceNumber>_<EventType>_ <EventLabel>_<EquipmentIdentifier>CR
<LOG BODY>CR

where:

- The < and > denotes the beginning and end of a field.
- **Bold** text denotes optional fields that may or may not be there.
- CR = carriage return.
- <LOG BODY> = 0 to n lines of text - usually each line begins following an indentation of 8 spaces.
- _ denotes a space delimiter between fields.

Office Identifier <LogOfficeId>:

Field Length/Format: variable length (1 to 12 characters)
Field Value(s): typically an 11-character Office CLLI name
Comment: This field's value corresponds to what is datafilled in your switch's table OFCVAR, tuple LOG_OFFICE_ID. A maximum of 12 characters can be datafilled into the LOG_OFFICE_ID tuple. Normally though, the value of this tuple in customer sites matches that of the Office CLLI name. The Office CLLI name has a standard length of 11 characters. In the switch it is datafilled in table OFCENG, tuple OFFICE_CLLI_NAME. (So OFFICE_CLLI_NAME and LOG_OFFICE_ID would be datafilled the same). In a log sent downstream to an OSS, the Office Identifier field will be seen by the OSS as 1 word with no spaces. No padding of spaces with occur with this field to make it 12 characters. i.e. If the log_office_id value is 6 characters in length, the space following the field will be the delimiter to the next field.

Node Name:

Field Length/Format: fixed length (8 characters)
Field Value(s): Node name that is left justified within the 8 character field. Padding of spaces will occur to ensure 8 character length.

Comment: This optional field is generally not recommended for implementation. The value of the field is often “CM” which has low value and the extra 9 characters (8 + space) increases the length of the header. A longer header may result in line wrapping of the Equipment Identifier field which is present in some logs. A wrapped header is difficult for OSSs to accommodate.

Alarm Level Indicator / Priority of Action (POA) / Severity:
Field Length/Format: fixed length (3 characters)
Field Values: '***' or ' **' or ' *' or ' ' (Note the right justification of the *s).

Threshold:
Field Length/Format: 1 character field (Note: there are no space delimiters before/after)
Field Value(s): A + sign if the log is thresholded. A space if the log is not thresholded.

Log Name/Report Name/Log Prefix:
Field Length/Format: fixed length (4 characters)
Field Value(s): The log name is right justified within the 4 character field. Padding of spaces will occur at the beginning for names less than 4 characters. E.g. 'CARR' or ' SPM'. Note that the Log Name are the Report Number are considered a single entity. i.e. The SPM300 log.

Report Number:
Field Length/Format: fixed length (3 characters)
Field Value(s): The number will always be 3 digits. i.e. 100 to 999.

Date Indicator:
Field Length/Format: fixed length (5 characters); MMMDD where MMM is JAN through to DEC and DD is 01 through to 31
Field Value(s): E.g. DEC04

Time Indicator:
Field Length/Format: fixed length (8 characters); HH:MM:SS where HH is 00 through 23, MM is 00 through 59, and SS is 00 through 59
Field Value(s): E.g.: 20:39:13 or 00:00:00 or 23:59:59

Sequence Number:

Field Length/Format: fixed length (4 characters); NNNN where the range is 0000 through 9999
Field Value(s): E.g. 0000 or 2358 or 9999. Once 9999 is reached, the number will go back to 0000. In SDM, STD_OLD and SCC2_OLD formats should increment the sequence number by 1 and SCC2/STD formats increment the sequence number in the same fashion as the CS2K does. In IEMS, SCC2/STD formats increment the sequence number by 1.

Event Type:
Field Length/Format: fixed length (4 characters);
Field Value(s): Left justified text with spaces at the end to pad to 4 character length. Examples: 'INFO', 'TBL ', 'FLT ', 'OFFL', 'SYSB', ' ', and so on.

Event Label:
Field Length/Format: variable length of characters; can contain more than 1 word separated by spaces
Field Value(s): E.g.: “SDM BASE MAINTENANCE”, or “CARRIER”.

Equipment Identifier: (last field to be considered part of the header)
Field Length/Format: fixed length (4 characters) node type, followed by a space, followed by a numeric node number
Field Value(s): Node type portion is left justified and padded with spaces at the right if less than 4 characters. The node number portion is left justified. E.g. 'SPM 0', 'LIU7 43', 'SPM 71'.
Comment: This field is not found in all logs and should be considered rare. Known log types where this field is present are CARR and in some PM logs.

Log Body: (Not part of header. It follows the header).
Field Length/Format: Text in the log body usually follows an indentation of 8 spaces. Each line of text is variable in length.
Field Value(s): Can be anything but each unique log should typically always get sent out the door in the same format.

Notes

- Not all logs have an Equipment Identifier at the end of the header. There is no list of logs that have an Equipment Identifier and it would be an exhaustive task to determine all of which they are. Known log types that make use of the Equipment Identifier are CARR and PM. Since the Event Label can be any number of words separated by spaces, there is no obvious

delimiter between the Event Label and the Equipment Identifier beyond the space that will be present. There are a couple things OSSs can do with this: take the Event Label and Equipment Identifier as just 1 string of characters OR try to extract the Equipment Identifier out of the header independently of the Event Label. Note that the latter may not always be necessary because the body of the log may mention the Node as well. The presence of the Equipment Identifier in logs appears to be very rare and appears to be an old legacy thing that was done but isn't common practice anymore.

- For logs originating from the CS2000/XA-Core/DMS, Event Types and Event Labels for specific logs can be determined on the switch using the 'logutil' tool. In logutil, the 'listreps' and 'listroute' commands can be used to view that information. Note that the presence of a log in the tool's output list of logs does not mean that the log is actually active code where an OSS will see it downstream. Some are benign logs or development not yet completed that are sometimes listed there.

Example

```
LOGUTIL:
>listreps spm
Log  Rep.    Event              Suppressed/
Name  No. Class Type  Event Label Thresholded Syslog
-------------------------------------------------
 SPM  650   0   PASS
 SPM  651   0   FAIL
 SPM  300   0   TBL   Device Fault Report
 SPM  331   0   TBL   Failed Device Pro...
 ....
 SPM  709   0   INFO  SPM ISDNPROT DDM ...
 SPM  710   0   INFO  SPM ISDNPROT DDM ...
XX report(s)  printed
>listroute report spm 710
REPORT   SPM 710 (SPM ISDNPROT DDM Audit)  IS CLASS  0
ADDED:
DELETED:
```

- An actual SDM log sample file or feed should be analyzed for determination of a log's character by character format information. For determining things such as how many carriage returns there are between logs, or where spaces are, this is crucial. Note that a log header for a specific log very rarely changes in going from one software release to the next. The only fields that could change is the Severity, Event Type, Event Label and presence of an Equipment Identifier. Changes would be as a result of a feature change or resolve an issue with those fields' values.

Audio Codes Media Server (AMS)--available logs/faults for Succession

The following table lists the AMS logs available in Succession. The MS2020 server is for ATM networks. For detailed information on logs, refer to NN10275-909, *Succession Fault Management Log Reference.*

AMS Logs/Faults available in Succession

Log/Fault	Description
AMS300	ac Board Resetting Cleared only by a acBoardEvBoardStarted trap; or ac Board Fatal Error
AMS301	ac Board Configuration Error
AMS302	ac Board Temperature Alarm
AMS303	ac Feature Key Error
AMS304	ac Board Call Resources Alarm
AMS305	ac Board Controller Failure Alarm
AMS306	ac Board Ethernet Link Alarm
AMS307	ac Board Overload Alarm
AMS308	ac Active Alarm Table Overflow
AMS309	ac Atm Port Alarm
AMS500	ac Board Event Board Started. This trap is a signal to clear the active alarm table.
AMS501	cgw Administrative State Change

Audio Provisioning Server (APS) --available logs/faults for Succession

The following table lists the APS logs available in Succession. For detailed information on logs, refer to NN10275-909, *Succession Fault Management Log Reference.*

APS Logs/Faults available in Succession

Log/Fault	Description
APS398	Indicates a raised alarm in the APS device.
APS399	Indicates an alarm clear in the APS device.

Compact Call Agent (CCA)--available logs/faults for Succession

The following table lists the Compact Call Agent Logs/Faults available in Succession. These logs were also previously referred to as 3PC.
Call Agent supports SCC2 or NT STD formatted logs through SDM functionality, or it can be supported through IEMS. For details on the IEMS

interface, refer to the section in this document titled “SN07 IEMS Functionality.” For details on the SDM protocol/format, refer to FCAPS documentation NN10023-111. For detailed information on logs, refer to NN10275-909, *Succession Fault Management Log Reference.*

CCA Logs/Faults available in Succession

Log/Fault	Description
Network Element: Call Agent	For details on these Logs/Faults, refer to the Fault section of documentation related to Compact CS2K, NN10023-911.
CCA300	Response to a minor, major, or critical alarm; indicates that free space in RAM is low. Severity is determined by the amount of free space remaining.
CCA301	Response to a minor, major, or critical alarm; indicates one or more time segments has exceeded the threshold. Severity is determined by the number of time segments affected.
CCA302	Response to a minor, major, or critical alarm; indicates that free space on the root file system is low. Severity is determined by the amount of free space remaining.
CCA303	Response to minor, major, or critical alarm; indicates that one or more software processes have terminated abnormally. Severity is determined by the number of process affected.
CCA304	Response to a minor, major, or critical alarm; indicates that one or more Network File Systems is inaccessible. Severity is determined by the number of systems affected.
CCA305	Response to a minor, major, or critical alarm; indicates that time synch is lost to one or more NTP servers. Severity is determined by the number of servers affected.
CCA309	Response to a major or critical alarm; may be a PCI bus fault, an ECC memory fault, or a parity error. A critical alarm requires card replacement.
CCA315	SOS application simplex
CCA316	SOS application is out-of-service
CCA322	Image test failed
CCA331	Unable to communicate to mate via ethernet/fiber
CCA335	Ethernet interface down
CCA336	Unable to communicate to the network
CCA351	Response to major CON and APL alarms because the mate Call Agent unit is unavailable.
CCA355	Response to a minor alarm; indicates the inactive unit is jammed to prevent a SWACT.
CCA362	Response to a minor alarm; indicates at what point one or more REx tests has failed.
CCA365	System REx has not started for over 7 days
CCA375	One unit has a different CPU type than the other
CCA380	One unit has a different committed patch file version than the other
CCA600	Indicates the alarm referenced in log CCA300 has been cleared.
CCA601	Indicates the alarm referenced in log CCA301 has been cleared.
CCA602	Indicates the alarm referenced in log CCA302 has been cleared.

CCA Logs/Faults available in Succession

Log/Fault	Description
CCA603	Indicates the alarm referenced in log CCA303 has been cleared.
CCA604	Indicates the alarm referenced in log CCA304 has been cleared.
CCA605	Indicates the alarm referenced in log CCA305 has been cleared.
CCA609	Indicates the alarm referenced in log CCA309 has been cleared.
CCA615	Alarm referenced in CCA315 has been cleared
CCA616	Alarm referenced in CCA316 has been cleared
CCA620	Image test started
CCA621	Image test finished
CCA631	Able to communicate via ethernet/fiber
CCA635	Ethernet interface ok
CCA636	Able to communicate to the network
CCA651	Indicates the alarm referenced in log CA351 is cleared and duplex operation is restored.
CCA655	Indicates the alarm referenced in log CA355 is cleared.
CCA660	Response to a minor alarm; indicates that a REx test has started.
CCA661	REx test finished
CCA663	REx test rejected
CCA665	Alarm referenced in CA365 has been cleared
CCA670	Swact failover started
CCA671	Swact failover finished
CCA675	Alarm referenced in CA375 has been cleared
CCA680	Alarm referenced in CA380 has been cleared

CS2K Management Tools (CMT)--available logs/faults for Succession

The following table lists the CS2000 Management Tools logs available in Succession. CS2K supports SCC2 or NT STD formatted logs through SDM functionality, or it can be supported through IEMS. For details on the IEMS interface, refer to the section in this document titled “SN07 IEMS Functionality.” For details on these logs, refer to the Fault Management section of CS2K Management Tools, NN10325-900. For detailed information

on logs, refer to NN10275-909, *Succession Fault Management Log Reference.*

CS2K Management Tools Logs/Faults available in Succession

Log/Fault	Description
CMT300	Critical. Data is mismatched between the SESM server and the Core. The SESM audit, CS2K Data Integrity Audit, has 10 unresolved problems. To view and correct the problems, open the audit problem report from the Audit System found under the SESM Maintenance menu item.
CMT301	Critical. The GWC element manager cannot download data to GWC on recovery so the process has terminated early, and the GWC remains out of service. To clear, determine and remedy the cause of the data download failure.
CMT302	Critical. The SNMP poller cannot communicate to the network device. To clear, determine and remedy the cause of the SNMP timeout.
CMT399	Indicates a cleared alarm in the CMT device

SAM21--available logs/faults for Succession

The following table lists the SAM21 Logs/Faults available in Succession. The Shelf Controller Unit (SCU) raises alarms on behalf of itself or on behalf of the cards in the I/O slots, power sleds, fan sleds and power supply. Therefore, the alarm IDs for some of the alarms will have the same label, but the slot location that is included in the body of the alarm will indicate the actual card that is having problem. Alarms with the label IPOA are the alarms raised by the SCU with the PMC ATM card.

SAM21 supports SCC2 or NT STD formatted logs through SDM functionality, or it can be supported through IEMS. For details on the IEMS interface, refer to the section in this document titled “SN07 IEMS Functionality.” For details on the logs/faults themselves, refer to the Fault Management section of SAM21 FCAPS documentation NN10089-911. For detailed information on logs, refer to NN10275-909, *Succession Fault Management Log Reference.*

SAM21 Logs/Faults available in Succession

Log/Fault	Description
Network Element: SAM21 Platform	
SCU310	Shelf controller unit. CPU load is high Major. The One minute load average is greater than 20. Critical. The five minute load average is above 15, or the fifteen minute load average is above 7.
SCU332	Shelf controller unit. Memory usage is high Major. Total free memory has fallen below 15%. Critical. Total free memory has fallen below 10%.

SAM21 Logs/Faults available in Succession

Log/Fault	Description
SCU349	Shelf controller unit Disk usage is high.
	Major. Total free space on the root file system has fallen below 10%. Critical. Total free space on the root file system has fallen below 5%.
SCU346	Shelf controller unit. Large number of processes abnormally terminated
	Major. More than 4 zombie processes in system. Critical. More than 15 zombie processes in system.
SCU329	Shelf controller unit. Loss of communications either to its mate or to the SDM.
	Minor. The upper or lower serial cable connection is down.
	Major. This shelf controller cannot ping its mate through the ethernet interface
	Major. This shelf controller cannot ping the SDM, but can ping its mate
	Major. Both the lower (upper) serial cable and the mate's Ethernet are not connected.
	Major. This shelf controller cannot ping the SDM, but can ping its mate. The upper (lower) serial cable connection is down.
	Major. Both serial cable connections are down.
	Critical. Shelf cannot ping its mate or the SDM through the Ethernet interface.
	Critical. Shelf cannot ping its mate or the SDM through the Ethernet interface. The upper (lower) serial cable connection is down.
	Critical. This shelf controller cannot ping its mate through the Ethernet interface. Both serial cable connections are down. No synching of state changes are occurring.
	Critical. The shelf cannot see out at all.
SCU335	Major: Power Supply in Sled 1/2/3 has been removed. Most likely the whole sled has been removed.
	Critical. Power Supply in Sled 1/2/3 is down. The power supply in that sled has failed.
SCU315	Major. Fan in Sled 1/2/3 has been removed. Fan has been removed from the sled, or the entire sled has been removed.
	Critical. Fan in Sled 1/2/3 is down Fan has failed.
SCU335	Critical. Power feed 1/2 is down. Either the feed has failed, or the cable has been removed.
SCU356	Critical. Mate Shelf Controller Down. Operating in Simplex Mode. The inactive SC has been detached, or Mama on the active SC has not received a ping from the inactive SC in 20 seconds.
SCU315	Major. Temperature in Sled 1/2/3 is High. Temperature in the sled has reached about 40 degrees.
	Critical. Temperature in Sled 1/2/3 is High. Temperature in sled has reached about 50 degrees.

SAM21 Logs/Faults available in Succession

Log/Fault	Description
SCU301	Critical. Extension Bridge in Slot 15/16 is Down/Up. Depending on the actual text, one or both of the Extension Bridges has been detached and/or removed.
SCU315	Major. Diagnostic Failed during testing in a non-system card at the specified I/O Slot A diagnostic test was run, and the board failed at least one of the tests.
	Major. Diagnostic Failed due to SWACT in a non-system card at the specified I/O Slot. A diagnostic test was interrupted by a SWACT.
	Major. Diagnostic Failed n a non-system card at the specified I/O Slot for a specified reason. The diagnostic failed due to the reason stated. (There are 11 possible statements.)
SCU346	Critical. Firmware Flashing could not connect to the non-system card at the specified I/O Slot. Either there is another process currently attached to the board, or the bus is too busy to allow the request. Auto Flash is now turned off on the SC for this slot.
	Critical. Firmware Flashing failed at downloading firmware to the non-system card at the specified I/O Slot. The firmware file does not exist on the SDM or has incorrect parameters.
	Critical. Firmware Flashing failed at validating firmware to the non-system card at the specified I/O Slot.The firmware file is corrupt on the SDM, or there was an error in the transfer.
	Critical. Firmware Flashing failed at backing up the firmware to the non-system card at the specified I/O Slot. The copy operation from one bank to the other failed. Possible bad memory.
	Critical. Firmware Flashing failed flash to the non-system card at the specified I/O Slot. Could not connect to the board after the flash.
	Critical.Provision of a non-system card at the specified I/O Slot. Provisioning of the board failed due to some system problem. System may have been abnormally busy.
SCU500	Reports a change in state of a card. The new state can be Unlocked, Enabled, or None.
SCU501	Reports an equipment insertion, specifying the shelf, card, and slot.
SCU502	Reports an equipment removal, specifying the shelf, card, and slot.
IPOA301	A system log in response to a loss of cell delineation (LCD) alarm from SC-IPoA card.
IPOA302	A system log in response to a SONET carrier fault of type AIS from the SC-IPoA card
IPOA304	A system log in response to an ATM connection set fault detected by the SAM21 Element Manager.

SAM21 Logs/Faults available in Succession

Log/Fault	Description
IPOA305	Minor: The combined traffic of all the SVCs connected to this Shelf Controller has reached 70% of the capacity of the ATM interface. Major: The combined traffic of all the SVCs connected to this Shelf Controller has reached 80% of the capacity of the ATM interface. Critical: The combined traffic of all the SVCs connected to this Shelf Controller has reached 90% of the capacity of the ATM interface.
IPOA801	A system log in response to an ATM CRC32 threshold fault.
SM21300	A system log in response to an alarm that there has been a loss of communication, and the remote network is down.
LOS/LOF AIS-L/RDI-L AIS-P/RDI-P LOP	These4 section, line and path faults indicate that SONET connectivity between the SC and the far end node is unavailable on one fiber.
ATM Overrun Count	Indicates the number of times cells were dropped due to a shortage of buffer space.
ATM Overrun Date	Indicates the date of the last overrun.
CPU load high	Major. The One minute load average is greater than 20. Critical. The five minute load average is above 15, or the fifteen minute load average is above 7.
Memory usage high	Major. Total free memory has fallen below 15%. Critical. Total free memory has fallen below 10%.
Disk usage high	Major. Total free space on the root file system has fallen below 10%. Critical. Total free space on the root file system has fallen below 5%.
Large number of processes abnormally terminated	Major. More than 4 zombie processes in system. Critical. More than 15 zombie processes in system.
Loss of Communications: Serial Connection 1 (2) is down	Minor. The upper (lower) serial cable connection is down.
Loss of Communications: Mate Ethernet is down	Major. This shelf controller cannot ping its mate through the ethernet interface.
Loss of Communications: Remote network is down.	Major. This shelf controller cannot ping the SDM, but can ping its mate.

SAM21 Logs/Faults available in Succession

Log/Fault	Description
Loss of Communications: Mate Ethernet, Serial Connection 1 (2) is down.	Major. Both the lower (upper) serial cable and the mate's Ethernet are not connected.
Loss of Communications: Remote network, Serial connection 1 (2) is down.	Major. This shelf controller cannot ping the SDM, but can ping its mate. The upper (lower) serial cable connection is down.
Loss of Communications: Serial Connection 1, Serial Connection 2 is down.	Major. Both serial cable connections are down.
Loss of Communications: Local Ethernet interface is down.	Critical. Shelf cannot ping its mate or the SDM through the Ethernet interface.
Loss of Communications: Local Ethernet interface, Serial Connection 1 (2) is down	Critical. Shelf cannot ping its mate or the SDM through the Ethernet interface. The upper (lower) serial cable connection is down.
Loss of Communications: Mate Ethernet, Serial Connection 1, Serial Connection 2 is down	Critical. This shelf controller cannot ping its mate through the Ethernet interface. Both serial cable connections are down. No synching of state changes are occurring.
Loss of Communications: All Communications Paths Down	Critical. The shelf cannot see out at all.
Power supply in Sled 1/2/3 has been removed.	Major. Most likely the whole sled has been removed.
Power supply in Sled 1/2/3 is down.	Critical. The power supply in that sled has failed.

SAM21 Logs/Faults available in Succession

Log/Fault	Description
Fan in Sled 1/2/3 has been removed	Major. Fan has been removed from the sled, or the entire sled has been removed.
Fan in Sled 1/2/3 is down	Critical. Fan has failed.
Power Feed 1/2 is down.	Critical. Either the feed has failed, or the cable has been removed.
Mate Shelf Controller Down. Operating in Simplex Mode.	The inactive SC has been delatched, or Mama on the active SC has not received a ping from the inactive SC in 20 seconds.
Temperature in Sled 1/2/3 is High	Major. Temperature in the sled has reached about 40 degrees.
Temperature in Sled 1/2/3 is High.	Critical. Temperature in sled has reached about 50 degrees.
Extension Bridge in Slot 15/16 is Down/Up.	Critical. Depending on the actual text, one or both of the Extension Bridges has been detached and/or removed.
Diagnostic Failed at test case.	Major. A diagnostic test was run, and the board failed at least one of the tests.
Diagnostic Failed due to SWACT	Major. A diagnostic test was interrupted by a SWACT.
Diagnostic Failed, xxxxxx	Major. The diagnostic failed due to the reason stated. (There are 11 possible statements.)
Firmware Flashing could not connect to the board.	Critical. Either there is another process currently attached to the board, or the bus is too busy to allow the request. Auto Flash is now turned off on the SC for this slot.
Firmware Flashing failed at downloading firmware	Critical. The firmware file does not exist on the SDM or has incorrect parameters.
Firmware Flashing failed at validating firmware	Critical. The firmware file is corrupt on the SDM, or there was an error in the transfer.
Firmware Flashing failed at backing up the firmware.	Critical. The copy operation from one bank to the other failed. Possible bad memory.
Firmware Flashing failed flash	Critical. Could not connect to the board after the flash.

SAM21 Logs/Faults available in Succession

Log/Fault	Description
Provision failed: process ended abnormally. Provision failed, could not connect to board. Provision failed to set application type.	Critical. Provisioning of the board failed due to some system problem. System may have been abnormally busy.
Capacity Alarm Minor	The combined traffic of all the SVCs connected to this Shelf Controller has reached 70% of the capacity of the ATM interface.
Capacity Alarm Major	The combined traffic of all the SVCs connected to this Shelf Controller has reached 80% of the capacity of the ATM interface.
Capacity Alarm Critical	The combined traffic of all the SVCs connected to this Shelf Controller has reached 90% of the capacity of the ATM interface.

CS2000--available logs/faults for Succession

The following table lists the CS 2000 Logs/Faults available in Succession. CS 2000 supports SCC2 or NT STD formatted logs through SDM functionality, or it can be supported through IEMS. The SDM would remain the CS2000 Core Manager but can forward the CS2000 logs to IEMS instead of directly to the OSS. For details on the IEMS interface, refer to the section in this document titled "SN07 IEMS Functionality." For details on the logs/faults themselves, refer to the Fault Management section of CS 2000 FCAPS documentation, NN10083-911. For information on XA-Core logs and faults, refer to NTP 297-8991-810, *XA-Core Reference Manual.* For detailed information on logs, refer to NN10275-909, *Succession Fault Management Log Reference.*

CS2000 Logs/Faults available in Succession

Log/Fault	Description	
Network Element: CS2000		
Alarm Database logs	Report Alarm Log	Sent when requested by the entity that is reporting an alarm.
	Clear Alarm Log	Generated when a client clears an existing alarm in the alarms database managed by Alarmd.
	Alarm Summary Log	Sent periodically by Alarmd to summarize the Alarms in the database managed by Alarmd.

CS2000 Logs/Faults available in Succession

Log/Fault	Description	
ATM log	ATM606	Deleted in SN07. Replaced by XPKT301 and XPKT302
AUDT logs	AUDT105	Trunk state incorrect.
	AUDT106	Call is forced down due to the release of a trunk.
	AUDT109	Trouble conditions detected.
	AUDT110	Terminal trunk state is invalid.
	AUDT116	Terminal state indicator (TSI) of an idle trunk is invalid.
	AUDT117	TSI (terminal state indicator) of a given call state and the CCB (call condense block) TSI do not match.
	AUDT209	Generated whenever the audit process finds a problem with a multi CPTLB.
Baseln alarm		“Baseln” alarm is raised whenever any XA-Core Field Replaceable Unit (FRU) installed in the shelf is not at Hardware (HW) or Firmware (FW) baseline. Only the Major level is used.
C7UP logs	C7UP100	No acknowledgment received from far-end office after circuit reset, group circuit reset, blocking or unblocking, group blocking or unblocking, or release messages. For field descriptions and actions, see Logs Reference Manual (Volume 1), 297-2621-840.
	C7UP101	Unreasonable message received on trunk.
	C7UP102	CCS7 connection is released due to abnormal condition.
	C7UP103	Blocked or unblocked circuit conditions.
	C7UP104	Group blocking or unblocking conditions.
	C7UP105	Unsuccessful ISDN call attempt.
	C7UP106	Shortage of resources.
	C7UP107	Request for continuity check test by an IAM (Initial Address Message), a continuity check request (CCR) message, or a demand continuity test (DCT) from the MAP.
	C7UP109	ISUP trunk state change to match far-end office trunk state.
	C7UP110	Serious communication problem with far-end office.
	C7UP111	Outgoing call attempt failure.
	C7UP112	Call in progress has received an unreasonable message in the current call state.
	C7UP113	ISUP trunk maintenance problem.
	C7UP114	Response from far-end office not received from a REL (circuit release) or RSC (reset circuit) message.
	C7UP119	ISUP has not received, from the far-end office, second GRS (circuit group reset), CGB (circuit group blocking), or CGU (circuit group unblocking) message.

CS2000 Logs/Faults available in Succession

Log/Fault	Description	
	C7UP120	ISUP invalid number in circuit-group message RANGE field (0 or a number greater than 23).
	C7UP130	System has detected that the hop counter (HC) limit has been exceeded. For details, see Logs Reference Manual (Volume 2), 297-2621-840 and the CS2000 fault information.
	C7UP300	ISUP trunk time-out waiting for acknowledgement from first RLC (remote line controller).
	C7UP301	System has received a release message with the value “Exchange Routing Error.”
CARR logs	CARR300	Carrier failure event occurred. Also applies to STS-1 carrier. For more information, see general SPM fault information.
	CARR310	Carrier failure events are cleared. Also applies to an STS-1 carrier. For more information, see general SPM fault information.
	CARR330 (Int’l only)	A protection switch has occurred. A previously inactive carrier in the protection group takes over as the active carrier.
	CARR331 (Int’l only)	A protection switch was attempted but failed.
	CARR340 (Int’l only)	The inactive carriers in a protection group have changed state in such a way that they cannot carry traffic. The protection group is now running in simplex mode.
	CARR341 (Int’l only)	Both carriers have become available and normal protection switching can occur.
	CARR500	Carrier state change to InSv from ManB or SysB. For more information, see general SPM fault information.
	CARR501	Carrier state change to CBsy from ManB or SysB. For more information, see general SPM fault information.
	CARR510	Carrier state change to SysB from InSv or CBsy. For more information, see general SPM fault information.
	CARR511	Carrier state change to SysB from InSv or CBsy. For more information, see general SPM fault information.
	CARR512	OC3 carrier state change to CBsy from InSv, ManB, or SysB. For more information, see general SPM fault information.
	CARR800	Threshold crossing alert (TCA) for a metered performance parameter has been cleared. For more information, see general SPM fault information.
	CARR810	TCA event for metered performance parameter has occurred. For more information, see general SPM fault information.
	CARR811	TCA event for non-metered performance parameter has occurred. Also applies to STS-1 carrier on MG4000. For more information, see general SPM fault information.

CS2000 Logs/Faults available in Succession

Log/Fault	Description	
DQoS alarm	This raises a DQoS link alarm when link failure occurs.	
EXT log	EXT108	Generated upon raising and clearing of EXT alarm HIGH_MEM_BLOCKING.
EXT alarm	HIGH_MEM_ BLOCKING	Appears at the MAPCI EXT alarm banner when there is a high memory blocking level detected in the system. Correlates to XACP300 log when raised, and to XACP500 log when cleared.
FPS log	FPS100	Generated when the FPS counter of a subscriber is loaded.
SFPS log	SFPS100	Generated when a craft person enters an invalid LFPS password three times.
GAME logs	GAME101	Created if the RSPTMOUT OM count is greater than zero. The log is created during the RSPTMOUT OM transfer period and records the RSPTMOUT OM count value.
	GAME102	Created if RSPTMOUT OM count becomes equal to the office parm T1_TIMER _EXPIRY_MSG_SUPPRESS threshold value.
ITN log	ITN307	An INFO log to indicate that IP transmit failed.
LINE log	LINE811	Generated when the SYSB_LINES alarm is raised or cleared.
LOST logs	LOST101	Generated when an outgoing message fails to find an open path to the destination or an incoming message fails checks done by the receiving application.
	LOST102	Generated when an incoming message cannot be forwarded to Call Processing because software resources (buffers) have been exhausted or the limit for outstanding messages has been exceeded and no additional messages can be enqueued.
	LOST103	Generated when a message that originated from the CM is rebounded back to the CM for additional processing because a node intermediate along the path was unable to deliver the message to the final destination. The failure code instructs the CM to attempt to re-route the message over an alternate path but the original message contains the re-route inhibit flag
	LOST104	Generated when an outgoing message fails a VID-to-TID translation or an incoming message fails sanity checks on the terminal identifier (TID).
	LOST105	Generated when an outgoing message fails to find an open CM-MS link. Also generated when a message that originated from the CM is rebounded back to the CM for additional processing because a node intermediate along the path was unable to deliver the message to the final destination. The failure code instructs the CM to attempt to re-route the message over an alternate path but sanity checks fail on the original route.

CS2000 Logs/Faults available in Succession

Log/Fault	Description	
	LOST106	Generated when a message fails application sanity checks. Also generated when a message that originated from the CM is rebounded back to the CM for additional processing because a node intermediate along the path was unable to deliver the message to the final destination. The failure code indicates “unspecified reason.”
	LOST107	Generated when an incoming message specifies an unassigned terminal identifier (TID).
	LOST108	Generated when the buffer (containing an outgoing message) is reclaimed by a system audit. The message is deemed to be stale as the buffer has not been accessed for a long period of time.
	LOST109	Generated when a message that originated from the CM is rebounded back to the CM for additional processing because a node intermediate along the path was unable to deliver the message to the final destination. The failure code instructs the CM to attempt to re-route the message over an alternate path but all alternatives have been previously tried without success.
	LOST110	Generated when Call Processing gets a failure indication on attempting to output a message).
	LOST111	Generated when an incoming message cannot be delivered. The specific failure reason is displayed in the log.
	LOST112	Generated when an outgoing message fails sanity checks on length or an incoming message fails sanity checks on length.
	LOST113	Generated when the needed software resources are again available. The log displays the number of discarded events during the period of exhausted resources
	LOST114	Generated when an incoming (BFP) message cannot be forwarded to Call Processing due to message buffer exhaustion. This is similar to the more generic LOST102 log
	LOST115	Generated when the (BFP) buffer (containing an incoming message) is reclaimed by a system audit. The message is deemed to be stale as the buffer has not been accessed for a long period of time. This is similar to the more generic LOST108 log.
	LOST116	Generated when an outgoing message encounters a failure. The specific failure reason is displayed in the log
	LOST117	Generated when an outgoing message encounters a failure. The specific failure reason is displayed in the log.
NWM logs	NWM102	Cancel To (CANT) control is applied to or removed from a specific trunk group. For details, see CS2000 configuration information and Solution-level configuration information.
	NWM103	Cancel From (CANF) control is applied to or removed from a specific trunk group. For details, see CS2000 configuration information and Solution-level configuration information.

CS2000 Logs/Faults available in Succession

Log/Fault	Description	
	NWM104	SKIP control is applied to or removed from a specific trunk group. For details, see CS2000 configuration information and Solution-level configuration information.
	NWM107	Flexible ReRoute (FRR) control is applied to or removed from a specific trunk group. For details, see CS2000 configuration information and Solution-level configuration information.
	NWM202	HTR code has been added to or deleted from EADAS or MAP terminal. For details, see CS2000 configuration information and Solution-level configuration information.
SPFS logs	SPFS310	SPFS310 is generated for the following reasons: • when the CPU load Average threshold is exceeded, or when the related Major or Minor alarm is cleared. • when the Swap Space usage threshold is exceeded, or when the related Critical or Major alarm is cleared. • when the Memory usage threshold is exceeded, or when the related Major or Minor alarm is cleared.
	SPFS350	Generated when the File System is not mounted, the File System usage threshold is exceeded, a File System read/write failed, or when the related Critical, Major or Minor alarm is cleared.
STOR logs	STOR605	(Critical) Output when the Store Audit has detected a corruption in the Bstree structures containing the information about the data address space STOR is responsible for.
	STOR606	Indicates that the Store Audit has found a corruption in the allocation information for data store which is dumped (such as DSPROT) and it is very likely that a attempt to perform a dump while in this state would fail.
	STOR607	Generated when the Store Audit detects a mismatch between the Store Allocator's internal setting of an address' blocking attribute and the actual setting of the attribute in memory hardware.
SYSB line alarm	SysB Lns	SysB Lns is raised when any of 3 thresholds are exceeded for the number of LGRPs in SYSB. The severity depends on which threshold is crossed.
TOPS logs	TOPS131	Generated when problems occur in the call flow for the activity TOPS Wireless Automated Directory Assistance Call (ADACC) with Release. SN07 adds additional text reasons to the Reason field and a new field, Wireless type, which indicates whether the log was generated on an IS-41 or GSM call.
	AUD690	Generated when a TOPS calls ends unexpectedly with an IS41TOPS extension block attached. This feature was created as part of TOPS19 -- SN06.
TRK logs	TRK101	Percentage of busy trunks in a trunk group exceeded the threshold value for a minor alarm.

CS2000 Logs/Faults available in Succession

Log/Fault	Description	
	TRK102	Major alarm threshold reached or exceeded.
	TRK103	Number of trunks in a trunk group exceeded threshold value for a critical alarm.
	TRK104	Percentage of busy trunks dropped below a threshold value.
	TRK110	Trunk state change to SysB (system busy) LO (Lockout) from CPB (call processing busy).
	TRK112	Request to take trunk off the lockout (LO) list and RTS (return to service) initiated by a manual request from the LTP MAP display level or by a system request.
	TRK122	Both planes of the trunk equipment have lost accuracy detected by central control (CC).
	TRK123	Peripheral processor (PP) has sent a wrong message to central control.
	TRK138	Call routed for treatment after system was call processing busy (CPB).
	TRK151	Blue Box Fraud (BBF) detection activated.
	TRK152	Blue Box Fraud (BBF) detection deactivated.
	TRK153	Blue Box Fraud (BBF) call detected.
	TRK154	Blue Box Fraud (BBF) call disconnected to identify calling and called parties.
	TRK155	Emergency Service Bureau (ESB) originating the call is off-hook longer than the time designated in customer table TRKGRP.
	TRK164	External call routed through local office to a distant office that has requested calling line identification (CLI).
	TRK251	UCS: trouble with an invalid authcode.
	TRK255	UCS: trouble with database.
	TRK257	UCS: trouble translating a partition number to STS due to an invalid partition.
	TRK258	UCS: trouble translating STS to partition number, due to an invalid STS.
	TRK355	Trunk idle queue sanity trouble or rebuild.
	TRK420	UCS: invalid authcode.
	TRK424	First call processing threshold error; failed diagnostic test; and call processing error threshold appears again within 15 minutes of the diagnostic test.
TRKT logs	These logs are only generated if OFCVAR office parameter GENERATE_TRKT_LOGS is activated. Otherwise, TRK138 logs are generated with an appropriate treatment reason.	
	TRKT200	ANI Database Failure.
	TRKT201	ANI Account Status Not Allowed.

CS2000 Logs/Faults available in Succession

Log/Fault	Description	
	TRKT202	ANI Acct. Recently Disallowed.
	TRKT203	Calling Card Invalid
	TRKT204	Calling Card Time-out
	TRKT205	General No Circuit
	TRKT206	Reorder
	TRKT207	Restricted Date Time
	TRKT208	Storage Overflow Reorder
	TRKT209	Start Signal Time-out
	TRKT210	Start Signal Time-out
	TRKT211	Vacant Code
	TRKT212	Vacant Country Code
	TRKT213	Trigger Block
	TRKT214	(Under development)
UNB log	UNB306	Output if the PIC or LATA fields are deleted.
VAMP log	VAMP901	SN07 modifies it to display the new Business Customer ID parameter, and to make possible an additional value in the Digits Type subfield of the AMA Digits parameter.
	VAMP902	Output when the VPTrace CI tool is enabled and an outbound message is sent through the VAMP framework to the SCP. The VAMP902 log might display the subscription type through the SUBINFO field. SN07 adds CARRIER as a possible value for this field.
XAC logs	XAC300	Low Shared Memory (SM) condition. Accompanied by LowSM alarm.
	XAC302	Low Processor Element (PE) condition. Accompanied by LowPE alarm.
	XAC303	MScomm (Message Switch Communication) problem. Accompanied by MScomm alarm.
	XAC304	TOD (Time of Day clock) problem. Accompanied by TOD alarm.
	XAC305	RTIF (Reset Terminal Interface) problem. Accompanied by RTIF alarm.
	XAC306	Disk problem. Accompanied by DISK alarm.
	XAC307	Tape problem. Accompanied by TAPE alarm.
	XAC308	Image Test failure. Accompanied by Image alarm.
	XAC309	Loss of communication between the AMDI packlet and any MG4000.
	XAC310	Card manual busy.
	XAC312	IOP fault. Accompanied by IOPflt alarm. Modified in SN07 to display the new CMIC and RTIF port device and CMIC and RTIF packlets and links.

CS2000 Logs/Faults available in Succession

Log/Fault	Description	
	XAC320	FLT. SysBTh Alarm Raised.
	XAC321	WgSlot (Shelf Audit Failure - Card Configuration). Accompanied by WgSlot alarm.
	XAC322	PETrbl. Accompanied by PETrbl alarm.
	XAC323	SMTrbl. Accompanied by SMTrbl alarm.
	XAC324	IOTrbl. Accompanied by IOTrbl alarm.
	XAC325	RIBKEY detected. Accompanied by RIBKey alarm.
	XAC326	MS Link configuration mismatch.
	XAC327	WgSlot (Card inserted into wrong slot). Accompanied by WgSlot alarm.
	XAC329	Loss of communication with XA-Core or loss of Ethernet link redundancy. Associated with the following OM groups: XETHRMJU, XETHRCRU, XETHR, XETHRPRT, and XETHRLNK.
	XAC330	FW version mismatch. Accompanied by FWvers alarm.
	XAC333	FW loading failure.
	XAC337	Raised when the Baseln alarm is first raised, or the Baseln alarm is still raised and the non-baseline component list changes.
	XAC400	XA-Core summary report.
	XAC413	REx schedule failure. Accompanied by RExSch alarm.
	XAC415	Routine exercise report. SN07 adds “not at baseline” as a reason for not running the SREx test.
	XAC420	INFO. SysBTh Ctrl Change.
	XAC600	LowSM condition cleared.
	XAC601	MemLim condition cleared.
	XAC602	LowPE condition cleared.
	XAC603	MScomm alarm cleared.
	XAC604	TOD alarm cleared.
	XAC605	RTIF alarm cleared.
	XAC606	DISK alarm cleared.
	XAC607	Tape alarm cleared.
	XAC608	Image alarm cleared.
	XAC609	AMDI link condition cleared.
	XAC610	Card returned to service. Modified in SN07 to display the new CMIC and RTIF port device and CMIC and RTIF packlets and links.
	XAC612	IOP alarm cleared.

CS2000 Logs/Faults available in Succession

Log/Fault	Description	
	XAC613	REx schedule report.
	XAC614	XATrap alarm cleared.
	XAC615	REx started.
	XAC618	Split (Split mode entered).
	XAC619	Split mode exited.
	XAC620	INFO. SysBTh Alarm Cleared.
	XAC622	PETrbl alarm cleared.
	XAC623	SMTrbl alarm cleared.
	XAC624	IOTrbl alarm cleared.
	XAC625	RIBKEY removed.
	XAC626	MS Link configuration restored.
	XAC627	WgSlot cleared (card removed).
	XAC628	Output when provisioning or deprovisioning.
	XAC629	Loss of communication restored.
	XAC630	FWvers cleared.
	XAC631	FW soaking started. Accompanied by FWsoak alarm.
	XAC632	FW soaking completed.
	XAC633	FW loading started.
	XAC634	FW loading completed.
	XAC635	FW soaking in progress.
	XAC637	Raised when the Baseln alarm is cleared, due to an empty list of non-baseline components.
	XAC640	Manual Test Report.
	XAC641	Alarm enable/disable notification.
	XAC801	MemLim (Memory Limit). Accompanied by MemLim alarm.
	XAC814	XATrap. Accompanied by XATrap alarm.
XACP logs	XACP300	Generated every minute that the EXT alarm HIGH_MEM_BLOCKING is active.
	XACP500	Generated once when the memory blocking level has returned to normal.
	XACP600	Summarizes the minute-by-minute memory blocking level; generated once every 15 minutes. If all 15 minutes had normal blocking levels, the log has only one line of output stating that all 15 minutes had normal blocking levels. If at least one minute out of 15 reported high blocking levels, the log output reports each minute separately.

CS2000 Logs/Faults available in Succession

Log/Fault	Description	
XAUD logs	XAUD395, 397, 400, 401, 430, 432, 432, 434, 500, 501, 708, 709, 714, 715, 723, 724, 725, 979, 980, 981, 982, 977, 978	These call processing resource dump logs are generated whenever a call processing resource is recovered by the audit process running on the XA-Core. The only difference in the logs is the amount of data dumped. In SN07, the location and number of bits used to represent the extension block's format code in the header (within the hex dump of the log) has changed for all extension block logs. The only noticeable difference to the customer will be the number following the XAUD string in the log title.
XAUD logs	In SN07, the XAUD logs are re-numbered to correspond to the AUD log numbering scheme. Here is a list of the old and new XAUD log numbers. old XAUD600 is now XAUD397 old XAUD601 is now XAUD395 old XAUD602 is now XAUD432 old XAUD609 is now XAUD434 old XAUD700 is now XAUD400 old XAUD701 is now XAUD401 old XAUD730 is now XAUD430 old XAUD731 is now XAUD431 old XAUD732 is now XAUD500 old XAUD733 is now XAUD501 old XAUD940 is now XAUD708 old XAUD941 is now XAUD709 old XAUD946 is now XAUD714 old XAUD947 is now XAUD715 old XAUD955 is now XAUD723	
XNET logs	XNET600	Connection between nodes has been replaced.
	XNET601	New connection between nodes failed.
	XNET602	Connection between nodes does not exist, and attempts to connect them failed.
XPKT logs	XPKT301	Generated for ATM external network connection failures that fail during initial call setup.
	XPKT302	Generated for ATM external network connection failures that occur for established connections.
	XPKT806	A major alarm raised on a per-node basis when the number of XPT301logs for that node crosses (i.e. reaches or exceeds) RAISE_THRESHOLD number of XPT301 logs within RAISE_CYCLE number of minutes, where RAISE_THRESHOLD and RAISE_CYCLE are office parameters provisionable on a per-node class basis.
	XPKT807	Generated when the "exceeded threshold" alarm from XPKT806 is cleared.

GWC--available logs/faults for Succession

The following table lists the GWC Logs/Faults available through Succession. GWC supports SCC2 or NT STD formatted logs through SDM functionality, or it can be supported through IEMS. For details on the IEMS interface, refer to the section in this document titled "SN07 IEMS Functionality." For details

on the logs/faults themselves, refer to the Fault Management section of GWC FCAPS documentation, NN10090-911. For detailed information on Succession logs, refer to NN10275-909, *Succession Fault Management Log Reference.*

GWC Logs/Faults available in Succession

Log/Fault	Description
Network Element: GWC (PGC load)	
The PM180, 181, 185, and 177 faults are first sent to the core and are then sent northbound from the CS2000 Core Manager in SCC2 format. The remaining faults are sent from the GWC to the GWC EM and are then sent northbound via CORBA.	
DPTM500	Changed: the reason field of this log is changed to say “Packet Network” not “ATM Network.”
DPTM501	Changed: the reason field of this log is changed to say “Packet Network” not “ATM Network.”
PM180	Indicates a software error (SWERR) has occurred.
PM181	Generates for a variety of GWC-to-core-related communications issues. Modified in SN07 to indicate that the ABI of an ABI-hosted XPM is attempting to or successfully exit(s) ESA.
PM185	Indicates that the GWC has trapped.
PM777	Indicates a hardware fault. Reason text identifies the suspected hardware.
M3UAxxx	Indicates an M3UA signaling link from the GWC to the ISP has become unavailable.
The remaining faults are sent from the GWC to the GWC EM and are then sent northbound via CORBA. The following alarms are generated by the GWC, except for the first one generated by the alarm browser.	
SNMP Timeout	Critical; indicates a communications sub0system failure.
Test	This is a test alarm generated from pmdebug interface. Severity level changed in SN06; can have a severity level of critical, major, minor or warning
Active unit disabled	Critical; indicates a unit is out of service and not available.
Standby unit disabled	Critical; indicates a unit is out of service and not available.
Core communication lost	Major if active unit; Minor if inactive unit. No response received to Core heartbeat.
Mate unit communication lost	Minor; no response received to mate heartbeat.
Gateway communication lost	A gateway has stopped responding to heartbeat.

GWC Logs/Faults available in Succession

Log/Fault	Description
EM communi-cation lost	Major. No response received for Persistent Data Verification SNMP Trap; EM not responding. Problem may be “EM not present, provisioned data loaded from local flash,” OR “EM audit indicates provisioned inservice data is old, need manual intervention to recover.” Cleared with a busy RTS.
FLASH error	Minor. Error in writing Flash; erase of Flash sector failed. Cleared with hardware replacement.
Datasync alarm	The GWC does not contain the latest provisioned data. This alarm may be raised by the GWC EM noting the problem and sending a message to the GWC to raise the alarm.
Unit Out of Service	Critical if active unit; minor if inactive unit. The GWC Profile failed to validate, probably because no profile is available to activate. Cleared with a GWC reload.
GWC Alarm Logs	
GWC300	Active unit disabled. Critical; indicates a unit is out of service and not available.
GWC301	Standby unit disabled. Indicates a unit is out of service and not available. Minor if the unit is ManB, but Major if the unit is SysB.
GWC302	Core communication lost. Major if active unit; Minor if inactive unit. No response received to Core heartbeat.
GWC303	Mate unit communication lost. Minor; no response received to mate heartbeat.
GWC304	Gateway communication lost. A gateway has stopped responding to heartbeat. This log is triggered only for gateways that have 64 or more endpoints.
GWC305	This is a test alarm generated from pmdebug interface. Severity level changed in SN06; can have a severity level of critical, major, minor or warning
GWC306	DQOSMTC_DQoSLinkLoss. A DQoS/COPS connection failure has occurred. Cleared by DCCNXMGR (via DCALARM) when the connection is reestablished or the connection is deleted via provisioning
GWC307	EM communication lost. Major. No response received for Persistent Data Verification SNMP Trap; EM not responding. Problem may be “EM not present, provisioned data loaded from local flash,” OR “EM audit indicates provisioned inservice data is old, need manual intervention to recover.” Cleared with a busy RTS. Datasync alarm The GWC does not contain the latest provisioned data. This alarm may be raised by the GWC EM noting the problem and sending a message to the GWC to raise the alarm.
GWC308	FLASH error Minor. Error in writing Flash; erase of Flash sector failed. Cleared with hardware replacement.
GWC309	Security_SA_capacity. Minor or Major. Security.Association alarms are nearing capacity. Cleared by the security alarms application which monitors the resource level and clears the alarm when the alarm condition has been cleared on the GWC. Currently alarms are only managed on the active GWC unit (i.e., data is not mirrored to the inactive unit), and for this reason during a SWACT alarms are automatically cleared on the unit dropping activity.

GWC Logs/Faults available in Succession

Log/Fault	Description
GWC310	Security_SA_ fail. Major. The number of Security Association alarms has exceeded the threshold. Cleared by the security alarms application which monitors the resource level and cleared the alarm when the alarm condition as been cleared on the GWC. Currently alarms are only managed on the active GWC unit (i.e., data is not mirrored to the inactive unit), and for this reason during a SWACT alarms are automatically cleared on the unit dropping activity.
GWC311	Provisioned GWC Profile not yet activated.
GWC312	QOS connection alarm. An alarm is generated whenever a message cannot be sent to the server. The alarm is cleared as soon as the QoS report application is able to send QoS reports to the server.
GWC313	Major. RMGC can't process all coming requests. RMGC can't process all coming requests. It is in the processing error category. The probable cause is the resource at or nearing capacity.
GWC398	SNMP Timeout Critical; indicates a communications sub0system failure.
GWC399	Is the clear log for all GWC alarms and for CMT alarms. This log is triggered only for gateways that have 64 or more endpoints.
GWC506	Generated for any of 3 events: Time to Live Expired, Gateway Unregistration by CS2K Successful, or Gateway Initiated Unregistration Successful.
GWC507	Generated to indicate Gateway Registration Successful.

SPM--available logs/faults for Succession

The following table lists the SPM family Logs/Faults available through Succession. Those marked with an asterisk (*) are new or changed due to SN06.2 feature development.

The SPM family supports SCCS/ASCII or NT STD/ASCII through SDM functionality. For details on this protocol/format, and on the logs/faults themselves, refer to the Fault Management section of the appropriate SPM FCAPS documentation.

- SPM: NN10075-911
- DPT-SPM: NN10080-911 (ATM)
- IW-SPM: NN10078-911 (ATM)
- MG 4000: NN10076-911

General SPM Logs/Faults available in Succession

Log/Fault	Description
Network Element: SPM (all variants)	
NOTE: ATM, CARR, CCMT, DPTM, IWBM, and SPM logs marked with an asterisk (*) are enhanced in SN06 per 89007340 to add an extra line that shows location, type, and fabric.	

General SPM Logs/Faults available in Succession

Log/Fault	Description
ATM300	Generated when a Loss of Cell Delineation (LCD) major alarm condition is raised on an SPM with ATM RMs.
ATM500	The system's ATM ILMI status has changed.
ATM501	The system's ATM signaling status has changed.
ATM600	The ATM framework has gained a registered ATM address.
ATM601	The ATM framework has been de-registered by the ATM network.
ATM604	System software cannot recover the ATM Framework (ATM RM will be busied and RTS'ed)
ATM605	ATM overload event.
ATM606	ATM service failure. This log is not generated by GWC DPTs or on a BICC GWC.
ATM800	A trouble log that indicates possible degradation of service related to ATM Performance Monitoring thresholds.
ATMBCN	This alarm is raised when the ATM framework cannot support bearer connections. The alarm causes the SPM to show at the PM portion of the alarm banner as "SPM *C*." This alarm complements the ATMFW alarm currently displayed beneath the APPL banner.
BITS300	A clock sync critical alarm has been raised for one of these: MTIE Performance, Alarm Indication Signal, Loss of Signal, or Out of Frame. Correlates with BITS600.
BITS301	A clock sync non-critical alarm has been raised for one of these: Timing Link Degradation, Bipolar Violation, or Cyclic Redundancy Check. Correlates with BITS601.
BITS500	BITS link state change capturing old/new states and reason for change (including degradation of carrier (LOS, LOF)).
BITS600	BITS Fault Report Cleared; critical alarm from BITS300 is cleared.
BITS601	BITS Fault Report cleared; non-critical alarm from BITS301 is cleared.
BITS610	Reference Quality Change to a new SSM state. Reference quality change logs (Stratum 1.3E.) - not periodic.
BITS612	BITS Reference Switch; indicates the reason for the reference switch.
C7UP109	A CQ state change has occurred.
C7UP113	Indicates ISUP maintenance trouble.
C7UP114	Generated for an ISUP alert.
C7UP120	An invalid range field exists.
C7UP130	The HOP counter has expired.
C7UP301	The HC value is not sufficient.
CARR300	A carrier failure event cleared. Correlates to alarms AIS, APSAM, APSCHMM, APSIC, APSMM, BERSD, BERSF, LOF, LOP, LOS, PLM, RAI, RFI, SIMPLEX, TIM. Correlates with CARR310.
CARR310	A carrier failure event has occurred. Correlates to alarms AIS, APSFC, APSFEPLF, APSLCK, APSMAN, BERSD, BERSF, LOF, LOP, LOS, PLM, RAI, RFI, SIMPLEX, TIM.
CARR315	A trouble log that includes the actual fault description text sent by the MG9K.

General SPM Logs/Faults available in Succession

Log/Fault	Description
CARR330	A protection switch has occurred. A previously inactive carrier in the protection group takes over as the active carrier.
CARR331	A protection switch was attempted but failed.
CARR340	The inactive carriers in a protection group have changed state in such a way that they cannot carry traffic. The protection group is now running in simplex mode.
CARR341	Both carriers have become available and normal protection switching can occur.
CARR500	A carrier changes to an in service (InSv) state from manual busy (ManB) or system busy (SysB). Correlates to a MANB and SYSB alarm. Correlates with CARR511.
CARR501	A carrier changes to central-side busy (CBsy) from ManB or SysB. Correlates to a MANB and SYSB alarm.
CARR510	A carrier changes to ManB from InSv, SysB, or CBsy. Correlates to a MANB and SYSB alarm.
CARR511	Carrier state change to SysB from InSv or CBsy. Correlates to a SYSB alarm.
CARR512	OC3 carrier state change to CBsy from InSv, ManB, or SysB. Correlates to a MANB and SYSB alarm.
CARR800	Threshold crossing alert (TCA) for a metered performance parameter has been cleared.
CARR801	Indicates that maintenance limits have been re-set.
CARR810	TCA event for metered performance parameter has occurred. Correlates with CARR800.
CARR811	TCA event for non-metered performance parameter has occurred. Also applies to STS-1 carrier on MG4000.
CCMT301	Core PVC segment fault. Correlates with CCMT601.
CCMT501	An INFO log that indicates a CoreConnection State Chamge.
CCMT502	An INFO log that indicates a Peer Connection State Chamge.
CCMT601	An INFO log that indicates a Core PVC Segment Fault cleared.
DPTM500	The state of DPT Terminals changed to IDL state from any other state. In SN06, the reason field is changed to say “Packet Network” instead of “ATM Network.”
DPTM501	The state of DPT Terminals changed to SYSB state from any other state. In SN06, the reason field is changed to say “Packet Network” instead of “ATM Network.”
DPTM502	The state of DPT Terminals changed to MANB state from any other state.
DPTM503	The state of DPT Terminals changed to PMB state from any other state.
DPTM504	The state of DPT Terminals changed to INB state from any other state.
DPTM550	Generated when a DPT range with BICC, i.e. ISUPPLUS, signalling changes state.
DPTM560	Generated when a DPT group with SIPT signalling changes state.
DPTM700	Bulk downloading or dynamic update of DPT data failed, so there is a data mismatch in the CM and MG4K. Correlates with DPTM701.
DPTM701	The DDM audit process cleared a DPT data mismatch between the core and the node.
DPTM702	Indicates a call is rejected because the DPT SOC limit is reached.

General SPM Logs/Faults available in Succession

Log/Fault	Description
DPTM800	Office-wide DPT terminal usage exceeds the level 1 threshold of 70%. Logs DPT800-803 are associated with OM group DPTOFC, registers DPUSAG and DPUSAG2; and OM group DPTNODE, registers DPTUSAG and DPTUSAG2.
DPTM801	Office-wide DPT terminal usage drops below the level 1 threshold of 70%.
DPTM802	Office-wide DPT terminal usage exceeds the level 2 threshold of 90%.
DPTM803	Office-wide DPT terminal usage drops below the level 2 threshold of 85%.
ENET308	ISTb state occurs or is cleared on a PSLINK. Correlates to an ISTB alarm. Associated with OM group ENLKERR.
EAD100	EADAS_PLANNED_DOWN
EAD101	EADAS_MPC_COMMUNICATION_TRBL
EAD102	EADAS_CLASS_DISABLED
EAD103	EADAS/NM TRKGRP CHANGE AUDIT OVERFLOW
EAD104	EADAS/NM TRKGRP REF AUDIT OVERFLOW
EAD107	NETMINDER_PLANNED_DOWN
EAD108	NETMINDER_MPC_COMMUNICATION_TRBL
EAD109	EADAS/DC BUFFER OVERFLOW
EAD110	EADAS_CLASS_DISABLED
EAD111	EADAS_PLANNED_DOWN
EAD112	NETMINDER_PLANNED_DOWN
EAD113	EADAS_SESSION_STATUS
EAD114	NETMINDER_SESSION_STATUS
ENET311	The SPM ATM node is SYSB, and a network error has caused it to be isolated from the ENET links or the MS ports. Correlates to a SYSBNA alarm.
EXT102	Generated whenever an FSP alarm is raised or cleared against any PM in the office; when the FSP is raised because of particular frame failures on a remotely located MG 4000 node, EXT102 log is generated along with an SPM619 log; when the FSP alarm raised because of particular frame failures on a remotely located MG 4000 is cleared, EXT102 log is generated along with an SPM619 log.
IOAU112	Information log related to changes in System REX controller operation or schedule.
IWBM500	One of the following is out of service: C-side link, STS3cP carrier, ATM network state, or the ATM address state for the IW bridge software.
IWBM501	The out-of-service item in IWBM500 has returned to service.
IWBM600	Connectivity Mismatch: the IW bridge receives an invalid terminal ID during an attempt to free a bridge. An INFO log.
IWBM601	Automatic system audit finds a problem and performs a corresponding action. An INFO log.
IWBM602	No IDL bridges are available. An INFO log.
IWBM603	An IWBM audit is being performed. An INFO log.
IWBM700	A maintenance action is being performed. An INFO log.

General SPM Logs/Faults available in Succession

Log/Fault	Description
IWBM800	Number of available IW bridges exceeds the first threshold (70%) when attempting to retrieve an IW-bridge ID from the IW bridge manager.
IWBM801	Number of available IW bridges falls to less than 65% of bridges in the pool in use. This log always occurs after IWBM 800.
IWBM802	Number of available IW bridges exceeds the second threshold (90%) when attempting to retrieve an IW-bridge ID from the IW bridge manager.
IWBM803	Number of available IW bridges falls to less than 85% of bridges in the pool in use. This log always occurs after IWBM 802.
Link300	A transport resource fault indicating a mis-connected DS512 link.
NODE300	A mismatch fault has occurred. The integrated node maintenance (INM) generates this log when a trouble condition is present with the node. The log indicates INM recovery actions when the node state is system busy.
NODE302	Reports a software alarm.
NODE303	Generated to report the Wrong Application Data on the SPM.
NODE326	Generated to report a hardware fault on the SPM.
NODE500	System node state change. Correlates to a SYSB alarm.
NODE600	An INFO log to notify of a system recovery action.
NODE601	An INFO log that provides system status notification.
PM231	Indicates that a PM failed to acknowledge an audit request to add or delete a channel connection.
PM232	Indicates that a PM operation from an audit request to add or delete a channel connection has succeeded.
PM233	Indicates that a PM operation from an audit request to add or delete a channel connection has failed. The request is from Special Connection Table Control Facility (SPECCONN) to add or delete a channel connection. The subsystem generates the modified log when the operation to update to the correct status fails for two consecutive audit cycles.
PM234	Indicates that a PM failed to acknowledge an audit request to add or delete a channel connection.
PM236	Generated when the system finds integrity, does not find integrity, or loses integrity. Displayed when one of the following scenarios occurs: the system makes a special connection; integrity was lost or not found; or the SPECCONN audit acted on a special connection that has the status of NO_IINTEG.
PRSM400	A DPT SPM ATM loadfile containing DPT SPM ATM PRSU fixes has been datafilled in table PMLOADS.
SMG500	MG 4000 module state change.
SOC802	A warning log that the current configuration of the number of DPT ports is not authorized by Nortel, due to a conflict between the SOC limit and the setting of office parameter DPT_MAX_PORTS.
SPM300	A device fault has occurred. Correlates to a MANB, PROTFAIL, SYSB, and NOSPARE alarm.
SPM301	Device patching operation failed. SPARTS patching log. An SPM patch is missing after an RTS occurred. Correlates to the PATCHFAIL, VCXO70, and VCXO90 alarms.
SPM310	The CM has received performance data from the DPT SPM ATM as a result of the DPT SPM ATM-based automatic monitoring process.

General SPM Logs/Faults available in Succession

Log/Fault	Description
SPM311	A software exception report (SWER) has occurred, OR one of the BITS links is out-of-service. Correlates to an LOR alarm.
SPM312	A TBL trap has occurred on the CEM.
SPM313	A fault has been recorded in the Module Information Memory (MIM) of the DPT SPM ATM.
SPM314	A generic IMC fault report to indicate a change in IMC status.
SPM330	The two CEMs have either come into datasync or have gone out of datasync. Correlates to an ISTB alarm.
SPM331	A device had a protection switch failure. Modified to place IP RM in the circuit pack field. Correlates to a MANB, PROTFAIL, SYSB, ISTB, and NOSPARE alarm.
SPM332	The synchronization reference source was switched by manual action, switched by system action, or lost the last synchronization reference in the OC-3 protection group.
SPM333	Indicates an SPM Rex test failure.
SPM334	An alternate synchronization source is not available and the timing configuration no longer conforms to SONET specifications. Correlates to a CLKOOS alarm.
SPM335	Spare alarm; no spare devices are currently available in this protection group.
SPM336	The clock oscillator tuning range has reached 90% of the maximum range. Correlates to a VCXO90 alarm.
SPM337	SPM has entered Holdover. Correlates with SPM637.
SPM338	SPM has been in Holdover over 24Hours. Correlates withSPM638.
SPM339	The clock oscillator tuning range has reached 70% of the maximum range. Correlates to a VCXO70 alarm.
SPM340	A CM warm switch of activity (SWACT) failed.
SPM341	A SyncRM has entered into 3E Holdover state due to a clock mode change. Correlates with SPM641.
SPM342	A SyncRM has entered into 3E Holdover 24 State. Correlates with SPM642.
SPM344	The SyncRM Loss of BITS Redundancy (LOR) alarm has been set. Correlates with SPM644.
SPM350	There is the potential for resource exhaustion of a particular resource type. Correlates to the COTLOW, DTMFLOW, MFLOW, TONESLOW, and ECANLOW alarms. The log also generates when the alarm is cleared.
SPM352	Both of the Sync RMs are in holdover, so the SPM has entered Stratum 3E Holdover. Alarm ST3EHLDOVR is raised. Correlates with SPM652.
SPM353	Both of the Sync RMs are in holdover for 24 hours, so the SPM has entered Stratum 3E Holdover24. Alarm ST3EHLDOVR24 is raised. Correlates with SPM653.
SPM354	Both of the Sync RMs are out-of-service, so the SPM has entered SMC holdover. Alarm SMCHLDOVR is raised. Correlates with SPM654.
SPM355	Both of the Sync RMs are out-of-service for 24 hours, so the SPM has entered SMC holdover24. Alarm SMCHLDOVR24 is raised. Correlates with SPM655.
SPM356	One of the Sync RMs is out-of-service, so the SPM has lost clock unit redundancy. Alarm SPMLOCR is raised. Correlates with SPM656.

General SPM Logs/Faults available in Succession

Log/Fault	Description
SPM357	The MG4K is experiencing non-critical faults on more than two of the four BITS Links, and input timing signals have degraded. Alarm SPMTLD is raised. Correlates with SPM657.
SPM358	A tuple change from EXTERNAL to LINE, or from LINE to EXTERNAL, is performed, and the SPM clock reference change failed. Correlates with SPM658.
SPM370	A log report of an SPM health monitor event. Connection errors have been corrected by the DLC Audit. Correlates with SPM670, the clearing log.
SPM500	A SyncRM device state change has occurred with new state and reason for change (e.g. SYSB, MANB). Modified to place IP RM in the circuit pack field. Correlates to a MANB, PROTFAIL, SYSB, and ISTB alarm.
SPM501	The clock mode has changed from sync, freerun, holdover, or acquire to sync, freerun, holdover, or acquire. Correlates to a HLDOVR or HLDOVR24 alarm.
SPM502	An ATM connection has changed state, and a corresponding alarm condition has occurred or been cleared.
SPM503	A carrier on an SPM goes out of service and signals the ATM Maintenance of the carrier state change. Also generated when the carrier returns to service.
SPM504	Both of the associated ATM Resource Module devices on an SPM go out of service, and Integrated Device Maintenance signals ATM Maintenance of the state change. The log also generates when at least one ATM device returns to service.
SPM510	PM Timing Mode change indicating line to external and vice versa.
SPM610	Generated whenever an SPM node SSM value changes.
SPM611	A reference node switch has occurred, either manually or through the system.
SPM619	Provides particular frame failure and frame location information of remote MG 4000
SPM630	A successful protection switch of activity occurred for an ATM RM. Modified to place IP RM in the circuit pack field. Correlates to a MANB, SYSB, and ISTB alarm.
SPM632	Generated when the REX test on the SPM is successful.
SPM633	Generated when the REX test has started on an SPM node.
SPM637	The clock mode has changed from Holdover to Sync. Correlates with the HLDOVR alarm.
SPM638	The SPM recovers from the 24-hour Holdover state; the clock mode changes from Holdover to Sync. Correlates to the HLDOVR24 alarm.
SPM641	A SyncRM has exited 3E Holdover state.
SPM642	A SyncRM has exited 3E Holdover 24 state.
SPM644	The SyncRM Loss of BITS Redundancy (LOR) alarm has been cleared.
SPM645	Link Protocol & Messaging Interface Controller (LPMIC) Event Report. This log is generated on every CEM and transported to the core. The log is generated periodically and whenever the number of events crosses a threshold value.
SPM650	A successful in-service loading procedure has occurred. Modified to place IP RM in the circuit pack field.
SPM651	An in-service loading procedure has failed. Modified to place IP RM in the circuit pack field.

General SPM Logs/Faults available in Succession

Log/Fault	Description
SPM652	SPM has exited Stratum 3E Holdover. Alarm ST3EHLDOVR is cleared.
SPM653	SPM has exited Stratum 3E Holdover24. Alarm ST3EHLDOVR24 is cleared.
SPM654	SPM has exited SMC Holdover. Alarm SMCHLDOVR is cleared.
SPM655	SPM has exited SMC Holdover24. Alarm SMCHLDOVR24 is cleared.
SPM656	SPM loss of clock unit redundancy cleared. Alarm SPMLOCR is cleared.
SPM657	Input timing signals degradation cleared. Alarm SPMTLD is cleared.
SPM658	A PM timing mode change has occurred with explicit reason (e.g. line to external due to manual request).
SPM660	A continuous performance-monitored trunk member was involved in an answered echo canceller call. This log reports the performance data.
SPM661	A continuous monitoring ON/OFF command or an SPMECMON AUTO command has successfully completed.
SPM670	An INFO log to report that the health monitor “CallCount PTS no setup fault” has been cleared. Correlates with SPM370, the raise log.
SPM680	Indicates low MBM Application Buffers.
SPM681	Indicates low MBM Application Buffer Pools.
SPM684	Indicates that the erase flash command has initiated, is completed, has failed, or has been rejected.
SPM700	A DDM audit has failed for an SPM subgroup.
SPM701	A DDM audit has successfully updated an SPM subgroup.
SPM702	A DDM dynamic update has failed for an SPM subgroup.
SPM703	A DDM audit has updated an SPM trunk member in a with a data entry for a trunk that failed to be added during a dynamic update.
SPM704	A DDM dynamic update has failed for an SPM trunk member.
SPM705	A trunk has been set to a lockout (LO) or SysB state. Correlates to SPM706.
SPM706	A trunk has returned to service from a LO state.
SPM707	A dynamic update has failed for the ISDNPARM table.
SPM708	The DDM audit has updated the ISDNPARM table.
SPM709	A dynamic update has failed for the ISDNPROT table.
SPM710	The DDM audit has updated the ISDNPROT table.
SPRF670	Generated every 15 minutes by the SPMACT tool. The logs are a compilation of the tool’s results. Each line of the log corresponds to a performance measurement taken every minute by the tool.
SPRF671	Generated every 15 minutes by the SPUSAGE tool to summarize samples taken every minute of the call-processing events that occur in the SPM.
XAC329	Enhanced to provide more detailed reason text description for a number of failure scenarios in IRM, including a link state change. A customized text string is added for each IRM error code to help determine the causes resulting from link failure events.
XNET600	MG 4000 module state change.

General SPM Logs/Faults available in Succession

Log/Fault	Description
XNET601	MG 4000 module state change.
XNET602	MG 4000 module state change.
Bearer connections alarm	An alarm for bearer connections is added to the list of alarms in table MNNODE.
FSP alarm	The Major FSP Alarm displayed on the MAP terminal under the EXT alarm banner is updated to include in the count any failures from remote MG4K nodes.
Sync RM alarms	
LOS	Sync RM cannot detect a signal from the BITS timing link. Cleared when a signal is detected.
OOF	Sync RM cannot detect a DS1 frame for a given BITS timing link. Cleared when a DS1 frame is detected.
AIS	Sync RM detects an AIS on an incoming BITS timing reference signal from BITS, or crossover from alternate SPM reference node. Cleared when incoming BITS timing reference signal does not have an alarm.
MTIE2	MTIE performance for input signal exceeds the GR-253 requirement mask threshold, indicating an unusable signal. Cleared when MTIE is below GR-253 requirement mask threshold.
TLD	MTIE performance for input signal exceeds the GR-253 requirement mask threshold, indicating a degraded signal. Cleared when the MTIE Level 1 degradation disappears from timing reference.
BPV	Incoming signal has BPV alarm, indicating a degraded signal. Cleared when BPV disappears from timing reference.
CRC	SyncRM detects a CRC from incoming signal, indicating a degraded signal. Cleared when the CRC disappears from the timing reference.
LOR	SyncRM cannot detect the DS1 frame from BITS timing links or signal from Mate SyncRM, indicating that redundancy is lost. This alarm will be raised at the RM level if any service affecting fault exists on a single BITS link or if one BITS link is manually taken out of service (MBsy or Offl). Cleared when a DS1 frame is detected.
HLDOVR	SyncRM has gone into the holdover mode because both BITS timing links were lost. Cleared when SyncRM exits holdover mode.
PM Level Alarms	
PM ST3E Holdover	Major; both SyncRMs are in stratum 3E holdover.
PM ST3E Holdover 24 Hour	Critical; both SyncRMs are in stratum 3E holdover for more than 24 hours.
PM SMC Holdover	Major; both SyncRMs are unavailable and the CEM is in SMC holdover for more than 24 hours.
PM SMC Holdover 24 Hour	Critical; both SyncRMs are unavailable and the CEM is in SMC holdover.
SPM Loss of Clock Unit redundancy	Major; one of the SyncRMs is OOS.
Timing mode change failure	Critical; the crafts person-initiated timing mode change failed.
Node Timing Degradation (NTD)	Major; The MG4000 is experiencing non-critical faults on three or more input BITS links (input timing signals).
RM Level Alarms (Sync Unit Alarms)	

General SPM Logs/Faults available in Succession

Log/Fault	Description
SYSB	Major; SyncRM has gone into SYSB state due to a critical fault (a loss of communications or hardware fault).
MANB	Major; SyncRM has gone into MANB state due to manual maintenance request.
ISTB	Minor; SyncRM has gone into trouble state due to a non-critical fault, typically the failure of internal diagnostics or BITS carrier-related problems.
Loss of Reference Source Redundancy	Major; SyncRM has critical fault on one of two reference signals.
Stratum 3E Holdover	Major; SyncRM has gone into stratum 3E holdover mode as a result of faults on both reference signals.
Stratum 3E Holdover 24 Hour	Critical; SyncRM has gone into stratum 3E holdover mode as a result of faults on both reference signals.
Clock Synchronization Level Alarms (BITS alarms)	
MTIE Exceeded	Minor; the MTIE performance for the input signal has exceeded the requirement mask threshold indicating an unusable signal.
Loss of Signal (LOS)	Major; the SyncRM cannot detect a signal on the timing reference.
Out of Frame (OOF)	Major; SyncRM cannot detect DS1 frame. This alarm masks AIS alarm for a given timing reference.
Alarm Indication Signal (AIS)	Major; SyncRM has detected an AIS on an incoming timing reference signal from the BITS link. This alarm is masked by the LOF alarm.
Timing Link Degradation (TLD)	Major; this is a non-service affecting alarm and would be masked by all other SyncRM BITS Alarms
Bipolar Violation (BPV)	Minor; this is a non-service affecting alarm and would be masked by all other SyncRM BITS Alarms
Cyclic Redundancy Check (CRC)	Minor; this is a non-service affecting alarm and would be masked by all other SyncRM BITS Alarms

Stormia (STM)-available logs/faults for Succession

The following table lists the STM logs available through Succession. STM logs will only be present in the HLR market. For detailed information on logs, refer to NN10275-909, *Succession Fault Management Log Reference.*

STM logs available in Succession

STM398	Indicates an alarm in an STM device.
STM399	Indicates a cleared alarm in an.STM device.

MG9000--available logs/faults for Succession

The following table lists the MG 9000 Faults available through Succession. MG 9000 supports SCC2 or NT STD formatted logs through SDM functionality, or it can be supported through IEMS. For details on the IEMS interface, refer to the section in this document titled “SN07 IEMS

Functionality.". For details on the logs/faults themselves, refer to the Fault Management section of MG 9000 FCAPS documentation, NN10074-911. For detailed information on Succession logs, refer to NN10275-909, *Succession Fault Management Log Reference.*

MG 9000 Logs/Faults available in Succession

Network Element: MG 9000 (UEMG-17)	
Fault	Description
BW300	Reserved bandwidth used on the indicated shelf has exceeded the Bandwidth Congestion Threshold. Correlates with Warning alarm bwResBandwShelfFault.
BW301	Reserved bandwidth use on the network interface has exceeded the Bandwidth Congestion Threshold. The alarm is cleared when reserved bandwidth on the network interface is 10% less than the threshold. Correlates with Warning alarm bwResBandwTotalFault.
BW302	Reserved bandwidth dedicated to switched lines connections on the network interface has exceeded the Bandwidth Congestion Threshold with respect to the amount of bandwidth configured the network interface for switched lines. Correlates with Warning alarm bwResBandwSloaFault.
BW304	An overall cell queue congestion alarm has occurred when overall atm cell queue is at least 90% full, or the alarm has been cleared. Correlates with Warning alarm bwSwitchFabricTotalFault.
BW305	A CBR cell queue congestion alarm has occurred or been cleared. To occur, atm cell queue for this service type is at least 90% full. Correlates with Warning alarm bwSwitchFabricCbrFault.
BW306	An RT-VBR cell queue congestion alarm has occurred or been cleared. To occur, atm cell queue for this service type is at least 90% full. Correlates with Warning alarm bwSwitchFabricRtVbrFault.
BW307	An NRT-VBR cell queue congestion alarm has occurred or been cleared. To occur, atm cell queue for this service type is at least 90% full. Correlates with Warning alarm bwSwitchFabricNrtVbrFault.
BW308	A UBR cell queue congestion alarm has occurred or been cleared. To occur, atm cell queue for this service type is at least 90% full. Correlates with Warning alarm bwSwitchFabricUbrFault.
BW309	A UBR-plus cell queue congestion alarm has occurred or been cleared. To occur, atm cell queue for this service type is at least 90% full. Correlates with Warning alarm bwSwitchFabricUbrPlusFault.
BW310	A control channel cell queue congestion alarm has occurred or been cleared. To occur, atm cell queue for this service type is at least 90% full. Correlates with Warning alarm bwSwitchFabricControlFault.
BW311	Reserved bandwidth dedicated to ABI lines connections on the network interface has exceeded the Bandwidth Congestion Threshold with respect to the amount of bandwidth configured the network interface for switched lines. Correlates with Warning alarm bwResBandwAbiFault.

MG 9000 Logs/Faults available in Succession

CES305	No cells are being received from the ATM network. Correlates with alarm Loss of cells.
ESA Alarm	Fault type “Failed to enter ESA” is created in SN07 for the ESA alarm (Critical). This alarm is displayed at MG9000 Element Manager and MG9000 LCI.
nnESADownloadFault alarm	SN07 creates alarm “nnESADownloadFault” to indicate a failure to download ESA data to given VMG. This alarm will only be generated for autonomous download attempts. This was indicated by a log in previous releases
ESA120	An ESA Data Generation INFO log. An ESA120 log is generated if the CS2000 successfully generates an MG9000 ESA data file in SFDEV. The file generation is initiated every 24 hours or from a manual command.
ESA121	An ESA Data Generation FAIL log. An ESA121 log is generated if the CS2000 fails to generate an MG9000 ESA data file in SFDEV. The file generation is initiated every 24 hours or from a manual command.
ESA300	Communication between GWC and GW is lost. Entered ESA mode. Correlates with Critical alarm Entered ESA.
ESA302	(Critical) is generated when the EM is unable to download ESA data to a VMG.
ESA601	Correlates with the alarm nnESAFault. This alarm indicates that the MG 9000 finds an internal ESA data mapping inconsistency after the ESA data downloading is completed.
ESA602	Correlates with the alarm nnESARetrieveFault, generated by the EM for ESA Data Retrieval failure.
HW Mismatch alarm	The Hardware Mismatch alarm indicates an incorrect replacement card has been installed.
LINE162	INFO only. Indicates call attempts denied due to MG9K Overload. It is an XA-Core info log.
Authorization Failed” Security Log	Generated when a user attempts to perform an unauthorized action.
MG9K Server Log	A warning log generated when the MG9K server is either starting up or shutting down.
MGAUxxx	Generated when audit task starts.
MGAUxxx	Generated when audit task is paused.
MGAUxxx	Generated when audit task is resumed.
MGAUxxx	Generated when audit task is completed with a summary of corrections.
MGAUxxx	Generated when audit schedule is deleted.
MGAUxxx	Generated when audit could not correct a mismatch.
MGCA301	Loss of signal. Correlates with Critical alarm los (on OC3) or Minor alarm los (on DS1).
MGCA302	Alarm indication signal. Correlates with Critical alarm ais (on OC3) or Minor alarm ais (on DS1).
MGCA303	Loss of frame. Correlates with Critical alarm lof (on OC3) or Minor alarm lof (on DS1).

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MGCA304	Remote alarm indication. Correlates with Minor alarm rai (on DS1).
MGCA305	BitErrorRate S F. Correlates with Critical alarm bersf (on OC3).
MGCA306	BitErrorRate SigDegrade. Correlates with Major alarm bersd (on OC3).
MGCA307	Remote defect indication. Correlates with Minor alarm rdi (on OC3).
MGCA308	Path label mismatch. Correlates with Minor alarm plm (on OC3).
MGCA309	Loss of pointer. Correlates with Minor alarm lop (on OC3).
MGCA310	Unequipped. Correlates with Minor alarm uneq (on OC3).
MGCA312	IMA link- Loss of IMA Frame. Correlates with Minor alarm imaLinkLif.
MGCA313	IMA link- Loss of delayed synchronization. Correlates with Minor alarm imaLinkLods.
MGCA314	IMA link- Remote failure indication. Correlates with Minor alarm imaLinkRfi.
MGCA315	IMA link- Transmit misconnect. Correlates with Minor alarm imaLinkTxMisConnect.
MGCA316	IMA link- receive misconnect. Correlates with Minor alarm imaLinkRxMisConnect.
MGCA317	IMA link- transmit fault. Correlates with Minor alarm imaLinkTxFault.
MGCA318	IMA link- receive fault. Correlates with Minor alarm imaLinkRxFault.
MGCA319	IMA link- transmit unusable far end. Correlates with Minor alarm imaLinkTxUnusableFe.
MGCA320	IMA link- receive unusable far end. Correlates with Minor alarm imaLinkRxUnusableFe.
MGCA321	IMA group startup far end. Correlates with Major alarm imaGroupStartupFe.
MGCA322	IMA group configuration abort. Correlates with Critical alarm imaGroupCfgAbort.
MGCA323	IMA group configuration abort far end. Correlates with Major alarm imaGroupCfgAbortFe.
MGCA324	IMA group insufficient links. Correlates with Critical alarm imaGroupInsuffLinks.
MGCA325	IMA group insufficient links far end. Correlates with Major alarm imaGroupInsuffLinksFe.
MGCA326	IMA group blocked far end. Correlates with Minor alarm imaGroupBlockedFe.
MGCA327	IMA group timing synchronization. Correlates with Major alarm imaGroupTimingSynch.
MGCA328	ABI Loss of Clock on DS512 optical link. Correlates with Critical alarm abiLossOfClock.
MGCA329	ABI Loss of Frame on DS512 optical link. Correlates with Critical alarm abiLossOfFrame.
MGCA330	ABI Loss of Signal (low light level) on DS512 optical link. Correlates with Critical alarm abiLowLightLevel.
MGCA331	ABI Channel parity error on DS512 optical link. Correlates with Minor alarm abiChannelParityError.
MGCA332	SDH Path Trace Identifier Mismatch Alarm (only applies to SDH and not SONET). The Path Trace Identifier being seen by the OC3 card at the carrier Path level does not match what has been provisioned for that carrier. Correlates with Minor alarm tim.
MGCA333	AlarmIndicationSignal (ds3ais) generates log MGCA333 when an AlarmIndicationSignal fault is received from the Gateway.

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MGCA334	LossofFrame (ds3lof) generates log MGCA334 when a LossOfFrame fault is received from the Gateway.
MGCA335	RemoteAlarmIndication (ds3rai) generates log MGCA335 when a RemoteAlarmIndication fault is received from the Gateway.
MGEM300	Generated when MG9000 EM is not able to make connection to the Element Manager Database. Correlates with Major alarm EmDbUnavailable.
MGEM301	In SN06, the NE301 log name changed toMGEM301. Generated when the Succession MG 9000 Manager loses SNMP communication with the MG 9000. Correlates with Critical alarm CommsLostToNE.
MGEM302	In SN06, NE302 log name changed to MGEM302. The MG9000 Manager has added a new MG9000 and tries to discover the NE. It will check the MG9000 EM IP address provisioned at the MG9000 and if it is incorrect will raise this alarm. Correlates with Major alarm invalidEMIPAddress.
MGEM303	In SN06, the NE303 log name changed to MGEM303. The description of t his log is restored faults: “Faults seen while active.” Diagnostics will not clear restored faults. The card with the restored faults may not be in the same state it was in before the restart that caused the faults to be restored. The MG9000 sends too many alarms within a 5 second window. When this happens the MG9000 Manager will request this particular MG9000 stop sending Alarms and display this particular alarm. This condition will clear when the number of alarm within 5 sec falls below a set number. Correlates with Critical alarm AlarmsBeingThrottled.
MGEM679	Feature A00002045 (UA-AAL1) introduces the log MGEM 679 ABI Card Switch Mastership requested.
MGEM704	Indicates that an attempt to correct the database has failed
MGEM705	Indicates that the Database is unavailable and correction failed.
MGEM714	An audit log generated whenever a user attempts to image an MG9K device.
NE300	In SN06, the NE300 log (corresponding to all NorNode Faults) split into several logs (grouped according to the clearing procedures). Log NE300 should only be generated if the GW is running on pre-SN06 loads and the MGEM is running on SN06+ loads. It is purely for backward compatibility.
NE301	The NE301 log (Critical) is generated when an incorrect replacement card has been installed.
NE302	This log indicates software faults of any severity.
NE303	This log indicates restored faults: “Faults seen while active.” Diagnostics will not clear restored faults. The card with the restored faults may not be in the same state it was in before the restart that caused the faults to be restored.
NE304	This log indicates faults that are ambiguous with regard to the card that is causing the fault. Usually, the alarm on card A indicates that there is a problem on card A, card B, or the link in between card A and B.
NE305	This log indicates serial device faults of any severity.

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NE306	This log indicates GLAN-related faults of any severity. The GLAN hub is located on the active ITP in the shelf where the fault appears.
NE307	This log indicates ABI faults of any severity.
NE308	This log indicates inband messaging faults of any severity.
NE309	This log indicates clock sync faults of any severity.
NE310	This log indicates unused hardware faults of any severity.
NE311	This log indicates time of day faults of any severity - attempts to access the provisioned time server have failed.
NE312	This log indicates cable faults of any severity -- one of the cables to the ITPs has been connected in an unsupported way.
NE313	This log indicates an activity cable fault of any severity; the activity control cable is a small cable on the front of the ABI cards that is used for activity determination.
NE314	This log indicates backplane faults of any severity; the carriers between the two DCC cards cannot communicate.
NE315	This log indicates bandwidth fault of any severity; some of the carriers are not providing bandwidth.
NE316	This log indicates line alarms of any severity.
NE317	This log indicates shelf faults of any severity.
NE318	This log indicates proxy alarms of any severity; the card referred to in the alarm text (description) is not communicating.
NE319	This log indicates MTA alarms of any severity.
NE320	This log indicates data audit faults of any severity; data audit required.
NE503	ABI Switch Mastership.
NE504	ABI State Change Trap.
NE609	A software image log generated whenever a user executes an image request.
OVLD808	(Critical) Indicates that an external messaging link has closed and cannot send/receive message.
OVLD809	(Major) Indicates that the message loss is high enough such that the message link is in a degraded service state.
OVLD810	(Minor) Indicates message retransmissions are high enough that system is starting to see performance degradation.
PM720	This INFO log report is produced whenever an unsolicited maintenance message is received in the Core from a GWC indicating that a certain number of service ports are to be placed in or out of service. These service ports represent the capability of the subtending UAS to process announcement and conference calls.
SHLF301	SIC talk battery A alarm occurs. Correlates with Critical alarm shelfTalkBatteryA.
SHLF302	SIC talk battery B alarm occurs. Correlates with Critical alarm shelfTalkBatteryB.

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SHLF303	SIC signal battery A alarm occurs. Correlates with Major alarm shelfSignalBatteryA.
SHLF304	SIC signal battery B alarm occurs. Correlates with Major alarm shelfSignalBatteryB.
SHLF305	SIC signal battery A fuse alarm occurs. Correlates with Major alarm shelfSignalBatteryAfuse.
SHLF306	SIC signal battery B fuse alarm occurs. Correlates with Major alarm shelfSignalBatteryBfuse.
SHLF308	BIP signal battery A1 alarm occurs. Correlates with Major alarm bipSignalBatteryA1.
SHLF309	BIP signal battery A2alarm occurs. Correlates with Major alarm bipSignalBatteryA2.
SHLF310	SIC talk battery B1 alarm occurs. Correlates with Major alarm bipSignalBatteryB1.
SHLF311	BIP signal battery B2 alarm occurs. Correlates with Major alarm bipSignalBatteryB2.
SHLF312	BIP talk battery A alarm occurs. Correlates with Minor alarm bipTalkBatteryA.
SHLF313	BIP talk battery B alarm occurs. Correlates with Minor alarm bipTalkBatteryB.
SHLF314	BIP filter A fail alarm occurs. Correlates with Minor alarm bipFilterA.
SHLF315	BIP filter B fail alarm occurs. Correlates with Minor alarm bipFilterB.
SHLF316	BIP scan point 1 is activated. Correlates with alarm bipScanPoint1.
SHLF317	BIP scan point 2 is activated. Correlates with alarm bipScanPoint2.
SHLF318	BIP scan point 3 is activated. Correlates with alarm bipScanPoint3.
SHLF319	BIP scan point 4 is activated. Correlates with alarm bipScanPoint4.
SHLF320	BIP scan point 5 is activated. Correlates with alarm bipScanPoint5.
SHLF321	BIP scan point 6is activated. Correlates with alarm bipScanPoint6.
SHLF322	BIP scan point 7is activated. Correlates with alarm bipScanPoint7.
SHLF323	BIP scan point 8is activated. Correlates with alarm bipScanPoint8.
SHLF324	BIP scan point 9is activated. Correlates with alarm bipScanPoint9.
SHLF325	BIP scan point 10is activated. Correlates with alarm bipScanPoint10.
SHLF326	BIP scan point 11 is activated. Correlates with alarm bipScanPoint11.
SHLF327	Talk Battery A1 Power Feed. Correlates with Major alarm bipTalkBatteryA1.
SHLF328	Talk Battery A Power Feed. Correlates with Major alarm bipTalkBatteryA2.
SHLF329	Talk Battery B1 Power Feed. Correlates with Major alarm bipTalkBatteryB1.
SHLF330	Talk Battery B2 Power Feed. Correlates with Major alarm bipTalkBatteryB2.
SHLF332	BIP environmental control unit 0 temperature alarm occurs. Correlates with Minor alarm bipEcuTemp0.
SHLF333	BIP environmental control unit 1 temperature alarm occurs. Correlates with Minor alarm bipEcuTemp1.

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SHLF334	BIP environmental control unit 0 fan alarm occurs. Correlates with Minor alarm bipEcuFan0.
SHLF335	BIP environmental control unit 1 fan alarm occurs. Correlates with Minor alarm bipEcuFan1.
SHLF336	BIP remote alarm cut off alarm occurs. Correlates with alarm bipRemoteAlarmcutoff.
SHLF337	BIP local alarm cut off alarm occurs. Correlates with alarm bipLocalAlarmcutoff.
SHLF338	BIP ABS fuse fail alarm occurs. Correlates with Major alarm bipAbsFusefail.
SHLF339	BIP ABS battery power supply alarm occurs. Correlates with Critical alarm bipAbsPowerSupply.
SHLF341	Presence of BIP's Current-Sense Card A. Correlates with Major alarm bipCsApresence.
SHLF342	Presence of BIP's Current-Sense Card B. Correlates with Major alarm bipCsBpresence.
SHLF343	Presence of BIP's Alarm Relay Card. Correlates with Major alarm bipAlmRelayPresence.
SHLF344	Current-Sense Card A Shelf 0 High Threshold exceeded. Correlates with Minor bipCSAshf0HighThres alarm.
SHLF345	Current-Sense Card A Shelf 1 High Threshold exceeded. Correlates with Minor alarm bipCSAshf1HighThres.
SHLF346	Current-Sense Card A Shelf 2High Threshold exceeded. Correlates with Minor alarm bipCSAshf2HighThres.
SHLF347	Current-Sense Card A Shelf 3High Threshold exceeded. Correlates with Minor bipCSAshf3HighThres alarm.
SHLF348	Current-Sense Card BShelf 0 High Threshold exceeded Correlates with Minor bipCSBshf0HighThres alarm.
SHLF349	Current-Sense Card B Shelf 1 High Threshold exceeded. Correlates with Minor bipCSBshf1HighThres alarm.
SHLF350	Current-Sense Card B Shelf 2 High Threshold exceeded. Correlates with Minor bipCSBshf2HighThres alarm.
SHLF351	Current-Sense Card B Shelf 3 High Threshold exceeded. Correlates with Minor bipCSBshf3HighThres alarm.
SHLF352	Current High Temperature Threshold exceeded. Correlates with Minor bipTempHighThres alarm.
SHLF353	Current-Sense Card A Shelf 0 Low Threshold exceeded. Correlates with Minor bipCSAshf0LowThres alarm.
SHLF354	Current-Sense Card A Shelf 1 Low Threshold exceeded. Correlates with Minor bipCSAshf1LowThres alarm.
SHLF355	Current-Sense Card A Shelf 2 Low Threshold exceeded. Correlates with Minor bipCSAshf2LowThres alarm.
SHLF356	Current-Sense Card A Shelf 3 Low Threshold exceeded. Correlates with Minor bipCSAshf3LowThres alarm.

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SHLF357	Current-Sense Card B Shelf 0 Low Threshold exceeded. Correlates with Minor bipCSBshf0LowThres alarm. Correlates with Minor bipCSBshf1LowThres alarm.
SHLF358	Current-Sense Card B Shelf 1 Low Threshold exceeded. Correlates with Minor bipCSBshf1LowThres alarm.
SHLF359	Current-Sense Card B Shelf 2 Low Threshold exceeded. Correlates with Minor bipCSBshf2LowThres alarm.
SHLF360	Current-Sense Card B Shelf 3 Low Threshold exceeded. Correlates with Minor bipCSBshf3LowThres alarm.
SHLF361	Current Low Temperature Threshold exceeded. Correlates with Minor bipTempLowThres alarm.
SHLF362	Status of the Signal Battery Fuse. Correlates with Major bipSignalBatteryFuse alarm.
SHLF363	Status of Talk Battery A Fuse. Correlates with Major bipTalkBatteryAFuse alarm.
SHLF365	Status of Cooling Unit 0 Fuse. Correlates with Minor bipEcuFuse0 alarm.
SHLF366	Status of Cooling Unit 1 Fuse. Correlates with Minor bipEcuFuse1 alarm.
SHLF367	Status of the End-Aisle Fuse. Correlates with Minor bipEndAisleFuse alarm.
SHLF368	BIP Signal Distribution Point 1. Correlates with bipSignalDistribution1 alarm.
SHLF369	BIP Signal Distribution Point 2. Correlates with bipSignalDistribution2 alarm.
SHLF370	BIP Signal Distribution Point 3. Correlates with bipSignalDistribution3 alarm.
SHLF371	BIP Signal Distribution Point 4. Correlates with bipSignalDistribution4 alarm.
SHLF372	BIP Visual Critical. Correlates with bipVisualCritical alarm.
SHLF373	BIP Visual Major. Correlates with bipVisual Major alarm.
SHLF374	BIP Visual Minor. Correlates with bipVisualMinor alarm.
SHLF375	BIP Audible Critical. Correlates with bipAudibleCritical alarm.
SHLF376	BIP Audible Major. Correlates with bipAudibleMajor alarm.
SHLF377	BIP Audible Minor. Correlates with bipAudibleMinor alarm.
SHLF378	BIP Alarm CutOff LED. Correlates with bipAlarmCutOffLED alarm.
SHLF379	BIP Talk Battery A Fail LED. Correlates with bipTalkBatteryFailALED alarm.
SHLF380	BIP Talk Battery B Fail LED. Correlates with bipTalkBatteryFailBLED alarm.
SHLF381	BIP Critical LED Bank. Correlates with bipCriticalLEDbank alarm.
SHLF382	BIP Major LED Bank. Correlates with bipMajorLEDbank alarm.
SHLF383	BIP Minor LED Bank. Correlates with bipMinorLEDbank alarm.
SHLF384	BIP Environmental Control Unit 0 LED. Correlates with bipEcu1LED alarm.
SHLF385	BIP Environmental Control Unit 1 LED. Correlates with bipEcu2LED alarm.
SHLF386	BIP Alarm Processor Card Fail LED. Correlates with bipAlarmFailLED alarm.

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SHLF387	BIP Aisle Alarm. Correlates with bipAisleAlarm alarm.
SHLF388	BIP Frame Alarm. Correlates with bipFrameFail alarm.
SHLF389	Presence of BIP's Alarm Relay Card LED. Correlates with bipAlmRelayLed alarm.
SHLF390	Status of Current-Sense Card A LED. Correlates with bipCsAled alarm.
SHLF391	Status of Current-Sense Card B LED. Correlates with bipCsBled alarm.
SHLF392	Generated when a shelfCompatibility fault is received from the MG9kEM server.
SHLF393	Generated when a cardDiscovery fault is received from the MG9kEM server.
SHLF501	A catch-all INFO log for all shelf events. Changed in SN06 to show a Severity of Indeterminate, which means no priority has been assigned to the related BIP event. If a severity had been datafilled, then SHLF383 would generate instead of SHLF 501.
SWLN301	Line in Fault occurred or is cleared. Correlates with Minor lineFault alarm.
SWLN302	Hazardous Voltage line fault occurred or is cleared. Correlates with Minor alarm lineProtectionFault.
SWLN303	Line in Babbling state line fault occurred or is cleared. Correlates with Minor alarm lineBabbleState.
SYS100	Generated each time a MG9000 EM client attempts to log in to the system.
TRK203	INFO only. Indicates that a connection was denied due to GW overload.
UPGD600	INFO only. Generated when an upgrade or a downgrade is needed. When the DCC card version is not the same as the element managers release version, this log is generated.
UPGD601	INFO only. Generated when an export is started.
UPGD602	INFO only. Generated when an export is completed.
UPGD603	INFO only. Generated when an Import of the NE is started.
UPGD604	INFO only. Generated when an import is completed.
VC301	Minor: atmVcl Alarm indication signal. Correlates with Minor alarm vclTpAis.
VC302	Minor: atmVcl Remote Detection Indicator. Correlates with Minor alarm vclTpRdi.
VC303	Minor: loss of continuity, vcl. Correlates with Minor alarm vclLoc.
VC304	Minor: atmVcc Alarm indication signal. Correlates with Minor alarm vccTpAis.
VC305	Minor: atmVcc Remote Detection Indicator. Correlates with Minor alarmvccTpRdi.
VC306	Minor: loss of continuity, vcc. Correlates with Minor alarm vccLoc.
VMG300	Generated when Root Termination goes out of service (Communication between Gateway and GWC is lost and ESA is not enabled). Correlates with Critical alarm VMG OOS.
VMG600	Indicates that termination data was successfully provisioned in all appropriate areas except for the database.
VMG601	Indicates that an attempt to correct termination data in the database has passed.

MG 9000 Logs/Faults available in Succession

XDSL301	Generated when a loss of signal - local modem fault occurs. Correlates with minor alarm losATUC.
XDSL302	Generated when a loss of frame - local modem fault occurs. Correlates with minor alarm lofATUC.
XDSL303	Generated when a loss of power - local modem fault occurs. Correlates with minor alarm lprATUC.
XDSL304	Generated when a loss of link - local modem fault occurs. Correlates with minor alarm lolATUC.
XDSL305	Generated when a loss of signal - remote modem fault occurs. Correlates with minor alarm losATUR.
XDSL306	Generated when a loss of frame - remote modem fault occurs. Correlates with minor alarm lofATUR.
XDSL307	Generated when a loss of power - remote modem fault occurs. Correlates with minor alarm lprATUR.
XDSL308	Generated when a loss of link - remote modem fault occurs. Correlates with minor alarm lolATUR.
XDSL309	Generated when a no modem present fault occurs. Correlates with minor alarm aturNotPresent.
XDSL310	Generated when a local modem clock failure occurs. Correlates with critical alarm noClock.
XDSL311	Generated when a protocol error occurs. Correlates with critical alarm handshakeFail.
XDSL312	Generated when a configuration error occurs. Correlates with critical alarm linkMismatch.
XDSL313	Generated when an ATM traffic dropped at WAC upstream fault occurs. Correlates with critical alarm vpiNonzero.
XDSL314	Generated when a loss of sync of ATM cells - upstream fault occurs. Correlates with critical alarm lcdlATUC.
XDSL315	Generated when a loss of sync of ATM cells - downstream fault occurs. Correlates with critical alarm lcdlATUR.
XDSL316	Generated when a local modem critical failure - not responding, in Kernel mode, download failure, or message corrupted fault occurs. Correlates with critical alarm failATUC.
XDSL317	Generated when a general hardware fault indication - circuit fault occurs. Correlates with critical alarm circuitHardwareFault.
xDSL602	ATURs transmit rate has changed (RADSL mode only).
xDSL800	Loss of Framing 15-minute interval threshold reached.
xDSL801	Loss of Signal 15-minute interval threshold reached.
xDSL802	Loss of Power 15-minute interval threshold reached.
xDSL803	Errored Second 15-minute interval threshold reached.

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xDSL805	Loss of Framing 15-minute interval threshold reached.
xDSL806	Loss of Signal 15-minute interval threshold reached.
xDSL807	Loss of Power 15-minute interval threshold reached.
xDSL808	Errored Second 15-minute interval threshold reached.
xDSL809	A DSL Interface exceeds the specified threshold on a given performance measurement.
The following items describe the MG9K Clock Sync alarms.	
Loss of Phase Lock	Minor: Phase PLD [altera 7064b] detected a minimum phase difference greater than eight nano seconds.
Loss of Frame Pulse Lock	Minor: Frame pulse alignment did not get established with the active card -- it should occur in the inactive card only
Loss of My Clock	Minor: The high and low levels of the SYNC PLL clock are not toggling.
Loss of Mate Clock	Minor: The high and Low levels of the mate clock are not toggling.
Loss of Clock Output	Major: Phase PLD reference clock oscillator not toggling.
Single Reference Failure	Minor: Single monitored reference source has been lost.
All Reference Failure	Major: Absolute and Delta reference source signals have been lost.
Single Sync Unit Failure	Major: Stratum 3 unit on ITP failed.
Clock Stability	Clock mode can be Acquiring, Acquired, Hold Over, or Free Run.
Signal LOS	Minor: Single/All source reference occurred due to loss of signal.
Signal LOF	Minor: Single/All source(s) reference occurred due to out of frame.
PM Level Alarms	
PM ST3E Holdover	Major; both SyncRMs are in stratum 3E holdover.
PM ST3E Holdover 24 Hour	Critical; both SyncRMs are in stratum 3E holdover for more than 24 hours.
PM SMC Holdover	Major; both SyncRMs are unavailable and the CEM is in SMC holdover for more than 24 hours.
PM SMC Holdover 24 Hour	Critical; both SyncRMs are unavailable and the CEM is in SMC holdover.
SPM Loss of Clock Unit redundancy	Major; one of the SyncRMs is OOS.

MG 9000 Logs/Faults available in Succession

Timing mode change failure	Critical; the crafts person-initiated timing mode change failed.
Node Timing Degradation (NTD)	Major; The MG4000 is experiencing non-critical faults on three or more input BITS links (input timing signals).
RM Level Alarms (Sync Unit Alarms)	
SYSB	Major; SyncRM has gone into SYSB state due to a critical fault.
MANB	Major; SyncRM has gone into MANB state due to manual maintenance request.
ISTB	Minor; SyncRM has gone into trouble state due to a non-critical fault
Loss of Reference Source Redundancy	Major; SyncRM has critical fault on one of two reference signals.
Stratum 3E Holdover	Major; SyncRM has gone into stratum 3E holdover mode as a result of faults on both reference signals.
Stratum 3E Holdover 24 Hour	Critical; SyncRM has gone into stratum 3E holdover mode as a result of faults on both reference signals.
Clock Synchronization Level Alarms (BITS alarms)	
MTIE Exceeded	Minor; the MTIE performance for the input signal has exceeded the requirement mask threshold indicating an unusable signal.
Loss of Signal (LOS)	Major; the SyncRM cannot detect a signal on the timing reference.
Out of Frame (OOF)	Major; SyncRM cannot detect DS1 frame. This alarm masks AIS alarm for a given timing reference.
Alarm Indication Signal (AIS)	Major; SyncRM has detected an AIS on an incoming timing reference signal from the BITS link. This alarm is masked by the LOF alarm.
Timing Link Degradation (TLD)	Major; this is a non-service affecting alarm and would be masked by all other SyncRM BITS Alarms
Bipolar Violation (BPV)	Minor; this is a non-service affecting alarm and would be masked by all other SyncRM BITS Alarms
Cyclic Redundancy Check (CRC)	Minor; this is a non-service affecting alarm and would be masked by all other SyncRM BITS Alarms

PNM--available logs/faults for Succession

The following table lists the PNM logs/faults available through Succession. PNM supports SCC2 or NT STD formatted logs through SDM functionality, or it can be supported through IEMS. For details on the IEMS interface, refer to the section in this document titled “SN07 IEMS Functionality.” For detailed

information on logs, refer to NN10275-909, *Succession Fault Management Log Reference.*

PNM Logs/Faults available in Succession

Log/Fault	Description
Feature A00002007 (UA-AAL1) introduces threshold faults. The following new faults, which have a Warning severity, are raised when a threshold is crossed and cleared when the threshold criteria is exited:	
OVLD300	Associated with the fault ovldDetectionAlarm which has a severity of MINOR or MAJOR, based on the rate of call denials.
OVLD800	ovldRscMonPduRateFault
OVLD801	ovldRscMonCbvMsgRFault
OLVD802	ovldRscMonConnQueFault
OVLD803	ovldRscMonCpuUtilFault
MGEM304	The activity A00003089 (UA-AAL1) provides MGEM304. Generation of this log indicates a Communications Subsystem failure.
MGEM679	The log is generated when a user attempts to update the frame location information.
The following alarm logs are modified to include the provisioned frame location information. CES305, MGCA301, MGCA302, MGCA303, MGCA304, MGCA305, MGCA306, MGCA307, MGCA308, MGCA309, MGCA310, MGCA312, MGCA313, MGCA314, MGCA315, MGCA316, MGCA317, MGCA318, MGCA319, MGCA320, MGCA321, MGCA322, MGCA323, MGCA324, MGCA325, MGCA326, MGCA327, MGCA328, MGCA329, MGCA330, MGCA331, MGCA332, VC301, VC302, VC303, VC304, VC305, VC306, SHLF301, SHLF302, SHLF303, SHLF304, SHLF305, SHLF306, SHLF307, SHLF308, SHLF309, SHLF310, SHLF311, SHLF312, SHLF313, SHLF314, SHLF315, SHLF316, SHLF317, SHLF318, SHLF319, SHLF320, SHLF321, SHLF322, SHLF323, SHLF324, SHLF325, SHLF326, SHLF327, SHLF328, SHLF329, SHLF330, SHLF332, SHLF333, SHLF334, SHLF335, SHLF336, SHLF337, SHLF338, SHLF339, SHLF340, SHLF341, SHLF342, SHLF343, SHLF344, SHLF345, SHLF346, SHLF347, SHLF348, SHLF349, SHLF350, SHLF351, SHLF352, SHLF353, SHLF354, SHLF355, SHLF356, SHLF357, SHLF358, SHLF359, SHLF360, SHLF361, SHLF362, SHLF363, SHLF364, SHLF365, SHLF366, SHLF367, SHLF368, SHLF369, SHLF370, SHLF371, SHLF372, SHLF373, SHLF374, SHLF375, SHLF376, SHLF377, SHLF378, SHLF379, SHLF380, SHLF381, SHLF382, SHLF383, SHLF384, SHLF385, SHLF386, SHLF387, SHLF388, SHLF389, SHLF390, SHLF391, SWLN301, SWLN302, SWLN303, XDSL301, XDSL302, XDSL303, XDSL304, XDSL305, XDSL306, XDSL307, XDSL308, XDSL309, XDSL310, XDSL311, XDSL312, XDSL313, XDSL314, XDSL315, XDSL316, XDSL317, BW300, BW301, BW302, BW304, BW305, BW306, BW307, BW308, BW309, BW310, BW311, NE301, NE302, NE303, NE304, NE305, NE306, NE307, NE308, NE309, NE310, NE311, NE312, NE313, NE314, NE315, NE316, NE317, NE318, NE320, MGEM300, MGEM301, MGEM302, MGEM303, MGC300, MGC301, MGC30x, TEST302, TEST303, TEST 304, ESA300, VMG300, VMG301, VMG302, VMG303, VMG304, OVLD300	

NPM--available logs/faults for Succession

The following table lists the Network Patch Manager (NPM) Logs/Faults available through Succession. For detailed information on Succession logs, refer to NN10275-909, *Succession Fault Management Log Reference.*
NPM supports SCC2 or NT STD formatted logs through SDM functionality, or it can be supported through IEMS. For details on the IEMS interface, refer to the section in this document titled “SN07 IEMS Functionality.” For details

on the logs, refer to the Fault section of the FCAPS documentation on CS 2000 Management Tools, NN10084-911.

NPM Logs/Faults available in Succession

Log/Fault	Description
Network Element: Network Patch Manager	
NPM360	Reports that an alarm has been raised.
NPM370	Reports when an alarm has been cleared.
NPM400	Reports the results of attempted apply, remove, and audit commands.
NPM600	Reports when the NPM server has been started, either by reboot or manually.
NPM601	File failure; reports general problems that could be service affecting. The log contains lines of trouble information text.
NPM603	There are problems between the database and the device during a device audit.
NPM605	General trouble log; reports general problems that could be service affecting. The log contains lines of trouble information text.
NPM610	Provides information related to the execution of a task.
NPM660	Reports problems when a plan fails to execute.
NPM680	Reports problems when a plan is automatically executed.
NPM System Alarms	
Alarm name	Description
ACT_NOT_APP	Activated patch not applied to all applicable devices.
ACT_NOT_ACT	Active patch applied to all applicable devices but not activated in all devices.
DEBUG_APP	Debug patches applied. Minor.
DISABLED_APPLIED	Applied patches that can be enabled, but are disabled. Major.
DNR_NOT_APP	Do Not Remove (DNR) patches not applied. Critical.
EMG_NOT_APP	Emergency patches not applied. Critical.
ENABLED_REMOVED	Patches which can be enabled but are not enabled. Major.
GEN_NOT_APP	General patches not applied. (No severity)
LTD_NOT_APP	Limited patches not applied. (No severity)
OBS_NOT_REMOVED	Obsolete patches not removed. Major.
OBE_NOT_REMOVED	Obsolete emergency patches not removed. Critical.
REMOVED_PATCHES	Removed patches when are not category OBS, OBE, or DBG. (No severity)
PATCH_ONHOLD	Patches on hold. Minor.
DEVICE_ONHOLD	Devices on hold. Minor.

CS2000 Core Manager--available logs/faults for Succession

The following table lists the CS2000 Core Manager Logs/Faults available in Succession. For detailed information on logs, refer to NN10275-909,

Succession Fault Management Log Reference.
The CS 2000 Core Manager supports SCC2 or NT STD formatted logs through SDM functionality, or it can be supported through IEMS. For details on the IEMS interface, refer to the section in this document titled "SN07 IEMS Functionality." For details on the faults themselves, refer to the Fault Management section of CS 2000 FCAPS documentation, NN10082-911.

CS2000 Core Manager Logs/Faults available in Succession

Log/Fault	Description
Network Element: CS2000 Core Manager	For details on previously existing Logs/Faults, refer to the SDM15 release of NTP 297-5051-840.
SDM267	Indicates a change in the condition of a CBM link
SDM300	The connection from the Preside CS200 Core Manager to the CM or operating company LAN server(s) is down.
SDM301	The maintenance system detects the logical volume mirroring status.
SDM302	Use of a system resource exceeds the threshold. Associated with log SDM602.
SDM303	A process has failed more than 3 times in a day, or some other application fault has occurred. Associated with log SDM603 which indicates a clearing of the alarm. CR's Q00537118 and Q00600912 also impact this log for consistent formatting changes.
SDM304	Log Delivery application has failed to reconnect to a device.
SDM306	Table access software versions on the CM side and the SDM side are not compatible. Associated with a Minor alarm.
SDM308	An I-tape or S-tape backup has failed.
SDM309	Fault detected on HW device or user took HW device OOS.
SDM315	Corruption of file detected during data dictionary download.
SDM317	DCE subsystem has detected a problem.
SDM318	OM report failed to complete within one report interval. Associated with a Major alarm.
SDM321	Reports that a split-system upgrade is in progress. Associated with a Minor alarm.
SDM325	The connection to a network management component in a given domain has been lost. Log reports may be lost as a result.
SDM328	Indicates that the signal on receive/ transmit fibre to OC3 card is faulty or not present. Associated with Major alarm OC3 Card Fault.
SDM329	Indicates a probable link equipment malfunction. Associated with Minor alarm Minor Link Fault.
SDM332	Indicates the status of an unsuccessful SDM system audit. An INFO log.
SDM336	Indicates that a response to CBM 800 heartbeat is not received from the core. Associated with major alarm Core Heartbeat
SDM500	The SDM node control process has restarted.
SDM501	The node control process updated SDM run state to INSV.

CS2000 Core Manager Logs/Faults available in Succession

Log/Fault	Description
SDM502	The node control process updated SDM run state to MANB. Logs SDM502-505 are included in the CS2000 Core Manager Log Delivery stream, but do not appear on the RMI.
SDM503	The node control process updated SDM run state to SYSB.
SDM504	The node control process updated SDM run state to ISTB.
SDM505	The node control process updated SDM run state to OFFL from MANB.
SDM550	An SDM Node Status Change has occurred.
SDM600	An SDM maintenance connection has been re-established.
SDM601	Logical volume mirroring is re-established.
SDM602	A system resource is below the threshold.
SDM603	The SDM303 alarm has been cleared. Or a state change has occurred that does not require manual intervention to clear. CR Q00600912 also impacts this log for consistent formatting changes.
SDM604	CM had too little time to format log(s) and log(s) is/are lost.
SDM608	I-tape or S-tape process has completed.
SDM609	A hardware device has returned to the INSV state.
SDM615	Log Thresholding is in effect for logs managed by exception application. Exception reports may be inaccurate
SDM616	An unauthorized connection attempt is detected by the Log Delivery application. The connection is refused.
SDM617	A DCE problem has been cleared.
SDM618	Logical volume /var is 98 percent full. Log files in /var/adm have been deleted.
SDM619	OM Access Service detected a corrupt OM group during an OM schema download.
SDM620	Reports current system performance data at set times.
SDM621	The split-system upgrade is finished.
SDM622	Max file size reached for a file device handled by GDD.
SDM625	The connection to a Network Management component in a given domain has been re-established.
SDM626	An INFO log only. Generated whenever the OMDD application starts and it detects that the tuple number option has been changed state since the last time the application was launched. The log is used to inform the OSS of the state change which inherently signifies a change in the OMDD CSV files. The log will indicate the new (current) state as being either ACTIVATED or DISABLED.
SDM627	Indicates a change in the condition of a CBM link.
SDM630	Indicates the SDM REX Test start and complete time. An INFO log.
SDM632	Indicates the status of a successful SDM system audit. An INFO log.
SDM633	A CBM info log that indicates a change in the condition of a CBM link.

CS2000 Core Manager Logs/Faults available in Succession

Log/Fault	Description
SDM634	Indicates that the OC3 Card Fault alarm raised with SDM328 has been cleared.
SDM635	Indicates that the Minor Link Fault alarm raised with SDM329 has been cleared.
SDM636	Indicates that the heartbeat alarm raised with SDM336 has been cleared.
SDM650	Link maintenance requests a report on a failed link maintenance action.
SDM700	Reports a Warm, Cold, or Reload restart on the core.
SDM739	Indicates file transfers between the FTP Client and the CORE and to show user log-ons to the CORE.
SDMB logs	**(SDM billing)**
SDMB300	Memory allocation failed for SDM billing system.
SDMB310	Indicates a communication problem with the SDM Billing System.
SDMB315	A software-related problem has occurred.
SDMB316	A billing-related process has been manually killed.
SDMB320	A billing-backup problem affecting more than one file.
SDMB321	A billing-backup problem affecting one file.
SDMB350	The billing application has reached a death threshold (a process has died > 3 times < 1 minute apart) and there is a request to restart.
SDMB355	A disk-related problem has occurred, such as problems writing to disk (related to alarm DSKWR) or with disk utilization (related to alarm LODSK).
SDMB365	A new version of the billing application does not support a stream format on an active stream present in previous load.
SDMB367	Value has been set on a trappable MIB object.
SDMB370	CDR-to-BAF conversion encountered a problem that prevented it from converting CDR to BAF; BAF record lost.
SDMB375	Generated when a problem occurs during the transfer of a file to the data processing management system (DPMS). It may be problems and alarms related to FTP, RTB (real-time billing), AFT (automatic file transfer), or Secure File Transfer Protocol. SN07 modifies it so that it is generated when an error occurs in SBA secure file transfer.
SDMB380	The file transfer mode for the stream indicated has an invalid value.
SDMB390	A schedule-related problem has occurred.
SDMB400	Generated every hour for every active stream to list all current active alarms.
SDMB530	The configuration or status of a stream has changed.
SDMB531	Configuration for backup volumes was changed correctly.
SDMB550	The billing application has shut down.
SDMB600	Generic information for the overall SDM Billing System.
SDMB610	A communications-related problem has been resolved.

CS2000 Core Manager Logs/Faults available in Succession

Log/Fault	Description
SDMB620	A backup-related problem has been resolved.
SDMB621	A new backup file is being started.
SDMB625	Recovery has started on a backup file.
SDMB650	The billing application is restarting one or more processes.
SDMB655	Indicates file state changes and disk utilization, OR disk utilization has dropped below a threshold, OR the billing application cannot move a file to the closeSentProcessed directory.
SDMB665	A software problem on the CM prevents the downloading (synch) of FLEXCDR data at the SDM.
SDMB675	An information log that identifies a event related to the transfer of billing files. An event may be a normal operation, a problem, or the resolution of a problem related to SDMB375.
SDMB680	Information not related to the file system or creating links needs to be communicated to the customer.
SDMB690	Indicates that an SBAIF alarm and the fault that caused it have cleared.
SDMB691	Generates when a problem occurs with the scheduled transfer of billing files and when that fault clears. It also generates when a file transfer schedule is manually deactivated or deleted.
SDMB820	A backup has hit a threshold.

Passport 15000--available logs/faults for Succession

Refer to *Appendix D: VoA Succession Passport 15000 and Preside MDM Alarm Log Summary* to find an explanation of the SCC2 logs format that Passport and MDM alarm logs use and for complete list of faults. The Passport 15000 supports SCCS or NT STD formatted logs through SDM functionality, or it can be supported through IEMS. For details on the IEMS interface, refer to the section in this document titled “SN07 IEMS Functionality.”

For details on the logs refer to NTPs NN10092-911 and NN10198-912.

Passport 8600--available traps/faults for Succession

Passport 8600 supports SCC2 format through SDM functionality and the IEMS interface. The following section discusses log delivery through SDM functionality. For details on the IEMS interface, refer to the section in this document titled “SN07 IEMS Functionality.”

SDM Functionality

The table on page 1861 provides the list of Passport 8600 and Preside Multiservice Data Manager (MDM) alarm logs as they would be delivered

when Passport 8600 traps are required in SCC2 format from the Supernode Data Manager (SDM) in a Succession solution.

The SCC2 log report for Passport 8600 and MDM alarms comprises a one-line header, followed by seven lines of body text, as per the following example:

```
37 PPES300 8169 TBL
    time:    2002 01 11 15 37 06
    event:   clear
    compId: PP8600 OTWAON8600A IF 101
    severity: cleared
    faultCode: C0000002
    alarmType: communications
    commentData: Link up trap interface:101.
```

The header is of format:

aabb\ccccdddeffgg\hhhh

Each field, as applicable for Passport 8600 and MDM alarms, is described in the following table.

Passport 8600 and MDM SCC2 Header Field Description

Field	Description	Applicable Log Values
aa	Alarm severity Passport/MDM alarm log severity	"C" = critical alarm "**" = major alarm "* " = minor and warning and indeterminate alarm " " = clear alarm Two characters, left justified, padded with blanks.
bb	Minute indicator Two numeric character indicator representing the minutes after the hour. Generated by SDM at time SDM receives the alarm log from MDM.	Ranges from 00 to 59, right justified, padded with zeros.
\	single space	" "
cccc	Log Name Assigned by SDM. Based upon the first four digits (“Index Group”) of the eight-digit Passport or MDM alarm identifier.	Four characters, left justified, padded with blanks. “PPES” for index groups beginning with C000, C122, and some fault codes in group 0999. “MDM “ for some fault codes in group 0999.

Passport 8600 and MDM SCC2 Header Field Description

Field	Description	Applicable Log Values
ddd	Log Number Three numeric characters representing the Passport or MDM Alarm Type. Note that the Alarm Type “debug” is not translated as a fault, but rather as information log.	"300" = communications "301" = quality of service "302" = processing "303" = equipment "304" = environmental "305" = security "306" = operator "307" = unknown
e	A single space for all Passport and MDM alarm logs.	" "
ff	Global Sequence Number Generated by SDM. Two numeric characters, incremented by SDM upon receipt of every alarm log.	Ranges from 00 to 99, right justified, padded with zeros.
gg	Device Sequence Number Generated by SDM. Two numeric characters, incremented by SDM upon receipt of every device specific alarm log from MDM (originated by Passport or MDM).	Ranges from 00 to 99, right justified, padded with zeros.
\	single space	" "
hhhh	Event Type Assigned by SDM. String assigned for all Passport and MDM alarm logs.	"TBL " Four characters, left justified, padded with blanks.
Lines 2, 3, 4, 5, 6, 7, 8	Body Text Seven textual lines, each of form <AlarmFieldname>: <AlarmFieldValue>	"time: " "event: " "compId: " "severity: " "faultCode: " "alarmType: " "commentData: " Comment data is truncated so that entire log does not exceed 900 bytes.

The following table presents the list of Passport 8600 alarm logs and their corresponding SCC2 header format.

Component Name indicates the managed object against which the alarm Log

is generated. This table contains the CLI format of a component name. The "compId" field in SCC2 format contains this information (with the module's <nodename> pre-pended). Also, "compId" follows the MDM API-style format (with component type and instance separated by a space instead of a slash, and '$' appearing in place of a null instance value). Variables (usually instance value ranges) are denoted by <> and the reader should reference the Alarms NTPs 241-6003-110 and 241-6001-501 for further information.

Passport 8600 Log Mapping to SCC2 Headers

Passport 8600 Fault Code	Component Name	SCC2 Header
0999 0001	PP8600/<device name>	*Cbb MDM 303 ffgg TBL
0999 0002	PP8600/<device name>	*Cbb PPES306 ffgg TBL
0999 0003	PP8600/<device name>	aabb PPES306 ffgg TBL where: aa = "*C, "* "
0999 0013	PP8600/<device name> <component type>/<component instance>	**bb PPES307 ffgg TBL
C000 0000	PP8600/<device name>	* bb PPES306 ffgg TBL
C000 0001	PP8600/<device name>	* bb PPES306 ffgg TBL
C000 0002	PP8600/<device name> IF/<If Index>	**bb PPES300 ffgg TBL
C000 0004	PP8600/<device name> SECURITY $	* bb PPES305 ffgg TBL
C122 0001	PP8600/<device name> CARD/ <Card Index>	**bb PPES303 ffgg TBL
C122 0003	PP8600/<device name>	*Cbb PPES303 ffgg TBL
C122 0006	PP8600/<device name> FAN/<Fan Index>	*Cbb PPES303 ffgg TBL
C122 0007	PP8600/<device name> PS/<ps index>	*Cbb PPES303 ffgg TBL
C122 0008	PP8600/<device name> RMON/<parameter>	* bb PPES301 ffgg TBL
C122 0009	PP8600/<device name>	aabb PPES307 ffgg TBL where: aa= "* ", "**", "*C"
C122 000A	PP8600/<device name>	**bb PPES303 ffgg TBL
C122 000B	PP8600/<device name>	* bb PPES307 ffgg TBL
C122 000C	PP8600/<device name>	* bb PPES307 ffgg TBL
C122 000D	PP8600/<device name>	* bb PPES307 ffgg TBL

Passport 8600 Log Mapping to SCC2 Headers

Passport 8600 Fault Code	Component Name	SCC2 Header
C122 000E	PP8600/<device name> OSPF $ IfAddr <Ip-address>	**bb PPES305 ffgg TBL
C122 000F	PP8600/<device name> OSPF $ IfAddr <Ip-address>	**bb PPES303 ffgg TBL
C122 0010	PP8600/<device name> OSPF $ IfAddr <Ip-address>	* bb PPES303 ffgg TBL
C122 0011	PP8600/<device name> OSPF $ NBR <Ip-address>	**bb PPES303 ffgg TBL
C122 0012	PP8600/<device name> PVC/<IfIndex-Vpi-Vci>	aabb PPES304 ffgg TBL where: aa="* ", "**"
C122 0013	PP8600/<device name> OSPF $ VIRTIF <Ip-address1>- <Ip-address2>	**bb PPES305 ffgg TBL
C122 0014	PP8600/<device name>	**bb PPES307 ffgg TBL
C122 0015	PP8600/<device name> OSPF $ VIRTIF/<Ip Address1> - <Ip Address2>	* bb PPES304 ffgg TBL
C122 0016	PP8600/<device name> OSPF VIRTNBR <Ip-address1> - <Ip-address2>	* bb PPES304 ffgg TBL
C122 0017	PP8600/<device name> IF <If Index>	* bb PPES307 ffgg TBL
C122 0020	PP8600/<device name>	**bb PPES307 ffgg TBL
C122 0021	PP8600/<device name> OSPF VIRTIF <Ip-address1> - <Ip-address2>	**bb PPES303 ffgg TBL
C122 0022	PP8600/<device name> SECURITY $	* bb PPES305 ffgg TBL
C122 0023	PP8600/<device name> card <Card Index>	* bb PPES303 ffgg TBL
C122 0024	PP8600/<device name> card <Card name>	**bb PPES303 ffgg TBL
C122 0025	PP8600/<device name> card <Card name>	* bb PPES303 ffgg TBL
C122 0026	PP8600/<device name>	**bb PPES302 ffgg TBL
C122 0027	PP8600/<device name>	**bb PPES303 ffgg TBL
C122 0028	PP8600/<device name> SECURITY	**bb PPES300 ffgg TBL

Passport 8600 Log Mapping to SCC2 Headers

Passport 8600 Fault Code	Component Name	SCC2 Header
C122 0029	PP8600/<device name> SECURITY $	**bb PPES300 ffgg TBL
C122 0030	PP8600/<device name> SECURITY $	**bb PPES305 ffgg TBL
C122 0031	PP8600/<device name> card <Card name>	* bb PPES303 ffgg TBL
C122 0032	PP8600/<device name> card <Card name>	* bb PPES304 ffgg TBL
C122 0033	PP8600/<device name>	* bb PPES302 ffgg TBL
C122 0034	PP8600/<device name> IF <If name>	* bb PPES300 ffgg TBL
C122 0048	PP8600/<device name>	* bb PPES300 ffgg TBL
C122 0049	PP8600/<device name>	* bb PPES303 ffgg TBL
C122 0051	PP8600/<device name>	* bb PPES307 ffgg TBL
C122 9998	PP8600/<device name>	* bb PPES306 ffgg TBL
C122 9999	PP8600/<device name>	* bb PPES307 ffgg TBL

Where:

<device name> is the name of the PP8600 module, typically the CLLI of the network element.

<If Index> is the numerical IFTable index of the interface (range: 1-65535).

<Card Index> is the slot number of the card in the shelf (range: 1-10)

<Fan Index> is the fan number (range: 1-2)

<ps Index> is the power supply number (range: 1-3)

<parameter> is an index number for the alarm

<Ip-address> is an IPv4 address

<IfIndex-Vpi-Vci> is a combination Iftable index with an ATM VPI/VCI.

MDM--available logs/faults for Succession

See Appendix D.

Appendix D in this *OSS Guide* references the MDM and MDM proxy set/clear alarm logs that are applicable for Succession. Applicable MDM set/clear alarms logs include those due to MDM software failure, and alarms related to the monitoring of the platform on which MDM is operating. MDM proxy alarm logs are alarms that the MDM initiates on behalf of Passport (for a number of reasons) and injects into the Passport alarm log stream.

MDM supports API (ASCII Protocol Interface). For details on the logs, refer to NTPs 241-6001-011 and 241-6001-501.

UAS--available logs/faults for Succession

The following table lists the UAS Faults/Alarms available through Succession. For detailed information on logs, refer to NN10275-909, *Succession Fault Management Log Reference.*

UAS faults are available through SDM functionality or through the IEMS interface. UAS alarm information can also be viewed from the alarm browser that resides with the CS2000 Management Tools. For details on the logs, refer to the Fault Management section of UAS FCAPS documentation, NN10073-911.

Refer to the New and Changed section of this document to see if there are changes in UAS logs and faults.

UAS Logs/Faults available in Succession

Network Element: UAS

UAS faults are sent from the UAS to the UAS EM and are then sent northbound via CORBA. UAS alarm information can also be viewed from the alarm browser that resides with the CS2000 Management Tools.

Fault	Description	For details on these Logs/Faults, refer to the Fault section of documentation for UAS, NN10073-911.
ATM Alarms	AS001	An ATM interface card is missing from the slot.
	AS002	There is a different ATM card module inserted in the chassis slot.
	AS003	The ATM card has detected an H.110 bus failure.
	AP001	The ATM interface port has had a loss of connectivity.
Ethernet Interface Alarms		
	EI_LINK_DOWN; Critical. “Callp was unable to initialize interface to hardware. Check configuration.” Clear with a reboot.	
88065 (366)	EI_LINK_DOWN; Critical. “Link on host network interface is down.”	
Call Agent Connection Alarms		
8193 (301)	THREAD_DEATH_ALARM; Critical. Either the “ingoing” or “outgoing” messaging thread is unable to restart because of some undetermined problem. Clears at the next startup of call processing application.	

UAS Logs/Faults available in Succession

8194 (302)	UDP_INIT_FAIL_ALARM; Critical. This alarm can be raised for various reasons during initialization. The audio server is unable to communicate with the call server. The condition clears at the next startup of the call processing application. Possible reasons and corrective actions follow: MGC IP address is not datafilled because the uas.conf file either does not exist, is unreadable, or is missing an entry for “CallAgentIPAddress.” Fix the configuration file. MGC IP address is not valid because the call agent IP address obtained from the config file is not valid. Fix the IP address in the config file. Bad return code from WSAStartup because an attempt was made to initialize the Windows socket library, but failed due to a version mismatch. Report the full text of the alarm to the support group. WinSock version is not 1.1 as expected because an attempt was made to initialize the Windows socket library, but failed due to a version mismatch. Report the full text of the alarm to the support group. Unable to create socket; an attempt was made to create a UDP communications socket, but failed. Report the full text of the alarm to the support group. Unable to bind client name to socket; an attempt was made to bind the communications socket to the port specified in the uas.conf configuration file. Another callp program may already be running. Make sure that another callp program is not running. Unable to connect to call agent socket; an attempt was made to associate the communications socket with the address of the call agent, but failed. Report the full text of the alarm to the support group.
8195 (800)	SOCKET_ERROR_ALARM; Warning. UDP Socket errors are being detected.
8196 (801)	RETRANS_ALARM Warning, Retransmissions are being detected.
8197 (802)	EXCEED_MAX_RETRANS_ALARM; Warning, Call_Agent_Connection, The number of retransmissions has now exceeded the maximum number of retransmissions.
System Alarms	
6154 (379)	NODE_NO_CARDS_INSTALLED; Critical. “There are no NMS cards installed.”
Call Engine Alarms -- associated with call processing or maintenance state machines.	
12290 (303)	CALLP_THREAD_NOT_RESTARTED; Major. The call processing software thread associated with <endpointId> died due to an unhandled software error, and was not restarted because it died too quickly after the previous start. Escalate this issue to Nortel support, providing any other logs that might have occurred. Clears at the next startup of the call processing application.
12291 (304)	CALLP_CFG_INVALID; Critical. The resource configuration for endpointId in C:\uas\etc\rm.resources is not valid. Correct the configuration for endpointId in the rm.resources file, and restart the call processing application. Clears at the next startup of the call processing application.
12295 (305)	AUDIO_VFSDIR_NOT_SET; Critical. The environment variable VFSDIR is not set to the home directory of the VFS hierarchy. Verify that the VFS software is correctly installed. Clears at the next startup of the call processing application.

UAS Logs/Faults available in Succession

12296 (306)	CALLP_CONFIG_PROB; Critical. A serious configuration problem has been detected. The Audio Server is unable to initialize. A configuration file is probably in error. Look for an error log to determine the exact cause of the problem. Clears at the next startup of the call processing application.
12297 (307)	CALLP_NO_CARDS_AVAILABLE Call_Engine There are no NMS cards available for use.
12298 (308)	CALLP_AUDIO_RESYNC_FAILURE Call_Engine Failed to communicate with aliasServer. Check audio installation and aliasServer.
AG4000 Service-level Alarms -- conditions that affect the service-level functionality of the AG4000 card in an ATM system.	
14337 (315)	AG_GENERIC_ALARM; Major. An attempt was made to load software onto the card and to start the card but failed. Stop the applications, reseat the card and then restart the applications. If the problem persists, contact the Nortel support group. Clears when the applications are restarted and the operation succeeds.
14338 (315)	AG_SURPRISE_EXTRACTION Improper extraction of AG4000 card in slot <x> of the SAM 16 chassis.
14339 (316)	AG_CARD_DISABLED AG4000 card in slot <x> disabled until next application restart of the UAS.
NodeMtc Alarms -- generated by the callp application if the NMS CT daemon and NMS Clock Fallback Manager services fail to stop or start successfully.	
20481 (322)	CTDAEMON_SERVICE_FAILURE; Critical. Either the NMS CT daemon service is not installed as a service, or it is in a service state where it cannot accept start and stop service requests. Make sure that the NMS CT daemon service is installed. Stop, uninstall and re-install the service if need be. Clears once the NMS CT daemon service has been successfully started or stopped.
20482 (323)	CFBM_SERVICE_FAILURE; Critical. When the NMS CT daemon service is started, it should automatically start the NMS Clock Fallback Manager service (The NMS Clock Fallback Manager service is not automatically stopping the NMS CT daemon service.). If the NMS Clock Fallback Manager service is not automatically started for some reason, either the NMS Clock Fallback Manager service is not installed as a service for it to be started or stopped, or it is in a service state where it cannot accept start and stop service requests. Make sure that the NMS Clock Fallback Manager service is installed. Stop, uninstall and re-install the service if need be. Clears once the NMS Clock Fallback Manager service has been successfully started or stopped.
20483 (324)	SERVICE_FAILURE NodeMtc The <x> service could not be _____.
ConfigMgr Alarms	

UAS Logs/Faults available in Succession

26625	CM_CONFIG_ERROR; Critical. This alarm can be raised for various reasons during initialization. A serious configuration problem has been detected. The Audio Server is unable to initialize. A configuration file is probably in error. Look for an error log to determine the exact cause of the problem. The condition clears after the configuration problem is fixed. Possible reasons and corrective actions follow: The specified configuration template files are missing from c:\uas\cfg\templates. Restore the missing files. The specified configuration file is missing. Restore the missing file. ConfigMgr was unable to update the uas_pending.conf file. The file may have had incorrect permissions, or the disk is full. Check file permissions. Check to see if the disk is full. ConfigMgr attempted to create a kernel object but encountered an error. Contact the support group. ConfigMgr was unable to copy a file. The file may have had incorrect permissions, or the disk is full. Look at logs to determine which file caused the problem. Check file permissions. Check to see if the disk is full. ConfigMgr could not automatically determine how many AG cards there are in the system.he number of AG cards could not be determined. Ensure that the NMS blocate utility is present and is working properly. ConfigMgr could not update the uas.conf file with the number of AG cards. Check file permissions. Check to see if the disk is full. A configuration parameter is missing or has an invalid value. Look at logs to determine which configuration parameters are missing. ConfigMgr attempted to operate on a kernel object but encountered an error. Contact the support group.
CG6000 Service-level Alarms	
30721	CG_GENERIC_ALARM; Major. An attempt was made to load software onto the card and to start the card. The attempt failed. Stop the applications, reseat the card and then restart the applications. If the problem persists, contact the Nortel support group. Clears when the applications are restarted and the operation succeeds.
30722 (318)	CG_ETHERNET_CONN_ALARM Critical, CG6000 %d failed ethernet connection(s) on CG6000 card in slot %d.
30723 (319)	CG_SURPRISE_EXTRACTION Major, CG6000 Improper extraction of CG6000 card in slot %d.
30724 (320)	CG_CARD_DISABLED Major, CG6000 card in slot %d disabled until next application restart.
30725 (321)	CG_CLOCKING_ALARM Major, CG6000 primary clock source is %s and secondary clock source is %s in slot %d.
ATM Service Alarms--The ATM_MISSING_CARD alarm and ATM_MISMATCH_CARD alarm are raised in situations where provisioned VCs exist for a given ATM Card in a given slot, and that card has either been removed, is inoperable, or has been replaced with another ATM card.	

UAS Logs/Faults available in Succession

34817	ATM_MISSING_CARD; Critical. Either the ATM card has been pulled or it has experienced a catastrophic failure and is unable to register with the cPCI chassis. A working ATM card must be inserted into the slot. Alternatively, all the VCs may be deleted which are associated with the missing card. Clears at the next start of the call processing application.
34818	ATM_MISMATCH_CARD; Critical. The ATM card has been replaced with a different model ATM card. Place the correct ATM card back in the slot which originally contained the S007 card. Alternatively, all the VCs may be deleted which are associated with the mismatched card. Clears at the next start of the call processing application.
ATM Port Alarms	
34913	ATM_PORT_LOC; Critical. The fiber connecting the ATM port to the network has either been unplugged or damaged. Plug the fiber back in, or replace it if it was damaged. Clears when the signal on the fiber is back to normal.
34819 (328)	ATM_H110_FAILURE Critical ATM_Service The ATM card detected an H.110 bus failure. This alarm may be caused by a bad AG driving the H.110 bus clock or more then one card is trying to drive the clock on the bus. Clears at the next start of the call processing application.
34820 (329)	ATM_OUTDATED_FIRMWARE Major ATM_Service The ATM card in slot %d has outdated firmware ver.:%s recommended version:%s. Please run the ATMFirmware command to upgrade the firmware. This alarm is seen if the ATM card has outdated firmware. Clears at the next start of the call processing application, after the firmware has been upgraded.
34821 (330)	ATM_FIRMWARE_NON_UPGRADABLE Major ATM_Service The ATM card in slot %d has outdated firmware ver.:%s. This firmware needs to be manually updated. Please load the card with a firmware version which is 2.1.0 or later. This alarm is seen when the firmware on the ATM card is outdated and can not be automatically upgraded. A newer firmware load needs to be transfer to the card manually. Clears at the next start of the call processing application.
34822 (331)	ATM_HW_API_TOO_MANY_FAILURES Critical ATM_Service The number of consecutive API calls failures to the ATM card in slot %d, has exceeded the threshold of %d. The card is being taken out of service. Clears at the next start of the call processing application.
Carrier Alarms	
40961	CARRIER_CLR_ALARM. Indicates that a carrier alarm cleared.
40962	CARRIER_RAISE_ALARM; Critical. One of these carrier alarms is raised: RAI, AIS, LOF, LOS, E1 LOMFS, or E1 16 AIS. Based on the different alarm types, check T1/E1 carrier for the cause. Clears when the CARRIER_CLR_ALARM event is received.
Activity Manager Alarms	
53249 (336)	AM_COLD_START_NOT_SENT_CEM Activity_Manager.
53250 (337)	AM_COLD_START_NOT_SENT_SWACT Activity_Manager.
53251 (338)	AM_SWACT_FAILURE Critical Activity_Manager.
53252 (339)	AM_ERM_FAILURE Critical Activity_Manager.

UAS Logs/Faults available in Succession

53253 (340)	AM_ED_SOCK_FAILURE Major Activity_Manager.
53254 (341)	AM_CONFIG_ERROR_NOFILE Minor Activity_Manager.
53255 (342)	AM_DATAFILE_ERROR_NOFILE Critical Activity_Manager.
Power Supply, Disk, and Fan Maintenance Alarms	
61441 (345)	COOLING_SYSTEM_RAISE_ALARM; Major/Critical. In the case of a cooling fault, this is due to a high temperature at air intake to the chassis. In the case of a Cooling alarm, it is due to an extremely high temperature at air intake to the chassis. Check air flow and cooling equipment. Clears upon receipt of a GlobalServer Equipment fault tag with a 'cleared' alarm condition.
59393 (344)	POWER_SUPPLY_RAISE_ALARM; Major. HA Monitor received a Power Supply Fault Tag, and informed the PsFanMtc subsystem. This could be due to a faulty power supply system in the chassis that has gone down. Clears upon receipt of a Power Supply Fault tag with the "Power Good" bit set.
59393	POWER_SUPPLY_RAISE_ALARM; Major. HA Monitor received a Fan Fault Tag, and informed the PsFanMtc subsystem. This could be due to a faulty fan in the chassis that has gone down. Clears upon receipt of a Fan Fault tag with the "Fan Fault" bit unset.
63489 (346)	DISKDRIVE_RAISE_ALARM Critical Hard_Disk ALARM: Problem detected on Domain %s %s disk drive, chassis peripheral %d, due to %s.
I/O Card Base-level Alarms	
65537 (309)	CD_SURPRISE_SLOT_POWER_OFF; Major. A surprise power off on a slot can be caused by a chassis hardware problem or by a software error. The problem may clear up after a reboot. Stop the applications and perform a reboot. If the problem does not clear up, then you may be able to work around the problem by moving the card to another slot. Refer to the appropriate card maintenance and configuration procedures. The alarm clears when power is restored to the slot.
65538 (310)	CD_SURPRISE_CARD_EXTRACTION; Major. A card was improperly extracted from the specified slot. The applications will need to be restarted. Perform these actions: 1) stop the applications 2) reinsert the card 3) restart the applications. The alarm clears when the card is reinserted and the applications are restarted.
65539 (311)	CD_LOAD_SCRIPT_FAILURE; Major. An attempt was made to load firmware onto the card in the specified slot. Stop the applications, reseat the card, and restart the applications. If the problem persists, then contact the Nortel support group. If reseating the card fixes the problem, then the alarm will clear when the applications are restarted.
65540 (312)	CD_SLOT_VERIFY_SCRIPT_FAILURE; Major. An attempt was made to verify that the card contains the correct firmware version. Stop the applications, reseat the card, and restart the applications. If the problem persists, then contact the Nortel support group. If reseating the card fixes the problem, then the alarm will clear when the applications are restarted.
65541 (313)	CD_GENERIC_CARD_ALARM; Major. A problem occurred with the card in the specified slot. A brief description of the problem is supplied. No action required; no clear condition.
Shelf Controller Alarms	

UAS Logs/Faults available in Succession

67585 (309)	SC_SURPRISE_SLOT_POWER_OFF Major Shelf Controller Surprise power off on slot %d.
67586 (310)	SC_SURPRISE_CARD_EXTRACTION Major Shelf Controller Surprise card extraction on.
67587 (311)	SC_LOAD_SCRIPT_FAILURE Major Shelf Controller Firmware load script failure on card in slot %d.
67588 (312)	SC_SLOT_VERIFY_SCRIPT_FAILURE Major Shelf Controller Verify script failure on card in slot %d.
67589 (313)	SC_GENERIC_CARD_ALARM Major Shelf Controller Problem with card in slot %d:
Hot Swap Controller Alarms	
69633 (309)	HS_SURPRISE_SLOT_POWER_OFF Major Hot Swap Controller Surprise power off on slot %d.
69634 (310)	HS_SURPRISE_CARD_EXTRACTION Major Hot Swap Controller Surprise card extraction on slot %d.
69635 (311)	HS_LOAD_SCRIPT_FAILURE Major Hot Swap Controller Firmware load script failure on card in slot %d.
69636 (312)	HS_SLOT_VERIFY_SCRIPT_FAILURE Major Hot Swap Controller Verify script failure on card in slot %d.
69637 (313)	HS_GENERIC_CARD_ALARM Major Hot Swap Controller Problem with card in slot %d:
SCSI Controller Base-level Alarms	
71681 (309)	SS_SURPRISE_SLOT_POWER_OFF; Major. A surprise power off on a slot can be caused by a chassis hardware problem or by a software error. The problem may clear up after a reboot. Stop the applications and perform a reboot. If the problem does not clear up, then you may be able to work around the problem by moving the card to another slot. Refer to the appropriate card maintenance and configuration procedures. The alarm clears when power is restored to the slot.
71682 (310)	SS_SURPRISE_CARD_EXTRACTION; Major. A card was improperly extracted from the specified slot. The applications will need to be restarted. Perform these actions: 1) stop the applications 2) reinsert the card 3) restart the applications. The alarm clears when the card is reinserted and the applications are restarted.
71683 (311)	SS_LOAD_SCRIPT_FAILURE Major SCSI_Controller Firmware load script failure on card in slot %d.
71684 (312)	SS_SLOT_VERIFY_SCRIPT_FAILURE Major SCSI_Controller Verify script failure on card in slot %d.
71685 (313)	SS_GENERIC_CARD_ALARM Major SCSI_Controller Problem with card in slot %d:
Chassis Event Manager Alarms	
75783 (311)	SS_LOAD_SCRIPT_FAILURE Major SCSI_Controller Firmware load script failure on card in slot %d.
75784 (312)	SS_SLOT_VERIFY_SCRIPT_FAILURE Major SCSI_Controller Verify script failure on card in slot %d.

UAS Logs/Faults available in Succession

75785 (313) SS_GENERIC_CARD_ALARM Major SCSI_Controller Problem with card in slot %d:
Local Resource Manager Alarms
81921 (350) LRM_CPU_C Critical, LocalResourceManager cpu_overload_critical, The CPU is overloaded, critical alarm.
81922 (351) LRM_CPU_M Major, LocalResourceManager cpu_overload_major, The CPU is overloaded major alarm.
81923 (352) LRM_MEM_C Critical, LocalResourceManager, mem_usage_high_critical, Memory usage is high.
81924 (353) LRM_MEM_M Major, LocalResourceManager mem_usage_high_major, Memory usage is high
81925 (354) LRM_DISK_C Critical, LocalResourceManager disk_usage_critical, Disk usage is high.
81926 (355) LRM_DISK_M Major, LocalResourceManager disk_usage_major, Disk usage is high but less severe than critical where space is exhausted.
81927 (356) LRM_CONFIG_FILE_ERR Minor, LocalResourceManager, lrm_config_fileerror
Program Manager Alarms
83971 (357) c_FAILED_MALLOC Critical ProgramManager.
83974 (358) c_BAD_PARSE Critical ProgramManager.
83987 (359) c_BAD_FORK Critical ProgramManager.
83989 (360) c_BAD_EXEC Critical ProgramManager.
83998 (361) c_CRIT_DEATH Critical ProgramManager.
83999 (362) c_MAX_RETRIES Critical ProgramManager
84000 (363) c_MAX_RETRIES_NO_RESTART Minor ProgramManager.
84009 (364) c_FIFO_ERROR Critical ProgramManager.
84039 (365) c_RSM_FAILED_CONNECT Critical ProgramManager.
Clock Manager Alarms
90113 (367) PRIMARY_CLOCK_DOWN_ALARM Minor ClockManager Primary Clock Driver trunk %d on board %d is down.
90114 (368) SECONDARY_CLOCK_DOWN_ALARM Minor ClockManager Secondary Clock Driver trunk %d on board %d is down.
90115 (369) BOTH_CLOCK_DOWN_ALARM Critical ClockManager System has lost all external clocking.
90116 (370) PRIMARY_BOARD_CLOCK_DOWN_ALARM Minor ClockManager Board %d has lost its primary clock source.
90117 (371) SECONDARY_BOARD_CLOCK_DOWN_ALARM Minor ClockManager Board %d has lost its secondary clock source.

UAS Logs/Faults available in Succession

90118 (372)	BOTH_BOARD_CLOCK_DOWN_ALARM Critical ClockManager Board %d has lost all external clocking.	
Event Server Alarms		
96257 (373)	LOCAL_SRVSOCK_CREATION_FAILED Critical EventServer [es_alrm_001] %s.	
96258 (374)	REMOTE_SRVSOCK_CREATION_FAILED Major, EventServer [es_alarm_002] %s.	
96259 (375)	SYSTEM_RESOURCE_ERR Critical, EventServer [es_alrm_003].	
96260 (376)	CONFIG_ERR EventServer [es_alrm_004].	
96261 (377)	HAMODE_CHECK_FAILED Critical, EventServer [es_alrm_005].	
96262 (378)	MATE_EVTSVR_CONN_LOST Minor, EventServer [es_alarm_006].	
UAS Logs		
ATM logs	ASL001	General ATM log indicating an ATM interface card problem.
	ASL002	The ATM service has initialized successfully.
	ASL003	An ATM delete gateway request has failed.
	ASL004	An ATM delete gateway request has failed.
	ASL005	An ATM interface card port has failed to lock. The port has returned to its previous state.
	ASL006	An ATM interface card port has failed to lock. The port cannot return to its previous state.
	ASL007	An ATM Virtual Channel has experienced an AIS alarm.
	ASL008	An ATM Virtual Channel has experienced an RDI alarm.
	ASL009	An ATM Virtual Channel cleared the AIS alarm.
	ASL010	An ATM Virtual Channel cleared the RDI alarm.
	ASL013	The ATM port is configured with the wrong UNI version.
	ASL014	ILMI failure on the ATM port.
	ASL015	UNI failure on the ATM port.
	ASL016	ILMI is now ready on the ATM port.
	ASL017	UNI is now ready on the ATM port.
	ASL018	Invalid ATM SDP parameter received.
	ASL019	Invalid VCCI received in the incoming AAL2 SVC setup.
	ASL020	A specific ATM software error occurred as described in the log.
	ASL021	Failed to acquire a channel for the endpoint described in the log.
	ASL022	An error was reported by the NMS PA200 API.
	ASL023	ATM audit has started.
	ASL024	ATM audit has ended.

UAS Logs/Faults available in Succession

	ASL025	Audit has dropped a resource on the ATM board as described in the log.
	ASL026	Audit has established a resource on the board p described in the log.
	ASL027	Audit has found a missing resource on the board that can't be established. The resource is described in the log.
	APL001	The ATM interface port has initialized correctly.
UAS398	Indicates a raised alarm in a UAS device	
UAS399	Indicates a cleared alarm in a UAS device	

USP Logs/Faults in Succession

For detailed information on logs, refer to NN10275-909, *Succession Fault Management Log Reference.*

USP faults are available to the OSS through a third-party fault probe or fault collector. The fault probe/collector must reside somewhere on the OAM&P VLAN due to security rules for accessing the Succession network elements. USP logs are also available through the IEMS interface and the USP PC Client GUI.

USP supports SSV format. For details on this format and the logs, refer to the Performance section of the FCAPS documentation on USP, NN10137-711.

Operational measurements/performance measurements

Operating company personnel use operational measurements (OMs) and performance measurements (PMs) to obtain information on the performance and traffic load on a Succession Network. This data provides the information required for network planning and engineering.

For more complete details on OMs and PMs, refer to NN10264-709, *Operational Measurements Reference Manual.*

OM collection and delivery

OM information is collected for XA-Core, MG 9000, and SPM (including the MG 4000, IW-SPM, and DPT-SPM) components. For network elements controlled by the XA-Core, OMs are collected at the network element level and transferred to the XA-Core. OM data can be viewed on the MAP by typing *OMSHOW* at the CI level. When using OMSHOW to view OM data, the active registers usually display zeros except for the last minute of the collection period. To view the active registers directly on an SPM network element, use *remlogin* to remotely log in and then change to directory *omutils* and use the CI command *print* to see the active OM data.

OMs can also be retrieved by the CS2K Core Manager (SDM functionality) OMD (OM Delivery) application, grouped into user-defined report elements, formatted into CSV (comma-separated value) format, and delivered to a customer OSS (operations support system). The OMD application delivers OMs/PMs only for the MG 4000, IW-SPM, DPT-SPM, SPM, MG 9000 and XA-Core. (See the next paragraph for Passport 15000 and MG 9000 use of OMD.)

PM collection and delivery

Other network elements (GWC, UAS, USP, SAM21, and MG 9000) have their own OM/PM viewers through their respective EMs (element managers). In the Passport 15000, performance measurements consist of network traffic management (NTM) statistics. The agents on each processor card send their data records to both MDMs every five minutes. For the PT-AAL1 solution, the active MDM sends these 5-minute records and aggregated 30-minute records to the CS2K Core Manager. The CS2K Core Manager creates a file in CSV

format and forwards the records to the OSS. For the UA-AAL1 solution, the 5-minute and 30-minute records are put into a CSV file on the MDM which can be FTP'ed from the OSS.

MG 9000 PM collection and delivery

Certain OMs sent to the MG 9000 Performance Browser are also sent to the operations support system (OSS) using an OM collection tool. The OMs are collected in comma separated value (CSV) format in an MG 9000 repository (MG 9000 mid-tier). The OMs are forwarded to a network-level repository called the OM Collector and retrieved by the OSS. The collected MG 9000 OMs, along with others from throughout the network, are used for network engineering.

The CSV file-naming conventions for MG 9000 are as follows:

<NodeType>.<NodeName>.OMs.<ReportName>.<Year>.<Month>.<Day>_<Hour>.<Minute>_<Time Zone>.csv

An example of a CSV file name:

```
MG9000.C05.OMs.15_MIN_TRAFFIC.2002.05.31_12:30_EDT.csv
```

The content of the output files for the MG9000 follow this format:

```
Table_Name
Source,Field_Name1, Field_Name2...
HW_Location, Data1
HW_Location, Data2
```

Performance Monitoring Poller data collection output

The SNMP-based PM poller collects performance attributes from several Succession-based network elements (i.e., UAS, GWC, SSPFS platform). The data collected by the PM device pollers is output in CSV files to the '/ data/oms' file output directory. The oms directory contains seven sub-directories (named 1- 7). Each of these sub-directories contains a day's collection of CSV output files (i.e., one sub-directory each for the seven-day history the poller maintains). The current day's output files are always written to subdirectory '1'. File rotation occurs just prior to midnight every 24-hour period. When file rotation occurs, the files in sub-directory '7' are removed and contents of all subsequent sub-directories are moved up the directory chain (i.e., files in directory 6 are moved to directory 7, 5 to 6, etc.).

A separate file is created for each device during each profile polling interval. When creating the CSV files the poller adheres to the following naming conventions:

<NodeType>.<NodeName>.OMs.<Report Name>.Year.Mon.Date_HR.MN_<TZ>.csv

where:

NodeType -> Node type (i.e, GWC, UAS, etc....)
NodeName -> A unique node name.
Report Name -> For the SSPFS poller this will correlate to the associated profile name.
TZ -> timezone (i.e., cst or cdt)

An example file name is provided below:
GWC.GWC-10_UNIT_1.OMs.GWC.2002.05.02_10.52_EDT.csv

Viewing CSV files
The CSV files can be viewed locally on the SSPFS platform by using a standard text editor. Alternately the SSPFS platform is configured with a snmp-poller ftp userid. A craftperson can utilize ftp to retrieve the CSV output data files for further analysis. When the snmp-poller ftp userid is used to ftp into the SSPFS server, the home directory for this account is the file **oms output directory**. For security reasons the snmp-poller ftp user only has access to the output directory and its sub-directories. Sample output files from the MIB-2 profile isprovided in the following table:

Note 1: A device can reside in more than one profile.

Note 2: Keep in mind, however, that the CSV file format is not intended to be a user-friendly format for viewing the output in a standard text editor. Typically these files would be parsed by an editor that can format CSV files in a legible manner, or they would be parsed by a machine interface.

Note 3: The 'poller' ftp userid should be used to retrieve the PM poller output files. Contact your network administrator to obtain the associated password.

Sample CSV output file for profile MIB-2

$cat GWC.GWC6.OMs.MIB-2.2002.05.24_16.06_EDT

//MIB-2 - .iso.org.dod.internet.mgmt.mib-2.host.hrSystem

SCALAR_GROUP_BEGIN-hrSystemUptime,hrSystemDate,hrSystemProcesses,1:2:18:51.85,"2002-5-24,20:7:42.0,+0:0",155

SCALAR_GROUP_END

//MIB-2 - .iso.org.dod.internet.mgmt.mib-2.snmp

SCALAR_GROUP_BEGIN-snmpInPkts,snmpOutPkts,snmpInBadVersions,snmpInBadCommunityNames,snmpInBadCommunityUses,snmpInASNParseErrs,snmpInTotalReqVars,snmpInTotalSetVars,snmpOutTraps,snmpSilentDrops,27608,27614,0,0,0,0,103010,772,7,80

SCALAR_GROUP_END

//MIB-2 - .iso.org.dod.internet.mgmt.mib-2.system

SCALAR_GROUP_BEGIN-sysDescr,"Nortel GateWay Controller GWC; MCPN750 128MB AA01 AA01 0001af02da30; PGC08AP (VRTXsa 3303, SNMP Research Agent 15.2.1.7)"

SCALAR_GROUP_END

//MIB-2 - .iso.org.dod.internet.mgmt.mib-2.host.hrDevice.hrProcessorTable.hrProcessorEntry

TABLE_BEGIN-hrProcessorLoad

1

TABLE_END

//MIB-2 - .iso.org.dod.internet.mgmt.mib-2.host.hrStorage.hrStorageTable.hrStorageEntry

TABLE_BEGIN-hrStorageIndex,hrStorageType,hrStorageAllocationUnits,hrStorageSize,hrStorageUsed,hrStorageAllocationFailures

1,host.hrStorage.hrStorageTypes.hrStorageRam,66 Bytes,1023,13,0

2,host.hrStorage.hrStorageTypes.hrStorageRam,1532 Bytes,400,0,0

3,host.hrStorage.hrStorageTypes.hrStorageRam,1536 Bytes,1024,49,0

4,host.hrStorage.hrStorageTypes.hrStorageRam,52 Bytes,512,321,0

5,host.hrStorage.hrStorageTypes.hrStorageRam,1 Bytes,11912704,184672,0

6,host.hrStorage.hrStorageTypes.hrStorageRam,1 Bytes,2097152,1577296,0

TABLE_END

The following table shows sample output files from the GWC profile.

Sample CSV output file for profile GWC
//GWC - .iso.org.dod.internet.private.enterprises.nortel.voip.ptn.serviceControl.legacyCallServer.lcsGateWayController.apgMeasurements
SCALAR_GROUP_BEGIN-accState,apgInsertions,maxSimulApgCalls,apgCallFailGWException,apgCallFailGWLost,
active,0,0,0,0
SCALAR_GROUP_END
//GWC - .iso.org.dod.internet.private.enterprises.nortel.voip.ptn.serviceControl.legacyCallServer.lcsGateWayController.dptMeasurements
SCALAR_GROUP_BEGIN-dptCallAttempts,dptCallFailResTimeout,dptCallFailResError,dptCallFailAccOOS,
10,0,0,0
SCALAR_GROUP_END
//GWC - .iso.org.dod.internet.private.enterprises.nortel.voip.ptn.serviceControl.legacyCallServer.lcsGateWayController.gwcUnitStatusMIB.gwcUnitObjects.gwcUnitStatus
SCALAR_GROUP_BEGIN-norUnitAdminStatus,norUnitOperStatus,norUnitActivity,
unlocked,enabled,active
SCALAR_GROUP_END
//GWC - .iso.org.dod.internet.private.enterprises.nortel.voip.ptn.serviceControl.legacyCallServer.lcsGateWayController.raMeasurements
SCALAR_GROUP_BEGIN-raState,totalResourceCapacity,resourceRequestError,inactive,0,0
SCALAR_GROUP_END

AMS Performance Measurements

Performance Measurements for the AudioCodes media servers are available through an SNMP interface and can be polled at scheduled intervals by an external poller. The media server will provide performance measurements in the form of two types:

- **Gauges:** Gauges represent the current state of activities on the media server. Gauges unlike counters can decrease in value and like counters, can increase. The value of a gauge is the current value or a snapshot of the current activity on the media server at that moment.
- **Counters:** Counters always increase in value and are cumulative. Counters, unlike gauges, never decrease in value unless the server is reset and then the counters are zeroed.

The media server performance measurements will be provided by two AudioCodes MIBs (acPerfMediaGateway and acPerfMediaServices). The first mib is generic-type of PM mib. The second PM mib is media server specific.

The generic PM mib covers the control protocol, the RTP stream, and the system packets statistics. This AC PM enterprise mibs supports statistics which apply to the media server and other AC products like gateways.

Available OMs/ PMs in Succession

The OM/PM listings on the following pages are limited to the data accessible through OSS interfaces. These listings do not include those network elements that employ their own graphical user interfaces for delivery/viewing of OM/PM data.

AudioCodes media servers PMs in Succession

The media server performance measurements will be provided by two AudioCodes MIBs (acPerfMediaGateway and acPerfMediaServices). The first mib is generic-type of PM mib. The second PM mib is media server specific. The first table shows performance measurements related to control protocol, RTP stream, and system packet statistics mibs.

AMS Control Protocol, RTP, packet statistics PMs

OM Group or PM Name	Name	Description
Network Element: SAM21		
acPerfMediaGateway (new in SN07	acPerfCpNumDupsForCompletedTransactions	**Number of Duplicated Completed Transactions:** The number of times a duplicate transaction request was received after the initial transaction had already been completed. In this case, the gateway resends the response for this transaction.
	acPerfCpNumDupsForOutstandingTransactions	**Number of Duplicated Transactions Outstanding:** The number of times a duplicate transaction request was received while the initial transaction was outstanding, that is, still in progress. In this case, the gateway ignores the duplicate request.
	acPerfCpMessageSendSuccesses	**Messages Send Successes:** Number of times there was a success in sending a call control (H.248) message. Call control messages are sent using the system's socket library. This counter tracks successes in using the local socket services. It does not track successes in end-to-end message transfer between the gateway and the call agent.
	acPerfCpMessageSendErrors	**Message Send Errors:** Number of times there was a failure in sending a call control (H.248) message. The message is sent via a datagram using the system's socket library. Normally a failure on a socket send operation would be attributed to an internal system problem.

AMS Control Protocol, RTP, packet statistics PMs

OM Group or PM Name	Name	Description
	acPerfCpMessageReceiveSuccesses	**Message Receive Successes:** Number of times there was a success in receiving a call control (H.248) message. Call control messages are received using the system's socket library. This counter tracks successes in using the local socket services. It does not track successes in end-to-end message transfer between the gateway and the call agent.
	acPerfCpMessageReceiveErrors	**Message Receive Errors:** Number of times there was a failure in receiving a call control(H.248) message. Call control messages are received using the system's socket library. A failure on the socket receive operation can be attributed to an internal system problem or with the call agent sending a message larger than what is supported by the gateway.
	acPerfCpProtocolSyntaxErrors	**Protocol Syntax Errors:**: Number of syntax errors detected in incoming call control (H.248) messages.
	acPerfCpMessageRetransmissions	**Message Retransmissions:** Each time the call engine times out waiting for an acknowledgement it retransmits the control protocol message, unless the number of max retransmissions is exceeded. This counter is incremented each time a message is retransmitted due to a timeout.
	acPerfCpMessageMaxRetransmissionsExceeded	**Message Max Re-transmissions Exceeded:** Number of times the call control message maximum retransmission count was exceeded. The gateway attempted several times to send a message to the call agent, but each time, an ack was not received. A failure of this type results in a failed call and is usually an indication that subsequent calls will fail. This problem is typically a result of the call agent being down or a result of a network problem
	acPerfCpMessagesFromUntrustedSources	**Messages From Untrusted Sources:** Number of messages received from untrusted sources, that is from network nodes other than the node on which the call agent is running.
	acPerfRtpSenderPackets	**RTP Sender Packets (Card):** Total number of RTP packets sent by the system for this card.
	acPerfRtpSenderOctets	**RTP Sending Octets (Card):** Total number of non-header RTP octets sent by this card.
	acPerfRtpReceiverPackets	**RTP Receiver Packets (Card):** Total number of RTP packets received by the system for this card.
	acPerfRtpReceiverOctets	**RTP Receiver Octets (Card):** Total number of non-header RTP octets received by this card.

AMS Control Protocol, RTP, packet statistics PMs

OM Group or PM Name	Name	Description
	acPerfRtpRcvrLostPackets	**RTP Receiver Lost Packets (Card):** Total number of RTP packets lost as observed by this card.
	acPerfRtpFailedDueToLackOfResources	**RTP Failed Due to Lack of Resources**: The number of times a rtp request was rejected due to lack of resources since the last application restart.
	acPerfRtpSimplexInSessionsCurrent	**RTP Simplex In Sessions:** Current number of simplex input RTP sessions.
	acPerfRtpSimplexOutSessionsTotal	**RTP Simplex Out Session Total:** Total number of simplex output RTP sessions.
	acPerfRtpSimplexOutSessionsCurrent	**RTP Simplex Out Session Current:** Current number of simplex output RTP sessions
	acPerfRtpDuplexSessionsTotal	**RTP Duplex Sessions Total:** Total number of duplex RTP sessions.
	acPerfRtpDuplexSessionsCurrent	**RTP Duplex Sessions Current**: Current number of duplex RTP sessions.
	acPerfSystemPacketEndpoints	**System Packet Endpoints:** Number of endpoints reserved for all packet network-related functions (conferencing, plays, etc.).

The second performance measurement mib is media server specific mib and contains statistics for these major categories:

- IVR – interactive voice response
- BCT – bearer channel tandeming
- CONF – Conferencing
- TT – Test Trunks

AMS IVR, BCT, CONF, and IT PMs

OM Group or PM Name	Name	Description
Network Element: SAM21		
acPerfMediaServices (new in SN07	acPerfIvrPlayRequests	**Play Requests:** The total number of announcement requests received from the call agent
	acPerfIvrPlaySuccessful	**Play Successes:** Number of announcement requests processed successfully.
	acPerfIvrPlayFailedDueToLackOfResources	**Play Failures Due to Lack of Resources:** Number of announcement requests which failed to be played because some resource was not available.

AMS IVR, BCT, CONF, and IT PMs

OM Group or PM Name	Name	Description
	acPerfIvrPlayFailedDueToLackOfResources	**Play In Progress:** The number of announcement operations that are currently in progress.
	acPerfIvrPlayDuration	**Play Duration:** The duration, in seconds, of all successful announcement requests. The average duration of all requests (average hold time) can be computed by dividing acPerfPlayDuration by acPerfPlaySuccessful.
	acPerfIvrPlayFailedDueToProvMismatch	**Play Failed Due to Provisioning Mismatch:** Number of audio segments which failed to be played because of a provisioning mismatch.
	acPerfIvrPlayCollectRequests	**Play Collect Requests:** The number of play collect requests.
	acPerfIvrPlayCollectSuccessful	**Play Collect Successful:** Number of play collects completed successfully. A request is considered successful if the entire sequence, from initial prompt to success/failure prompt, is played out without a failure due to lack of resources, provisioning mismatch, or any other media server failure. The failure of the user to enter the proper digits is not a reason for failure of the request.
	acPerfIvrPlayCollectFailedDueToLackOfResources	**Play Collect Failure due to Lack of Resources:** The number of play collect requests that failed due to lack of resources.
	acPerfIvrPlayCollectFailedDueToProvMismatch	**Play Collect Failed Due to Provisioning Mismatches:** The number of play collect requests that failed due a provisioning mismatch.
	acPerfIvrPlayCollectInProgress	**Play Collect In Progress:** The number of play collect operations that are currently in progress.
	acPerfIvrPlayCollectDuration	**Play Collect Duration in Seconds:** The duration, in seconds, of all successful play collect requests. The average duration of all requests can be computed by dividing acPlayCollectDuration by acPlayCollectSuccessful.
	acPerfIvrContDigitCollectRequests	**Number of Continuous Digit Collection Requests:** The number of continuous digit collect requests.
	acPerfIvrContDigitCollectSuccessful	**Number of Continuous Digit Collect Requests Successful:** Number of continuous digit collects completed successfully.
	acPerfIvrContDigitCollectFailedDueToLackOfResources	**Number of Continuous Digit Collection request failed (no resources):** The number of continuous digit collect requests that failed due to lack of resources.

AMS IVR, BCT, CONF, and IT PMs

OM Group or PM Name	Name	Description
	acPerfIvrContDigitCollectInProgress	**In Progress Continuous Digit Collection requests:** The number of continuous digit collect operations that are currently in progress.
	acPerfIvrContDigitCollectDuration	**Successful Continuous Digit Collect Requests:** The duration, in seconds, of all successful continuous digit collect requests. The average duration of all requests can be computed by dividing acDCCollectDuration by acDCCollectSuccessful.
	acPerfBctRequests	**Total BCT Requests:** The total number of BCT contexts opened since the media server initialized.
	acPerfBctSuccessful	**Successful BCT requests:** Number of BCT requests processed successfully.
	acPerfBctFailedDueToLackOfResources	**Failed BCT requests:** Number of BCT requests which failed to be played because a resource was not available.
	acPerfBctInProgress	**In progress BCT requests:** The number of BCT calls that are currently in progress.
	acPerfBctDuration	**Duration of BCT contexts:** The duration, in seconds, of all successful BCT contexts. The average duration of all contexts can be computed by dividing acPerfBCTDuration by acPerfBCTSuccessful.
	cPerfBctTotalParticipants	**Total of BCT participants**: The total number of BCT participants since the media server initialized.
	acPerfBctCurrentNumberOfParticipants	**In progress BCT participants:** The number of participants in all BCT calls that are currently in progress.
	acPerfConfRequests	**Total number of conferences processed:** The total number of conferences processed since the last application restart. This is the number of conferences created and not the number of members.
	acPerfConfSuccessful	**Successful Conferences:** Number of conference requests processed successfully.
	acPerfConfInProgress	**In-progress Conferences:** The number of conferences currently in progress.
	acPerfConfDuration	**Conference Duration:** The duration, in seconds, of all successful conference requests. The average duration of all requests can be computed by dividing acPerfConfDuration by acPerfConfSuccessful.

AMS IVR, BCT, CONF, and IT PMs

OM Group or PM Name	Name	Description
	acPerfConfFailedDueToLackOfResources	**Conference Failures due to lack of resources:** The number of times a conference request was rejected due to lack of resources since the last application restart.
	acPerfConfAddRequests	**Requests to add a conferee:** The number of requests to add a conferee to an existing conference.
	acPerfConfAddSuccessful	**Conferee adds successful:** The number of times a conferee was added successfuly to an existing conference.
	acPerfConfAddFailedDueToLackOfResources	**Conferee Add Failures due to lack of resources:** The number of times a conferee could not be added to an existing conference due to a lack of resources.
	acPerfConfPlays	**Plays into Conference:** The total number of plays made into conferences since the last application restart.
	acPerfConfPlayCollects	**Play Collects in Conference:** The total number of play collects made into conferences since the last application restart.
	acPerfConfTones	**Play Tones into conference:** The total number of Tones played into conferences since the last application restart.
	acPerfConfPortsUsed	**Conference Ports Reserved:** The total number of ports that were reserved for conferences since the last application restart.
	acPerfConfPortsReserved	**Conference Port Reserved for monitor:** A monitor port may be reserved by the call agent when setting up a conference. The monitor port can then be used by one or more listen-only conferees.
	acPerfTtRequests	**Test Trunk Test Requests:** The number of test trunk tests requested.
	acPerfTtSuccessful	**Test Trunk Test Request Successes:** The number of test trunk tests that were successfully setup and torn down. This PM is not a reflection on whether the test actually passed or failed.
	acPerfTtInProgress	**In-Progress Test Trunk Tests:** The number of test trunk tests that are currently in progress

AMS IVR, BCT, CONF, and IT PMs

OM Group or PM Name	Name	Description
	acPerfTtDuration	**Test Trunk Test Duration:** The duration, in seconds, of all successful test trunk requests. This number is the time between a test trunk test being initiated and completed. The average duration of all requests can be computed by dividing acPerfTtDuration by acPerfTtSuccessful.
	acPerfTtFailedDueToLackOfResources	**Test Trunk failures due to lack of resources:** The number of times a test trunk request was rejected due to lack of resources since the last application restart.

SAM21 OMs/PMs in Succession

The following table lists the operational measurements (OMs) and performance measurements (PMs) available from the SAM21network element. The OMs/PMs are retrieved by the SNMP poller.

SAM21 OMs/PMs

OM Group or PM Name	New or Changed	Description
Network Element: SAM21		
IPOA MIB	New in SN05	Cell Drop Count: The number of cells dropped by the interface on the Shelf Controller Cell Drop Timestamp: The time stamp of last cell dropped by the interface on the Shelf Controller Total Bytes Sent: The combined number of bytes sent through all active SVCs on the Shelf Controller Bytes Sent per Second: The average number of bytes sent through all active SVCs on the Shelf Controller Total Bytes Received: The combined number of bytes received through all active SVCs on the Shelf Controller Bytes Received per Second: The average number of bytes received through all active SVCs on the Shelf Controller Oversized PDU Content: The combined number of Oversized PDUs sent through all active SVCs on the Shelf Controller Received Timeout Count: The combined number of timeouts received at the endnode of all active SVCs on the Shelf Controller

CS 2000 OMs/PMs in Succession

The following table lists the operational measurements (OMs) and performance measurements (PMs) available from the Succession Call Server 2000 network element.

CS 2000 supports CSV and EADAS formats through SDM functionality. For details on EADAS, refer to the Performance section of CS 2000 FCAPS documentation, NN10149-711. For details on CSV format, refer to the previous two pages on "PM Poller data collection output."

CS 2000 OMs/PMs

OM Group or PM name	Registers	Description
Network Element: CS 2000		
AINTRAN AIN Transports group--new in SN07		
	INSCMSGO	Pegs Outgoing IN messages using SCTP
	INSCMSGI	Pegs Incoming IN messages using SCTP
	INSSNDFA	Pegs IN messages using SCTP for which send failed
	INSCDERR	Pegs IN messages which encountered errors at application data
	INSCTBIG	Pegs IN Messages which failed due to message length
	INSCTBMS	Pegs instances when buffer errors encountered while sending IN messages over SCTP
AL1SVCOM AAL1 Service Failure group--new in SN07 Used to provide OM registers for ATM switched virtual circuits (SVC) external network connection bearer path call origination attempts and call failures.		
	NOSVCAT	Number of SVC call attempts.
	NOSVCAT2	Extension register for nosvcatt.
	NOSVCFL	Number of SVC call attempts.
	ISSVCAT	Number of intraswitched (local) SVC call attempts.
	ISSVCAT2	Extension register for issvcsat.
	ISSVCFL	Number of intraswitch (local) SVC call failures.
	DPTSVCA	Number of interswitch (DPT) SVC call attempts.
	DPTSVCA2	Extension register for dptsvca.
	DPTSVCF	Number of interswitch (DPT) SVC call failures.
	NRTEDEST	ATM cause code 3 - no route to destination - SVC call failures.
	NOUSRRES	ATM cause code 18 - no user responding - SVC call failures.
	VPCINAVL	ATM cause code 35 - requested VPI/VCI not available - SVC call failures.
	BWTHNAVL	ATM cause code 37 - user cell rate not available - SVC call failures.

OM Group or PM name	Registers	Description
	TEMPFAIL	ATM cause code 41 - temp failure - SVC call failure reference.
	RESUNAVL	ATM cause code 47 - Resource unavailable SVC call failure reference
	OTH_CC	All other ATM cause codes SVC call failures.
ATTAMA2 CAIN Triggers group (Applies only to DMS)--new in SN07 Used for register overflows from the OM group ATTAMA, only when the BAS00023 SOC is ON, and only for registers AMANS and AMUNANS.		
	QUERYSCU	Added for Succession to count call attempts that are unsuccessful because switching equipment in another office handles too many calls.
	ISCONUCC	Added for Succession to count the number of times a CAIN call queries the SCU.
CAINTRIG CAIN Triggers group		
	QUERYSCU	Added for Succession to count call attempts that are unsuccessful because switching equipment in another office handles too many calls.
	ISCONUCC	Added for Succession to count the number of times a CAIN call queries the SCU.
CP Call Processing Software Resources group		
	CPLOSZ	Added for Succession to count origination messages correctly attached to a call condenxe block.
	CINITC	Added for Succession to count call condense blocks that were in use at the time of a cold restart.
	WAKESZ	Added for Succession to count CPWAKEUP block seiz.ures.
DCAMCEIA Dynamically Controlled Access Ineffective Attempts group		
	FR_TRUNK	Added for Succession to count the termination failures theat the DCA considers ineffective attempts toward DNS for calls that come in from a trunk.
	TO_TRUNK	Added for Succession to count the termination failures that the DCA considers ineffective attempts toward DNs for calls that terminate to a trunk.
	TOTAL	Added for Succession to count the termination failures that the DCA considers ineffective attempts toward DNs.
	TRMT	Added for Succession to count the termination failures that the DCA considers ineffective attempts toward DNs.
	ISUP	Added for Succession to count the termination failures that the DCA considers ineffective attempts toward DNs.

CS 2000 OMs/PMs

OM Group or PM name	Registers	Description
DPTOFCP DPT Office Protocol group--new in SN07 This OM group measures the performance of the supported dynamic packet trunk protocols for the office. The two supported protocols are BICC and SIP-T. The addition of this new DPTOFCP OM group is controlled by the value of a new SN07 office parameter, MULTINET_DISPLAY_ACTIVE. If this parameter is set to 'Y', then the new DPTOFCP OM group is displayed.		
FCDRTM1E (Applies only to DMS) Used for register overflows from the OM group FCDRTMP1, only when the UBFR0008 SOC is ON. This OM group provides 32 pre-defined tuples. Each register is associated with the CDR template being used for a CDR billing record. The CDR template index corresponds to the register number. This OM group supports indexes 0-31.		
FCDRTM2E (Applies only to DMS) Used for register overflows from the OM group FCDRTMP2, only when the UBFR0008 SOC is ON. This OM group provides 32 pre-defined tuples. Each register is associated with the CDR template being used for a CDR billing record. The CDR template index corresponds to the register number. This OM group supports indexes 32-63.		
FCDRALG2 (Applies only to DMS) Used for register overflows from the OM group FCDRALGR, only when the UBFR0008 SOC is ON. For these extension registers one count here is equal to 65535 counts of the same register in FCDRALGR. .		
ISUPCONN ISUP Connection group		
	ISCONUCC	Added for Succession to count call attempts that are unsuccessful because there are no available idle circuits in another office to handle the call.
	ISCONUCE	Added for Succession to count call attempts that are unsuccessful because switching equipment in another office handles too many calls.
	ISCONUCF	Added for Succession to count call attempts that are unsuccessful because of a temporary fault in the far-end network.
	ISCONUCF	Added for Succession to count call attempts that are unsuccessful because of a temporary fault in the far-end network.
NWMFRRCT Network Management Flexivle Reroute group		
	FRRATTCT	Added for Succession to count calls that are rerouted to a Virtual Interworking Agent (VIA) route list. Required for ACC (Automatic Congestion Control).
	FRRFLCT	Added for Succession to count rerouted calls that fail to find an idle VIA route list. Required for ACC (automatic congestion control).

CS 2000 OMs/PMs

OM Group or PM name	Registers	Description
OFZ2NET1 Office to Network group 1--new in SN07 This OM group records the structure of traffic that arrives at an office on a particular bearer network, the first routing, and the routing of outgoing traffic. The addition of this new OFZ2NET1 OM group is controlled by the value of a new SN07 office parameter, MULTINET_DISPLAY_ACTIVE. If this parameter is set to 'Y', then the new OFZ2NET1 OM group is displayed.		
OFZ2NET2 Office to Network group 2--new in SN07 This OM group counts calls that the system routes to generalized no circuit treatment (GNCT). The system routes a call to GNCT when a trunk group is the last route in the route list and all trunks are busy. The addition of this new OFZ2NET2 OM group is controlled by the value of a new SN07 office parameter, MULTINET_DISPLAY_ACTIVE. If this parameter is set to 'Y', then the new OFZ2NET2 OM group is displayed.		
SPMACT Specturm Activity group		
	CAPLEVEL	Added for Succession to indicate what the SPM's capacity index is. The capacity index is a numeric value, with possible values of 0, 1, or 2, corresponding to regular, enhanced and premium capacity, respectively.
SPMOVLD Specturm Overload Statistics group		
		The new SPMOVLD group will have 18 OMs that give metrics on the SPM flow control system and the system overload control component. All OMs that apply to the system overload control component start with an 'S', all others apply to the flow control system. The actual peg counts and usage counts (accurate to one second) are accumulated on the peripheral and then uploaded to the OM group using the Spectrum OM Transfer System (SOTS).
TRK2NET1 Trunk to Network group 1--new in SN07 This OM group provides information on trunk traffic for each trunk group. The OM groups OFZ2NET1 and OFZ2NET2 provide office-wide per bearer network traffic summaries for trunks. The addition of this new TRK2NET1 OM group is controlled by the value of a new SN07 office parameter, MULTINET_DISPLAY_ACTIVE. If this parameter is set to 'Y', then the new TRK2NET1 OM group is displayed.		
TRK2NET2 Trunk to Network group 2--new in SN07 This OM group counts calls that the system routes to generalized no circuit treatment (GNCT). The system routes a call to GNCT when a trunk group is the last route in the route list and all trunks are busy. The OM groups OFZ2NET1 and OFZ2NET2 provide office-wide per bearer network traffic summaries for trunks. The addition of this new TRK2NET2 OM group is controlled by the value of a new SN07 office parameter, MULTINET_DISPLAY_ACTIVE. If this parameter is set to 'Y', then the new TRK2NET2 OM group is displayed.		
TRNK2 OM group to hold extension registers from TRK OM group		
	TOTU2	Extension register of TOTU in TRK OM group

CS 2000 OMs/PMs

OM Group or PM name	Registers	Description
	INCATOT2	Extension register of INCATOT in TRK OM group
	TOTU2	Extension register of TOTU in TRK OM group
	INCATOT2	Extension register of INCATOT in TRK OM group
	NATTMPT2	Extension register of NATTMPT in TRK OM group
	DEFLDCA	Extension register of DEFLD in TRK OM group
	TRU2	Extension register of TRU in TRK OM group
	SBU2	Extension register of SBU in TRK OM group
	CONNECT2	Extension register of CONNECT in TRK OM group
	TANDEM2	Extension register of TANDEM in TRK OM group
	ANSWER2	Extension register of ANSWER in TRK OM group
TONES		
	TONEATT	Added for Succession to count calls that the system routes to each tone generator.
UTR Universal Tone Receiver group		
	UTRSZRS	Added for Succession to count each time that the system supplies a UTR to a call in response to a request.
XACORE XA-Core hardware-related OMs		
	XAPE	PE (processor element) faults
	XARXPE	Routine exercise test (RXe) PE failures
	XASM	Critical shared memory (SM) faults
	XARXSM	Routine exercise test (RXe) SM failures
	XAIOP	Critical IOP (input/output processor) faults
	XARXIO	Routine exercise test (RXe) IOP failures
	XADISK	Disk faults
	XATAPE	Critical tape faults
	XARTIF	RTIF (reset terminal interface) packlet faults
	XALOCP	Critical faults on a RTIF local port
	XAREMP	Critical faults on a RTIF remote port
	XACMIC	CMIC packlet faults
	XACXABRT	Routine exercise (REx) test aborts
	XARXBASE	Routine exercise test on base hardware failures
	XARXFULL	Routine exercise test on all hardware failures
	XARXALL	Routine exercise test on all hardware failures
	XAMDI	Number of critical AMDI packlet faults detected
	XAMDILNK	Number of critical AMDI link faults detected
	XETHR	Hardware faults on Ethernet packlet

OM Group or PM name	Registers	Description
	XETHRPRT	Hardware faults on an Ethernet port
	XETHRLNK	Hardware faults on an Ethernet link
XACSRVC	XA-Core service-related OMs	
	XAMDMAJU	Length of time (in 100 second increments) that an AMDI major alarm condition has existed
	XAMDCRIU	Length of time (in 100 second increments) that an AMDI critical alarm condition has existed
	XASSMPXU	Length of time (in 100 second increments) that a simplex SM condition has existed as a result of a system action
	XAMSMPXU	Length of time (in 100 second increments) that a simplex SM condition has existed as a result of a manual action
	XARXMPXU	Length of time (in 100 second increments) that a SM condition has existed as the result of a REx test
	XASMCRIU	Length of time (in 100 second increments) that a low SM critical alarm has existed
	XALKMAJU	Length of time (in 100 second increments) that an MScomm (message switch communication) major alarm has existed
	XETHRMJU	Major alarms on an Ethernet RM
	XETHRCRU	Minor alarms on an Ethernet RM
	XATRAP	Trap interrupts
	XASWINI	Warm restarts as a result of a system action
	XAMWINI	Warm restarts as a result of a manual action
	XASCINI	Cold restarts as a result of a system action
	XAMCINI	Cold restarts as a result of a manual action
	XAPEMAJU	XACORE period of major alarm
	XAPECRIU	XACORE period of low processing power

DPT-SPM OMs/PMs in Succession

The following table lists the operational measurements (OMs) and performance measurements (PMs) available in Succession for the DPT-SPM network element.

DPT-SPM supports CSV format, and EADAS through SDM functionality. For details on EADAS, refer to the Performance section of DPT-SPM FCAPS

documentation NN10146-711 (ATM). For details on CSV format, refer to "Performance Monitoring Poller data collection output" in this document.

DPT-SPM OMs

OM Group	Registers	Description
Network Element: DPT-SPM		
PM Peripheral Module group. The registers listed here are the only ones supported for SPM and MG4K applications.		
	PMERR	NOTE: This is an existing OM group. For details on the
	PMFLT	registers, see NTP 297-2621-814, available on Helmsman
	PMMSBU	Express.
	PMUMBU	
	PMSBP	
	PMMBP	
	PMMWXFR	
	PMMCXFR	
	PMINTEG	
PMTYP Peripheral Module Type group. The registers listed here are the only ones supported for SPM and MG4K applications.		
	PMTERR	NOTE: This is an existing OM group. For details on the
	PMTFLT	registers, see NTP 297-2621-814, available on Helmsman
	PMTMSBU	Express.
	PMTUSBU	
	PMTMMBU	
	PMTSBP	
	PMTMBP	
	PMTMWXFR	
	PMTMCXFR	
	PMTINTEG	
ENETPLNK ENET Peripheral Side Links group. The registers listed here are the only ones supported for SPM and MG4K applications.		
	ENSPCHER	NOTE: This is an existing OM group. For details on the
	ENLKERR	registers, see NTP 297-2621-814, available on Helmsman
	ENLKFLT	Express.
	ENSBLKU	
	ENMBLKU	
	ENLKPARU	

DPT-SPM OMs

OM Group	Registers	Description
	ENSLKPAR	
	ENMLKPAR	
	ENLNKISOU	
	ENSLKISO	
	ENMLKISO	
NMTCUNIT Node Maintenance Unit Measurements group. The registers listed here are the only ones supported for SPM and MG4K applications.		
	NDUERR	NOTE: This is an existing OM group. For details on the
	NDUFLT	registers, see NTP 297-2621-814, available on Helmsman
	NDUMBP	Express.
	NDUMBU	
	NDUMCRST	
	NDUMRRST	
	NDUNAP	
	NDUSBP	
	NDUSBU	
	NDUNAU	
	NDUSWERR	
	NDUTRAP	
DPTNODE Dynamic packet trunk node type (SPM or DPT), PM #, and node # SN07 adds the following: If the DPT Node is a GWC, then the associated DPT protocol (i.e., BICC or SIP-T) is added to the information. If the DPT Node is an SPM (i.e., either MG4K or DTP SPM), then the associated bearer network, DPT protocol and SPM node type is added to the information.		
	DPTGTAT	Get terminal attempts
	DPTGTAT2	Extension of DPTGTAT
	DPTGTFL	Get terminal failures
	DPTGTFO	Get terminal failures optimized
	DPTUSAG	Usage register
	DPTUSAG2	Extension of DPTUSAG
	DPTHWT	The high-water mark for terminal usage per transfer period.
DPTOFC Dynamic packet trunk office events		
	DPTGTAT	Get terminal attempts
	DPTGTAT2	Extension register of DPGTAT incremented when DPGTAT reaches 65,535
	DPTGTFL	Get terminal failures per office (non-optimized)

DPT-SPM OMs

OM Group	Registers	Description
	DPTGTFL2	Extension register of DPGTFL incremented when DPGTFL reaches 65,535
	DPTUSAG	Usage count
	DPTUSAG2	Extension register of DPUSAG incremented when DPUSAG reaches 65,535
	DPTGTFLO	Get terminal failures (optimized)
	DPTGTFLO2	Extension register of DPGTFLO incremented when DPGTFLO reaches 65,535
	DPTHWT	High-water mark for terminal usage per transfer period.
	DPTHWT2	Extension register of DPHWT incremented when DPHWT reaches 65,535
	DPDPL	Number of attempts to get a DPT terminal that failed due to DPT port depletion
	DPDPL2	Extension register of DPDPL incremented when DPDPL reaches 65,535
	DPTDPL	Number of port depletion events
	DPTDPL2	Extension register of DPTDPL incremented when DPTDPL reaches 65,535

IW-SPM OMs in Succession

The following table lists the operational measurements (OMs) and performance measurements (PMs) available in Succession for the IW-SPM network element.

IW-SPM supports CSV format, and EADAS through SDM functionality. For details on EADAS, refer to the Performance section of FCAPS documentation on IW-SPM, NN10144-711 (ATM). For details on CSV format, refer to the "Performance Monitoring Poller data collection output" in this document.

IW-SPM OMs

OM Group	Registers	Description
Network Element: IW-SPM		
IWBM Interworking bridge manager events (associated with IW SPMs) SN07 modifies this OM group to count different events on the specific bridge pools that are defined in the call server.		
	IWGBATT	Get bridge attempts
	IWGBATT2	Extension of IWGBATT
	IWGBFAIL	Get bridge attempt failures
	IWGGBABRT	Get bridge attempts aborted
	IWFBATT	Free bridge attempts
	IWFBATT2	Extension of IWFBATT

IW-SPM OMs

OM Group	Registers	Description
	IWFBFAIL	Free bridge attempt failures
	IWFBABRT	Free bridge attempts aborted
	IWONSET1	Total IW SPMs in use reached 70%
	IWONSET2	Total IW SPMs in use reached 90%
	IWABATE1	Total IW SPMs in use less than 65%
	IWABATE2	Total IW SPMs in use less than 85%
MNATM MG 4000 and IW SPM ATM interface performance statistics		
	ICTOTAL	Incoming ATM cells
	ICTOTAL2	Extension of ICTOTAL
	ICLP0TO	Incoming ATM cells with CLP=0
	ICLIP0TO2	Extension of ICLP0TO
	ICLP1TO	Incoming ATM cells with CLP=1
	ICLIP1TO2	Extension of ICLP1TO
	ICNC	Incoming non-compliant ATM cells
	ICNC1	Extension of ICNC
	ICCLP0NC	Incoming non-compliant ATM cells with CLP=0
	ICCLP0NC2	Extension of ICCLP0NC
	ICCLP1NC	Incoming non-compliant ATM cells with CLP=1
	ICCLP1NC2	Extension of ICCLP1NC
	ICDISC	Incoming ATM cells discarded; correlates with ATM800 log.
	ICDISC2	Extension of ICDISC
	ICCLP0DC	Incoming ATM cells with CLP=0 discarded
	ICCLP0DC2	Extension of ICCLP0DC
	ICCLP1DC	Incoming ATM cells with CLP=0 discarded
	ICCLP1DC2	Extension of ICCLP1DC
	ITAGGED	Incoming tagged ATM cells
	ITAGGED2	Extension of ITAGGED
	OGTOTAL	Outgoing ATM cells
	OGTOTAL2	Extension of OGTOTAL
	OCLP0TO	Outgoing ATM cells with CLP=0
	OCLP0TO2	Extension of OCLP0TO
	OCLP1TO	Outgoing ATM cells with CLP=1
	OCLP1TO2	Extension of OCLP1TO

MG 4000 OMs in Succession

The following table lists the operational measurements (OMs) and performance measurements (PMs) available in Succession for the MG 4000 network element.

MG 4000 supports CSV format, and EADAS through SDM functionality. For details on EADAS, refer to the Performance section of FCAPS documentation on MG 4000, NN10142-711. For details on CSV format, refer to "Performance Monitoring Poller data collection output" in this document.

MG 4000 OMs

OM Group	Registers	Description
Network Element: MG 4000		
MNATM MG 4000 and IW SPM ATM interface performance statistics		
	ICTOTAL	Incoming ATM cells
	ICTOTAL2	Extension of ICTOTAL
	ICLP0TO	Incoming ATM cells with CLP=0
	ICLIP0TO2	Extension of ICLP0TO
	ICLP1TO	Incoming ATM cells with CLP=1
	ICLIP1TO2	Extension of ICLP1TO
	ICNC	Incoming non-compliant ATM cells
	ICNC1	Extension of ICNC
	ICCLP0NC	Incoming non-compliant ATM cells with CLP=0
	ICCLP0NC2	Extension of ICCLP0NC
	ICCLP1NC	Incoming non-compliant ATM cells with CLP=1
	ICCLP1NC2	Extension of ICCLP1NC
	ICDISC	Incoming ATM cells discarded
	ICDISC2	Extension of ICDISC
	ICCLP0DC	Incoming ATM cells with CLP=0 discarded
	ICCLP0DC2	Extension of ICCLP0DC
	ICCLP1DC	Incoming ATM cells with CLP=0 discarded
	ICCLP1DC2	Extension of ICCLP1DC
	ITAGGED	Incoming tagged ATM cells
	ITAGGED2	Extension of ITAGGED
	OGTOTAL	Outgoing ATM cells
	OGTOTAL2	Extension of OGTOTAL
	OCLP0TO	Outgoing ATM cells with CLP=0
	OCLP0TO2	Extension of OCLP0TO
	OCLP1TO	Outgoing ATM cells with CLP=1
	OCLP1TO2	Extension of OCLP1TO
MNATMVC MG 4000 ATM PVC interface performance statistics		
	ICTOTAL	Incoming ATM cells

MG 4000 OMs

OM Group	Registers	Description
	ICTOTAL2	Extension of ICTOTAL
	ICLP0TO	Incoming ATM cells with CLP=0
	ICLIP0TO2	Extension of ICLP0TO
	ICLP1TO	Incoming ATM cells with CLP=1
	ICLIP1TO2	Extension of ICLP1TO
	ICNC	Incoming non-compliant ATM cells
	ICNC1	Extension of ICNC
	ICCLP0NC	Incoming non-compliant ATM cells with CLP=0
	ICCLP0NC2	Extension of ICCLP0NC
	ICCLP1NC	Incoming non-compliant ATM cells with CLP=1
	ICCLP1NC2	Extension of ICCLP1NC
	ICDISC	Incoming ATM cells discarded
	ICDISC2	Extension of ICDISC
	ICCLP0DC	Incoming ATM cells with CLP=0 discarded
	ICCLP0DC2	Extension of ICCLP0DC
	ICCLP1DC	Incoming ATM cells with CLP=0 discarded
	ICCLP1DC2	Extension of ICCLP1DC
	ITAGGED	Incoming tagged ATM cells
	ITAGGED2	Extension of ITAGGED
	ICERROR	Incoming ATM cells with a protocol error
	ICERROR2	Extension of ICERROR
	OGTOTAL	Outgoing ATM cells
	OGTOTAL2	Extension of OGTOTAL
	OCLP0TO	Outgoing ATM cells with CLP=0
	OCLP0TO2	Extension of OCLP0TO
	OCLP1TO	Outgoing ATM cells with CLP=1
	OCLP1TO2	Extension of OCLP1TO
MNATMA5 MG 4000 ATM PVC AAL5 interface performance statistics		
	CRC32ERR	PDUs that contain CRC-32 errors; correlates with the ATM800 log.
	OVERSDU	PDUs discarded due to oversized SDUs; correlates with the ATM800 log.
	LENVIOL	PDUs discarded due to length violations; correlates with the ATM800 log.
MNATMA1 MG 4000 AAL1 ATM interface performance statistics*		
	ICTOTAL	Incoming ATM cells
	ICTOTAL2	Extension of ICTOTAL
	OGTOTAL	Outgoing total cells
	OGTOTAL2	Extension of OGTOTAL

MG 4000 OMs

OM Group	Registers	Description
	HERRCEL	Head Errored cells
	HERRCEL2	Extension of HERRCEL
	LATECEL	Late cells
	LATECEL2	Extension of LATECEL
	MSINCEL	Mis-inserted cells
	MSINCEL2	Extension of MSINCEL
	LOSTCEL	Lost cells
	LOSTCEL2	Extension of LOSTCEL
	SLIPS	Slip events
	SLIPS2	Extension of SLIPS
	OOSYNC	Out-of-sync events
	OOSYNC2	Extension of OOSYNC

MG 9000 OMs/PMs in Succession

The following table lists the operational measurements (OMs) and performance measurements (PMs) available in Succession for the MG 9000 network element.

MG 9000 supports CSV format. For details on CSV format, refer to "Performance Monitoring Poller data collection output" in this document.

MG 9000 OMs/PMs

OM Group	PM Name or OM Registers	Description
Network Element: MG 9000		
GWOVLOM (new in SN07)	OM Group Gateway Overload (GWOVLOM) has only one register, OVERLOAD, which is incremented upon each connection denial.	This OM group counts the number of denied call connection requests due to an overload condition on the MG9K node.
AUDSRVS (new in SN06)	OM Group Audio Node Service Circuits (AUDSRVS) has 12 registers: ANNCINSU, ANNCOOSU, ANNCTRU, ANNCFTRU, CNF3INSU, CNF3OOSU, CNF3TRU, CNF3FTRU, CNF6INSU, CNF6OOSU, CNF6TRU, CNF6FTRU.	AUDSRVS provides one tuple for each Audio Server (AUD) node. These OMs appear in the Core only.
The following PMs were new in SN06.2:		
	nnPmOvldRscDccInterval	
	nnPmOvldRscDccIntervPduRatePeak	

MG 9000 OMs/PMs

OM Group	PM Name or OM Registers	Description
	nnPmOvldRscDccIntervPduRateAvg	
	nnPmOvldRscDccIntervCbvMsgRPeak	
	nnPmOvldRscDccIntervCbvMsgRAvg:	
	nnPmOvldRscDccIntervConQDelPeak	
	nnPmOvldRscDccIntervConQDelAvg	
	nnPmOvldRscDccIntervCpuUtilPeak	
	nnPmOvldRscDccIntervCpuUtilAvg	
	nnPmOvldConnDenyInterval	
	nnPmOvldConnDenyIntervCount	
SN06.2 added two new menu items to the OM Collection Configuration Tool: [A]dd Devices and [R]emove devices. Note: Refer to the Succession Baseline OMs section for additional information about OM collection mechanisms.		
The following OMs are maintained by the CMR FM application:		
	ADSI	No usage metering; no peg counts.
	BCLID	No usage metering; no peg counts.
	CID	Counts CID attempts and CID completions.
	CMWI	No usage metering; no peg counts.
	DSCWID	Counts DSCWID attempts.
	SCWID	Counts SCWID attempts.
For group-related and link-related OMs for the DS1-IMA application, refer to Appendix B “UE9000MG MIB OMs/PMs.”		
Appendix B, “UE9000MG MIB OMs/PMs,” contains the entire list of all OMs and PMs for MG 9000. **NOTE:** Entries in this table sometimes use the term UEMG, which came from a previous naming convention for the product and was made a part of the code in some instances.		

GWC OMs/PMs in Succession

The following table lists the operational measurements (OMs) and performance measurements (PMs) available in Succession for the GWC network element.

The GWC performance measurements support CSV format and support the CORBA interface. The PMs are not available for viewing on the EM GUI; to view them you must retrieve the CSV files. The GWC OMs are sent to the XA-Core and may be viewed through OMSHOW or a similar tool.

OM group	Register	Description
Network Element: GWC		
DTSRPM Pegs originations and dialtone delays grouped by the type of line making the call (DP, DTMF, or Pphone).		
	DPLTOT	Dial Pulse Lines Total Originations. This value is always 0 for CS2K lines since no differentiation is made between DP and DGT.
	DPLDLY	Dial Pulse Line Delays. Counts DP lines which got dial tone after 3 seconds. Always 0 for CS2K.
	DGTTOT	Counts Digit Tone Line Total Originations.
	DGTDLY	Digit Tone Line Delays. Counts DGT lines which got dial tone after 3 seconds.
	KSTOT	Keyset (Pphone) Lines Total Originations.
	KSDLY	Keyset (Pphone) Lines which got dial tone after 3 seconds.
XPMOVLD Collects statistics on XPM overload conditions. This is an existing OM group that functions the same as in TDM switches.		
XPMOCC Collects statistics on CPU occupancy ini the GWC. This is an existing OM group that functions the same as in TDM switches.		

GWC Performance Measurements

OIDs	Description
The GWC supports collection of a subset of the Host Resources-MIB and the IF-MIB. The following table entries show the OIDs that are collected for each.	
Host-Resources-MIB	
host(25).hrSystem(1)	
25.1.hrSystemUptime(1)	System Uptime (distinct from sysUpTime)
25.1.hrSystemDate(2)	System local DateAndTime
25.1.hrSystemInitialLoadParameters(4)	Load path/parameters used
25.1.hrSystemNumUsers(5)	Current number of “user sessions”
25.1.hrSystemProcesses(6)	Number of tasks
25.1.hrSystemMaxProcesses(7)	Maximum number of tasks

GWC Performance Measurements

OIDs	Description
host(25).hrStorage(2)	
25.2.hrMemorySize(2)	Main memory DRAM size (KBytes)
25.2.hr.StorageTable(3)	Table describing storage and resource areas, including for each: Type, Description, AllocationUnits, Size, Used, and AllocationFailures. An entry in this table is planned for each of the resources currently registered in the Base Resource Monitor: - System Heap - VRTX Workspace - Segment Descriptors - IPC Buffers - Ethernet DCU Buffers
host(25).hrDevice(3)	
25.3.hrDeviceTable(2)	Table of hardware devices contained in host, including for each: Type, Description, “ID”, Status, and Error counts. An entry is planned in this table for each of the devices listed on the PCI bus, plus the CPU.
25.3.hrProcessorTable(3)	Table of info on processors for this host, including a FirmwareID and CPU-Load (1min). There will be an entry for each processor in the hrDeviceTable (just 1 for now).
25.hrSWRun(4)	
25.4.hrSWOSIndex(1)	Index of the entry in the following table for the OS.
25.4.hrSWRunTable(2)	Table of software running on the host, and for each host, a Name, ProductID, Run Path and Parameters, Type, and Status. Status is implemented as READ-ONLY.
25.hrSWRunPerf(5)	
25.5.hrSWRunPerfTable(1)	Table of performance data for software in the hrSWRun table, which includes for each task the CPU and memory usage CPU and memory usage for each task that is available.
IF-MIB	
interfaces(2)	
2.ifNumber(1)	Number of entries in ifTable

GWC Performance Measurements

OIDs	Description
2.ifTable(2)	Table of interfaces to the device, where each entry is one “layer” or “sub-layer” of an interface. Each entry includes LOTS of columns, including: Descr, Type, MTU, Speed, PhysicalAddress, Administrative and Operational Status, In and Out Octets, Errors, Discards, etc (not all columns relevant to each) The GWC will include entries only for: - DEC Ethernet (lan0) - DEC Ethernet loopback - Serial port - IP layer?
ifMIB(31)	
31.1.ifXTable(1)	An extension to the ifTable (same ifIndex), including Name, alternative High-speed octet and packet Counters, LinkUpDowntrapEnable, HighSpeed bandwidth estimate, an Alias, and PromiscuousMode and ConnectorPresent flags.
31.1.ifStacktable(2)	A table containing information on relationships between sub-layers of interfaces in the ifTable. Each row defines an “x on-top-of y” relationship.

PNM OMs and PMs in Succession

The following table lists the operational measurements (OMs) and performance measurements (PMs) available in Succession for PNM. PNM

supports CSV format (?)

OM group or PM name	Register	Description
The following OMs were new for the SN06.2 release:		
nnPmOvldRscDccInterval		
nnPmOvldRscDccIntervPduRatePeak		
nnPmOvldRscDccIntervPduRateAvg		
nnPmOvldRscDccIntervCbvMsgRPeak		
nnPmOvldRscDccIntervCbvMsgRAvg		
nnPmOvldRscDccIntervConQDelPeak		
nnPmOvldRscDccIntervConQDelAvg		
nnPmOvldRscDccIntervCpuUtilPeak		
nnPmOvldRscDccIntervCpuUtilAvg		
nnPmOvldConnDenyInterval		
nnPmOvldConnDenyIntervCount		
The OMs for a specific resource can be displayed through the MG9000 Manager's Performance Statistics Browser GUI. In addition, the Performance Collector Formatter application collects OMs and stores them for OSS retrieval.		

Passport 15000 and Preside MDM OMs/PMs in Succession

For information on Passport 15000 and MDM OMs and PMs, refer to the related Performance section of FCAPS documentation, NN10158-711.

Passport 8600 PMs in Succession

Refer to Appendix F, *Passport 8600 Performance Metrics* for a listing of those applicable to Succession.

Line Provisioning OMs/PMs in Succession

The following table lists the operational measurements (OMs) and performance measurements (PMs) available in Succession for the Line Provisioning network element.

Network Element: Line Provisioning		
OM group or PM name	**Register**	**Description**
SCMP	SCMPTRF	If an SCMP line is found Callp busy, the SCMPTRF register will be pegged for that line.
	SCMPMNT	If an SCMP line is found maintenance busy or unavailable, the SCMPTRF register will be pegged for that line.

TOPS OMs/PMs in Succession

The following table lists the operational measurements (OMs) and performance measurements (PMs) available in Succession for TOPS. TOPS supports CSV format.

OM group or PM name	Register	Description
IS41TOPS. This OM group is deleted in SN07, replaced by new OM groups WINTOPS and TC7WRLSS.		
WINTOPS. This OM group records application-level events for wireless ADACC with release. This group uses WIN in the name since wireless intelligent network capabilities are used to provide ADACC with release for both IS-41 and GSM.		
	WINBEGIN, WINBEGI2	IS-41 AnalyzedInformation or GSM InitialDP received.
	REQCONN, REQCONN2	IS-41 ConnectResource or GSM EstablishTemporaryConnection sent
	CONNECT, CONNECT2	IS-41 AnalyzedInformation or GSM Connect sent
	DISCONN, DISCONN2	IS-41 AnalyzedInformation with action code of “disconnect call” or GSM DisconnectTemporaryConnection sent. This event is not part of the normal IS-41 call flow, but it is part of the normal GSM call flow. If this is pegged for IS-41, it means ADACC with release was not provided.
	WINEND, WINEND2	GSM Application End received; no equivalent IS-41 message.
	ERRCONN	MSC could not connect to TOPS using TLDN
	ERRDISC	TOPS disconnected unexpectedly while providing operator assistance. IS-41 only; when this occurs in a GSM call, WINEND is pegged but not DISCONN or CONNECT.
	ERRSSFT	MSC’s service switching function timer expired. Should not happen if TOPS Reset TImer is datafilled properly in Table ISUPTRK.
	ABANDON	Wireless caller disconnected prior to receiving ADACC with release.
	RESTIMR, RESTIMR2	ResetTimer sent (IS-41 and GSM)
	NOTLDNS	No TLDNs available in Table TOPSTLDN.
	NODATA	TOPS could not find EXT block associated with incoming TLDN call from MSC.

OM group or PM name	Register	Description
	RXLAFAIL	TOPS call could not obtain original called digits and defaulted to 411.
	SANTIMR	MSC did not release trunk to TOPS, or MSC did not send Application End.
	TLDNTIME	A TLDN was allocated for an MSC call which never arrived. The TLDN is allocated to a new call.
TC7WRLSS. This OM group records transport-level events such as types of TCAP messages sent and received, SS7 errors, etc. on TOPS wireless calls (SMS and WIN, as well as IS-41 and GSM).		
	INVOKES, INVOKES2	TCAP INVOKE sent
	INVOKER, INVOKER2	TCAP INVOKE receives
	RETRESS, RETRESS2	TCAP RETURN RESULT sent
	RETRESR, RETRESR2	TCAP RETURN RESULT received
	RETERRS	TCAP RETURN ERROR sent
	RETERRR	TCAP RETURN ERROR received
	REJECTS	TCAP REJECT sent
	REJECTR	TCAP REJECT received
	ABORTS	TCAP ABORT sent
	ABORTR	TCAP ABORT received
	NOTRIDS	No transaction identifiers
	MBFULL	Incoming message from MSC ignored due to heavy traffic
	RTFNOXLA	SCCP routing failure: No translation of such nature
	RTFNOXLS	SCCP routing failure: No translation for this specific address
	RTFSUBCG	SCCP routing failure: Subsystem congestion
	RTFSUBFL	SCCP routing failure: Subsystem failure
	RTFUNEQ	SCCP routing failure: Unequipped user
	RTFNETFL	SCCP routing failure: Network failure
	RTFNETCG	SCCP routing failure: Network congestion
	RTFMISCE	SCCP routing failure: Failure other than the above seven
	GTTFAIL	Global Title Translation failure

OM group or PM name	Register	Description
SMSTOPS. Short Message Service TOPS This OM group records application-level events for the TOPS short message service.		
	SMSSENT, SMSSENT2	SMS sent
	SMSSUCC, SMSSUCC2	SMS success
	SMSFAIL, SMSFAIL2	SMS failure
	SMSTIME, SMSTIME2	SMS time-out
	SMSNETWK	SMS failure due to network problems
	SMSTERM	SMS failure due to terminal (cell phone) problems
	SMSRADIO	SMS failure due to radio interface problems
	SMSMISC	Miscellaneous SMS failure
TDGTHRU. TOPS Datagram Throughput. This OM group counts the number of UDP messages sent and received in each of several “buckets” or message size ranges. Each register in this group counts the number of messages in a specific size range that were sent by or received by a particular TOPS application, using a particular Ethernet interface. The group consists of 14 registers and 14 extension registers, counting message sizes ranging from <= 48 bytes up to > 368 bytes.		
EXT -- The following register was added to the existing registers for the EXT OM group in TOPS19 -- IS41TOPS_EXT_BLK.. There are other EXT OM group registers that are not mentioned here.		

UAS OMs/PMs in Succession

The following table lists the operational measurements (OMs) and performance measurements (PMs) available in Succession for the UAS network element.
UAS supports CSV format.

OM group or PM name	Description
Network Element: UAS	
CRC Count	A Minor alarm is raised when the CRC error count threshold is exceeded.
Plane Msg Count	A Minor alarm is raised when the plane message count threshold is exceeded.
norUasProtocolSyntaxErrors	Number of syntax errors detected in incoming call control (MGCP, H.248) messages.

OM group or PM name	Description
norUasProtocolMessageValidationErrors	Number of times an incoming call control (MGCP, H.248) message had valid syntax, but failed validation
norUasUdpSendErrors	Number of times there was a failure in sending a call control (MGCP, H.248) message. The message is sent via a datagram using the system's socket library. Normally a failure on a socket send operation would be attributed to an internal system problem.
norUasUdpReceiveErrors	Number of times there was a failure in receiving a call control (MGCP, H.248) message. Call control messages are received using the system's socket library. A failure on the socket receive operation can be attributed to an internal system problem or with the call agent sending a message larger than what is supported by the gateway.
norUasMgcpMessageRetransmissions	Number of retransmissions of media gateway control protocol messages. Media gateway control protocol is used in here in a generic sense to include both MGCP and H.248
norUasMgcpMessageRetransmissionFailures	Number of times a retransmitted media gateway control protocol message was not acknowledged. Media gateway control protocol is used in here in a generic sense to include both MGCP and H.248.
norUasAudioSegmentPlayed	Number of successful attempts to play audio. For the current number of play attempts, see norUasCurrentNumberOfPlays.
norUasAudioSegmentFailed	Number of failed attempts to play audio. Failures can occur for the following reasons: - call agent sent a bad audio segment id - the audio segment is not provisioned - there was an internal program error Examine the logs to determine the exact nature of the failure.
norUasAckfail	Number of negative acknowledgements (nacks) received. Nacks can be sent by the call agent in response to RSIP or NTFY messages.
norUasTimeout	Number of times the call engine timed out waiting for an acknowledgement.
norUasProterror	Number of call control protocol errors detected. Typical reasons for these errors are: - duplicate parameter - invalid range of parameter - mandatory parameter missing Examine the logs to determine the exact nature of the failure.

OM group or PM name	Description
norUasRestart	Number of abnormal restarts of one of two critical threads in the call processing process. The two threads are the event state machine thread and the maintenance state machine thread. Examine the logs to determine which thread failed.
norUasComperror	The number of times the call engine failed to build a response to a call agent message. Examine the logs to determine the exact nature of the failure.
norUasConndeleted	Number of times that the call engine receives a bad connection id from the call agent. This is normally a result of the call agent sending a message for a connection that has already been deleted.
norUasCallControlMessageSendFailures	Number of times the call control message maximum retransmission count was exceeded. The UAS attempted several times to send a message to the call agent, but each time, an ack was not received. A failure of this type results in a failed call and is usually an indication that subsequent calls will fail. This problem is typically a result of the call agent being down or a result of a network problem.
norUasEndpointsInUse	Number of endpoints that the call engine is currently using for all packet network-related functions (conferencing, plays, etc.).
norUasNumDupsForCompletedTransactions	The number of times a duplicate transaction request was received after the initial transaction had already been completed. In this case, the gateway resends the response for this transaction.
norUasNumDupsForOutstandingTransactions	The number of times a duplicate transaction request was received while the initial transaction was outstanding, that is, still in progress. In this case, the gateway ignores the duplicate request.
norUasConfTotal	The total number of conferences processed since the last application restart.
norUasConfLackOfResourceRejections	The number of times a conference request was rejected due to lack of resources since the last application restart.
norUasConfPlays	The total number of plays made into conferences since the last application restart.
norUasRequestsFailed	The number of resource requests for endpoints on this pool that failed.
norUasNumberOfPlayRecords	The total number of play record operations.
norUasNumberOfPlayRecordErrors	The total number of failed play record operations.

USP OMs/PMs in Succession

See Appendix D

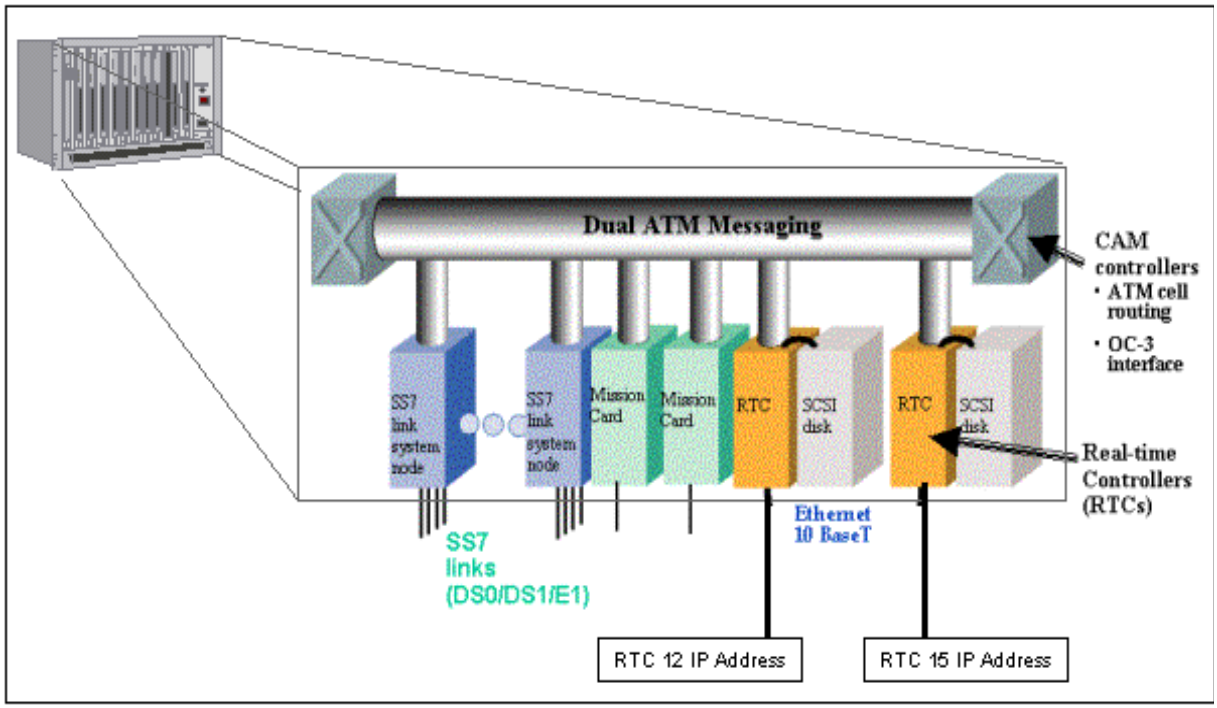
Refer to Appendix D for a complete list of the operational measurements

(OMs) and performance measurements (PMs) available in Succession for the USP network element.
USP supports SSV format. For details on this format, refer to the Performance section of the FCAPS documentation on USP, NN10137-711.

OM Export interface on USP

The OM Export interface on the Universal Signaling Point (USP) is provided to allow a customer Operation Support System (OSS) to periodically retrieve operational measurement (OM) performance data files via FTP.

Basic USP hardware and connectivity architecture



The OM data files are replicated to both Real Time Controller (RTC) SCSI disk's (as illustrated in the figure above). To establish a connection, the OSS would FTP to either IP address.

To allow the USP time to create the OM data files, the OSS should allow for a five-minute delay before an attempt is made to retrieve the specific OM interval data file. As an example, if you are retrieving the 12:05 five-minute OM data file, the OSS should establish its connection no earlier than 12:10. This five-minute delay is required to allow the RTC sufficient time to process the collected OM data from all of the system nodes in the USP. After all of the processing is completed, the OM data file is written to the SCSI disks on both RTCs.

In the event that the OSS is not able to connect to either RTC (i.e., an IP LAN network outage), the OM data files will be retained for a set amount of time. This is to allow for data file recovery for missed intervals when network connectivity is restored between the OSS and the USP.

OM data file retention periods

OM Data File Type	Retention Period
5-minute OM data files	6 files = 30 minutes
30-minute OM data files	12 files = 6 hours

The OM data files are stored in predetermined, static paths on each RTC SCSI disk:
5 minute OM data files: /ossinterface/oms/om05min
30 minute OM data files: /ossinterface/oms/om30min

Each of the above OM data directories may contain multiple OM data files. As illustrated in table 1, there may be up to six files in the 5-minute OM data directory and twelve files in the 30-minute OM data directory. The naming convention of the files may be used to determine the OM collection interval that is represented in each file.

5 minute files:

```
om05min<vv><hh><mm>

vv is the version number; it is currently 01

hh is hours from 00 to 23

mm is minutes 00,05,10,15,20,25, 30, 35, 40, 45, 50, 55
```

30 minute files:

```
om30min<vv><hh><mm>

vv is the version number; initially it is 01

hh is hours from 00 to 23

mm is minutes 00, 30
```

The time in the filename denotes the end of the OM collection period. For example, the OM file named om05min011205 would contain the OM data from 12:00 to 12:05.

OM Export file format

The OM export data files contain one OM register per line, with fields in each register delimited by semi-colons. A carriage return is used as a register delimiter. If there is no information for a given field, it will be left blank, but all delimiters will be present. Therefore, as a rule, every line in the OM data file will have eight fields as illustrated below.

<OM Type>;<Application>;<Element>;<RegText>;<Sub-Element>;<Start Time>;<End Time>;<RegisterValue>\r\n

OM file format field descriptions

Field Name	Field Description
OM Type	Accumulate(ACC), Maximum(MAX), Minimum(MIN), No Action*(NOA) *No Action indicates that the OM will only be present in the 5 minute data files.
Application	A high-level category, used to group related OM registers. Maximum length is 32 characters.
Element	The name of the element that the OM register value is pegged against, with a maximum length of 20 characters.
RegText	The name of the OM register. Maximum length is 32 characters.
Sub-Element	A sub-element is used to provide more granularity for a given element. This field is only used with Special Study OM's. Maximum length is 64 characters.
Start Time	OM collection interval start date and time with a 19-character capacity.
End Time	OM collection interval end date and time with a 19-character capacity.
Register Value	The OM register value. Maximum length is 10 characters.

A sample from the OM data file named "om30min010730" follows:

```
ACC;Linkset Utilization;LS:LON_PRI;TFP and TCP
Transmitted Count;;05/09/2001 07:00:00;05/09/2001
07:30:00;0
```

```
ACC;Linkset Utilization;LS:LON_PRI;TFP and TCP Received
Count;;05/09/2001 07:00:00;05/09/2001 07:30:00;0

ACC;Linkset Utilization;LS:LON_PRI;TFR and TCR
Transmitted Count;;05/09/2001 07:00:00;05/09/2001
07:30:00;0

ACC;Linkset Utilization;LS:LON_PRI;TFR and TCR Received
Count;;05/09/2001 07:00:00;05/09/2001 07:30:00;0
```

Implied OSS responsibilities

The following points should be considered in the design of the OSS application:

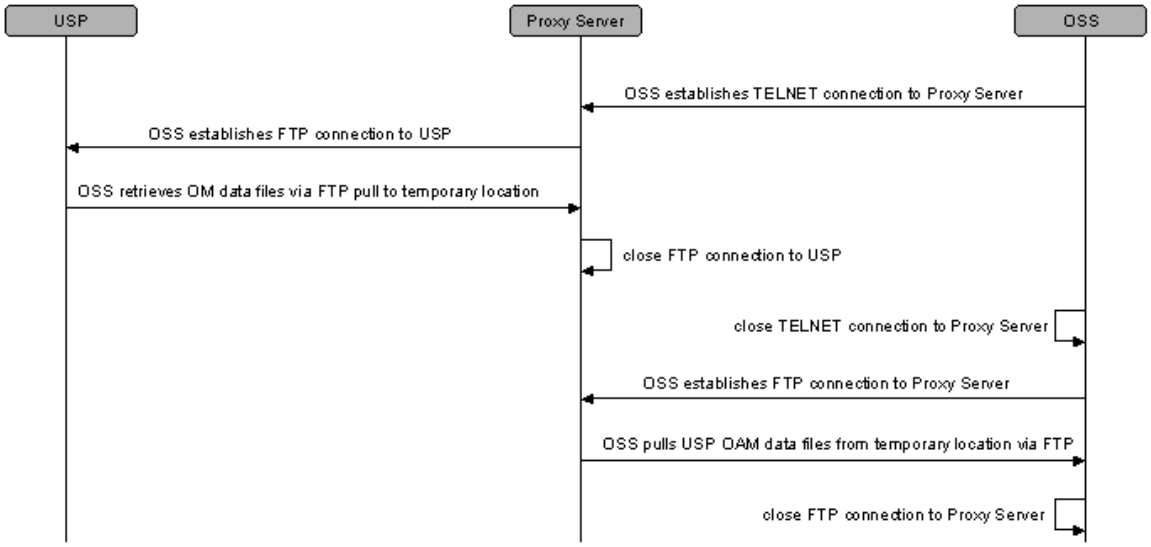
- The OSS FTP client application must use only the commands that are listed in the table below.
- All FTP retrieval of OM files will be performed via periodic “OSS pull.”
- In the event that the OSS cannot establish a FTP connection to RTC 12, it will try RTC 15.
- In the event that the OSS cannot establish a FTP connection to either RTC, it will try again after an appropriate delay (< 5 minutes).
- In the event of a prolonged network connectivity outage (> 5 minutes), the OSS will use the FTP “ls” command and the file naming conventions to identify OM data files that it may have missed during the outage.
- Although both date and time information are included for each register in an OM data file, the date is not used in the file naming convention. Therefore, if the OSS requires the date to aid in managing the retrieved OM data files, it will need to provide the date information or read it from one of the registers in the file itself.

FTP base commands supported by the Vxworks FTP server running on the RTC
HELP USER PASS QUIT LIST NLST RETR STOR CWD TYPE PORT PWD STRU MODE ALLO ACCT PASV NOOP DELE

Using a 3-tier LAN architecture

In some cases it may be desirable to use an isolated three tier LAN architecture in order to satisfy network security requirements. In this configuration the OSS LAN does not have connectivity to the USP LAN. The OSS must make use of an intermediate proxy server to obtain FTP access to the USP.

In this scenario a combination of TELNET and FTP would need to be used in order to retrieve the USP OM files. The procedure is illustrated in the figure below.


USP
Proxy Server
OSS
OSS establishes TELNET connection to Proxy Server
OSS establishes FTP connection to USP
OSS retrieves OM data files via FTP pull to temporary location
close FTP connection to USP
close TELNET connection to Proxy Server
OSS establishes FTP connection to Proxy Server
OSS pulls USP OAM data files from temporary location via FTP
close FTP connection to Proxy Server

SN07 IEMS Functionality

IEMS Northbound Interfaces

Applicability

Note 1: IEMS is optional for ATM solutions.

Note 2: IEMS does not apply to PT-AAL1.

General Information

In SN07 the Integrated Element Manangement System (IEMS) at the central office level will:

- provide graphical topology and inventory relationships between the Network Elements (NEs) and EMS
- provide aggregation all of the EMS/NE fault data.
- provide integrated fault streams to the Network Management Layer (NML) through Integrated EMS.
- provide a customer choice of OSS fault interfaces (SCC2, SYSLOG, NT STD and SNMP)
- provide centralized performance management for network elements
- provide a centralized fault viewer with filtering capability
- provide context sensitive EMS launching, applications launching (for example, NPM) and NE CLUI launching.
- provide enhanced security through a more centralized administration of user accounts and passwords for EMS and NEs.

New or changed in SN07

SN07 IEMS Northbound Interface changes

Category	SN07 NB Interface Changes? Y/N	Backward Compatible w/SN06,6.2 Y/N/na	Section reference
Fault	Y	N	" IEMS Northbound Fault Interface"
Performance	Y	N/A (not available prior to SN07)	Please refer to Section " Northbound Performance Interface" on page 1959.
Inventory/Topology	Y	N/A (not available prior to SN07)	Please refer to Section " Inventory/Topology Interface" on page 1983.
Security	Y	Yes	Please refer to Section " Centralized Security Administration (Network Security)" on page 1983.

- The SN07 release adds NTSTD log format to the list of available Northbound fault feeds from IEMS. For more information see "Northbound NTSTD" on page 1925.
- The SN07 IEMS Northbound SNMP fault interface has been redefined based upon the IETF-compliant MIB. See " Northbound SNMP - IETF MIB specification" on page 1935 for detailed information.
- The IEMS Performance interface is new in SN07 and provides a common point of access for operational and performance data from integrated network elements.
- IEMS provides the ability to generate a snapshot of the entire network inventory and tolopology configuration to ACSII file for processing by downstream applications.
- Provide support for customer to centrally administer user accounts
- Provide Single Sign-on support - enables a user to log in once and access multiple Succession Network Elements, Applications, and features
- Customer Plug-ability - provides the ability for an OSS to plug-in it's own Authentication/Authorization and/or Single Sign-on solutions.

IEMS Northbound Fault Interface

User Setup, Administration, and Customization of Views

For information on initial setup and customization of the Northbound fault feed from IEMS see:

- IEMS Fault Mangement Guide - NN10321-111

Device Fault Mapping References for Northbound Interface

The following table shows the log identification critieria for each device, manager, and application supported by IEMS. Log references for table entries defined in *italics* can be found in:

NN10275-909 - Succession Fault Management Logs Reference (volumes 1-3)

See the table below for additional fault documentation

Fault Correlation for SN07 Devices

	NB format -> **Device/EM**	**SCC2**	**NTSTD**	**SNMP**	**Syslog**	**Document Reference**
1	***"Audio Provisioning Server (APS)"***	Specific Problem	Specific Problem	Specific Problem	Specific Problem	NN10328-911 MS 2000 Series Fault Management
2	**"Call Agent Core"**	log name and log number	log name and log number	log name and log number	log name and log number	see " Fault documentation for Call Agent Core :"
3	***"Call Agent Platform"***	Logname and number	Logname and number	Logname and number	Logname and number	NN10087-911 Call Agent Fault Management
4	***CBM*** ***See "CS2000 Core Manager"***	log name and number	log name and number	log name and number	log name and number	**See "CS2000 Core Manager"**
5	***"CS2000 Core Manager"***	log name and number	log name and number	log name and number	log name and number	NN10082-911 CS 2000 Core Manager Fault Management

| | NB format ->

Device/EM | SCC2 | NTSTD | SNMP | Syslog | Document Reference |
|---|---|---|---|---|---|---|
| 6 | ***"Gateway Controller (GWC)"*** | Logname and number | Logname and number | Logname and number | Logname and number | NN10090911 GWC Fault Management |
| 7 | ***"GWC Manager"*** | logname and number
CMT 300,301 | logname and number | logname and number | logname and number | PLN-07AT OSS SN07 OSS Guide (ATM)
PLN-07IP OSS SN07 OSS Guide (IP) |
| 8 | **"Media Application Server (MAS)"** | Event Id | Event Id | Event Id | Event Id | NN10303-111 MCP 2.0 MAS Meetme Basics
NN10297-111 MCP 2.0 MAS Adhoc Basics |
| 9 | **"Multi-Service Data Manager (MDM)"** | log name and number | log name and number | log name and number | log name and number | NN10092-911 Passport 15000 and Preside MDM in Succession Networks Fault Management (PT-AAL1/UA-AAL1) |
| 10 | **MDM for BSC**
see "Multi-Service Data Manager (MDM)" | log name and number | log name and number | log name and number | log name and number | see **"Multi-Service Data Manager (MDM)"** |
| 11 | **MDM - carrier**
see "Multi-Service Data Manager (MDM)" | log name and number | log name and number | log name and number | log name and number | see **"Multi-Service Data Manager (MDM)"** |
| 12 | **MDM Client-Server**
see "Multi-Service Data Manager (MDM)" | log name and number | log name and number | log name and number | log name and number | see **"Multi-Service Data Manager (MDM)"** |

	NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
13	**"MultiService Switch 7400, 15000, 20000"**	log name and number	log name and number	log name and number	log name and number	NN10092-911 Passport 15000 and Preside MDM in Succession Networks Fault Management (PT-AAL1/UA-AAL1)
14	***"Media Gateway 9000 (MG9000)"***	Logname and number	Logname and number	Logname and number	Logname and number	NN10325-900 ATM/IP Fault Management
15	***"MG9000 Manager"***	logname and number	logname and number	logname and number	logname and number	NN10074-911 MG9000 Fault Management
16	**"MS2000 Series Node"**	logname and number	logname and number	logname and number	logname and number	NN10328-911 MS2000 Fault Management
17	***"Network Patch Manager (NPM)"***	logname and number	logname and number	logname and number	logname and number	N10084911 CS2000 Management Tools Fault Management
18	**"Passport 8600"**	logname and number	logname and number	logname and number	logname and number	241-6003-110 Preside Passport 8600 Device Integration Cartridge User Guide
19	***"SAM21 Element Manager"***	logname and number	logname and number	logname and number	logname and number	NN10089-911 SAM21 Shelf Controller Fault Management
20	***"SAM21 Shelf Controller"***	logname and number	logname and number	logname and number	logname and number	NN10089-911 SAM21 Shelf Controller Fault Management
21	***"SDM Platform"***	logname and number	logname and number	logname and number	logname and number	NN10081-911 SDM Fault Management

	NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
22	**"Session Server Manager"**	logname and number	logname and number	logname and number	logname and number	NN10332-911 Session Server Manager Fault Management
23	***"Succession Server Platform Foundation Software (SSPFS)"***	logname and number	logname and number	logname and number	logname and number	NN10261-450v2 Succession Network Volume 2 of 2
24	***"Storage Manager (STORM)"***	logname and number STM 800	logname and number	logname and number	logname and number	NN10088-911 Storm Fault Management
25	***"Universal Audio Server (UAS)"***	logname and number	logname and number	logname and number	logname and number	NN10275-909 v3 Succession Fault Management Logs Reference NN10073-911 UAS Fault Management
26	**"Universal Signaling Point (USP)"**	Specific Problem: Log Group=<text> & Log Number=<number> Note: Log GroupID is not used	Specific Problem: Log Group=<text> & Log Number=<number> Note: Log GroupID is not used	Specific Problem: Log Group=<text> & Log Number=<number> Note: Log GroupID is not used	Specific Problem: Log Group=<text> & Log Number=<number> Note: Log GroupID is not used	NN10071911 USP Fault Management
27	**"XACore"**	Logname and number	Logname and number	Logname and number	Logname and number	297-8991-510 XA-Core Maintenance Manual

IEMS Northbound Fault Specifications

In SN07, fault events are available from any of four Northbound interfaces. Log formats supported in this release are: NTSTD, SCC2, Syslog, and SNMP. A description of each of these interfaces is given in the sections that follow.

OSS clients can receive faults in **SCC2** and **NTSTD** formats from IEMS by initiating a TCP socket connection to designated ports on the IEMS server. When a connection attempt is made by a remote host, the IEMS validates the connecting OSS as an authorized client. It then forwards all logs that satisfy the configured filter criteria to the OSS. The port numbers and remote clients eligible to connect to these log streams are configured by the administrator.

Note: **In legacy environments, the ECORE option was used to include the originating node name in the log header for SCC2 and NTSTD formats. This option is NOT supported with Nortel Networks Carrier VoIP solution. All references to ECORE in the following sections will assume this option is disabled.**

Faults can be delivered to hosts via **SNMP** by configuring the IP address and port of the remote management application.

Note: **Note: By default, the following attribute values are used for configuring SNMP northbound fault feed. The administrator can change the above attribute values. Refer the "Changing SNMP attributes for SNMP fault feeds" section to modify these values.**

Note: **• SNMP port: 8001**

Note: **• read community: public**

Note: **• write community: public**

Note: **• SNMP version: v2c**

The standard **Syslog** interface can also be configured as a fault stream for remote management systems.

The following table summarizes the characteristics of the four Northbound fault feeds from IEMS.

IEMS Northbound Fault Stream Characteristics

Fault format	Port	OSS Connection	Stream type	IEMS Config required
NTSTD	8555	Incoming. IEMS waits for connection by remote host	ACSII stream over TCP, push	OSS IP address or hostname
SCC2	8556	Incoming. IEMS waits for connection by remote host	ACSII stream over TCP, push	OSS IP address or hostname

Fault format	Port	OSS Connection	Stream type	IEMS Config required
SNMP	user-defined on remote listener	IEMS forwards SNMP faults as SNMP traps to OSS. OSS can also query IEMS for active alarm data	SNMP trap events (UDP), push	IP address and port of listener on OSS
Syslog	designated port for Syslog service (514)	IEMS forwards log events to remote host	ACSII data over UDP, push	syslog.conf requires forwarding entry for log facility **Fault :** local7.notice **Audit:** local0.notice **Security:** local3.notice

See *NN10334-911 - IEMS Fault Management Guide* for details on configuring these streams.

Each fault interface is discussed in the sections that follow.

Northbound SCC2 Specification

SCC2 is an ACSII stream delivered to a Northbound receiving application. The stream is delivered over a TCP socket and is configured by the administrator.

This section provides a detailed description of the SCC2 log format delivered by IEMS.

SCC2 Format Summary:

<Alarm Severity><Minute Indicator><Log Name><Log Number><Threshold>< Sequence Number><Event Type><Event Label><Equipment Identifier><Body Text>

SCC2 Header Formats

SCC2 Header format:

```
----------------------------------------------------------------
-------
123456789012345678901234567890123456789012345678901234567890123
3456789
```

```
---------|---------|---------|---------|---------|---------|---
-------
aabb\ccccdddeffff\gggg\h.../i.../j...
---------|---------|---------|---------|---------|---------|---
-------
```

1 The backslash sign (\) signifies a space.

2 The forward slash sign (/) signifies a space that only appears if the preceeding optional field exists.

3 The periods (...) signify variable length data.

4 The 'greater than' sign followed by periods (>...) signifies variable length indentation determined by the application.

5 The vertical lines do not appear on the actual report, they are used for presentation purposes in the above figure.

6 This notation only represents the header and does not include the application data area (i.e. the rest of the log report).

An example of a SCC2 log header is given below. It is also used in explaining the individual fields in the log header.

SCC2 Log Header Example:

```
* 03 PM  128+0417 TBL  ISTB LIU7 348
            ISTb     From InSv
```

SCC2 Field Descriptions

Fld	Name	Description	Example
a	**Alarm Severity**	The severity level of the log report. This is a 2 character field left justified and padded with blanks. Possible values are: '*C' = critical alarm, '**' = major alarm, '* ' = minor alarm, ' ' = no alarm.	'*'
b	**Minute Indicator**	This value represents the minutes after the hour. It consists of 2 numeric characters, right justified and padded with zeroes. It ranges from 00 to 59.	'03'
c	**Log Name**	This value can be 2 to 4 non blank characters. Within this fixed 4 characters, it is left justified and padded with blanks.	'PM '
d	**Log Number**	This value is always 3 digits ranging from 000 to 999. It is right justified and padded with zeroes. For PROTOLOGs (ie. TRAP, SWERR, INIT, INFO, and LOCK logs) it is a string of 3 spaces.	'128'

Fld	Name	Description	Example
e	**Threshold**	Indicates whether a threshold was set for the given log report. A threshold can be temporarily set by using LOGUTIL.Thresholding will survive any restart by turning on the office parameter threshold_is_sampling in table OFCVAR and datafilling threshold value for individual log report in table LOGCLASS and RLOGCLAS on the CallServer. If THRESHOLD_IS_SAMPLING is on (Y), a log report is generated for every n-th instance of the log report generated. If threshold_is_sampling is off (N), every log report after the n-th report is generated. Possible values are: '+' = a threshold was set, ' ' = no threshold was set.	'+'
f	**Sequence Number**	This field defines the unique sequence for each log report. It is right justified and padded with zeroes. It represents 4 numeric characters ranging from 0000 to 9999.	'0417'
g	**Event Type**	Log report event type which is a string of 4 uppercase characters, left justified and padded with blanks. This field is defined by the applications that generate the log report. Possible values include: ' ', 'CBSY', 'EXC ', 'FAIL', 'FLT ', 'INFO', 'INIT', 'LO ', 'MANB', 'OFFL', 'PASS', 'PBSY', 'RTS ', 'SUMM', 'SYSB', 'TBL ', 'TRAN', 'TRAP', 'UNEQ'.	'TBL '
h	**Event Label**	A variable length character string that represents application event description. It is an optional field.	'ISTB'
		The following fields are defined by the applications that generate the log report. These fields are optional and independent of each other.	
i	**Equipment Identifier**	A conditional equipment identifier determined by the application. It is a variable length character string.	'LIU7 348'
j	**Body Text**	Application specific log body text starts here. This may contain several lines. Each new line is indented by eight spaces. Most log bodies start with a carriage return character so that none of it appears on the header line.	'ISTb From InSv'

Examples of Logs with SCC2 Header

The sample logs below are shown for example only. They are syntactically correct but field contents may vary.

1 Gateway Controller example

```
**14 GWC 307 7250 TBL  GWC Fault
      Location: GWC-2-UNIT-0
      NotificationID: 4
      State: Raise
      Category: Communications
      Cause: Communications subsystem failure
      Time: Jan 23 15:15:59 2004
      Component Id: GWC=GWC-2-UNIT-0;Version=PGC92BA;Unit=
      unit_0;Software=NODE MTC
      Specific Problem: EM not responding, provisioned data
      loaded from local Flash
      Description: Element Manager communication failure.
```

2 Call Server example:

```
56 LINE138 3778 INFO TRMT
       SLOA 21 1 02 01    DN 2145202111
     TREATMENT SET = BUSY   CALLED NO =           5202111
       CALLID= 01BE 036D
```

Northbound NTSTD

NTSTD is an ACSII stream delivered to a Northbound receiving application. The stream is delivered over a TCP socket and is configured by the administrator.

This section provides a detailed description of the NTSTD log format delivered by IEMS.

NTSTD Format Summary:

<Office Identifier><Alarm Severity><Threshold><Log Name><Log Number><Time MMMMDD hh:mm:ss>< Sequence Number><Event Type><Event Label><Equipment Identifier><Body Text>

Standard Header Formats

```
ECORE Format OFF:
-------------------------------------------------------------
-------
```

```
123456789012345678901234567890123456789012345678901234567890123
3456789
---------|---------|---------|---------|---------|---------|--
-------
a...#cccdeeeefff\ggghh\ii:jj:kk\llll\nnnn\o.../p.../q...
---------|---------|---------|---------|---------|---------|--
-------
```

Notes:

1 The placeholder represented by the pound sign (#) is non-existent if both office parameter log_office_id and ecore_format in table OFCVAR are turned off. The pound sign (#) represents a space in other cases (ie. log_office_id is datafilled and ecore_format is turned off; and whenever ecore_format is turned on regardless of log_office_id).

2 The backslash sign (\) signifies a space.

3 The forward slash sign (/) signifies a space that only appears if the preceeding optional field exists.

4 The periods (...) signify variable length data.

5 The vertical lines do not appear on the actual report, they are used for presentation purposes in the above figure.

6 This notation only represents the header and does not include the application data area (i.e. the rest of the log report).

An example of a standard log header is given below. It is also used in explaining the individual fields in the log header.

Standard log header example:

```
SCP2B *+  PM128 OCT20 10:03:42 0417 TBL  ISTB LIU7 348
            ISTb     From InSv
```

NTSTD format field descriptions

Fld	Name	Description	Example
a	**Office Identifier**	Identifies the switch generating the Identifier log. This is an optional field. It is output if the office parameter log_office_id in table OFCVAR on the CallServer is datafilled. It has variable length from 0 up to 12 characters.	'SCP 2B'

Fld	Name	Description	Example
b	**Ecore Node Name**	Originating node name where this log Node Name report is generated. It is an eight character field, its contents are left justified and padded with blanks. It is contained in the header if the office parameter ecore_format in table OFCVAR is turned on. ***As of SN07, this option is not supported***	'CM '
c	**Alarm Severity**	The severity level of the log report. This is a 3 character field right justified and padded with blanks. Possible values are: '***' = critical alarm, ' **' = major alarm, ' *' = minor alarm, ' ' = no alarm.	' *'
d	**Threshold**	Indicates whether a threshold was set for the given log report. A threshold can be temporarily set by using LOGUTIL. Thresholding will survive any restart by turning on the office parameter threshold_is_sampling in table OFCVAR and datafilling threshold value for individual log report in table LOGCLASS and RLOGCLAS on the CallServer. If threshold_is_sampling is on (Y), a log report is generated for every n-th instance of the log report generated. If threshold_is_sampling is off (N), every log report after the n-th report is generated. Possible values are: '+' = a threshold was set, ' ' = no threshold was set.	'+'
e	**Log Name**	This value can be 2 to 4 non blank characters. Within this fixed 4 characters, it is right justified and padded with blanks.	' PM'
f	**Log Number**	This value is always 3 digits ranging from 000 to 999. It is right justified and padded with zeroes. For PROTOLOGs, (ie. TRAP, SWERR, INIT, INFO and LOCK logs) it is a string of 3 spaces.	'128'
g	**Month Indicator**	Consists of 3 uppercase characters ranging from 'JAN' to 'DEC' that represent the month.	'OCT '
h	**Day Indicator**	Consists of 2 numeric characters ranging from 01 to 31 that represent the day of the month	'20'
i	**Hour Indicator**	Consists of 2 numeric characters ranging from 00 to 23 that represent the hour of the day.	'10'

Fld	Name	Description	Example
j	**Minute Indicator**	Consists of 2 numeric characters ranging from 00 to 59 that represent the minute of the hour.	'03'
k	**Second Indicator**	Consists of 2 numeric characters ranging from 00 to 59 that represent the second of the minute.	'42'
l	**Sequence Number**	This field defines the unique sequence for each log report. It is right justified and padded left with zeroes. Represents 4 numeric characters ranging from 0000 to 9999.	'0417'
n	**Event Type**	Log report event type which is a string of 4 uppercase characters, left justified and padded with blanks. This field is defined by the applications that generate the log report. Possible values include: ' ', 'CBSY', 'EXC ', 'FAIL', 'FLT ', 'INFO', 'INIT', 'LO ', 'MANB', 'OFFL', 'PASS', 'PBSY', 'RTS ', 'SUMM', 'SYSB', 'TBL ', 'TRAN', 'TRAP', 'UNEQ'.	'TBL '
o	**Event Label**	A variable length character string that represents application event description. This field is optional.	'ISTB'
		The following fields are defined by the applications that generate the log report. These fields are optional and independent of each other.	
p	**Equipmnt Identifier**	A conditional equipment identifier determined by the application. It is a variable length character string.	'LIU 7 348'
q	**Body Text**	Application specific log body text starts here. This may contain several lines. Each new line is indented by eight spaces. Most log bodies start with a carriage return character so that none of it appears on the header line.	'ISTb From InSv'

Examples of Logs with Standard Header

The sample logs below are shown for example only. They are syntactically correct but field contents may vary.

1 Gateway Controller example:

```
RTPU07BU  **  GWC307 Jan23 20:14:38 7250 TBL  GWC Fault
        Location: GWC-2-UNIT-0
        NotificationID: 4
```

```
State: Raise
Category: Communications
Cause: Communications subsystem failure
Time: Jan 23 15:15:59 2004
Component Id: GWC=GWC-2-UNIT-0;Version=PGC92BA;Uni
t=unit_0;Software=NODEMTC
Specific Problem: EM not responding, provisioned
data loaded from local
Flash
Description: Element Manager communication failure.
```

2 Call Server example:

```
RTPU07BR     LINE138 Jan23 16:56:30 3778 INFO TRMT
        SLOA 21 1 02 01    DN 2145202111
        TREATMENT SET = BUSY   CALLED NO =              5202111
        CALLID= 01BE 036D
```

Northbound Syslog

Syslog is a standardized UDP protocol defined by the IETF working group: **Syslog Protocol (RFC 3164): http://www.ietf.org/rfc/rfc3164.txt**

This ACSII fault stream is delivered to a Northbound receiving Syslog host over the local 7 facility. On the IEMS server, Syslog routing is configured through the SSPFS command line interface. This interface manages any required changes to syslog.conf.

This section covers the vendor-specific information on the format and content of Syslog messages not covered under RFC3164.

The folowing shows a breakdown of the components of the MSG portion of a Syslog message provided by the IEMS Northbound interface:

<Time> <Host> IEMS:
_V2_~**I=**<NodeId>~**H=**<Host>~**A=**<ApplicationName>~**S=**<Seq.Number>
~~ <LogName><LogNumber> <AlarmSeverity> <EventType> <Label>^M
<LogBody>

The following Syslog message will be used to discuss the structure of Syslog messages from IEMS :

```
Feb 23 12:38:54 wnc0s0pf IEMS: _V2_~I=~H=wnc0s0pf~A=IEMS~S=4317~~
MGEM302 NONE TBL  MG9K InvalidEMIPAddress^M        Location: MG9k EM
Comm Network^M        Notification Id: 17180020453^M        State:
```

```
Cleared^M       Category: communications^M       Cause: Communications
Subsystem Failure^M          Invalid EM IP Address - An invalid EM IP
address has been set on the GW^M         Component Id: MG9k EM Comm
Network^M        specificProblem: Invalid EM IP Address - An invalid
EM IP address has be^M         en set on the GW^M         Description:
An invalid EM IP address has been set on the GW
```

Note: See " MG9000 Manager" for comparison of this log in all IEMS Northbound formats.

RFC3164 MSG Fields

Each Syslog message is prefixed by a timestamp and hostname. These fields are shown in *italics* in the example above. Section 4.1.2 of RFC3164 defines these fields as follows:

The **TIMESTAMP** field is the local time and is in the format of "Mmm dd

hh:mm:ss" (without the quote marks) where:

Mmm is the English language abbreviation for the month of the year with the first character in uppercase and the other two characters in lowercase. The following are the only acceptable values:

Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec

dd is the day of the month. If the day of the month is less than 10, then it MUST be represented as a space and then the number. For example, the 7th day of August would be represented as "Aug 7", with two spaces between the "g" and the "7".

hh:mm:ss is the local time. The hour (hh) is represented in a 24-hour format. Valid entries are between 00 and 23, inclusive. The minute (mm) and second (ss) entries are between 00 and 59 inclusive.

A single space character MUST follow the TIMESTAMP field.

The **HOSTNAME** field will contain only the hostname, the IPv4 address,

or the IPv6 address of the originator of the message. The preferred value is the hostname. If the hostname is used, the HOSTNAME field

MUST contain the hostname of the device as specified in STD 13 [4].

It should be noted that this MUST NOT contain any embedded spaces.

The Domain Name MUST NOT be included in the HOSTNAME field. If the IPv4 address is used, it MUST be shown as the dotted decimal notation as used in STD 13 [5]. If an IPv6 address is used, any valid representation used in RFC 2373 [6] MAY be used.

A single space character MUST also follow the HOSTNAME field.

IEMS Header

After the timestamp and hostnames fields, the following constants can be found in the next two fields - separated by a space:

IEMS: Indicates the start of fault-specific information

_V2_ - Syslog format version

Immediately following this tag are several attributes specified as name-value pairs (NVPs). NVP tags are prefixed by a tilde '~'<tag>=<value> for easy identifcation by downstream parsers.

NVPs for IEMS Syslog message

Tag name	Description	example
~I	Node Identifier	~I=
~H	Host name of	~H=znc0s0jh
~A	Reporting Application name	~A=IEMS
~S	Log Sequence number	~S=4317
~~	Indicates start of formatted log header from originator. **Note: This indicator is NOT actually an NVP. It is followed by a single space character	~~ MGEM302 NONE TBL MG9K InvalidEMI PAddress

Parsing Conventions for Formatted Log Data:

The format of the log header and body follow a number of conventions to facilitate parsing by downstream applications:

1 Line feeds in message text are identified by the ^M character sequence (this denotes a sequence of the two printable characters: caret and upper case M).

2 The log header start can be identified by the ~~ sequence followed by a space. The header is delimited by the line feed indicator (discussed in the previous bullet).

3 The log body is separated into lines using ^M sequences defined in bullet 1. Each line is prefixed with eight (8) space characters.

4 Line length (including leading spaces) will not exceed 80 characters . See example log above.

5 All text in the log header and body will consist of printable ACSII characters.

6 Blank lines are not allowed in the formatted log message. This includes both header and body components.

Log Header

The log header consists of the following fields. These fields map to the corresponding fields defined in both SCC2 and NTSTD.

A typical log header will appear in the following format ('\' indicates a space character):

~~\<logname><lognumber>\<AlarmSeverity>\<EventType>\<Label>^M<LogBody>

Log Header fields in Syslog message

Name	Description	Example
Log Name	This value can be 2 to 4 non blank characters. Within this fixed 4 characters, it is right justified and padded with blanks.	' MGEM'
Log Number	This value is always 3 digits ranging from 000 to 999. It is right justified and padded with zeroes. For PROTOLOGs, (ie. TRAP, SWERR, INIT, INFO and LOCK logs) it is a string of 3 spaces.	'302'
Alarm Severity	This field defines the alarm severity and consists of one of the following text strings: NONE, MINOR, MAJOR, CRIT	'NONE'

Name	Description	Example
Event Type	Log report event type which is a string of 4 uppercase characters, left justified and padded with blanks. This field is defined by the applications that generate the log report. Possible values include: ' ', 'CBSY', 'EXC ', 'FAIL', 'FLT ', 'INFO', 'INIT', 'LO ', 'MANB', 'OFFL', 'PASS', 'PBSY', 'RTS ', 'SUMM', 'SYSB', 'TBL ', 'TRAN', 'TRAP', 'UNEQ'.	'TBL '
Label	A variable length character string that represents application event description. This field is optional.	'MG9K InvalidEMIPAddress'
Log Body	Application specific log body text starts here. This may contain several lines. Each new line is indented by eight spaces and delimited by the ^M (caret-M) character sequence.	' Location: MG9k EMCommNetwork**^M** Notification Id: 17180020453**^M** State: Cleared**^M** Category: communications**^M** Cause: Communications SubsystemFailure**^M** Invalid EM IP Address - An invalid EM IP address has been set on the GW**^M** Component Id: MG9k EMCommNetwork**^M** specificProblem: Invalid EM IP Address - An invalid EM IP address has be**^M** en set on the GW**^M** Description: An invalid EM IP address has been set on the GW'

Notes on Log Body Text

The remainder of the message consists of the log body. The message text in this portion of the message is defined by the originating source. The presentation of this text is constrained only by the rules outlined in "Parsing Conventions for Formatted Log Data:" on page 1931.

Note: See **Syslog Protocol (RFC 3164): http://www.ietf.org/rfc/rfc3164.txt** for full details on this specification.

Security and Audit logs

IEMS Security and Audit logs are managed through Syslog and can be forwarded to a remote Syslog host in the same way as fault events. Sample content of each follow:

Audit log sample (/var/log/auditlog):

```
Jan 16 10:37:55 sspfs_svr ID[SUNWcluster.pmf.1020]: "CorbaNotification" requeued

Jan 16 10:38:06 sspfs_svr ID[SUNWcluster.pmf.1018]: "CorbaNotification" Failed to stay
up.

Jan 16 10:38:06 sspfs_svr ID[SUNWcluster.pmf.1019]: "CorbaNotification" restarting too
often ... sleeping 30 seconds.

Jan 16 10:38:36 sspfs_svr ID[SUNWcluster.pmf.1020]: "CorbaNotification" requeued

Jan 16 10:38:46 sspfs_svr ID[SUNWcluster.pmf.1018]: "CorbaNotification" Failed to stay
up.

Jan 16 10:38:46 sspfs_svr ID[SUNWcluster.pmf.1019]: "CorbaNotification" restarting too
often ... sleeping 30 seconds.

Jan 16 10:39:16 sspfs_svr ID[SUNWcluster.pmf.1020]: "CorbaNotification" requeued

Jan 16 10:41:42 sspfs_svr ID[SUNWcluster.pmf.1018]: "snmpp" Failed to stay up.

Jan 16 10:42:16 sspfs_svr ID[SUNWcluster.pmf.1018]: "ompush" Failed to stay up.

Jan 16 10:42:41 sspfs_svr ID[SUNWcluster.pmf.1018]: "CorbaNotification" Failed to stay
up.

Jan 16 10:42:41 sspfs_svr ID[SUNWcluster.pmf.1020]: "CorbaNotification" requeued

Jan 16 10:42:49 sspfs_svr ID[SUNWcluster.pmf.1018]: "PropServer" Failed to stay up.
```

Security log sample (/var/log/securitylog):

```
Feb  6 22:03:16 wnc0s0qh IEMS: IEMS class_security.ver01 STAT=SUCCESS  SRC.USR=root
EVNT.TYPE =Authentication

Feb  6 22:03:16 wnc0s0qh last message repeated 1 time

Feb  9 14:34:33 wnc0s0qh IEMS: IEMS class_security.ver01 STAT=SUCCESS  SRC.USR=root
EVNT.TYPE =Authentication

Feb  9 14:34:33 wnc0s0qh last message repeated 1 time

Feb  9 15:36:20 wnc0s0qh IEMS: IEMS class_security.ver01 STAT=SUCCESS  SRC.USR=root
EVNT.TYPE =Authentication

Feb  9 15:36:20 wnc0s0qh last message repeated 1 time

Feb 11 10:15:53 wnc0s0qh IEMS: IEMS class_security.ver01 STAT=SUCCESS  SRC.USR=root
EVNT.TYPE =Authentication

Feb 11 10:15:53 wnc0s0qh last message repeated 1 time
```

The following table shows a summary of all Syslog facilities used by IEMS.

Note: Only *Fault, Audit, and Security* streams are supported for use by downstream systems. Shaded entries are intended for support purposes only.

IEMS Northbound Syslog Facilities

Log Stream	Log file location on IEMS Server	Syslog facility
Fault	/var/log/iemsCustomerlog	local7
Audit	/var/log/auditlog	local0
Security	/var/log/securitylog	local3
Customer log	/var/log/customerlog	local1
Debug	/var/log/debuglog	local2
SSPFS	/var/log/sspfslog	local4
NPM	/var/log/npm_designlog	local5

Northbound SNMP - IETF MIB specification

IEMS provides an SNMP interface that forwards faults in trap messages and responds to SNMP requests.

The SNMP Northbound interface is based on an the IETF RFC 3877 standard which includes features such as alarm synchronization not available with NTSTD or SCC2.

This section provides a high level description of how to support the IETF Alarm MIB draft defined in the DISMAN working group of the IETF. See the MIBs on the server in the locations specified in the table below.In this document, IEMS is the agent implementing the MIBs for the manager at the OSS level.

SN07 MIB Loading Sequence

In SN07, the MIB loading sequence for a manager application is as follows:

These MIBs are available on the IEMS server in the locations noted in the following table.

MIB Loading Sequence

Load Order	MIB Name	IEMS Server File location
1	SNMPv2-MIB	/opt/nortel/iems/current/mibs SNMPv2-MIB.txt

Load Order	MIB Name	IEMS Server File location
2	SNMP-FRAMEWORK-MIB	/opt/net-snmp/share/snmp/mibs/ SNMP-FRAMEWORK-MIB.txt
3	INET-ADDRESS-MIB	/opt/net-snmp/share/snmp/mibs/ INET-ADDRESS-MIB.txt
4	ALARM-MIB	/opt/nortel/iems/current/mibs/usp/ ALARM-MIB-disman-18.txt
5	IANA-ITU-ALARM-TC	/opt/nortel/iems/current/mibs/usp/ IANA-ITU-ALARM-TC-disman-18.txt
6	ITU-ALARM-TC	/opt/nortel/iems/current/mibs/usp/ ITU-ALARM-TC-disman-18.txt
7	ITU-ALARM-MIB	/opt/nortel/iems/current/mibs/usp/ ITU-ALARM-MIB-disman-18.txt
8	ITU-IANA-ALARM-TC	/opt/nortel/iems/current/mibs/usp/ ITU-IANA-ALARM-TC-disman-04.txt
9	NOTIFICATION-LOG-MIB	/opt/nortel/iems/current/mibs/usp/ NOTIFICATION-LOG-MIB-rfc3014.txt
10	NORTEL-MIB	/opt/nortel/iems/current/mibs/usp/nortel.mib
11	NORTEL-GENERIC-MIB	/opt/nortel/iems/current/mibs/usp/ nortelGenericMIBs-smi2.mib
12	ENTITY-MIB	/opt/nortel/iems/current/mibs/usp/ ENTITY-MIB-entmib-03.txt
13	ENTITY-STATE-MIB	/opt/nortel/iems/current/mibs/usp/ ENTITY-STATE-MIB-entmib-01.txt
14	NORTEL-ALARM-EXT-MIB	/opt/nortel/iems/current/mibs/usp/ nortel_alarm_ext_smi.txt
15	NORTEL-NMI-MIB	/opt/nortel/iems/current/mibs/usp/ nortelNMI-smi2.smi

Load Order	MIB Name	IEMS Server File location
16	NORTEL-NMI-ALARM-CLEAR-MIB	/opt/nortel/iems/current/mibs/usp/ nortelNMIalarmClear_smi.txt

Support for the IETF Alarm MIB is new to IETF in the SN07 release. The MIBs defined by the DISMAN working group of IETF are designed to allow surveillance of network elements. We have used this set of MIBs to present the state of our softswitch. The ALARM MIB presents a set of tables that contain the current alarm information for the device. The alarm MIB does not prescribe the notifications used to set and clear alarms on the device.

Nortel has provided an extension MIB to allow a manager to monitor the system alarm changes through SNMP notifications. These notifications are the primary interface for monitoring faults in the Succession node.

Nortel Alarm Extension MIB

This MIB defines notifications used for alarm asserts and clears in addition to data type definitions and tables related to notifications that can be sent.

A complete listing and description of our fault management MIB may be found in “Appendix 2: Nortel Alarm Extension MIB”.

TABLE SUPPORT IN NORTEL ALARM EXTENSION MIB

The table nnExtAlarmActiveTable along with the AlarmActiveTable contains all the information required to resynchronize the northbound SNMP agent and to give the OSS a complete view of the active alarms within the scope of the Integrated EMS.

The *nnExtAlarmStateTable* is not supported at this time.

NOTIFICATION SUPPORT IN NORTEL ALARM EXTENSION MIB

All notifications defined in this MIB are supported. All OIDs defined within the notifications are also populated. The alarm notifications include sequence numbers so the SNMP manager can determine if a message is missed. Specific formats are supported as described in the following table.

Alarm Notifications Varbinds

Variable name	Format	OID
alarmActiveResourceId	OID	.1.3.6.1.2.1.118.1.2.2.1.10
alarmActiveDateAndTime	DateandTime	.1.3.6.1.2.1.118.1.2.2.1.2

Variable name	Format	OID
alarmActiveDescription	Human readable string	.1.3.6.1.2.1.118.1.2.2.1.11
nnExtAlarmActiveEventType	Enum	.1.3.6.1.4.1.562.29.6.1.1.1.1
nnExtAlarmActiveProbableCause	Enum	.1.3.6.1.4.1.562.29.6.1.1.1.2
nnExtAlarmActiveAdditionalText	String	.1.3.6.1.4.1.562.29.6.1.1.1.3
nnExtAlarmActiveDocumentation Pointer	String: up to 4 chars + 3 digits	.1.3.6.1.4.1.562.29.6.1.1.1.4

nnExtAlarmActiveResourceDescr iption	compType=compna me;
	subcompType=subc ompName;
	….. for as many levels of hierarchy is required to identify the alarmed entity
		.1.3.6.1.4.1.562.29.6.1.1.1.5

nnExtAlarmActiveManualClear	enum	.1.3.6.1.4.1.562.29.6.1.1.1.6
nnExtAlarmActiveSequenceNum ber	Numeric	.1.3.6.1.4.1.562.29.6.1.1.1.7

These varbinds are included in all 5 of the alarm notifications supported by the Integrated EMS. As defined all notifications in SNMP, *sysUpTime* and the OID of the notification are included in the varbinds for all notification types (see the following table). Each of the notifications signifies a different severity of the specified alarm. Notifications are defined for critical, major, minor, warning and cleared alarms. The notifications are defined in the table below

Trap OIDs and Alarm Severity

Trap OID	Severity
.1.3.6.1.4.1.562.29.6.1.0.306	nnExtAlarmMessage
.1.3.6.1.4.1.562.29.6.1.0.305	nnExtAlarmCritical
.1.3.6.1.4.1.562.29.6.1.0.304	nnExtAlarmMajor
.1.3.6.1.4.1.562.29.6.1.0.303	nnExtAlarmMinor
.1.3.6.1.4.1.562.29.6.1.0.302	nnExtAlarmWarning
.1.3.6.1.4.1.562.29.6.1.0.301	nnExtAlarmClear

The nnExtAlarmMessage notifications can be used to send informational messages from IEMS. Because these notifications are information, reliability is not addressed. As illustrated in the table below, we populate with

information in the message header and bodytext of our NTSTD and CUSTLOG feeds.

Message Notification Varbinds

Variable name	Format	OID
nnExtAlarmMessageResource	OID	.1.3.6.1.4.1.562.29.6.1.3.1.1
nnExtAlarmMessageResourceDescription	String	.1.3.6.1.4.1.562.29.6.1.3.1.2
nnExtAlarmMessageDateAndTime	DateAndTime	.1.3.6.1.4.1.562.29.6.1.3.1.3
nnExtAlarmMessageDocumentationPointer	String	.1.3.6.1.4.1.562.29.6.1.3.1.4
nnExtAlarmMessageInfo	String	.1.3.6.1.4.1.562.29.6.1.3.1.5

OTHER DEFINITIONS IN THIS MIB

This MIB also defines OSI state variables that are not defined in the IETF Entity State MIB. These variables and tables are not supported at this time.

IETF RFC 3877 MIB Tables

There are several tables introduced by the IETF Alarm MIB Model. This document will discuss each table and intended use.

ALARM MODEL TABLE

This table defines the notifications used by IEMS to express alarm events. Notifications to communicate alarm asserts and clears have been defined by NortelNetworks in a separate MIB. These new notifications are defined in “Nortel Alarm Extension MIB” on page 1937.

This table is not currently supported. This table is a static table and we will look to support this in some future release. This table provides model documentation to OSSes.

ALARM ACTIVE TABLE

This table contains a list of active alarms on IEMS and is supported. It, along with 2 other tables - the alarm active variable table and the Nortel Alarm Extension Table - provide a complete view of the active alarms within the scope of the Integrated EMS.

Indexes into this table are: *alarmListName, alarmActiveDateAndTime, alarmActiveIndex*. AlarmListName matches the index nlmLogName for nlmLogTable from RFC3014 (Notification Log MIB). For our Succession IEMS table we use the string "Nortel_fault".

The following table describes expected values for entries in this table.

IETF Alarm Active Entry

Sequence Field	Default Value
alarmListName	Nortel_fault
alarmActiveDateAndTime	none
alarmActiveIndex	Numerical index defined by agent, unique in table
alarmActiveEngineID	IEMS agent engine ID in SNMPv3; empty string in SNMPv2
alarmActiveEngineAddressType	Inet address type (IPv4)
alarmActiveEngineAddress	IPv4 address of active IEMS agent
alarmActiveContextName	“”
alarmActiveVariables	12 = number of fields in our alarm set notifications + 2 mandatory entries per alarm
alarmActiveNotificationID	OID of notification sent for this alarm set
alarmActiveResourceId	OID that describes this entry in the Active Alarm Table
alarmActiveDescription	none
alarmActiveLogPointer	not implemented - default = 0.0
alarmActiveModelPointer	not implemented - default = 0.0
alarmActiveSpecificPointer	not implemented - default = 0.0

ALARM ACTIVE VARIABLE TABLE

Alarm Active variable table contains the varbinds for all the active alarm notifications. The indexes to the table are: *alarmListName, alarmActiveIndex, alarmVariableIndex*. For each alarm in the alarm active table there will be 12 entries in the alarm active variable table. The index *alarmVariableIndex* will be from 1 to 12 (also from 1 to alarmActiveVariables in the alarmActiveTableEntry). The notifications contain some varbinds that are not in the standard table so the OSS can index into this table to get the additional data. (Similarly, the OSS can index into the Nortel Extension Active Alarm Table for the additional information as well.)

Fields in this table for each alarm are as follows:

Alarm Active Variable Table

Alarm Active Variable Entry	Notification Varbind	Default Value
alarmActiveVariableIndex 1	sysUpTime	sysUpTime
alarmActiveVariableIndex 2	snmpTrapOID	snmpTrapOID
alarmActiveVariableIndex 3	alarmActiveResourceId	OID that describes this entry in the Active Alarm Table
alarmActiveVariableIndex 4	alarmActiveDescription	none
alarmActiveVariableIndex 5	alarmActiveDateAndTime	none
alarmActiveVariableIndex 6	nnExtAlarmActiveEventType	none
alarmActiveVariableIndex 7	nnExtAlarmActiveProbableCause	none
alarmActiveVariableIndex 8	nnExtAlarmActiveAdditionalText	none
alarmActiveVariableIndex 9	nnExtAlarmActiveDocumentationPointer	This is often logname & number
alarmActiveVariableIndex 10	nnExtAlarmActiveResourceDescription	none
alarmActiveVariableIndex 11	nnExtAlarmActiveManualClear	none
alarmActiveVariableIndex 12	nnExtAlarmActiveSequenceNumber	none

ALARM CLEAR TABLE

This table provides an interface for SNMP managers to clear alarms on devices which support this operation. Manual clears are performed with SNMP SET operations using the alarmActiveIndex of the alarm to be cleared. See section “ Manual Clear” on page 1951 for details.

ACTIVE ALARM STATS TABLE

Not supported.

ITU ALARM ACTIVE TABLE

Not supported.

ITU ALARM ACTIVE VARIABLE TABLE

Not supported.

ITU ALARM ACTIVE STATS TABLE

Supported.

NLM LOG TABLE (RFC 3014)

NLM Log Table is defined in IETF RFC 3014. Implementation of the MIB is provided to support incremental resynchronization of the OSS. The OSS SNMP managers can reach into the nlmLogTable to get missed events. See Notification Log MIB (RFC 3014): http://www.ietf.org/rfc/rfc3014.txt?number=3014.

The Notification Log MIB has 3 different MIB groups:

- configuration parameters dealing with log storage and reporting
- statistics of log reporting
- the actual history of notifications

Configuration

Configuration defines the size and the aging criteria of the *nlmLogTable*. Table *nlmConfigLogTable* also defines the named log entries supported in the nlmLogTable. We use a specific named log entry for allowing fault resync. This table also defines filtering of these logs.

Each entry in the config log table contains: *nlmLogName, nlmConfigLogFilterName, nlmConfigLogEntryLimit, nlmConfigLogAdminStatus*. This table enables Alarm notification resynchronization. The first and only entry in this table has an *nlmLogName* that matches the *alarmListName* index for the active alarm tables above. This index is "Nortel_fault."

nlmConfigLogFilterName is defined as "default". We do not support the correlation of this value to any specific data in the *snmpNotifyFilterTable* in the SNMP Notification MIB.

nlmConfigLogEntryLimit defines the size of the log table. This defines the number of alarm events that are available to the SNMP manager through the SNMP agent. Since there is only one entry in this table for Nortel_fault, this value is over-ridden by *nlmConfigGlobalEntryLimit*.

> ***Note:*** It is recommended that *nlmConfigGlobalEntryLimit* be set to a minimum value as it maintains this history in memory. Do **not** set this value to zero. Setting this value to zero will lead to unlimited entries being saved and lead to potential resource issues in the system.

nlmConfigLogAdminStatus is set to enabled (1).

nlmConfigLogOperStatus is set to noFilter (3).

nlmConfigLogStorageType is a storageType OID. Data associated with this entry is considered volatile and will be lost when the agent is restarted.

SNMP sets for the configuration items in this table are not supported.

Statistics

The statistics group contains two scalars and a table. The table is required for the resync algorithm. The table *nlmStatsLogTable* augments the *nlmConfigLogTable* and has only two values in each entry: *nlmStatsLogNotificationsLogged* and *nlmStatsLogNotificationsBumped*. Because this table augments the *nlmConfigLogTable*, the index for these notifications uses the same key - "Nortel_fault"

nlmStatsLogNotifications for the named logs in Nortel_fault is the sequence number (*nnExtAlarmActiveSequenceNumber*) sent in Integrated EMS notifications of the faults. This also provides the secondary index into the *nlmLogTable* for notifications that have been missed - as detected through sequence numbers in those notifications.

It is the responsibility of the SNMP agent sending fault notifications to increment the *nlmStatsLogNotificationsLogged* and include the value in the varbinds of that notification as documented.

nlmStatsGlobalNotificationsBumped defines the number of logs that have been removed or “bumped” from the log table due to the limits imposed by the *nlmConfigGlobalEntryLimit* setting.

Log Table

The *nlmLogTable* contains the history of notifications sent to the manager. The indices are: *nlmLogName* and *nlmLogIndex*. *nlmLogName* is "Nortel_fault" and the *nlmLogIndex* is the sequence number in the proprietary notifications.

This section defines two tables: *nlmLogTable* and *nlmLogVariableTable*. The first provides the indices for retrieving missed notifications, and the second contains the varbinds for the notifications. We have 2 different size alarm notifications (in terms of number of varbinds)- alarm assert notifications are all the same size, and alarm clear notifications are slightly smaller (1 varbind). Only alarm notifications are stored in the log table, message notifications are not logged in this table.

The structure and implementation of the *nlmLogVariableTable* is the same as that of the *alarmActiveVariableTable* and is not described further.

Connecting to the NB feed:

The default SNMP Port in which the agent is listening is 8001. This port is configurable through the IEMS client. User can also disable the SNMP agent if he wishes. OSS has to register its SNMP manager host and port to which the traps are to be sent.

Connection Reliability

There are several scenarios which must be considered by an SNMP manager to ensure that the alarms presented at the OSS layer will be in sync with the actual alarms maintained on the device. Resynchronization will be required when either the OSS or the IEMS system goes through a restart, or when a lost trap is detected. See section " Message Sequences and Manager Operations" on page 1949 for details on resynchonization of active alarms.

Lost Traps

If the OSS detects a lost trap via an out-of-order sequence number, the OSS must either try to recover the lost sequence numbers from the notification log table or re-synchronize from the the active alarm table. The notification log MIB will contain the last 25 traps sent. If the sequence number delta is within this range, the notification log table can be used to obtain missed traps. Otherwise, a read of the active alarm table must be used to determine the active alarms in the system.

Additionally, OSS can poll the sequence number of the last alarm or clear sent from the agent. The sequence number of last notification sent will be in the *nlmStatsLogNotifications* table in the *nlmStatsLogNotificationsLogged* variable in the "Nortel_fault" entry as described above.

> ***Note:*** Since there is only one entry in this table, the scalar *nlmStatsGlobalNotificationsLogged* can also be used to obtain this value.

SNMP Alarm Events & Correlation

The *alarmActiveResourceID* uniquely identifies an alarm occurrence in the system. To correlate a clear notification to the appropriate assert, the *alarmActiveResourceID* must be used.

Event Types and ProbableCauses

Each alarm notification and record in the alarm table includes event type and probable cause. Values for these fields are define in the IANA-ITU-ALARM-TC MIB table. These values come from both the X.7xx and M.3100 series of standards.

Alarm Event Type Format:

IANAItuEventType - Valid values for this entry are provided here for convenience.

other (1),

communicationsAlarm (2),

qualityOfServiceAlarm (3),

processingErrorAlarm (4),

equipmentAlarm (5),

environmentalAlarm (6),

integrityViolation (7),

operationalViolation (8),

physicalViolation (9),

securityServiceOrMechanismViolation (10),

timeDomainViolation (11)

Probable Cause Format:

IANAItuProbableCause - Valid values for this entry are provided here for convenience.

aIS (1), callSetUpFailure (2), degradedSignal (3), farEndReceiverFailure (4), framingError (5), lossOfFrame (6), lossOfPointer (7), lossOfSignal (8), payloadTypeMismatch (9), transmissionError (10), remoteAlarmInterface (11), excessiveBER (12), pathTraceMismatch (13), unavailable (14), signalLabelMismatch (15), lossOfMultiFrame (16), receiveFailure (17), transmitFailure (18), modulationFailure (19), demodulationFailure (20), broadcastChannelFailure (21), connectionEstablishmentError (22), invalidMessageReceived (23), localNodeTransmissionError (24), remoteNodeTransmissionError (25), routingFailure (26), backplaneFailure (51), dataSetProblem (52), equipmentIdentifierDuplication (53), externalIFDeviceProblem (54), lineCardProblem (55), multiplexerProblem (56), nEIdentifierDuplication (57), powerProblem (58), processorProblem (59), protectionPathFailure (60), receiverFailure (61), replaceableUnitMissing (62), replaceableUnitTypeMismatch (63), synchronizationSourceMismatch (64), terminalProblem (65), timingProblem (66), transmitterFailure (67), trunkCardProblem (68), replaceableUnitProblem (69), realTimeClockFailure (70), antennaFailure (71), batteryChargingFailure (72), diskFailure (73), frequencyHoppingFailure (74), iODeviceError (75), lossOfSynchronisation (76), lossOfRedundancy (77), powerSupplyFailure (78), signalQualityEvaluationFailure (79), tranceiverFailure (80), protectionMechanismFailure (81), protectingResourceFailure (82), airCompressorFailure (101), airConditioningFailure (102), airDryerFailure (103), batteryDischarging (104), batteryFailure (105), commercialPowerFailure (106), coolingFanFailure (107), engineFailure (108), fireDetectorFailure (109), fuseFailure (110), generatorFailure (111), lowBatteryThreshold (112), pumpFailure (113), rectifierFailure (114), rectifierHighVoltage (115), rectifierLowFVoltage (116), ventilationsSystemFailure (117), enclosureDoorOpen (118), explosiveGas (119), fire (120), flood (121), highHumidity (122), highTemperature (123), highWind (124),

iceBuildUp (125), intrusionDetection (126), lowFuel (127), lowHumidity (128), lowCablePressure (129), lowTemperatue (130), lowWater (131), smoke (132), toxicGas (133), coolingSystemFailure (134), externalEquipmentFailure (135), externalPointFailure (136), storageCapacityProblem (151), memoryMismatch (152), corruptData (153), outOfCPUCycles (154), sfwrEnvironmentProblem (155), sfwrDownloadFailure (156), lossOfRealTimel (157), applicationSubsystemFailure (158), configurationOrCustomisationError (159), databaseInconsistency (160), fileError (161), outOfMemory (162), softwareError (163), timeoutExpired (164), underlayingResourceUnavailable (165), versionMismatch (166), adapterError (500), applicationSubsystemFailture (501), bandwidthReducedX733 (502), callEstablishmentError (503), communicationsProtocolError (504), communicationsSubsystemFailure (505), configurationOrCustomizationError (506), congestionX733 (507), coruptData (508), cpuCyclesLimitExceeded (509), dataSetOrModemError (510), degradedSignalX733 (511), dteDceInterfaceError (512), enclosureDoorOpenX733 (513), equipmentMalfunction (514), excessiveVibration (515), fileErrorX733 (516), fireDetected (517), framingErrorX733 (518), heatingVentCoolingSystemProblem (519), humidityUnacceptable (520), inputOutputDeviceError (521), inputDeviceError (522), lanError (523), leakDetected (524), localNodeTransmissionErrorX733 (525), lossOfFrameX733 (526), lossOfSignalX733 (527), materialSupplyExhausted (528), multiplexerProblemX733 (529), outOfMemoryX733 (530), ouputDeviceError (531), performanceDegraded (532), powerProblems (533), pressureUnacceptable (534), processorProblems (535), pumpFailureX733 (536), queueSizeExceeded (537), receiveFailureX733 (538), receiverFailureX733 (539), remoteNodeTransmissionErrorX733 (540), resourceAtOrNearingCapacity (541), responseTimeExecessive (542), retransmissionRateExcessive (543), softwareErrorX733 (544), softwareProgramAbnormallyTerminated (545), softwareProgramError (546), storageCapacityProblemX733 (547), temperatureUnacceptable (548), thresholdCrossed (549), timingProblemX733 (550), toxicLeakDetected (551), transmitFailureX733 (552), transmiterFailure (553), underlyingResourceUnavailable (554), versionMismatchX733 (555), -- The following are defined in X.736 authenticationFailure (600), breachOfConfidentiality (601), cableTamper (602), delayedInformation (603), denialOfService (604), duplicateInformation (605), informationMissing (606), informationModificationDetected (607), informationOutOfSequence (608), keyExpired (609), nonRepudiationFailure (610), outOfHoursActivity (611), outOfService (612), proceduralError (613),

unauthorizedAccessAttempt (614), unexpectedInformation (615), other (1024).

Northbound Fault Mapping

The following table shows the correlation between the fields of the supported Northbound fault feeds.

Northbound Fault Format Summary

Row#	IEMS Schema	SYSLOG	NTSTD	SCC2	SNMP
1.	Severity 1= critical 2 = major 3 = minor 4= warning 5 =clear 6 = info	Alarm Severity CRIT =1, MAJOR =2, MINOR =3, NONE =4,5,6 None	 1 = '***' 2 = '** ' 3 = '* ' 4,5,6 = ' ' 6 = ' '	 1 = '*C' 2 = '**' 3 = '* ' 4,5,6 = ' ' 6 = ' '	Based on the severity the concerned alarm, appropriate notification will be sent. nnExtNotificationPrefix : .1.3.6.1.4.1.562.29.6.1.0 **Alarm Events:** nnExtAlarmCritical = 1 .1.3.6.1.4.1.562.29.6.1.0.305 nnExtAlarmMajor = 2 .1.3.6.1.4.1.562.29.6.1.0.304 nnExtAlarmMinor = 3 .1.3.6.1.4.1.562.29.6.1.0.303 nnExtAlarmWarning = 4 .1.3.6.1.4.1.562.29.6.1.0.302 nnExtAlarmClear = 5 .1.3.6.1.4.1.562.29.6.1.0.301 **Non-alarm Events:** nnExtAlarmMessage = 6 .1.3.6.1.4.1.562.29.6.1.0.306
2.	Time(long)	MMM DD hh:mm:ss -> UTC time	MMM DD hh:mm:ss UTC time	UTC -> Minute Indicator	**Alarm event:** alarmActiveDateAndTime .1.3.6.1.2.1.118.1.2.2.1.2 **Non-alarm event:** nnExtAlarmMessageDateAndTime .1.3.6.1.4.1.562.29.6.1.3.1.3

Northbound Fault Format Summary

Row#	IEMS Schema	SYSLOG	NTSTD	SCC2	SNMP
3.	LogName	Report Name	LogName	LogName	Log name&number shown in varbind **Alarm event:** nnExtAlarmActiveDocumentationPointer .1.3.6.1.4.1.562.29.6.1.1.1.4 **Non-alarm event:** nnExtAlarmMessageDocumentationPointer .1.3.6.1.4.1.562.29.6.1.3.1.4
4.	LogNumber	ReportNumber	LogNumber	LogNumber	Log name&number shown in varbind **Alarm event:** nnExtAlarmActiveDocumentationPointer .1.3.6.1.4.1.562.29.6.1.1.1.4 **Non-alarm event:** nnExtAlarmMessageDocumentationPointer .1.3.6.1.4.1.562.29.6.1.3.1.4
5.	Threshold	-	Threshold '+' set ' ' not set	Threshold '+' set ' ' not set	not supported
6.	ID(Integer)	NotificationID	NotificationID	NotificationID	last integer in the OID specified by: alarmActiveResourceID .12.78.111.114.116.101.108.95.102.97.117.108.116.25.50.48.48.52.45.49.45.56.44.51.58.50.49.58.53.55.46.49.44.43.48.53.58.51.48**.10**
7.	Sequence Number	Generated Sequence Number	Global Sequence Number (generated)	Global Sequence Number (generated)	**Alarm event:** nnExtAlarmActiveSequenceNumber .1.3.6.1.4.1.562.29.6.1.1.1.7
8.	EventType	EventType	EventType	EventType	**Alarm event:** not supported
9.	EventLabel	EventLabel	EventLabel	EventLabel	not supported

Northbound Fault Format Summary

Row#	IEMS Schema	SYSLOG	NTSTD	SCC2	SNMP
10.	Equipment Identifier	Location:	Location:	Location:	**Alarm event:** nnExtAlarmActiveResourceDescription .1.3.6.1.4.1.562.29.6.1.1.1.5 **Non-alarm event:** nnExtAlarmMessageResourceDescription .1.3.6.1.4.1.562.29.6.1.3.1.2
11.	Probable Cause	Cause	Cause	Cause	**Alarm event:** nnExtAlarmActiveProbableCause .1.3.6.1.4.1.562.29.6.1.1.1.2
12.	Category	Category:	Category:	Category:	**Alarm event:** nnExtAlarmActiveEventType .1.3.6.1.4.1.562.29.6.1.1.1.1
13.	Specific Problem	Specific Problem	Specific Problem	Specific Problem	**Alarm event:** alarmActiveDescription: .1.3.6.1.2.1.118.1.2.2.1.11
14.	NotificationID	not sent	not sent	non sent	not sent
15.	ComponentID	ComponentID	ComponentID	ComponentID	**Alarm event:** nnExtAlarmActiveResourceDescription .1.3.6.1.4.1.562.29.6.1.1.1.5 **Non-alarm event:** nnExtAlarmMessageResourceDescription .1.3.6.1.4.1.562.29.6.1.3.1.2
16.	BodyText	BodyText	BodyText	BodyText	**Alarm event:** alarmActiveDescription: .1.3.6.1.2.1.118.1.2.2.1.11 **Non-alarm event:** nnExtAlarmMessageInfo: .1.3.6.1.4.1.562.29.6.1.3.1.5

Message Sequences and Manager Operations

Raise Alarm

This sequence applies to the following alarm event types:

- nnAlarmWarning
- nnAlarmMinor

- nnAlarmMajor
- nnAlarmCritical

1 IEMS forwards alarm from device. The trap contains references to the 12 varbinds depicted in Table , “Alarm Active Variable Table,” on page 1941.

2 The OSS receives the alarm and notes the resource ID of the alarm event to allow correlation with a subsequent alarmClear event. IEMS adds the alarm entry to the *alarmActiveTable*, *alarmActiveVariableTable*, and *nnExtAlarmActiveTable*. The *nlmLogTable* and *nlmLogVariableTable* also maintain a rolling log of the last n alarm events received - where n is defined by the variable *nlmConfigGlobalEntryLimit*.

Clear Alarm

1 IEMS forwards clearAlarm event from device. The trap contains references to all varbinds listed in Please refer to “ Alarm Active Variable Table” on page 1941. except for *nnExtAlarmActiveManualClear* - which is not included in this message.

2 The OSS receives the clear event and matches its resource ID in **alarmActiveResourceId** against the ID of its corresponding alarm event in the alarmActiveTable.

The corresponding alarm entry is removed from all active alarm tables:

alarmActiveTable

alarmActiveVariableTable

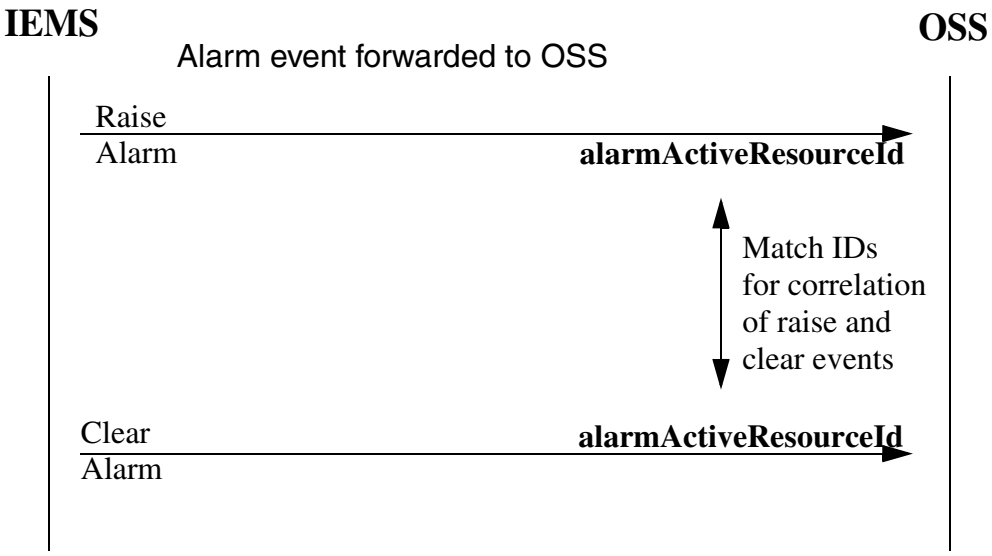
nnExtAlarmActiveTable

An entry is made in the log notification tables for the CLEAR event.

nlmLogTable

nlmLogVariableTable

Alarm Raise & Clear Correlation



Manual Clear

Each alarm event contains information that indicates whether it can be manually cleared. The value in the varbind *nnExtAlarmActiveManualClear* makes this determination and can have the following values:

other (1),

forbidden (2),

required (3),

optional (4)

Note: Alarms with a value of *forbidden* in this field cannot be manually cleared.

Eligible alarms can be manually cleared by sending a SET request to the alarm clear interface variable *nortelNMIalarmClear (*.1.3.6.1.4.1.562.29.1.8.1*)* in the NORTEL_NMI-ALARM-CLEAR-MIB. The alarm to be cleared can be specified by using the *alarmActiveIndex* of the target alarm. The value of the *alarmActiveIndex* is stored as the last element in the *alarmActiveResourceId*.

Example: An alarm is generated and stored in the *alarmActiveTable* with the following values:

alarmsListName:**Nortel_fault**

alarmActiveDateAndTime:2004-1-8,3:21:57.1,+05:30

alarmActiveIndex:**10**

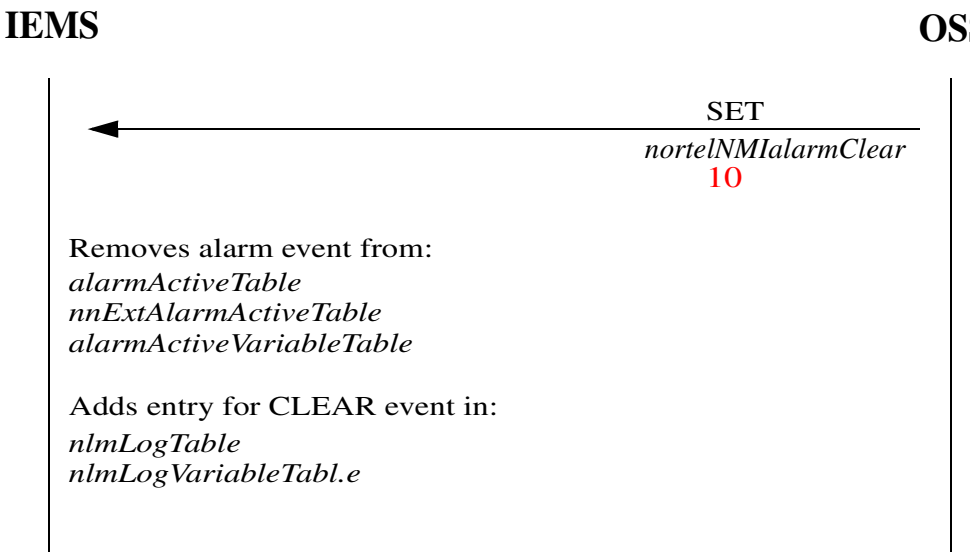
The resulting alarmAcitveResourceId will be:

alarmAcitveResourceId.**12.78.111.114.116.101.108.95.102.97.117.108.116.**25.50.48.48.52.45.49.45.56.44.51.58.50.49.58.53.55.46.49.44.43.48.53.58.51.48.**10**

Note: *alarmActiveResourceId* is shown fully encoded.

The SET request will be sent with a value of 10. The corresponding alarm entry is removed from the alarmActiveTable,alarmActiveVariableTable, and nnExtAlarmActiveTable. A corresponding entry for the manual clear is then made in *nlmLogTable* and *nlmLogVariableTable.* See the following figure.

Manual Clear of Alarm Event



Detecting System Restarts

Before an alarm event is forwarded to a downstream manager, the IEMS assigns the current system up-time of the server to the alarm contents. As discussed previously, it can be found in the *sysUpTime* varbind of the alarm. On restart of the IEMS server, this value is initialized to 0 to signal downstream systems of the event. The OSS can use *sysUptime* to monitor system restarts as follows:

Correlation with sequence numbers

Since *sysUpTime* will always increase with each sequential alarm event, restart conditions can be detected if the following condition is met:

(*sysUpTime* of current event) < (*sysUpTime* of previous event)

Restart Recovery

When the OSS determines that IEMS has been restarted, it must perform a full reload of the active alarms in the system to synchronize its data with the agent. See "Full Resync of Active Alarms" on page 1953 for details.

Detection of Missing Logs

Each alarm event generated by IEMS contains a unique sequence number that can be used to detect lost notifications. Once an OSS identifies a missing sequence number, it can be re-queried from the IEMS server if the following condition is met:

(sequence# of latest event) - (sequence# of missing event)

<= *nlmConfigGlobalEntryLimit (*default = 25*)*

If this condition is met, then the missing log can be recovered. See " Incremental Resync of missing logs".

Otherwise, a full resynchronization of the alarm tables will be required. See "Full Resync of Active Alarms" on page 1953.

Full Resync of Active Alarms

There are two scenarios for which an SNMP manager will be required to perform a complete reload of the active alarms from IEMS:

- on startup of the management application
- when missing alarm notifications are sufficiently old to have been rotated out of the *nlmLogTable*. This table maintains a snapshot of the most recent 25 alarm events. If the missing sequence number cannot be found in this table, then a reload of all active alarms is required.

Active alarm data resides in:

alarmActiveTable

nnExtAlarmActiveTable

A full table read must be performed on the varbinds in Please refer to " Required Varbinds for Active Alarm resync" on page 1953. to perform the resync:

Required Varbinds for Active Alarm resync

Varbind	OID
snmpTrapOID	.1.3.6.1.6.3.1.1.4.1
alarmActiveResourceId	.1.3.6.1.2.1.118.1.2.2.1.10
alarmActiveDateAndTime	.1.3.6.1.2.1.118.1.2.2.1.2
alarmActiveDescription	.1.3.6.1.2.1.118.1.2.2.1.11

Varbind	OID
nnExtAlarmActiveEventType	.1.3.6.1.4.1.562.29.6.1.1.1.1
nnExtAlarmActiveProbableCause	.1.3.6.1.4.1.562.29.6.1.1.1.2
nnExtAlarmActiveAdditionalText	.1.3.6.1.4.1.562.29.6.1.1.1.3
nnExtAlarmActiveDocumentationPointer	.1.3.6.1.4.1.562.29.6.1.1.1.4
nnExtAlarmActiveResourceDescription	.1.3.6.1.4.1.562.29.6.1.1.1.5
nnExtAlarmActiveManualClear	.1.3.6.1.4.1.562.29.6.1.1.1.6
nnExtAlarmActiveSequenceNumber	.1.3.6.1.4.1.562.29.6.1.1.1.7

Note: These varbinds are retrieved from the *alarmActiveVariableTable*

The manager can perform a full resync with the *alarmActiveTable* in a similar way to that used when performing an incremental resync from the *nlmLogVariableTable* (see " Incremental Resync of missing logs"). As stated earlier, each alarm entry in the *alarmActive* table has a corresponding entry for all of the alarm components in the *alarmActiveVariable* table. The complete set of alarm data can be retrieved for each alarm by first retrieving the *alarmActiveIndex* of the entry in the *alarmActiveTable*, and then using this index to request its corresponding entries from the *alarmActiveVariableTable*. These steps can be summarized as follows:

1 Poll the IEMS server for the latest sequence number. Issue a GET request on *nlmStatsLogNotificationsLogged*. Perform steps 2 to 3until all alarms have been retrieved from IEMS.

2 Derive the list of indices to the *alarmActive* table by performing a series of GETNEXT requests on any one of its columns. The *alarmActiveIndex* for entries can be parsed from this data.

3 For each *alarmActiveIndex* derived in step 2, determine the alarm type perform a GET request on the *alarmActiveVariableTable* all index fields for the alarm type. The specific index fields requested will be based on the alarm type specified by the *snmpTrapOID* in index 2. See " Incremental Resync of missing logs" for a description of varbinds used in the different event types. This step essentially performs repeated incremental resync operations until complete.

4 Based on the alarm type determined is step 3, request all varbinds (GET) in the *alarmActiveVariableTable* for the constructed index

alarmListName = Nortel_fault

alarmActiveIndex = (derived in step 2)

alarmActiveVariableIndex (1-n) - depends on alarm type found in step 3

Note: The *alarmActiveVariableTable* and *nlmLogVariableTable* contain the same indexed alarm information and are accessed in similar ways. The main difference between the two is that *alarmActiveVariableTable* uses the *alarmActiveIndex* as one of its key components, whereas the *nlmLogVariableTable* uses the sequence number.

Incremental Resync of missing logs

An OSS can monitor sequence numbers from alarm events to detect missing notifications. If a missing notification is found (as described in " Detection of Missing Logs"), then it can be queried from the *nlmLogVariableTable* using the sequence number.

1. OSS detects missing sequence number
2. Missing alarm events can be recovered from the *nlmLogVariableTable* using the sequence number. Depending on the alarm event type, different numbers of varbinds will be present in the table for the entry.

The following table shows an example of the varbinds that would be used to recover a missing RAISE event with a sequence number of "***1390***". RAISE events include the following alarm types:

nnExtAlarmWarning (.1.3.6.1.4.1.562.29.6.1.0.301)

nnExtAlarmMinor (.1.3.6.1.4.1.562.29.6.1.0.302)

nnExtAlarmMajor (.1.3.6.1.4.1.562.29.6.1.0.303)

nnExtAlarmCritical (.1.3.6.1.4.1.562.29.6.1.0.304)

Table , "nlmLogVariableTable varbinds for recovery of lost CLEAR notification," on page 1957 shows an example of the varbinds that would be used to recover a missing CLEAR event with a sequence number of "***1390***". CLEAR events are specified by the following OID:

nnExtAlarmClear (.1.3.6.1.4.1.562.29.6.1.0.301)

The alarm type can be determined by examining the value of the snmpTrapOID of the missed alarm. For both alarm types, this value is assigned index 2 of the nlmLogVariable table and can be queried with the OIDs shown in the following table. The alarm type will determine the mapping for the remining fields in the notification message.

nlmLogVariableTable varbinds for recovery of lost RAISE notification

nlmLogVariableTable Index Variable	OID (nlmLogName = "Nortel_fault" (encoded) Sequence# = 1390 Index = 1 - 12)	Notification Varbind Represented
nlmLogVariableIndex 1	nlmLogVariableTimeTicksVal.12.78.111.114.116.101.108.95.102.97.117.108.116.**1390**.1	sysUpTime
nlmLogVariableIndex 2	nlmLogVariableOidVal.12.78.111.114.116.101.108.95.102.97.117.108.116.**1390**.2	snmpTrapOID
nlmLogVariableIndex 3	nlmLogVariableOctetStringVal.12.78.111.114.116.101.108.95.102.97.117.108.116.**1390**.3	alarmActiveResourceId
nlmLogVariableIndex 4	nlmLogVariableOctetStringVal.12.78.111.114.116.101.108.95.102.97.117.108.116.**1390**.4	alarmActiveDescription
nlmLogVariableIndex 5	nlmLogVariableOctetStringVal.12.78.111.114.116.101.108.95.102.97.117.108.116.**1390**.5	alarmActiveDateAndTime
nlmLogVariableIndex 6	nlmLogVariableInteger32Val.12.78.111.114.116.101.108.95.102.97.117.108.116.**1390**.6	ituAlarmEventType
nlmLogVariableIndex 7	nlmLogVariableInteger32Val.12.78.111.114.116.101.108.95.102.97.117.108.116.**1390**.7	ituAlarmProbableCause
nlmLogVariableIndex 8	nlmLogVariableOctetStringVal.12.78.111.114.116.101.108.95.102.97.117.108.116.**1390**.8	ituAlarmAdditionalText
nlmLogVariableIndex 9	nlmLogVariableOctetStringVal.12.78.111.114.116.101.108.95.102.97.117.108.116.**1390**.9	nnItuAlarmActiveDocumentationPointer
nlmLogVariableIndex 10	nlmLogVariableOctetStringVal.12.78.111.114.116.101.108.95.102.97.117.108.116.**1390**.10	nnItuAlarmActiveResourceDescription

nlmLogVariableTable varbinds for recovery of lost RAISE notification

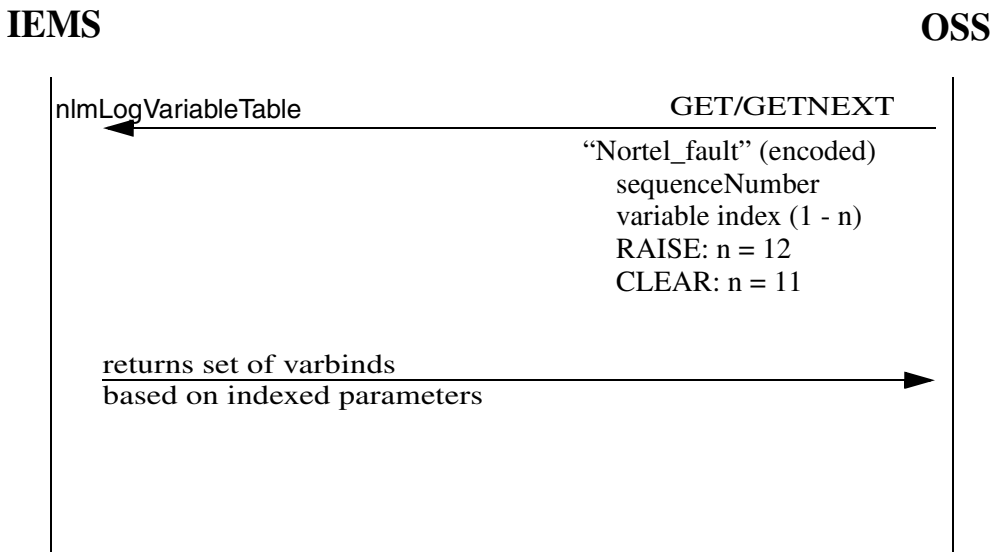
nlmLogVariableTable Index Variable	OID (nlmLogName = "Nortel_fault" (encoded) Sequence# = 1390 Index = 1 - 12)	Notification Varbind Represented
nlmLogVariableIndex 11	nlmLogVariableInteger32Val .12.78.111.114.116.101.108 .95.102.97.117.108.116.**1390**.11	nnItuAlarmActiveManualClear (**not** present in CLEAR events, see next table)
nlmLogVariableIndex 12	nlmLogVariableInteger32Val .12.78.111.114.116.101.108 .95.102.97.117.108.116.**1390**.12	nnItuAlarmActiveSequenceNumber

nlmLogVariableTable varbinds for recovery of lost CLEAR notification

nlmLogVariableTable Index Variable	OID (nlmLogName = "Nortel_fault" (encoded) Sequence# = 1390 Index = 1 - 11)	Notification Varbind Represented
nlmLogVariableIndex 1	nlmLogVariableTimeTicksVal.12.78.111.114.116.101.108.95.102.97.117.108.116.**1390**.1	sysUpTime
nlmLogVariableIndex 2	nlmLogVariableOidVal.12.78.111.114.116.101.108.95.102.97.117.108.116.**1390**.2	snmpTrapOID
nlmLogVariableIndex 3	nlmLogVariableOctetStringVal.12.78.111.114.116.101.108.95.102.97.117.108.116.**1390**.3	alarmActiveResourceId
nlmLogVariableIndex 4	nlmLogVariableOctetStringVal.12.78.111.114.116.101.108.95.102.97.117.108.116.**1390**.4	alarmActiveDescription
nlmLogVariableIndex 5	nlmLogVariableOctetStringVal.12.78.111.114.116.101.108.95.102.97.117.108.116.**1390**.5	alarmActiveDateAndTime
nlmLogVariableIndex 6	nlmLogVariableInteger32Val .12.78.111.114.116.101.108 .95.102.97.117.108.116.**1390**.6	ituAlarmEventType

nlmLogVariableTable Index Variable	OID (nlmLogName = "Nortel_fault" (encoded) Sequence# = 1390 Index = 1 - 11)	Notification Varbind Represented
nlmLogVariableIndex 7	nlmLogVariableInteger32Val .12.78.111.114.116.101.108 .95.102.97.117.108.116.**139 0**.7	ituAlarmProbableCause
nlmLogVariableIndex 8	nlmLogVariableOctetStringV al.12.78.111.114.116.101.1 08.95.102.97.117.108.116.**1 390**.8	ituAlarmAdditionalText
nlmLogVariableIndex 9	nlmLogVariableOctetStringV al.12.78.111.114.116.101.1 08.95.102.97.117.108.116.**1 390**.9	nnItuAlarmActiveDocumentationPointer
nlmLogVariableIndex 10	nlmLogVariableOctetStringV al.12.78.111.114.116.101.1 08.95.102.97.117.108.116.**1 390**.10	nnItuAlarmActiveResourceDescription
nlmLogVariableIndex 11	nlmLogVariableInteger32Val .12.78.111.114.116.101.108 .95.102.97.117.108.116.**139 0**.11	nnItuAlarmActiveSequenceNumber

Recovery of missing alarm by sequence number



Northbound Performance Interface

IEMS Performance Interface Specification

The Northbound performance interface is new to IEMS in SN07 and provides the customer a single reporting interface for the managed network. This has been acheived through the defintion of a “Common Performance Record format” (CPR-F). The common format maps operational statistics from across network elements to a common set of metrics to provide a network-level view of performance.

The Common Performance Record format specification is defined using a standardized XML interface. It provides a full definition of the normalized containment hierarchy describing performance statistics for reporting network components. PM collection jobs configured in IEMS can report device metrics in either XML or CSV formats.

The following is a list of devices that support collection of performance data in the SN07 release, PP8600, STORM, MS2000, Session Server, MAS and MCS Mgr.

XML

If XML is selected as the output format, then the data is collected and saved as an ACSII file in the format defined by the CPR-F XML Schema Document. The format specification below provides a full description of the normalized representation of PM data for supported network elements.

Conversion to CSV

When CSV output is configured in the collection job, data is initially transformed to the XML format described above. An additional step then converts the XML file to its corresponding CSV representation. There is no loss of information during this process. Net content represented by each output is identical.

The next section defines the CPR-F in terms of its XML structure followed by a discussion of its *conversion* to CSV format.

Also collected CSV and XML performance files can be transfered from IEMS to an OSS system by configuring a transfer job for the performance files. The transfer and be done using FTP or SFTP.

For more information on configuring, retrieving, and transfering performance measurements through IEMS, see NN10327-711 - IEMS Performance Management Guide

The Common Performance Record Format

Overview

The Common Performance record is an XML document specified using an XML Schema Document (XSD).

There are two major aspects to encoding performance measurements – identifying the source of the measurements within the network and recording the measurement data itself.

The CPR-F uses an XML containment structure to indicate the source point in the network of the performance measurements. A typical performance measurement may have originated in an NE and then been passed up to an element management system (EMS). The EMS in turn may have passed the measurements along to an Operations Support System (OSS).

For this particular case, the common record would contain an XML element representing the management system (the OSS) which ultimately received the set of performance measurements. Within this OSS element would be an element representing the EMS which forwarded the measurements to the OSS.

And within this EMS element, there would be an XML element representing the NE (network element) from which the PMs were obtained. The NE element may itself contain another XML element representing the sub-component in the NE which generated the measurement.

The measurement data itself would also be encoded in one or more XML elements. These data elements would be contained within the sub-component element above.

XML Elements

The common performance record format uses thirteen major elements to encode performance information:

The *PMFile* element is the top-level element and contains all other elements.

The *System* element, *Entity* element and *SubEntity* element are used to relate the measurements to some origination point in the network and to capture their path through the management systems.

The *SingleValues* & *SingleValue* elements, the *GroupOfValues* & *GroupValue* elements and the *Table, Labels, Label, RowOfValues* & *RowValue* elements may all be used to capture the performance measurement information itself.

Encoding Source Identification for Performance Measurements

A performance measurement (PM) originates in some device in the network which records the measured value. This measurement may be combined with

other measurements within the device and forwarded to a management system. The management system may combine the PMs from many devices into a single grouping and may forward this grouping of PMs to some superior management system. Again this superior management system may combine groupings of measurements from many domains in the network and forward the combined package of measurements to yet another management system.

This path that PMs take as they move from the network device level to the management level is encoded in the CPR. Three elements are used to indicate this path:

System element

Entity element

SubEntity element.

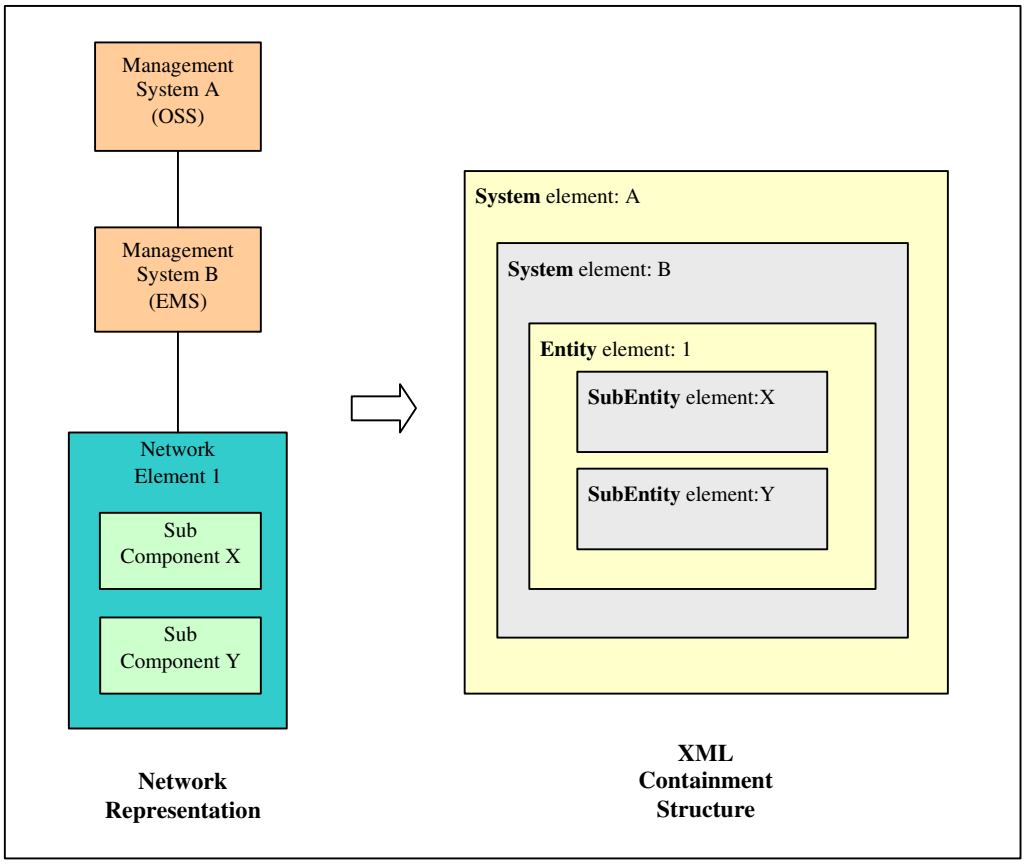
The intent of the Entity element is to represent the NE itself. What constitutes an NE and what device granularity determines an NE is an implementation choice for any particular product or technology. The System, Entity and SubEntity form a hierarchy. In this hierarchy, the Entity element may appear only once.

A Network Element may contain many sub-components and these sub-components may themselves contain sub-components and so on to some arbitrary level of decomposition. The SubEntity element represents a sub-component within the NE. A SubEntity element may contain other SubEntity elements to reflect the component structure within the NE. What constitutes a sub-component within an NE is, again, an implementation choice for any particular product or technology.

A set of performance measurements may traverse one or more management systems as it travels to some final destination system. Each of these intermediate management systems may be represented by a System element. A System element may contain another System element encoding the sequence of management systems which handle the performance measurement data.

The CPR may be emitted by a management system or by a network element. When an NE emits the record, the top-most XML element within the PMFile element will be an Entity element representing the NE which is sending the measurements. When a management system emits the CPR, the top-most XML element within the PMFile element will be a System element representing the management system.

OSS/EMS/NE hierarchy encoded in XML elements



Encoding the Performance Measurement Data

Measurement Descriptors

In general, a performance measurement is some number which is bound to a measurement identifier such as: numberOfPackets = 23145. As well as these two items, a performance measurement may contain contextual information indicating the circumstances under which the measurement was taken or giving some further information as to the meaning of the measurement or its interpretation. The following information items are used in the common performance record format to describe measurement information:

Measurement Identifier: This is the name or label which uniquely identifies the measurement.

Measurement Value: This is (generally) the numerical value of the measurement (such as an integer or decimal number). Or it could be a string or some enumerated value

Measurement Kind: There are two kinds of performance measurement: ‘snapshot’ and ‘period-based’.

A ‘snapShot’ measurement is one in which the measurement quantity (for example, some counter in a network device) is sampled at an instant in time and is being reported to the management system. There is no time significance attached to this sampled value. To derive information from a snapshot value, it may need to be compared to some previous snapshot of the counter or gauge and conclusions drawn about the change, if any, between the two values.

In contrast, a period-based measurement represents the value of some measurement quantity in the network device over a specified period of time. The measurement value relates only to activity which occurred within the measurement period.

Capture Time: This is the time at which the measurement value was captured. For a period-based measurement, this is the time at which measurement accrual stopped. For a snapshot measurement, it represents the time at which the measurement was sampled.

Interval Duration: This is the length of the time interval governing the performance measurement. For a period-based measurement, this interval is the duration between the time the measurement was started and the time the measurement was stopped. For a snapshot measurement, the interval indicates the duration between the time the current value was sampled and the time of the previous sample.

Last Record: If true this indicates that the performance measurement is the last value for the reporting time interval (indicated in IntervalDuration).

Reliability: This is an indicator of the quality or reliability of the measurement. It can take values such ‘valid’, ‘invalid’ and so on.

Unit: This names the unit in which the measurement is expressed (for example, packets, bytes and so on).

Value Type: This indicates the type of data contained in the Measurement Value. It can take on values such as ‘integer’, ‘decimal’, ‘string’ and so on).

Register Type: A register is the generic name given to the hardware or software capability in an NE which actually records the performance measurement. For numeric values the RegisterType property indicates whether the register behaves as a counter or a gauge or some other numeric register. (A counter is a register which accumulates a count of some defined event such as

the arrival of a packet. A gauge is a register which holds a state of usage sample – for example, the number of items in a queue).

Maximum Value: This property indicates the highest value the register can hold.

Reset Time: This is the register reset time. For numeric values this is the date/time when the register was last reset to zero.

Monitored Time: This indicates the actual duration of the period over which the measurements were taken. This property is used for cases where the actual measurement period is less than the period indicated in the Interval Duration value.

Intervals Covered: As an efficiency mechanism, it may be decided not to forward measurements when they have a value of zero at the end of the measurement period (for example, no events of interest occurred in the measurement period). This practice is called zero-suppression. In the case where a zero suppression representation is used, this attribute specifies the number of consecutive intervals over which a zero value was obtained for the measurement.

Table and Group Identifiers

Performance measurements may be stored within the common format as tables of values or as groups of values. The properties below are used to identify these tables and groups.

Table Identifier: This is the name or label for a particular table of measurements. This property is only used in the Table element.

KeyOfRow: This is a property specific to a column label used in representing tabular measurements. When it has a value of ‘true’ it indicates that this particular column of the table contains the key of the row of data values. The key is the identity of the object to which the row measurements pertain. This would generally refer to a sub-component in the network element.

Group Identifier: This is the name or label for a particular group of measurements. This property is only used in the GroupOfValues element.

Supplementary Identifiers

In many cases the identity of a network element, NE sub-component or performance measurement can be expressed in a single identifier. In other cases the identity will be contained in a number of individual identifiers. The approach taken in the common performance record format is to use supplementary identifiers to hold any additional identification information required in an element.

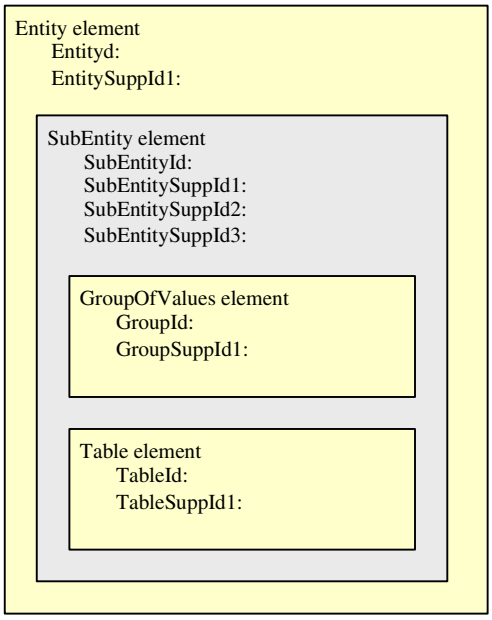
In the case of an *Entity* element (which is used to hold measurements for a particular NE), there are two identifiers: an EntityId (Entity Identifier) and an EntitySuppId (Entity Supplementary Identifier).

Likewise, the *SubEntity* element (which holds measurements for a sub-component of the NE) has a SubEntityId and three supplementary identifiers – SubEntitySuppId1, SubEntitySuppId2 and SubEntitySuppId3. Note that in the case of the *SubEntity* supplementary identifiers, it is not stipulated in which order or in which combination they are to be used. This is left as an implementation decision for any particular product/technology.

The performance measurement itself has a supplementary identifier – MeasureSuppId1. Both the *Table* element and *GroupOfValues* element also have a supplementary identifier – respectively TableSuppId1 and GroupSuppId1.

Some of these identifiers are mandatory and some are optional. See section "Optionality" on page 1970 for more information.

Example of Identifiers and Supplementary Identifiers



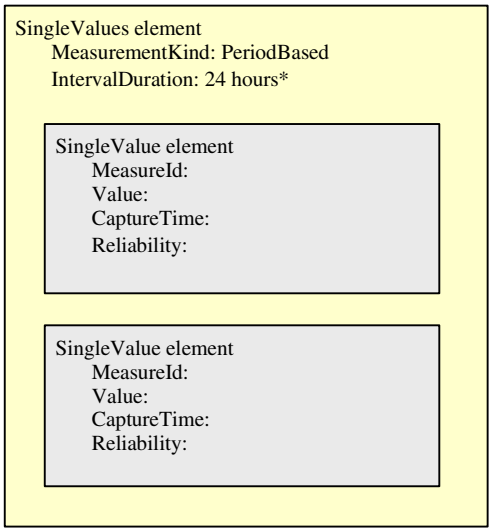
Measurement Elements

There are three ways to encode performance measurements in the common format – using a *SingleValues* approach, a *GroupOfValues* approach or a *Table* approach.

Single Values Approach

With this approach each performance measurement is considered as a standalone value with no explicit relationship to any other measurement value which may accompany it. Each measurement is encoded in a *SingleValue* element. One or more *SingleValue* elements are contained in a *SingleValues* element which specifies the kind of measurements contained within it (period-based or snapshot) and the interval duration for those measurements (for example, whether they are measurements for a 5-minute, 15-minute or 24-hour interval).

A SingleValues element containing two values



Group Values Approach

Like the SingleValues element, the GroupOfValues element contains one or more individual measurements. However, there is an explicit relationship between the measurements in the element. They are part of a group of measurements with a collective identity. The GroupId value contains the identity of the group. As with the SingleValues element, the GroupOfValues element specifies the kind of measurements it contains and their interval duration. In addition, many of the individual measurement properties such as CaptureTime and Reliability are common to the group and these are encoded once in the GroupOfValues element itself rather than being encoded for each measurement in the individual GroupValue element.

A GroupOfValues element containing two measurements

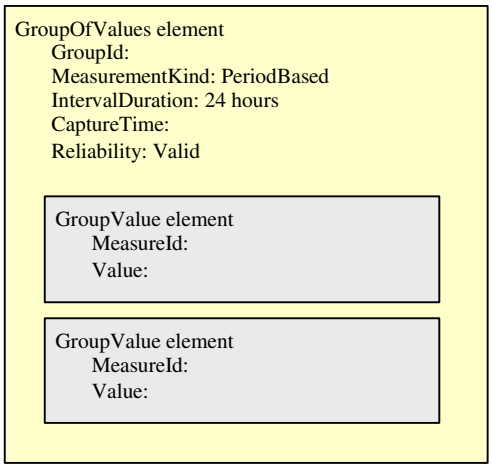
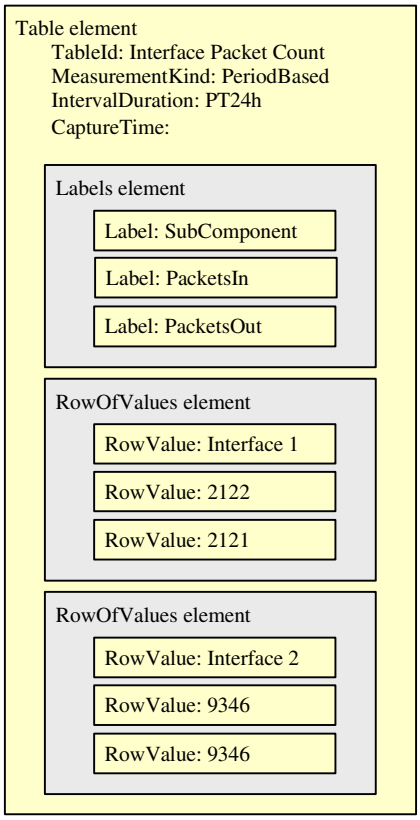


Table Approach

The table approach encodes performance measurements in a tabular format. A Table element will contain a Labels element to hold the column headings for the table. The Table element will also contain one or more RowOfValues elements. Each RowOfValues element contains a row of individual data items with a one-to-one correspondence to the labels in the Labels element. One or more of the data items in a row may contain key information indicating the source of the measurements (that is, the data item will identify the sub-component from which the measurements were taken). This facet is indicated using the KeyOfRow property in the Label element.

A table may be explicitly identified using a TableId property or it may be an anonymous table with no name.

A Table element containing two rows of values



Interface Packet Count Table

SubComponent	PacketsIn	PacketsOut
Interface 1		

Top Level Properties

The performance measurements encoded in the common format constitute an XML string. This set of values will have high level properties in common. These are captured in the PMFile element. The term ‘file’ as used below is intended to designate the XML string containing the performance measurements.

MeasurementCategory: This property describes the type of measurements contained within the PM file (its value is always "PM" indicating the file contains performance measurements).

PMReportType: This describes the type of performance measurement report contained in the file (for example, this property could be used in the case where it is desired to distinguish between different types of PM reports).

FileCreationTime: This specifies the date/time when the PM file was created.

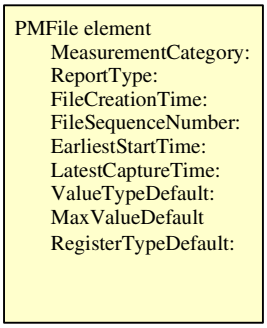
FileSchema: The FileSchema contains information which describes the format of a source non-CPR format PM file or the mapping file used to translate the source file into the common format.

FileSequenceNumber: The position of this file in some sequence of related PM files.

EarliestStartTime: This is set to the start time of the earliest measurement contained in the file.

LatestCaptureTime: This is set to the capture time of the latest measurement in the file.

PM File element contents



Default Values

ValueType, MaxValue and RegisterType are three properties which may be specified for a measurement (See Measurement Descriptors on page 11). It is possible to set defaults for these values in the file using the ValueTypeDefault, MaxValueDefault and RegisterTypeDefault properties in the top-level *PMFile* element. The scope of these default values is the entire PM file.

It is also possible to specify one or more of ValueType, MaxValue and RegisterType for each *SingleValue* element, each GroupValue element or each *Label* element (contained in a *Table* element). This local specification overrides the default value in *PMFile* for the particular element which contains the local specification.

If the property is not locally specified in the *SingleValue*, *GroupValue* or *Label* element, then the default value specified in the *PMFile* element is used.

If a default property is not specified in the PMFile element, then the following implicit default values are assumed. These implicit values function as if they were explicitly specified in PMFile.

RegisterTypeDefault:"counter"

ValueTypeDefault: "integer"

MaxValueDefault: 4,294,967,295 (that is, 232 – 1)

Optionality

It is possible to qualify a performance measurement with very many properties as shown above. Most of these properties are optional and are used in specific technologies or are needed to accommodate specific product performance management practices.

The following is the minimum set of properties required to identify a performance measurement. These are the required properties in a PM file:

PMFile Element: MeasurementCategory

System Element: SystemId

Entity: EntityId

SubEntity: SubEntityId

SingleValues Element: MeasurementKind

SingleValue Element: MeasureId; Value; CaptureTime

GroupOfValues Element: GroupId; CaptureTime; MeasurementKind

GroupValue Element: MeasureId; Value

Table Element: CaptureTime; MeasurementKind

Labels Element: N/A

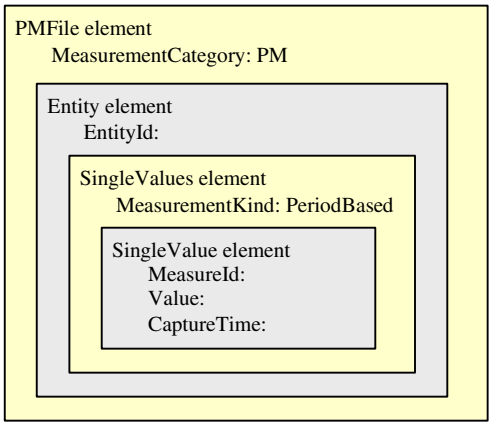
Label Element: N/A

RowOfValues Element: N/A

RowValue Element: Value

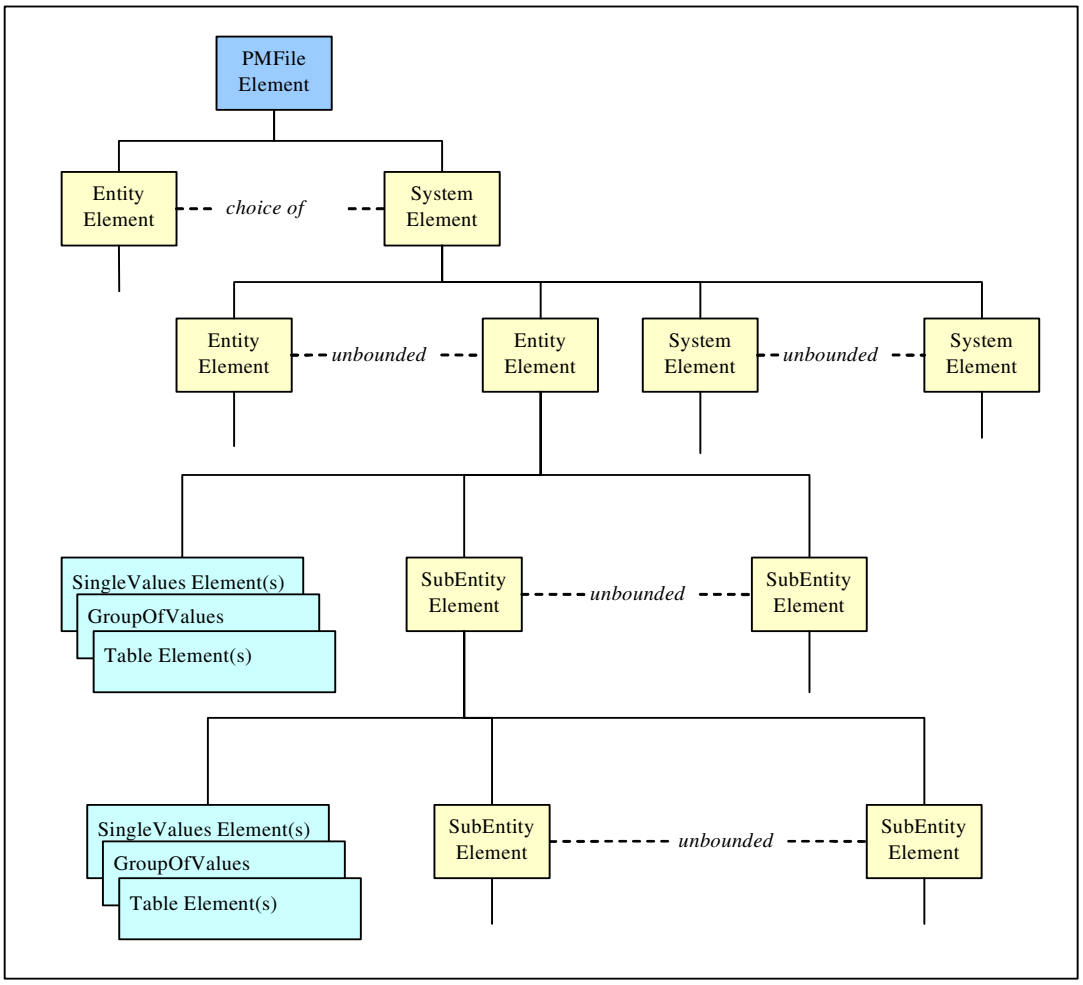
So a minimal CPR file would look like this:

Minimal Common Record Performance Record file



The figure below shows the hierarchical relationship of the major XML elements in the common performance record.

Hierarchy of the major XML elements



Attribute and Element Encoding

In the common performance record format some information is encoded as element data while other information is encoded using attributes. The approach followed is that attributes are used to encode metadata while elements are used for instance values.

Metadata is data which describes or qualifies some piece of information in terms of its class. So, in the common performance record, the *MeasurementKind* property differentiates between period-based measurements and snapshot measurements. This property is coded as an attribute.

Data which identifies or describes a specific instance of information rather than a class of information is encoded using an element. So the CaptureTime

property describes the time instant when a specific measurement was taken and so is not metadata. It is encoded as an element.

It also needs to be mentioned that the common performance record format adopts the approach of encoding the measurement name or label using an XML element. For instance:

Example 1: <MeasureId> numberOfPackets </MeasureId>

This is in contrast to the approach of directly coding the measurement name as an element tag:

Example 2: <numberOfPackets> </numberOfPackets>

The requirement for the common performance record format is to have standard fields for measurement information which could be used across all of Nortel (see the Performance Strategy requirements on page 5). This has been achieved using the current approach as shown in Example 1 above.

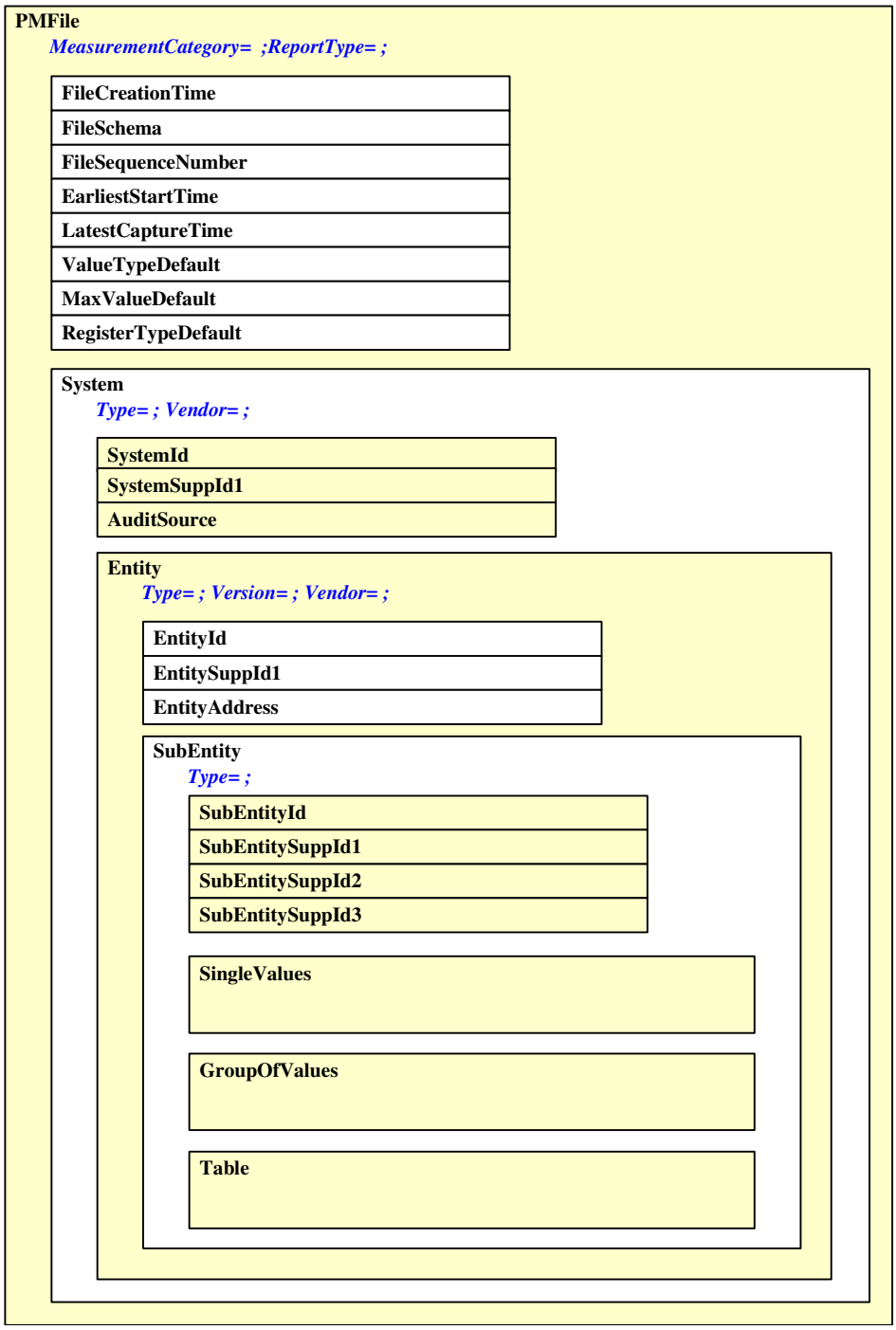
In order to use a direct coding of the measurement name as the element tag (Example 2 above) would require alignment across Nortel on the identification and semantics of all performance measurements which could possibly be encoded in the common performance record format. This alignment task has not been undertaken yet. It is envisaged that upon completion of such a convergence, the common performance record would be able to evolve to use measurement identifiers as tag names.

An additional concern is sometimes raised concerning the use of tables in the common performance record format. From a theoretical viewpoint, these tables are considered to constitute a lower quality of XML encoding than other means of encoding the data. However the common performance record format has opted to allow a tabular representation of data for pragmatic reasons. Tabular format measurement data has been the norm in most products for many years. Many operations systems expect their performance data to arrive in this customary format. In addition, industry standards for performance measurements such as 3GPP (Third Generation Partnership Project) mandate the use of tables for transporting performance data.

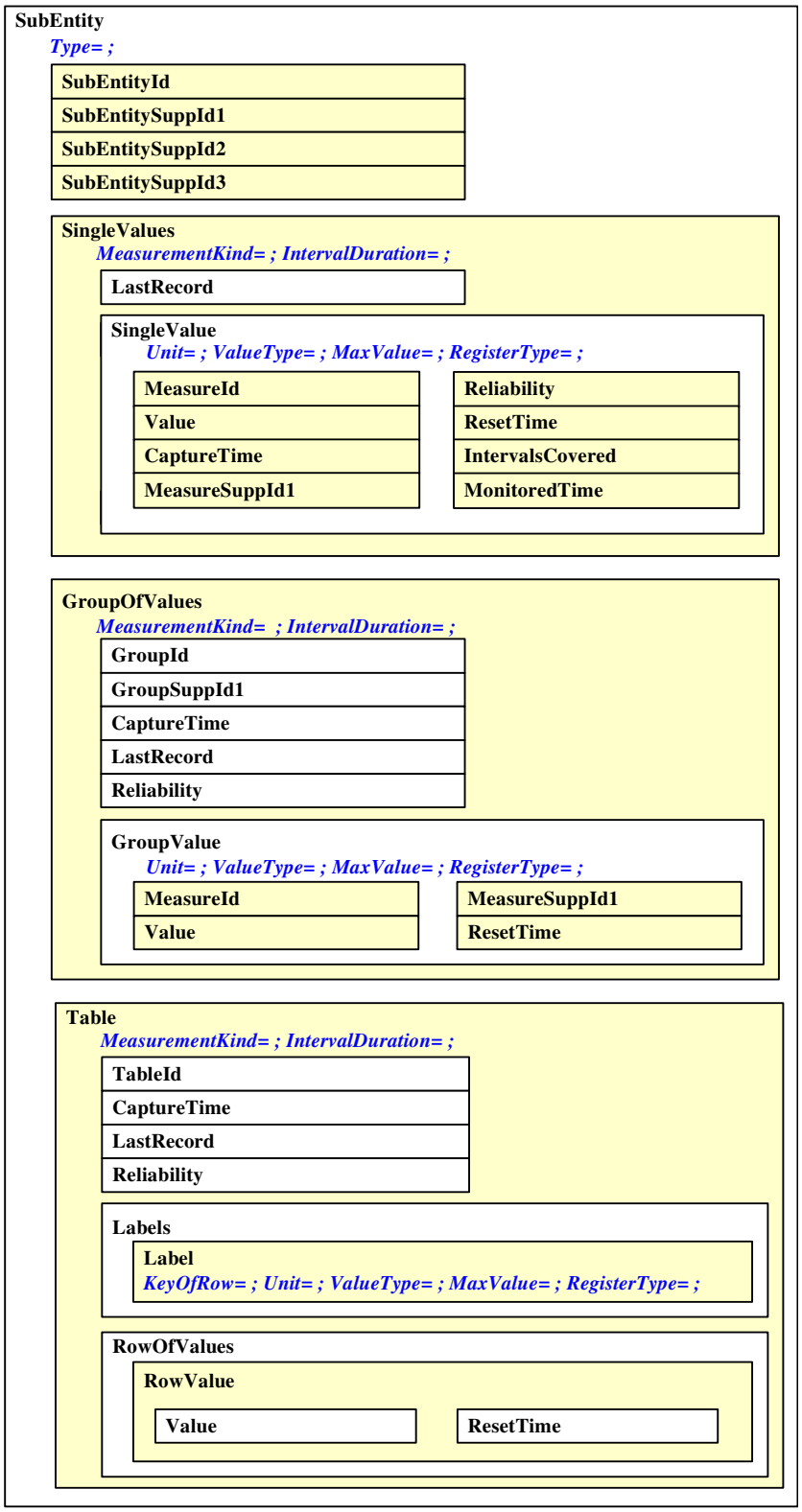
Layout of Elements and Attributes in the Common Format

The two figures below indicate which properties are expressed as elements and which are expressed via attributes. The figures represent one of many combinations of element types which are possible in the common performance record format. (Attributes are shown as *blue italicized* text. Elements are represented as boxes).

Layout of elements & attributes in the Common Performance Record



Layout of elements & attributes in the CPR-F (cont'd)



Common Performance Record Comma Separated Values (CSV) format

The following is an abbreviated generic description of the CPR CSV format. The CPR format is designed to be parsable into or from CPR XML format without loss of information.

The following elements are treated as 'blocks': PMFile, System, Entity, SubEntity, Table, GroupOfValues, SingleValues.

The start and end of these elements are marked or indicated in CSV with unique 'Begin' and 'End' markers. The format of an element block is as follows:

{element_name}=Begin

… CSV heading row for attributes & child text element nodes children of <element> …

… CSV value row for attributes & child text element nodes of <element> …

… recursive handling of all complex sub-elements (element children that are not text nodes) …

{element_name}=End

For each element, a specific property (attribute or text element) has been selected as the identifier for that element. The identifier will always appear as the *first* of the comma separated values in the CSV representation of that element.

Values that contain commas are enclosed in double quotes in CSV format.

Element blocks and identifiers

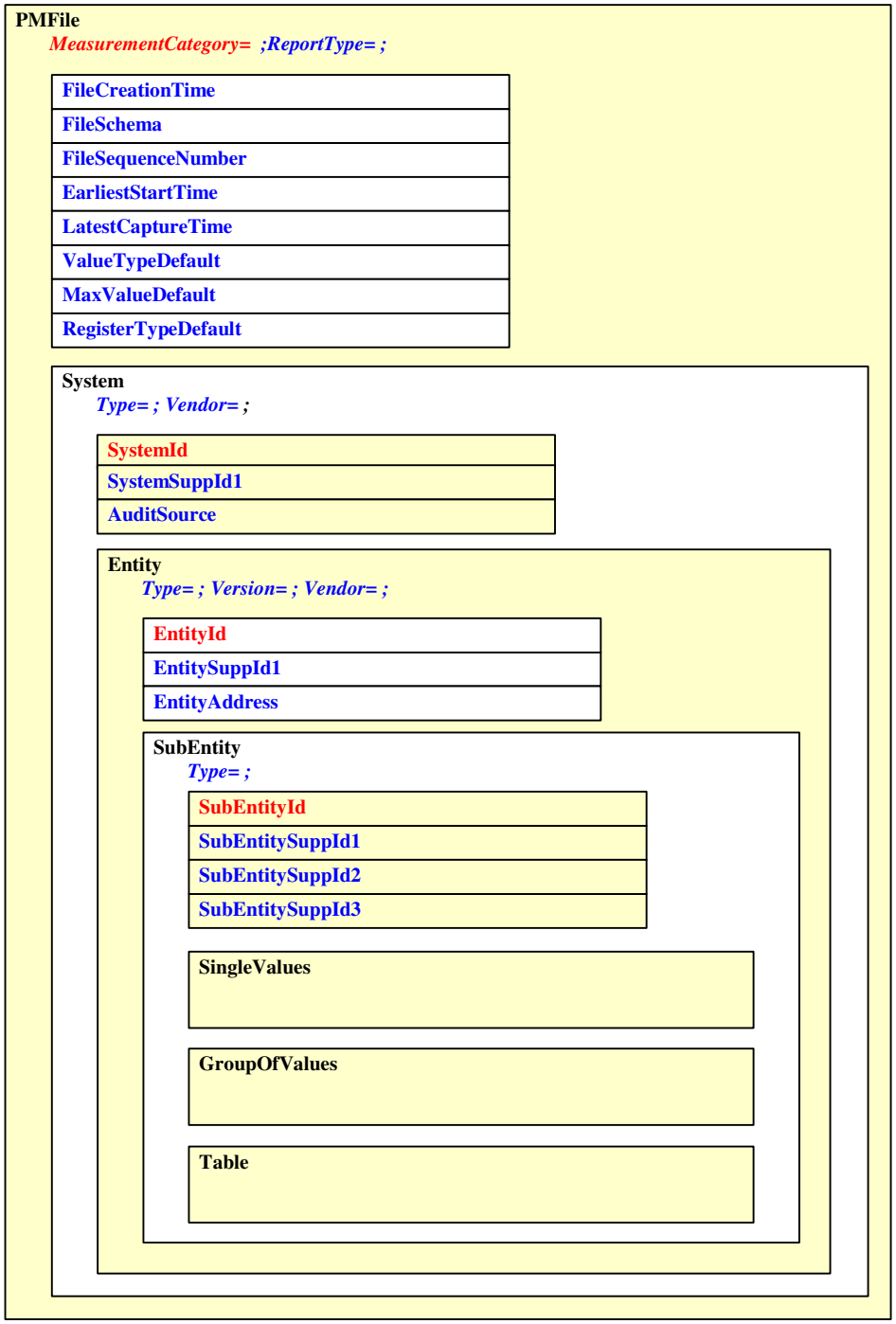
Element	Block?	Identifier
PMFile	Y	MeasurementCategory
System	Y	SystemId
Entity	Y	EntityId
SubEntity	Y	SubEntityId
Table	Y	TableId
Labels	N	Label
RowOfValues	N	RowValue/Value
GroupOfValues	Y	GroupId

Element	Block?	Identifier
GroupValue	N	MeasureId
SingleValues	Y	MeasurementKind
SingleValue	N	MeasureId

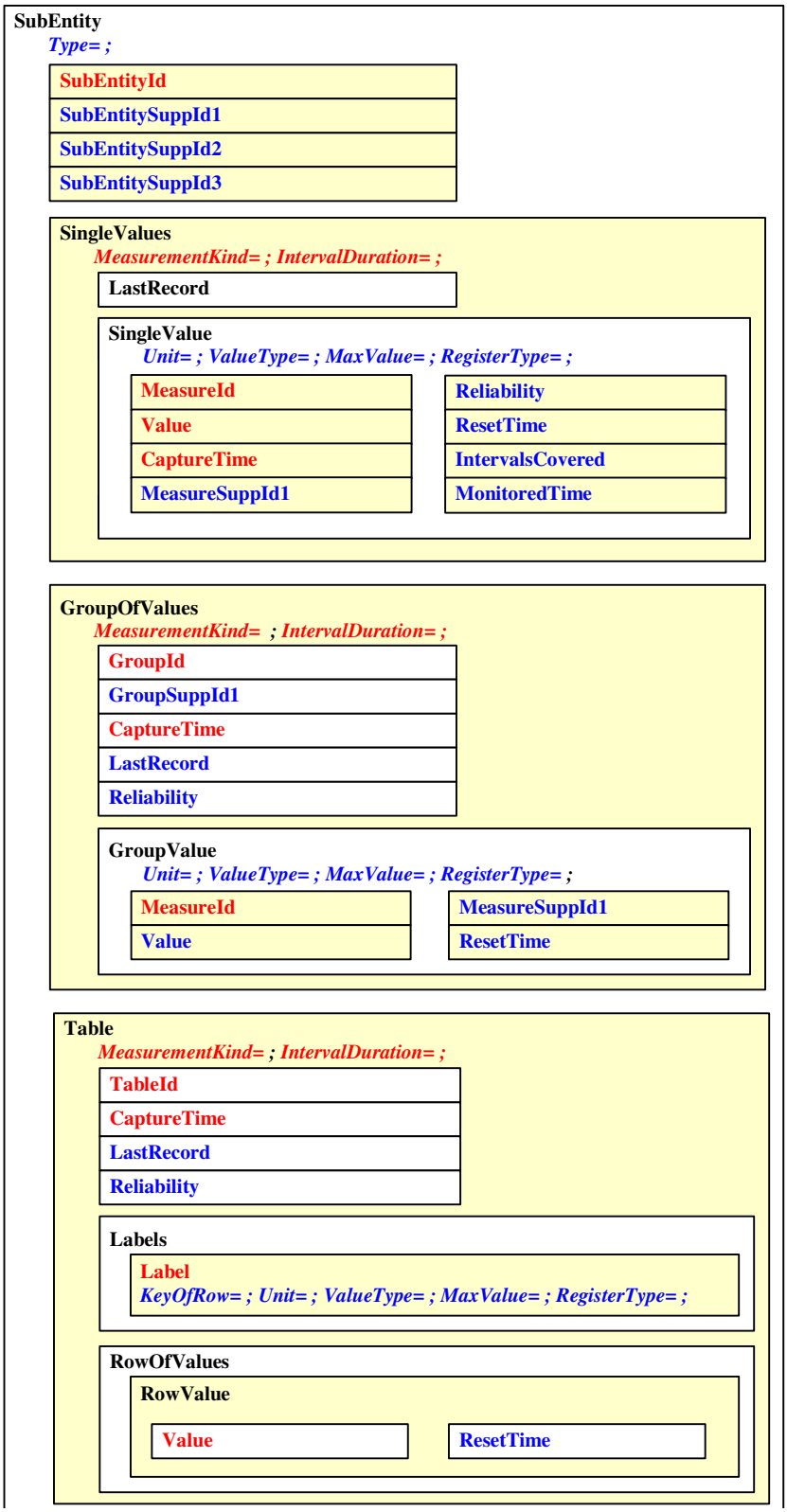
As not all identifiers are in fact mandatory, when the identifier is not found in the XML being translated the value of _Unnamed_ is used in the CSV output where the value of the identifier would normally appear.

For reference, "Layout of elements & attributes in the Common Performance Record" and "Layout of elements & attributes in the CPR-F (cont'd)" (which had been presented earlier) are shown below. The two figures indicate which properties are considered identifiers for each element, and therefore will always appear as the first comma separated value within a row. (Mandatory identifiers are shown in red. Optional identifiers are shown in blue. Attributes are shown as *italicized* text. Elements are represented as boxes)

Layout of Elements & Attributes in the CPR-F



Layout of elements & attributes in the CPR-F (cont'd)



CSV Table example

```
    PMFile=Begin
PM,commonFormat.xsd,2004-06-23T13:01:14EST

System=Begin
NortelNetworks/IEMS

Entity=Begin
47.165.168.120,CICM

Table=Begin
.iso.org.dod.internet.mgmt.mib-
    2.rmon.usrHistory.usrHistoryControlTable.usrHistoryControlEntry,Snapshot,5
    ,2004-06-23T13:00:00EST
usrHistoryControlInterval,usrHistoryControlIndex,usrHistoryControlStatus,usrHi
    storyControlOwner
900,5,1,CICM-120A
Table=End

Table=Begin
.iso.org.dod.internet.private.enterprises.nortel.nortelGenericMIBs.nortelPerfR
    efMIB.nnPerfMetricReferenceTable.nnPerfMetricReferenceEntry,Snapshot,5,200
    4-06-23T13:00:02EST
nnPerfMetricValue,nnPerfMetricSources,nnPerfMetricDataType,nnPerfMetricGroup,n
    nPerfMetricName,nnPerfMetricRefIndex
0,2,1,CICM,ActiveConnections,5
0,2,1,CICM,PercentageCpuUsed,4
0,2,1,CICM,PercentageMemoryUsed,3
0,2,1,CICM,NumberOfLogs,2
0,2,1,CICM,ActiveSessions,1
Table=End
Entity=End
System=End
PMFile=End
```

Table attributes & text elements values

Labels attributes & text elements values

RowOfValues attributes & text elements

CSV SingleValues example

```
PMFile=Begin
PM,commonFormat.xsd,2004-06-23T17:30:21EST

System=Begin
NortelNetworks/IEMS

Entity=Begin
47.174.74.179,Session Server

SingleValues=Begin
Snapshot,5
sysDescr,2004-06-23T17:26:20EST,.iso.org.dod.internet.mgmt.mib-2.system,Linux sp2k-1
2.4.22-samxts #1 Thu May 13 01:48:09 EDT 2004 i686,Valid
snmpOutPkts,2004-06-23T17:26:20EST,.iso.org.dod.internet.mgmt.mib-2.snmp,8639,Valid
snmpInBadVersions,2004-06-23T17:26:21EST,.iso.org.dod.internet.mgmt.mib-2.snmp,0,Valid
snmpInBadCommunityNames,2004-06-23T17:26:21EST,.iso.org.dod.internet.mgmt.mib-
2.snmp,1,Valid
snmpInTotalReqVars,2004-06-23T17:26:21EST,.iso.org.dod.internet.mgmt.mib-
2.snmp,9689,Valid
snmpOutTraps,2004-06-23T17:26:21EST,.iso.org.dod.internet.mgmt.mib-2.snmp,0,Valid
snmpInBadCommunityUses,2004-06-23T17:26:21EST,.iso.org.dod.internet.mgmt.mib-
2.snmp,0,Valid
snmpInPkts,2004-06-23T17:26:21EST,.iso.org.dod.internet.mgmt.mib-2.snmp,8652,Valid
snmpInTotalSetVars,2004-06-23T17:26:21EST,.iso.org.dod.internet.mgmt.mib-2.snmp,0,Valid
snmpInASNParseErrs,2004-06-23T17:26:21EST,.iso.org.dod.internet.mgmt.mib-2.snmp,0,Valid
hrSystemDate,2004-06-23T17:26:22EST,.iso.org.dod.internet.mgmt.mib-
2.host.hrSystem,0,Valid
hrSystemUptime,2004-06-23T17:26:22EST,.iso.org.dod.internet.mgmt.mib-
2.host.hrSystem,1315598,Valid
hrSystemProcesses,2004-06-23T17:26:22EST,.iso.org.dod.internet.mgmt.mib-
2.host.hrSystem,170,Valid
snmpSilentDrops,2004-06-23T17:26:22EST,.iso.org.dod.internet.mgmt.mib-2.snmp,0,Valid
SingleValues=End

Entity=End
System=End
PMFile=End
```

Note:

All CSV examples are with header information suppressed by default. This is the default behavior for all CSV performance reports in the SN07 release.

To have the header information included in the CSV performance reports, the user must change the “suppress-headers” option from “true” to “false”. The “suppress-headers” option is located in the cprxml2csv.properties file in the /opt/nortel/iems/current/resources directory.

CSV with header information example:

PMFile=Begin

PM,commonFormat.xsd,2004-06-23T17:25:00EST

System=Begin

NortelNetworks/IEMS

Entity=Begin

47.142.130.66,PP8600

Table=Begin

.iso.org.dod.internet.mgmt.mib-2.ospf.ospfIfTable.ospfIfEntry,Snapshot,5,2004-06-23T17:20:14EST

ospfIfEvents

9

1

3

1

5

1

1

Table=End

Table=Begin

.iso.org.dod.internet.mgmt.mib-2.ospf.ospfNbrTable.ospfNbrEntry,Snapshot,5,2004-06-23T17:20:14EST

ospfNbrEvents,ospfNbrIpAddr

5,47.142.130.67

Table=End

SingleValues=Begin

Snapshot,5

snmpInvalidMsgs,2004-06-23T17:20:13EST,.iso.org.dod.internet.snmpV2.snmpModules.snmpMPDMIB.snmpMPDMIBObjects.snmpMPDStats,0,Valid

snmpOutPkts,2004-06-23T17:20:13EST,.iso.org.dod.internet.mgmt.mib-2.snmp,310853,Valid

snmpOutTraps,2004-06-23T17:20:13EST,.iso.org.dod.internet.mgmt.mib-2.snmp,0,Valid

snmpInTotalSetVars,2004-06-23T17:20:13EST,.iso.org.dod.internet.mgmt.mib-2.snmp,15,Valid

snmpInPkts,2004-06-23T17:20:13EST,.iso.org.dod.internet.mgmt.mib-2.snmp,320294,Valid

snmpInTotalReqVars,2004-06-23T17:20:13EST,.iso.org.dod.internet.mgmt.mib-2.snmp,1411445,Valid

snmpInASNParseErrs,2004-06-23T17:20:14EST,.iso.org.dod.internet.mgmt.mib-2.snmp,2,Valid

snmpInBadVersions,2004-06-23T17:20:14EST,.iso.org.dod.internet.mgmt.mib-2.snmp,0,Valid

snmpInBadCommunityUses,2004-06-23T17:20:14EST,.iso.org.dod.internet.mgmt.mib-2.snmp,0,Valid

rcSysBufferUtilPeakTime,2004-06-23T17:20:14EST,.iso.org.dod.internet.private.enterprises.rapidCity.rcMgmt.rcSystem,0,Valid

rcSysSwitchFabricUtil,2004-06-23T17:20:14EST,.iso.org.dod.internet.private.enterprises.rapidCity.rcMgmt.rcSystem,0,Valid

rcSysNVRamUsed,2004-06-23T17:20:14EST,.iso.org.dod.internet.private.enterprises.rapidCity.rcMgmt.rcSystem,0,Valid

rcSysBufferUtilPeak,2004-06-23T17:20:14EST,.iso.org.dod.internet.private.enterprises.rapidCity.rcMgmt.rcSystem,0,Valid

rcSysCpuUtil,2004-06-23T17:20:14EST,.iso.org.dod.internet.private.enterprises.rapidCity.rcMgmt.rcSystem,9,Valid

rcSysBufferUtil,2004-06-23T17:20:14EST,.iso.org.dod.internet.private.enterprises.rapidCity.rcMgmt.rcSystem,0,Valid

SingleValues=End

Entity=End

System=End

PMFile=End

Note: **Note: Collected performance files (in CSV and XML format) can be forwarded from the IEMS server to an OSS system by configuring an IEMS transfer job. Transfer jobs can be configured to to forward these files using FTP or the secure SFTP protocols.**

Inventory/Topology Interface

Overview

SN07 provides the ability to perform an ACSII dump of provisioned network inventory/topology information for use by 3rd party systems. The snapshot is initiated from the IEMS user interface and outputs full configuration details of the component hierarchy to the IEMS server as a text file. By default, the data is placed in the file */opt/nortel/iems/current/logs/inventoryData.txt.* This information can then be retrieved and processed by third parties. For a full description of the format and content of these topology listings see the section titled “Dumping Inventory Details” in:

NN10330-511 - Integrated EMS Configuration Management

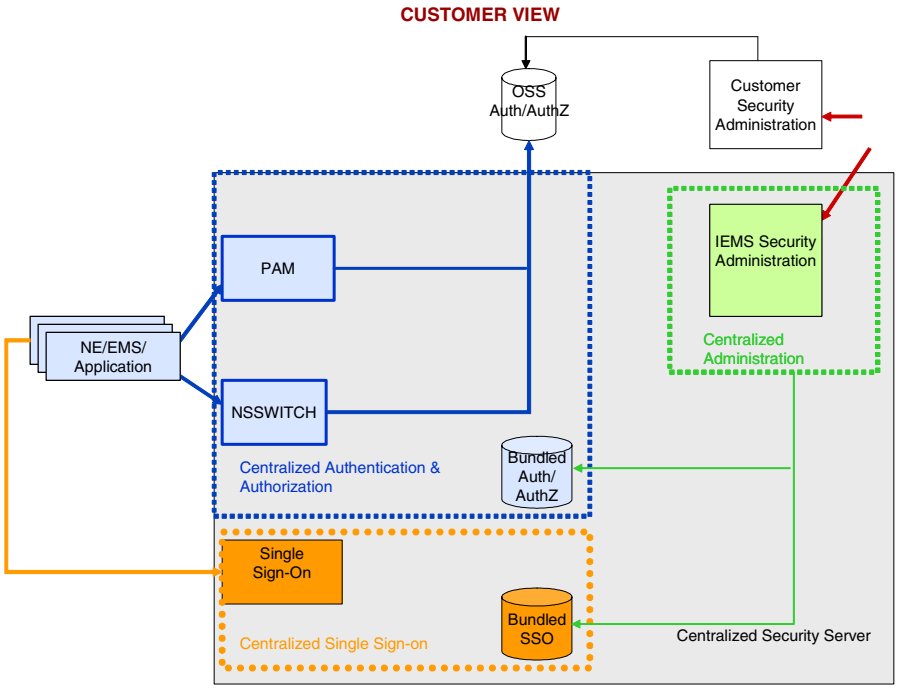
Network Security

Centralized Security Administration (Network Security)

Overview

The Integrated EMS provides a comprehensive security architecture based on PAM (Pluggable Authentication Module) and NSSwitch (Name Services Switch). The following figure shows the Nortel Networks VoIP Security Architecture.

Centralized Security Architecture



Features

This architecture provides the following features:

- Support for central administration of user accounts
- Support for central authentication: authentication of centrally administered user accounts is performed by the central security server(s)
- Support for central authorization: authorization information needed to support user access control is securely managed and provided by the central security server(s)
- Support for Single Sign-on (SSO)- This capability enables the user to access multiple network elements, applications, and features from a single login session. Session information for a user is shared between IEMS and network elements supporting SSO.
- Customer Plug-ability - provides the ability for third parties to plug-in its own Authentication/Authorization solutions.

The following table lists the SN07 devices and applications supporting these features:

Authentication and Authorization

Central Security Administration -Supported Devices

Network Element/EMS Platforms	Device Authentication Method	Device Reference Documentation
USP	HTTPS	NN10159-611 - USP Administration and Security
PP 8600	RADIUS	314724-B - Configuring and Managing Security
MSS7000, 15000, 20000	RADIUS	NN10600-606 - Passport MDM Network Security: User Access Configuration
SSPFS Includes: CS2000 Management Tools (GWC Mgr, SAM21 Mgr, UAS Mgr, OSSGate, LTM,Trunk Provisioning, Line Provisioning, V5.2, Data Audit, Nodes Provisioning, Carrier EndPoint Provisioning, ADSL Flowthrough Provisioning, Batch Lines Provisioning) APS NPM MG9000 Manager, MG9000 Mid-Tier CBM	PAM	NN10281-600 - ATM/IP Administration and Security
IEMS	HTTPS	NN10336-611 - IEMS Administration and Security
MDM	PAM	241-6001-040 - Preside MDM Security User Guide

Network Elements and Applications can be configured to use Centralized Security Administration. To enable a device to use Centralized Security Administration, the device must be configured to use the IEMS central security server to authenticate users and access user profile information.

The IEMS Central Security Server uses PAM (Pluggable Authentication Module) to process the authentication requests and NSSwitch (Name Services Switch) to return user privilege and user profile information to Network Elements and Applications.

PAM Services

PAM provides authentication services for clients in the managed network. Customers have the option to use the PAM services that come pre-bundled with the security server or to provide their own. See document: *0000007-24-1464 - IEMS Installation Manual* for details on configuring PAM.

When a request is forwarded to the IEMS PAM SPI (PAM Service Provider), then authentication is performed against data provisioned and administered by the Security Administration application on the IEMS client.

Conversely, when a PAM services are provided by a customer, incoming authentication requests are forwarded to the customer SPI for resolution against their remote database.

NSSwitch Services

NSSwitch provides services to obtain group and profile information for users. Centralized access to network resources depends on the definition of a common set of user groups to map security access for each user. The Nortel Networks solution provides a number of predefined user groups to address the full range of OAM&P functions required across a managed network. For a full discussion of these user groups and their categorization, see *NN10281-600 - ATM/IP Administration and Security.*

Customers can configure NSSwitch to use the service pre-bundled with IEMS or, as with PAM services, provide their own service remotely. When the pre-bundled service is used, group and user profile information is administered from command-line Unix interface on the IEMS server. See NN10336-611 - IEMS Administration and Security.

If NSSwitch services are configured on a third party system, it is important to note that this security solution supports *only* the NSSwitch group and password databases. Although other database types may be defined in NSSwitch, they are not used by the central security feature.

See the References section for additional information on PAM and NSSwitch.

Single Sign-on (SSO)

The Single Sign-on feature allows users transparent access to multiple network elements and applications through a single login.

Once a user has been successfully authenticated for the first time (by user login), an SSO token is created by the IEMS security server that will be used to authenticate the same user on subsequent login attempts.

Network Elements and Applications use a Single Sign-On (SSO) interface on the Central Security Server to request SSO tokens whenever authentication is required.

For full details on the interface specification, see *NN10336-611 - IEMS Administration and Security.*

Configuring Security Administration

Managing Accounts

It is recommended practice that all user accounts be managed centrally with the following exceptions:

- accounts required to provide emergency access to a device.
- super user accounts (for example ‘root’ users)

There are two steps involved in adding a centrally managed user:

1. Add a user account on the Succession IEMS Security Server.
2. On the IEMS (security) server, add a user account and using Unix Administration tools.

Note: Detailed procedures for these steps can be found in *NN10336-611 - IEMS Administration and Security.*

Configuring Centralized Security Administration on NEs and EMS Platforms

An OSS must configure NEs and EMS Platforms to use centralized security administration. To enable centralized security administration on a device, the OSS must follow the procedures outlined for the device. For security configuration information for a specific device, look for its listing in the “Supported Devices” section of this document.

Note: Detailed procedures for these steps can be found in *NN10336-611 - IEMS Administration and Security.*

IEMS Suported Devices

The sections that follow contain a directory to provide customers a quick reference to device-specific information on faults, performance, interfaces, and other user documentation. The intended purpose is to allow customers to correlate IEMS Northbound interface events and behaviors with their originating source.

Each device in the listings below provide sample logs from all four Northbound fault streams: SCC2, NTSTD, Syslog, and SNMP. With the exception of the SNMP fault feed, these samples are shown as they appear from the Northbound interfaces.

Understanding SNMP Fault samples

Since SNMP has no inherent display format, each event is presented in a format that displays the short name of the MIB variables populated by the event:

<short MIB variable Name> => <value>

for example:

nnExtAlarmActiveResourceDescription =>
IEMS=nc0rtp2127.us.nortel.com-MS2000;

The following table provides a mapping of the displayed "short" variable name to its full form as well as its associated OID.

OID Short Name Mapping in SNMP Log Samples

Short name	**sysUpTime**
Long name	**system.**sysUpTime.0
OID	.1.3.6.1.2.1.1.3
Short name	**snmpTrapOID.**0
Long name	**.iso.org.dod.internet.snmpV2.snmpModules.snmpMIB.snmpMIBObjects.snmpTrap.**snmpTrapOID.0
OID	.1.3.6.1.6.3.1.1.4.1
Short name	**alarmActiveResourceId**
Long name	**alarmMIB.alarmObjects.alarmActive.alarmActiveTable.alarmActiveEntry.**alarmActiveResourceId
OID	.1.3.6.1.2.1.111.1.2.2.1.10
Short name	**alarmActiveDateAndTime**

Long name	**alarmMIB.alarmObjects.alarmActive.alarmActiveTable.alarmActiveEntry.**alarmActiveDateAndTime
OID	.1.3.6.1.2.1.111.1.2.2.1.2
Short name	**alarmActiveDescription**
Long name	**alarmMIB.alarmObjects.alarmActive.alarmActiveTable.alarmActiveEntry.**alarmActiveDescription
OID	.1.3.6.1.2.1.111.1.2.2.1.11
Short name	**nnExtAlarmActiveEventType**
Long name	**enterprises.nortel.nortelGenericMIBs.nnExtAlarmMIB.nnExtAlarmObjects.nnExtAlarmActiveTable.nnExtAlarmActiveEntry.**nnExtAlarmActiveEventType
OID	.1.3.6.1.4.1.562.29.6.1.1.1.1
Short name	**nnExtAlarmActiveProbableCause**
Long name	**enterprises.nortel.nortelGenericMIBs.nnExtAlarmMIB.nnExtAlarmObjects.nnExtAlarmActiveTable.nnExtAlarmActiveEntry.**nnExtAlarmActiveProbableCause
OID	.1.3.6.1.4.1.562.29.6.1.1.1.2
Short name	**nnExtAlarmActiveAdditionalText**
Long name	**enterprises.nortel.nortelGenericMIBs.nnExtAlarmMIB.nnExtAlarmObjects.nnExtAlarmActiveTable.nnExtAlarmActiveEntry.**nnExtAlarmActiveAdditionalText
OID	.1.3.6.1.4.1.562.29.6.1.1.1.3
Short name	**nnExtAlarmActiveDocumentationPointer**
Long name	**enterprises.nortel.nortelGenericMIBs.nnExtAlarmMIB.nnExtAlarmObjects.nnExtAlarmActiveTable.nnExtAlarmActiveEntry.**nnExtAlarmActiveDocumentationPointer
OID	.1.3.6.1.4.1.562.29.6.1.1.1.4
Short name	**nnExtAlarmActiveResourceDescription**
Long name	**enterprises.nortel.nortelGenericMIBs.nnExtAlarmMIB.nnExtAlarmObjects.nnExtAlarmActiveTable.nnExtAlarmActiveEntry.**nnExtAlarmActiveResourceDescription
OID	.1.3.6.1.4.1.562.29.6.1.1.1.5
Short name	**nnExtAlarmActiveManualClear**
Long name	**enterprises.nortel.nortelGenericMIBs.nnExtAlarmMIB.nnExtAlarmObjects.nnExtAlarmActiveTable.nnExtAlarmActiveEntry.**nnExtAlarmActiveManualClear
OID	.1.3.6.1.4.1.562.29.6.1.1.1.6

Short name	**nnExtAlarmActiveSequenceNumber**
Long name	**enterprises.nortel.nortelGenericMIBs.nnExtAlarmMIB.nnExtAlarmObjects.nnExtAlarmActiveTable.nnExtAlarmActiveEntry.**nnExtAlarmActiveSequenceNumber
OID	.1.3.6.1.4.1.562.29.6.1.1.1.7
Short name	**nnExtAlarmMessageResource**
Long name	**.iso.org.dod.internet.private.enterprises.nortel.nortelGenericMIBs.nnExtAlarmMIB.nnExtAlarmObjects.nnExtAlarmMessageTable.nnExtAlarmMessageEntry.**nnExtAlarmMessageResource
OID	.1.3.6.1.4.1.562.29.6.1.3.1.1
Short name	**nnExtAlarmMessageResourceDescription**
Long name	**iso.org.dod.internet.private.enterprises.nortel.nortelGenericMIBs.nnExtAlarmMIB.nnExtAlarmObjects.nnExtAlarmMessageTable.nnExtAlarmMessageEntry.**nnExtAlarmMessageResourceDescription
OID	.1.3.6.1.4.1.562.29.6.1.3.1.2
Short name	**nnExtAlarmMessageDateAndTime**
Long name	**iso.org.dod.internet.private.enterprises.nortel.nortelGenericMIBs.nnExtAlarmMIB.nnExtAlarmObjects.nnExtAlarmMessageTable.nnExtAlarmMessageEntry.**nnExtAlarmMessageDateAndTime
OID	.1.3.6.1.4.1.562.29.6.1.3.1.3
Short name	**nnExtAlarmMessageDocumentationPointer**
Long name	**iso.org.dod.internet.private.enterprises.nortel.nortelGenericMIBs.nnExtAlarmMIB.nnExtAlarmObjects.nnExtAlarmMessageTable.nnExtAlarmMessageEntry.**nnExtAlarmMessageDocumentationPointer
OID	.1.3.6.1.4.1.562.29.6.1.3.1.4
Short name	**nnExtAlarmMessageInfo**
Long name	**iso.org.dod.internet.private.enterprises.nortel.nortelGenericMIBs.nnExtAlarmMIB.nnExtAlarmObjects.nnExtAlarmMessageTable.nnExtAlarmMessageEntry.**nnExtAlarmMessageInfo
OID	.1.3.6.1.4.1.562.29.6.1.3.1.5

Call Agent Core

This section contains IEMS Northbound log samples and device documentation references for the Call Agent Core.

Call Agent Core Fault Interface

Fault documentation for Call Agent Core :

- NN10275-909 - Succession fault Management logs Reference
- NN10083-911 - Communication Server 2000 Fault Management

DMS Standard (North America)

- 297-8021-840 - North American DMS100 Log Report Reference Manual Volumes 1 to 8

International Succession

- 297-9051-8401 - DMS100 Log Report Reference Manual Volumes 1 to 7

Fault Mapping for Call Agent Core

The following criteria can be used for looking up information on specific faults for Call Agent Core.

Fault Correlation for Call Agent Core

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
Call Agent Core	log name and log number	log name and log number	log name and log number	log name and log number	see section " Fault documentation for Call Agent Core :"

Northbound Fault Formats for Call Agent Core

SCC2

The following is an example of a Call Agent Core log in SCC2 format:

```
56 LINE138 3778 INFO TRMT
      SLOA 21 1 02 01    DN 2145202111
      TREATMENT SET = BUSY   CALLED NO =                    5202111
      CALLID= 01BE 036D
```

NTSTD

The following is an example of a Call Agent Core log in NTSTD format:

```
RTPU07BR     LINE138 Jan23 16:56:30 3778 INFO TRMT
        SLOA 21 1 02 01    DN 2145202111
        TREATMENT SET = BUSY   CALLED NO =                          5202111
        CALLID= 01BE 036D
```

SNMP

The following is an example of a Call Agent Core log in SNMP format:

```
system.sysUpTime.0 => 19:51:46
snmpTrapOID.0 => nnExtAlarmMessage
nnExtAlarmMessageResource => .0.0
nnExtAlarmMessageResourceDescription => IEMS=wnc0y0m0.us.nortel.com-CS2K-Mgr;
nnExtAlarmMessageDateAndTime => 2004-1-23,11:56:30.0,
nnExtAlarmMessageDocumentationPointer => LINE138
nnExtAlarmMessageInfo =>   56 LINE138 3778 INFO TRMT                SLOA 21 1 02 01
DN 2145202111
        TREATMENT SET = BUSY   CALLED NO =                          5202111
        CALLID= 01BE 036D
```

Syslog

The following is an example of a Call Agent Core log in Syslog format:

```
Feb 23 11:57:27 wnc0s0pf IEMS: _V2_~I=~H=wnc0s0pf~A=IEMS~S=3835~~ LINE138 NONE INFO
TRMT^M       SLOA 21 1 02 01    DN 2145202111 ^M       TREATMENT SET = BUSY   CALLED
NO =                         5202111 ^M        CALLID= 01BE 036D
```

Performance

OM and PM Documentation references for Call Agent Core

- NN10149-711 - Communications Server 2000 Performance Management

DMS Standard (North America)

- 297-8021-814P1 - North American DMS-100 Operational Measurements Reference Manual Volumes 1 to 6

International Succession

- 297-9051-8141 - DMS-100 Family Operational Measurements Reference Manual Volumes 1 to 6

Northbound OM/PM Formats

This section provides example output of Performance Measurement data in each of the Northbound formats provided

Performance measurements for Call Agent Core are available from the CS2K Core Manager. See NN10149-711 - Communications Server 2000 Performance Management for more information.

XML

The following is an example of Performance data for Call Agent Core in XML format:

Note: *The IEMS northbound performance interface does not support this device..*

CSV

The following is an example of Performance data for Call Agent Core in CSV format:

Note: *The IEMS northbound performance interface does not support this device..*

GUI/CLUI Documentation for Call Agent Core

The Call Agent Core provides both command-line and MAP-based interfaces accessed through the CS2000 Core Manager.

GUI/CLUI Launching and User procedures

- NN10018-111 - CS2000 Core Manager Basics

  see section “Accessing the Core”

Related documents

- NN10197-111 - Communication Server 2000 Basics
- NN10193-511 - Communication Server 2000 Configuration Management
- NN10127-811 - Communication Server 2000 Accounting Management
- NN10171-611 - Communication Server 2000 Security and Administration
- 297-5051-921 - SuperNode Data Manager DDMS ASCII CI Gateway User Guide
- 297-5161-022P1 - Advanced Intelligent Network Service Enablers SIG Volumes 1 to 3
- 297-8021-350P1 - North American DMS-100 Translations Guide Volumes 1 to 25

- 297-8021-351P1 - DMS-100 Data Schema Reference Manual (volumes 1 to 12)
- 297-8021-801 - DMS-100 Feature Guide
- 297-8021-808P1 - DMS-100 SERVORD Reference Manual
- 297-8021-808P2 - DMS-100 SERVORD Reference Manual
- 297-8021-814P1 - DMS-100 Operational Measurements Reference Manual (volumes 1 to 6)
- 297-8021-840P1 - DMS-100 Logs Reference Manual (volumes 1 to 6)
- 297-8021-855P1 - DMS-100 Office Parameters Reference Manual (volumes 1 to 3)
- 297-8991-810 - XA-Core Reference Manual

Call Agent Platform

This section contains IEMS Northbound log samples and device documentation references for the Call Agent Platform.

Call Agent Platform Fault Interface

Fault documentation for Call Agent Platform :

- NN10087-911 - Call Agent Fault Management

Fault Mapping for Call Agent Platform

The following criteria can be used for looking up information on specific faults for Call Agent Platform.

Fault Correlation for Call Agent Platform

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
Call Agent Platform	logname and number	logname and number	logname and number	logname and number	NN10087-911 Call Agent Fault Management

Northbound Fault Formats for Call Agent Platform

SCC2

The following is an example of a Call Agent Platform log in SCC2 format:

```
* 41 CCA 355 6064 FLT  Jam Inactive Unit
        Unit Number : 0, ACTIVE
        Description : Inactive JAMMED
```

NTSTD

The following is an example of a Call Agent Platform log in NTSTD format:

```
COMPACT06BT   *  CCA355 JAN21 18:41:14 1864 FLT   Jam Inactive Unit
        Unit Number : 0, ACTIVE
        Description : Inactive JAMMED
```

SNMP

The following is an example of a Call Agent Platform log in SNMP format:

```
system.sysUpTime.0 => 1 day, 4:49:05
snmpTrapOID.0 => nnExtAlarmMinor
alarmActiveResourceId =>
.1.3.6.1.2.1.111.1.2.2.1.10.12.78.111.114.116.101.108.95.102.97.117.108.116.20.50.48
.48.52.45.49.45.50.49.44.54.58.52.49.58.49.52.46.48.44.8995
alarmActiveDateAndTime => 2004-1-21,6:41:14.0,
alarmActiveDescription => DeviceSpecificInfo=Unavailable;Unit Number : 0, ACTIVE
Description : Inactive JAMMED
nnExtAlarmActiveEventType => 5
nnExtAlarmActiveProbableCause => 118
nnExtAlarmActiveAdditionalText =>
nnExtAlarmActiveDocumentationPointer => CCA 355
nnExtAlarmActiveResourceDescription => IEMS=47.142.128.16-CS2K-Mgr;
nnExtAlarmActiveManualClear => 3
nnExtAlarmActiveSequenceNumber => 9104
```

Syslog

The following is an example of a Call Agent Platform log in Syslog format:

```
Jan 21 19:41:06 wnc0s0qh IEMS: _V2_~I=~H=wnc0s0qh~A=IEMS~S=2860~~  CCA355 MINOR FLT
Jam Inactive Unit^M      Unit Number : 0, ACTIVE ^M      Description : Inactive JAMMED
```

Performance

OM and PM Documentation references for Call Agent Platform

- NN10153-711 - Call Agent Performance Management

Northbound OM/PM Formats

Performance measurements for Call Agent Platform are available only from the Call Agent Manager interface. See NN10153-711 - Call Agent Performance Management for more information.

XML

The following is an example of Performance data for Call Agent Platform in XML format:

Note: *The IEMS northbound performance interface does not support this device..*

CSV

The following is an example of Performance data for Call Agent Platform in CSV format:

Note: *The IEMS northbound performance interface does not support this device..*

GUI/CLUI Documentation for Call Agent Platform

GUI Launching and User procedures

- NN10175-611 - Call Agent Administration and Security

Related documents

- NN10023-111 - Call Agent Basics
- NN10109-511 - Call Agent Configuration Management

Passport 8600

This section contains IEMS Northbound log samples and device documentation references for the Passport 8600.

Passport 8600 Fault Interface

Fault documentation for Passport 8600 :

- 241-6001-502 Preside MDM Device Alarms Reference Guide
- 241-6003-110 - Preside Passport 8600 Device Integration Cartridge User Guide

Fault Mapping for Passport 8600

The following criteria can be used for looking up information on specific faults for Passport 8600.

Fault Correlation for Passport 8600

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
Passport 8600	logname and number	logname and number	logname and number	logname and number	241-6003-110 - Preside Passport 8600 Device Integration Cartridge User Guide

Northbound Fault Formats for Passport 8600

SCC2

The following is an example of a Passport 8600 log in SCC2 format:

```
**03 PP  398 5831 TBL  PP Fault
        Location: 47.142.130.66
        State: Raise
        Specific Problem: Generic Link Status
        Description: Link Down: ifIndex = 175 ( AdminStatus = down OpeationStatu
        s = down )
```

NTSTD

The following is an example of a Passport 8600 log in NTSTD format:

```
znc0s0jh  **   PP398 Feb04 22:58:46 3203 TBL  PP Fault
        Location: 47.142.130.66
        State: Raise
        Specific Problem: Generic Link Status
        Description: Link Down: ifIndex = 175 ( AdminStatus = down OpeationStatu
        s = down )
```

SNMP

The following is an example of a Passport 8600 log in SNMP format:

```
sysUpTime.0 => 2:55:28

snmpTrapOID.0 => nnExtAlarmMajor

alarmActiveResourceId =>
.1.3.6.1.2.1.111.1.2.2.1.10.12.78.111.114.116.101.108.95.102.97.117.108.116.19.50.48
.48.52.45.50.45.52.44.53.58.53.56.58.52.54.46.54.44.90024

alarmActiveDateAndTime => 2004-2-4,5:58:46.6

alarmActiveDescription => DeviceSpecificInfo=;Link Down: ifIndex = 175 ( AdminStatus
= down OpeationStatus = down )

nnExtAlarmActiveEventType => 5

nnExtAlarmActiveProbableCause => 118

nnExtAlarmActiveAdditionalText =>

nnExtAlarmActiveDocumentationPointer => PP  398

nnExtAlarmActiveResourceDescription => IEMS=47.142.130.66-PP8600;3

nnExtAlarmActiveSequenceNumber => 2709
```

Syslog

The following is an example of a Passport 8600 log in Syslog format:

```
Feb  4 11:31:57 znc0s0jh IEMS: _V2_~I=~H=znc0s0jh~A=IEMS~S=1459~~   PP398 MAJOR TBL
PP Fault^M        Location: 47.142.130.66^M        State: Raise ^M        Specific
Problem: Generic Link Status^M      Description: Link Down: ifIndex = 133 ( AdminStatus
= up OpeationStatus ^M        = down )
```

Performance

OM and PM Documentation references for Passport 8600

Not available at time of publication

Northbound OM/PM Formats

This section provides example output of Performance Measurement data in each of the Northbound formats provided

XML

The following is an example of Performance for Passport 8600 in XML format:

<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>

- <PMFile xmlns:xsi="http://www.w3.org/2000/10/XMLSchema-instance" xsi:noNamespaceSchemaLocation="**commonFormat.xsd**" MeasurementCategory="**PM**">

<FileCreationTime>2004-06-23T17:35:01EST</FileCreationTime>

- <System>

<SystemId>NortelNetworks/IEMS</SystemId>

- <Entity Type="**PP8600**">

<EntityId>47.142.130.66</EntityId>

- <SingleValues MeasurementKind="**Snapshot**" IntervalDuration="**5**">

- <SingleValue>

<CaptureTime>2004-06-23T17:30:01EST</CaptureTime>

<MeasureId>snmpInvalidMsgs</MeasureId>

<MeasureSuppId1>.iso.org.dod.internet.snmpV2.snmpModules.snmpMPDMIB.snmpMPDMIBObjects.snmpMPDStats</MeasureSuppId1>

<Value>0</Value>

<Reliability>Valid</Reliability>

</SingleValue>

- <SingleValue>

<CaptureTime>2004-06-23T17:30:01EST</CaptureTime>

<MeasureId>snmpOutPkts</MeasureId>

<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>

<Value>311026</Value>

<Reliability>Valid</Reliability>

</SingleValue>

- <SingleValue>

<CaptureTime>2004-06-23T17:30:01EST</CaptureTime>

<MeasureId>snmpOutTraps</MeasureId>

<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>

<Value>0</Value>

<Reliability>Valid</Reliability>

</SingleValue>

- <SingleValue>

<CaptureTime>2004-06-23T17:30:01EST</CaptureTime>

<MeasureId>snmpInTotalSetVars</MeasureId>

<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>

<Value>15</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:30:02EST</CaptureTime>
<MeasureId>snmpInPkts</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>320467</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:30:03EST</CaptureTime>
<MeasureId>snmpInTotalReqVars</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>1412075</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:30:03EST</CaptureTime>
<MeasureId>snmpInASNParseErrs</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>2</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:30:03EST</CaptureTime>
<MeasureId>snmpInBadVersions</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>0</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:30:04EST</CaptureTime>
<MeasureId>snmpInBadCommunityUses</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>0</Value>

<Reliability>Valid</Reliability>
</SingleValue>
</SingleValues>
</Entity>
</System>
</PMFile>

CSV

The following is an example of Performance for Passport 8600 in CSV format:

```
PMFile=Begin
PM,commonFormat.xsd,2004-06-23T17:25:00EST

System=Begin
NortelNetworks/IEMS

Entity=Begin
47.142.130.66,PP8600

Table=Begin
.iso.org.dod.internet.private.enterprises.rapidCity.rcMgmt.rcStat.rcStatTable.rcStat
Entry,Snapshot,5,2004-06-23T17:20:15EST
rcStatFrameTooShorts,rcStatStgForwardTransitions,rcStatRouteInDiscards,rcStatBridgeI
nDiscards
0,0,0,0
0,0,0,0
253,0,0,0
0,0,0,0
74,0,0,0
0,0,0,0
0,0,0,0
560,0,0,0
591,0,0,0
544,0,0,0
0,0,0,0
0,0,0,0
0,0,0,0
566,0,0,0
0,0,0,0
0,0,0,0
```

208,0,0,0
698,0,0,0
586,0,0,0
0,0,0,0
547,0,0,0
537,0,0,0
582,0,0,0
553,0,0,0
28,0,0,0
582,0,0,0
173,0,0,0
574,0,0,0
544,0,0,0
544,0,0,0
0,0,0,0
0,0,0,0
563,0,0,0
558,0,0,0
589,0,0,0
513,0,0,0
575,0,0,0
350,0,0,0
0,0,0,0
45,0,0,0
0,0,0,0
552,0,0,0
0,0,0,904
0,0,0,577
8,0,0,0
0,0,0,0
0,0,0,0
0,0,0,0
0,0,0,0
0,0,0,0
0,0,0,1678
669,0,0,0
0,0,0,0
0,0,0,0

```
0,0,0,30614
1,0,0,15253
0,0,0,0
0,0,0,0
0,0,0,0
13,0,0,0
0,0,0,0
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0,0,0,0
0,0,0,0
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0,0,0,0
17,0,0,0
0,0,0,0
49,0,0,0
0,0,0,0
0,0,0,0
0,0,0,0
0,0,0,0
0,0,0,0
0,0,0,0
0,0,0,0
0,0,0,0
0,0,0,0
0,0,0,1911
0,0,0,0
0,0,0,0
0,0,0,0
0,0,0,0
0,0,0,0
0,0,0,0
0,0,0,0
0,0,0,0
0,0,0,0
0,0,0,0
0,0,0,0
0,0,0,0
```

```
0,0,0,0

556,0,0,0

0,0,0,0

0,0,0,0

0,0,0,0

0,0,0,0

0,0,0,0

283,0,0,0

Table=End



Table=Begin

.iso.org.dod.internet.mgmt.mib-2.ospf.ospfIfTable.ospfIfEntry,Snapshot,5,2004-06-
23T17:20:14EST

ospfIfEvents

9

1

3

1

5

1

1

Table=End



Table=Begin

.iso.org.dod.internet.mgmt.mib-2.ospf.ospfNbrTable.ospfNbrEntry,Snapshot,5,2004-06-
23T17:20:14EST

ospfNbrEvents,ospfNbrIpAddr

5,47.142.130.67

Table=End



SingleValues=Begin

Snapshot,5

snmpInvalidMsgs,2004-06-
23T17:20:13EST,.iso.org.dod.internet.snmpV2.snmpModules.snmpMPDMIB.snmpMPDMIBObjects
.snmpMPDStats,0,Valid

snmpOutPkts,2004-06-23T17:20:13EST,.iso.org.dod.internet.mgmt.mib-
2.snmp,310853,Valid
```

```
snmpOutTraps,2004-06-23T17:20:13EST,.iso.org.dod.internet.mgmt.mib-2.snmp,0,Valid

snmpInTotalSetVars,2004-06-23T17:20:13EST,.iso.org.dod.internet.mgmt.mib-
2.snmp,15,Valid

snmpInPkts,2004-06-23T17:20:13EST,.iso.org.dod.internet.mgmt.mib-2.snmp,320294,Valid

snmpInTotalReqVars,2004-06-23T17:20:13EST,.iso.org.dod.internet.mgmt.mib-
2.snmp,1411445,Valid

snmpInASNParseErrs,2004-06-23T17:20:14EST,.iso.org.dod.internet.mgmt.mib-
2.snmp,2,Valid

snmpInBadVersions,2004-06-23T17:20:14EST,.iso.org.dod.internet.mgmt.mib-
2.snmp,0,Valid

snmpInBadCommunityUses,2004-06-23T17:20:14EST,.iso.org.dod.internet.mgmt.mib-
2.snmp,0,Valid

rcSysBufferUtilPeakTime,2004-06-
23T17:20:14EST,.iso.org.dod.internet.private.enterprises.rapidCity.rcMgmt.rcSystem,0
,Valid

rcSysSwitchFabricUtil,2004-06-
23T17:20:14EST,.iso.org.dod.internet.private.enterprises.rapidCity.rcMgmt.rcSystem,0
,Valid

rcSysNVRamUsed,2004-06-
23T17:20:14EST,.iso.org.dod.internet.private.enterprises.rapidCity.rcMgmt.rcSystem,0
,Valid

rcSysBufferUtilPeak,2004-06-
23T17:20:14EST,.iso.org.dod.internet.private.enterprises.rapidCity.rcMgmt.rcSystem,0
,Valid

rcSysCpuUtil,2004-06-
23T17:20:14EST,.iso.org.dod.internet.private.enterprises.rapidCity.rcMgmt.rcSystem,9
,Valid

rcSysBufferUtil,2004-06-
23T17:20:14EST,.iso.org.dod.internet.private.enterprises.rapidCity.rcMgmt.rcSystem,0
,Valid

SingleValues=End


Entity=End


System=End


PMFile=End
```

GUI/CLUI Documentation for Passport 8600

GUI Launching and User procedures

- 316341-B Rev 00 - Installing and Using Device Manager
- 314723-B - Configuring Network Management

Related documentation

- 314724-B - Configuring and Managing Security
- 314997-B - Read Me for Security
- 316341-A - Installing and Using Device Manager
- 313189-C - Getting Started
- 315545-B - Managing Platform Operations and Using Diagnostics Tools
- 314723-B - Configuring Network Management
- 314721-B - Configuring BGP Services
- 316433-B - Configuring QoS and IP Filtering
- 314720-C - Configuring IP Routing Operations
- 314725-B - Configuring Layer 2 Operations: "VLANs," Spanning "Tree," Multilink Trunking
- 314719-B - Configuring IP Multicast Routing Protocols
- 316343-A - Configuring IGMP for User Authentication (IGAP)
- 314722-A - Configuring IPX Routing Operations
- 314995-A - Configuring the Web Switching Module with Device Manager
- 316350-A - Using the SSL acceleration module with the Web switching module for the 8600 Series switch
- 315015-B - System Messaging Platform Reference Guide
- 315023-B - Using the Packet Capture Tool

Gateway Controller (GWC)

This section contains IEMS Northbound log samples and device documentation references for the GWC.

GWC Fault Interface

Fault documentation for GWC :

- NN10090-911 - GWC Fault Management

Fault Mapping for GWC

The following criteria can be used for looking up information on specific faults for GWC.

Fault Correlation for GWC

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
GWC	logname and number	logname and number	logname and number	logname and number	NN10090-911 GWC Fault Management

Northbound Fault Formats for GWC

SCC2

The following is an example of a GWC log in SCC2 format:

```
**14 GWC 307 7250 TBL  GWC Fault
        Location: GWC-2-UNIT-0
        NotificationID: 4
        State: Raise
        Category: Communications
        Cause: Communications subsystem failure
        Time: Jan 23 15:15:59 2004
        Component Id: GWC=GWC-2-UNIT-0;Version=PGC92BA;Unit=unit_0;Software=NODE
        MTC
        Specific Problem: EM not responding, provisioned data loaded from local
        Flash
        Description: Element Manager communication failure.
```

NTSTD

The following is an example of a GWC log in NTSTD format:

```
COMPACT06BT  **  GWC307 Jan23 20:14:38 7250 TBL  GWC Fault
        Location: GWC-2-UNIT-0
        NotificationID: 4
        State: Raise
        Category: Communications
        Cause: Communications subsystem failure
        Time: Jan 23 15:15:59 2004
        Component Id: GWC=GWC-2-UNIT-0;Version=PGC92BA;Unit=unit_0;Software=NODE
        MTC
        Specific Problem: EM not responding, provisioned data loaded from local
```

Flash

Description: Element Manager communication failure.

SNMP

The following is an example of a GWC log in SNMP format:

system.sysUpTime.0 => 23:10:15

snmpTrapOID.0 => nnExtAlarmMajor

alarmActiveResourceId =>
.1.3.6.1.2.1.111.1.2.2.1.10.12.78.111.114.116.101.108.95.102.97.117.108.116.20.50.48
.48.52.45.49.45.50.51.44.51.58.49.52.58.51.56.46.48.44.42848

alarmActiveDateAndTime => 2004-1-23,3:14:38.0,

alarmActiveDescription => DeviceSpecificInfo=;Location: GWC-2-UNIT-0 NotificationID:
4

State: Raise

Category: Communications

Cause: Communications subsystem failure

Time: Jan 23 15:15:59 2004

Component Id: GWC=GWC-2-UNIT-0;Version=PGC92BA;Unit=unit_0;Software=NODEMTC

Specific Problem: EM not responding, provisioned data loaded from local Flash

Description: Element Manager communication failure.

nnExtAlarmActiveEventType => 5

nnExtAlarmActiveProbableCause => 118

nnExtAlarmActiveAdditionalText =>

nnExtAlarmActiveDocumentationPointer => GWC 307

nnExtAlarmActiveResourceDescription => IEMS=znc0s0j6;GWC=GWC-2-UNIT-
0;Version=PGC92BA;Unit=unit_0;Software=NODE

nnExtAlarmActiveManualClear => 0

nnExtAlarmActiveSequenceNumber => 9028

Syslog

The following is an example of a GWC log in Syslog format:

Feb 23 15:15:56 wnc0s0pf IEMS: _V2_~I=~H=wnc0s0pf~A=IEMS~S=7307~~ GWC307 MAJOR TBL
GWC Fault^M Location: GWC-2-UNIT-0^M NotificationID: 4^M State:
Raise^M Category: Communications^M Cause: Communications subsystem
failure^M Time: Jan 23 15:15:59 2004^M Component Id: GWC=GWC-2-UNIT-
0;Version=PGC92BA;Unit=unit_0;Software=NODE^M MTC^M Specific Problem: EM
not responding, provisioned data loaded from local^M Flash^M Description:
Element Manager communication failure.^M

Performance

OM and PM Documentation references for GWC

- NN10156-711 - GWC Performance Management

Northbound OM/PM Formats

This section provides example output of Performance Measurement data in each of the Northbound formats provided

XML

The following is an example of performance data for GWC in XML format:

Note: *The IEMS northbound performance interface does not support this device..*

CSV

The following is an example of performance data for GWC in CSV format:

Note: *The IEMS northbound performance interface does not support this device..*

GUI/CLUI Documentation for GWC

GUI Launching and User procedures

- NN10026-111 - GWC Basics
- NN10112-511 - GWC Configuration Management
- NN10178-611 - GWC Security and Administration

Related documents

Media Application Server (MAS)

MAS Fault Interface

This section will provide references to customer documentation for Fault, Performance, Topology, GUI/CLUI, and Security for MAS.

Fault documentation for MAS :

- NN10303-111 - MCP 2.0 MAS Meetme Basics
- NN10297-111 - MCP 2.0 MAS Adhoc Basics

Fault Mapping for MAS

The following criteria can be used for looking up information on specific faults for MAS.

Fault Correlation for MAS

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
MAS	Event Id Logname and Log number	Event Id Logname and Log number	Event Id Logname and Log number	Event Id Logname and Log number	NN10303-111 MCP 2.0 MAS Meetme Basics NN10297-111 MCP 2.0 MAS Adhoc Basics

Northbound Fault Formats for MAS

SCC2

The following is an example of a MAS log in SCC2 format:

```
*C00 MAS 330 2515 FLT  Fault
        Location: 47.104.11.120
        Notification Id: 1001
        State: Raised
        Category: processingError
        Cause: applicationSubsystemFailure
        Time: Mar 23 10:46:51 2004
        Component Id: MediaServer_CStore
        Specific Problem: MAS;330
        Description: Component Shutdown
```

NTSTD

The following is an example of a MAS log in NTSTD format:

```
RTPU07CAPT ***  MAS330 MAR23 17:00:18 2310 FLT  Fault
        Location: 47.104.11.120
        Notification Id: 1001
        State: Raised
        Category: processingError
        Cause: applicationSubsystemFailure
        Time: Mar 23 10:46:51 2004
        Component Id: MediaServer_CStore
```

```
Specific Problem: MAS;330
Description: Component Shutdown
```

SNMP

The following is an example of a MAS log in SNMP format:

```
sysUpTime.0 => 1:52:16
snmpTrapOID.0 => nnExtAlarmCritical
alarmActiveResourceId =>
.1.3.6.1.2.1.111.1.2.2.1.10.12.78.111.114.116.101.108.95.102.97.117.108.116.19.50.48
.48.52.45.51.45.50.51.44.48.58.48.58.49.56.46.54.44.
2572
alarmActiveDateAndTime => 2004-3-23,0:0:18.6
alarmActiveDescription => Location: 47.104.11.120
Notification Id: 1001
State: Raised
Category: processingError
Cause: applicationSubsystemFailure
Time: Mar 23 10:46:51 2004
Component Id: MediaServer_CStore
Specific Problem: MAS;330
Description: Component Shutdown

nnExtAlarmActiveEventType => 3
nnExtAlarmActiveProbableCause => 2
nnExtAlarmActiveAdditionalText =>
nnExtAlarmActiveDocumentationPointer => MAS 330
nnExtAlarmActiveResourceDescription => IEMS=47.104.11.120-MAS;MediaServer_CStore
nnExtAlarmActiveManualClear => 1
nnExtAlarmActiveSequenceNumber => 1
```

Syslog

The following is an example of a MAS log in Syslog format:

```
Mar 23 12:00:19 znc0s0jh IEMS: _V2_~I=~H=znc0s0jh~A=IEMS~S=3629~~  MAS330 CRIT FLT
Fault^M       Location: 47.104.11.120^M       Notification Id: 1001^M       State:
Raised^M      Category: processingError^M Cause: applicationSubsystemFailure^M
Time: Mar 23 10:46:51 2004^M       Component Id: MediaServer_CStore^M       Specific
Problem: MAS;330^M       Description: Component Shutdown
```

Performance

OM and PM Documentation references for MAS

- NN10303-111 - MCP 2.0 MAS Meetme Basics

- NN10297-111 - MCP 2.0 MAS Adhoc Basics

Northbound OM/PM Formats

This section provides example output of Performance Measurement data in each of the Northbound formats provided

XML

The following is an example of Performance data for MAS in XML format:

Not available at time of publication

CSV

The following is an example of Performance data for MAS in CSV format:

PMFile=Begin

MeasurementCategory,noNamespaceSchemaLocation,FileCreationTime

PM,commonFormat.xsd,2004-07-02T05:55:54EST

System=Begin

SystemId

NortelNetworks/IEMS

Entity=Begin

EntityId,Type

47.104.11.120,MAS

SingleValues=Begin

MeasurementKind,IntervalDuration

Snapshot,5

MeasureId,CaptureTime,MeasureSuppId1,Value,Reliability

CreateConf,2004-07-02T05:13:44EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:44EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:45EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:45EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:46EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:46EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:47EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:47EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:48EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:48EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:49EST,ConfMP,40,Valid

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CreateConf,2004-07-02T05:13:50EST,ConfMP,40,Valid

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CreateConf,2004-07-02T05:13:51EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:51EST,ConfMP,40,Valid

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CreateConf,2004-07-02T05:13:52EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:53EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:53EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:54EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:54EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:55EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:55EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:56EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:56EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:57EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:57EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:58EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:58EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:59EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:13:59EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:00EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:00EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:01EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:01EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:02EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:02EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:03EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:03EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:04EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:04EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:05EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:05EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:06EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:06EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:07EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:07EST,ConfMP,40,Valid

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CreateConf,2004-07-02T05:14:08EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:09EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:09EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:10EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:10EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:11EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:11EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:12EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:12EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:13EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:13EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:14EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:14EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:15EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:15EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:16EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:16EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:17EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:17EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:18EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:18EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:19EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:19EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:20EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:20EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:21EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:21EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:22EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:22EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:23EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:23EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:24EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:24EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:25EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:25EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:26EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:26EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:27EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:27EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:28EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:28EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:29EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:29EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:30EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:30EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:31EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:31EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:32EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:32EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:33EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:33EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:34EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:34EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:35EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:35EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:36EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:36EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:37EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:37EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:38EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:38EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:39EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:39EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:40EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:40EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:41EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:41EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:42EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:42EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:43EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:43EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:44EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:44EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:45EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:45EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:46EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:46EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:47EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:47EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:48EST,ConfMP,40,Valid

CreateConf,2004-07-02T05:14:48EST,ConfMP,40,Valid

SingleValues=End

Entity=End

System=End

PMFile=End

GUI/CLUI Documentation for MAS

GUI Launching and User procedures

- NN10303-111 - MCP 2.0 MAS Meetme Basics

Related Documents

None

Media Gateway 9000 (MG9000)

This section contains IEMS Northbound log samples and device documentation references for the MG9000.

MG 9000 Fault Interface

Fault documentation for MG 9000 :

- NN10074-911 MG9000 Fault Management
- NN10325-900 ATM/IP Fault Management

Fault Mapping for MG 9000

The following criteria can be used for looking up information on specific faults for MG 9000.

Fault Correlation for MG 9000

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
MG 9000	logname and number	logname and number	logname and number	logname and number	NN10325-900 ATM/IP Fault Management

Northbound Fault Formats for MG 9000

SCC2

The following is an example of a MG 9000 log in SCC2 format:

```
* 37 SWLN302 4259 TBL  MG9K NorLineFault
        Location: Port.frame0.shelf1.slot5.WL32.port21
        Notification Id: 330712652810
        State: UnAcknowledged
        Category: processingError
        Cause: Underlying Resource Unavailable
              NorLineFault - Line Protection Fault
        Component Id: Port.frame0.shelf1.slot5.WL32.port21
        specificProblem: NorLineFault - Line Protection Fault
        Description: Line Protection HighVoltageError      : 0,1,5,21 [suspect b
        ad LineCard]
```

NTSTD

The following is an example of a MG 9000 log in NTSTD format:

```
RTPU07BU   * SWLN302 Jan23 17:37:31 4259 TBL  MG9K NorLineFault
        Location: Port.frame0.shelf1.slot5.WL32.port21
        Notification Id: 330712652810
        State: UnAcknowledged
        Category: processingError
        Cause: Underlying Resource Unavailable
              NorLineFault - Line Protection Fault
        Component Id: Port.frame0.shelf1.slot5.WL32.port21
        specificProblem: NorLineFault - Line Protection Fault
        Description: Line Protection HighVoltageError      : 0,1,5,21 [suspect b
        ad LineCard]
```

SNMP

The following is an example of a MG 9000 log in SNMP format:

```
system.sysUpTime.0 => 17:59:11
```

```
snmpTrapOID.0 => nnExtAlarmClearalarmActiveResourceId =>
.1.3.6.1.2.1.111.1.2.2.1.10.12.78.111.114.116.101.108.95.102.97.117.108.116.19.50.48
.48.52.45.49.45.50.51.44.49.48.58.52.58.50.46.54.44.41817

alarmActiveDateAndTime => 2004-1-23,10:4:2.6,

alarmActiveDescription => Underlying Resource Unavailable

        NorLineFault - Line Protection Fault


nnExtAlarmActiveEventType => 3

nnExtAlarmActiveProbableCause => 56

nnExtAlarmActiveAdditionalText =>

nnExtAlarmActiveDocumentationPointer => SWLN302

nnExtAlarmActiveResourceDescription => IEMS=CC07;Port.frame0.shelf1.slot5.WL32.port21

nnExtAlarmActiveSequenceNumber => 7240
```

Syslog

The following is an example of a MG 9000 log in Syslog format:

```
Feb 23 12:40:26 wnc0s0pf IEMS: _V2_~I=~H=wnc0s0pf~A=IEMS~S=4323~~ SWLN302 NONE TBL
MG9K NorLineFault^M        Location: Port.frame0.shelf1.slot5.WL32.port21^M
Notification Id: 330712652810^M        State: Cleared^M        Category:
processingError^M        Cause: Underlying Resource Unavailable^M
NorLineFault - Line Protection Fault^M        Component Id:
Port.frame0.shelf1.slot5.WL32.port21^M        specificProblem: NorLineFault - Line
Protection Fault^M       Description: Line Protection HighVoltageError     : 0,1,5,21
[suspect b^M        ad LineCard]
```

Performance

OM and PM Documentation references for MG 9000

- NN10140-711 MG9000 Performance Management

Northbound OM/PM Formats

This section provides example output of Performance Measurement data in each of the Northbound formats provided

XML

The following is an example of Performance data for MG 9000 in XML format:

***Note:** The IEMS northbound performance interface does not support this device..*

CSV

The following is an example of Performance data for MG 9000 in CSV format:

Note: *The IEMS northbound performance interface does not support this device..*

GUI/CLUI Documentation for MG 9000

GUI Launching and User procedures

- NN10096-511 MG9000 Configuration Management

Related documents

- NN10276-500 ATM/IP Configuration Management

MultiService Switch 7400, 15000, 20000

This section contains IEMS Northbound log samples and device documentation references for the MSS 7400, 15000, 20000.

Information for this device is covered in MDM documentation. *Please refer to Section " Multi-Service Data Manager (MDM)" on page 2088.* for more details.

MSS 7400, 15000, 20000 Fault Interface

Fault documentation for MSS 7400, 15000, 20000 :

Please refer to Section " Fault documentation for MDM:" on page 2088.

Fault Mapping for MSS 7400, 15000, 20000

Please refer to Section " Fault Mapping for MDM" on page 2088.

Northbound Fault Formats for MSS 7400, 15000, 20000

SCC2

The following is an example of a MSS 7400, 15000, 20000 log in SCC2 format:

```
19 PPEM302 8013 TBL
      time: 2004 01 27 14 19 53
      event: message
      compId: EM PP04 LP 8
```

```
        severity: indeterminate
        faultcode: 70560000
        alarmType: other
        commentData: 1-7-200
        0000
        1;DBG_WARNING:R:21-L:18 stats timeout.
```

NTSTD

The following is an example of a MSS 7400, 15000, 20000 log in NTSTD format:

```
RTPU07BU     PPEM302 Jan27 19:19:53 7467 TBL
        time: 2004 01 27 14 19 53
        event: message
        compId: EM PP04 LP 8
        severity: indeterminate
        faultcode: 70560000
        alarmType: other
        commentData: 1-7-200
        0000
        1;DBG_WARNING:R:21-L:18 stats timeout.
```

SNMP

The following is an example of a MSS 7400, 15000, 20000 log in SNMP format:

```
system.sysUpTime.0 => 3 days, 1:02:10
snmpTrapOID.0 => nnExtAlarmMessage
nnExtAlarmMessageResource => .0.0
nnExtAlarmMessageResourceDescription => IEMS=47.142.116.75-MDM-Mgr_PP04;EM PP04 LP 8
nnExtAlarmMessageDateAndTime => 2004-1-21,6:41:14.0,
nnExtAlarmMessageDocumentationPointer => PPEM302
nnExtAlarmMessageInfo =>   19 PPEM302 8013 TBL                time: 2004 01 27 14 19 53
        event: message
        compId: EM PP04 LP 8
        severity: indeterminate
        faultcode: 70560000
        alarmType: other
```

```
commentData: 1-7-200

0000

1;DBG_WARNING:R:21-L:18 stats timeout.
```

Syslog

The following is an example of a MSS 7400, 15000, 20000 log in Syslog format:

```
Feb 27 13:19:58 wnc0s0pf IEMS: _V2_~I=~H=wnc0s0pf~A=IEMS~S=2202~~ PPEM302 NONE TBL ^M
time: 2004 01 27 14 19 53^M       event: message^M       compId: EM PP04 LP 8^M
severity: indeterminate^M       faultcode: 70560000^M       alarmType: other^M
commentData: 1-7-200^M       0000 ^M       1;DBG_WARNING:R:21-L:18 stats timeout.
```

Performance

OM and PM Documentation references for MSS 7400, 15000, 20000

Please refer to Section " OM and PM Documentation references for MDM" on page 2091.

Northbound OM/PM Formats

Performance measurements for MSS 7400, 15000, 20000 are available only from the MDM directly. *Please refer to Section " Northbound OM/PM Formats" on page 2091.*

XML

The following is an example of Performance data for MSS 7400, 15000, 20000 in XML format:

***Note:** The IEMS northbound performance interface does not support this device..*

CSV

The following is an example of Performance data for MSS 7400, 15000, 20000 in CSV format:

***Note:** The IEMS northbound performance interface does not support this device..*

GUI/CLUI Documentation for MSS 7400, 15000, 20000

GUI Launching and User procedures

Please refer to "GUI/CLUI Documentation for MDM" on page 2092.

- NN10600-030 - Nortel Networks Multiservice Switch 7400/15000/20000 Overview
- 241-5701-045 - Passport "7400," "15000," 20000 Management System User Interface Guide
- NN10600-050 - Nortel Networks Multiservice Switch 7400/15000/20000 Commands Reference
- NN10600-053 - Nortel Networks Multiservice Switch 7400/15000/20000 Commands Job Aid

Related documents

Please refer to "Related documents" on page 2092.

- NN10600-001 - Nortel Networks Multiservice Switch 7400/15000/20000 Using the Documentation
- NN10600-002 - Nortel Networks Multiservice Switch 7400/15000/20000 Using Task-based Documentation Job Aid
- NN10600-005 - Nortel Networks Multiservice Switch 7400/15000/20000 Terminology
- NN10600-030 - Nortel Networks Multiservice Switch 7400/15000/20000 Overview
- NN10600-270 - Nortel Networks Multiservice Switch 7400/15000/20000 Software Installation
- NN10600-271 - Nortel Networks Multiservice Switch 7400/15000/20000 Network Management Connectivity
- NN10600-272 - Nortel Networks Multiservice Switch 7400/15000/20000 Upgrading Software
- NN10600-300 - Nortel Networks Multiservice Switch 7400/15000/20000 Operations: SNMP
- 241-5701-400 - Passport "7400," "15000," 20000 Networking Overview
- NN10600-405 - Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Call Server
- NN10600-410 - Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Call Redirection Server
- NN10600-415 - Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Hunt Group Server

- NN10600-420 - Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Trunking
- NN10600-425 - Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Dynamic Packet Routing System
- NN10600-435 - Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Path-Oriented Routing System
- NN10600-440 - Nortel Networks Multiservice Switch 7400 Operations: Frame Relay Managed Cut-through Switching
- NN10600-445 - Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Multiprotocol Label Switching
- NN10600-500 - Nortel Networks Multiservice Switch 7400/15000/20000 Alarms Reference
- NN10600-510 - Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Trace System
- NN10600-520 - Nortel Networks Multiservice Switch 7400/15000/20000 Fault and Performance Management: Troubleshooting
- NN10600-581 - Nortel Networks Multiservice Switch 7400/15000/20000 IP VPN Technology Fundamentals
- NN10600-582 - Nortel Networks Multiservice Switch 7400/15000/20000 IP VPN Configuration Management
- NN10600-550 - Nortel Networks Multiservice Switch 7400/15000/20000 Common Configuration Procedures
- NN10600-561 - Nortel Networks Multiservice Switch 7400/15000/20000 Data Management
- NN10600-551 - Nortel Networks Multiservice Switch 7400/15000/20000 FP Configuration Reference
- NN10600-560 - Nortel Networks Multiservice Switch 7400/15000/20000 Accounting
- NN10600-700 - Nortel Networks Multiservice Switch 7400/15000/20000 ATM Technology Fundamentals
- NN10600-702 - Nortel Networks Multiservice Switch 7400/15000/20000 ATM Routing and Signaling Fundamentals
- NN10600-705 - Nortel Networks Multiservice Switch 7400/15000/20000 ATM Traffic Management Fundamentals
- NN10600-706 - Nortel Networks Multiservice Switch 7400/15000/20000 ATM Traffic Shaping and Policing Fundamentals
- NN10600-707 - Nortel Networks Multiservice Switch 7400/15000/20000 ATM Queuing and Scheduling Fundamentals

- NN10600-708 - Nortel Networks Multiservice Switch 7400/15000/20000 ATM CAC and Bandwidth Fundamentals
- NN10600-710 - Nortel Networks Multiservice Switch 7400/15000/20000 ATM Configuration Management
- NN10600-715 - Nortel Networks Multiservice Switch 7400/15000/20000 ATM Fault and Performance Management
- NN10600-720 - Nortel Networks Multiservice Switch 7400/15000/20000 Operations: AAL1 Circuit Emulation
- NN10600-730 - Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Inverse Multiplexing for ATMe
- NN10600-780 - Nortel Networks Media Gateway 7480/15000 Technology Fundamentals
- NN10600-781 - Nortel Networks Media Gateway 7480/15000 Non-switched Service Configuration Management
- NN10600-782 - Nortel Networks Media Gateway 7480/15000 Switched Service Configuration Management
- NN10600-800 - Nortel Networks Multiservice Switch 7400/15000/20000 IP Technology Fundamentals
- NN10600-801 - Nortel Networks Multiservice Switch 7400/15000/20000 IP Configuration Management
- NN10600-580 - Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Ethernet Service
- NN10600-120 - Nortel Networks Multiservice Switch 15000/20000 Hardware Description
- NN10600-130 - Nortel Networks Multiservice Switch 15000/20000 Hardware Installation, Maintenance, and Upgrade
- NN10600-170 - Nortel Networks Multiservice Switch 7400 Hardware Description
- NN10600-130 - Nortel Networks Multiservice Switch 15000/20000 Hardware Installation, Maintenance, and Upgrade
- NN10600-172 - Nortel Networks Multiservice Switch 7400 FP Cabling Reference
- NN10600-745 - Nortel Networks Multiservice Switch 7400 Operations: MPANL
- NN10600-750 - Nortel Networks Multiservice Switch 7400 Operations: Voice Transport
- NN10600-755 - Nortel Networks Multiservice Switch 7400 Operations: Voice Networking

- NN10600-765 - Nortel Networks Multiservice Switch 7400 Operations: Remote Server Agent
- NN10600-605 - Passport MDM Network Security: Operations
- NN10600-606 - Passport MDM Network Security: User Access Configuration
- NN10600-607 - Passport MDM Network Security: Secure Communications Configuration
- 241-6001-309 - Preside MDM Management Data Provider User Guide
- 241-6001-806 - Preside MDM MDP Data Formats Reference Guide
- NN10600-060 - Nortel Networks Multiservice Switch 7400/15000/20000 Components Reference

MS2000 Series Node

This section contains IEMS Northbound log samples and device documentation references for the MS2000 Series Node.

MS2000 Series Node Fault Interface

Fault documentation for MS2000 Series Node :

- NN10328-911 MS2000 Fault Management

Fault Mapping for MS2000 Series Node

The following criteria can be used for looking up information on specific faults for MS2000 Series Node.

Fault Correlation for MS2000 Series Node

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
MS2000 Series Node	logname and number	logname and number	logname and number	logname and number	NN10328-911 MS2000 Fault Management

Northbound Fault Formats for MS2000 Series Node

SCC2

The following is an example of a MS2000 Series Node log in SCC2 format:

34 AMS 501 0035 INFO MS2000 FAULT
Location: 47.142.134.127
State: Cleared
Time: 1086806097963

**34 AMS 501 0036 FLT MS2000 FAULT
Location: 47.142.134.127
State: Raised
Category: processingError
Cause: 71
Time: 1086806097964
Component Id: System#0
Trap Name: 6
Description: Network element admin state change alarm. Gateway is locked

NTSTD

The following is an example of a MS2000 Series Node log in NTSTD format:

```
Nortel-JH **  AMS501 JUN10 09:21:12 5707 FLT  MS2000 FAULT
        Location: 47.142.134.127
        State: Raised
        Category: processingError
        Cause: 71
        Time: 1086873672171
        Component Id: System#0
        Trap Name: 6
        Description: Network element admin state change alarm. Gateway is shutti
        ngDown


Nortel-JH AMS501 JUN10 09:21:12 5708 INFO MS2000 FAULT
        Location: 47.142.134.127
        State: Cleared
        Time: 1086873672172
```

```
Nortel-JH **  AMS501 JUN10 09:21:12 5709 FLT  MS2000 FAULT
        Location: 47.142.134.127
        State: Raised
        Category: processingError
        Cause: 71
        Time: 1086873672174
        Component Id: System#0
        Trap Name: 6
        Description: Network element admin state change alarm. Gateway is locked


Nortel-JH AMS501 JUN10 09:21:25 5710 INFO MS2000 FAULT
        Location: 47.142.134.127
        State: Cleared
        Time: 1086873685240
```

SNMP

The following is an example of a MS2000 Series Node log in SNMP format:

```
sysUpTime. => 1 day, 19:19:22
snmpTrapOID. => nnExtAlarmMessage
nnExtAlarmMessageResource => .0.0
nnExtAlarmMessageResourceDescription => IEMS=Unknown Device;
nnExtAlarmMessageDateAndTime => 2004-6-9,3:4:5.0
nnExtAlarmMessageDocumentationPointer => IEMS601
nnExtAlarmMessageInfo =>   04 IEMS601 3350 INFO

        Location: 10.5.0.17

        Event: .1.3.6.1.6.3.1.1.5.3

        Varbind0: .1.3.6.1.2.1.2.2.1.1.0: 132

        Varbind1: .1.3.6.1.2.1.2.2.1.7.0: 1

        Varbind2: .1.3.6.1.2.1.2.2.1.8.0: 2
```

```
sysUpTime. => 1 day, 19:19:25
snmpTrapOID. => nnExtAlarmMessage
nnExtAlarmMessageResource => .0.0
nnExtAlarmMessageResourceDescription => IEMS=Unknown Device;
nnExtAlarmMessageDateAndTime => 2004-6-9,3:4:7.9
nnExtAlarmMessageDocumentationPointer => IEMS601
nnExtAlarmMessageInfo =>   04 IEMS601 3351 INFO

        Location: 10.5.0.17

        Event: .1.3.6.1.6.3.1.1.5.4

        Varbind0: .1.3.6.1.2.1.2.2.1.1.0: 132

        Varbind1: .1.3.6.1.2.1.2.2.1.7.0: 1

        Varbind2: .1.3.6.1.2.1.2.2.1.8.0: 1
```

Syslog

The following is an example of a MS2000 Series Node log in Syslog format:

```
Jun  9 14:31:41 znc0s0jh IEMS: _V2_~I=~H=znc0s0jh~A=IEMS~S=9643~~  AMS501 MAJOR FLT
MS2000 FAULT        Location: 47.142.134.127        State: Raised        Category:
processingError     Cause: 71     Time: 1086805901311     Component Id: System#0
Trap Name: 6       Description: Network element admin state change alarm. Gateway is
shuttingDown


Jun  9 14:31:41 znc0s0jh IEMS: _V2_~I=~H=znc0s0jh~A=IEMS~S=9644~~  AMS501 NONE INFO
MS2000 FAULT        Location: 47.142.134.127        State: Cleared        Time:
1086805901313


Jun  9 14:31:41 znc0s0jh IEMS: _V2_~I=~H=znc0s0jh~A=IEMS~S=9645~~  AMS501 MAJOR FLT
MS2000 FAULT        Location: 47.142.134.127        State: Raised        Category:
processingError     Cause: 71     Time: 1086805901314     Component Id: System#0
Trap Name: 6       Description: Network element admin state change alarm. Gateway is
locked

Jun  9 14:31:41 znc0s0jh IEMS: _V2_~I=~H=znc0s0jh~A=IEMS~S=9646~~ IEMS601 NONE
```

Performance

OM and PM Documentation references for MS2000 Series Node

- NN10320-100 - ATM Solutions Basics
- NN10300-100 - IP Solutions Basics

Northbound OM/PM Formats

This section provides example output of Performance Measurement data in each of the Northbound formats provided

XML

The following is an example of Performance data for MS2000 Series Node in XML format:

<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>

- <PMFile xmlns:xsi="http://www.w3.org/2000/10/XMLSchema-instance" xsi:noNamespaceSchemaLocation="**commonFormat.xsd**" MeasurementCategory="**PM**">

<FileCreationTime>2004-06-23T17:40:01EST</FileCreationTime>

- <System>

<SystemId>NortelNetworks/IEMS</SystemId>

- <Entity Type="**MS2000**">

<EntityId>47.142.92.107</EntityId>

- <SingleValues MeasurementKind="**Snapshot**" IntervalDuration="**5**">

- <SingleValue>

<CaptureTime>2004-06-23T17:35:01EST</CaptureTime>

<MeasureId>sysDescr</MeasureId>

<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.system</MeasureSuppId1>

<Value>Product: IPMedia 3000;SW Version: 4.30.380.12</Value>

<Reliability>Valid</Reliability>

</SingleValue>

- <SingleValue>

<CaptureTime>2004-06-23T17:35:01EST</CaptureTime>

<MeasureId>snmpOutPkts</MeasureId>

<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>

<Value>4858</Value>

<Reliability>Valid</Reliability>

</SingleValue>

- <SingleValue>
<CaptureTime>2004-06-23T17:35:01EST</CaptureTime>
<MeasureId>snmpInBadVersions</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>0</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:35:01EST</CaptureTime>
<MeasureId>snmpInBadCommunityNames</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>0</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:35:02EST</CaptureTime>
<MeasureId>snmpInTotalReqVars</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>9089</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:35:02EST</CaptureTime>
<MeasureId>snmpOutTraps</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>15</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:35:02EST</CaptureTime>
<MeasureId>snmpInBadCommunityUses</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>0</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>

<CaptureTime>2004-06-23T17:35:02EST</CaptureTime>
<MeasureId>snmpInPkts</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>4844</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:35:02EST</CaptureTime>
<MeasureId>snmpInTotalSetVars</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>4</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:35:03EST</CaptureTime>
<MeasureId>snmpInASNParseErrs</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>0</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:35:03EST</CaptureTime>
<MeasureId>tcpOutSegs</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.tcp</MeasureSuppId1>
<Value>3531</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:35:03EST</CaptureTime>
<MeasureId>tcpInSegs</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.tcp</MeasureSuppId1>
<Value>4359</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:35:03EST</CaptureTime>

<MeasureId>udpOutDatagrams</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.udp</MeasureSuppId1>
<Value>438175</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:35:03EST</CaptureTime>
<MeasureId>udpInDatagrams</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.udp</MeasureSuppId1>
<Value>107768</Value>
<Reliability>Valid</Reliability>
</SingleValue>
</SingleValues>
</Entity>
</System>
</PMFile>

CSV

The following is an example of Performance data for MS2000 Series Node in CSV format:

PMFile=Begin

PM,commonFormat.xsd,2004-06-23T17:25:50EST

System=Begin

NortelNetworks/IEMS

Entity=Begin

47.142.92.104,MS2000

SingleValues=Begin

Snapshot,5

snmpOutPkts,2004-06-23T17:24:09EST,.iso.org.dod.internet.mgmt.mib-2.snmp,368,Valid

snmpInBadVersions,2004-06-23T17:24:10EST,.iso.org.dod.internet.mgmt.mib-2.snmp,0,Valid

snmpInBadCommunityNames,2004-06-23T17:24:10EST,.iso.org.dod.internet.mgmt.mib-2.snmp,0,Valid

snmpInTotalReqVars,2004-06-23T17:24:10EST,.iso.org.dod.internet.mgmt.mib-2.snmp,959,Valid

snmpOutTraps,2004-06-23T17:24:10EST,.iso.org.dod.internet.mgmt.mib-2.snmp,13,Valid

snmpInBadCommunityUses,2004-06-23T17:24:10EST,.iso.org.dod.internet.mgmt.mib-2.snmp,0,Valid

snmpInPkts,2004-06-23T17:24:10EST,.iso.org.dod.internet.mgmt.mib-2.snmp,356,Valid

snmpInTotalSetVars,2004-06-23T17:24:10EST,.iso.org.dod.internet.mgmt.mib-2.snmp,12,Valid

snmpInASNParseErrs,2004-06-23T17:24:10EST,.iso.org.dod.internet.mgmt.mib-2.snmp,0,Valid

tcpOutSegs,2004-06-23T17:24:11EST,.iso.org.dod.internet.mgmt.mib-2.tcp,195,Valid

tcpInSegs,2004-06-23T17:24:11EST,.iso.org.dod.internet.mgmt.mib-2.tcp,13675,Valid

udpOutDatagrams,2004-06-23T17:24:11EST,.iso.org.dod.internet.mgmt.mib-2.udp,27702,Valid

udpInDatagrams,2004-06-23T17:24:11EST,.iso.org.dod.internet.mgmt.mib-2.udp,14797,Valid

snmpSilentDrops,2004-06-23T17:24:11EST,.iso.org.dod.internet.mgmt.mib-2.snmp,0,Valid

acPerfCpMessageSendErrors,2004-06-23T17:24:11EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaGateway.acPerfCp,0,Valid

acPerfCpNumDupsForCompletedTransactions,2004-06-23T17:24:11EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaGateway.acPerfCp,0,Valid

acPerfCpMessageMaxRetransmissionsExceeded,2004-06-23T17:24:11EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaGateway.acPerfCp,0,Valid

acPerfCpMessageReceiveErrors,2004-06-23T17:24:12EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaGateway.acPerfCp,0,Valid

acPerfCpMessageRetransmissions,2004-06-23T17:24:13EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaGateway.acPerfCp,18,Valid

acPerfCpNumDupsForOutstandingTransactions,2004-06-23T17:24:13EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaGateway.acPerfCp,0,Valid

acPerfCpMessagesFromUntrustedSources,2004-06-23T17:24:13EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaGateway.acPerfCp,0,Valid

acPerfCpProtocolSyntaxErrors,2004-06-23T17:24:13EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaGateway.acPerfCp,0,Valid

acPerfRtpRcvrLostPackets,2004-06-23T17:24:13EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaGateway.acPerfRtp,0,Valid

acPerfRtpFailedDueToLackOfResources,2004-06-23T17:24:13EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaGateway.acPerfRtp,0,Valid

acPerfIvrPlayCollectRequests,2004-06-23T17:24:14EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaServices.acPerfIvr,0,Valid

acPerfIvrPlayRequests,2004-06-23T17:24:15EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaServices.acPerfIvr,88,Valid

acPerfBctRequests,2004-06-23T17:24:16EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaServices.acPerfBct,0,Valid

acPerfIvrPlayCollectFailedDueToLackOfResources,2004-06-23T17:24:15EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaServices.acPerfIvr,0,Valid

acPerfIvrPlaySegmentFailedDueToProvMismatch,2004-06-23T17:24:15EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaServices.acPerfIvr,9,Valid

acPerfIvrContDigitCollectRequests,2004-06-23T17:24:15EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaServices.acPerfIvr,0,Valid

acPerfIvrPlayFailedDueToLackOfResources,2004-06-23T17:24:15EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaServices.acPerfIvr,0,Valid

acPerfIvrPlayCollectFailedDueToProvMismatch,2004-06-23T17:24:16EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaServices.acPerfIvr,0,Valid

acPerfIvrContDigitCollectFailedDueToLackOfResources,2004-06-23T17:24:16EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaServices.acPerfIvr,0,Valid

acPerfBctFailedDueToLackOfResources,2004-06-23T17:24:16EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaServices.acPerfBct,0,Valid

acPerfConfRequests,2004-06-23T17:24:16EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaServices.acPerfConf,11,Valid

acPerfConfPlays,2004-06-23T17:24:16EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaServices.acPerfConf,36,Valid

acPerfConfAddFailedDueToLackOfResources,2004-06-23T17:24:16EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaServices.acPerfConf,0,Valid

acPerfConfFailedDueToLackOfResources,2004-06-23T17:24:17EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaServices.acPerfConf,0,Valid

acPerfTtFailedDueToLackOfResources,2004-06-23T17:24:17EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaServices.acPerfTt,0,Valid

acPerfTtRequests,2004-06-23T17:24:17EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaServices.acPerfTt,0,Valid

acPerfSystemPacketEndpointsInUse,2004-06-23T17:24:17EST,.iso.org.dod.internet.private.enterprises.audioCodes.acPerformances.acPerfMediaGateway.acPerfSystem,0,Valid

SingleValues=End

Entity=End

System=End

PMFile=End

GUI/CLUI Documentation for MS2000 Series Node

GUI Launching and User procedures

- NN10323-111 MS2000 Basics

Related documents

- NN10340-511 MS2000 Configuration
- NN10337-611 MS2000 Security

Session Server Manager

This section contains IEMS Northbound log samples and device documentation references for the Session Server Manager.

Session Server Manager Fault Interface

This section will provide references to customer documentation for Fault, Performance, Topology, GUI/CLUI, and Security for Session Server Manager.

Fault documentation for Session Server Manager:

- NN10322-911 - Session Server Manager Fault Management

Fault Mapping for Session Server Manager

The following criteria can be used for looking up information on specific faults for Session Server Manager.

Fault Correlation for Session Server Manager

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
Session Server Manager	logname and number	logname and number	logname and number	logname and number	NN10322-911 Session Server Manager Fault Management

Northbound Fault Formats for Session Server Manager

SCC2

The following is an example of a Session Server Manager log in SCC2 format:

```
**57 SIPM302 2080 FLT  SIPM Fault
      Location: 47.142.123.43
      Notification Id: 111
      State: Raised
      Category: communications
      Cause: applicationSubsystemFailure
      Time: Apr 12 21:57:55 2004
      Component Id: NCGL=RTPF-SIP0;Unit=0;
      Specific Problem: SIP Gateway Application State Not Synced With Mate
      Description: SIP Gateway Application Mtc Out Of Sync
```

NTSTD

The following is an example of a Session Server Manager log in NTSTD format:

```
znc0s0jh  ** SIPM302 APR12 21:57:55 2080 FLT  SIPM Fault
        Location: 47.142.123.43
        Notification Id: 111
        State: Raised
        Category: communications
        Cause: applicationSubsystemFailure
        Time: Apr 12 21:57:55 2004
        Component Id: NCGL=RTPF-SIP0;Unit=0;
        Specific Problem: SIP Gateway Application State Not Synced With Mate
        Description: SIP Gateway Application Mtc Out Of Sync
```

SNMP

The following is an example of a Session Server Manager log in SNMP format:

```
sysUpTime.0 => 2:34:22
snmpTrapOID.0 => nnExtAlarmMajor
```

alarmActiveResourceId =>
.1.3.6.1.2.1.111.1.2.2.1.10.12.78.111.114.116.101.108.95.102.97.117.108.116.

20.50.48.48.52.45.52.45.49.50.44.57.58.53.55.58.53.53.46.48.44.3070

alarmActiveDateAndTime => 2004-4-12,9:57:55.0

alarmActiveDescription => Location: 47.142.123.43

Notification Id: 111

State: Raised

Category: communications

Cause: applicationSubsystemFailure

Time: Apr 12 21:57:55 2004

Component Id: NCGL=RTPF-SIP0;Unit=0;

Specific Problem: SIP Gateway Application State Not Synced With Mate

Description: SIP Gateway Application Mtc Out Of Sync

nnExtAlarmActiveEventType => 1

nnExtAlarmActiveProbableCause => 2

nnExtAlarmActiveAdditionalText =>

nnExtAlarmActiveDocumentationPointer => SIPM302

nnExtAlarmActiveResourceDescription => IEMS=47.142.123.48-SP2000-Unit-0;NCGL=RTPF-SIP0;Unit=0;

nnExtAlarmActiveManualClear => 2

nnExtAlarmActiveSequenceNumber => 35

Syslog

The following is an example of a Session Server Manager log in Syslog format:

```
Apr 12 22:13:03 znc0s0jh IEMS: V2_~I=~H=znc0s0jh~A=IEMS~S=6213~~ SIPM302 MAJOR FLT
SIPM Fault^M      Locationon:47.142.123.43^M      Notification Id: 111^M      State:
Raised^M     Category: communications^M     Cause: applicationSubsystemFailure^M
Time: Apr 12 21:57:55 2004^M       Component Id: NCGL=RTPF-SIP0;Unit=0;^M  Specific
Problem: SIP Gateway Application State Not Synced With Mate^M       Description: SIP
Gateway Application Mtc Out Of Sync
```

Performance

OM and PM Documentation references for Session Server Manager

- NN10342-711 Session Server Manager Performance Management

Northbound OM/PM Formats

This section provides example output of Performance Measurement data in each of the Northbound formats provided

XML

The following is an example of Performance for Session Server Manager in XML format:


```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
- <PMFile xmlns:xsi="http://www.w3.org/2000/10/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="commonFormat.xsd" MeasurementCategory="PM">
<FileCreationTime>2004-06-23T17:40:13EST</FileCreationTime>
- <System>
<SystemId>NortelNetworks/IEMS</SystemId>
- <Entity Type="Session Server">
<EntityId>47.174.74.179</EntityId>
- <SingleValues MeasurementKind="Snapshot" IntervalDuration="5">
- <SingleValue>
<CaptureTime>2004-06-23T17:35:00EST</CaptureTime>
<MeasureId>sysDescr</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.system</MeasureSuppId1>
<Value>Linux sp2k-1 2.4.22-samxts #1 Thu May 13 01:48:09 EDT 2004 i686</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:35:00EST</CaptureTime>
<MeasureId>snmpOutPkts</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>8679</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:35:00EST</CaptureTime>
<MeasureId>snmpInBadVersions</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>0</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:35:01EST</CaptureTime>
<MeasureId>snmpInBadCommunityNames</MeasureId>
```

<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>1</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:35:01EST</CaptureTime>
<MeasureId>snmpInTotalReqVars</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>9899</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:35:01EST</CaptureTime>
<MeasureId>snmpOutTraps</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>0</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:35:01EST</CaptureTime>
<MeasureId>snmpInBadCommunityUses</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>0</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:35:02EST</CaptureTime>
<MeasureId>snmpInPkts</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>8692</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:35:02EST</CaptureTime>
<MeasureId>snmpInTotalSetVars</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>

<Value>0</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:35:02EST</CaptureTime>
<MeasureId>snmpInASNParseErrs</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>0</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:35:02EST</CaptureTime>
<MeasureId>hrSystemDate</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.host.hrSystem</MeasureSuppId1>
<Value>0</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:35:03EST</CaptureTime>
<MeasureId>hrSystemUptime</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.host.hrSystem</MeasureSuppId1>
<Value>1316119</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:35:03EST</CaptureTime>
<MeasureId>hrSystemProcesses</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.host.hrSystem</MeasureSuppId1>
<Value>170</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T17:35:03EST</CaptureTime>
<MeasureId>snmpSilentDrops</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>0</Value>

<Reliability>Valid</Reliability>
</SingleValue>
</SingleValues>
</Entity>
</System>
</PMFile>

CSV

The following is an example of Performance for Session Server Manager in CSV format:

PMFile=Begin

PM,commonFormat.xsd,2004-06-23T20:35:30EST

System=Begin

NortelNetworks/IEMS

Entity=Begin

47.174.74.179,Session Server

SingleValues=Begin

Snapshot,5

sysDescr,2004-06-23T20:30:01EST,.iso.org.dod.internet.mgmt.mib-2.system,Linux sp2k-1 2.4.22-samxts #1 Thu May 13 01:48:09 EDT 2004 i686,Valid

snmpOutPkts,2004-06-23T20:30:01EST,.iso.org.dod.internet.mgmt.mib-2.snmp,9342,Valid

snmpInBadVersions,2004-06-23T20:30:02EST,.iso.org.dod.internet.mgmt.mib-2.snmp,0,Valid

snmpInBadCommunityNames,2004-06-23T20:30:02EST,.iso.org.dod.internet.mgmt.mib-2.snmp,1,Valid

snmpInTotalReqVars,2004-06-23T20:30:02EST,.iso.org.dod.internet.mgmt.mib-2.snmp,13190,Valid

snmpOutTraps,2004-06-23T20:30:02EST,.iso.org.dod.internet.mgmt.mib-2.snmp,0,Valid

snmpInBadCommunityUses,2004-06-23T20:30:02EST,.iso.org.dod.internet.mgmt.mib-2.snmp,0,Valid

snmpInPkts,2004-06-23T20:30:03EST,.iso.org.dod.internet.mgmt.mib-2.snmp,9355,Valid

snmpInTotalSetVars,2004-06-23T20:30:03EST,.iso.org.dod.internet.mgmt.mib-2.snmp,0,Valid

snmpInASNParseErrs,2004-06-23T20:30:03EST,.iso.org.dod.internet.mgmt.mib-2.snmp,0,Valid

hrSystemDate,2004-06-23T20:30:04EST,.iso.org.dod.internet.mgmt.mib-2.host.hrSystem,0,Valid

hrSystemUptime,2004-06-23T20:30:04EST,.iso.org.dod.internet.mgmt.mib-2.host.hrSystem,1326620,Valid

hrSystemProcesses,2004-06-23T20:30:04EST,.iso.org.dod.internet.mgmt.mib-2.host.hrSystem,170,Valid

SingleValues=End

Entity=End

System=End

PMFile=End

GUI/CLUI Documentation for Session Server Manager

GUI Launching and User procedures

- NN10333-111 Session Server Manager Basics

Related documents

- NN10338-511 - Session Server Manager configuration
- NN10346-611 - Session Server Manager Security and Administration

SAM21 Shelf Controller

This section contains IEMS Northbound log samples and device documentation references for the SAM21 Shelf Controller.

SAM21 Shelf Controller Fault Interface

Fault documentation for SAM21 Shelf Controller :

- NN10089-911 - SAM21 Shelf Controller Fault Management

Fault Mapping for SAM21 Shelf Controller

The following criteria can be used for looking up information on specific faults for SAM21 Shelf Controller.

Fault Correlation for SAM21 Shelf Controller

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
SAM21 Shelf Controller	logname and number	logname and number	logname and number	logname and number	NN10089-911 SAM21 Shelf Controller Fault Management

Northbound Fault Formats for SAM21 Shelf Controller

SCC2

The following is an example of a SAM21 Shelf Controller log in SCC2 format:

```
**37 SCU 350 0009 FLT  Alarm Raised
        Location: SAM21 1:CSAM01-01:sled 3
        Time:     Wed Jan 14 13:55:52 EST 2004
        Reason:   Temperature in Sled 3 is high
```

NTSTD

The following is an example of a SAM21 Shelf Controller log in NTSTD format:

```
COMPACT06BT  **  SCU350 Jan15 00:37:17 0009 FLT  Alarm Raised
        Location: SAM21 1:CSAM01-01:sled 3
        Time:     Wed Jan 14 13:55:52 EST 2004
```

```
Reason:   Temperature in Sled 3 is high
```

SNMP

The following is an example of a SAM21 Shelf Controller log in SNMP format:

```
sysUpTime.0 => 9:14:20
snmpTrapOID.0 => nnExtAlarmMajor
alarmActiveResourceId =>
.1.3.6.1.2.1.111.1.2.2.1.10.12.78.111.114.116.101.108.95.102.97.117.108.116.20.50.48
.48.52.45.49.45.50.49.44.54.58.52.49.58.49.52.46.48.44.8995
alarmActiveDateAndTime => 2004-1-21,6:41:14.0,
alarmActiveDescription => DeviceSpecificInfo=;Location: SAM21 1:CSAM01-01:sled 3
Time:     Wed Jan 14 13:57:48 EST 2004
Reason:   Temperature in Sled 3 is high
nnExtAlarmActiveEventType => 5
nnExtAlarmActiveProbableCause => 118
nnExtAlarmActiveAdditionalText =>
nnExtAlarmActiveDocumentationPointer => SCU 350
nnExtAlarmActiveResourceDescription => IEMS=wnc0y0kz.us.nortel.com-SAM21-Mgr;
nnExtAlarmActiveManualClear => 2
nnExtAlarmActiveSequenceNumber => 1
```

Syslog

The following is an example of a SAM21 Shelf Controller log in Syslog format:

```
Feb 12 18:30:19 wnc0s0pf IEMS: _V2_~I=~H=wnc0s0pf~A=IEMS~S=7929~~  SCU350 MAJOR FLT
Alarm Raised^M       Location: SAM21 1:CSAM01-01:sled 3^M       Time:     Mon Jan 12
12:49:06 EST 2004^M        Reason:   Temperature in Sled 3 is high
```

Performance

OM and PM Documentation references for SAM21 Shelf Controller

- There are no OMs or PMs associated with this device

Northbound OM/PM Formats

This section provides example output of Performance Measurement data in each of the Northbound formats provided

XML

The following is an example of performance data for SAM21 Shelf Controller in XML format:

Note: *Northbound performance interface not supported for this device.*

CSV

The following is an example of performance data for SAM21 Shelf Controller in CSV format:

Note: *Northbound performance interface not supported for this device.*

GUI/CLUI Documentation for SAM21 Shelf Controller

GUI Launching and User procedures

- NN10025-111 - SAM21 Shelf Controller Basics
- NN10089-911 - SAM21 Shelf Controller Fault Management
- NN10111-511 - SAM21 Shelf Controller Configuration Management
- NN10177-611 - SAM21 Shelf Controller Administration and Security
- NN10155-711 - SAM21 Shelf Controller Performance Management

Related documents

- NN10320-100 - ATM Solutions Basics
- NN10300-100 - IP Solutions Basics

Storage Manager (STORM)

This section contains IEMS Northbound log samples and device documentation references for the STORM.

STORM Fault Interface

Fault documentation for STORM :

- NN10024-111 - STORM Basics
- NN10088-911 - STORM Fault Management

Fault Mapping for STORM

The following criteria can be used for looking up information on specific faults for STORM.

Fault Correlation for STORM

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
STORM	logname and number eg: STM 800	logname and number	logname and number	logname and number	NN10088-911 STORM Fault Management

Northbound Fault Formats for STORM

SCC2

The following is an example of a STORM log in SCC2 format:

Sample Clear:

```
  19 STM 801 0595 INFO
        Location: 47.166.56.10
        Notification Id: 13
        State: Cleared
        Time: Jan 24 19:19:49 2004
```

Sample Raise:

```
**19 STM 801 0596 FLT  STM Fault
        Location: 47.166.56.10
        Notification Id: 14
        State: Raised
        Category: qualityOfService
        Cause: thresholdCrossed
        Time: Jan 24 19:19:49 2004
        Component Id: STORMIA=langley1
        Specific Problem:
        Description: Status: Alarm raised. Used memory percentage is 18.24. Majo
        r alarm threshold value is 6.00.
```

NTSTD

The following is an example of a STORM log in NTSTD format:

Sample Clear:

```
RTPU07BR      STM801 Jan25 00:19:49 0041 INFO
        Location: 47.166.56.10
```

```
        Notification Id: 13
        State: Cleared
        Time: Jan 24 19:19:49 2004
```

Sample Raise:

```
RTPU07BR  **  STM801 Jan25 00:19:49 0042 FLT  STM Fault
        Location: 47.166.56.10
        Notification Id: 14
        State: Raised
        Category: qualityOfService
        Cause: thresholdCrossed
        Time: Jan 24 19:19:49 2004
        Component Id: STORMIA=langley1
        Specific Problem:
        Description: Status: Alarm raised. Used memory percentage is 18.24. Majo
        r alarm threshold value is 6.00.
```

SNMP

The following is an example of a STORM log in SNMP format:

Sample Clear:

system.sysUpTime.0 => 8:01:55

snmpTrapOID.0 => nnExtAlarmClear

alarmActiveResourceId =>
.1.3.6.1.2.1.111.1.2.2.1.10.12.78.111.114.116.101.108.95.102.97.117.108.116.20.50.48
.48.52.45.49.45.50.52.44.55.58.49.57.58.52.57.46.48.44.312

alarmActiveDateAndTime => 2004-1-21,6:41:14.0,

alarmActiveDescription => DeviceSpecificInfo=;Status: Alarm cleared. A new alarm with higher severity will be raised.

nnExtAlarmActiveEventType => 2

nnExtAlarmActiveProbableCause => 118

nnExtAlarmActiveAdditionalText =>

nnExtAlarmActiveDocumentationPointer => STM 801

nnExtAlarmActiveResourceDescription => IEMS=zmdhh0jk.europe.nortel.com-STORM;STORMIA=langley1

nnExtAlarmActiveSequenceNumber => 24

Sample Raise:

system.sysUpTime.0 => 7:01:55

snmpTrapOID.0 => nnExtAlarmMajor

alarmActiveResourceId =>
.1.3.6.1.2.1.111.1.2.2.1.10.12.78.111.114.116.101.108.95.102.97.117.108.116.20.50.48
.48.52.45.49.45.50.52.44.55.58.49.57.58.52.57.46.48.44.329

alarmActiveDateAndTime => 2004-1-21,6:41:14.0,

alarmActiveDescription => Status: Alarm raised. Used memory percentage is 18.24. Major alarm threshold value is 6.00.

nnExtAlarmActiveEventType => 2

nnExtAlarmActiveProbableCause => 51

nnExtAlarmActiveAdditionalText =>

nnExtAlarmActiveDocumentationPointer => STM 801

nnExtAlarmActiveResourceDescription => IEMS=zmdhh0jk.europe.nortel.com-STORM;STORMIA=langley1

nnExtAlarmActiveManualClear => 2

nnExtAlarmActiveSequenceNumber => 25

Syslog

The following is an example of a STORM log in Syslog format:

Sample Clear:

```
Feb 24 19:19:43 wnc0s0pf IEMS: _V2_~I=~H=wnc0s0pf~A=IEMS~S=0618~~  STM801 NONE INFO
^M      Location: 47.166.56.10^M      Notification Id: 13^M      State: Cleared^M
Time: Jan 24 19:19:49 2004
```

Sample Raise:

```
Feb 24 19:19:43 wnc0s0pf IEMS: _V2_~I=~H=wnc0s0pf~A=IEMS~S=0619~~  STM801 MAJOR FLT
STM Fault^M       Location: 47.166.56.10^M       Notification Id: 14^M       State:
Raised^M      Category: qualityOfService^M      Cause: thresholdCrossed^M      Time:
Jan 24 19:19:49 2004^M       Component Id: STORMIA=langley1^M       Specific Problem:
^M      Description: Status: Alarm raised. Used memory percentage is 18.24. Majo^M
r alarm threshold value is 6.00.
```

Performance

OM and PM Documentation references for STORM

The SNMP based attributes that can be collected from the STORM device are documented in:

- NN10054-711 - STORM Performance Management Customer Document

Northbound OM/PM Formats

This section provides example output of Performance Measurement data in each of the Northbound formats provided.

XML

The following is an example of Performance data for STORM in XML format:

<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
- <PMFile xmlns:xsi="http://www.w3.org/2000/10/XMLSchema-instance" xsi:noNamespaceSchemaLocation="**commonFormat.xsd**" MeasurementCategory="**PM**">
<FileCreationTime>2004-06-23T21:30:00EST</FileCreationTime>
- <System>
<SystemId>NortelNetworks/IEMS</SystemId>
- <Entity Type="**STORM**">
<EntityId>47.166.56.10</EntityId>
- <SingleValues MeasurementKind="**Snapshot**" IntervalDuration="**5**">
- <SingleValue>
<CaptureTime>2004-06-23T21:25:01EST</CaptureTime>
<MeasureId>sysDescr</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.system</MeasureSuppId1>
<Value>Linux langley40 2.4.19-xfs #1 SMP Fri Nov 7 11:18:05 EST 2003 i686</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T21:25:02EST</CaptureTime>
<MeasureId>snmpOutPkts</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>2790</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T21:25:03EST</CaptureTime>
<MeasureId>snmpInBadVersions</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>0</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T21:25:03EST</CaptureTime>
<MeasureId>snmpInBadCommunityNames</MeasureId>

<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>1</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T21:25:04EST</CaptureTime>
<MeasureId>snmpInTotalReqVars</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>8880</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T21:25:04EST</CaptureTime>
<MeasureId>snmpOutTraps</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>69</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T21:25:04EST</CaptureTime>
<MeasureId>snmpInBadCommunityUses</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>0</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T21:25:05EST</CaptureTime>
<MeasureId>snmpInPkts</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>2739</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T21:25:05EST</CaptureTime>
<MeasureId>snmpInTotalSetVars</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>

<Value>0</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T21:25:06EST</CaptureTime>
<MeasureId>snmpInASNParseErrs</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>0</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T21:25:07EST</CaptureTime>
<MeasureId>snmpSilentDrops</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.snmp</MeasureSuppId1>
<Value>0</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T21:25:08EST</CaptureTime>
<MeasureId>hrSystemDate</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.host.hrSystem</MeasureSuppId1>
<Value>0</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T21:25:09EST</CaptureTime>
<MeasureId>hrSystemUptime</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.host.hrSystem</MeasureSuppId1>
<Value>6603666</Value>
<Reliability>Valid</Reliability>
</SingleValue>
- <SingleValue>
<CaptureTime>2004-06-23T21:25:09EST</CaptureTime>
<MeasureId>hrSystemProcesses</MeasureId>
<MeasureSuppId1>.iso.org.dod.internet.mgmt.mib-2.host.hrSystem</MeasureSuppId1>
<Value>73</Value>

<Reliability>Valid</Reliability>
</SingleValue>
</SingleValues>
</Entity>
</System>
</PMFile>

CSV

The following is an example of Performance data for STORM in CSV format:

```
PMFile=Begin
PM,commonFormat.xsd,2004-06-23T21:30:00EST

System=Begin
NortelNetworks/IEMS

Entity=Begin
47.166.56.10,STORM

SingleValues=Begin
Snapshot,5
sysDescr,2004-06-23T21:25:01EST,.iso.org.dod.internet.mgmt.mib-2.system,Linux
langley40 2.4.19-xfs #1 SMP Fri Nov 7 11:18:05 EST 2003 i686,Valid
snmpOutPkts,2004-06-23T21:25:02EST,.iso.org.dod.internet.mgmt.mib-2.snmp,2790,Valid
snmpInBadVersions,2004-06-23T21:25:03EST,.iso.org.dod.internet.mgmt.mib-
2.snmp,0,Valid
snmpInBadCommunityNames,2004-06-23T21:25:03EST,.iso.org.dod.internet.mgmt.mib-
2.snmp,1,Valid
snmpInTotalReqVars,2004-06-23T21:25:04EST,.iso.org.dod.internet.mgmt.mib-
2.snmp,8880,Valid
snmpOutTraps,2004-06-23T21:25:04EST,.iso.org.dod.internet.mgmt.mib-2.snmp,69,Valid
snmpInBadCommunityUses,2004-06-23T21:25:04EST,.iso.org.dod.internet.mgmt.mib-
2.snmp,0,Valid
snmpInPkts,2004-06-23T21:25:05EST,.iso.org.dod.internet.mgmt.mib-2.snmp,2739,Valid
snmpInTotalSetVars,2004-06-23T21:25:05EST,.iso.org.dod.internet.mgmt.mib-
2.snmp,0,Valid
snmpInASNParseErrs,2004-06-23T21:25:06EST,.iso.org.dod.internet.mgmt.mib-
2.snmp,0,Valid
snmpSilentDrops,2004-06-23T21:25:07EST,.iso.org.dod.internet.mgmt.mib-2.snmp,0,Valid
```

```
hrSystemDate,2004-06-23T21:25:08EST,.iso.org.dod.internet.mgmt.mib-
2.host.hrSystem,0,Valid

hrSystemUptime,2004-06-23T21:25:09EST,.iso.org.dod.internet.mgmt.mib-
2.host.hrSystem,6603666,Valid

hrSystemProcesses,2004-06-23T21:25:09EST,.iso.org.dod.internet.mgmt.mib-
2.host.hrSystem,73,Valid

SingleValues=End

Entity=End

System=End

PMFile=End
```

GUI/CLUI Documentation for STORM

GUI Launching and User procedures

- NN10024-111 (STORM Basics)

Related documents

- NN10066-461 (Understanding STORM)
- NN10110-511 (STORM Configuration)
- NN10054-711 (STORM Performance)
- NN10176-611 (STORM Administration and Security)

Universal Audio Server (UAS)

This section contains IEMS Northbound log samples and device documentation references for the UAS.

UAS Fault Interface

Fault documentation for UAS :

- NN10073-911 UAS Fault Management

Fault Mapping for UAS

The following criteria can be used for looking up information on specific faults for UAS.

Fault Correlation for UAS

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
UAS	logname and number	logname and number	logname and number	logname and number	NN10073-911 UAS Fault Management

Northbound Fault Formats for UAS

SCC2

The following is an example of a UAS log in SCC2 format:

```
*C59 UAS 301 0723 TBL  UAS Fault
        Location: UAS12_Test
        NotificationID: 2109441
        State: Raise
        Category: Processing Error
        Cause: Software error
        Time: Jan 22 15:41:28 2004
        Component Id: UAS;UASUnit=MATTA-2;Software=Call_Engine_1
        Specific Problem: 12289
        Description: CallEngine test alarm critical number 1
```

NTSTD

The following is an example of a UAS log in NTSTD format:

```
COMPACT506BT ***  UAS301 Jan22 20:59:00 1149 TBL  UAS Fault
        Location: UAS12_Test
        NotificationID: 2109441
        State: Raise
        Category: Processing Error
        Cause: Software error
```

```
Time: Jan 22 15:41:28 2004
Component Id: UAS;UASUnit=MATTA-2;Software=Call_Engine_1
Specific Problem: 12289
Description: CallEngine test alarm critical number 1
```

SNMP

The following is an example of a UAS log in SNMP format:

```
sysUpTime.0 => 3:21:08
snmpTrapOID.0 => nnExtAlarmCritical
alarmActiveResourceId =>
.1.3.6.1.2.1.111.1.2.2.1.10.12.78.111.114.116.101.108.95.102.97.117.108.11
6.19.50.48.48.52.45.49.45.50.50.44.51.58.53.57.58.48.46.52.44.28556
alarmActiveDateAndTime => 2004-1-22,3:59:0.4,
alarmActiveDescription => DeviceSpecificInfo=Unavailable;Location: UAS12_Test
NotificationID: 2109441
State: Raise
Category: Processing Error
Cause: Software error
Time: Jan 22 15:41:28 2004
Component Id: UAS;UASUnit=MATTA-2;Software=Call_Engine_1
Specific Problem: 12289
Description: CallEngine test alarm critical number 1
```

Syslog

The following is an example of a UAS log in Syslog format:

```
Jan 22 15:59:00 znc0s0jh IEMS: _V2_~I=~H=znc0s0jh~A=IEMS~S=3086~~ UAS301 CRIT TBL UAS
Fault^M Location: UAS12_Test^M NotificationID: 2109441^M State:
Raise^M Category: Processing Error^M Cause: Software error^M Time:
Jan 22 15:41:28 2004^M Component Id: UAS;UASUnit=MATTA-
2;Software=Call_Engine_1^M Specific Problem: 12289^M Description:
CallEngine test alarm critical number 1
```

Performance

OM and PM Documentation references for UAS

- NTP NN10139-001 UAS Performance

Northbound OM/PM Formats

This section provides example output of Performance Measurement data in each of the Northbound formats provided
each of the Northbound formats provided

XML

The following is an example of performance data for UAS in XML format:

Note: *Northbound performance interface not supported for this device.*

CSV

The following is an example of performance data for UAS in CSV format:

Note: *Northbound performance interface not supported for this device.*

GUI/CLUI Documentation for UAS

GUI Launching and User procedures

- NTP NN10047-461 UAS Basics

Related documents

- NTP NN10095-511 UAS Configuration
- NTP NN10161-611 UAS Security
- NTP NN10047-461 UAS Upgrades

Universal Signaling Point (USP)

This section contains IEMS Northbound log samples and device documentation references for the USP.

USP Fault Interface

Fault documentation for USP :

- NN10071911 - USP Fault Management

Fault Mapping for USP

The following criteria can be used for looking up information on specific faults for USP.

Fault Correlation for USP

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
USP	Specific Problem: Log Group=<text> & Log Number=<number> Note: Log GroupID is not used	Specific Problem: Log Group=<text> & Log Number=<number> Note: Log GroupID is not used	Specific Problem: Log Group=<text> & Log Number=<number> Note: Log GroupID is not used	Specific Problem: Log Group=<text> & Log Number=<number> Note: Log GroupID is not used	NN10071911 USP Fault Management

Northbound Fault Formats for USP

SCC2

The following is an example of a USP log in SCC2 format:

```
**10 USP 398 0022 FLT  USP Fault
        Location: 47.135.60.201
        Notification Id: 526
        State: Raised
        Category: processingError
        Cause: applicationSubsystemFailure(2)
        Time: Jan 20 07:10:29 2004
        Component Id: USP=autoimage;Shelf=0;Slot=15;ContextID=0x0
        Specific Problem: Log GroupID=13;Log Group=System Node Maintenance;Log N
        umber=3
        Description: Transition to DISABLED Operational State.
```

NTSTD

The following is an example of a USP log in NTSTD format:

```
COMPACT06BT  ** USP398 Jan20 12:10:29 0022 FLT  USP Fault
        Location: 47.135.60.201
        Notification Id: 526
        State: Raised
        Category: processingError
        Cause: applicationSubsystemFailure(2)
```

```
Time: Jan 20 07:10:29 2004
Component Id: USP=autoimage;Shelf=0;Slot=15;ContextID=0x0
Specific Problem: Log GroupID=13;Log Group=System Node Maintenance;Log N
umber=3
Description: Transition to DISABLED Operational State.
```

SNMP

The following is an example of a USP log in SNMP format:

```
sysUpTime.0 => 2:58:15
snmpTrapOID.0 => nnExtAlarmMajor
alarmActiveResourceId =>
.1.3.6.1.2.1.111.1.2.2.1.10.12.78.111.114.116.101.108.95.102.97.117.108.116.20.50.48
.48.52.45.49.45.50.48.44.55.58.49.48.58.50.57.46.48.44.36582
alarmActiveDateAndTime => 2004-1-20,7:10:29.0,
alarmActiveDescription =>
DeviceSpecificInfo=applicationSubsystemFailure(2);Transition to DISABLED Operational
State.
nnExtAlarmActiveEventType => 3
nnExtAlarmActiveProbableCause => 118
nnExtAlarmActiveAdditionalText =>
nnExtAlarmActiveDocumentationPointer => USP 398
nnExtAlarmActiveResourceDescription => IEMS=usp_germany-1321-Unit-
0;USP=autoimage;Shelf=0;Slot=15;ContextID=0x0
nnExtAlarmActiveManualClear => 0
nnExtAlarmActiveSequenceNumber => 21
```

Syslog

The following is an example of a USP log in Syslog format:

```
Feb 22 01:50:39 wnc0s0pf IEMS: _V2_~I=~H=wnc0s0pf~A=IEMS~S=0088~~  USP398 MAJOR FLT
USP Fault^M       Location: 47.135.60.201^M       Notification Id: 526^M       State:
Raised^M       Category: processingError^M       Cause:
applicationSubsystemFailure(2)^M       Time: Jan 20 07:10:29 2004^M       Component
Id: USP=autoimage;Shelf=0;Slot=15;ContextID=0x0^M       Specific Problem: Log
GroupID=13;Log Group=System Node Maintenance;Log N^M      umber=3^M      Description:
Transition to DISABLED Operational State.
```

Performance

OM and PM Documentation references for USP

- NN10137711 - USP Performance Management
- USP Logs & OMs - USP Logs and OMs

Northbound OM/PM Formats

This section provides example output of Performance Measurement data in each of the Northbound formats provided

XML

The following is an example of performance data for USP in XML format:

Note: *Northbound performance interface not supported for this device.*

CSV

The following is an example of performance data for USP in CSV format:

Note: *Northbound performance interface not supported for this device.*

GUI/CLUI Documentation for USP

GUI Launching and User procedures

- NN10093511 - USP Configuration Management
- NN10159611 - USP Administration and Security

Related documents

- NN10008111 - USP Basics
- NN10045461 - Upgrading the USP

XACore

This section contains IEMS Northbound log samples and device documentation references for the XACore.

XACore Fault Interface

Fault documentation for XACore :

- 297-8991-510 - XA-Core Maintenance Manual
- 297-8991-511 - XA-Core Maintenance Guide
- NN10275-909 - Succession fault Management logs Reference

- NN10083-911 - Communication Server 2000 Fault Management

DMS Standard (North America)

- 297-8021-840P1 - North American DMS100 Log Report Reference Manual Volume 1 of 8
- 297-8021-840P2 - North American DMS100 Log Report Reference Manual Volume 2 of 8
- 297-8021-840P3 - North American DMS100 Log Report Reference Manual Volume 3 of 8
- 297-8021-840P4 - North American DMS100 Log Report Reference Manual Volume 4 of 8
- 297-8021-840P5 - North American DMS100 Log Report Reference Manual Volume 5 of 8
- 297-8021-840P6 - North American DMS100 Log Report Reference Manual Volume 6 of 8
- 297-8021-840P7 - North American DMS100 Log Report Reference Manual Volume 7 of 8
- 297-8021-840P8 - North American DMS100 Log Report Reference Manual Volume 8 of 8

International Succession

- 297-9051-8401 - DMS100 Log Report Reference Manual Volume 1 of 7
- 297-9051-8402 - DMS100 Log Report Reference Manual Volume 2 of 7
- 297-9051-8403 - DMS100 Log Report Reference Manual Volume 3 of 7
- 297-9051-8404 - DMS100 Log Report Reference Manual Volume 4 of 7
- 297-9051-8405 - DMS100 Log Report Reference Manual Volume 5 of 7
- 297-9051-8406 - DMS100 Log Report Reference Manual Volume 6 of 7
- 297-9051-8407 - DMS100 Log Report Reference Manual Volume 7 of 7

Fault Mapping for XACore

The following criteria can be used for looking up information on specific faults for XACore.

Fault Correlation for XACore

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
XACore	log name and log number	log name and log number	log name and log number	log name and log number	297-8991-510 - XA-Core Maintenance Manual

Northbound Fault Formats for XACore

SCC2

The following is an example of a XACore log in SCC2 format:

```
* 47 XAC 305 0114 FLT  RTIF (Reset Terminal Interface)
        DESCRIPTION: State has changed from INSV to SYSB by FAULT action
        PORT: Type State Site FL Row Bay    Shf/Slt/Pk/Pt   EqPEC/Serial
              RTIF SYSB  HOST 01 A00 DPCC:00 00 15R U  1 NTLX08AA/  NNTM17205KR8
        REASON:  Device Fault: RTIF IPC Protocol Error.
        FAULT RECORD ID: 880166C7
```

NTSTD

The following is an example of a XACore log in NTSTD format:

```
COMPACT06BT   *  XAC305 Feb15 00:47:43 0114 FLT  RTIF (Reset Terminal Interface)
        DESCRIPTION: State has changed from INSV to SYSB by FAULT action
        PORT: Type State Site FL Row Bay    Shf/Slt/Pk/Pt   EqPEC/Serial
              RTIF SYSB  HOST 01 A00 DPCC:00 00 15R U  1 NTLX08AA/  NNTM17205KR8
        REASON:  Device Fault: RTIF IPC Protocol Error.
        FAULT RECORD ID: 880166C7
```

SNMP

The following is an example of a XACore log in SNMP format:

```
sysUpTime. => 0:28:39
snmpTrapOID. => nnExtAlarmMinor
alarmActiveResourceId =>
.1.3.6.1.2.1.111.1.2.2.1.10.12.78.111.114.116.101.108.95.102.97.117.108.116.20.50.48
.48.52.45.54.45.50.52.44.51.58.53.51.58.52.49.46.48.44.5248
```

```
alarmActiveDateAndTime => 2004-6-24,3:53:41.0

alarmActiveDescription => DeviceSpecificInfo=localTransmissionError;time: 2004 06 24
15 53 41

event: set

compId: EM MANTEO LP 3 SONET 2

severity: minor

faultcode: 70115203

alarmType: communications

commentData: Far end has raised a Line Remote Failure Indication alarm (rxRfiAlarm).

Check the operational attributes of the far-end.


nnExtAlarmActiveEventType => 1

nnExtAlarmActiveProbableCause => 118

nnExtAlarmActiveAdditionalText =>

nnExtAlarmActiveDocumentationPointer => PPEM300

nnExtAlarmActiveResourceDescription => IEMS=wnc0y0m3.us.nortel.com-MDM-Mgr;EM MANTEO
LP 3 SONET 2

nnExtAlarmActiveManualClear => 1

nnExtAlarmActiveSequenceNumber => 1375


sysUpTime. => 0:28:47

snmpTrapOID. => nnExtAlarmMinor

alarmActiveResourceId =>
.1.3.6.1.2.1.111.1.2.2.1.10.12.78.111.114.116.101.108.95.102.97.117.108.116.20.50.48
.48.52.45.54.45.50.52.44.51.58.53.51.58.52.56.46.48.44.5249

alarmActiveDateAndTime => 2004-6-24,3:53:48.0

alarmActiveDescription => time: 2004 06 24 15 53 48

event: set

compId: EM MANTEO LP 3 SONET 2

severity: minor

faultcode: 70115210

alarmType: communications

commentData: Far end line: Entering unavailable state (10 consecutive SESs).

Check the provisioning or the hardware on the local and far end.


nnExtAlarmActiveEventType => 1

nnExtAlarmActiveProbableCause => 12

nnExtAlarmActiveAdditionalText =>

nnExtAlarmActiveDocumentationPointer => PPEM300
```

```
nnExtAlarmActiveResourceDescription => IEMS=wnc0y0m3.us.nortel.com-MDM-Mgr;EM MANTEO
LP 3 SONET 2

nnExtAlarmActiveManualClear => 1

nnExtAlarmActiveSequenceNumber => 1376
```

Syslog

The following is an example of a XACore log in Syslog format:

```
Feb 14 19:47:43 wnc0s0pf IEMS: _V2_~I=~H=wnc0s0pf~A=IEMS~S=9773~~  XAC305 MINOR FLT
RTIF (Reset Terminal Interface)^M         node CM      ^M        DESCRIPTION: State
has changed from INSV to SYSB by FAULT action^M        PORT: Type State Site FL Row
Bay    Shf/Slt/Pk/Pt   EqPEC/Serial^M              RTIF SYSB  HOST 01 A00 DPCC:00 00
15R U  1 NTLX08AA/  NNTM17205KR8^M        REASON:  Device Fault: RTIF IPC Protocol
Error.  ^M        FAULT RECORD ID: 880166C7
```

Performance

OM and PM Documentation references for XACore

- 297-8991-810 - XA-Core Reference Manual
- NN10149-711 - Communications Server 2000 Performance Management

DMS Standard (North America)

- 297-8021-814P1 - North American DMS-100 Operational Measurements Reference Manual Volume 1of 6
- 297-8021-814P2 - North American DMS-100 Operational Measurements Reference Manual Volume 2 of 6
- 297-8021-814P3 - North American DMS-100 Operational Measurements Reference Manual Volume 3 of 6
- 297-8021-814P4 - North American DMS-100 Operational Measurements Reference Manual Volume 4 of 6
- 297-8021-814P5 - North American DMS-100 Operational Measurements Reference Manual Volume 5 of 6
- 297-8021-814P6 - North American DMS-100 Operational Measurements Reference Manual Volume 6 of 6

International Succession

- 297-9051-8141 - DMS-100 Family Operational Measurements Reference Manual Volume 1 of 6
- 297-9051-8142 - DMS-100 Family Operational Measurements Reference Manual Volume 2 of 6

- 297-9051-8143 - DMS-100 Family Operational Measurements Reference Manual Volume 3 of 6
- 297-9051-8144 - DMS-100 Family Operational Measurements Reference Manual Volume 4 of 6
- 297-9051-8145 - DMS-100 Family Operational Measurements Reference Manual Volume 5 of 6
- 297-9051-8146 - DMS-100 Family Operational Measurements Reference Manual Volume 6 of 6

Northbound OM/PM Formats

This section provides example output of Performance Measurement data in each of the Northbound formats provided

Performance measurements for XACore are available from the CS2K Core Manager. See NN10149-711 - Communications Server 2000 Performance Management for more information.

XML

The following is an example of Performance data for XACore in XML format:

Note: *Northbound performance interface not supported for this device.*

CSV

The following is an example of Performance data for XACore in CSV format:

Note: *Northbound performance interface not supported for this device.*

GUI/CLUI Documentation for XACore

The XACore provides both command-line and MAP-based interfaces accessed through the CS2000 Core Manager.

GUI/CLUI Launching and User procedures

- NN10018-111 - CS2000 Core Manager Basics

  see section “Accessing the Core”

Related documents

- NN10197-111 - Communication Server 2000 Basics
- NN10193-511 - Communication Server 2000 Configuration Management
- NN10127-811 - Communication Server 2000 Accounting Management
- NN10171-611 - Communication Server 2000 Security and Administration
- 297-5051-921 - SuperNode Data Manager DDMS ASCII CI Gateway User Guide

- 297-5161-022P1 - Advanced Intelligent Network Service Enablers SIG Volume 1 of 3
- 297-5161-022P2 - Advanced Intelligent Network Service Enablers SIG Volume 2 of 3
- 297-5161-022P3 - Advanced Intelligent Network Service Enablers SIG Volume 3 of 3
- 297-8021-350P1 - North American DMS-100 Translations Guide Volume 1 of 25
- 297-8021-350P2 - North American DMS-100 Translations Guide Volume 2 of 25
- 297-8021-350P3 - North American DMS-100 Translations Guide Volume 3 of 25
- 297-8021-350P4 - North American DMS-100 Translations Guide Volume 4 of 25
- 297-8021-350P5 - North American DMS-100 Translations Guide Volume 5 of 25
- 297-8021-350P6 - North American DMS-100 Translations Guide Volume 6 of 25
- 297-8021-350P7 - North American DMS-100 Translations Guide Volume 7 of 25
- 297-8021-350P8 - North American DMS-100 Translations Guide Volume 8 of 25
- 297-8021-350P9 - North American DMS-100 Translations Guide Volume 9 of 25
- 297-8021-350P10 - North American DMS-100 Translations Guide Volume 10 of 25
- 297-8021-350P11 - North American DMS-100 Translations Guide Volume 11 of 25
- 297-8021-350P12 - North American DMS-100 Translations Guide Volume 12 of 25
- 297-8021-350P13 - North American DMS-100 Translations Guide Volume 13 of 25
- 297-8021-350P14 - North American DMS-100 Translations Guide Volume 14 of 25
- 297-8021-350P15 - North American DMS-100 Translations Guide Volume 15 of 25
- 297-8021-350P16 - North American DMS-100 Translations Guide Volume 16 of 25

- 297-8021-350P17 - North American DMS-100 Translations Guide Volume 17 of 25
- 297-8021-350P18 - North American DMS-100 Translations Guide Volume 18 of 25
- 297-8021-350P19 - North American DMS-100 Translations Guide Volume 19 of 25
- 297-8021-350P20 - North American DMS-100 Translations Guide Volume 20 of 25
- 297-8021-350P21 - North American DMS-100 Translations Guide Volume 21 of 25
- 297-8021-350P22 - North American DMS-100 Translations Guide Volume 22 of 25
- 297-8021-350P23 - North American DMS-100 Translations Guide Volume 23 of 25
- 297-8021-350P24 - North American DMS-100 Translations Guide Volume 24 of 25
- 297-8021-350P25 - North American DMS-100 Translations Guide Volume 25 of 25
- 297-8021-351P1 - DMS-100 Data Schema Reference Manual
- 297-8021-351P2 - DMS-100 Data Schema Reference Manual
- 297-8021-351P3 - DMS-100 Data Schema Reference Manual
- 297-8021-351P4 - DMS-100 Data Schema Reference Manual
- 297-8021-351P5 - DMS-100 Data Schema Reference Manual
- 297-8021-351P6 - DMS-100 Data Schema Reference Manual
- 297-8021-351P7 - DMS-100 Data Schema Reference Manual
- 297-8021-351P8 - DMS-100 Data Schema Reference Manual
- 297-8021-351P9 - DMS-100 Data Schema Reference Manual
- 297-8021-351P10 - DMS-100 Data Schema Reference Manual
- 297-8021-351P11 - DMS-100 Data Schema Reference Manual
- 297-8021-351P12 - DMS-100 Data Schema Reference Manual
- 297-8021-801 - DMS-100 Feature Guide
- 297-8021-808P1 - DMS-100 SERVORD Reference Manual
- 297-8021-808P2 - DMS-100 SERVORD Reference Manual
- 297-8021-814P1 - DMS-100 Operational Measurements Reference Manual

- 297-8021-814P2 - DMS-100 Operational Measurements Reference Manual
- 297-8021-814P3 - DMS-100 Operational Measurements Reference Manual
- 297-8021-814P4 - DMS-100 Operational Measurements Reference Manual
- 297-8021-814P5 - DMS-100 Operational Measurements Reference Manual
- 297-8021-814P6 - DMS-100 Operational Measurements Reference Manual
- 297-8021-840P1 - DMS-100 Logs Reference Manual
- 297-8021-840P2 - DMS-100 Logs Reference Manual
- 297-8021-840P3 - DMS-100 Logs Reference Manual
- 297-8021-840P4 - DMS-100 Logs Reference Manual
- 297-8021-840P5 - DMS-100 Logs Reference Manual
- 297-8021-840P6 - DMS-100 Logs Reference Manual
- 297-8021-840P7 - DMS-100 Logs Reference Manual
- 297-8021-840P8 - DMS-100 Logs Reference Manual
- 297-8021-855P1 - DMS-100 Office Parameters Reference Manual
- 297-8021-855P2 - DMS-100 Office Parameters Reference Manual
- 297-8021-855P3 - DMS-100 Office Parameters Reference Manual
- 297-8991-810 - XA-Core Reference Manual

Platforms

SDM Platform

This section contains IEMS Northbound log samples and device documentation references for the SDM Platform.

SDM Platform Fault Interface

Fault documentation for SDM Platform :

- NN10081-911 SDM Fault Management

Fault Mapping for SDM Platform

The following criteria can be used for looking up information on specific faults for SDM Platform.

Fault Correlation for SDM Platform

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
SDM (Platform) - AIX	logname and number	logname and number	logname and number	logname and number	NN10081-911 SDM Fault Management

Northbound Fault Formats for SDM Platform

SCC2

The following is an example of a SDM Platform log in SCC2 format:

```
* 52 SDM 317 0162 TBL
         node SDM      SDM Base Maintenance
        DCE problem detected
        Reason: SEC Master Server 47.142.94.49 is down.
```

NTSTD

The following is an example of a SDM Platform log in NTSTD format:

```
COMPACT06BT   *  SDM 317 Feb15 00:52:49 0162 TBL
         node SDM      SDM Base Maintenance
```

```
DCE problem detected

Reason: SEC Master Server 47.142.94.49 is down.
```

SNMP

The following is an example of a SDM Platform log in SNMP format:

```
sysUpTime.0 => 9:27:56

snmpTrapOID.0 => nnExtAlarmMinor

alarmActiveResourceId =>
.1.3.6.1.2.1.111.1.2.2.1.10.12.78.111.114.116.101.108.95.102.97.117.108.116.20.50.48
.48.52.45.49.45.50.49.44.54.58.52.49.58.49.52.46.48.44.8995

alarmActiveDateAndTime => 2004-1-14,7:52:49.1

alarmActiveDescription => DeviceSpecificInfo=Unavailable; node SDM      SDM Base
Maintenance

DCE problem detected

Reason: SEC Master Server 47.142.94.49 is down.


nnExtAlarmActiveEventType => 5

nnExtAlarmActiveProbableCause => 118

nnExtAlarmActiveAdditionalText =>

nnExtAlarmActiveDocumentationPointer => SDM 317

nnExtAlarmActiveResourceDescription => IEMS=wnc0y0m0.us.nortel.com-SDM;

nnExtAlarmActiveManualClear => 2

nnExtAlarmActiveSequenceNumber => 35
```

Syslog

The following is an example of a SDM Platform log in Syslog format:

```
Feb 14 19:52:49 wnc0s0pf IEMS: _V2_~I=~H=wnc0s0pf~A=IEMS~S=9821~~  SDM317 MINOR TBL
^M       node SDM     SDM Base Maintenance^M      DCE problem detected^M      Reason:
SEC Master Server 47.142.94.49 is down.
```

Performance

OM and PM Documentation references for SDM Platform

- NN10147-711 SDM Performance Management

Northbound OM/PM Formats

This section provides example output of Performance Measurement data in each of the Northbound formats provided

XML

The following is an example of performance data for SDM Platform in XML format:

Note: *Northbound performance interface not supported for this device.*

CSV

The following is an example of performance data for SDM Platform in CSV format:

Note: *Northbound performance interface not supported for this device.*

GUI/CLUI Documentation for SDM Platform

SDM Platform has a command line user interface that can be accessed via a secure shell.

GUI/CLUI Launching and User procedures

- NN10017-111 SDM Basics (see User Interfaces Overview)

Related documents

- NN10059-461 Upgrading the SDM
- NN10103-511 SDM Configuration Management
- NN10125-811 SDM Accounting
- NN10169-611 SDM Security and Administration

Succession Server Platform Foundation Software (SSPFS)

This section contains IEMS Northbound log samples and device documentation references for the SSPFS platform.

SSPFS Fault Interface

Fault documentation for SSPFS

This section will provide references to customer documentation for Fault, Performance, Topology, GUI/CLUI, and Security for SSPFS.

- NN10325-900 - ATM/IP Fault Management document,
- NN10275-909 - Succession Fault Management Logs Reference (vol 1)

Fault Mapping for SSPFS

The following criteria can be used for looking up information on specific faults for SSPFS.

Fault Correlation for SSPFS

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
SSPFS	logname and number	logname and number	logname and number	logname and number	NN10275-909 Succession Fault Management Logs Reference (vol 1)

Northbound Fault Formats for SSPFS

The SSPFS SNMP interface is not implemented yet.

SCC2

The following is an example of a SSPFS log in SCC2 format:

Raise Event:

```
**48 SPFS310 0044 TBL  SPFS Fault
        Location: 47.142.108.198
        Notification Id: 50
        State: Raised
        Category: equipment
        Cause: lANError
        Time: Mar 19 19:48:03 2004
        Component Id: cs2kaps=znc0s0jx;NODE=znc0s0jx;CLASS=HW;HWTYPE=NIC;NICNAME
        =bge0
        Specific Problem: Network Interface down
        Description: NOTICE: bge0: link down
```

Clear Event:

```
  48 SPFS310 0049 INFO Cleared
        Location: 47.142.108.198
        Notification Id: 50
```

```
        State: Cleared
        Time: Mar 19 19:48:33 2004
```

NTSTD

The following is an example of a SSPFS log in NTSTD format:

Raise Event:

```
iems_office  ** SPFS310 MAR20 00:48:03 0043 TBL  SPFS Fault
        Location: 47.142.108.198
        Notification Id: 50
        State: Raised
        Category: equipment
        Cause: lANError
        Time: Mar 19 19:48:03 2004
        Component Id: cs2kaps=znc0s0jx;NODE=znc0s0jx;CLASS=HW;HWTYPE=NIC;NICNAME
        =bge0
        Specific Problem: Network Interface down
        Description: NOTICE: bge0: link down
```

Clear Event:

```
iems_office     SPFS310 MAR20 00:48:33 0048 INFO Cleared
        Location: 47.142.108.198
        Notification Id: 50
        State: Cleared
        Time: Mar 19 19:48:33 2004
```

SNMP

The following is an example of a SSPFS log in SNMP format:

Alarm Raise:

```
sysUpTime.0 => 5:15:42
snmpTrapOID.0 => nnExtAlarmMajor
alarmActiveResourceId =>
.1.3.6.1.2.1.111.1.2.2.1.10.12.78.111.114.116.101.108.95.102.97.117.108.116.19.50.48
.48.52.45.52.45.49.44.53.58.51.57.58.49.49.46.48.44.41164
alarmActiveDateAndTime => 2004-4-1,5:39:11.0
alarmActiveDescription => Location: 47.142.94.66
```

Notification Id: 210

State: Raised

Category: equipment

Cause: lANError

Time: Apr 01 17:39:11 2004

Component Id: cs2kmt=znc0s0jh;NODE=znc0s0jh;CLASS=HW;HWTYPE=NIC;NICNAME=bge1

Specific Problem: Network Interface down

Description: NOTICE: bge1: link down

nnExtAlarmActiveEventType => 4

nnExtAlarmActiveProbableCause => 25

nnExtAlarmActiveAdditionalText =>

nnExtAlarmActiveDocumentationPointer => SPFS310

nnExtAlarmActiveResourceDescription => IEMS=znc0s0jh-iems-SSPFS;cs2kmt=znc0s0jh;NODE=znc0s0jh;CLASS=HW;HWTYPE=NIC;NICNAME=bge1

nnExtAlarmActiveManualClear => 2

nnExtAlarmActiveSequenceNumber => 1

Alarm Clear:

sysUpTime.0 => 5:15:52

snmpTrapOID.0 => nnExtAlarmClear

alarmActiveResourceId => .1.3.6.1.2.1.111.1.2.2.1.10.12.78.111.114.116.101.108.95.102.97.117.108.116.19.50.48.48.52.45.52.45.49.44.53.58.51.57.58.49.52.46.48.44.41164

alarmActiveDateAndTime => 2004-4-1,5:39:14.0

alarmActiveDescription => DeviceSpecificInfo=;Location: 47.142.94.66

Notification Id: 210

State: Cleared

Time: Apr 01 17:39:14 2004

nnExtAlarmActiveEventType => 4

nnExtAlarmActiveProbableCause => 118

nnExtAlarmActiveAdditionalText =>

nnExtAlarmActiveDocumentationPointer => SPFS310

nnExtAlarmActiveResourceDescription => IEMS=znc0s0jh-iems-SSPFS;cs2kmt=znc0s0jh;NODE=znc0s0jh;CLASS=HW;HWTYPE=NIC;NICNAME=bge1

nnExtAlarmActiveSequenceNumber => 2

Syslog

The following is an example of a SSPFS log in Syslog format:

Alarm Raise:

```
Mar 19 20:03:47 znc0s0jh IEMS: _V2_~I=~H=znc0s0jh~A=IEMS~S=0044~~ SPFS310 MAJOR TBL
SPFS Fault^M       Location: 47.142.108.198^M       Notification Id: 50^M       State:
Raised^M        Category: equipment^M        Cause: lANError^M        Time: Mar 19
19:48:03 2004^M        Component Id:
cs2kaps=znc0s0jx;NODE=znc0s0jx;CLASS=HW;HWTYPE=NIC;NICNAME^M        =bge0^M
Specific Problem: Network Interface down^M       Description: NOTICE: bge0: link down
```

Clear Alarm:

```
Mar 19 20:04:17 znc0s0jh IEMS: _V2_~I=~H=znc0s0jh~A=IEMS~S=0049~~ SPFS310 NONE INFO
Cleared^M       Location: 47.142.108.198^M       Notification Id: 50^M       State:
Cleared^M        Time: Mar 19 19:48:33 2004
```

Performance

OM and PM Documentation references for SSPFS

- NN10106-511 (Configuration of SNMP Poller)
- NN10276-500 - ATM/IP Configuration Management

Northbound OM/PM Formats

This section provides example output of Performance Measurement data in each of the Northbound formats provided

XML

The following is an example of performance data for SSPFS platform in XML format:

Note: *Northbound performance interface not supported for this device.*

CSV

The following is an example of performance data for SSPFS platform in CSV format:

Note: *Northbound performance interface not supported for this device.*

GUI/CLUI Documentation for SSPFS

GUI Launching and User procedures

- NN10106-511.04.02 - CS2KMT_config

Note: Contains information on the SSPFS CLI interface

Element Managers

CS2000 Core Manager

This section contains IEMS Northbound log samples and device documentation references for the CS2K Core Manager.

CS2K Core Manager Fault Interface

Fault documentation for CS2000 Core Manager :

- NN10275-909 - Succession fault Management logs Reference
- NN10082-911 - CS 2000 Core Manager Fault Management

Fault Mapping for CS2000 Core Manager

The following criteria can be used for looking up information on specific faults for CS2000 Core Manager.

Fault Correlation for CS2000 Core Manager

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
CS2000 Core Manager	log name and number	log name and number	log name and number	log name and number	NN10275-909 Succession fault Management logs Reference NN10082-911 CS 2000 Core Manager Fault Management

Northbound Fault Formats for CS2000 Core Manager

SCC2

The following is an example of a CS2000 Core Manager log in SCC2 format:

```
* 06 SDM 550 1506 INFO Node Status Change
        Node:   SDM 0
        Status:  ** ISTb      from  ** ISTb
```

```
        Reason: Application alarm set. SDM_ETA.eta
```

NTSTD

The following is an example of a CS2000 Core Manager log in NTSTD format:

```
COMPACT506BT   * SDM550 Feb15 03:07:00 1520 INFO Node Status Change
        Node:   SDM 0
       Status:     InSv      from   * ISTb
       Reason: Application alarm cleared. SDM_ETA.eta
```

SNMP

The following is an example of a CS2000 Core Manager log in SNMP format:

```
sysUpTime. => 1 day, 19:19:26
snmpTrapOID. => nnExtAlarmMessage
nnExtAlarmMessageResource => .0.0
nnExtAlarmMessageResourceDescription => IEMS=wnc0y0m0.us.nortel.com-CS2K-Mgr;
nnExtAlarmMessageDateAndTime => 2004-6-9,3:4:9.1
nnExtAlarmMessageDocumentationPointer => PM  610
nnExtAlarmMessageInfo =>   04 PM  610 3352 INFO ABI XPM C-side Link State Change

        Node: SMA2 0     Link: 0   Plane: 0   Port: 0

        From: SYSB   To: INSV

        Reason: Link opened by MG9K/ABI

sysUpTime.0 => 1 day, 19:19:27
snmpTrapOID.0 =>
alarmActiveResourceId => .0.0
alarmActiveDateAndTime => 2004-6-9,3:4:9.3
alarmActiveDescription => DeviceSpecificInfo=Unavailable;
Node:   SDM 0
Status:  ** ISTb      from  ** ISTb
Reason: Application alarm set. SDM_ETA.eta
```

Syslog

The following is an example of a CS2000 Core Manager log in Syslog format:

```
Feb 14 22:06:01 wnc0s0pf IEMS: _V2_~I=~H=wnc0s0pf~A=IEMS~S=1165~~  SDM550 MINOR INFO
Node Status Change^M         node CM      ^M        Node:   SDM 0^M        Status:  **
ISTb      from  ** ISTb     ^M        Reason: Application alarm set. SDM_ETA.eta
```

Performance

OM and PM Documentation references for CS2000 Core Manager

- NN10148-711 - CS 2000 Core Manager Performance Management

Northbound OM/PM Formats

This section provides example output of Performance Measurement data in each of the Northbound formats provided

XML

The following is an example of performance data for CS2000 Core Manager in XML format:

Note: *Northbound performance interface not supported for this component.*

CSV

The following is an example of performance data for CS2000 Core Manager in CSV format:

Note: *Northbound performance interface not supported for this component.*

GUI/CLUI Documentation for CS2000 Core Manager

The CS2000 Core Manager provides both command-line and MAP-based interfaces.

GUI/CLUI Launching and User procedures

- NN10018-111 - CS2000 Core Manager Basics

Related documents

- NN10060-461 - Upgrading the CS 2000 Core Manager
- NN10082-911 - CS 2000 Core Manager Fault Management
- NN10104-511 - CS 2000 Core Manager Configuration Management

- NN10126-811 - CS 2000 Core Manager Accounting
- NN10170-611 - CS 2000 Core Manager Administration and Security

GWC Manager

This section contains IEMS Northbound log samples and device documentation references for the GWC Manager.

GWC Manager Fault Interface

Fault documentation for GWC Mgr :

- NN10325-900 - ATM/IP Fault Management

Fault Mapping for GWC Mgr

The following criteria can be used for looking up information on specific faults for GWC Mgr.

Fault Correlation for GWC Mgr

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
GWC Mgr	logname and number	logname and number	logname and number	logname and number	PLN-07AT OSS SN07 OSS Guide (ATM) PLN-07IP OSS SN07 OSS Guide (IP)

Northbound Fault Formats for GWC Mgr

SCC2

The following is an example of a GWC Mgr log in SCC2 format:

```
*C14 CMT 301 7248 TBL  CMT Fault
        Location: gwcem
        NotificationID: 700
        State: Raise
```

```
        Category: Processing Error
        Cause: Corrupt data
        Time: Jan 23 15:14:38 2004
        Component Id: SESM=GWCEMalarm;GWCEM=Recovery;GWC=GWC-2-UNIT-0
        Specific Problem: FTP Problem
        Description: Problem detected in GWC Recovery Subsystem
```

NTSTD

The following is an example of a GWC Mgr log in NTSTD format:

```
COMPACT06BT ***  CMT301 Jan23 20:14:38 7248 TBL  CMT Fault
        Location: gwcem
        NotificationID: 700
        State: Raise
        Category: Processing Error
        Cause: Corrupt data
        Time: Jan 23 15:14:38 2004
        Component Id: SESM=GWCEMalarm;GWCEM=Recovery;GWC=GWC-2-UNIT-0
        Specific Problem: FTP Problem
        Description: Problem detected in GWC Recovery Subsystem
```

SNMP

The following is an example of a GWC Mgr log in SNMP format:

```
system.sysUpTime.0 => 23:10:15
snmpTrapOID.0 => nnExtAlarmCritical
alarmActiveResourceId =>
.1.3.6.1.2.1.111.1.2.2.1.10.12.78.111.114.116.101.108.95.102.97.117.108.116.20.50.48
.48.52.45.49.45.50.51.44.51.58.49.52.58.51.56.46.48.44.42847
alarmActiveDateAndTime => 2004-1-23,3:14:38.0,
alarmActiveDescription => DeviceSpecificInfo=;Location: gwcem
NotificationID: 700
State: Raise
Category: Processing Error
Cause: Corrupt data
Time: Jan 23 15:14:38 2004
Component Id: SESM=GWCEMalarm;GWCEM=Recovery;GWC=GWC-2-UNIT-0
Specific Problem: FTP Problem
```

```
Description: Problem detected in GWC Recovery Subsystem
nnExtAlarmActiveEventType => 5
nnExtAlarmActiveProbableCause => 118
nnExtAlarmActiveAdditionalText =>
nnExtAlarmActiveDocumentationPointer => CMT 301
nnExtAlarmActiveResourceDescription =>
IEMS=znc0s0j6;SESM=GWCEMalarm;GWCEM=Recovery;GWC=GWC-2-UNIT-0
nnExtAlarmActiveManualClear => 0
nnExtAlarmActiveSequenceNumber => 9027
```

Syslog

The following is an example of a GWC Mgr log in Syslog format:

```
Feb 23 15:15:56 wnc0s0pf IEMS: _V2_~I=~H=wnc0s0pf~A=IEMS~S=7305~~ CMT301 CRIT TBL CMT
Fault^M Location: gwcem^M NotificationID: 700^M State: Raise^M
Category: Processing Error^M Cause: Corrupt data^M Time: Jan 23 15:14:38
2004^M Component Id: SESM=GWCEMalarm;GWCEM=Recovery;GWC=GWC-2-UNIT-0^M
Specific Problem: FTP Problem^M Description: Problem detected in GWC Recovery
Subsystem^M
```

Performance

OM and PM Documentation references for GWC Mgr

GWC Mgr has no operational or performance measurements.

- See NN10156-711 - GWC Performance Management for PM information.

Northbound OM/PM Formats

This section provides example output of Performance Measurement data in each of the Northbound formats provided

XML

The following is an example of performance data for GWC Mgr in XML format:

Note: *Northbound performance interface not supported for this component.*

CSV

The following is an example of performance data for GWC Mgr in CSV format:

Note: *Northbound performance interface not supported for this component.*

GUI/CLUI Documentation for GWC Mgr

GUI Launching and User procedures

- NN10320-100 - ATM Solutions Basics
- NN10300-100 - IP Solutions Basics
- NN10276-500 - ATM/IP Configuration Management
- NN10281-600 - ATM/IP Administration and Security
- NN10325-900 - ATM/IP Fault Management

Related documents

Integrated Element Management System (IEMS)

This section contains IEMS Northbound log samples and device documentation references for the IEMS.

IEMS Fault Interface

Fault documentation for IEMS :

- NN10334-911 - IEMS Fault Management

Fault Mapping for IEMS

The following criteria can be used for looking up information on specific faults for IEMS.

Fault Correlation for IEMS

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
IEMS	logname and logNumber	logname and logNumber	logname and logNumber	logname and logNumber	NN10334-911 IEMS Fault Management Guide

Northbound Fault Formats for IEMS

SCC2

The following is an example of a IEMS log in SCC2 format:

```
36 IEMS603 0001 INFO Missed Notifications
        Location: 47.142.122.202
        Component Id: IEMS=wnc0y0m0.us.nortel.com-CS2K-Mgr
        Time: Feb 14 19:36:32 2004
        Description: Notification(s) missed in ML 5050 - 5149
```

NTSTD

The following is an example of a IEMS log in NTSTD format:

```
RTPU07BU     IEMS603 Feb15 00:36:32 0001 INFO Missed Notifications
        Location: 47.142.122.202
        Component Id: IEMS=wnc0y0m0.us.nortel.com-CS2K-Mgr
        Time: Feb 14 19:36:32 2004
        Description: Notification(s) missed in ML 5050 - 5149
```

SNMP

The following is an example of a IEMS log in SNMP format:

```
sysUpTime.0 => 9:34:06
snmpTrapOID.0 => nnExtAlarmMessage
nnExtAlarmMessageResource => .0.0
nnExtAlarmMessageResourceDescription => IEMS=wnc0y0m0.us.nortel.com-CS2K-Mgr;
nnExtAlarmMessageDateAndTime => 2004-1-14,7:58:59.2
nnExtAlarmMessageDocumentationPointer => IEMS603
nnExtAlarmMessageInfo =>   58 IEMS603 0234 INFO Missed Notifications
        Location: 47.142.122.202
        Component Id: IEMS=wnc0y0m0.us.nortel.com-CS2K-Mgr
        Time: Feb 14 19:58:59 2004
        Description: Notification(s) missed in ML 5050 - 5149
```

Syslog

The following is an example of a IEMS log in Syslog format:

```
Feb 14 18:42:42 wnc0s0pf IEMS: _V2_~I=~H=wnc0s0pf~A=IEMS~S=9198~~ IEMS603 NONE INFO
Missed Notifications^M        Location: 47.142.122.202^M        Component Id:
IEMS=wnc0y0m0.us.nortel.com-CS2K-Mgr^M        Time: Feb 14 18:42:41 2004^M
Description: Notification(s) missed in ML 5050 - 5149
```

Performance

OM and PM Documentation references for IEMS

- NN10327-711 IEMS Performance Monitoring

Northbound OM/PM Formats

This section provides example output of Performance Measurement data in each of the Northbound formats provided

XML

The following is an example of performance data for IEMS in XML format:

Note: *Northbound performance interface not supported for this component.*

CSV

The following is an example of performance data for IEMS in CSV format:

Note: *Northbound performance interface not supported for this component.*

GUI/CLUI Documentation for IEMS

GUI Launching and User procedures

- NN10329-111 - IEMS Basics

Related documents

- NN10336-611 - IEMS Administration and Security
- NN10330-511 - IEMS Operational Configuration
- NN10326-461 - IEMS Upgrades

MG9000 Manager

This section contains IEMS Northbound log samples and device documentation references for the MG9000 Mgr.

MG9000 Mgr Fault Interface

Fault documentation for MG9000 Mgr :

- NN10074-911 MG9000 Fault Management
- NN10325-900 ATM/IP Fault Management

- NN10275-909 Succession Fault Management Logs Reference

Fault Mapping for MG9000 Mgr

The following criteria can be used for looking up information on specific faults for MG9000 Mgr.

Fault Correlation for MG9000 Mgr

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
MG9000 Mgr	logname and number	logname and number	logname and number	logname and number	NN10074-911 MG9000 Fault Management

Northbound Fault Formats for MG9000 Mgr

SCC2

The following is an example of a MG9000 Mgr log in SCC2 format:

```
 49 MGEM302 4260 TBL  MG9K InvalidEMIPAddress
       Location: MG9k EM Comm Network
       Notification Id: 17180020453
       State: Cleared
       Category: communications
       Cause: Communications Subsystem Failure
             Invalid EM IP Address - An invalid EM IP address has been set on the GW
       Component Id: MG9k EM Comm Network
       specificProblem: Invalid EM IP Address - An invalid EM IP address has be
       en set on the GW
       Description: An invalid EM IP address has been set on the GW
```

NTSTD

The following is an example of a MG9000 Mgr log in NTSTD format:

```
RTPU07BR     MGEM302 Jan20 06:49:09 4260 TBL  MG9K InvalidEMIPAddress
       Location: MG9k EM Comm Network
       Notification Id: 17180020453
       State: Cleared
       Category: communications
```

```
Cause: Communications Subsystem Failure
      Invalid EM IP Address - An invalid EM IP address has been set on the GW
Component Id: MG9k EM Comm Network
specificProblem: Invalid EM IP Address - An invalid EM IP address has be
en set on the GW
Description: An invalid EM IP address has been set on the GW
```

SNMP

The following is an example of a MG9000 Mgr log in SNMP format:

```
system.sysUpTime.0 => 20:33:14
iso.org.dod.internet.snmpV2.snmpModules.snmpMIB.snmpMIBObjects.snmpTrap.snmpTrapOID.
0 => nnExtAlarmClear
alarmActiveResourceId =>
.1.3.6.1.2.1.111.1.2.2.1.10.12.78.111.114.116.101.108.95.102.97.117.108.116.19.50.48
.48.52.45.49.45.50.48.44.49.58.52.57.58.57.46.51.44.37279
alarmActiveDateAndTime => 2004-1-20,1:49:9.3,
alarmActiveDescription => Communications Subsystem Failure
Invalid EM IP Address - An invalid EM IP address has been set on the GW

nnExtAlarmActiveEventType => 1
nnExtAlarmActiveProbableCause => 6
nnExtAlarmActiveAdditionalText =>
nnExtAlarmActiveDocumentationPointer => MGEM302
nnExtAlarmActiveResourceDescription => IEMS=cco4;MG9k EM Comm Network
nnExtAlarmActiveSequenceNumber => 7768
```

Syslog

The following is an example of a MG9000 Mgr log in Syslog format:

```
Feb 23 12:38:54 wnc0s0pf IEMS: _V2_~I=~H=wnc0s0pf~A=IEMS~S=4317~~ MGEM302 NONE TBL
MG9K InvalidEMIPAddress^M       Location: MG9k EM Comm Network^M       Notification
Id: 17180020453^M      State: Cleared^M      Category: communications^M      Cause:
Communications Subsystem Failure^M          Invalid EM IP Address - An invalid EM IP
address has been set on the GW^M        Component Id: MG9k EM Comm Network^M
specificProblem: Invalid EM IP Address - An invalid EM IP address has be^M       en
set on the GW^M        Description: An invalid EM IP address has been set on the GW
```

Performance

OM and PM Documentation references for MG9000 Mgr

There are no OMs or PMs associated with this component.

GUI/CLUI Documentation for MG9000 Mgr

GUI Launching and User procedures

- NN10096-511 MG9000 Configuration Management

Related documents

- NN10221105 VoA OSS Guide
- NN10162-611 MG9000 Administration and Security
- NN10048-461 Upgrading the MG9000
- NN10276-500 ATM/IP Configuration Management
- NN10325-900 ATM/IP Fault Management

Multi-Service Data Manager (MDM)

This section contains IEMS Northbound log samples and device documentation references for the MDM.

Information in this section also applies to the following Media Gateways : MSS 7400, 15000, 20000. All these devices are closely related and are covered by the same set of customer documentation.

MDM Fault Interface

Fault documentation for MDM:

- 241-6001-011 - Preside MDM Fault Management User Guide
- NN10092-911 - Passport 15000 and Preside MDM in Succession Networks Fault Management
- NN10600-500 - Nortel Networks Multiservice Switch 7400/15000/20000 Alarms Reference
- 241-6001-501 - Preside MDM Proxy Alarms Reference Guide

Fault Mapping for MDM

The following criteria can be used for looking up information on specific faults for MDM.

MDM and Media Gateway devices (6400, 7480, 15000, 20000) use fault code to identify different alarms. Fault codes are eight digits or letters and are grouped by type (first four digits of fault code). Documentation for each fault code group is provided in the following table.

Fault Documentation for MDM

Fault Code Group	Document Reference
0000	NN10600-500 - Nortel Networks Multiservice Switch 7400/15000/20000 Alarms Reference
1100	NN10600-500 - Nortel Networks Multiservice Switch 7400/15000/20000 Alarms Reference
70xx	NN10600-500 - Nortel Networks Multiservice Switch 7400/15000/20000 Alarms Reference
0999	241-6001-501 - Preside MDM Proxy Alarms Reference Guide
301x	241-6001-501 - Preside MDM Proxy Alarms Reference Guide
50xx	241-6001-501 - Preside MDM Proxy Alarms Reference Guide
600x	241-6001-501 - Preside MDM Proxy Alarms Reference Guide
A0xx	241-6001-501 - Preside MDM Proxy Alarms Reference Guide
B000	241-6001-501 - Preside MDM Proxy Alarms Reference Guide
CDxx	241-6001-501 - Preside MDM Proxy Alarms Reference Guide

The faults that are fed northbound from the IEMS use log name and number for distinction. The mapping between log name/number and fault code can be found in the Succession Solution document.

- NN10092-911 - Passport 15000 and Preside MDM in Succession Networks Fault Management (PT-AAL1/UA-AAL1).

Fault Correlation for MDM

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
Multi-Service Data manager (MDM)	log name and number	log name and number	log name and number	log name and number	NN10092-911 Passport 15000 and Preside MDM in Succession Networks Fault Management (PT-AAL1/UA-AAL1)

Northbound Fault Formats for MDM

SCC2

The following is an example of a MDM log in SCC2 format:

```
*C22 MDM 303 7891 TBL
        time: 2004 01 25 09 22 32
        event: set
        compId: EM PP14
        severity: critical
        faultcode: 09990001
        alarmType: equipment
        commentData: FMDR_SURV@rtpimdm has lost connection to EM PP14. Please in
        vestigate.
```

NTSTD

The following is an example of a MDM log in NTSTD format:

```
RTPU07BU ***  MDM303 Jan25 14:22:32 7345 TBL
        time: 2004 01 25 09 22 32
        event: set
        compId: EM PP14
        severity: critical
        faultcode: 09990001
        alarmType: equipment
        commentData: FMDR_SURV@rtpimdm has lost connection to EM PP14. Please in
        vestigate.
```

SNMP

The following is an example of a MDM log in SNMP format:

```
system.sysUpTime.0 => 3 days, 0:41:03

snmpTrapOID.0 => nnExtAlarmCritical

alarmActiveResourceId =>
.1.3.6.1.2.1.111.1.2.2.1.10.12.78.111.114.116.101.108.95.102.97.117.108.116.20.50.48
.48.52.45.49.45.50.53.44.57.58.50.50.58.51.50.46.48.44.13270

alarmActiveDateAndTime => 2004-1-21,6:41:14.0,

alarmActiveDescription => DeviceSpecificInfo=equipmentFailure;FMDR_SURV@rtpimdm has
lost connection to EM PP14. Please investigate.


nnExtAlarmActiveEventType => 4

nnExtAlarmActiveProbableCause => 118

nnExtAlarmActiveAdditionalText =>

nnExtAlarmActiveDocumentationPointer => MDM 303

nnExtAlarmActiveResourceDescription => IEMS=47.142.116.75-MDM-Mgr_PP14;EM PP14

nnExtAlarmActiveManualClear => 1

nnExtAlarmActiveSequenceNumber => 17433
```

Syslog

The following is an example of a MDM log in Syslog format:

```
Feb 27 11:16:54 wnc0s0pf IEMS: _V2_~I=~H=wnc0s0pf~A=IEMS~S=0402~~ MDM303 CRIT TBL ^M
time: 2004 01 27 11 15 32^M       event: set^M       compId: EM PP14^M       severity:
critical^M       faultcode: 09990001^M       alarmType: equipment^M       commentData:
FMDR_SURV@rtpimdm has lost connection to EM PP14. Please in^M        vestigate.
```

Performance

OM and PM Documentation references for MDM

- 241-6001-806 - Preside MDM MDP Data Formats Reference Guide

Northbound OM/PM Formats

Performance measurements for MDM are available only from the MDM directly. For more information on MDM, MSS 7000, and MSS 15000 OMs, see 241-6001-806 - Preside MDM MDP Data Formats Reference Guide

XML

The following is an example of Performance data for MDM in XML format:

Note: *Northbound performance interface not supported for this device.*

CSV

The following is an example of Performance data for MDM in CSV format:

Note: *Northbound performance interface not supported for this device.*

GUI/CLUI Documentation for MDM

GUI Launching and User procedures

The following documents provide specific details about the various user interfaces provided by the MDM.

- 241-6001-801 - Preside MDM Overview
- 241-6001-011 - Preside MDM Fault Management User Guide
- 241-6001-013 - Preside MDM Remote Network Communication System User Guide
- 241-6001-015 - Preside MDM Network Model Administrator Guide
- 241-6001-022 - Preside MDM Network Reporting System User Guide
- 241-6001-023 - Preside MDM Configuration Management for Passport User Guide
- 241-6001-030 - Preside MDMWeb User Guide
- 241-6001-031 - Preside MDM Performance Management User Guide
- 241-6001-040 - Preside MDM Security User Guide

Related documents

Numerous documents are available on MDM installation, configuration, and planning. The following list is representative but not all inclusive.

- NN10028-111 - Passport 15000 and Preside MDM in Succession Networks Product and Technology Fundamentals (PT-AAL1/U
- NN10070-461 - Passport 15000 and Preside MDM in Succession Networks Upgrade Guide (PT-AAL1/UA-AAL1)
- NN10092-911 - Passport 15000 and Preside MDM in Succession Networks Fault Management Overview (PT-AAL1/UA-AAL1)
- NN10114-511 - Passport 15000 and Preside MDM in Succession Networks Configuration Overview (PT-AAL1/UA-AAL1)
- NN10158-711 - Passport 15000 and Preside MDM in Succession Networks Performance (PT-AAL1/UA-AAL1)
- NN10180-611 - Passport 15000 and Preside MDM in Succession Networks Security and Administration (PT-AAL1/UA-AAL1)

- NN10185-461 - Preside MDM in Succession Networks Upgrade Guide (PT-AAL1/UA-AAL1)
- NN10198-912 - Passport 15000 and Preside MDM in Succession Networks Fault Management Troubleshooting (PT-AAL1/UA-A
- NN10225-512 - Passport 15000 and Preside MDM in Succession Networks Configuration Attribute Summary (PT-AAL1/UA-AA

SAM21 Element Manager

This section contains IEMS Northbound log samples and device documentation references for the SAM21 EM.

SAM21 EM Fault Interface

Fault documentation for SAM21 EM :

The SAM 21 Manager reports faults for the SAM 21 Shelf Controller. Please refer to the SAM 21 SC documents below for details about SAM 21 faults.

- NN10089-911 - SAM21 Shelf Controller Fault Management

Fault Mapping for SAM21 EM

The following criteria can be used for looking up information on specific faults for SAM21 EM.

Fault Correlation for SAM21 EM

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
SAM21 Mgr	logname and number	logname and number	logname and number	logname and number	NN10089-911 SAM21 Shelf Controller Fault Management

Northbound Fault Formats for SAM21 EM

SCC2

The following is an example of a SAM21 EM log in SCC2 format:

```
**37 SCU 350 0009 FLT  Alarm Raised
```

```
        Location: SAM21 1:CSAM01-01:sled 3
        Time:     Wed Jan 14 13:55:52 EST 2004
        Reason:   Temperature in Sled 3 is high
```

NTSTD

The following is an example of a SAM21 EM log in NTSTD format:

```
COMPACT06BT  **  SCU350 Jan15 00:37:17 0009 FLT  Alarm Raised
        Location: SAM21 1:CSAM01-01:sled 3
        Time:     Wed Jan 14 13:55:52 EST 2004
        Reason:   Temperature in Sled 3 is high
```

SNMP

The following is an example of a SAM21 EM log in SNMP format:

```
sysUpTime.0 => 9:14:20
snmpTrapOID.0 => nnExtAlarmMajor
alarmActiveResourceId =>
.1.3.6.1.2.1.111.1.2.2.1.10.12.78.111.114.116.101.108.95.102.97.117.108.116.20.50.48
.48.52.45.49.45.50.51.44.51.58.49.52.58.51.56.46.48.44.42847
alarmActiveDateAndTime => 2004-1-23,3:14:38.0,
alarmActiveDescription => DeviceSpecificInfo=;Location: SAM21 1:CSAM01-01:sled 3
Time:     Wed Jan 14 13:57:48 EST 2004
Reason:   Temperature in Sled 3 is high

nnExtAlarmActiveEventType => 5
nnExtAlarmActiveProbableCause => 118
nnExtAlarmActiveAdditionalText =>
nnExtAlarmActiveDocumentationPointer => SCU 350
nnExtAlarmActiveResourceDescription => IEMS=wnc0y0kz.us.nortel.com-SAM21-Mgr;
nnExtAlarmActiveManualClear => 2
nnExtAlarmActiveSequenceNumber => 1
```

Syslog

The following is an example of a SAM21 EM log in Syslog format:

```
Feb 12 18:30:19 wnc0s0pf IEMS: _V2_~I=~H=wnc0s0pf~A=IEMS~S=7929~~  SCU350 MAJOR FLT
Alarm Raised^M       Location: SAM21 1:CSAM01-01:sled 3^M       Time:     Mon Jan 12
12:49:06 EST 2004^M        Reason:   Temperature in Sled 3 is high
```

Performance

OM and PM Documentation references for SAM21 EM

SAM21 EM has no operational or performance measurements.

Northbound OM/PM Formats

This section provides example output of Performance Measurement data in each of the Northbound formats provided

XML

The following is an example of performance data for SAM21 EM in XML format:

Note: *Northbound performance interface not supported for this component.*

CSV

The following is an example of performance data for SAM21 EM in CSV format:

Note: *Northbound performance interface not supported for this component.*

GUI/CLUI Documentation for SAM21 EM

GUI Launching and User procedures

- NN10320-100 - ATM Solutions Basics
- NN10300-100 - IP Solutions Basics
- NN10281-600 - ATM/IP Administration and Security

Related documents

- NN10089-911 - SAM21 Shelf Controller Fault Management
- NN10325-900 - ATM/IP Fault Management
- NN10276-500 - ATM/IP Configuration Management

Applications

Audio Provisioning Server (APS)

This section contains IEMS Northbound log samples and device documentation references for the APS.

APS Fault Interface

Fault documentation for APS :

- NN10328-911 - MS 2000 Series Fault Management

Fault Mapping for APS

The following criteria can be used for looking up information on specific faults for APS.

Fault Correlation for APS

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
APS	SpecificProblem	SpecificProblem	SpecificProblem	SpecificProblem	NN10328-911 MS 2000 Series Fault Management

Northbound Fault Formats for APS

SCC2

The following is an example of a APS log in SCC2 format:

```
*C02 APS 398 2759 TBL  APS Fault
        Location: rtp2aps
        Notification Id: 28673
        State: Raise
        Category: communications
        Cause: softwareError
        Time: Jan 27 07:02:30 2004
        Component Id: APS;APSUnit=nc0rtp170;Software=Audio_Management_0
        Specific Problem: 28673
        Description: DB is not available, or the user cannot get a connection to
```

```
        the DB
```

NTSTD

The following is an example of a APS log in NTSTD format:

```
RTPU07BR ***  APS398 Jan27 12:02:30 2207 TBL  APS Fault
        Location: rtp2aps
        Notification Id: 28673
        State: Raise
        Category: communications
        Cause: softwareError
        Time: Jan 27 07:02:30 2004
        Component Id: APS;APSUnit=nc0rtp170;Software=Audio_Management_0
        Specific Problem: 28673
        Description: DB is not available, or the user cannot get a connection to
        the DB
```

SNMP

The following is an example of a APS log in SNMP format:

```
sysUpTime.0 => 2 days, 18:44:37
snmpTrapOID.0 => nnExtAlarmCritical
alarmActiveResourceId =>
.1.3.6.1.2.1.111.1.2.2.1.10.12.78.111.114.116.101.108.95.102.97.117.108.116.18.50.48
.48.52.45.49.45.50.55.44.5
5.58.49.58.54.46.48.44.11202
alarmActiveDateAndTime => 2004-1-27,7:1:6.0
alarmActiveDescription => DeviceSpecificInfo=;DB is not available, or the user cannot
get a connection to
nnExtAlarmActiveEventType => 5
nnExtAlarmActiveProbableCause => 118
nnExtAlarmActiveAdditionalText =>
nnExtAlarmActiveDocumentationPointer => APS 398
nnExtAlarmActiveResourceDescription => IEMS=znc0s0j6-SSPFS-Unit-
0;APS;APSUnit=nc0rtp170;Software=Audio_Management_0
nnExtAlarmActiveManualClear => 4
nnExtAlarmActiveSequenceNumber => 13458
```

Syslog

The following is an example of a APS log in Syslog format:

```
Feb 27 07:02:24 wnc0s0pf IEMS: _V2_~I=~H=wnc0s0pf~A=IEMS~S=6645~~ APS398 CRIT TBL APS
Fault^M     Location: rtp2aps^M     NotificationID: 28673^M     State: Raise^M
Category: Communications^M      Cause: Software error^M      Time: Jan 27 07:02:30
2004^M      Component Id: APS;APSUnit=nc0rtp170;Software=Audio_Management_0^M
Specific Problem: 28673^M      Description: DB is not available, or the user cannot
get a connection to^M        the DB^M
```

Performance

OM and PM Documentation references for APS

- NN10331-711 - MS 2000 Series Performance Monitoring

Northbound OM/PM Formats

XML

The following is an example of performance data for APS in XML format:

Note: *Northbound performance interface not supported for this component.*

CSV

The following is an example of performance data for APS in CSV format:

Note: *Northbound performance interface not supported for this component.*

GUI/CLUI Documentation for APS

GUI Launching and User procedures

- NN10340-511 - MS 2000 Series Configuration Management

Related documents

- NN10320-100 - ATM Solutions Basics
- NN10300-100 - IP Solutions Basics

Network Patch Manager (NPM)

This section contains IEMS Northbound log samples and device documentation references for the Network Patch Manager (NPM).

NPM Fault Interface

Fault documentation for NPM :

- NN10325-900 - ATM/IP Fault Management

Fault Mapping for NPM

The following criteria can be used for looking up information on specific faults for NPM.

Fault Correlation for NPM

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
NPM	logname and number	logname and number	logname and number	logname and number	NN10325-900 ATM/IP Fault Management

Northbound Fault Formats for NPM

SCC2

The following is an example of an NPM log in SCC2 format:

```
  38 NPM 360 6012 INFO Alarm Raised
        Alarm ACT_NOT_APP has been raised.
        Alarm Description: Activatable patches not applied.
```

NTSTD

The following is an example of an NPM log in NTSTD format:

```
RTPU07BU      NPM360 Jan27 15:38:44 5466 INFO Alarm Raised
        Alarm ACT_NOT_APP has been raised.
        Alarm Description: Activatable patches not applied.
```

SNMP

The following is an example of an NPM log in SNMP format:

```
system.sysUpTime.0 => 2 days, 22:22:15
snmpTrapOID.0 => nnExtAlarmMessage
nnExtAlarmMessageResource => .0.0
nnExtAlarmMessageResourceDescription => IEMS=znc0s0j6-SSPFS-Unit-0;
nnExtAlarmMessageDateAndTime => 2004-1-27,10:38:44.0
nnExtAlarmMessageDocumentationPointer => NPM 360
nnExtAlarmMessageInfo =>   38 NPM 360 6012 INFO Alarm Raised                  Alarm
ACT_NOT_APP has been raised.


        Alarm Description: Activatable patches not applied.
```

Syslog

The following is an example of an NPM log in Syslog format:

```
Feb 27 10:40:03 wnc0s0pf IEMS: _V2_~I=~H=wnc0s0pf~A=IEMS~S=0201~~  NPM360 NONE INFO
Alarm Raised^M        Alarm ACT_NOT_APP has been raised.^M        Alarm Description:
Activatable patches not applied.
```

Performance

OM and PM Documentation references for NPM

There are no OMs or PMs associated with this application.

GUI/CLUI Documentation for NPM

GUI Launching and User procedures

- NN10320-100 - ATM Solutions Basics
- NN10300-100 - IP Solutions Basics
- NN10276-500 - ATM/IP Configuration Management

Related documents

- NN10281-600 - ATM/IP Administration and Security
- NN10261-450 - Upgrading the Succession Network

OSSGate

This section contains IEMS Northbound log samples and device documentation references for the OSSGate.

OSSGate Fault Interface

Fault documentation for OSSGate :

There are no faults or logs associated with this application.

Fault Mapping for OSSGate

There are no faults or logs associated with this application.

Performance

OM and PM Documentation references for OSSGate

There are no OMs or PMs associated with this application.

Northbound OM/PM Formats

There are no OMs or PMs associated with this application.

GUI/CLUI Documentation for OSSGate

GUI Launching and User procedures

- NE10004-512 OSSGate User's Guide

Related documents

- 297-9051-8081 SERVORD Reference Manual Vol 1 of 2
- 297-9051-8082 SERVORD Reference Manual Vol 2 of 2

Non-Topology Elements

This section contains references to applications that do not appear in the IEMS topology, but still report faults to the Northbound log streams.

Data Audit System

This section contains IEMS Northbound log samples and device documentation references for the Data Audit System.

Data Audit System Fault Interface

Fault documentation for Data Audit System :

- NN10325-900 - ATM/IP Fault Management

Fault Mapping for Data Audit System

The following criteria can be used for looking up information on specific faults for Data Audit System.

Fault Correlation for Data Audit System

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
Data Audit System	logname and number	logname and number	logname and number	logname and number	NN10325-900 ATM/IP Fault Management

Northbound Fault Formats for Data Audit System

SCC2

The following is an example of a Data Audit System log in SCC2 format:

```
*C43 CMT 300 5341 TBL CMT Fault
        Location: Audit
        NotificationID: 1001
        State: Raise
        Category: Processing Error
        Cause: Corrupt data
        Time: Jan 23 13:43:37 2004
        Component Id: SESM=AuditSystem;Audit=CS2K Data Integrity Audit
        Specific Problem: Data mismatches detected
        Description: The SESM audit: CS2K Data Integrity Audit, has 59 unresolve
        d problems. To view and correct the problems, open the audit problem rep
        ort from the Audit System found under the SESM Maintenance menu item.
```

NTSTD

The following is an example of a Data Audit System log in NTSTD format:

```
COMPACT06BT ***  CMT300 Jan23 18:43:37 5341 TBL CMT Fault
        Location: Audit
        NotificationID: 1001
        State: Raise
        Category: Processing Error
        Cause: Corrupt data
        Time: Jan 23 13:43:37 2004
        Component Id: SESM=AuditSystem;Audit=CS2K Data Integrity Audit
        Specific Problem: Data mismatches detected
        Description: The SESM audit: CS2K Data Integrity Audit, has 59 unresolve
        d problems. To view and correct the problems, open the audit problem rep
        ort from the Audit System found under the SESM Maintenance menu item.
```

SNMP

The following is an example of a Data Audit System log in SNMP format:

```
system.sysUpTime.0 => 21:39:13
snmpTrapOID.0 => nnExtAlarmCritical
alarmActiveResourceId =>
.1.3.6.1.2.1.111.1.2.2.1.10.12.78.111.114.116.101.108.95.102.97.117.108.116.20.50.48
.48.52.45.49.45.50.51.44.49.58.52.51.58.51.55.46.48.44.42485
alarmActiveDateAndTime => 2004-1-23,1:43:37.0,
alarmActiveDescription => DeviceSpecificInfo=;Event from Unknown Syslog Device
nnExtAlarmActiveEventType => 5
nnExtAlarmActiveProbableCause => 118
nnExtAlarmActiveAdditionalText =>
nnExtAlarmActiveDocumentationPointer => CMT 300
nnExtAlarmActiveResourceDescription => IEMS=znc0s0j6;SESM=AuditSystem;Audit=CS2K Data
Integrity Audit
nnExtAlarmActiveManualClear => 0
nnExtAlarmActiveSequenceNumber => 8390
```

Syslog

The following is an example of a Data Audit System log in Syslog format:

```
Feb 23 13:44:54 wnc0s0pf IEMS: _V2_~I=~H=wnc0s0pf~A=IEMS~S=5398~~ CMT300 CRIT TBL CMT
Fault^M Location: Audit^M NotificationID: 1001^M State: Raise^M Category: Processing
Error^M Cause: Corrupt data^M Time: Jan 23 13:43:37 2004^M Component Id:
SESM=AuditSystem;Audit=CS2K Data Integrity Audit^M Specific Problem: Data mismatches
detected^M Description: The SESM audit: CS2K Data Integrity Audit, has 59 unresolve^M
d problems. To view and correct the problems, open the audit problem rep^M ort from
the Audit System found under the SESM Maintenance menu item.^M
```

Performance

OM and PM Documentation references for Data Audit System

There are no OMs or PMs associated with this application.

Northbound OM/PM Formats

There are no OMs or PMs associated with this application.

GUI/CLUI Documentation for Data Audit System

GUI Launching and User procedures

- NN10320-100 - ATM Solutions Basics
- NN10300-100 - IP Solutions Basics
- NN10276-500 - ATM/IP Configuration Management
- NN10325-900 - ATM/IP Fault Management

Related documents

IW-SPM IP

This section contains IEMS Northbound log samples and device documentation references for the IW-SPM IP.

IW-SPM IP Fault Interface

Fault documentation for IW-SPM IP :

- NN10078-911 - IW SPM IP Fault Management
- NN10275-909 - Succession Fault Management Logs Reference

Fault Mapping for IW-SPM IP

The following criteria can be used for looking up information on specific faults for IW-SPM IP.

Fault Correlation for IW-SPM IP

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
IW-SPM IP	Logname and number	Logname and number	Logname and number	Logname and number	NN10078-911 IW SPM IP Fault Management

Northbound Fault Formats for IW-SPM IP

SCC2

The following is an example of a IW-SPM IP log in SCC2 format:

```
**17 SPM 313 4488 TBL  Fault
        SPM   0 CEM   0 : A                      Time: 12:16:13.890
        Source: None           State: Insv       Type: None
        Reason:     Loadname mismatch.
        Diagnostic: Autonomous fault detection
        Comp:MCM         RegAddr:0           Exp:0           Act:0
```

NTSTD

The following is an example of a IW-SPM IP log in NTSTD format:

```
RTPU07BU  **  SPM313 Feb28 00:06:14 9091 TBL  Fault
        SPM   0 CEM   1 : A                      Time: 19:05:14.820
        Source: None           State: Insv       Type: None
        Reason:     SYNC OOSpec: prim. ref. NA.
        Diagnostic: Autonomous fault detection
        Comp:TIC         RegAddr:0           Exp:0           Act:0
```

SNMP

The following is an example of a IW-SPM IP log in SNMP format:

```
system.sysUpTime.0 => 3 days, 6:54:40
snmpTrapOID.0 => nnExtAlarmMajor
alarmActiveResourceId =>
.1.3.6.1.2.1.111.1.2.2.1.10.12.78.111.114.116.101.108.95.102.97.117.108.116.20.50.48
.48.52.45.50.45.50.55.44.55.58.49.50.58.50.55.46.54.44.14023
alarmActiveDateAndTime => 2004-2-27,7:12:27.6
alarmActiveDescription => DeviceSpecificInfo=Unavailable;SPM  0 CEM  0 : A
Time: 19:11:31.010
Source: None           State: Insv       Type: None
Reason:     SYNC OOSpec: prim. ref. NA.
Diagnostic: Autonomous fault detection
Comp:TIC         RegAddr:0           Exp:0           Act:0
```

```
nnExtAlarmActiveEventType => 5
nnExtAlarmActiveProbableCause => 118
nnExtAlarmActiveAdditionalText =>
nnExtAlarmActiveDocumentationPointer => SPM 313
nnExtAlarmActiveResourceDescription => IEMS=wnc0y0m0.us.nortel.com-CS2K-Mgr;
nnExtAlarmActiveManualClear => 3
nnExtAlarmActiveSequenceNumber => 18489
```

Syslog

The following is an example of a IW-SPM IP log in Syslog format:

```
Feb 28 12:11:09 wnc0s0pf IEMS: _V2_~I=~H=wnc0s0pf~A=IEMS~S=7983~~  SPM313 MAJOR TBL
Fault^M       SPM   0 CEM   1 : I                    Time: 12:10:11.080^M       Source:
None           State: Insv       Type: None  ^M        Reason:     No frame pulse from
DS-512 #0    ^M      Diagnostic: Autonomous fault detection      ^M      Comp:TIC
RegAddr:0            Exp:0           Act:0
```

Performance

OM and PM Documentation references for IW-SPM IP

- NN10144-711 - IW SPM IP Performance Management

Northbound OM/PM Formats

This section provides example output of Performance Measurement data in each of the Northbound formats provided

XML

The following is an example of Performance data for IW-SPM IP in XML format:

Note: *Northbound performance interface not supported for this device.*

CSV

The following is an example of Performance data for IW-SPM IP in CSV format:

Note: *Northbound performance interface not supported for this device.*

GUI/CLUI Documentation for IW-SPM IP

GUI Launching and User procedures

- NN10015-111 - IW SPM IP Basics

Related documents

- NN10056-461 - Upgrading the IW SPM IP
- NN10100-511 - IW SPM IP Configuration Management
- NN10166-611 - IW SPM IP Administration and Security

MG9000 Manager Mid-Tier

This section contains IEMS Northbound log samples and device documentation references for the MG9000 Mgr Mid-Tier.

MG9000 Mgr Mid-Tier Fault Interface

Fault documentation for MG9000 Mgr Mid-Tier :

All MG9000 Mgr Mid-Tier faults are delivered via MG9000 Mgr. See document(s)

- NN10074-911 MG9000 Fault Management
- NN10325-900 ATM/IP Fault Management
- NN10275-909 Succession Fault Management Logs Reference

Fault Mapping for MG9000 Mgr Mid-Tier

The following criteria can be used for looking up information on specific faults for MG9000 Mgr Mid-Tier.

Fault Correlation for MG9000 Mgr Mid-Tier

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
MG9K Mid-Tier	log name and number	log name and number	log name and number	log name and number	NN10074-911 MG9000 Fault Management

Northbound Fault Formats for MG9000 Mgr Mid-Tier

SCC2

The following is an example of a MG9000 Mgr Mid-Tier log in SCC2 format:

```
  52 MGEM703 0193 INFO Shutdown_Event
        Status: Shutting MG 9K Midtier Server down ...
```

NTSTD

The following is an example of a MG9000 Mgr Mid-Tier log in NTSTD format:

```
RTPU07BT     MGEM703 Feb02 20:52:08 0197 INFO Shutdown_Event
        Status: Shutting MG 9K Midtier Server down ...
```

SNMP

The following is an example of a MG9000 Mgr Mid-Tier log in SNMP format:

sysUpTime.0 => 1:30:14

snmpTrapOID.0 => nnExtAlarmMessage

nnExtAlarmMessageResource => .0.0

nnExtAlarmMessageResourceDescription => IEMS=wnc0y0nr.us.nortel.com-SSPFS-Unit-0;

nnExtAlarmMessageDateAndTime => 2004-2-2,3:52:8.0

nnExtAlarmMessageDocumentationPointer => MGEM703

nnExtAlarmMessageInfo => 52 MGEM703 0193 INFO Shutdown_Event Status: Shutting MG 9K Midtier Server down ...

Syslog

The following is an example of a MG9000 Mgr Mid-Tier log in Syslog format:

```
Mar  4 15:27:47 wnc0s0pf IEMS: _V2_~I=~H=wnc0s0pf~A=IEMS~S=0682~~ MGEM703 NONE INFO
Shutdown_Event
Status: Shutting MG 9K Midtier Server down ...
```

Performance

OM and PM Documentation references for MG9000 Mgr Mid-Tier

There are no OMs or PMs associated with this component.

GUI/CLUI Documentation for MG9000 Mgr Mid-Tier

GUI Launching and User procedures

The MG9000 Mgr Mid-Tier is an application that runs on an SSPFS machine. See SSPFS platform for client launch details.

- NN10096-511 MG9000 Configuration Management

Related documents

- NN10221105 VoA OSS Guide
- NN10048-461 Upgrading the MG9000
- NN10276-500 ATM/IP Configuration Management
- NN10325-900 ATM/IP Fault Management
- NN10162-611 MG9000 Administration and Security

OM Collector

OM Collector Fault Interface

This section contains IEMS Northbound log samples and device documentation references for the OM Collector.

Fault documentation for OM Collector :

- NN10074-911 MG9000 Fault Management

Fault Mapping for OM Collector

- NN10074-911 MG9000 Fault Management

The following criteria can be used for looking up information on specific faults for OM Collector.

Fault Correlation for OM Collector

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
OM Collector	logname and number	logname and number	logname and number	logname and number	NN10074-911 MG9000 Fault Management

Northbound Fault Formats for OM Collector

SCC2

The following is an example of a OM Collector log in SCC2 format:

```
  27 OMC 700 0470 INFO Startup_Event
        Status: OMCLTR_Process: OMCollector Process was started with PSID 17585
```

NTSTD

The following is an example of a OM Collector log in NTSTD format:

```
RTPU07BR      OMC700 Jan28 21:27:53 9923 INFO Startup_Event
         Status: OMCLTR_Process: OMCollector Process was started with PSID 17585
```

SNMP

The following is an example of a OM Collector log in SNMP format:

```
system.sysUpTime.0 => 4 days, 4:10:00
snmpTrapOID.0 => nnExtAlarmMessage
nnExtAlarmMessageResource => .0.0
nnExtAlarmMessageResourceDescription => IEMS=wnc0s0kq.us.nortel.com-SSPFS-Unit-0;
nnExtAlarmMessageDateAndTime => 2004-1-28,4:27:53.0
nnExtAlarmMessageDocumentationPointer => OMC 700
nnExtAlarmMessageInfo =>   27 OMC 700 0470 INFO Startup_Event
        Status: OMCLTR_Process: OMCollector Process was started with PSID 17585
```

Syslog

The following is an example of a OM Collector log in Syslog format:

```
Feb 28 16:27:48 wnc0s0pf IEMS: _V2_~I=~H=wnc0s0pf~A=IEMS~S=4656~~  OMC700 NONE INFO
Startup_Event^M        Status: OMCLTR_Process: OMCollector Process was started with
PSID 17585
```

Performance

OM and PM Documentation references for OM Collector

There are no OMs or PMs associated with this application. For MG9000 performance information see:

- NN10140-711 MG9000 Performance Management

Northbound OM/PM Formats

There are no OMs or PMs associated with this application.

GUI/CLUI Documentation for OM Collector

GUI Launching and User procedures

- NN10140-711 MG9000 Performance Management
- NN10096-511 MG9000 Configuration Management

Related documents

- NN10276-500 ATM/IP Configuration Management

V5.2 Data Audit

This section contains IEMS Northbound log samples and device documentation references for the V5.2 Data Audit.

V5.2 Data Audit Fault Interface

Fault documentation for V5.2 Data Audit :

The V5.2 Data Integrity Audit Module of V5.2 Data Audit will raise CMT300 faults, and it will be covered in **DataAudit**'s Fault Management.

The Data Audit system will generate CMT300 logs when problems are found during any of its audits. The component ID of the log can be used to identify the specific audit that encountered a problem.

- NN10275-909 - Succession Fault Management Logs Reference
- NN10325-900 - ATM/IP Fault Management

Fault Mapping for V5.2 Data Audit

The following criteria can be used for looking up information on specific faults for V5.2 Data Audit.

Fault Correlation for V5.2 Data Audit

NB format -> Device/EM	SCC2	NTSTD	SNMP	Syslog	Document Reference
V5.2 Data Audit	log name and log number. Seen as component ID in generic CMT300 Audit log. example: componentid = SESM=AuditSystem;Audit=V5.2 Data Integrity Audit	log name and log number. Seen as component ID in generic CMT300 Audit log. example: componentid = SESM=AuditSystem;Audit=V5.2 Data Integrity Audit	log name and log number. Seen as component ID in generic CMT300 Audit log. example: componentid = SESM=AuditSystem;Audit=V5.2 Data Integrity Audit	log name and log number. Seen as component ID in generic CMT300 Audit log. example: componentid = SESM=AuditSystem;Audit=V5.2 Data Integrity Audit	NN10275-909 Succession Fault Management Logs Reference

Northbound Fault Formats for V5.2 Data Audit

SCC2

The following is an example of a V5.2 Data Audit log in SCC2 format:

```
*C12 CMT 300 0002 TBL  CMT Fault
        Location: Audit
        NotificationID: 1002
        State: Raise
        Category: Processing Error
        Cause: Corrupt data
        Time: Feb 14 23:12:48 2004
        Component Id: SESM=AuditSystem;Audit=V5.2 Data Integrity Audit
        Specific Problem: Data mismatches detected
        Description: The SESM audit: V5.2 Data Integrity Audit, has 5 unresolved
        problems. To view and correct the problems, open the audit problem repo
        rt from the Audit System found under the SESM Maintenance menu item.
```

NTSTD

The following is an example of a V5.2 Data Audit log in NTSTD format:

```
COMPACT06BT ***  CMT300 Feb15 07:12:48 0002 TBL  CMT Fault
```

```
Location: Audit
NotificationID: 1002
State: Raise
Category: Processing Error
Cause: Corrupt data
Time: Feb 14 23:12:48 2004
Component Id: SESM=AuditSystem;Audit=V5.2 Data Integrity Audit
Specific Problem: Data mismatches detected
Description: The SESM audit: V5.2 Data Integrity Audit, has 5 unresolved
problems. To view and correct the problems, open the audit problem repo
rt from the Audit System found under the SESM Maintenance menu item.
```

SNMP

The following is an example of a V5.2 Data Audit log in SNMP format:

```
system.sysUpTime.0 => 3:05:01
snmpTrapOID.0 => nnExtAlarmCritical
alarmActiveResourceId =>
.1.3.6.1.2.1.111.1.2.2.1.10.12.78.111.114.116.101.108.95.102.97.117.108.116.20.50.48
.48.52.45.49.45.50.49.44.54.58.52.49.58.49.52.46.48.44.8995
alarmActiveDateAndTime => 2004-1-21,6:41:14.0,
alarmActiveDescription => DeviceSpecificInfo=;Event from Unknown Syslog Device
nnExtAlarmActiveEventType => 5
nnExtAlarmActiveProbableCause => 118
nnExtAlarmActiveAdditionalText =>
nnExtAlarmActiveDocumentationPointer => CMT 300
nnExtAlarmActiveResourceDescription => IEMS=zsups228;SESM=AuditSystem;Audit=V5.2 Data
Integrity Audit
nnExtAlarmActiveManualClear => 2
nnExtAlarmActiveSequenceNumber => 1
```

Syslog

The following is an example of a V5.2 Data Audit log in Syslog format:

```
Feb 14 23:12:50 zsups228 IEMS: _V2_~I=~H=zsups228~A=IEMS~S=0008~~ CMT300 CRIT TBL CMT
Fault^M Location: Audit^M NotificationID: 1002^M State: Raise^M
Category: Processing Error^M Cause: Corrupt data^M Time: Feb 14 23:12:48
2004^M Component Id: SESM=AuditSystem;Audit=V5.2 Data Integrity Audit^M
Specific Problem: Data mismatches detected^M Description: The SESM audit: V5.2
Data Integrity Audit, has 5 unresolved^M problems. To view and correct the
```

```
problems, open the audit problem repo^M        rt from the Audit System found under
the SESM Maintenance menu item.^M
```

Performance

OM and PM Documentation references for V5.2 Data Audit

- There are no performance measurements for V5.2 Data Audit V5.2 Data Audit

Northbound OM/PM Formats

This section provides example output of Performance Measurement data in each of the Northbound formats provided

XML

The following is an example of Performance data for V5.2 Data Audit in XML format:

Note: *Northbound performance interface not supported for this component.*

CSV

The following is an example of Performance data for V5.2 Data Audit in CSV format:

Note: *Northbound performance interface not supported for this component.*

GUI/CLUI Documentation for V5.2 Data Audit

GUI Launching and User procedures

- NN10320-100 - ATM Solutions Basics
- NN10300-100 - IP Solutions Basics

Related documents

- NN10083-911 - CS2000 Fault Management
- NN10281-600 - ATM/IP Administration and Security
- NN10276-500 - ATM/IP Configuration Management
- NIS V208-1 - DMS-100 International Switching V5: CS2K Interface Specification to Support V5.2 Protocol

References

Fault Specifications

[1] Syslog Protocol (RFC 3164): http://www.ietf.org/rfc/rfc3164.txt

[2] Alarm MIB (draft): http://www.ietf.org/html.charters/disman-charter.html

[3] Notification Log MIB (RFC 3014): http://www.ietf.org/rfc/rfc3014.txt?number=3014

OAM&P Security

[4] NN10281-600 - ATM/IP Administration and Security

Network Engineering

[5] <SN07 SEB number> - IAC Engineering Guidelines

[6] <SN07 SEB number> - IAW Engineering Guidelines

[7] <SN07 SEB number> - UAIP Engineering Guidelines

[8] <SN07 SEB number> - PT-IP Engineering Guidelines

[9] <SN07 SEB number> - VoATM Engineering Guidelines

[10] <SN07 SEB number> - TRIMODAL Engineering Guidelines

Industry Standards

PAM

[11] Introduction to PAM: http://docs.sun.com/db/doc/805-7229/6j6q8svdi?q=pam.conf&a=view

[12] PAM RFC from OpenGroup: http://www.opengroup.org/tech/rfc/mirror-rfc/rfc86.0.txt

[13] pam.conf (Solaris 8): http://docs.sun.com/db/doc/806-0633/6j9vn6q5t?q=pam.conf&a=view

NSSwitch

[14] Solaris Name Services: http://docs.sun.com/db/doc/806-1387/6jam6926b?q=nsswitch&a=view

[15] nsswitch.conf (Solaris 8): http://docs.sun.com/db/doc/806-0633/6j9vn6q5m?q=nsswitch&a=view

Secure Shell (SSH)

[16] Secure Shell (secsh) Internet Drafts: http://www.ietf.org/html.charters/secsh-charter.html

[17] OpenSSH: http://www.openssh.org

SNMP V3/USM

[18] An Architecture for Describing SNMP Management Frameworks (RFC3411): http://www.ietf.org/rfc/rfc3411.txt?number=3411

[19] User-based Security Model (RFC3414): http://www.ietf.org/rfc/rfc3414.txt?number=3414

[20] View-based Access Control Model (RFC3415): http://www.ietf.org/rfc/rfc3415.txt?number=3415

HTTPS

[21] The SSL Protocol V3.0: http://wp.netscape.com/eng/ssl3/ssl-toc.html

[22] Transport Layer Security (TLS) Extensions (RFC2246): http://www.ietf.org/rfc/rfc3546.txt

[23] HTTP over TLS (RFC 2818): http://www.ietf.org/rfc/rfc2818.txt

[24] OpenSSL: http://www.openssl.org

Appendix 1: Northbound OSS Configurations

Depending on customer requirements, a single-source OSS interface can be provided from either the IEMS server or the SDM platform. In either scenario, one system is configured as the primary and the other a subordinate log source .

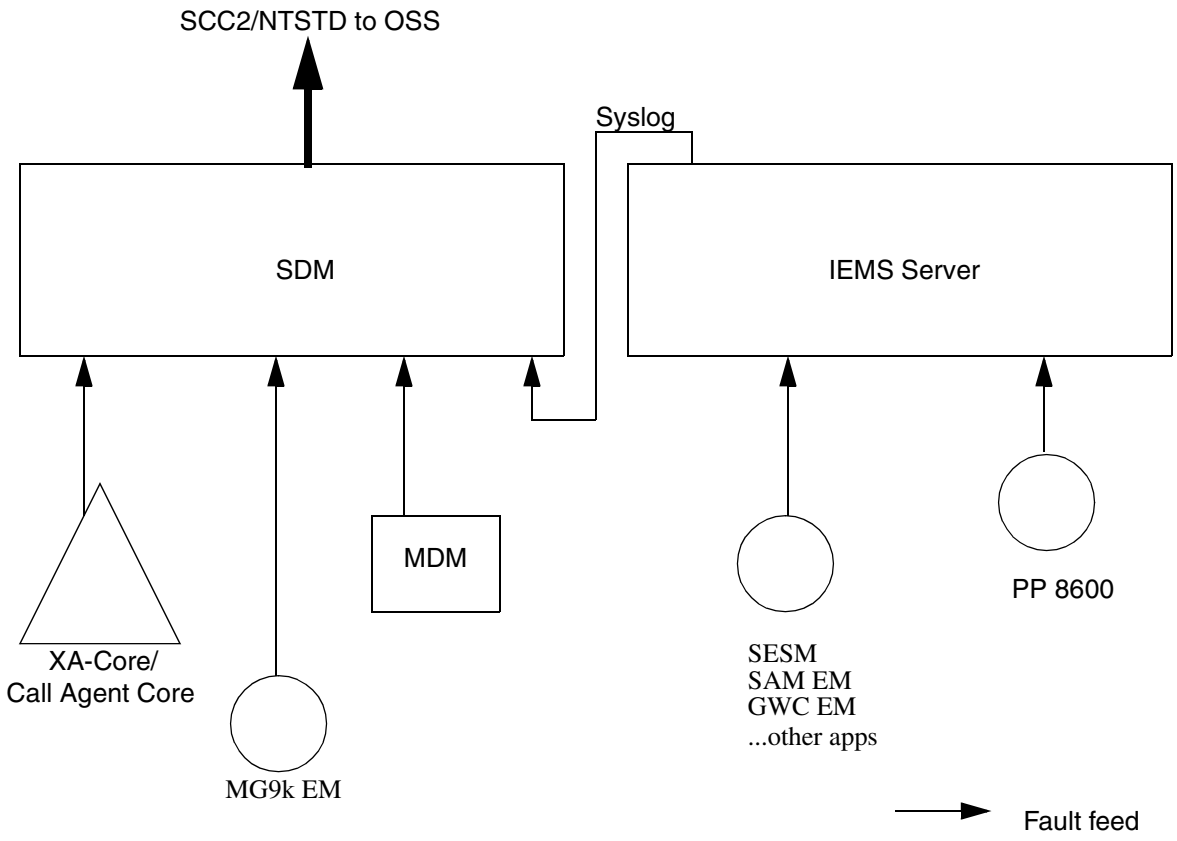
For existing Nortel Networks ATM customers, the SDM provides the external interface to third party OSSs. The IEMS is configured to forward all of its collected faults to the SDM through its Syslog interface. The SDM then aggregates all incoming faults and forwards them to the standard SCC2 and NTSTD interfaces used by customers. See figure .

Conversely, for Nortel Networks Carrier VoIP customers, IEMS provides the single Northbound interface using the SDM as a one of several subordinate fault collectors/forwarders in the network. See figure .

Using the SDM as a Northbound Fault Feed

As an OAM&P requirement, fault information must be available from the existing SDM northbound interfaces. In order to support that, the IEMS can be configured to send its northbound information to the SDM.

Fault flow with SDM as Northbound interface (ATM Market only)



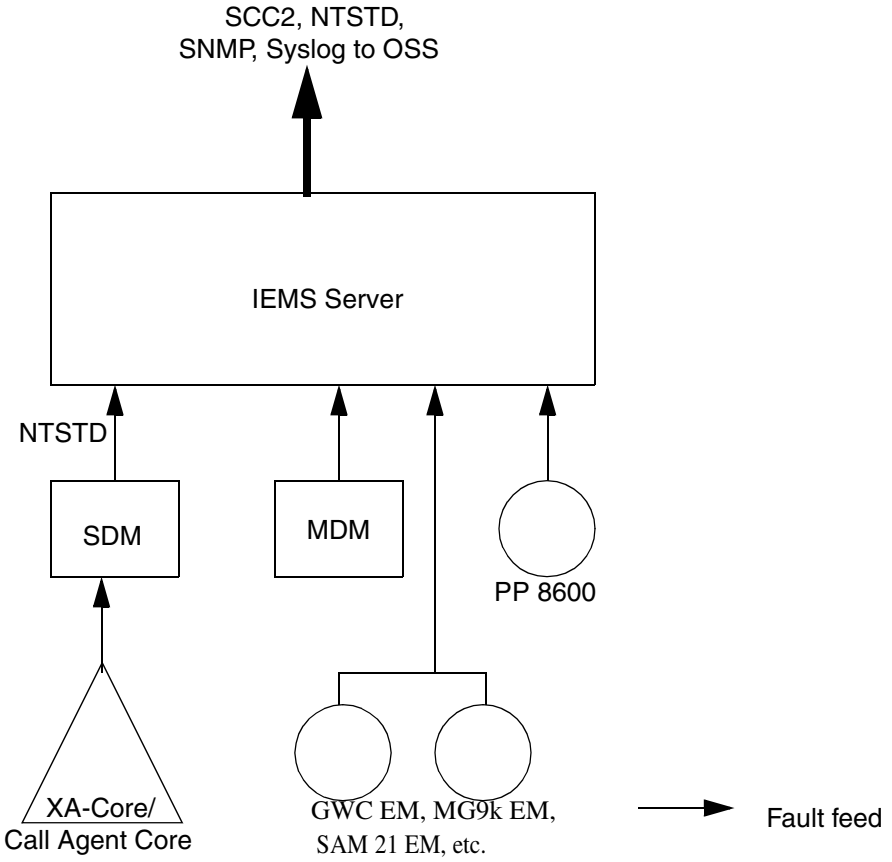
Note: The IEMS northbound Syslog stream is sent on local7.notice. The SDM syslog.conf file will need to be configured to accept this stream.

The following figure shows the fault feeds that are used in the ATM market to provide a single source feed for all devices. In this case, the SDM serves as the Northbound fault interface.

The MDM and MG9000 Manager send their information to the SDM. This information is sent by the SDM northbound along with the CS2k core information (XA-Core as illustrated or Call Agent Core).

Additional data comes to the IEMS server from the CS2000 Manager applications and element managers (GWC-EM, NPM, SAM 21 EM, etc.). The IEMS then sends this data to the SDM via its Syslog facility. In this way, the IEMS acts as a mediator for devices that cannot directly send events to the SDM.

Fault flow with IEMS as Northbound interface (typical)



Note: The SDM SCC2 and NTSTD logroute streams must be configured for SCC2_old or NTstd_old in SN07. This is a change from SN06.2

This figure shows the fault flows in an office where the IEMS will be the northbound interface. In this configuration, all the devices that have been implemented in IEMS forward their fault information to IEMS. The SDM will only be responsible for forwarding core faults to the IEMS.

Note: The SDM logroute stream must be configured from tcpin.

Appendix 2: Nortel Alarm Extension MIB

```
-- Draft Version

NORTEL-ALARM-EXT-MIB

DEFINITIONS ::= BEGIN

   IMPORTS
       nortelGenericMIBs FROM NORTEL-GENERIC-MIB
       alarmActiveEntry, alarmActiveResourceId, alarmActiveDescription,
       ResourceId, alarmActiveDateAndTime
                                      FROM ALARM-MIB
       IANAItuEventType, IANAItuProbableCause
                                      FROM IANA-ITU-ALARM-TC
       AdminState, OperState, UsageState,
       AlarmStatus, StandbyStatus     FROM ENTITY-STATE-MIB
      nlmLogName, nlmLogIndex       FROM NOTIFICATION-LOG-MIB
       NOTIFICATION-GROUP             FROM SNMPv2-CONF
       DateAndTime, DisplayString     FROM SNMPv2-TC
       SnmpAdminString                FROM SNMP-FRAMEWORK-MIB
       MODULE-IDENTITY, OBJECT-IDENTITY,
       OBJECT-TYPE, NOTIFICATION-TYPE,
       Unsigned32
                                      FROM SNMPv2-SMI;


   nnExtAlarmMIB  MODULE-IDENTITY
       LAST-UPDATED "200401270000Z"
       ORGANIZATION "Nortel Networks"
       CONTACT-INFO
              "     Nortel Networks
                    8200 Dixie Road
                    Brampton, Ontario L6T 5P6
                    Canada

                    1-800-4Nortel
                    www.nortelnetworks.com "
```

```
       DESCRIPTION
              "This module contains objects that extend the IETF Alarm MIB, including
notifications."

       -- Revision history

       REVISION "200401270000Z"
       DESCRIPTION
                " Initial version"

       ::= { nortelGenericMIBs 6 }

  nnExtAlarmObjects  OBJECT IDENTIFIER ::= { nnExtAlarmMIB 1 }
  nnExtAlarmConformance  OBJECT IDENTIFIER ::= { nnExtAlarmMIB 2 }
  nnExtAlarmCompliances  OBJECT IDENTIFIER ::= { nnExtAlarmConformance 1 }
  nnExtAlarmGroups  OBJECT IDENTIFIER ::= { nnExtAlarmConformance 2 }


  -- Textual Convetions

  NnAvailabilityStatus  ::=  TEXTUAL-CONVENTION
       STATUS         current
       DESCRIPTION
            "Represents the availability status"
       SYNTAX INTEGER {
        notSupported (1),
     inTest (2),
     failed (3),
     powerOff (4),
     offLine (5),
     offDuty (6),
     dependency (7),
     degraded (8),
     notInstalled (9),
     logFull (10)
   }

  NnControlStatus  ::=  TEXTUAL-CONVENTION
       STATUS         current
```

```
      DESCRIPTION
           "Represents the control status"
      SYNTAX INTEGER {
       notSupported (1),
    subjectToTest (2),
    partOfServiceLocked (3),
    reservedForTest (4),
    suspended (5)
 }

NnProceduralStatus  ::=  TEXTUAL-CONVENTION
     STATUS         current
     DESCRIPTION
          "Represents the procedural status"
     SYNTAX INTEGER {
      notSupported (1),
     initializationRequired (2),
    notInitialized (3),
    initializing (4),
    reporting (5),
    terminating (6)
 }

NnUnknownStatus  ::=  TEXTUAL-CONVENTION
     STATUS         current
     DESCRIPTION
          "The unknown status attribute is used to indicate that
          the state of the resource represented by the managed object
          is unknown. When the unknown status attribute value is
          true, the value of the state attributes may not reflect
          the actual state of the resource."
 SYNTAX     INTEGER {
      false(1),
      true(2)
   }


-- Nortel Extended Active Alarm Table
```

```
 nnExtAlarmActiveTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF NnExtAlarmActiveEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This table contains additional information about active alarms than
        what is found in the IETF Alarm MIB."
    ::= { nnExtAlarmObjects 1 }

nnExtAlarmActiveEntry OBJECT-TYPE
    SYNTAX      NnExtAlarmActiveEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An active alarm entry"
    AUGMENTS { alarmActiveEntry }
    ::= { nnExtAlarmActiveTable 1 }

 NnExtAlarmActiveEntry ::= SEQUENCE {
    nnExtAlarmActiveEventType                    IANAItuEventType,
    nnExtAlarmActiveProbableCause                IANAItuProbableCause,
    nnExtAlarmActiveAdditionalText               SnmpAdminString,
    nnExtAlarmActiveDocumentationPointer         SnmpAdminString,
    nnExtAlarmActiveResourceDescription          SnmpAdminString,
    nnExtAlarmActiveManualClear                  INTEGER,
    nnExtAlarmActiveSequenceNumber               Integer32
          }

   nnExtAlarmActiveEventType OBJECT-TYPE
    SYNTAX       IANAItuEventType
    MAX-ACCESS   read-write
    STATUS       current
    DESCRIPTION
             "Represents the per active alarm instance event type values."
     REFERENCE
         "ITU Recommendation M.3100, 'Generic Network Information
             Model', 1995
```

```
            ITU Recommendation X.733, 'Information Technology - Open
               Systems Interconnection - System Management: Alarm
               Reporting Function', 1992
            ITU Recommendation X.736, 'Information Technology - Open
               Systems Interconnection - System Management: Security
               Alarm Reporting Function', 1992"
     ::= { nnExtAlarmActiveEntry 1 }

nnExtAlarmActiveProbableCause OBJECT-TYPE
   SYNTAX      IANAItuProbableCause
   MAX-ACCESS  read-write
   STATUS       current

     DESCRIPTION
             "Per active alarm instance ITU probable cause values."
     REFERENCE
         "ITU Recommendation M.3100, 'Generic Network Information
            Model', 1995
          ITU Recommendation X.733, 'Information Technology - Open
            Systems Interconnection - System Management: Alarm
            Reporting Function', 1992
          ITU Recommendation X.736, 'Information Technology - Open
            Systems Interconnection - System Management: Security
            Alarm Reporting Function', 1992"
     ::= { nnExtAlarmActiveEntry 2 }


nnExtAlarmActiveAdditionalText OBJECT-TYPE
   SYNTAX  SnmpAdminString
   MAX-ACCESS read-write
   STATUS     current
   DESCRIPTION
             "Represents the per active alarm instanace additional text
             field."
     REFERENCE
         "ITU Recommendation M.3100, 'Generic Network Information
            Model', 1995
```

```
            ITU Recommendation X.733, 'Information Technology - Open
               Systems Interconnection - System Management: Alarm
               Reporting Function', 1992"
       ::= { nnExtAlarmActiveEntry 3}

  nnExtAlarmActiveDocumentationPointer OBJECT-TYPE
      SYNTAX      SnmpAdminString
      MAX-ACCESS  read-only
      STATUS       current
      DESCRIPTION
               "This object servces as a pointer to documentation related to this
               problem.

               If there is no specific document pointer for this alarm, this object
               is a null length string."
       ::= { nnExtAlarmActiveEntry 4 }

  nnExtAlarmActiveResourceDescription OBJECT-TYPE
      SYNTAX      SnmpAdminString
      MAX-ACCESS  read-only
      STATUS       current
      DESCRIPTION
           "This is a textual description of the resource under
            under alarm.

            The format of the string is as follows:

NEtype=NEname;componentType=componentInstanceId;subcompType=subcompInstanceId;....

          With NE as the root, the entire containment with the list of Relative
          Distinguished Names (RDNs) is presented upto the
           point where the alarming component is clearly identified.
           Semicolon is the delimiter between a 'category=value' pair.
           The string can only contain alphanumeric characters and
           underscores. No commas, spaces, slashes, hyphens, or
           dollar signs are allowed
               "
       ::= { nnExtAlarmActiveEntry 5 }
```

```
nnExtAlarmActiveManualClear OBJECT-TYPE
    SYNTAX      INTEGER {
         other (1),
         forbidden (2),
         required (3),
         optional (4)
         }
    MAX-ACCESS  read-only
    STATUS       current
    DESCRIPTION
             "This object provides guidance to a mid-level manager
             on the handling of this alarm. A value of forbidden
             indicates that a mid-level manager MUST NOT allow
             this alarm to be manually cleared. A value of
             required indicates that this alarm has no corresponding
             clear so MUST always be manually cleared. A value of
             optional indicates that this alarm does have a corresponding
             clear, but that is MAY also be cleared manually. A value of
             other indicates that the manual clear status is either
             unknown or not one of the specified values."
     ::= { nnExtAlarmActiveEntry 6 }

nnExtAlarmActiveSequenceNumber OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS       current
    DESCRIPTION
             "The sequence number of this notification. This object
             MUST have a value of 0 for notifications without
             sequence numbers or solutions that don't support
             sequence numbers."
    DEFVAL { 0 }
     ::= { nnExtAlarmActiveEntry 7 }

-- Nortel Extended Alarm State Information

   nnExtAlarmStateTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF NnExtAlarmStateEntry
```

```
      MAX-ACCESS  not-accessible
      STATUS      current
      DESCRIPTION
          "This table contains state information about active alarms than
          what is found in the IETF Alarm MIB."
      ::= { nnExtAlarmObjects 2 }

  nnExtAlarmStateEntry OBJECT-TYPE
      SYNTAX      NnExtAlarmStateEntry
      MAX-ACCESS  not-accessible
      STATUS      current
      DESCRIPTION
          "An active alarm state entry"
      AUGMENTS { alarmActiveEntry }
      ::= { nnExtAlarmStateTable 1 }

  NnExtAlarmStateEntry ::= SEQUENCE {
   nnExtAlarmStateAdministrative   AdminState,
   nnExtAlarmStateOperational      OperState,
   nnExtAlarmStateUsage            UsageState,
   nnExtAlarmStateAlarm            AlarmStatus,
   nnExtAlarmStateAvailability     NnAvailabilityStatus,
   nnExtAlarmStateControl          NnControlStatus,
   nnExtAlarmStateProcedural       NnProceduralStatus,
   nnExtAlarmStateStandby          StandbyStatus,
   nnExtAlarmStateUnknown          NnUnknownStatus
  }

    nnExtAlarmStateAdministrative OBJECT-TYPE
      SYNTAX      AdminState
      MAX-ACCESS  read-only
      STATUS       current
      DESCRIPTION
                ""
       ::= { nnExtAlarmStateEntry 1 }

    nnExtAlarmStateOperational OBJECT-TYPE
      SYNTAX      OperState
```

```
      MAX-ACCESS  read-only
      STATUS       current
      DESCRIPTION
               ""
       ::= { nnExtAlarmStateEntry 2 }

   nnExtAlarmStateUsage OBJECT-TYPE
      SYNTAX      UsageState
      MAX-ACCESS  read-only
      STATUS       current
      DESCRIPTION
               ""
       ::= { nnExtAlarmStateEntry 3 }

    nnExtAlarmStateAlarm OBJECT-TYPE
      SYNTAX      AlarmStatus
      MAX-ACCESS  read-only
      STATUS       current
      DESCRIPTION
               ""
       ::= { nnExtAlarmStateEntry 4 }

   nnExtAlarmStateAvailability OBJECT-TYPE
      SYNTAX      NnAvailabilityStatus
      MAX-ACCESS  read-only
      STATUS       current
      DESCRIPTION
               ""
       ::= { nnExtAlarmStateEntry 5 }

    nnExtAlarmStateControl OBJECT-TYPE
      SYNTAX      NnControlStatus
      MAX-ACCESS  read-only
      STATUS       current
      DESCRIPTION
               ""
       ::= { nnExtAlarmStateEntry 6 }
```

```
   nnExtAlarmStateProcedural OBJECT-TYPE
      SYNTAX      NnProceduralStatus
      MAX-ACCESS  read-only
      STATUS       current
      DESCRIPTION
               ""
       ::= { nnExtAlarmStateEntry 7 }

    nnExtAlarmStateStandby OBJECT-TYPE
      SYNTAX      StandbyStatus
      MAX-ACCESS  read-only
      STATUS       current
      DESCRIPTION
               ""
       ::= { nnExtAlarmStateEntry 8 }

    nnExtAlarmStateUnknown OBJECT-TYPE
      SYNTAX      NnUnknownStatus
      MAX-ACCESS  read-only
      STATUS       current
      DESCRIPTION
               ""
       ::= { nnExtAlarmStateEntry 9 }

  -- Table of Information related to Messages

     nnExtAlarmMessageTable OBJECT-TYPE
      SYNTAX      SEQUENCE OF NnExtAlarmMessageEntry
      MAX-ACCESS  not-accessible
      STATUS      current
      DESCRIPTION
          "A table of information on messages. Entries are
          added to this table when their corresponding
          notifications have been sent. Entires will be
          removed from this table as outlined in the
          Notification Log MIB [RFC3014]. Implementations
          that do not support the Notification Log MIB should
          provide behaviour for nlmLogName, nlmLogIndex and
```

```
        this table as if they did."
    ::= { nnExtAlarmObjects 3 }

nnExtAlarmMessageEntry OBJECT-TYPE
    SYNTAX      NnExtAlarmMessageEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An alarm message entry."
    INDEX       { nlmLogName, nlmLogIndex }
    ::= { nnExtAlarmMessageTable 1 }

 NnExtAlarmMessageEntry ::= SEQUENCE {
     nnExtAlarmMessageResource             ResourceId,
     nnExtAlarmMessageResourceDescription  SnmpAdminString,
     nnExtAlarmMessageDateAndTime          DateAndTime,
     nnExtAlarmMessageDocumentationPointer SnmpAdminString,
     nnExtAlarmMessageInfo                 SnmpAdminString
  }

  nnExtAlarmMessageResource    OBJECT-TYPE
    SYNTAX      ResourceId
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
       "This object identifies the resource that this message pertains to

       If there is no corresponding resource, then
       the value of this object MUST be 0.0."
    ::= { nnExtAlarmMessageEntry 1 }

   nnExtAlarmMessageResourceDescription OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
    STATUS       current
    DESCRIPTION
         "This is a textual description of the resource this message
         pertains to.
```

```
            The format of the string is as follows:

NEtype=NEname;componentType=componentInstanceId;subcompType=subcompInstanceId;....

           With NE as the root, the entire containment with the list of Relative
           Distinguished Names (RDNs) is presented upto the
            point where the messaging component is clearly identified.
            Semicolon is the delimiter between a 'category=value' pair.
            The string can only contain alphanumeric characters and
            underscores. No commas, spaces, slashes, hyphens, or
            dollar signs are allowed
               "
       ::= { nnExtAlarmMessageEntry 2 }



   nnExtAlarmMessageDateAndTime OBJECT-TYPE
      SYNTAX      DateAndTime
      MAX-ACCESS  not-accessible
      STATUS      current
      DESCRIPTION
          "The local date and time when the message originated.

          Implementations MUST include the offset from UTC,
          if available.  Implementation in environments in which
          the UTC offset is not available is NOT RECOMMENDED."
      ::= { nnExtAlarmMessageEntry 3 }

    nnExtAlarmMessageDocumentationPointer OBJECT-TYPE
      SYNTAX      SnmpAdminString
      MAX-ACCESS  read-only
      STATUS       current
      DESCRIPTION
               "This object servces as a pointer to documentation related to this
               problem.

               If there is no specific document pointer for this alarm, this object
               is a null length string."
```

```
      ::= { nnExtAlarmMessageEntry 4 }

   nnExtAlarmMessageInfo OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "A textual discription of the event that has occurred,
            suitable to display to an operator. "
    ::= { nnExtAlarmMessageEntry 5 }


  -- all notification OIDs would be prefixed with a zero OID to
  -- facilitate  snmp v1<->v2 conversion

  nnExtNotificationPrefix  OBJECT-IDENTITY
            STATUS         current
            DESCRIPTION
                   "This OID represents the prefix branch for all Nortel ITU
                    Alarm  Notifications.
                    The last but one sub identifier in the OID of
                    any Notification must have the value zero to facilitate
                    v2<-->v1 conversion."
            ::=  {nnExtAlarmObjects  0 }

 -- Alarm  Notifications

          nnExtAlarmClear NOTIFICATION-TYPE
                          OBJECTS { alarmActiveResourceId,
                                    alarmActiveDateAndTime,
                                    alarmActiveDescription,
                                    nnExtAlarmActiveEventType,
                                    nnExtAlarmActiveProbableCause,
                 nnExtAlarmActiveAdditionalText,
                                    nnExtAlarmActiveDocumentationPointer,
                                    nnExtAlarmActiveResourceDescription,
                                    nnExtAlarmActiveSequenceNumber
                                  }
```

```
  STATUS  current
  DESCRIPTION
    "This notification indicates that one or more previously
     reported alarms have been cleared and the previously reported
     alarms are identified via the correlation id list field.
     The varbinds include alarm context via the ComponentId field
     and other additional useful information."


::= { nnExtNotificationPrefix 301 }


nnExtAlarmWarning NOTIFICATION-TYPE
                OBJECTS { alarmActiveResourceId,
                          alarmActiveDateAndTime,
                          alarmActiveDescription,
                          nnExtAlarmActiveEventType,
                          nnExtAlarmActiveProbableCause,
        nnExtAlarmActiveAdditionalText,
                          nnExtAlarmActiveDocumentationPointer,
                          nnExtAlarmActiveResourceDescription,
                          nnExtAlarmActiveManualClear,
                          nnExtAlarmActiveSequenceNumber
                        }
  STATUS  current
  DESCRIPTION
    "This notification indicates that an alarm of 'Warning' severity
     has been raised on a NE.
     The varbinds include alarm context via the ComponentId field
     and other additional useful information on the alarm condition."


::= { nnExtNotificationPrefix 302 }


nnExtAlarmMinor NOTIFICATION-TYPE
                OBJECTS { alarmActiveResourceId,
                          alarmActiveDateAndTime,
```

```
                            alarmActiveDescription,
                            nnExtAlarmActiveEventType,
                            nnExtAlarmActiveProbableCause,
          nnExtAlarmActiveAdditionalText,
                            nnExtAlarmActiveDocumentationPointer,
                            nnExtAlarmActiveResourceDescription,
                            nnExtAlarmActiveManualClear,
                            nnExtAlarmActiveSequenceNumber
                          }
  STATUS  current
  DESCRIPTION
    "This notification indicates that an alarm of 'Minor' severity
     has been raised on a NE.
     The varbinds include alarm context via the ComponentId field
     and other additional useful information on the alarm condition."


::= { nnExtNotificationPrefix 303 }



nnExtAlarmMajor NOTIFICATION-TYPE
                OBJECTS { alarmActiveResourceId,
                          alarmActiveDateAndTime,
                          alarmActiveDescription,
                          nnExtAlarmActiveEventType,
                          nnExtAlarmActiveProbableCause,
          nnExtAlarmActiveAdditionalText,
                          nnExtAlarmActiveDocumentationPointer,
                          nnExtAlarmActiveResourceDescription,
                          nnExtAlarmActiveManualClear,
              nnExtAlarmActiveSequenceNumber
                          }
  STATUS  current
  DESCRIPTION
    "This notification indicates that an alarm of 'Major' severity
     has been raised on a NE.
     The varbinds include alarm context via the ComponentId field
```

```
     and other additional useful information on the alarm condition."


::= { nnExtNotificationPrefix 304 }


nnExtAlarmCritical NOTIFICATION-TYPE
                OBJECTS { alarmActiveResourceId,
                          alarmActiveDateAndTime,
                          alarmActiveDescription,
                          nnExtAlarmActiveEventType,
                          nnExtAlarmActiveProbableCause,
        nnExtAlarmActiveAdditionalText,
                          nnExtAlarmActiveDocumentationPointer,
                          nnExtAlarmActiveResourceDescription,
                          nnExtAlarmActiveManualClear,
            nnExtAlarmActiveSequenceNumber
                        }
  STATUS  current
  DESCRIPTION
    "This notification indicates that an alarm of 'Critical' severity
     has been raised on a NE.
     The varbinds include alarm context via the ComponentId field
     and other additional useful information on the alarm condition."


::= { nnExtNotificationPrefix 305 }

nnExtAlarmMessage NOTIFICATION-TYPE
                OBJECTS {
                        nnExtAlarmMessageResource,
                        nnExtAlarmMessageResourceDescription,
                        nnExtAlarmMessageDateAndTime,
                        nnExtAlarmMessageDocumentationPointer,
                        nnExtAlarmMessageInfo
                        }
  STATUS  current
  DESCRIPTION
```

```
            "An informational message. This notification does not
            correspond to an alarm so would not be stored in the
            active alarm table and it does not have a corresponing
            clear."
          ::= { nnExtNotificationPrefix 306 }

-- Notification group definitions


    nnExtAlarmNotificationsGroup NOTIFICATION-GROUP
           NOTIFICATIONS  {
                          nnExtAlarmClear,
                          nnExtAlarmWarning,
                          nnExtAlarmMinor,
                          nnExtAlarmMajor,
                          nnExtAlarmCritical
                          }
           STATUS   current
           DESCRIPTION
                " Nortel alarm notification group."
           ::= { nnExtAlarmGroups 1}

    nnExtAlarmGroup OBJECT-GROUP
           OBJECTS  {
                          nnExtAlarmActiveEventType,
                          nnExtAlarmActiveProbableCause,
                          nnExtAlarmActiveAdditionalText,
                          nnExtAlarmActiveDocumentationPointer,
                          nnExtAlarmActiveResourceDescription,
                          nnExtAlarmActiveManualClear,
                          nnExtAlarmActiveSequenceNumber
                          }
           STATUS   current
           DESCRIPTION
                " Nortel alarm  group."
           ::= { nnExtAlarmGroups 2}

     nnExtAlarmStateGroup OBJECT-GROUP
```

```
            OBJECTS {
            nnExtAlarmStateAdministrative,
           nnExtAlarmStateOperational,
           nnExtAlarmStateUsage,
           nnExtAlarmStateAlarm,
           nnExtAlarmStateAvailability,
           nnExtAlarmStateControl,
           nnExtAlarmStateProcedural,
           nnExtAlarmStateStandby,
            nnExtAlarmStateUnknown
         }
       STATUS   current
            DESCRIPTION
                 " Nortel  alarm state group."
            ::= { nnExtAlarmGroups 3}

     nnExtAlarmMessageGroup OBJECT-GROUP
         OBJECTS {
         nnExtAlarmMessageResource,
         nnExtAlarmMessageInfo,
         nnExtAlarmMessageDocumentationPointer,
         nnExtAlarmMessageDateAndTime,
         nnExtAlarmMessage
         }
     STATUS   current
           DESCRIPTION
                " Nortel  alarm message group."
           ::= { nnExtAlarmGroups 4}

-- Compliance
 nnExtAlarmCompliance MODULE-COMPLIANCE
     STATUS current
     DESCRIPTION
          "The compliance statement for entities which implement
          the Nortel Alarm MIB."
     MODULE    -- this module
          MANDATORY-GROUPS {
               nnExtAlarmGroup
```

```
            }

    ::= { nnExtAlarmCompliances 1}

END
```

Appendix A: Passport 8600 Performance Metrics

Performance Metric Identifier	MIB Name	Description	Default Succession IEMS Collection Interval
RFC1213-MIB			
sysDescr	RFC1213-MIB	A textual description of the entity. This value should include the full name and version identification of the system's hardware type, software operating-system, and networking software. It is mandatory that this only contain printable ASCII characters.	Every 30 mins
sysObjectID	RFC1213-MIB	The vendor's authoritative identification of the network management subsystem contained in the entity. This value is allocated within the SMI enterprises subtree (1.3.6.1.4.1) and provides an easy and unambiguous means for determining `what kind of box' is being managed. For example, if vendor `Flintstones, Inc.' was assigned the subtree 1.3.6.1.4.1.4242, it could assign the identifier 1.3.6.1.4.1.4242.1.1 to its `Fred Router'.	Every 30 mins
sysUpTime	RFC1213-MIB	The time (in hundredths of a second) since the network management portion of the system was last re-initialized.	Every 30 mins
sysName	RFC1213-MIB	An administratively-assigned name for this managed node. By convention, this is the node's fully-qualified domain name.	Every 30 mins
sysLocation	RFC1213-MIB	The physical location of this node (e.g., `telephone closet, 3rd floor').	Every 30 mins
ifInOctets	RFC1213-MIB	The total number of octets received on the interface, including framing characters.	Every 5 and 30 mins
ifInDiscards	RFC1213-MIB	The number of inbound packets which were chosen to be discarded even though no errors had been detected to prevent their being deliverable to a higher-layer protocol. One possible reason for discarding such a packet could be to free up buffer space.	Every 30 mins
ifInErrors	RFC1213-MIB	The number of inbound packets that contained errors preventing them from being deliverable to a higher-layer protocol.	Every 30 mins
ifOutOctets	RFC1213-MIB	The total number of octets transmitted out of the interface, including framing characters.	Every 5 and 30 mins
ifOutDiscards	RFC1213-MIB	The number of outbound packets which were chosen to be discarded even though no errors had been detected to prevent their being transmitted. One possible reason for discarding such a packet could be to free up buffer space.	Every 30 mins
ifOutErrors	RFC1213-MIB	The number of outbound packets that could not be transmitted because of errors.	Every 30 mins
ipInReceives	RFC1213-MIB	The total number of input datagrams received from interfaces, including those received in error.	Every 5 and 30 mins
ipInDiscards	RFC1213-MIB	The number of input IP datagrams for which no problems were encountered to prevent their continued processing, but which were discarded (e.g., for lack of buffer space). Note that this counter does not include any datagrams discarded while awaiting re-assembly.	Every 30 mins
ipOutRequests	RFC1213-MIB	The total number of IP datagrams which local IP user-protocols (including ICMP) supplied to IP in requests for transmission. Note that this counter does not include any datagrams counted in ipForwDatagrams.	Every 5 and 30 mins
ipOutDiscards	RFC1213-MIB	The number of output IP datagrams for which no problem was encountered to prevent their transmission to their destination, but which were discarded (e.g., for lack of buffer space). Note that this counter would include datagrams counted in ipForwDatagrams if any such packets met this (discretionary) discard criterion.	Every 30 mins
RFC1271-MIB			
etherStatsCRCAlignErrors	RFC1271-MIB	The total number of packets received that had a length (excluding framing bits, but including FCS octets) of between 64 and 1518 octets, inclusive, but were not an integral number of octets in length or had a bad Frame Check Sequence (FCS).	Every 30 mins

Performance Metric Identifier	MIB Name	Description	Default Succession IEMS Collection Interval
etherStatsUndersizePkts	RFC1271-MIB	The total number of packets received that were less than 64 octets long (excluding framing bits, but including FCS octets) and were otherwise well formed.	Every 30 mins
etherStatsOversizePkts	RFC1271-MIB	The total number of packets received that were longer than 1518 octets (excluding framing bits, but including FCS octets) and were otherwise well formed.	Every 30 mins
etherStatsFragments	RFC1271-MIB	The total number of packets received that were not an integral number of octets in length or that had a bad Frame Check Sequence (FCS), and were less than 64 octets in length (excluding framing bits but including FCS octets).	Every 30 mins
etherStatsJabbers	RFC1271-MIB	The total number of packets received that were longer than 1518 octets (excluding framing bits, but including FCS octets), and were not an integral number of octets in length or had a bad Frame Check Sequence (FCS).	Every 30 mins
etherStatsCollisions	RFC1271-MIB	The best estimate of the total number of collisions on this Ethernet segment.	Every 30 mins
etherHistoryCRCAlignErrors	RFC1271-MIB	The number of packets received during this sampling interval that had a length (excluding framing bits but including FCS octets) between 64 and 1518 octets, inclusive, but were not an integral number of octets in length or had a bad Frame Check Sequence (FCS).	Every 30 mins
etherHistoryUndersizePkts	RFC1271-MIB	The number of packets received during this interval that were less than 64 octets long (excluding framing bits but including FCS octets) and were otherwise well formed.	Every 30 mins
etherHistoryOversizePkts	RFC1271-MIB	The number of packets received during this interval that were longer than 1518 octets (excluding framing bits but including FCS octets) but were otherwise well formed.	Every 30 mins
etherHistoryFragments	RFC1271-MIB	The total number of packets received during this sampling interval that were not an integral number of octets in length or that had a bad Frame Check Sequence (FCS), and were less than 64 octets in length (excluding framing bits but including FCS octets).	Every 30 mins
etherHistoryJabbers	RFC1271-MIB	The number of packets received during this interval that were longer than 1518 octets (excluding framing bits but including FCS octets), and were not an integral number of octets in length or had a bad Frame Check Sequence (FCS).	Every 30 mins
etherHistoryCollisions	RFC1271-MIB	The best estimate of the total number of collisions on this Ethernet segment during this interval.	Every 30 mins
OSPF-MIB			
ospfIfEvents	OSPF-MIB	The number of times this OSPF interface has changed its state, or an error has occurred.	Every 30 mins
OSPF-MIB			
ospfNbrIpAddr	OSPF-MIB	The IP address this neighbor is using in its IP Source Address. Note that, on addressless links, this will not be 0.0.0.0, but the address of another of the neighbor's interfaces.	Every 30 mins
ospfNbrEvents	OSPF-MIB	The number of times this neighbor relationship has changed state, or an error has occurred.	Every 30 mins
SNMP-FRAMEWORK-MIB			
snmpInvalidMsgs	SNMP-FRAMEWORK-MIB	The total number of packets received by the SNMP engine which were dropped because there were invalid or inconsistent components in the SNMP message.	Every 30 mins
SNMP-FRAMEWORK-MIB			
snmpInPkts	SNMP-FRAMEWORK-MIB	The total number of Messages delivered to the SNMP entity from the transport service.	Every 30 mins
snmpOutPkts	SNMP-FRAMEWORK-MIB	The total number of SNMP Messages which were passed from the SNMP protocol entity to the transport service.	Every 30 mins
snmpInBadVersions	SNMP-FRAMEWORK-MIB	The total number of SNMP Messages which were delivered to the SNMP protocol entity and were for an unsupported SNMP version.	Every 30 mins
snmpInBadCommunityUses	SNMP-FRAMEWORK-MIB	The total number of SNMP Messages delivered to the SNMP protocol entity which represented an SNMP operation which was not allowed by the SNMP community named in the Message.	Every 30 mins
snmpInASNParseErrs	SNMP-FRAMEWORK-MIB	The total number of ASN.1 or BER errors encountered by the SNMP protocol entity when decoding received SNMP Messages.	Every 30 mins

Performance Metric Identifier	MIB Name	Description	Default Succession IEMS Collection Interval
snmpInTotalReqVars	SNMP-FRAMEWORK-MIB	The total number of MIB objects which have been retrieved successfully by the SNMP protocol entity as the result of receiving valid SNMP Get-Request and Get-Next PDUs.	Every 30 mins
snmpInTotalSetVars	SNMP-FRAMEWORK-MIB	The total number of MIB objects which have been altered successfully by the SNMP protocol entity as the result of receiving valid SNMP Set-Request PDUs.	Every 30 mins
snmpOutTraps	SNMP-FRAMEWORK-MIB	The total number of SNMP Trap PDUs which have been generated by the SNMP protocol entity.	Every 30 mins
VRRP-MIB			
vrrpStatsBecomeMaster	VRRP-MIB	The total number of times that this virtual router's state has transitioned from BACKUP to MASTER.	Every 30 mins
RAPID-CITY			
rcSysBufferUtil	RAPID-CITY	Buffer utilization as a percentage of the total amount of buffer space in the system. A high value indicates congestion.	Every 30 mins
rcSysBufferUtilPeak	RAPID-CITY	The largest buffer utilization since sysUpTime.	Every 30 mins
rcSysBufferUtilPeakTime	RAPID-CITY	Timestamp for rcSysPeakBandwidth.	Every 30 mins
rcSysNVRamUsed	RAPID-CITY	Non-volatile RAM in use in Kbytes.	Every 30 mins
rcSysCpuUtil	RAPID-CITY	Percentage of CPU utilization.	Every 30 mins
rcSysSwitchFabricUtil	RAPID-CITY	Percentage of Switching Fabric utilization.	Every 30 mins
rcStatFrameTooShorts	RAPID-CITY	The total number of frames that are too short that were encountered on this interface.	Every 30 mins
rcStatBridgeInDiscards	RAPID-CITY	The total number of frames that were discarded by the bridging entity.	Every 30 mins
rcStatRouteInDiscards	RAPID-CITY	The total number of frames that were discarded by the routing entity.	Every 30 mins
rcStatStgForwardTransitions	RAPID-CITY	The number of times this port has transitioned from the Learning state to the Forwarding state.	Every 30 mins
rcStatGigLinkFailures	RAPID-CITY	The total number of link failures encountered on this interface.	Every 30 mins
rcStatGigPacketErrors	RAPID-CITY	The total number of packet errors encountered on this interface.	Every 30 mins
rcStatGigCarrierErrors	RAPID-CITY	The total number of carrier errors encountered on this interface.	Every 30 mins
rcStatGigLinkInactiveErrors	RAPID-CITY	The total number of link inactive errors encountered on this interface.	Every 30 mins
rcStatSmltIstDownCnt	RAPID-CITY	Counters that counts how the session between the two peering switches has done down since last boot.	Every 30 mins
rcStatSmltSmltDownTxMsgCnt	RAPID-CITY	Counters that counts the tx Smlt Down msg.	Every 30 mins
rcStatSmltSmltDownRxMsgCnt	RAPID-CITY	Counters that counts the rx Smlt Down msg.	Every 30 mins
rcStatSmltSmltUpTxMsgCnt	RAPID-CITY	Counters that counts the tx Smlt Up msg.	Every 30 mins
rcStatSmltSmltUpRxMsgCnt	RAPID-CITY	Counters that counts the rx Smlt Up msg.	Every 30 mins
rc2kAtmPortStatsInDroppedPkts	RAPID-CITY	Number of AAL5 CPCS PDUs dropped due to resource exhaustion.	Every 30 mins
rc2kAtmPortStatsOutDroppedPkts	RAPID-CITY	Number of AAL5 CPCS PDUs dropped because the transmitter closed the channel.	Every 30 mins
rc2kAtmVPortStatsInOctets	RAPID-CITY	AAL5 CPCS PDU octects received from ATM interface	Every 5 and 30 mins
rc2kAtmVPortStatsOutOctets	RAPID-CITY	AAL5 CPCS PDU octects transmitted out of ATM interface	Every 5 and 30 mins
rc2kAtmVPortStatsInErrors	RAPID-CITY	AAL5 CPCS PDUs received with errors from ATM interface. These errors include CRC-32 errors,SAR time-out errors and oversized SDU errors.	Every 30 mins
rc2kAtmVPortStatsOutErrors	RAPID-CITY	Number of AAL5 CPCS PDUs that couldn't be transmitted due to errors.	Every 30 mins
rc2kAtmVPortStatsInDiscards	RAPID-CITY	Number of received AAL5 CPCS PDUs discarded.	Every 30 mins
rc2kAtmVPortStatsOutDiscards	RAPID-CITY	Number of AAL5 CPCS PDUs which are to be transmitted but discarded.	Every 30 mins
rcStgPortForwardTransitions	RAPID-CITY	The number of times this port has transitioned from the Learning state to the Forwarding state.	Every 30 mins

OMs collected via CSV for OSS
Not supported at Performance Browser
New in SN07

Appendix B: MG 9000 MIB OMs/PMs

OM Name	Type	Duration	Description	EM PM Browser Section	Browser Tab	Browser Name	MIB Table Name	MIB Name	For OSS	Release	Test Procedures
NORTEL-UEMG-NODE-MIB											
norNodeAlarmsTable											
norNodeAlarmsCritical	Counter32	count goes up and down, does not rollover	Number of Critical Alarms currently on this Node	ITP, OC3, IMA, ITX, and DS1 Card	Card Alarm Statistics : Current data	Number of Critical alarms currently on this card	norNodeAlarmsTable	NORTEL-UEMG-NODE-MIB	No	SN04	Generate any Critical Alarm (See Fault test procedures) and see that the alarm counts match between the MG9K and the MG9K EM display for that MG9K
norNodeAlarmsMajor	Counter32	count goes up and down, does not rollover	Number of Major Alarms currently on this Node	ITP, OC3, IMA, ITX, and DS1 Card	Card Alarm Statistics : Current data	Number of Critical alarms currently on this card	norNodeAlarmsTable	NORTEL-UEMG-NODE-MIB	No	SN04	Generate any Major Alarm (See Fault test procedures) and see that the alarm counts match between the MG9K and the MG9K EM display for that MG9K
norNodeAlarmsMinor	Counter32	count goes up and down, does not rollover	Number of Minor Alarms currently on this Node	ITP, OC3, IMA, ITX, and DS1 Card	Card Alarm Statistics : Current data	Number of Critical alarms currently on this card	norNodeAlarmsTable	NORTEL-UEMG-NODE-MIB	No	SN04	Generate any Minor Alarm (See Fault test procedures) and see that the alarm counts match between the MG9K and the MG9K EM display for that MG9K
NORTEL-UEMG-CARRIER-MIB											
norCarrSonetMediumCurrentTable											
norCarrSonetMedCurrentOpt	Unsigned32	count goes up and down, does not rollover	Optical Power Transmitted. This is interpreted as a Percentage	OC3 Port	Sonet Medium Statistics : Current data	Optical Tx Power (%)	norCarrSonetMediumCurrentTable	NORTEL-UEMG-CARRIER-MIB	No	SN04	On the MG9K EM Performance Browser collect this particular OM. For an operational OC3 interface the value will be non-zero.
norCarrSonetMedCurrentLBC	Unsigned32	count goes up and down, does not rollover	Laser Bias Current.	OC3 Port	Sonet Medium Statistics : Current data	Laser Bias Current (%)	norCarrSonetMediumCurrentTable	NORTEL-UEMG-CARRIER-MIB	No	SN04	On the MG9K EM Performance Browser collect this particular OM. For an operational OC3 interface the value will be non-zero.
norCarrSonetMediumIntervalTable											
norCarrSonetMedCurrentOpt	Unsigned32	count goes up and down, does not rollover	Optical Power Transmitted. This is interpreted as a Percentage	OC3 Port	Sonet Medium Statistics : History data	Optical Tx Power (%)	norCarrSonetMediumIntervalTable	NORTEL-UEMG-CARRIER-MIB	Yes	SN04	On the MG9K EM Performance Browser collect all 96 intervals of this particular OM. For an operational OC3 interface the values will be non-zero.
norCarrSonetMedIntervalLBC	Unsigned32	count goes up and down, does not rollover	Laser Bias Current.	OC3 Port	Sonet Medium Statistics : History data	Laser Bias Current (%)	norCarrSonetMediumIntervalTable	NORTEL-UEMG-CARRIER-MIB	Yes	SN04	On the MG9K EM Performance Browser collect all 96 intervals of this particular OM. For an operational OC3 interface the values will be non-zero.
NORTEL-UEMG-MEGACO-MIB											
nnMegacoOMMedGwyIntervalTable											
nnMegacoOMMedGwyNumInMessages	Unsigned32	Counts only for last 15 min	Total number of messages received from the Gateway Controller (GWC) during this interval.	MG5K Virtual Media Gateway	VMG Statistics : History data	Total number of messages received on the link	nnMegacoOMMedGwyIntervalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	On the MG9K EM Performance Browser collect all 96 intervals of this particular OM under the following conditions. 1.) No traffic 2.) with traffic The counts for this OM will be higher during traffic. To ensure exact counts are collected a Packet Sniffer will have to used to collect the actual number of messages. Also wait for a little longer that 15 min, collect the 96 OM entries, and ensure the counts have moved to the proper time interval.
nnMegacoOMMedGwyNumInOctets	Unsigned32	Counts only for last 15 min	Total number of octets received from the Gateway Controller (GWC) during this interval.	MG5K Virtual Media Gateway	VMG Statistics : History data	Total number of octets received on the link	nnMegacoOMMedGwyIntervalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMMedGwyAvrgInMsgRate	Unsigned32	Counts only for last 15 min	Average message send rate (per minute) for messages sent to the GWC during this interval.	MG5K Virtual Media Gateway	VMG Statistics : History data	Average message rate for received messages	nnMegacoOMMedGwyIntervalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMMedGwyMaxInMsgRate	Unsigned32	Counts only for last 15 min	Maximum message send rate (per minute) for messages sent to the GWC during this interval.	MG5K Virtual Media Gateway	VMG Statistics : History data	Maximum received message rate per minute	nnMegacoOMMedGwyIntervalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMMedGwyNumOutMessages	Unsigned32	Counts only for last 15 min	Total number of messages sent to the Gateway Controller (GWC) during this interval.	MG5K Virtual Media Gateway	VMG Statistics : History data	Total number of messages sent on the link	nnMegacoOMMedGwyIntervalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMMedGwyNumOutOctets	Unsigned32	Counts only for last 15 min	Total number of octets sent to the Gateway Controller (GWC) during this interval.	MG5K Virtual Media Gateway	VMG Statistics : History data	Total number of octets sent on the link	nnMegacoOMMedGwyIntervalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMMedGwyAvrgOutMsgRate	Unsigned32	Counts only for last 15 min	Average message send rate (per minute) for messages sent to the GWC during this interval.	MG5K Virtual Media Gateway	VMG Statistics : History data	Average message rate for sent messages	nnMegacoOMMedGwyIntervalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMMedGwyMaxOutMsgRate	Unsigned32	Counts only for last 15 min	Maximum message send rate (per minute) for messages sent to the GWC during this interval.	MG5K Virtual Media Gateway	VMG Statistics : History data	Maximum sent message rate per minute	nnMegacoOMMedGwyIntervalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMMedGwyCurrentDayTotalTable											
nnMegacoOMMedGwyNumInMessagesTotCurDay	Unsigned32	Rolling 24 hour total	Total number of messages received from the Gateway Controller (GWC) during this interval.	MG5K Virtual Media Gateway	VMG Day Total Statistics : Current data	Total number of messages received on the link	nnMegacoOMMedGwyCurrentDayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	On the MG9K EM Performance Browser collect this particular OM under the following conditions. 1.) No traffic 2.) with traffic The counts for this OM will be higher during traffic. To ensure exact counts are collected a Packet Sniffer will have to used to collect the actual number of messages. Also wait for a little longer that 15 min, collect the 96 OM entries, and ensure the counts have moved to the proper time interval.
nnMegacoOMMedGwyNumInOctetsTotCurDay	Unsigned32	Rolling 24 hour total	Total number of octets received from the Gateway Controller (GWC) during this interval.	MG5K Virtual Media Gateway	VMG Day Total Statistics : Current data	Total number of octets received on the link	nnMegacoOMMedGwyCurrentDayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMMedGwyAvrgInMsgRateTotCurDay	Unsigned32	Rolling 24 hour total	Average message send rate (per minute) for messages sent to the GWC during this interval.	MG5K Virtual Media Gateway	VMG Day Total Statistics : Current data	Average message rate for received messages	nnMegacoOMMedGwyCurrentDayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMMedGwyMaxInMsgRateTotCurDay	Unsigned32	Rolling 24 hour total	Maximum message send rate (per minute) for messages sent to the GWC during this interval.	MG5K Virtual Media Gateway	VMG Day Total Statistics : Current data	Maximum received message rate per minute	nnMegacoOMMedGwyCurrentDayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMMedGwyNumOutMessagesTotCurDay	Unsigned32	Rolling 24 hour total	Total number of messages sent to the Gateway Controller (GWC) during this interval.	MG5K Virtual Media Gateway	VMG Day Total Statistics : Current data	Total number of messages sent on the link	nnMegacoOMMedGwyCurrentDayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMMedGwyNumOutOctetsTotCurDay	Unsigned32	Rolling 24 hour total	Total number of octets sent to the Gateway Controller (GWC) during this interval.	MG5K Virtual Media Gateway	VMG Day Total Statistics : Current data	Total number of octets sent on the link	nnMegacoOMMedGwyCurrentDayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMMedGwyAvrgOutMsgRateTotCurDay	Unsigned32	Rolling 24 hour total	Average message send rate (per minute) for messages sent to the GWC during this interval.	MG5K Virtual Media Gateway	VMG Day Total Statistics : Current data	Average message rate for sent messages	nnMegacoOMMedGwyCurrentDayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMMedGwyMaxOutMsgRateTotCurDay	Unsigned32	Rolling 24 hour total	Maximum message send rate (per minute) for messages sent to the GWC during this interval.	MG5K Virtual Media Gateway	VMG Day Total Statistics : Current data	Maximum sent message rate per minute	nnMegacoOMMedGwyCurrentDayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMCMRIntervalTable											
nnMegacoOMCMRmaxSimultCNDreq	Unsigned32	Counts only for last 15 min	The maximum simultaneous number of CND requests during this interval.	ITP Card	Class Modem Statistics : History data	Maximum simultaneous number of CND requests	nnMegacoOMCMRIntervalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Starting with no calls made display all 96 entries and ensure they are all zero. Then make a number of Caller ID calls (some at the same time) and then display this OM. The counts will show appropriate results matching the number of calls. Do this over a number of 15 min intervals, then display all 96 entries. Also ensure the counts have moved to the proper time interval after each 15 interval.
nnMegacoOMCMRtotNumberCNDreq	Unsigned32	Counts only for last 15 min	The total number of CND requests during this interval.	ITP Card	Class Modem Statistics : History data	Total number of CND requests	nnMegacoOMCMRIntervalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above

nnMegacoOMCMRnumCNDcompleted	Unsigned32	Counts only for last 15 min	The number of CND requests during this interval that completed.	ITP Card	Class Modem Statistics : History data	Number of CND requests that completed	nnMegacoOMCMRInterval Table	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMCMRmaxSimultADSIreq	Unsigned32	Counts only for last 15 min	The maximum simultaneous number of ADSI requests during this interval.	ITP Card	Class Modem Statistics : History data	Maximum simultaneous number of ADSI requests	nnMegacoOMCMRInterval Table	NORTEL-UEMG-MEGACO-MIB	No	SN04	Starting with no calls made display all 96 entries and ensure they are all zero. Then make a number of ADSI calls (some at the same time) and then display this OM. The counts will show appropriate results matching the number of calls. Do this over a number of 15 min intervals, then display all 96 entries.
nnMegacoOMCMRtotNumberADSIreq	Unsigned32	Counts only for last 15 min	The total number of ADSI requests during this interval.	ITP Card	Class Modem Statistics : History data	Total number of ADSI requests	nnMegacoOMCMRInterval Table	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMCMRnumADSIcompleted	Unsigned32	Counts only for last 15 min	The number of ADSI requests during this interval that completed.	ITP Card	Class Modem Statistics : History data	Number of ADSI requests that completed	nnMegacoOMCMRInterval Table	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMCMRmaxSimultBCLIDreq	Unsigned32	Counts only for last 15 min	The maximum simultaneous number of BCLID requests during this interval.	ITP Card	Class Modem Statistics : History data	Maximum simultaneous number of BCLID requests	nnMegacoOMCMRInterval Table	NORTEL-UEMG-MEGACO-MIB	No	SN04	Starting with no calls made display all 96 entries and ensure they are all zero. Then make a number of BCLID calls (some at the same time) and then display this OM. The counts will show appropriate results matching the number of calls. Do this over a number of 15 min intervals, then display all 96 entries. Also ensure the counts have moved to the proper time interval after each 15 interval.
nnMegacoOMCMRtotNumberBCLIDreq	Unsigned32	Counts only for last 15 min	The total number of BCLID requests during this interval.	ITP Card	Class Modem Statistics : History data	Total number of BCLID requests	nnMegacoOMCMRInterval Table	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMCMRnumBCLIDcompleted	Unsigned32	Counts only for last 15 min	The number of BCLID requests during this interval that completed.	ITP Card	Class Modem Statistics : History data	Number of BCLID requests that completed	nnMegacoOMCMRInterval Table	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMCMRmaxSimultSCWIDreq	Unsigned32	Counts only for last 15 min	The maximum simultaneous number of SCWID requests during this interval.	ITP Card	Class Modem Statistics : History data	Maximum simultaneous number of SCWID requests	nnMegacoOMCMRInterval Table	NORTEL-UEMG-MEGACO-MIB	No	SN04	Starting with no calls made display all 96 entries and ensure they are all zero. Then make a number of SCWID calls (some at the same time) and then display this OM. The counts will show appropriate results matching the number of calls. Do this over a number of 15 min intervals, then display all 96 entries. Also ensure the counts have moved to the proper time interval after each 15 interval.
nnMegacoOMCMRtotNumberSCWIDreq	Unsigned32	Counts only for last 15 min	The total number of SCWID requests during this interval.	ITP Card	Class Modem Statistics : History data	Total number of SCWID requests	nnMegacoOMCMRInterval Table	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMCMRnumSCWIDcompleted	Unsigned32	Counts only for last 15 min	The number of SCWID requests during this interval that completed.	ITP Card	Class Modem Statistics : History data	Number of SCWID requests that completed	nnMegacoOMCMRInterval Table	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMCMRCurrentDayTotalTable											
nnMegacoOMCMRmaxSimultCNDreqTotCurDay	Unsigned32	Rolling 24 hour total	The current day's highest maximum simultaneous number of CND requests.	ITP Card	Class Modem Day Total Statistics : Current data	Maximum simultaneous number of CND requests	nnMegacoOMCMRCurrentDayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Starting with no calls made display the OM and ensure it is zero. Then make a number of Caller ID calls (some at the same time) and then display this OM. The count will show appropriate results matching the number of calls.
nnMegacoOMCMRtotNumberCNDreqTotCurDay	Unsigned32	Rolling 24 hour total	The current day's total number of CND requests.	ITP Card	Class Modem Day Total Statistics : Current data	Total number of CND requests	nnMegacoOMCMRCurrentDayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMCMRnumCNDcompletedTotCurDay	Unsigned32	Rolling 24 hour total	The current day's total number of CND requests that completed.	ITP Card	Class Modem Day Total Statistics : Current data	Number of CND requests that completed	nnMegacoOMCMRCurrentDayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMCMRmaxSimultADSIreqTotCurDay	Unsigned32	Rolling 24 hour total	The current day's highest maximum simultaneous number of ADSI requests.	ITP Card	Class Modem Day Total Statistics : Current data	Maximum simultaneous number of ADSI requests	nnMegacoOMCMRCurrentDayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Starting with no calls made display the OM and ensure it is zero. Then make a number of ADSI calls (some at the same time) and then display this OM. The count will show appropriate results matching the number of calls.
nnMegacoOMCMRtotNumberADSIreqTotCurDay	Unsigned32	Rolling 24 hour total	The current day's total number of ADSI requests.	ITP Card	Class Modem Day Total Statistics : Current data	Total number of ADSI requests	nnMegacoOMCMRCurrentDayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMCMRnumADSIcompletedTotCurDay	Unsigned32	Rolling 24 hour total	The current day's total number of ADSI requests that completed.	ITP Card	Class Modem Day Total Statistics : Current data	Number of ADSI requests that completed	nnMegacoOMCMRCurrentDayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMCMRmaxSimultBCLIDreqTotCurDay	Unsigned32	Rolling 24 hour total	The current day's highest maximum simultaneous number of BCLID requests.	ITP Card	Class Modem Day Total Statistics : Current data	Maximum simultaneous number of BCLID requests	nnMegacoOMCMRCurrentDayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Starting with no calls made display the OM and ensure it is zero. Then make a number of BCLID calls (some at the same time) and then display this OM. The count will show appropriate results matching the number of calls.
nnMegacoOMCMRtotNumberBCLIDreqTotCurDay	Unsigned32	Rolling 24 hour total	The current day's total number of BCLID requests.	ITP Card	Class Modem Day Total Statistics : Current data	Total number of BCLID requests	nnMegacoOMCMRCurrentDayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMCMRnumBCLIDcompletedTotCurDay	Unsigned32	Rolling 24 hour total	The current day's total number of BCLID requests that completed.	ITP Card	Class Modem Day Total Statistics : Current data	Number of BCLID requests that completed	nnMegacoOMCMRCurrentDayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMCMRmaxSimultSCWIDreqTotCurDay	Unsigned32	Rolling 24 hour total	The current day's highest maximum simultaneous number of SCWID requests.	ITP Card	Class Modem Day Total Statistics : Current data	Maximum simultaneous number of SCWID requests	nnMegacoOMCMRCurrentDayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Starting with no calls made display the OM and ensure it is zero. Then make a number of SCWID calls (some at the same time) and then display this OM. The count will show appropriate results matching the number of calls..
nnMegacoOMCMRtotNumberSCWIDreqTotCurDay	Unsigned32	Rolling 24 hour total	The current day's total number of SCWID requests.	ITP Card	Class Modem Day Total Statistics : Current data	Total number of SCWID requests	nnMegacoOMCMRCurrentDayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMCMRnumSCWIDcompletedTotCurDay	Unsigned32	Rolling 24 hour total	The current day's total number of SCWID requests that completed.	ITP Card	Class Modem Day Total Statistics : Current data	Number of SCWID requests that completed	nnMegacoOMCMRCurrentDayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMDSPIntervalTable											
nnMegacoOMDSPmaxSimultToneRcvrInUse	Unsigned32	Counts only for last 15 min	The maximum simultaneous number of tone receivers in use during this interval.	ITP Card	Digital Signal Statistics : History data	Maximum simultaneous number of tone receivers in use	nnMegacoOMDSPInterval Table	NORTEL-UEMG-MEGACO-MIB	No	SN04	On the MG9K EM Performance Browser collect all 96 intervals of this particular OM under the following conditions. 1.) No traffic 2.) with traffic The counts for this OM will be higher during traffic. To ensure exact counts are collected keep track of the number of calls made. Also ensure the counts have moved to the proper time interval after each 15 interval.
nnMegacoOMDSPnumToneRcvrReq	Unsigned32	Counts only for last 15 min	The number of tone receiver requests during this interval.	ITP Card	Digital Signal Statistics : History data	Number of tone receiver requests	nnMegacoOMDSPInterval Table	NORTEL-UEMG-MEGACO-MIB	Yes	SN04	Same as above
nnMegacoOMDSPnumToneRcvrReqFail	Unsigned32	Counts only for last 15 min	The number of tone receiver requests that failed during this interval.	ITP Card	Digital Signal Statistics : History data	Number of tone receiver requests which failed	nnMegacoOMDSPInterval Table	NORTEL-UEMG-MEGACO-MIB	Yes	SN04	Same as above
nnMegacoOMDSPmaxSimultToneGenInUse	Unsigned32	Counts only for last 15 min	The maximum simultaneous number of tone generators in use during this interval.	ITP Card	Digital Signal Statistics : History data	Maximum simultaneous number of tone generators in use	nnMegacoOMDSPInterval Table	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMDSPnumToneGenReq	Unsigned32	Counts only for last 15 min	The number of tone generator requests during this interval.	ITP Card	Digital Signal Statistics : History data	Number of tone generator requests	nnMegacoOMDSPInterval Table	NORTEL-UEMG-MEGACO-MIB	Yes	SN04	Same as above
nnMegacoOMDSPnumToneGenReqFail	Unsigned32	Counts only for last 15 min	The number of tone generator requests that failed during this interval.	ITP Card	Digital Signal Statistics : History data	Number of tone generator requests which failed	nnMegacoOMDSPInterval Table	NORTEL-UEMG-MEGACO-MIB	Yes	SN04	Same as above
nnMegacoOMDSPmaxSimultCMRmodemInUse	Unsigned32	Counts only for last 15 min	The maximum simultaneous number of CMR modems in use during this interval.	ITP Card	Digital Signal Statistics : History data	Maximum simultaneous number of CMR modems in use	nnMegacoOMDSPInterval Table	NORTEL-UEMG-MEGACO-MIB	No	SN04	Starting with no calls made display all 96 entries and ensure they are all zero. Then make a number of Caller ID calls (some at the same time) and then display this OM. The counts will show appropriate results matching the number of calls. Do this over a number of 15 min intervals, then display all 96 entries. Also ensure the counts have moved to the proper time interval after each 15 interval.

nnMegacoOMDSPnumCMRmodemReq	Unsigned32	Counts only for last 15 min	The number of CMR modem requests during this interval.	ITP Card	Digital Signal Statistics : History data	Number of CMR modem requests	nnMegacoOMDSPInterval Table	NORTEL-UEMG-MEGACO-MIB	Yes	SN04	Same as above
nnMegacoOMDSPnumCMRmodemReqFail	Unsigned32	Counts only for last 15 min	The number of CMR modem requests that failed during this interval.	ITP Card	Digital Signal Statistics : History data	Number of CMR modem requests which failed	nnMegacoOMDSPInterval Table	NORTEL-UEMG-MEGACO-MIB	Yes	SN04	Same as above
nnMegacoOMDSPCurrentDayTotalTable											
nnMegacoOMDSPmaxSimultToneRcvrInUseTotCurDay	Unsigned32	Rolling 24 hour total	The current day's highest maximum simultaneous number of tone receivers in use.	ITP Card	Digital Signal Day Total Statistics : Current data	Maximum simultaneous number of tone receivers in use	nnMegacoOMDSPCurrent DayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	On the MG9K EM Performance Browser collect this particular OM under the following conditions. 1.) No traffic 2.) with traffic The count for this OM will be higher during traffic. To ensure exact count is collected keep track of the number of calls made.
nnMegacoOMDSPnumToneRcvrReqTotCurDay	Unsigned32	Rolling 24 hour total	The current day's total of the number of tone receiver requests.	ITP Card	Digital Signal Day Total Statistics : Current data	Number of tone receiver requests	nnMegacoOMDSPCurrent DayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMDSPnumToneRcvrReqFailTotCurDay	Unsigned32	Rolling 24 hour total	The current day's total of the number tone receiver requests that failed.	ITP Card	Digital Signal Day Total Statistics : Current data	Number of tone receiver requests which failed	nnMegacoOMDSPCurrent DayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMDSPmaxSimultToneGenInUseTotCurDay	Unsigned32	Rolling 24 hour total	The current day's highest maximum simultaneous number of tone generators in use.	ITP Card	Digital Signal Day Total Statistics : Current data	Maximum simultaneous number of tone generators in use	nnMegacoOMDSPCurrent DayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMDSPnumToneGenReqTotCurDay	Unsigned32	Rolling 24 hour total	The current day's total of the number of tone generator requests.	ITP Card	Digital Signal Day Total Statistics : Current data	Number of tone generator requests	nnMegacoOMDSPCurrent DayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMDSPnumToneGenReqFailTotCurDay	Unsigned32	Rolling 24 hour total	The current day's total of the number tone generator requests that failed.	ITP Card	Digital Signal Day Total Statistics : Current data	Number of tone generator requests which failed	nnMegacoOMDSPCurrent DayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMDSPmaxSimultCMRmodemInUseTotCurDay	Unsigned32	Rolling 24 hour total	The current day's highest maximum simultaneous number of CMR modems in use.	ITP Card	Digital Signal Day Total Statistics : Current data	Maximum simultaneous number of CMR modems in use	nnMegacoOMDSPCurrent DayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Starting with no calls made display the OM and ensure it is zero. Then make a number of Caller ID calls (some at the same time) and then display this OM. The counts will show appropriate results matching the number of calls.
nnMegacoOMDSPnumCMRmodemReqTotCurDay	Unsigned32	Rolling 24 hour total	The current day's total of the number of CMR modem requests.	ITP Card	Digital Signal Day Total Statistics : Current data	Number of CMR modem requests	nnMegacoOMDSPCurrent DayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMDSPnumCMRmodemReqFailTotCurDay	Unsigned32	Rolling 24 hour total	The current day's total of the number CMR modem requests that failed.	ITP Card	Digital Signal Day Total Statistics : Current data	Number of CMR modem requests which failed	nnMegacoOMDSPCurrent DayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMCESIntervalTable											
nnMegacoOMCESmaxSimultIntraSwitch	Unsigned32	Counts only for last 15 min	The maximum simultaneous number of channels in use for intra-switched calls during this interval.	ITP, OC3, IMA & ABI Card	Circuit Emulation Statistics : History data	Intra maximum simultaneous number of channels in use	nnMegacoOMCESInterval Table	NORTEL-UEMG-MEGACO-MIB	No	SN04	On the MG9K EM Performance Browser collect all 96 intervals of this particular OM under the following conditions. 1.) No traffic 2.) with traffic from/to lines within the same SMA or LGCI. The counts for this OM will be higher during traffic. To ensure exact counts are collected keep track of the number of calls made. Also ensure the counts have moved to the proper time interval after each 15 interval.
nnMegacoOMCESnumChnlAllocIntra	Unsigned32	Counts only for last 15 min	The total number of channel allocation requests for intra-switched calls during this interval.	ITP, OC3, IMA & ABI Card	Circuit Emulation Statistics : History data	Intra total number of channel allocation requests	nnMegacoOMCESInterval Table	NORTEL-UEMG-MEGACO-MIB	Yes	SN04	Same as above
nnMegacoOMCESnumChnlAllocIntraFail	Unsigned32	Counts only for last 15 min	The total number of channel allocation requests for intra-switched calls that failed during this interval.	ITP, OC3, IMA & ABI Card	Circuit Emulation Statistics : History data	Intra total number of failed channel allocation request	nnMegacoOMCESInterval Table	NORTEL-UEMG-MEGACO-MIB	Yes	SN04	Same as above
nnMegacoOMCESmaxSimultInterSwitch	Unsigned32	Counts only for last 15 min	The maximum simultaneous number of channels in use for inter-switched calls during this interval.	ITP, OC3, IMA & ABI Card	Circuit Emulation Statistics : History data	Inter maximum simultaneous number of channels in use	nnMegacoOMCESInterval Table	NORTEL-UEMG-MEGACO-MIB	No	SN04	On the MG9K EM Performance Browser collect all 96 intervals of this particular OM under the following conditions. 1.) No traffic 2.) with traffic from lines within a SMA or LGCI to lines not on that SAM or LGCI. The counts for this OM will be higher during traffic. To ensure exact counts are collected keep track of the number of calls made. Also ensure the counts have moved to the proper time interval after each 15 interval.
nnMegacoOMCESnumChnlAllocInter	Unsigned32	Counts only for last 15 min	The total number of channel allocation requests for inter-switched calls during this interval.	ITP, OC3, IMA & ABI Card	Circuit Emulation Statistics : History data	Inter total number of channel allocation requests	nnMegacoOMCESInterval Table	NORTEL-UEMG-MEGACO-MIB	Yes	SN04	Same as above
nnMegacoOMCESnumChnlAllocInterFail	Unsigned32	Counts only for last 15 min	The total number of channel allocation requests for inter-switched calls that failed during this interval.	ITP, OC3, IMA & ABI Card	Circuit Emulation Statistics : History data	Inter total number of failed channel allocation requests	nnMegacoOMCESInterval Table	NORTEL-UEMG-MEGACO-MIB	Yes	SN04	Same as above
nnMegacoOMCESCurrentDayTotalTable											
nnMegacoOMCESmaxSimultIntraSwitchTotCurDay	Unsigned32	Rolling 24 hour total	The current day's highest maximum simultaneous number of channels in use for intra-switched calls.	ITP, OC3, IMA & ABI Card	Circuit Emulation Day Total Statistics : Current data	Intra maximum simultaneous number of channels in use	nnMegacoOMCESCurrent DayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	On the MG9K EM Performance Browser collect this particular OM under the following conditions. 1.) No traffic 2.) with traffic from/to lines within the same SMA or LGCI. The count for this OM will be higher during traffic. To ensure exact count is collected keep track of the number of calls made.
nnMegacoOMCESnumChnlAllocIntraTotCurDay	Unsigned32	Rolling 24 hour total	The current day's total number of channel allocation requests for intra-switched calls.	ITP, OC3, IMA & ABI Card	Circuit Emulation Day Total Statistics : Current data	Intra total number of channel allocation requests	nnMegacoOMCESCurrent DayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMCESnumChnlAllocIntraFailTotCurDay	Unsigned32	Rolling 24 hour total	The current day's total number of channel allocation requests for intra-switched calls that failed.	ITP, OC3, IMA & ABI Card	Circuit Emulation Day Total Statistics : Current data	Intra total number of failed channel allocation request	nnMegacoOMCESCurrent DayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMCESmaxSimultInterSwitchTotCurDay	Unsigned32	Rolling 24 hour total	The current day's highest maximum simultaneous number of channels in use for inter-switched calls.	ITP, OC3, IMA & ABI Card	Circuit Emulation Day Total Statistics : Current data	Inter maximum simultaneous number of channels in use	nnMegacoOMCESCurrent DayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	On the MG9K EM Performance Browser collect this particular OM under the following conditions. 1.) No traffic 2.) with traffic from lines within a SMA or LGCI to lines not on that SAM or LGCI. The count for this OM will be higher during traffic. To ensure exact count is collected keep track of the number of calls made.
nnMegacoOMCESnumChnlAllocInterTotCurDay	Unsigned32	Rolling 24 hour total	The current day's total number of channel allocation requests for inter-switched calls.	ITP, OC3, IMA & ABI Card	Circuit Emulation Day Total Statistics : Current data	Inter total number of channel allocation requests	nnMegacoOMCESCurrent DayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMCESnumChnlAllocInterFailTotCurDay	Unsigned32	Rolling 24 hour total	The current day's total number of channel allocation requests for inter-switched calls that failed.	ITP, OC3, IMA & ABI Card	Circuit Emulation Day Total Statistics : Current data	Inter total number of failed channel allocation requests	nnMegacoOMCESCurrent DayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMECANIntervalTable											
nnMegacoOMECANmaxSimultResrceInUse	Unsigned32	Counts only for last 15 min	The maximum simultaneous number of ECAN resources in use during this interval.	ITP Card	Echo Cancellation Statistics : History data	Maximum simultaneous number of ECAN resources in use	nnMegacoOMECANInterv alTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	On the MG9K EM Performance Browser collect all 96 intervals of this particular OM under the following conditions. 1.) No traffic 2.) with traffic The counts for this OM will be higher during traffic. To ensure exact counts are collected keep track of the exact number of calls made. There will be a count for each end of a call. Also ensure the counts have moved to the proper time interval after each 15 interval.
nnMegacoOMECANnumResrceReq	Unsigned32	Counts only for last 15 min	The total number of ECAN resource request attempts during this interval.	ITP Card	Echo Cancellation Statistics : History data	Total number of ECAN resource request attempts	nnMegacoOMECANInterv alTable	NORTEL-UEMG-MEGACO-MIB	Yes	SN04	Same as above

nnMegacoOMECANnumResrceReqFail	Unsigned32	Counts only for last 15 min	The total number of ECAN resource request attempts that failed during this interval.	ITP Card	Echo Cancellation Statistics : History data	Total number of ECAN resource request attempts that failed	nnMegacoOMECANIntervalTable	NORTEL-UEMG-MEGACO-MIB	Yes	SN04	Same as above
nnMegacoOMECANCurrentDayTotalTable											
nnMegacoOMECANmaxSimultResrceInUseTotCurDay	Unsigned32	Rolling 24 hour total	The current day's maximum simultaneous number of ECAN resources in use.	ITP Card	Echo Cancellation Day Total Statistics : Current data	Maximum simultaneous number of ECAN resources in use	nnMegacoOMECANCurrentDayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	On the MG9K EM Performance Browser collect this particular OM under the following conditions. 1.) No traffic 2.) with traffic The count for this OM will be higher during traffic. To ensure exact count is collected keep track of the exact number of calls made. There will be a count for each end of a call.
nnMegacoOMECANnumResrceReqTotCurDay	Unsigned32	Rolling 24 hour total	The current day's total number of ECAN resource requests.	ITP Card	Echo Cancellation Day Total Statistics : Current data	Total number of ECAN resource request attempts	nnMegacoOMECANCurrentDayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMECANnumResrceReqFailTotCurDay	Unsigned32	Rolling 24 hour total	The current day's total number of ECAN resource requests that failed.	ITP Card	Echo Cancellation Day Total Statistics : Current data	Total number of ECAN resource request attempts that failed	nnMegacoOMECANCurrentDayTotalTable	NORTEL-UEMG-MEGACO-MIB	No	SN04	Same as above
nnMegacoOMMedGwyIntervalTable											
nnMegacoOMMedGwyNumInMessages	Unsigned32	Counts only for this 15 min	Number of messages received from the Gateway Controller (GWC) during this interval.	VMG	VMG Statistics : History data	Total number of messages received on the link	egacoOMMedGwyIntervalTa	NORTEL-UEMG-MEGACO-MIB	Yes	SN06	
nnMegacoOMMedGwyNumInOctets	Unsigned32	Counts only for this 15 min	Number of octets received from the Gateway Controller (GWC) during this interval.	VMG	VMG Statistics : History data	Total number of octets received on the link	egacoOMMedGwyIntervalTa	NORTEL-UEMG-MEGACO-MIB	Yes	SN06	
nnMegacoOMMedGwyAvrgInMsgRate	Unsigned32	Counts only for this 15 min	Average message rate (per minute) for messages received from the GWC during this interval.	VMG	VMG Statistics : History data	Average message rate for received messages	egacoOMMedGwyIntervalTa	NORTEL-UEMG-MEGACO-MIB	Yes	SN06	
nnMegacoOMMedGwyMaxInMsgRate	Unsigned32	Counts only for this 15 min	Maximum message rate (per minute) for messages received from the GWC during this interval.	VMG	VMG Statistics : History data	Maximum message rate for received messages	egacoOMMedGwyIntervalTa	NORTEL-UEMG-MEGACO-MIB	Yes	SN06	
nnMegacoOMMedGwyNumOutMessages	Unsigned32	Counts only for this 15 min	Number of messages sent to the Gateway Controller (GWC) during this interval.	VMG	VMG Statistics : History data	Total number of messages sent on the link	egacoOMMedGwyIntervalTa	NORTEL-UEMG-MEGACO-MIB	Yes	SN06	
nnMegacoOMMedGwyNumOutOctets	Unsigned32	Counts only for this 15 min	Number of octets sent to the Gateway Controller (GWC) during this interval.	VMG	VMG Statistics : History data	Total number of octets sent on the link	egacoOMMedGwyIntervalTa	NORTEL-UEMG-MEGACO-MIB	Yes	SN06	
nnMegacoOMMedGwyAvrgOutMsgRate	Unsigned32	Counts only for this 15 min	Average message rate (per minute) for messages sent to the GWC during this interval.	VMG	VMG Statistics : History data	Average message rate for sent messages	egacoOMMedGwyIntervalTa	NORTEL-UEMG-MEGACO-MIB	Yes	SN06	
nnMegacoOMMedGwyMaxOutMsgRate	Unsigned32	Counts only for this 15 min	Maximum message rate (per minute) for messages sent to the GWC during this interval.	VMG	VMG Statistics : History data	Maximum message rate for sent messages	egacoOMMedGwyIntervalTa	NORTEL-UEMG-MEGACO-MIB	Yes	SN06	
nnMegacoOMMedGwyCurrentDayTotalTable											
MegacoOMMedGwyNumInMessagesTotCurDa	Unsigned32	Rolling 24 hour total	The current day's total Number of messages received from the Gateway Controller (GWC).	VMG	VMG Day Total Statistics : Current data	Total number of messages received on the link	oOMMedGwyCurrentDayTo	NORTEL-UEMG-MEGACO-MIB	No	SN06	
MegacoOMMedGwyNumInOctetsTotCurDay	Unsigned32	Rolling 24 hour total	The current day's total Number of octets received from the Gateway Controller (GWC).	VMG	VMG Day Total Statistics : Current data	Total number of octets received on the link	oOMMedGwyCurrentDayTo	NORTEL-UEMG-MEGACO-MIB	No	SN06	
nMegacoOMMedGwyAvrgInMsgRateTotCurDa	Unsigned32	Rolling 24 hour total	The current day's total Average message rate (per minute) for messages received from the GWC.	VMG	VMG Day Total Statistics : Current data	Average message rate for received messages	oOMMedGwyCurrentDayTo	NORTEL-UEMG-MEGACO-MIB	No	SN06	
nMegacoOMMedGwyMaxInMsgRateTotCurDa	Unsigned32	Rolling 24 hour total	The current day's total Maximun message rate (per minute) for messages received from the GWC.	VMG	VMG Day Total Statistics : Current data	Maximum message rate for received messages	oOMMedGwyCurrentDayTo	NORTEL-UEMG-MEGACO-MIB	No		
MegacoOMMedGwyNumOutMessagesTotCurD	Unsigned32	Rolling 24 hour total	The current day's total Number of messages sent to the Gateway Controller (GWC).	VMG	VMG Day Total Statistics : Current data	Total number of messages sent on the link	oOMMedGwyCurrentDayTo	NORTEL-UEMG-MEGACO-MIB	No	SN06	
nMegacoOMMedGwyNumOutOctetsTotCurDa	Unsigned32	Rolling 24 hour total	The current day's total Number of octets sent to the Gateway Controller (GWC).	VMG	VMG Day Total Statistics : Current data	Total number of octets sent on the link	oOMMedGwyCurrentDayTo	NORTEL-UEMG-MEGACO-MIB	No	SN06	
MegacoOMMedGwyAvrgOutMsgRateTotCurD	Unsigned32	Rolling 24 hour total	The current day's total Average message rate (per minute) for messages sent to the GWC.	VMG	VMG Day Total Statistics : Current data	Average message rate for sent messages	oOMMedGwyCurrentDayTo	NORTEL-UEMG-MEGACO-MIB	No	SN06	
MegacoOMMedGwyMaxOutMsgRateTotCurD	Unsigned32	Rolling 24 hour total	The current day's total Maximum message rate (per minute) for messages sent to the GWC.	VMG	VMG Day Total Statistics : Current data	Maximum message rate for sent messages	oOMMedGwyCurrentDayTo	NORTEL-UEMG-MEGACO-MIB	No		
NORTEL-UEMG-BANDWIDTH-MIB											
nnBwShelfCurrentSloaBandwResrvdTable											
nnBwShelfCurrentSloaBandwReserved	NnBwCellsPerSec	count goes up and down, does not rollover	Current amount of reserved bandwidth currently allocated for the aggregate of all Switched Lines over ATM VCs on This UEMG shelf.	MG9K Shelf	Bandwidth Reserved Statistics : Current data	Current bandwidth reserved	nnBwShelfCurrentSloaBandwResrvdTable	NORTEL-UEMG-BANDWIDTH-MIB	No	SN04	On the MG9K EM Performance Browser collect this particular OM under the following conditions. 1.) No traffic 2.) with active calls (from a line on this shelf to a line not on this shelf). The count should be close to 0 for no traffic and higher with active calls. To ensure exact count is collected keep track of the exact number of calls made. There will be a set usage for each active call (171 cells/sec per active call).
nnBwShelfCapacitySloaBandwReserved	NnBwCellsPerSec	count goes up and down, does not rollover	Current amount of reserved bandwidth Capacity for the aggregate of all Switched Lines over ATM VCs on This UEMG shelf.	MG9K Shelf	Bandwidth Reserved Statistics : Current data	Capacity bandwidth reserved	nnBwShelfCurrentSloaBandwResrvdTable	NORTEL-UEMG-BANDWIDTH-MIB	Yes	SN04	This is just the opposite of the OM above. It starts at max (or close to max) and decreases per call. So collect this OM and add the OM above and the two should equal the max value.
nnBwNetIfBwResIntervalTable											
nnBwNetIfBwResIntervalTotal	NnBwCellsPerSec	count goes up and down, does not rollover	The ith 15min measure of the amount of reserved bandwidth currently allocated to VCs on the network interface.	MG9K Network Element	Interval Bandwidth Reserved Statistics : History data	Total bandwidth reserved	nnBwNetIfBwResIntervalTable	NORTEL-UEMG-BANDWIDTH-MIB	No	SN04	On the MG9K EM Performance Browser collect this particular OM under the following conditions. 1.) No traffic 2.) with active calls (from a line on this MG9000 to a line not on this MG9000). The count should be close to 0 for no traffic and higher with active calls. To ensure exact count is collected keep track of the exact number of calls made. There will be a set usage for each active call (171 cells/sec per active call). Collect this for all 96 intervals. Repeat this for PLoA (single DS0) connections and DSL data services (sending data). Also ensure the counts have moved to the proper time interval after each 15 interval.
nnBwNetIfBwResIntervalSloa	NnBwCellsPerSec	count goes up and down, does not rollover	The ith 15min measure of the amount of reserved bandwidth currently allocated for the aggregate of all Switched Lines over ATM VCs on the network interface.	MG9K Network Element	Interval Bandwidth Reserved Statistics : History data	Sloa bandwidth reserved	nnBwNetIfBwResIntervalTable	NORTEL-UEMG-BANDWIDTH-MIB	No	SN04	On the MG9K EM Performance Browser collect this particular OM under the following conditions. 1.) No traffic 2.) with active calls (from a line on this MG9000 to a line not on this MG9000). The count should be close to 0 for no traffic and higher with active calls. To ensure exact count is collected keep track of the exact number of calls made. There will be a set usage for each active call (171 cells/sec per active call).
nnBwShelfIntervalSloaBandwResrvdTable											

nnBwShelfIntervalSloaBandwReserved	NnBwCellsPerSec	count goes up and down, does not rollover	ith 15-minute measure amount of reserved band width allocated for the aggregate of all Switched Lines over ATM VCs on This UEMG shelf.*	MG9K Shelf	Interval Bandwidth Reserved Statistics : History data	Amount of bandwidth reserved	nnBwShelfIntervalSloaBandwResrvdTable	NORTEL-UEMG-BANDWIDTH-MIB	Yes	SN04	On the MG9K EM Performance Browser collect this particular OM under the following conditions. 1.) No traffic 2.) with active calls (from a line on this shelf to a line not on this shelf). The counts should be close to 0 for no traffic and higher with active calls. To ensure exact counts are collected keep track of the exact number of calls made. There will be a set usage for each active call (171 cells/sec per active call). Collect this for all 96 intervals.
nnBwIntervalBandwUtilTable											
nnBwBandwUtilIntervalInCellRate	NnBwCellsPerSec	count goes up and down, does not rollover	The ith 15min measure of the inbound bandwidth utilization.	MG9K Network Element	Interval Bandwidth Utilization Statistics : History data	Cell rate in	nnBwIntervalBandwUtilTable	NORTEL-UEMG-BANDWIDTH-MIB	Yes	SN04	On the MG9K EM Performance Browser collect this particular OM under the following conditions. 1.) No traffic 2.) with active calls (from a line on this MG9000 to a line not on this MG9000). The count should be close to 0 for no traffic and higher with active calls. To ensure exact count is collected keep track of the exact number of calls made. There will be a set usage for each active call (171 cells/sec per active call).
nnBwBandwUtilIntervalOutCellRate	NnBwCellsPerSec	count goes up and down, does not rollover	The ith 15min measure of the outbound bandwidth utilization.	MG9K Network Element	Interval Bandwidth Utilization Statistics : History data	Cell rate out	nnBwIntervalBandwUtilTable	NORTEL-UEMG-BANDWIDTH-MIB	Yes	SN04	Same as above
nnBwBandwUtilIntervalInDslCellRate	NnBwCellsPerSec	count goes up and down, does not rollover	The ith 15min measure of the inbound dsl band width utilization.	MG9K Network Element	Interval Bandwidth Utilization Statistics : History data	Dsl cell rate in	nnBwIntervalBandwUtilTable	NORTEL-UEMG-BANDWIDTH-MIB	Yes	SN04	On the MG9K EM Performance Browser collect this particular OM under the following conditions. 1.) No data traffic 2.) with active DSL data being sent (from a line on this MG9000 to a line not on this MG9000). The count should be close to 0 for no data and higher with data. To ensure exact count is collected keep track of the actual data rates (added together). Collect this for all 96 intervals. Also ensure the counts have moved to the proper time interval after each 15 interval.
nnBwBandwUtilIntervalOutDslCellRate	NnBwCellsPerSec	count goes up and down, does not rollover	The ith 15min measure of the outbound dsl band width utilization.	MG9K Network Element	Interval Bandwidth Utilization Statistics : History data	Dsl cell rate out	nnBwIntervalBandwUtilTable	NORTEL-UEMG-BANDWIDTH-MIB	Yes	SN04	Same as above
nnBwIntervalQueueFillTable											
nnBwQueueFillIntervalTotal	NnBwPercent	count goes up and down, does not rollover	ith 15-minute value % fill of the entire input cell queue associated with the central switching fabric.	MG9K Network Element	Switch Fabric Congestion Statistics : History data	Fill percentage of the input cell queue	nnBwIntervalQueueFillTable	NORTEL-UEMG-BANDWIDTH-MIB	Yes	SN04	On the MG9K EM Performance Browser collect this particular OM under the following conditions. 1.) No traffic 2.) with a large number of active calls (from a line on this MG9000 to a line not on this MG9000). The count should be 0 for no traffic and higher with active calls (warning: % may not change). To ensure exact count is collected keep track of the exact number of calls made. Collect this for all 96 intervals. Also ensure the counts have moved to the proper time interval after each 15 interval.
nnBwQueueFillIntervalCbr	NnBwPercent	count goes up and down, does not rollover	ith 15-minute value % fill of the entire input queue associated with the aggregate of all CBR VCs.	MG9K Network Element	Switch Fabric Congestion Statistics : History data	Fill percentage of the CBR VCs input queue	nnBwIntervalQueueFillTable	NORTEL-UEMG-BANDWIDTH-MIB	Yes	SN04	On the MG9K EM Performance Browser collect this particular OM under the following conditions. 1.) No PLoA traffic 2.) with very high number of active PLoA calls (from a line on this MG9000 to a line not on this MG9000). The counts should be 0 for no traffic and higher with active calls (warning: % may not change. To ensure exact counts are collected keep track of the exact number of calls made. Collect this for all 96 intervals.
nnBwQueueFillIntervalRtVbr	NnBwPercent	count goes up and down, does not rollover	ith 15-minute value % fill of the entire input queue associated with the aggregate of all rt-VBR VCs.	MG9K Network Element	Switch Fabric Congestion Statistics : History data	Fill percentage of the rt-VBR VCs input queue	nnBwIntervalQueueFillTable	NORTEL-UEMG-BANDWIDTH-MIB	Yes	SN04	On the MG9K EM Performance Browser collect this particular OM under the following conditions. 1.) No rt-VBR DSL Data 2.) with a very high rate of active rt-VBR DSL data (from a line on this MG9000 to a line not on this MG9000). The count should be 0 for no data and higher with data (warning: % may not change. To ensure exact count is collected keep track of the exact number data rate. Collect this for all 96 intervals. Also ensure the counts have moved to the proper time interval after each 15 interval.
nnBwQueueFillIntervalNrtVbr	NnBwPercent	count goes up and down, does not rollover	ith 15-minute value % fill of the entire input queue associated with the aggregate of all nrt-VBR VCs.	MG9K Network Element	Switch Fabric Congestion Statistics : History data	Fill percentage of the nrt-VBR VCs input queue	nnBwIntervalQueueFillTable	NORTEL-UEMG-BANDWIDTH-MIB	Yes	SN04	Same as above but for nrt-VBR DSL data service
nnBwQueueFillIntervalUbr	NnBwPercent	count goes up and down, does not rollover	ith 15-minute value % fill of the entire input queue associated with the aggregate of all UBR VCs.	MG9K Network Element	Switch Fabric Congestion Statistics : History data	Fill percentage of the UBR VCs input queue	nnBwIntervalQueueFillTable	NORTEL-UEMG-BANDWIDTH-MIB	Yes	SN04	Same as above but for UBR DSL data service
nnBwQueueFillIntervalUbrPlus	NnBwPercent	count goes up and down, does not rollover	ith 15-minute value % fill of the entire input queue associated with the aggregate of all UBR+ VCs.	MG9K Network Element	Switch Fabric Congestion Statistics : History data	Fill percentage of the UBR+ VCs input queue	nnBwIntervalQueueFillTable	NORTEL-UEMG-BANDWIDTH-MIB	Yes	SN04	Same as above but for UBR+ DSL data service
nnBwQueueFillIntervalControl	NnBwPercent	count goes up and down, does not rollover	ith 15-minute value % fill of the entire input queue associated with the aggregate of all Control VCs.	MG9K Network Element	Switch Fabric Congestion Statistics : History data	Fill percentage of all Control VCs input queue	nnBwIntervalQueueFillTable	NORTEL-UEMG-BANDWIDTH-MIB	Yes	SN04	Collect this OM with no traffic and no OAM&P activity. The % should be low or 0. Run very high traffic and very high OAM&P traffic and the number may rise. Collect this for all 96 intervals. Also ensure the counts have moved to the proper time interval after each 15 interval.
nnBwAbiCurrentBandwResrvdTable											
nnBwAbiCurrentBandwReserved	NnBwCellsPerSec	count goes up and down, does not rollover	Current amount of reserved bandwidth currently allocated for the aggregate of all VCs on this UEMG ABI interface.	ABI Card	ABI card Bandwidth Reserved Statistics: Current data	Current bandwidth reserved	nnBwAbiCurrentBandwResrvdTable	NORTEL-UEMG-BANDWIDTH-MIB	No	SN06	On the MG9K EM Performance Browser collect this particular OM under the following conditions. 1.) No traffic 2.) with active ABI calls (from a line on ABI to a line not on this MG9000). The count should be close to 0 for no traffic and higher with active calls. To ensure exact count is collected keep track of the exact number of calls made. There will be a set usage for each active call (171 cells/sec per active call).
nnBwAbiCapacityBandwReserved	NnBwCellsPerSec	count goes up and down, does not rollover	Current amount of reserved bandwidth Capacity for the aggregate of all ABI VCs on this ABI interface.	ABI Card	ABI card Bandwidth Reserved Statistics: Current data	Capacity bandwidth reserved	nnBwAbiCurrentBandwResrvdTable	NORTEL-UEMG-BANDWIDTH-MIB	Yes	SN06	This is just the opposite of the OM above. It starts at max (or close to max) and decreases per call. So collect this OM and add the OM above and the two should equal the max value.
nnBwAbiIntervalBandwResrvdEntry											
nnBwAbiIntervalBandwReserved	NnBwCellsPerSec	count goes up and down, does not rollover	ith 15-minute measure amount of reserved bandwidth allocated for the aggregate of all VCs on this ABI interface.*	ABI Card	ABI card Interval Bandwidth Reserved Statistics: History data	Amount of bandwidth reserved	nnBwAbiIntervalBandwResrvdTable	NORTEL-UEMG-BANDWIDTH-MIB	Yes	SN06	On the MG9K EM Performance Browser collect this particular OM under the following conditions. 1.) No traffic 2.) with active ABI calls (from a line on ABI to a line not on this MG9000). The count should be close to 0 for no traffic and higher with active calls. To ensure exact count is collected keep track of the exact number of calls made. There will be a set usage for each active call (171 cells/sec per active call). Collect for all 96 intervals
SNMP-MPD-MIB											
SNMP Table											
snmpInvalidMsgs	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	The total number of packets received by the SNMP engine which were dropped because there were invalid or inconsistent components in the SNMP message.	Not supported			SNMP Table	SNMP-MPD-MIB	Yes	SN04	This is an error condition that cannot be tested under normal conditions. To test a special test tool or test box would be required to sent invalid SNMP messages.
SNMPv2-MIB											

snmpInBadCommunityNames	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	The total number of community-based SNMP messages (for example, SNMPv1) delivered to the SNMP entity which used an SNMP community name not known to said entity. Also, implementations which authenticate community-based SNMP messages using check(s) in addition to matching the community name (for example, by also checking whether the message originated from a transport address allowed to use a specified community name) MAY include in this value the number of messages which failed the additional check(s). It is to authenticate community-based SNMP messages specify the precise conditions that contribute to this value.	Not supported				SNMPv2-MIB	Yes	SN05	
snmpInPkts	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	The total number of messages delivered to the SNMP entity from the transport service.	Not supported				SNMPv2-MIB	Yes	SN05	
NORTEL-UEMG-CLKSYNC-MIB											
NnClkSyncRefTable			This table provides status information for each of the sync reference inputs associated with the ITP card. There are six references per ITP card, two ITP cards on each shelf.								
nnClkSyncRefId	interger	Fixed value	Reference Identification... Identifies the six possible clock synchronization references on the ITP card. This field along with entPhysicalIndex defines a unique row in the nnClkSyncRefTable. itx0 (1), -- reference coming from the left ITX (ITX 0) itx1 (2), -- reference coming from the right ITX (ITX 1) dcc0 (3), -- reference coming from the left DCC (DCC-0) dcc1 (4), -- reference coming from the right DCC (DCC-1) host0 (5), -- reference cabled into the ITP ATM25 phy0 host1 (6) -- reference cabled into the ITP ATM25 phy1 "	Not supported			NnClkSyncRefTable	NORTEL-UEMG-CLKSYNC-MIB	Yes	SN04	See Below
nnClkSyncRefLossOfSignalCount	Unsigned32	Count From Last Init up to 255 then it rolls over to 0	Contains the count of the number of onsets of timing reference signal loss. Range is from 0 - 255	ITP Card	Clock Sync Left ITX Reference Statistics : Current data Clock Sync Right ITX Reference Statistics : Current data Clock Sync Left OC3 Reference Statistics : Current data Clock Sync Right OC3 Reference Statistics : Current data	Number of onsets of timing reference signal loss	NnClkSyncRefTable	NORTEL-UEMG-CLKSYNC-MIB	Yes	SN05	Remove ITX cables to the ITP cards. This OM count will increase for each removal.
nnClkSyncRefLossOfFrameCount (SN05)	Unsigned32	Count From Last Init up to 255 then it rolls over to 0	Contains the count of the number of loss of frames. Range is from 0 - 255.	ITP Card	Clock Sync Left ITX Reference Statistics : Current data Clock Sync Right ITX Reference Statistics : Current data Clock Sync Left OC3 Reference Statistics : Current data Clock Sync Right OC3 Reference Statistics : Current data	Number of loss of frames	NnClkSyncRefTable	NORTEL-UEMG-CLKSYNC-MIB	Yes	SN05	Remove all BITS and Network timing signals, individually (remove cables). This OM count will increase each time the signal is removed
NnClkSyncSignalTable			This table provides status information on each of the six timing signals coming into the UE9KMG host shelf. There is one entry for each network timing signal (total of two), and one entry for each BITS signal (total of 4)								
nnClkSyncSignalId	interger	Fixed value	Signal Identification... Identifies the six possible timing source signals which eventually are seen as references into the ITP card. This field defines a unique row in the nnClkSyncSignalTable. bitsA-0 (1), -- BITS A signal coming into the left ITX of -- the BITS ITX connected pair. bitsB-0 (2), -- BITS B signal coming into the left ITX of -- the BITS ITX connected pair. bitsA-1 (3), -- BITS A signal coming into the right ITX of -- the BITS ITX connected pair. bitsB-1 (4), -- BITS B signal coming into the right ITX of -- the BITS ITX connected pair. dcc-0 (5), -- Network Traffic signal coming into DCC-0 dcc-1 (6) -- Network Traffic signal coming into DCC-1"	Not Supported			NnClkSyncSignalTable	NORTEL-UEMG-CLKSYNC-MIB	Yes	SN05	See Below
nnClkSyncSignalLossOfFrameCount	Unsigned32	Count From Last Init up to 255 then it rolls over to 0	Contains the count of the number of loss of frames.	Not supported			NnClkSyncSignalTable	NORTEL-UEMG-CLKSYNC-MIB	Yes	SN05	Remove all BITS and Network timing signals, individually (remove cables). This OM count will increase each time the signal is removed

nnClkSyncSibnalLossOfSignalCount	Unsigned32	Count From Last Init up to 255 then it rolls over to 0	Contains the count of the number of onsets of timing source signal loss.	Not supported			NnClkSyncSignalTable	NORTEL-UEMG-CLKSYNC-MIB	Yes	SN05	Remove all BITS and Network timing signals, individually (remove cables). This OM count will increase each time the signal is removed
DS1-MIB											
dsx1CurrentTable											
dsx1CurrentESs	PerfCurrent Count	Counts only for last 15 min	The number of Errored Seconds.	DS1 Port, IMA Port	Near-end Statistics : Current data	Number of errored seconds	dsx1CurrentTable	DS1-MIB	No	SN04	On a PLoA DS1 channel connect a test box that has the ability to inject errors (e.g. TBERD). Without injecting any errors collect the OM and it should be 0. Inject toward the near-end DS1 (DS0) the error and collect the OM and it should reflect the correct error count. Many of the NearEnd counts will be pegged just by pulling the DS1 cable.
dsx1CurrentSESs	PerfCurrent Count	Counts only for last 15 min	The number of Severely Errored Seconds.	DS1 Port, IMA Port	Near-end Statistics : Current data	Number of severely errored seconds	dsx1CurrentTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentSEFSs	PerfCurrent Count	Counts only for last 15 min	The number of Severely Errored Framing Seconds.	DS1 Port, IMA Port	Near-end Statistics : Current data	Number of severely errored framing seconds	dsx1CurrentTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentUASs	PerfCurrent Count	Counts only for last 15 min	The number of Unavailable Seconds.	DS1 Port, IMA Port	Near-end Statistics : Current data	Number of unavailable seconds	dsx1CurrentTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentCSSs	PerfCurrent Count	Counts only for last 15 min	The number of Controlled Slip Seconds.	DS1 Port, IMA Port	Near-end Statistics : Current data	Number of controlled slip seconds	dsx1CurrentTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentPCVs	PerfCurrent Count	Counts only for last 15 min	The number of Path Coding Violations.	DS1 Port, IMA Port	Near-end Statistics : Current data	Number of path coding violations	dsx1CurrentTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentLESs	PerfCurrent Count	Counts only for last 15 min	The number of Line Errored Seconds.	DS1 Port, IMA Port	Near-end Statistics : Current data	Number of line errored seconds	dsx1CurrentTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentBESs	PerfCurrent Count	Counts only for last 15 min	The number of Bursty Errored Seconds	DS1 Port, IMA Port	Near-end Statistics : Current data	Number of bursty errored seconds	dsx1CurrentTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentDMs	PerfCurrent Count	Counts only for last 15 min	The number of Degraded Minutes	DS1 Port, IMA Port	Near-end Statistics : Current data	Number of degraded minutes	dsx1CurrentTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentLCVs	PerfCurrent Count	Counts only for last 15 min	The number of Line Code Violations (LCVs).	DS1 Port, IMA Port	Near-end Statistics : Current data	Number of line code violations	dsx1CurrentTable	DS1-MIB	No	SN04	Same as above
dsx1IntervalTable											
dsx1CurrentESs	PerfInterval Count	Counts only for last 15 min	The number of Errored Seconds.	DS1 Port, IMA Port	Near-end Statistics : History data	Number of errored seconds	dsx1IntervalTable	DS1-MIB	No	SN04	On a PLoA DS1 channel connect a test box that has the ability to inject errors (e.g. TBERD). With out injecting any errors collect the OM and it should be 0. Inject toward the near-end DS1 (DS0) the error and collect the OM and it should reflect the correct error count. Many of the NearEnd counts will be pegged just by pulling the DS1 cable. Collect all 96 intervals, waiting 15+ minutes between tests, the counts will move to a higher interval each 15 minutes.
dsx1CurrentSESs	PerfInterval Count	Counts only for last 15 min	The number of Severely Errored Seconds.	DS1 Port, IMA Port	Near-end Statistics : History data	Number of severely errored seconds	dsx1IntervalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentSEFSs	PerfInterval Count	Counts only for last 15 min	The number of Severely Errored Framing Seconds.	DS1 Port, IMA Port	Near-end Statistics : History data	Number of severely errored framing seconds	dsx1IntervalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentUASs	PerfInterval Count	Counts only for last 15 min	The number of Unavailable Seconds. This object may decrease if the occurrence of unavailable seconds occurs across an interval boundary.	DS1 Port, IMA Port	Near-end Statistics : History data	Number of unavailable seconds	dsx1IntervalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentCSSs	PerfInterval Count	Counts only for last 15 min	The number of Controlled Slip Seconds.	DS1 Port, IMA Port	Near-end Statistics : History data	Number of controlled slip seconds	dsx1IntervalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentPCVs	PerfInterval Count	Counts only for last 15 min	The number of Path Coding Violations.	DS1 Port, IMA Port	Near-end Statistics : History data	Number of path coding violations	dsx1IntervalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentLESs	PerfInterval Count	Counts only for last 15 min	The number of Line Errored Seconds.	DS1 Port, IMA Port	Near-end Statistics : History data	Number of line errored seconds	dsx1IntervalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentBESs	PerfCurrent Count	Counts only for last 15 min	The number of Bursty Errored Seconds	DS1 Port, IMA Port	Near-end Statistics : History data	Number of bursty errored seconds	dsx1IntervalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentDMs	PerfCurrent Count	Counts only for last 15 min	The number of Degraded Minutes	DS1 Port, IMA Port	Near-end Statistics : History data	Number of degraded minutes	dsx1IntervalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentLCVs	PerfInterval Count	Counts only for last 15 min	The number of Line Code Violations.	DS1 Port, IMA Port	Near-end Statistics : History data	Number of line code violations	dsx1IntervalTable	DS1-MIB	No	SN04	Same as above
dsx1TotalTable											
dsx1CurrentESs	PerfTotalCo unt	Rolling 24 hour total	The sum of Errored Seconds encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.	DS1 Port, IMA Port	Near-end Statistics : 24-hour current data	Number of errored seconds	dsx1TotalTable	DS1-MIB	No	SN04	On a PLoA DS1 channel connect a test box that has the ability to inject errors (e.g. TBERD). With out injecting any errors collect the OM and it should be 0. Inject toward the near-end DS1 (DS0) the error and collect the OM and it should reflect the correct error count across 24 hours. Many of the NearEnd counts will be pegged just by pulling the DS1 cable. This test can be done utilizing the current and interval tests.
dsx1CurrentSESs	PerfTotalCo unt	Rolling 24 hour total	The number of Severely Errored Seconds encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.	DS1 Port, IMA Port	Near-end Statistics : 24-hour current data	Number of severely errored seconds	dsx1TotalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentSEFSs	PerfTotalCo unt	Rolling 24 hour total	The number of Severely Errored Framing Seconds encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.	DS1 Port, IMA Port	Near-end Statistics : 24-hour current data	Number of severely errored framing seconds	dsx1TotalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentUASs	PerfTotalCo unt	Rolling 24 hour total	The number of Unavailable Seconds encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.	DS1 Port, IMA Port	Near-end Statistics : 24-hour current data	Number of unavailable seconds	dsx1TotalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentCSSs	PerfTotalCo unt	Rolling 24 hour total	The number of Controlled Slip Seconds encountered by a DS1 inter face in the previous 24 hour interval. Invalid 15 minute intervals count as 0.	DS1 Port, IMA Port	Near-end Statistics : 24-hour current data	Number of controlled slip seconds	dsx1TotalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentPCVs	PerfTotalCo unt	Rolling 24 hour total	The number of Path Coding Violations encountered by a DS1 inter face in the previous 24 hour interval. Invalid 15 minute intervals count as 0.	DS1 Port, IMA Port	Near-end Statistics : 24-hour current data	Number of path coding violations	dsx1TotalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentLESs	PerfTotalCo unt	Rolling 24 hour total	The number of Line Errored Seconds encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.	DS1 Port, IMA Port	Near-end Statistics : 24-hour current data	Number of line errored seconds	dsx1TotalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentBESs	PerfCurrent Count	Rolling 24 hour total	The number of Bursty Errored Seconds	DS1 Port, IMA Port	Near-end Statistics : 24-hour current data	Number of bursty errored seconds	dsx1TotalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentDMs	PerfCurrent Count	Rolling 24 hour total	The number of Degraded Minutes	DS1 Port, IMA Port	Near-end Statistics : 24-hour current data	Number of degraded minutes	dsx1TotalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentLCVs	PerfTotalCo unt	Rolling 24 hour total	The number of Line Code Violations (LCVs) encountered by a DS1 interface in the current 15 minute interval. Invalid 15 minute intervals count as 0.	DS1 Port, IMA Port	Near-end Statistics : 24-hour current data	Number of line code violations	dsx1TotalTable	DS1-MIB	No	SN04	Same as above
dsx1FarEndCurrentTable											

dsx1CurrentESs	PerfCurrent Count	Counts only for last 15 min	The number of Far End Errored Seconds.	DS1 Port, IMA Port	Far-end Statistics : Current data	Number of errored seconds	dsx1FarEndCurrentTable	DS1-MIB	No	SN04	On a PLoA DS1 channel connect a test box that has the ability to inject errors (e.g. TBERD). With out injecting any errors collect the OM and it should be 0. Inject toward the Far-end DS1 (DS0) the error and collect the OM and it should reflect the correct error count
dsx1CurrentSESs	PerfCurrent Count	Counts only for last 15 min	The number of Far End Severely Errored Seconds.	DS1 Port, IMA Port	Far-end Statistics : Current data	Number of severely errored seconds	dsx1FarEndCurrentTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentSEFSs	PerfCurrent Count	Counts only for last 15 min	The number of Far End Severely Errored Framing Seconds.	DS1 Port, IMA Port	Far-end Statistics : Current data	Number of severely errored framing seconds	dsx1FarEndCurrentTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentUASs	PerfCurrent Count	Counts only for last 15 min	The number of Unavailable Seconds.	DS1 Port, IMA Port	Far-end Statistics : Current data	Number of unavailable seconds	dsx1FarEndCurrentTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentCSSs	PerfCurrent Count	Counts only for last 15 min	The number of Far End Controlled Slip Seconds.	DS1 Port, IMA Port	Far-end Statistics : Current data	Number of controlled slip seconds	dsx1FarEndCurrentTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentLESs	PerfCurrent Count	Counts only for last 15 min	The number of Far End Line Errored Seconds.	DS1 Port, IMA Port	Far-end Statistics : Current data	Number of path coding violations	dsx1FarEndCurrentTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentPCVs	PerfCurrent Count	Counts only for last 15 min	The number of Far End Path Coding Violations.	DS1 Port, IMA Port	Far-end Statistics : Current data	Number of line errored seconds	dsx1FarEndCurrentTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentBESs	PerfCurrent Count	Counts only for last 15 min	The number of Bursty Errored Seconds	DS1 Port, IMA Port	Far-end Statistics : Current data	Number of bursty errored seconds	dsx1FarEndCurrentTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentDMs	PerfCurrent Count	Counts only for last 15 min	The number of Degraded Minutes	DS1 Port, IMA Port	Far-end Statistics : Current data	Number of degraded minutes	dsx1FarEndCurrentTable	DS1-MIB	No	SN04	Same as above
dsx1FarEndIntervalTable											
dsx1CurrentESs	PerfInterval Count	Counts only for last 15 min	The number of Far End Errored Seconds.	DS1 Port, IMA Port	Far-end Statistics : History data	Number of errored seconds	dsx1FarEndIntervalTable	DS1-MIB	No	SN04	On a PLoA DS1 channel connect a test box that has the ability to inject errors (e.g. TBERD). With out injecting any errors collect the OM and it should be 0. Inject toward the Far-end DS1 (DS0) the error and collect the OM and it should reflect the correct error count. Collect all 96 intervals, waiting 15+ minutes between tests, the counts will move to a higher interval each 15 minutes.
dsx1CurrentSESs	PerfInterval Count	Counts only for last 15 min	The number of Far End Severely Errored Seconds.	DS1 Port, IMA Port	Far-end Statistics : History data	Number of severely errored seconds	dsx1FarEndIntervalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentSEFSs	PerfInterval Count	Counts only for last 15 min	The number of Far End Severely Errored Framing Seconds.	DS1 Port, IMA Port	Far-end Statistics : History data	Number of severely errored framing seconds	dsx1FarEndIntervalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentUASs	PerfInterval Count	Counts only for last 15 min	The number of Unavailable Seconds.	DS1 Port, IMA Port	Far-end Statistics : History data	Number of unavailable seconds	dsx1FarEndIntervalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentCSSs	PerfInterval Count	Counts only for last 15 min	The number of Far End Controlled Slip Seconds.	DS1 Port, IMA Port	Far-end Statistics : History data	Number of controlled slip seconds	dsx1FarEndIntervalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentLESs	PerfInterval Count	Counts only for last 15 min	The number of Far End Line Errored Seconds.	DS1 Port, IMA Port	Far-end Statistics : History data	Number of path coding violations	dsx1FarEndIntervalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentPCVs	PerfInterval Count	Counts only for last 15 min	The number of Far End Path Coding Violations.	DS1 Port, IMA Port	Far-end Statistics : History data	Number of line errored seconds	dsx1FarEndIntervalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentBESs	PerfCurrent Count	Counts only for last 15 min	The number of Bursty Errored Seconds	DS1 Port, IMA Port	Far-end Statistics : History data	Number of bursty errored seconds	dsx1FarEndIntervalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentDMs	PerfCurrent Count	Counts only for last 15 min	The number of Degraded Minutes	DS1 Port, IMA Port	Far-end Statistics : History data	Number of degraded minutes	dsx1FarEndIntervalTable	DS1-MIB	No	SN04	Same as above
dsx1FarEndTotalTable											
dsx1CurrentESs	PerfTotalCo unt	Rolling 24 hour total	The number of Far End Errored Seconds encountered by a DS1 inter face in the previous 24 hour interval. Invalid 15 minute intervals count as 0.	DS1 Port, IMA Port	Far-end Statistics : 24-hour current data	Number of errored seconds	dsx1FarEndTotalTable	DS1-MIB	No	SN04	On a PLoA DS1 channel connect a test box that has the ability to inject errors (e.g. TBERD). With out injecting any errors collect the OM and it should be 0. Inject toward the Far-end DS1 (DS0) the error and collect the OM and it should reflect the correct error count across 24 hours. This test can be done utilizing the current and interval tests.
dsx1CurrentSESs	PerfTotalCo unt	Rolling 24 hour total	The number of Far End Severely Errored Seconds encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.	DS1 Port, IMA Port	Far-end Statistics : 24-hour current data	Number of severely errored seconds	dsx1FarEndTotalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentSEFSs	PerfTotalCo unt	Rolling 24 hour total	The number of Far End Severely Errored Framing Seconds encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.	DS1 Port, IMA Port	Far-end Statistics : 24-hour current data	Number of severely errored framing seconds	dsx1FarEndTotalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentUASs	PerfTotalCo unt	Rolling 24 hour total	The number of Unavailable Seconds encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.	DS1 Port, IMA Port	Far-end Statistics : 24-hour current data	Number of unavailable seconds	dsx1FarEndTotalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentCSSs	PerfTotalCo unt	Rolling 24 hour total	The number of Far End Controlled Slip Seconds encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.	DS1 Port, IMA Port	Far-end Statistics : 24-hour current data	Number of controlled slip seconds	dsx1FarEndTotalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentLESs	PerfTotalCo unt	Rolling 24 hour total	The number of Far End Line Errored Seconds encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.	DS1 Port, IMA Port	Far-end Statistics : 24-hour current data	Number of path coding violations	dsx1FarEndTotalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentPCVs	PerfTotalCo unt	Rolling 24 hour total	The number of Far End Path Coding Violations reported via the far end block error count encountered by a DS1 interface in the previous 24 hour interval. Invalid 15 minute intervals count as 0.	DS1 Port, IMA Port	Far-end Statistics : 24-hour current data	Number of line errored seconds	dsx1FarEndTotalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentBESs	PerfCurrent Count	Rolling 24 hour total	The number of Bursty Errored Seconds	DS1 Port, IMA Port	Far-end Statistics : 24-hour current data	Number of bursty errored seconds	dsx1FarEndTotalTable	DS1-MIB	No	SN04	Same as above
dsx1CurrentDMs	PerfCurrent Count	Rolling 24 hour total	The number of Degraded Minutes	DS1 Port, IMA Port	Far-end Statistics : 24-hour current data	Number of degraded minutes	dsx1FarEndTotalTable	DS1-MIB	No	SN04	Same as above
SONET-MIB											
sonetSectionCurrentTable											
sonetSectionCurrentESs	PerfCurrent Count	Counts since last 15 min interval	The counter associated with the number of Errored Seconds encountered by a SONET/SDH Section in the current 15 minute interval.	OC3 Port, STS1	Sonet Section Statistics : Current data	Number of errored seconds	sonetSectionCurrentTable	SONET-MIB	No	SN04	On the OC3 connect a test box that has the ability to inject errors (e.g. ADTECH). With out injecting any errors collect the OM and it should be 0. Inject toward the near-end OC3 the error and collect the OM and it should reflect the correct error count. Many of the NearEnd counts will be pegged just by pulling the DS1 cable.
sonetSectionCurrentSESs	PerfCurrent Count	Counts since last 15 min interval	The counter associated with the number of Severely Errored Seconds encountered by a SONET/SDH Section in the current 15 minute interval.	OC3 Port, STS1	Sonet Section Statistics : Current data	Number of severely errored seconds	sonetSectionCurrentTable	SONET-MIB	No	SN04	Same as above
sonetSectionCurrentSEFSs	PerfCurrent Count	Counts since last 15 min interval	The counter associated with the number of Severely Errored Framing Seconds encountered by a SONET/SDH Section in the current 15 minute inter val.	OC3 Port, STS1	Sonet Section Statistics : Current data	Number of severely errored framing seconds	sonetSectionCurrentTable	SONET-MIB	No	SN04	Same as above

sonetSectionCurrentCVs	PerfCurrent Count	Counts since last 15 min interval	The counter associated with the number of Coding Violations encountered by a SONET/SDH Section in the current 15 minute interval.	OC3 Port, STS1	Sonet Section Statistics : Current data	Number of coding violations	sonetSectionCurrentTable	SONET-MIB	No	SN04	Same as above
sonetSectionIntervalTable											
sonetSectionIntervalESs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of Errored Seconds encountered by a SONET/SDH Section in a particular 15-minute interval in the past 24 hours.	OC3 Port, STS1	Sonet Section Statistics : History data	Number of errored seconds	sonetSectionIntervalTable	SONET-MIB	Yes	SN04	On the OC3 connect a test box that has the ability to inject errors (e.g. ADTECH). With out injecting any errors collect the OM and it should be 0. Inject toward the near-end OC3 the error and collect the OM and it should reflect the correct error count. Many of the NearEnd counts will be pegged just by pulling the DS1 cable. Collect all 96 intervals, waiting 15+ minutes between tests, the counts will move to a higher interval each 15 minutes.
sonetSectionIntervalSESs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of Severely Errored Seconds encountered by a SONET/SDH Section in a particular 15-minute interval in the past 24 hours.	OC3 Port, STS1	Sonet Section Statistics : History data	Number of severely errored seconds	sonetSectionIntervalTable	SONET-MIB	Yes	SN04	Same as above
sonetSectionIntervalSEFSs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of Severely Errored Framing Seconds encountered by a SONET/SDH Section in a particular 15- minute interval in the past 24 hours.	OC3 Port, STS1	Sonet Section Statistics : History data	Number of severely errored framing seconds	sonetSectionIntervalTable	SONET-MIB	Yes	SN04	Same as above
sonetSectionIntervalCVs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of Coding Violations encountered by a SONET/SDH Section in a particular 15-minute interval in the past 24 hours.	OC3 Port, STS1	Sonet Section Statistics : History data	Number of coding violations	sonetSectionIntervalTable	SONET-MIB	Yes	SN04	Same as above
sonetLineCurrentTable											
sonetLineCurrentESs	PerfCurrent Count	Counts since last 15 min interval	The counter associated with the number of Errored Seconds encountered by a SONET/SDH Line in the current 15 minute interval.	OC3 Port, STS1	Sonet Line Statistics : Current data	Number of errored seconds	sonetLineCurrentTable	SONET-MIB	No	SN04	On the OC3 connect a test box that has the ability to inject errors (e.g. ADTECH). With out injecting any errors collect the OM and it should be 0. Inject toward the near-end OC3 the error and collect the OM and it should reflect the correct error count. Many of the NearEnd counts will be pegged just by pulling the DS1 cable.
sonetLineCurrentSESs	PerfCurrent Count	Counts since last 15 min interval	The counter associated with the number of Severely Errored Seconds encountered by a SONET/SDH Line in the current 15 minute inter val.	OC3 Port, STS1	Sonet Line Statistics : Current data	Number of severely errored seconds	sonetLineCurrentTable	SONET-MIB	No	SN04	Same as above
sonetLineCurrentCVs	PerfCurrent Count	Counts since last 15 min interval	The counter associated with the number of Coding Violations encountered by a SONET/SDH Line in the current 15 minute inter val.	OC3 Port, STS1	Sonet Line Statistics : Current data	Number of coding violations	sonetLineCurrentTable	SONET-MIB	No	SN04	Same as above
sonetLineCurrentUASs	PerfCurrent Count	Counts since last 15 min interval	The counter associated with the number of Unavailable Seconds encountered by a SONET/SDH Line in the current 15 minute inter val.	OC3 Port, STS1	Sonet Line Statistics : Current data	Number of unavailable seconds	sonetLineCurrentTable	SONET-MIB	No	SN04	Same as above
sonetLineIntervalTable											
sonetLineIntervalESs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of Errored Seconds encountered by a SONET/SDH Line in a particular 15-minute interval in the past 24 hours.	OC3 Port, STS1	Sonet Line Statistics : History data	Number of errored seconds	sonetLineIntervalTable	SONET-MIB	Yes	SN04	On the OC3 connect a test box that has the ability to inject errors (e.g. ADTECH). With out injecting any errors collect the OM and it should be 0. Inject toward the near-end OC3 the error and collect the OM and it should reflect the correct error count. Many of the NearEnd counts will be pegged just by pulling the DS1 cable. Collect all 96 intervals, waiting 15+ minutes between tests, the counts will move to a higher interval each 15 minutes.
sonetLineIntervalSESs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of Severely Errored Seconds encountered by a SONET/SDH Line in a particular 15-minute interval in the past 24 hours.	OC3 Port, STS1	Sonet Line Statistics : History data	Number of severely errored seconds	sonetLineIntervalTable	SONET-MIB	Yes	SN04	Same as above
sonetLineIntervalCVs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of Coding Violations encountered by a SONET/SDH Line in a particular 15-minute interval in the past 24 hours.	OC3 Port, STS1	Sonet Line Statistics : History data	Number of coding violations	sonetLineIntervalTable	SONET-MIB	Yes	SN04	Same as above
sonetLineIntervalUASs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of Unavailable Seconds encountered by a SONET/SDH Line in a particular 15-minute interval in the past 24 hours.	OC3 Port, STS1	Sonet Line Statistics : History data	Number of unavailable seconds	sonetLineIntervalTable	SONET-MIB	Yes	SN04	Same as above
sonetFarEndLineCurrentTable											
sonetFarEndLineCurrentESs	PerfCurrent Count	Counts since last 15 min interval	The counter associated with the number of Far End Errored Seconds encountered by a SONET/SDH interface in the current 15 minute interval.	OC3 Port, STS1	Sonet Far End Line Statistics : Current data	Number of errored seconds	sonetFarEndLineCurrentTable	SONET-MIB	No	SN04	On the OC3 channel connect a test box that has the ability to inject errors (e.g. ADTECH). With out injecting any errors collect the OM and it should be 0. Inject toward the Far-end OC3 the error and collect the OM and it should reflect the correct error count
sonetFarEndLineCurrentSESs	PerfCurrent Count	Counts since last 15 min interval	The counter associated with the number of Far End Severely Errored Seconds encountered by a SONET/SDH Medium/Section/Line inter face in the current 15 minute interval.	OC3 Port, STS1	Sonet Far End Line Statistics : Current data	Number of severely errored seconds	sonetFarEndLineCurrentTable	SONET-MIB	No	SN04	Same as above
sonetFarEndLineCurrentCVs	PerfCurrent Count	Counts since last 15 min interval	The counter associated with the number of Far End Coding Violations reported via the far end block error count encountered by a SONET/SDH Medium/Section/Line interface in the current 15 minute interval.	OC3 Port, STS1	Sonet Far End Line Statistics : Current data	Number of coding violations	sonetFarEndLineCurrentTable	SONET-MIB	No	SN04	Same as above
sonetFarEndLineCurrentUASs	PerfCurrent Count	Counts since last 15 min interval	The counter associated with the number of Far End Unavailable Seconds encountered by a SONET/SDH Medium/Section/Line interface in the current 15 minute interval.	OC3 Port, STS1	Sonet Far End Line Statistics : Current data	Number of unavailable seconds	sonetFarEndLineCurrentTable	SONET-MIB	No	SN04	Same as above
sonetFarEndLineIntervalTable											
sonetFarEndLineIntervalESs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of Far End Errored Seconds encountered by a SONET/SDH Line interface in a particular 15- minute interval in the past 24 hours.	OC3 Port, STS1	Sonet Far End Line Statistics : History data	Number of errored seconds	sonetFarEndLineIntervalTable	SONET-MIB	No	SN04	On the OC3 channel connect a test box that has the ability to inject errors (e.g. ADTECH). With out injecting any errors collect the OM and it should be 0. Inject toward the Far-end OC3 the error and collect the OM and it should reflect the correct error count. Collect all 96 intervals, waiting 15+ minutes between tests, the counts will move to a higher interval each 15 minutes.
sonetFarEndLineIntervalSESs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of Far End Severely Errored Seconds encountered by a SONET/SDH Line interface in a particular 15-minute interval in the past 24 hours.	OC3 Port, STS1	Sonet Far End Line Statistics : History data	Number of severely errored seconds	sonetFarEndLineIntervalTable	SONET-MIB	No	SN04	Same as above
sonetFarEndLineIntervalCVs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of Far End Coding Violations reported via the far end block error count encountered by a SONET/SDH Line interface in a particular 15-minute interval in the past 24 hours.	OC3 Port, STS1	Sonet Far End Line Statistics : History data	Number of coding violations	sonetFarEndLineIntervalTable	SONET-MIB	No	SN04	Same as above

sonetFarEndLineIntervalUASs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of Far End Unavailable Seconds encountered by a SONET/SDH Line interface in a particular 15-minute interval in the past 24 hours.	OC3 Port, STS1	Sonet Far End Line Statistics : History data	Number of unavailable seconds	sonetFarEndLineIntervalTable	SONET-MIB	No	SN04	Same as above
sonetPathCurrentTable											
sonetPathCurrentESs	PerfCurrent Count	Counts since last 15 min interval	The counter associated with the number of Errored Seconds encountered by a SONET/SDH Path in the current 15 minute interval.	OC3 Port, STS1	Sonet Path Statistics : Current data	Number of errored seconds	sonetPathCurrentTable	SONET-MIB	No	SN04	On the OC3 connect a test box that has the ability to inject errors (e.g. ADTECH). With out injecting any errors collect the OM and it should be 0. Inject toward the near-end OC3 the error and collect the OM and it should reflect the correct error count. Many of the NearEnd counts will be pegged just by pulling the DS1 cable.
sonetPathCurrentSESs	PerfCurrent Count	Counts since last 15 min interval	The counter associated with the number of Severely Errored Seconds encountered by a SONET/SDH Path in the current 15 minute interval.	OC3 Port, STS1	Sonet Path Statistics : Current data	Number of severely errored seconds	sonetPathCurrentTable	SONET-MIB	No	SN04	Same as above
sonetPathCurrentCVs	PerfCurrent Count	Counts since last 15 min interval	The counter associated with the number of Coding Violations encountered by a SONET/SDH Path in the current 15 minute interval.	OC3 Port, STS1	Sonet Path Statistics : Current data	Number of coding violations	sonetPathCurrentTable	SONET-MIB	No	SN04	Same as above
sonetPathCurrentUASs	PerfCurrent Count	Counts since last 15 min interval	The counter associated with the number of Unavailable Seconds encountered by a Path in the current 15 minute interval.	OC3 Port, STS1	Sonet Path Statistics : Current data	Number of unavailable seconds	sonetPathCurrentTable	SONET-MIB	No	SN04	Same as above
sonetPathIntervalTable											
sonetPathIntervalESs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of Errored Seconds encountered by a SONET/SDH Path in a particular 15-minute interval in the past 24 hours.	OC3 Port, STS1	Sonet Path Statistics : History data	Number of errored seconds	sonetPathIntervalTable	SONET-MIB	Yes	SN04	On the OC3 connect a test box that has the ability to inject errors (e.g. ADTECH). With out injecting any errors collect the OM and it should be 0. Inject toward the near-end OC3 the error and collect the OM and it should reflect the correct error count. Many of the NearEnd counts will be pegged just by pulling the DS1 cable. Collect all 96 intervals, waiting 15+ minutes between tests, the counts will move to a higher interval each 15 minutes.
sonetPathIntervalSESs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of Severely Errored Seconds encountered by a SONET/SDH Path in a particular 15-minute interval in the past 24 hours.	OC3 Port, STS1	Sonet Path Statistics : History data	Number of severely errored seconds	sonetPathIntervalTable	SONET-MIB	Yes	SN04	Same as above
sonetPathIntervalCVs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of Coding Violations encountered by a SONET/SDH Path in a particular 15-minute interval in the past 24 hours.	OC3 Port, STS1	Sonet Path Statistics : History data	Number of coding violations	sonetPathIntervalTable	SONET-MIB	Yes	SN04	Same as above
sonetPathIntervalUASs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of Unavailable Seconds encountered by a Path in a particular 15-minute interval in the past 24 hours.	OC3 Port, STS1	Sonet Path Statistics : History data	Number of unavailable seconds	sonetPathIntervalTable	SONET-MIB	Yes	SN04	Same as above
sonetFarEndPathCurrentTable											
sonetFarEndPathCurrentESs	PerfCurrent Count	Counts since last 15 min interval	The counter associated with the number of FarEnd Errored Seconds encountered by a SONET/SDH interface in the current 15 minute interval.	OC3 Port, STS1	Sonet Far End Path Statistics : Current data	Number of errored seconds	sonetFarEndPathCurrentTable	SONET-MIB	No	SN04	On the OC3 connect a test box that has the ability to inject errors (e.g. ADTECH). With out injecting any errors collect the OM and it should be 0. Inject toward the Far-end OC3 the error and collect the OM and it should reflect the correct error count. Many of the NearEnd counts will be pegged just by pulling the DS1 cable.
sonetFarEndPathCurrentSESs	PerfCurrent Count	Counts since last 15 min interval	The counter associated with the number of Far End Severely Errored Seconds encountered by a SONET/SDH Path interface in the current 15 minute interval.	OC3 Port, STS1	Sonet Far End Path Statistics : Current data	Number of severely errored seconds	sonetFarEndPathCurrentTable	SONET-MIB	No	SN04	Same as above
sonetFarEndPathCurrentCVs	PerfCurrent Count	Counts since last 15 min interval	The counter associated with the number of Far End Coding Violations reported via the far end block error count encountered by a SONET/SDH Path interface in the current 15 minute interval.	OC3 Port, STS1	Sonet Far End Path Statistics : Current data	Number of coding violations	sonetFarEndPathCurrentTable	SONET-MIB	No	SN04	Same as above
sonetFarEndPathCurrentUASs	PerfCurrent Count	Counts since last 15 min interval	The counter associated with the number of Far End Unavailable Seconds encountered by a SONET/SDH Path interface in the current 15 minute interval.	OC3 Port, STS1	Sonet Far End Path Statistics : Current data	Number of unavailable seconds	sonetFarEndPathCurrentTable	SONET-MIB	No	SN04	Same as above
sonetFarEndPathIntervalTable											
sonetFarEndPathIntervalESs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of Far End Errored Seconds encountered by a SONET/SDH Path interface in a particular 15- minute interval in the past 24 hours.	OC3 Port, STS1	Sonet Far End Path Statistics : History data	Number of errored seconds	sonetFarEndPathIntervalTable	SONET-MIB	No	SN04	On the OC3 channel connect a test box that has the ability to inject errors (e.g. ADTECH). With out injecting any errors collect the OM and it should be 0. Inject toward the Far-end OC3 the error and collect the OM and it should reflect the correct error count. Collect all 96 intervals, waiting 15+ minutes between tests, the counts will move to a higher interval each 15 minutes.
sonetFarEndPathIntervalSESs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of Far End Severely Errored Seconds encountered by a SONET/SDH Path interface in a particular 15-minute interval in the past 24 hours.	OC3 Port, STS1	Sonet Far End Path Statistics : History data	Number of severely errored seconds	sonetFarEndPathIntervalTable	SONET-MIB	No	SN04	Same as above
sonetFarEndPathIntervalCVs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of Far End Coding Violations reported via the far end block error count encountered by a SONET/SDH Path interface in a particular 15-minute interval in the past 24 hours.	OC3 Port, STS1	Sonet Far End Path Statistics : History data	Number of coding violations	sonetFarEndPathIntervalTable	SONET-MIB	No	SN04	Same as above
sonetFarEndPathIntervalUASs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of Far End Unavailable Seconds encountered by a SONET/SDH Path interface in a particular 15-minute interval in the past 24 hours.	OC3 Port, STS1	Sonet Far End Path Statistics : History data	Number of unavailable seconds	sonetFarEndPathIntervalTable	SONET-MIB	No	SN04	Same as above
APS-MIB											
apsStatusTable											
apsStatusModeMismatches	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	A count of Mode Mismatch conditions. Modes other than 1+1 unidirectional monitor protection line K2 bit 5, which indicates the architecture and K2 bits 6-8, which indicate if the mode is unidirectional or bidirectional. A conflict between the current local mode and the received K2 mode information constitutes a mode mismatch	OC3 Protection Switch	APS Status Statistics : Current data	Number of Mode Mismatch conditions	apsStatusTable	APS-MIB	No	SN04	Connect the OC3 (fiber) to an ATM switch that does not support UNI Directional Non-revertive signaling (like the Bay switch).
apsChanStatusTable											
apsChanSignalDegrades	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	A count of Signal Degrade conditions. This condition occurs when the line Bit Error Rate exceeds the currently configured threshold.	OC3 Protection Switch	Active APS Channel Status Statistics : Current data Inactive APS Channel Status Statistics : Current data	Number of Signal Degrade conditions	apsChanStatusTable	APS-MIB	Yes	SN04	Inject bit error rates up to !0-5 on the active OC3 fiber using a test set (WNG ANT20).

apsChanSignalFailures	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	A count of Signal Failure conditions that have been detected on the incoming signal. This condition occurs when a loss of signal, loss of frame, AIS-L or a Line bit error rate exceeding 10^-3 is detected on an incoming line.	OC3 Protection Switch	Active APS Channel Status Statistics : Current data Inactive APS Channel Status Statistics : Current data	Number of Signal Failure conditions	apsChanStatusTable	APS-MIB	Yes	SN04	Pull the active OC3 fiber or Inject bit error rates up to !0-3 on the active OC3 fiber using a test set (WNG ANT20).
apsChanSwitchovers	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	The number of times this channel has switched to the protection line. When queried with index value apsChanNumber set to 0, which is the protection line, this object will return 0.	OC3 Protection Switch	Active APS Channel Status Statistics : Current data Inactive APS Channel Status Statistics : Current data	Number of times this channel was switched to the protection line	apsChanStatusTable	APS-MIB	Yes	SN04	Display this OM count, Cause a link (OC3) failure (remove cable) on the active fiber. Display this OM count again and it should be increased by one.
ATM-MIB											
atmInterfaceTCTable											
atmInterfaceOCDEvents	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	The number of times the Out of Cell Delineation (OCD) events occur. If seven consecutive ATM cells have Header Error Control (HEC) violations, an OCD event occurs. A high number of OCD events may indicate a problem with the TC Sublayer.	ATM Interface	Interface Statistics : Current data	Cumulative OCD anomalies	atmInterfaceTCTable	ATM-MIB	No	SN04	Display this OM, Using a test set on the OC3 interface, create HEC violations. Display this OM again, it should have increased by the number of injected faults.
ATM2-MIB											
atmSigStatTable											
atmSigSSCOPConEvents	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	SSCOP Connection Events Counter.	ATM Interface	Signaling statistics : Current data	SSCOP connection errors	atmSigStatTable	ATM2-MIB	No	SN04	SWACT the MG9000 DCC card. Increment will appear on newly active DCC as result of receiving BGN pdu
atmSigSSCOPErrdPdus	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	SSCOP Errored PDUs Counter.	ATM Interface	Signaling statistics : Current data	SSCOP errored PDUs	atmSigStatTable	ATM2-MIB	No	SN04	Use Radcom protocol analyzer to inject invalid sscop PDU. Verify counter increments.
atmSigDetectSetupAttempts	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Call Setup Attempts Counter. This counter counts the number of call setup attempts (both successful and unsuccessful) detected on this interface.	ATM Interface	Signaling statistics : Current data	Incoming call/connection attempts	atmSigStatTable	ATM2-MIB	No	SN04	Display this OM, make an call to a line on this MG9000 from another MG9000, display count again. It will increase by the number of calls made
atmSigEmitSetupAttempts	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Call Setup Attempts Counter. This counter counts the number of call setup attempts (both successful and unsuccessful) transmitted on this interface.	ATM Interface	Signaling statistics : Current data	Outgoing call/connection attempts	atmSigStatTable	ATM2-MIB	No	SN04	Display this OM, make an call from this MG9000 to another MG9000, display count again. It will increase by the number of calls made
atmSigDetectUnavailRoutes	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Number of Route Unavailability detected on this interface.	ATM Interface	Signaling statistics : Current data	Unavailable outgoing routes	atmSigStatTable	ATM2-MIB	No	SN04	Display this OM. Setup a PLOA passive endpoint with an invalid destination AESA. Request a PLOA service to this endpoint. OM will increment.
atmSigEmitUnavailRoutes	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Number of Route Unavailability transmitted from this interface.	ATM Interface	Signaling statistics : Current data	Unavailable incoming routes	atmSigStatTable	ATM2-MIB	No	SN04	Use Radcom protocol analyzer as a virtual endpoint to send SETUP msg to the MG9K with invalid AESA. Counter will increment.
atmSigDetectUnavailResrcs	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Number of Resource Unavailability detected on this interface.	ATM Interface	Signaling statistics : Current data	Resources unavailable messages received	atmSigStatTable	ATM2-MIB	No	SN04	Use Radcom protocol analyzer as a virtual endpoint to respond to MG9K SETUP msg with unavail resource cause code. Counter will increment.
atmSigEmitUnavailResrcs	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Number of Resource Unavailability transmitted from this interface.	ATM Interface	Signaling statistics : Current data	Resources unavailable messages transmitted	atmSigStatTable	ATM2-MIB	No	SN04	Use Radcom protocol analyzer as a virtual endpoint to send SETUP msg to MG9K with invalid IE bearer capability. Counter will increment.
atmSigDetectCldPtyEvents	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Number of Called Party Responsible For Unsuccessful Call detected on this interface.	ATM Interface	Signaling statistics : Current data	Called Party Events received	atmSigStatTable	ATM2-MIB	No	SN04	Use Radcom protocol analyzer as a virtual endpoint. Make call from MG9K to virtual endpoint already in use. Counter will increment.
atmSigEmitCldPtyEvents	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Number of Called Party Responsible For Unsuccessful Call transmitted from this interface.	ATM Interface	Signaling statistics : Current data	Called Party Events transmitted	atmSigStatTable	ATM2-MIB	No	SN04	Use Radcom protocol analyzer as a virtual endpoint to send SETUP msg to MG9K to endpoint already in use. Counter will increment.
atmSigDetectMsgErrors	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Number of Incorrect Messages detected on this interface.	ATM Interface	Signaling statistics : Current data	Incorrect messages received	atmSigStatTable	ATM2-MIB	No	SN04	Not possible to force condition without modifying software.
atmSigEmitMsgErrors	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Number of Incorrect Messages transmitted on this interface.	ATM Interface	Signaling statistics : Current data	Incorrect messages transmitted	atmSigStatTable	ATM2-MIB	No	SN04	Use Radcom protocol analyzer as a virtual endpoint to send SETUP msg to MG9K with missing IE. Counter will increment.
atmSigDetectClgPtyEvents	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Number of Calling Party Events detected on this interface.	ATM Interface	Signaling statistics : Current data	Calling Party Events received	atmSigStatTable	ATM2-MIB	No	SN04	Not possible to force condition without modifying software.
atmSigEmitClgPtyEvents	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Number of Calling Party Events transmitted from this interface.	ATM Interface	Signaling statistics : Current data	Calling Party Events transmitted	atmSigStatTable	ATM2-MIB	No	SN04	Use Radcom protocol analyzer as a virtual endpoint to send SETUP msg to MG9K with invalid IE bearer capability. Counter will increment.
atmSigDetectTimerExpireds	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Number of Timer Expiries detected on this interface.	ATM Interface	Signaling statistics : Current data	Timer Expiry events received	atmSigStatTable	ATM2-MIB	No	SN04	Not possible to force condition without modifying software.
atmSigEmitTimerExpireds	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Number of Timer Expiries transmitted from this interface.	ATM Interface	Signaling statistics : Current data	Timer Expiry events transmitted	atmSigStatTable	ATM2-MIB	No	SN04	Not possible to force condition without modifying software.
atmSigDetectRestarts	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Number of Restart Activity errors detected on this interface.	ATM Interface	Signaling statistics : Current data	DSS2 Restarts received	atmSigStatTable	ATM2-MIB	No	SN04	Not possible to force condition without modifying software.
atmSigEmitRestarts	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Number of Restart Activity errors transmitted from this interface.	ATM Interface	Signaling statistics : Current data	DSS2 Restarts transmitted	atmSigStatTable	ATM2-MIB	No	SN04	Not possible to force condition without modifying software.
atmSigInEstabls	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Number of SVC VCCs established at this signaling entity for incoming connections.	ATM Interface	Signaling statistics : Current data	InEstabls	atmSigStatTable	ATM2-MIB	No	SN04	Display this OM, make an call from a line on this MG9000 to another MG9000, display count again. It will increase by the number of calls made
atmSigOutEstabls	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Number of SVC VCCs established at this signaling entity for outgoing connections.	ATM Interface	Signaling statistics : Current data	OutEstabls	atmSigStatTable	ATM2-MIB	No	SN04	Display this OM, make an call to a line on this MG9000 from another MG9000, display count again. It will increase by the number of calls made
ATMF-CES-MIB											

atmfCESStatsTable											
atmfCESHdrErrors	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	The count of the number of AAL1 header errors detected, including those corrected. Header errors include correctable and uncorrectable CRC, plus bad parity.	AAL1	AAL1 Statistics: Current data	Number of header errors	atmfCESStatsTable	ATMF-CES-MIB	No	SN04	On a PLoA (SVC) VPI & VCI, using a test set (e.g. Adtech), Inject this error into AAL1 cell stream. The before and after counts should show a increase. For more accurate measurements keep track on the number (or duration) of the errors and check to see that they match.
atmfCESPointerReframes	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	This records the count of the number of events in which the AAL1 reassembler found that an SDT pointer is not where it is expected, and the pointer must be reacquired. This count is only meaningful for structured CES modes, as unstructured CES modes do not use pointers. For unstructured CES modes, this count, if present, should indicate zero.	AAL1	AAL1 Statistics: Current data	Number of SDT pointer errors	atmfCESStatsTable	ATMF-CES-MIB	No	SN04	Same as above
atmfCESPointerParityErrors	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	This records the count of the number of events in which the AAL1 reassembler detects a parity check failure at the point where a structured data pointer is expected. This count is only meaningful for structured CES modes, as unstructured CES modes do not use pointers. For unstructured CES modes, this count, if present, should indicate zero.	AAL1	AAL1 Statistics: Current data	Number of parity check failures	atmfCESStatsTable	ATMF-CES-MIB	No	SN04	Same as above
atmfCESLostCells	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Number of lost cells, as detected by the AAL1 sequence number processing, for example. This records the count of the number of cells detected as lost in the network prior to the destination CES IWF AAL1 layer processing.	AAL1	AAL1 Statistics: Current data	Number of lost cells	atmfCESStatsTable	ATMF-CES-MIB	No	SN04	Same as above
atmfCESMisinsertedCells	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Number of AAL1 sequence violations which the AAL Convergence sublayer interprets as a misinserted cell, as defined by ITU-T I.363.1.	AAL1	AAL1 Statistics: Current data	Number of misinserted cells	atmfCESStatsTable	ATMF-CES-MIB	No	SN04	Same as above
atmfCESBufUnderflows	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Number of buffer underflows. This records the count of the number of times the CES reassembly buffer underflows. In the case of a continuous underflow caused by a loss of ATM cell flow, a single buffer underflow should be counted. If the CES IWF is implemented with multiple buffers (such as a cell level buffer and a bit level buffer), then either buffer underflow will cause this count to be incremented.	AAL1	AAL1 Statistics: Current data	Number of reassembly buffer underflows	atmfCESStatsTable	ATMF-CES-MIB	No	SN04	Same as above
atmfCESBufOverflows	Counter32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Number of buffer overflows. This records the count of the number of times the CES reassembly buffer overflows. If the CES IWF is implemented with multiple buffers (such as a cell level buffer and a bit level buffer, then either buffer overflow will cause this count to be incremented	AAL1	AAL1 Statistics: Current data	Number of reassembly buffer overflows	atmfCESStatsTable	ATMF-CES-MIB	No	SN04	Same as above
NORTEL-UEMG-ATM-MIB											
nnAtmStatsIfDataTable											
nnAtmStatsIfInOctets	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Total octets received on this interface	ATM Interface	Interface Statistics : Current data Interface Statistics : History data	incoming total cells X 53	nnAtmStatsIfDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Display the current and all 96 intervals entries. This counter should always be increasing (over time). Using a PLoA or DSL Data line send data down that connection. Display these counters, with data traffic on the line the counts will increase a greater pace.
nnAtmStatsIfInErrors	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Total inbound errors	ATM Interface	Interface Statistics : Current data Interface Statistics : History data	uncorrectable HEC Errors	nnAtmStatsIfDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	On the OC3 interface, using a test set, Inject this error. The before and after counts should show a increase. For more accurate measurements keep track on the number (or duration) of the errors and check to see that they match.
nnAtmStatsIfInProtoError	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Total incoming unknown/unsupported Protocol discards	ATM Interface	Interface Statistics : Current data Interface Statistics : History data	invalid cell headers	nnAtmStatsIfDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmStatsIfInOam	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Total incoming OAM cells.	ATM Interface	Interface Statistics : Current data Interface Statistics : History data	incoming OAM cells	nnAtmStatsIfDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Activate Continuity Check on an active PLOA service. Display the current and all 96 intervals entries. This counter should always be increasing (over time)
nnAtmStatsIfOutOctets	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Total octets sent on this interface	ATM Interface	Interface Statistics : Current data Interface Statistics : History data	outgoing total cells X 53	nnAtmStatsIfDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Display the current and all 96 intervals entries. This counter should always be increasing (over time). Using a PLoA or DSL Data line send data down that connection. Display these counters, with data traffic on the line the counts will increase a greater pace.
nnAtmStatsIfOutDiscards	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Total outbound errors	ATM Interface	Interface Statistics : Current data Interface Statistics : History data	outbound discarded	nnAtmStatsIfDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Not possible to force condition without modifying software.
nnAtmStatsIfOutOam	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Total outgoing OAM cells.	ATM Interface	Interface Statistics : Current data Interface Statistics : History data	outgoing OAM cells	nnAtmStatsIfDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Activate Continuity Check on an active PLOA service. Display the current and all 96 intervals entries. This counter should always be increasing (over time)
nnAtmStatsVcDataTable											
nnAtmStatsVcInTotal	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Total incoming cells (CLP = 0|1).	AAL1	ATM VCL Statistics: Current Data ATM VCL Statistics: History Data	incoming total cells	nnAtmStatsVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Display the current and all 96 intervals entries. This counter should always be increasing (over time). Using a PLoA or DSL Data line send data down that connection. Display these counters, with data traffic on the line the counts will increase a greater rate than without.
nnAtmStatsVcInTotalClp0	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Total incoming cells (CLP = 0)	AAL1	ATM VCL Statistics: Current Data ATM VCL Statistics: History Data	incoming clp0 cells	nnAtmStatsVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmStatsVcInDiscarded	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Total incoming cells discarded (CLP = 0|1).	AAL1	ATM VCL Statistics: Current Data ATM VCL Statistics: History Data	incoming discard cells	nnAtmStatsVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Not possible to force condition without modifying software.

nnAtmStatsVcInDiscardedClp0	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Total incoming cells discarded (CLP = 0)	AAL1	ATM VCL Statistics: Current Data ATM VCL Statistics: History Data	incoming clp0 discards	nnAtmStatsVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Display the current and all 96 intervals entries. This counter should always be increasing (over time). Using a PLoA or DSL Data line send data down that connection. Display these counters, with data traffic on the line the counts will increase a greater rate than without.
nnAtmStatsVcOutTotal	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Total outgoing cells (CLP = 0l1).	AAL1	ATM VCL Statistics: Current Data ATM VCL Statistics: History Data	outgoing total cells	nnAtmStatsVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmStatsVcOutTotalClp0	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Total outgoing cells (CLP = 0)	AAL1	ATM VCL Statistics: Current Data ATM VCL Statistics: History Data	outgoing clp0 cells	nnAtmStatsVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmStatsVcOutTagged	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Total outgoing cells tagged (CLP = 0 -> CLP = 1).	AAL1	ATM VCL Statistics: Current Data ATM VCL Statistics: History Data	outgoing tagged cells	nnAtmStatsVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Not possible to force condition without modifying software.
nnAtmPmVcDataTable											
nnAtmPmVcFwImpBlk	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	forward impaired block.	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	FW impaired blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	On a PLoA (SVC) activate Performance Monitoring. Using a test set (e.g. Adtech) , Inject this error. The before and after counts should show a increase. For more accurate measurements keep track on the number (or duration) of the errors and check to see that they match.
nnAtmPmVcFwSeCblkImp	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	forward lost/misinserted impaired block.	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	FW lost or misinserted impaired blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmPmVcFwSeCblkLst	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	forward severely errored cell block (lost).	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	FW lost severely errored cell blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmPmVcFwSeCblkMist	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	forward severely errored cell block (misinserted).	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	FW misinserted severely errored cell blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmPmVcFwSeCblkBvlt	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	forward severely errored cell block - (BIP-16violations).	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	FW BIP-16 violation severely errored cell blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmPmVcFwSeCblkComb	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	forward severely errored cell block combined.	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	FW combined severely errored cell blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmPmVcLFwstClp01Cnt	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	forward lost CLP0+1 cell count.	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	FW lost CLP0 & 1 cell blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmPmVcFwLstClp0Cnt	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	forward lost CLP0 cell count.	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	FW lost CLP0 cell blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmPmVcFwMistClp01Cnt	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	forward misinserted CLP0+1 cell count.	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	FW misinserted CLP0 & 1 cell blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmPmVcFwErrCnt	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	forward errored cell count.		End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	FW errored cell blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above

nnAtmPmVcFwTotalLstClp01Cnt	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	forward total lost CLP0+1 cell count.	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	FW total lost CLP0 & 1 cell blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmPmVcFwTotalLstClp0Cnt	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	forward total lost CLP0 cell count.	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	FW total lost CLP0 cell blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmPmVcBwImpBlk	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	backward impaired block.	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	BW impaired blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmPmVcBwSeCblkImp	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	backward lost/misinserted impaired block.	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	BW lost or misinserted impaired blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmPmVcBwSeCblkLst	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	backward severely errored cell block (lost).	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	BW lost severely errored cell blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmPmVcBwSeCblkMist	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	backward severely errored cell block (misinserted).	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	BW misinserted severely errored cell blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmPmVcBwSeCblkBvlt	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	backward severely errored cell block - (BIP-16 violations).	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	BW BIP-16 violation severely errored cell blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmPmVcBwSeCblkCombNsat	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	backward severely errored cell block combined(non-saturating).	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	BW non-saturating severely errored cell blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmPmVcBwLstClp01Cnt	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	backward lost CLP0+1 cell count.	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	BW lost CLP0 & 1 cell blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmPmVcBwLstClp0Cnt	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	backward lost CLP0 cell count.	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	BW lost CLP0 cell blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmPmVcBwMistClp01Cnt	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	backward misinserted CLP0+1 cell count.	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	BW misinserted CLP0 & 1 cell blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmPmVcBwErrCnt	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	backward errored cell count.	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	BW errored cell blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmPmVcBwTotalLstClp01Cnt	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	backward total lost CLP01 cell count.	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	BW total lost CLP0 & 1 cell blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above

nnAtmPmVcBwTotalLstClp0Cnt	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	backward total lost CLP0 cell count.	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	BW total lost CLP0 cell blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmPmVcTotalTransClp01Cnt	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	total transmitted CLP0+1 cell count.	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	Total transmitted CLP0 & 1 cell blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
nnAtmPmVcTotalTransClp0Cnt	Unsigned32	Count From Last Init up to 4,294,967,296 then it rolls over to 0	total transmitted CLP0 cell count.	AAL1	End-to-end PM: Current data End-to-end PM: History data Segment PM: Current data Segment PM: History data	Total transmitted CLP0 cell blocks	nnAtmPmVcDataTable	NORTEL-UEMG-ATM-MIB	No	SN04	Same as above
ADSL-LINE-MIB											
adslAtucPerfDataTable											
adslAtucPerfCurr15MinLofs	PerfCurrent Count	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Count of seconds in the current 15 minute interval when there was Loss of Framing.	XDSL Card	ATUC Performance: Current data	Number of seconds Lost of frame	adslAtucPerfDataTable	ADSL-LINE-MIB	No	SN04	Display this OM, Using a test set on the DSL Data interface, inject this error. Display this OM again, it should have increased by the number of injected faults.
adslAtucPerfCurr15MinLoss	PerfCurrent Count	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Count of seconds in the current 15 minute interval when there was Loss of Signal.	XDSL Card	ATUC Performance: Current data	Number of seconds Lost of signal	adslAtucPerfDataTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAtucPerfCurr15MinLols	PerfCurrent Count	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Count of seconds in the current 15 minute interval when there was Loss of Link.	XDSL Card	ATUC Performance: Current data	Number of seconds LOLs	adslAtucPerfDataTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAtucPerfCurr15MinLprs	PerfCurrent Count	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Count of seconds in the current 15 minute interval when there was Loss of Power.	XDSL Card	ATUC Performance: Current data	Number of seconds LPRs	adslAtucPerfDataTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAtucPerfCurr15MinESs	PerfCurrent Count	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Count of Errored Seconds in the current 15 minute interval. The errored second parameter is a count of one-second intervals containing one or more CRC anomalies or one or more los or sef defects.	XDSL Card	ATUC Performance: Current data	Number of seconds Ess	adslAtucPerfDataTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAtucPerfCurr15MinInits	PerfCurrent Count	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Count of the line initialization attempts in the current 15 minute interval. Includes both successful and failed attempts.	XDSL Card	ATUC Performance: Current data	Number of seconds Inits	adslAtucPerfDataTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAturPerfDataTable											
adslAtucPerfCurr15MinLofs	PerfCurrent Count,	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Count of seconds in the current 15 minute interval when there was Loss of Framing.	XDSL Card	ATUR Performance: Current data	Number of seconds Lost of frame	adslAturPerfDataTable	ADSL-LINE-MIB	No	SN04	Display this OM, Using a test set on the DSL Data interface, inject this error. Display this OM again, it should have increased by the number of injected faults.
adslAtucPerfCurr15MinLoss	PerfCurrent Count,	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Count of seconds in the current 15 minute interval when there was Loss of Signal.	XDSL Card	ATUR Performance: Current data	Number of seconds Lost of signal	adslAturPerfDataTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAtucPerfCurr15MinLprs	PerfCurrent Count,	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Count of seconds in the current 15 minute interval when there was Loss of Power.	XDSL Card	ATUR Performance: Current data	Number of seconds LPRs	adslAturPerfDataTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAtucPerfCurr15MinESs	PerfCurrent Count,	Count From Last Init up to 4,294,967,296 then it rolls over to 0	Count of Errored Seconds in the current 15 minute interval. The errored second parameter is a count of one-second intervals containing one or more CRC anomalies, or one or more los or sef defects.	XDSL Card	ATUR Performance: Current data	Number of seconds Ess	adslAturPerfDataTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAtucIntervalTable											
adslAtucPerfLofs	PerfInterval Count	Counts only for last 15 min	Count of seconds in the interval when there was Loss of Framing.	XDSL Card	ATUC Interval: History data	Number of seconds Lost of frame	adslAtucIntervalTable	ADSL-LINE-MIB	No	SN04	Display all 96 OM entries, Using a test set on the DSL Data interface, inject this error over each interval. Display this OMs again, it should have increased by the number of injected faults. Also ensure the counts have moved to the proper time interval after each 15 interval.
adslAtucPerfLoss	PerfInterval Count	Counts only for last 15 min	Count of seconds in the interval when there was Loss of Signal.	XDSL Card	ATUC Interval: History data	Number of seconds Lost of signal	adslAtucIntervalTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAtucPerfLols	PerfInterval Count	Counts only for last 15 min	Count of seconds in the interval when there was Loss of Link.	XDSL Card	ATUC Interval: History data	Number of seconds LOLs	adslAtucIntervalTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAtucPerfLprs	PerfInterval Count	Counts only for last 15 min	Count of seconds in the interval when there was Loss of Power.	XDSL Card	ATUC Interval: History data	Number of seconds LPRs	adslAtucIntervalTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAtucPerfESs	PerfInterval Count	Counts only for last 15 min	Count of Errored Seconds in the interval. The errored second parameter is a count of one-second intervals containing one or more CRC anomalies or one or more los or sef defects.	XDSL Card	ATUC Interval: History data	Number of seconds Ess	adslAtucIntervalTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAtucPerfInits	PerfInterval Count	Counts only for last 15 min	Count of the line initialization attempts during the interval. Includes both successful and failed attempts	XDSL Card	ATUC Interval: History data	Number of seconds Inits	adslAtucIntervalTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAturIntervalTable									No		Same as above
adslAtucPerfLofs	PerfInterval Count,	Counts only for last 15 min	Count of seconds in the interval when there was Loss of Framing.	XDSL Card	ATUR Interval: History data	Number of seconds Lost of frame	adslAtucIntervalTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAtucPerfLoss	PerfInterval Count,	Counts only for last 15 min	Count of seconds in the interval when there was Loss of Signal.	XDSL Card	ATUR Interval: History data	Number of seconds Lost of signal	adslAtucIntervalTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAtucPerfLprs	PerfInterval Count,	Counts only for last 15 min	Count of seconds in the interval when there was Loss of Power.	XDSL Card	ATUR Interval: History data	Number of seconds LPRs	adslAtucIntervalTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAtucPerfESs	PerfInterval Count,	Counts only for last 15 min	Count of Errored Seconds in the interval. The errored second parameter is a count of one-second intervals containing one or more CRC anomalies, or one or more los or sef defects.	XDSL Card	ATUR Interval: History data	Number of seconds Ess	adslAtucIntervalTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAtucChanPerfDataTable											

adslAtucChanPerfCurr15MinReceivedBlks	PerfCurrent Count	Counts since last 15 min interval	Count of all encoded blocks received on this channel within the current 15 minute interval.	XDSL Card	ATUC Channel Performance: Current Data	Number of encoded blocks received	adslAtucChanPerfDataTable	ADSL-LINE-MIB	No	SN04	Display all 96 OM entries, Using a test set on the DSL Data interface, inject this error over each interval. Display this OMs again, it should have increased by the number of injected faults. Also ensure the counts have moved to the proper time interval after each 15 interval.
adslAtucChanPerfCurr15MinTransmittedBlks	PerfCurrent Count	Counts since last 15 min interval	Count of all encoded blocks transmitted on this channel within the current 15 minute interval.	XDSL Card	ATUC Channel Performance: Current Data	Number of encoded blocks transmitted	adslAtucChanPerfDataTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAtucChanPerfCurr15MinCorrectedBlks	PerfCurrent Count	Counts since last 15 min interval	Count of all blocks received with errors that were corrected on this channel within the current 15 minute interval.	XDSL Card	ATUC Channel Performance: Current Data	Number of corrected blocks	adslAtucChanPerfDataTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAtucChanPerfCurr15MinUncorrectBlks	PerfCurrent Count	Counts since last 15 min interval	Count of all blocks received with uncorrectable errors on this channel within the current 15 minute interval.	XDSL Card	ATUC Channel Performance: Current Data	Number of uncorrected blocks	adslAtucChanPerfDataTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAturChanPerfDataTable											
adslAtucChanPerfCurr15MinReceivedBlks	PerfCurrent Count	Counts since last 15 min interval	Count of all encoded blocks received on this channel within the current 15 minute interval.	XDSL Card	ATUR Channel Performance: Current Data	Number of encoded blocks received	adslAturChanPerfDataTable	ADSL-LINE-MIB	No	SN04	Display this OM, Using a test set on the DSL Data interface, inject an error that would cause this condition. Display this OM again, it should have increased by the number of injected faults.
adslAtucChanPerfCurr15MinTransmittedBlks	PerfCurrent Count	Counts since last 15 min interval	Count of all encoded blocks transmitted on this channel within the current 15 minute interval.	XDSL Card	ATUR Channel Performance: Current Data	Number of encoded blocks transmitted	adslAturChanPerfDataTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAtucChanPerfCurr15MinCorrectedBlks	PerfCurrent Count	Counts since last 15 min interval	Count of all blocks received with errors that were corrected on this channel within the current 15 minute interval.	XDSL Card	ATUR Channel Performance: Current Data	Number of corrected blocks	adslAturChanPerfDataTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAtucChanPerfCurr15MinUncorrectBlks	PerfCurrent Count	Counts since last 15 min interval	Count of all blocks received with uncorrectable errors on this channel within the current 15 minute interval.	XDSL Card	ATUR Channel Performance: Current Data	Number of uncorrected blocks	adslAturChanPerfDataTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAtucChanIntervalTable											
adslAtucChanReceivedBlks	PerfInterval Count	Counts only for last 15 min	Count of all encoded blocks received on this channel during this interval.	XDSL Card	ATUC Channel Interval: History Data	Number of encoded blocks received	adslAtucChanIntervalTable	ADSL-LINE-MIB	No	SN04	Display all 96 OM entries, , Using a test set on the DSL Data interface, inject an error that would cause this condition over all intervals. Display this OM again, it should have increased by the number of injected faults. Also ensure the counts have moved to the proper time interval after each 15 interval.
adslAtucChanTransmittedBlks	PerfInterval Count	Counts only for last 15 min	Count of all encoded blocks transmitted on this channel during this interval.	XDSL Card	ATUC Channel Interval: History Data	Number of encoded blocks transmitted	adslAtucChanIntervalTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAtucChanCorrectedBlks	PerfInterval Count	Counts only for last 15 min	Count of all blocks received with errors that were corrected on this channel during this interval.	XDSL Card	ATUC Channel Interval: History Data	Number of corrected blocks	adslAtucChanIntervalTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAtucChanUncorrectBlks	PerfInterval Count	Counts only for last 15 min	Count of all blocks received with uncorrectable errors on this channel during this interval.	XDSL Card	ATUC Channel Interval: History Data	Number of uncorrected blocks	adslAtucChanIntervalTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAturChanIntervalTable											
adslAtucChanReceivedBlks	PerfInterval Count	Counts only for last 15 min	Count of all encoded blocks received on this channel during this interval.	XDSL Card	ATUR Channel Interval: History Data	Number of encoded blocks received	adslAturChanIntervalTable	ADSL-LINE-MIB	No	SN04	Display all 96 OM entries, , Using a test set on the DSL Data interface, inject an error that would cause this condition over all intervals. Display this OM again, it should have increased by the number of injected faults. Also ensure the counts have moved to the proper time interval after each 15 interval.
adslAtucChanTransmittedBlks	PerfInterval Count	Counts only for last 15 min	Count of all encoded blocks transmitted on this channel during this interval.	XDSL Card	ATUR Channel Interval: History Data	Number of encoded blocks transmitted	adslAturChanIntervalTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAtucChanCorrectedBlks	PerfInterval Count	Counts only for last 15 min	Count of all blocks received with errors that were corrected on this channel during this interval.	XDSL Card	ATUR Channel Interval: History Data	Number of corrected blocks	adslAturChanIntervalTable	ADSL-LINE-MIB	No	SN04	Same as above
adslAtucChanUncorrectBlks	PerfInterval Count	Counts only for last 15 min	Count of all blocks received with uncorrectable errors on this channel during this interval.	XDSL Card	ATUR Channel Interval: History Data	Number of uncorrected blocks	adslAturChanIntervalTable	ADSL-LINE-MIB	No	SN04	Same as above
NORTEL-UEMG-ADSL-MIB											
nnUemgDslAtucPerfTable											
nnUemgDslAtucPerfCurr15MinFec	Integer32	Counts since last 15 min interval	Number of Forward Error Correction anomalies on the Atuc Channel in the current 15min interval.	XDSL Card	nnATUC Performance: Current data	Number of Forward Error Corrections	nnUemgDslAtucPerfTable	NORTEL-UEMG-ADSL-MIB	No	SN04	Display this OM, Using a test set on the DSL Data interface, inject this error. Display this OM again, it should have increased by the number of injected faults.
nnUemgDslAtucPerfCurr15MinCrc	Integer32	Counts since last 15 min interval	Number of Cyclical Redundancy Check anomalies on the Atuc Channel in the current 15min interval.	XDSL Card	nnATUC Performance: Current data	Number of cyclical Redundancy Check	nnUemgDslAtucPerfTable	NORTEL-UEMG-ADSL-MIB	No	SN04	Same as above
nnUemgDslAtucPerfCurr15MinNcd	Integer32	Counts since last 15 min interval	Number of No Cell Delineation anomalies on the Atuc Channel in the current 15min interval.	XDSL Card	nnATUC Performance: Current data	Number of No Cell Delineation	nnUemgDslAtucPerfTable	NORTEL-UEMG-ADSL-MIB	No	SN04	Same as above
nnUemgDslAtucPerfCurr15MinOcd	Integer32	Counts since last 15 min interval	Number of Out of Cell Delineation anomalies on the Atuc Channel in the current 15min interval.	XDSL Card	nnATUC Performance: Current data	Number of Out of Cell Delineation	nnUemgDslAtucPerfTable	NORTEL-UEMG-ADSL-MIB	No	SN04	Same as above
nnUemgDslAtucPerfCurr15MinHec	Integer32	Counts since last 15 min interval	Number of Header Error Check anomalies which on the Atuc Channel in the current 15min interval.	XDSL Card	nnATUC Performance: Current data	Number of Header Error Check	nnUemgDslAtucPerfTable	NORTEL-UEMG-ADSL-MIB	No	SN04	Same as above
nnUemgDslAtucPerfCurr15MinLcd	Integer32	Counts since last 15 min interval	Number of Loss of Cell Delineation anomalies on the Atuc Channel in the current 15min interval.	XDSL Card	nnATUC Performance: Current data	Number of Loss of Cell Delineation	nnUemgDslAtucPerfTable	NORTEL-UEMG-ADSL-MIB	No	SN04	Same as above
nnUemgDslAturPerfTable											
nnUemgDslAtucPerfCurr15MinFec	Integer32	Counts since last 15 min interval	Number of Forward Error Correction anomalies on the ATUR Channel in the current 15min interval.	XDSL Card	nnATUR Performance: Current data	Number of Forward Error Corrections	nnUemgDslAturPerfTable	NORTEL-UEMG-ADSL-MIB	No	SN04	Display this OM, Using a test set on the DSL Data interface, inject this error. Display this OM again, it should have increased by the number of injected faults.
nnUemgDslAturPerfCurr15MinBlockError	Integer32	Counts since last 15 min interval	Number of Block Error anomalies which occurred on the ATUR Channel in the current 15min interval.	XDSL Card	nnATUR Performance: Current data	Number of Block Error	nnUemgDslAturPerfTable	NORTEL-UEMG-ADSL-MIB	No	SN04	Same as above
nnUemgDslAtucPerfCurr15MinNcd	Integer32	Counts since last 15 min interval	Number of No Cell Delineation anomalies on the ATUR Channel in the current 15min interval.	XDSL Card	nnATUR Performance: Current data	Number of No Cell Delineation	nnUemgDslAturPerfTable	NORTEL-UEMG-ADSL-MIB	No	SN04	Same as above
nnUemgDslAtucPerfCurr15MinOcd	Integer32	Counts since last 15 min interval	Number of Out of Cell Delineation anomalies on the ATUR Channel in the current 15min interval.	XDSL Card	nnATUR Performance: Current data	Number of Out of Cell Delineation	nnUemgDslAturPerfTable	NORTEL-UEMG-ADSL-MIB	No	SN04	Same as above
nnUemgDslAtucPerfCurr15MinHec	Integer32	Counts since last 15 min interval	Number of Header Error Check anomalies which on the ATUR Channel in the current 15min interval.	XDSL Card	nnATUR Performance: Current data	Number of Header Error Check	nnUemgDslAturPerfTable	NORTEL-UEMG-ADSL-MIB	No	SN04	Same as above
nnUemgDslAtucPerfCurr15MinLcd	Integer32	Counts since last 15 min interval	Number of Loss of Cell Delineation anomalies on the ATUR Channel in the current 15min interval.	XDSL Card	nnATUR Performance: Current data	Number of Loss of Cell Delineation	nnUemgDslAturPerfTable	NORTEL-UEMG-ADSL-MIB	No	SN04	Same as above
nnUemgDslAtucIntervalTable											
nnUemgDslAtucPerfFec	Integer32	Counts only for last 15 min	Number of Forward Error Correction anomalies on the ATUC channel during this interval.	XDSL Card	nnATUC Interval: History data	Number of Forward Error Corrections	nnUemgDslAturPerfTable	NORTEL-UEMG-ADSL-MIB	No	SN04	Display all 96 OM entries, Using a test set on the DSL Data interface, inject this error over each interval. Display this OMs again, it should have increased by the number of injected faults. Also ensure the counts have moved to the proper time interval after each 15 interval.
nnUemgDslAtucPerfCrc	Integer32	Counts only for last 15 min	Number of Cyclical Redundancy Check anomalies on the ATUC channel during this interval.	XDSL Card	nnATUC Interval: History data	Number of cyclical Redundancy Check	nnUemgDslAturPerfTable	NORTEL-UEMG-ADSL-MIB	No	SN04	Same as above

nnUemgDslAtucPerfNcd	Integer32	Counts only for last 15 min	Number of No Cell Delineation anomalies which on the ATUC channel during this interval.	XDSL Card	nnATUC Interval: History data	Number of No Cell Delineation	nnUemgDslAturPerfTable	NORTEL-UEMG-ADSL-MIB	No	SN04	Same as above
nnUemgDslAtucPerfOcd	Integer32	Counts only for last 15 min	Number of Out of Cell Delineation anomalies which on the ATUC channel during this interval.	XDSL Card	nnATUC Interval: History data	Number of Out of Cell Delineation	nnUemgDslAturPerfTable	NORTEL-UEMG-ADSL-MIB	No	SN04	Same as above
nnUemgDslAtucPerfHec	Integer32	Counts only for last 15 min	Number of Header Error Check anomalies which on the ATUC channel during this interval.	XDSL Card	nnATUC Interval: History data	Number of Header Error Check	nnUemgDslAturPerfTable	NORTEL-UEMG-ADSL-MIB	No	SN04	Same as above
nnUemgDslAtucPerfLcd	Integer32	Counts only for last 15 min	Number of Loss of Cell Delineation anomalies on the ATUC channel during this interval.	XDSL Card	nnATUC Interval: History data	Number of Loss of Cell Delineation	nnUemgDslAturPerfTable	NORTEL-UEMG-ADSL-MIB	No	SN04	Same as above
nnUemgDslAturIntervalTable											
nnUemgDslAtucPerfFec	Integer32	Counts only for last 15 min	Number of Forward Error Correction anomalies on the ATUC channel during this interval.	XDSL Card	nnATUR Interval: History data	Number of Forward Error Corrections	nnUemgDslAturPerfTable	NORTEL-UEMG-ADSL-MIB	No	SN04	Display all 96 OM entries, Using a test set on the DSL Data interface, inject this error over each interval. Display this OMs again, it should have increased by the number of injected faults. Also ensure the counts have moved to the proper time interval after each 15 interval.
nnUemgDslAturPerfBlockError	Integer32	Counts only for last 15 min	Number of Block Error anomalies which occurred on the ATUR channel during this interval.	XDSL Card	nnATUR Interval: History data	Number of Block Error	nnUemgDslAturPerfTable	NORTEL-UEMG-ADSL-MIB	No	SN04	Same as above
nnUemgDslAtucPerfNcd	Integer32	Counts only for last 15 min	Number of No Cell Delineation anomalies which on the ATUC channel during this interval.	XDSL Card	nnATUR Interval: History data	Number of No Cell Delineation	nnUemgDslAturPerfTable	NORTEL-UEMG-ADSL-MIB	No	SN04	Same as above
nnUemgDslAtucPerfOcd	Integer32	Counts only for last 15 min	Number of Out of Cell Delineation anomalies which on the ATUC channel during this interval.	XDSL Card	nnATUR Interval: History data	Number of Out of Cell Delineation	nnUemgDslAturPerfTable	NORTEL-UEMG-ADSL-MIB	No	SN04	Same as above
nnUemgDslAtucPerfHec	Integer32	Counts only for last 15 min	Number of Header Error Check anomalies which on the ATUC channel during this interval.	XDSL Card	nnATUR Interval: History data	Number of Header Error Check	nnUemgDslAturPerfTable	NORTEL-UEMG-ADSL-MIB	No	SN04	Same as above
nnUemgDslAtucPerfLcd	Integer32	Counts only for last 15 min	Number of Loss of Cell Delineation anomalies on the ATUC channel during this interval.	XDSL Card	nnATUR Interval: History data	Number of Loss of Cell Delineation	nnUemgDslAturPerfTable	NORTEL-UEMG-ADSL-MIB	No	SN04	Same as above
IMA-MIB (new in SN05)											
imaGroupCurrentTable											
imaGroupCurrentUnavailSecs	Gauge32	Counts since last 15 min interval	Count of one second intervals where the IMA Group Traffic State Machine is Down in current 15 minute interval	DS1IMAGroup	DS1 IMA Group Statistics: Current data	Group Unavailable Seconds	imaGroupCurrentTable	IMA-MIB	No	SN05	Display this OM, on the IMA card pull and replace the DS1 cable, display this count again. The count will be higher.
imaGroupCurrentNeNumFailures	Gauge32	Counts since last 15 min interval	The number of times a near-end group failure (Config-Aborted, Insufficient-Links) has been reported in current 15 minute interval	DS1IMAGroup	DS1 IMA Group Statistics: Current data	Group Near End Number of Failures	imaGroupCurrentTable	IMA-MIB	No	SN05	This OM cannot be externally invoked by a manual action. It will only occur if there is some HW or SW errors. The easiest way to generate is using the "fakelgrppm" command in the /hal/ima MG9K Dshell directory.
imaGroupCurrentFeNumFailures	Gauge32	Counts since last 15 min interval	The number of times a far-end group failure (Config-Aborted-FE, Insufficient-Links-FE, Blocked-FE) has been reported in current 15 minute interval. This is an optional attribute.	DS1IMAGroup	DS1 IMA Group Statistics: Current data	Group Far End Number of Failures	imaGroupCurrentTable	IMA-MIB	No	SN05	This OM cannot be externally invoked by a manual action. It will only occur if there is some HW or SW errors. The easiest way to generate is using the "fakelgrppm" command in the /hal/ima MG9K Dshell directory.
imaGroupIntervalTable											
imaGroupIntervalUnavailSecs	Gauge32	Counts since last 15 min interval	Count of one second intervals where the IMA Group Traffic State Machine is Down in one of the previous 96, individual 15 minute, intervals	DS1IMAGroup	DS1 IMA Group Statistics: History data	Group Unavailable Seconds	imaGroupIntervalTable	IMA-MIB	Yes	SN05	Display all 96 OM entries, on the IMA card pull and replace the DS1 cable, display these count again. The count will be higher for each interval the cable was pulled. Also ensure the counts have moved to the proper time interval after each 15 interval.
imaGroupIntervalNeNumFailures	Gauge32	Counts since last 15 min interval	The number of times a near-end group failure (Config-Aborted, Insufficient-Links) has been reported in one of the previous 96, individual 15 minute, intervals	DS1IMAGroup	DS1 IMA Group Statistics: History data	Group Near End Number of Failures	imaGroupIntervalTable	IMA-MIB	Yes	SN05	Same as above
imaGroupIntervalFeNumFailures	Gauge32	Counts since last 15 min interval	The number of times a far-end group failure (Config-Aborted-FE, Insufficient-Links-FE, Blocked-FE) has been reported in one of the previous 96, individual 15 minute, intervals. This is an optional attribute	DS1IMAGroup	DS1 IMA Group Statistics: History data	Group Far End Number of Failures	imaGroupIntervalTable	IMA-MIB	No	SN05	This OM cannot be externally invoked by a manual action. It will only occur if there is some HW or SW errors. The easiest way to generate is using the "fakelgrppm" command in the /hal/ima MG9K Dshell directory. Display all 96 OM entries
imaGroupTotalTable											
imaGroupTotalUnavailSecs	Gauge32	Rolling 24 hour total	Count of one second intervals where the IMA Group Traffic State Machine is Down in the previous 24 hour interval. Invalid 15 minute intervals count as 0.	DS1IMAGroup	DS1 IMA Group Statistics: 24-hour current data	Group Unavailable Seconds	imaGroupTotalTable	IMA-MIB	No	SN05	Display this OM, on the IMA card pull and replace the DS1 cable, display this count again. The count will be higher.
imaGroupTotalNeNumFailures	Gauge32	Rolling 24 hour total	The number of times a near-end group failure (Config-Aborted, Insufficient-Links) has been reported in the previous 24 hour. interval. Invalid 15 minute intervals count as 0.	DS1IMAGroup	DS1 IMA Group Statistics: 24-hour current data	Group Near End Number of Failures	imaGroupTotalTable	IMA-MIB	No	SN05	This OM cannot be externally invoked by a manual action. It will only occur if there is some HW or SW errors. The easiest way to generate is using the "fakelgrppm" command in the /hal/ima MG9K Dshell directory.
imaGroupTotalFeNumFailures	Gauge32	Rolling 24 hour total	The number of times a far-end group failure (Config-Aborted-FE, Insufficient-Links-FE, Blocked-FE) has been reported in the previous 24 hour interval. Invalid 15 minute intervals count as 0. This is an optional attribute.	DS1IMAGroup	DS1 IMA Group Statistics: 24-hour current data	Group Far End Number of Failures	imaGroupTotalTable	IMA-MIB	No	SN05	This OM cannot be externally invoked by a manual action. It will only occur if there is some HW or SW errors. The easiest way to generate is using the "fakelgrppm" command in the /hal/ima MG9K Dshell directory.
imaLinkCurrentTable											
imaLinkCurrentImaViolations	Gauge32	Counts since last 15 min interval	ICP violations: count of errored, invalid or missing ICP cells, except during SES-IMA or UAS-IMA conditions, in the current 15 minute interval	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Ima Violations	imaLinkCurrentTable	IMA-MIB	No	SN05	Display this OM, on the IMA card pull and replace the DS1 cable, display this count again. The count will be higher.
imaLinkCurrentOifAnomalies	Gauge32	Counts since last 15 min interval	The number of OIF anomalies, except during SES-IMA or UAS-IMA conditions, at the near-end in the current 15 minute interval. This is an optional attribute	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Oif Anomalies	imaLinkCurrentTable	IMA-MIB	No	SN05	Same as above
imaLinkCurrentNeSevErroredSecs	Gauge32	Counts since last 15 min interval	Count of one second intervals containing >= 30% of the ICP cells counted as IV-IMAs, or one or more link defects (e. g., LOS, OOF/ LOF, AIS, or LCD), LIF defects, or LODS defects, except during UAS-IMA condition, in the current 15 minute interval	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Ne Sev Errored Secs	imaLinkCurrentTable	IMA-MIB	No	SN05	This OM cannot be externally invoked by a manual action. It will only occur if there is some HW or SW errors. The easiest way to generate is using the "fakelgrppm" command in the /hal/ima MG9K Dshell directory.
imaLinkCurrentFeSevErroredSecs	Gauge32	Counts since last 15 min interval	Count of one second intervals containing one or more RDI-IMA defects, except during UAS-IMA-FE condition, in the current 15 minute interval	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Fe Sev Errored Secs	imaLinkCurrentTable	IMA-MIB	No	SN05	Display this OM, on the IMA card pull and replace the DS1 cable, display this count again. The count will be higher.
imaLinkCurrentNeUnavailSecs	Gauge32	Counts since last 15 min interval	Count of unavailable seconds at near-end in the current 15 minute interval: unavailability begins at the onset of 10 contiguous SES-IMA and ends at the onset of 10 contiguous seconds with no SES-IMA	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Ne Unavail Secs	imaLinkCurrentTable	IMA-MIB	No	SN05	Same as above
imaLinkCurrentFeUnavailSecs	Gauge32	Counts since last 15 min interval	Count of unavailable seconds at far-end in the current 15 minute interval: unavailability begins at the onset of 10 contiguous SES-IMA-FE and ends at the onset of 10 contiguous seconds with no SES-IMA-FE	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Fe Unavail Secs	imaLinkCurrentTable	IMA-MIB	No	SN05	This OM cannot be externally invoked by a manual action. It will only occur if there is some HW or SW errors. The easiest way to generate is using the "fakelgrppm" command in the /hal/ima MG9K Dshell directory.

imaLinkCurrentNeTxUnusableSecs	Gauge32	Counts since last 15 min interval	Tx Unusable seconds: count of Unusable seconds at the near-end Tx LSM in the current 15 minute interval	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Ne Tx Unusable Secs	imaLinkCurrentTable	IMA-MIB	No	SN05	Display this OM, on the IMA card pull and replace the DS1 cable, display this count again. The count will be higher.
imaLinkCurrentNeRxUnusableSecs	Gauge32	Counts since last 15 min interval	Rx Unusable seconds: count of Unusable seconds at the near-end Rx LSM in the current 15 minute interval	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Ne Rx Unusable Secs	imaLinkCurrentTable	IMA-MIB	No	SN05	Same as above
imaLinkCurrentFeTxUnusableSecs	Gauge32	Counts since last 15 min interval	Tx Unusable seconds at far-end: count of seconds with Tx Unusable indications from the far-end Tx LSM in the current 15 minute interval	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Fe Tx Unusable Secs	imaLinkCurrentTable	IMA-MIB	No	SN05	Same as above
imaLinkCurrentFeRxUnusableSecs	Gauge32	Counts since last 15 min interval	Rx Unusable seconds at far-end: count of seconds with Rx Unusable indications from the far-end Rx LSM in the current 15 minute interval	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Fe Rx Unusable Secs	imaLinkCurrentTable	IMA-MIB	No	SN05	Same as above
imaLinkCurrentNeTxNumFailures	Gauge32	Counts since last 15 min interval	The number of times a near-end transmit failure alarm condition has been entered on this link (i.e., some form of implementation specific transmit fault) in the current 15 minute interval	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Ne Tx Num Failures	imaLinkCurrentTable	IMA-MIB	No	SN05	Same as above
imaLinkCurrentNeRxNumFailures	Gauge32	Counts since last 15 min interval	The number of times a near-end receive failure alarm condition has been entered on this link (i.e., LIF, LODS, RFI-IMA, Mis-Connected, or some form of implementation specific receive fault) in the current 15 minute interval	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Ne Rx Num Failures	imaLinkCurrentTable	IMA-MIB	No	SN05	Same as above
imaLinkCurrentFeTxNumFailures	Gauge32	Counts since last 15 min interval	The number of times a far-end transmit failure alarm condition has been entered on this link (i.e., Tx-Unusable-FE) in the current 15 minute interval. This is an optional attribute	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Fe Tx Num Failures	imaLinkCurrentTable	IMA-MIB	No	SN05	Same as above
imaLinkCurrentFeRxNumFailures	Gauge32	Counts since last 15 min interval	The number of times a far-end receive failure alarm condition has been entered on this link (i.e., Rx-Unusable-FE) in the current 15 minute interval. This is an optional attribute	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Fe Rx Num Failures	imaLinkCurrentTable	IMA-MIB	No	SN05	Same as above
imaLinkCurrentTxStuffs	Gauge32	Counts since last 15 min interval	Count of stuff events inserted in the transmit direction in the current 15 minute interval. This is an optional attribute	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Tx Stuffs	imaLinkCurrentTable	IMA-MIB	No	SN05	Display this OM, it should be non-zero, wait a short time, display count again. This count will be higher. This will not increase if the link is offline and disabled.
imaLinkCurrentRxStuffs	Gauge32	Counts since last 15 min interval	Count of stuff events detected in the receive direction in the current 15 minute interval. This is an optional attribute	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Rx Stuffs	imaLinkCurrentTable	IMA-MIB	No	SN05	Same as above
imaLinkIntervalTable											
imaLinkIntervalImaViolations	Gauge32	Counts only for last 15 min	ICP violations: count of errored, invalid or missing ICP cells, except during SES-IMA or UAS-IMA conditions, in one of the previous 96, individual 15 minute, intervals	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Ima Violations	imaLinkIntervalTable	IMA-MIB	Yes	SN05	Display all 96 OM entries, on the IMA card pull and replace the DS1 cable, display these count again. The count will be higher for each interval the cable was pulled. Also ensure the counts have moved to the proper time interval after each 15 interval.
imaLinkIntervalOifAnomalies	Gauge32	Counts only for last 15 min	The number of OIF anomalies, except during SES-IMA or UAS-IMA conditions, at the near-end in one of the previous 96, individual 15 minute, intervals. This is an optional attribute	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link OIF Anomalies	imaLinkIntervalTable	IMA-MIB	Yes	SN05	Same as above
imaLinkIntervalNeSevErroredSecs	Gauge32	Counts only for last 15 min	Count of one second intervals containing >= 30% of the ICP cells counted as IV-IMAs, or one or more link defects (e. g., LOS, OOF/ LOF, AIS, or LCD), LIF defects, or LODS defects, except during UAS-IMA condition, in one of the previous 96, individual 15 minute, intervals	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Ne Sev Errored Secs	imaLinkIntervalTable	IMA-MIB	Yes	SN05	This OM cannot be externally invoked by a manual action. It will only occur if there is some HW or SW errors. The easiest way to generate is using the "fakelgrppm" command in the /hal/ima MG9K Dshell directory. Display all 96 OM entries
imaLinkIntervalFeSevErroredSecs	Gauge32	Counts only for last 15 min	Count of one second intervals containing one or more RDI-IMA defects, except during UAS-IMA-FE condition, in one of the previous 96, individual 15 minute, intervals	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Fe Sev Errored Secs	imaLinkIntervalTable	IMA-MIB	No	SN05	Display all 96 OM entries, on the IMA card pull and replace the DS1 cable, display these count again. The count will be higher for each interval the cable was pulled. Also ensure the counts have moved to the proper time interval after each 15 interval.
imaLinkIntervalNeUnavailSecs	Gauge32	Counts only for last 15 min	Count of unavailable seconds at near-end in one of the previous 96, individual 15 minute, intervals: unavailability begins at the onset of 10 contiguous SES-IMA and ends at the onset of 10 contiguous seconds with no SES-IMA	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Ne Unavail Secs	imaLinkIntervalTable	IMA-MIB	Yes	SN05	Same as above
imaLinkIntervalFeUnavailSecs	Gauge32	Counts only for last 15 min	Count of unavailable seconds at far-end in one of the previous 96, individual 15 minute, intervals: unavailability begins at the onset of 10 contiguous SES-IMA-FE and ends at the onset of 10 contiguous seconds with no SES-IMA-FE	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Fe Unavail Secs	imaLinkIntervalTable	IMA-MIB	No	SN05	This OM cannot be externally invoked by a manual action. It will only occur if there is some HW or SW errors. The easiest way to generate is using the "fakelgrppm" command in the /hal/ima MG9K Dshell directory. Display all 96 OM entries
imaLinkIntervalNeTxUnusableSecs	Gauge32	Counts only for last 15 min	Tx Unusable seconds: count of Unusable seconds at the near-end Tx LSM in one of the previous 96, individual 15 minute, intervals	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Ne Tx Unusable Secs	imaLinkIntervalTable	IMA-MIB	Yes	SN05	Display all 96 OM entries, on the IMA card pull and replace the DS1 cable, display these count again. The count will be higher for each interval the cable was pulled. Also ensure the counts have moved to the proper time interval after each 15 interval.
imaLinkIntervalNeRxUnusableSecs	Gauge32	Counts only for last 15 min	Rx Unusable seconds: count of Unusable seconds at the near-end Rx LSM in one of the previous 96, individual 15 minute, intervals	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Ne Rx Unusable Secs	imaLinkIntervalTable	IMA-MIB	Yes	SN05	Same as above
imaLinkIntervalFeTxUnusableSecs	Gauge32	Counts only for last 15 min	Tx Unusable seconds at far-end: count of seconds with Tx Unusable indications from the far-end Tx LSM in one of the previous 96, individual 15 minute, intervals	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Fe Tx Unusable Secs	imaLinkIntervalTable	IMA-MIB	No	SN05	Same as above
imaLinkIntervalFeRxUnusableSecs	Gauge32	Counts only for last 15 min	Rx Unusable seconds at far-end: count of seconds with Rx Unusable indications from the far-end Rx LSM in one of the previous 96, individual 15 minute, intervals.	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Fe Rx Unusable Secs	imaLinkIntervalTable	IMA-MIB	No	SN05	Same as above
imaLinkIntervalNeTxNumFailures	Gauge32	Counts only for last 15 min	The number of times a near-end transmit failure alarm condition has been entered on this link (i.e., some form of implementation specific transmit fault) in one of the previous 96, individual 15 minute, intervals	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Ne Tx Num Failures	imaLinkIntervalTable	IMA-MIB	Yes	SN05	Same as above

imaLinkIntervalNeRxNumFailures	Gauge32	Counts only for last 15 min	The number of times a near-end receive failure alarm condition has been entered on this link (i.e., LIF, LODS, RFI-IMA, Mis-Connected, or some form of implementation specific receive fault) in one of the previous 96, individual 15 minute, intervals	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Ne Rx Num Failures	imaLinkIntervalTable	IMA-MIB	Yes	SN05	Same as above
imaLinkIntervalFeTxNumFailures	Gauge32	Counts only for last 15 min	The number of times a far-end transmit failure alarm condition has been entered on this link (i.e., Tx-Unusable-FE) in one of the previous 96, individual 15 minute, intervals. This is an optional attribute	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Fe Tx Num Failures	imaLinkIntervalTable	IMA-MIB	No	SN05	Same as above
imaLinkIntervalFeRxNumFailures	Gauge32	Counts only for last 15 min	The number of times a far-end receive failure alarm condition has been entered on this link (i.e., Rx-Unusable-FE) in one of the previous 96, individual 15 minute, intervals. This is an optional attribute	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Fe Rx Num Failures	imaLinkIntervalTable	IMA-MIB	No	SN05	Same as above
imaLinkIntervalTxStuffs	Gauge32	Counts only for last 15 min	Count of stuff events inserted in the transmit direction in one of the previous 96, individual 15 minute, intervals. This is an optional attribute	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Tx Stuffs	imaLinkIntervalTable	IMA-MIB	Yes	SN05	Display all 96 OM entries, it should be non-zero, wait 20 min, display counts again. These count will move up to next interval and current will replace first entry. This will not increase if the link is offline and disabled.
imaLinkIntervalRxStuffs	Gauge32	Counts only for last 15 min	Count of stuff events detected in the receive direction in one of the previous 96, individual 15 minute, intervals. This is an optional attribute	DS1IAMLink	DS1 IMA Link Statistics: Current Data	Link Rx Stuffs	imaLinkIntervalTable	IMA-MIB	Yes	SN05	Same as above
imaLinkTotalTable											
imaLinkTotalImaViolations	Gauge32	Rolling 24 hour total	ICP violations: count of errored, invalid or missing ICP cells, except during SES-IMA or UAS-IMA conditions, in the previous 24 hour interval	DS1IAMLink	DS1 IMA Link Statistics: 24-hour Current Data	Link Ima Violations	imaLinkTotalTable	IMA-MIB	No	SN05	Display this OM, on the IMA card pull and replace the DS1 cable, display this count again. The count will be higher.
imaLinkTotalOifAnomalies	Gauge32	Rolling 24 hour total	The number of OIF anomalies, except during SES-IMA or UAS-IMA conditions, at the near-end in the previous 24 hour interval. This is an optional attribute	DS1IAMLink	DS1 IMA Link Statistics: 24-hour Current Data	Link OIF Anomalies	imaLinkTotalTable	IMA-MIB	No	SN05	Same as above
imaLinkTotalNeSevErroredSecs	Gauge32	Rolling 24 hour total	Count of one second intervals containing >= 30% of the ICP cells counted as IV-IMAs, or one or more link defects (e. g., LOS, OOF/ LOF, AIS, or LCD), LIF defects, or LODS defects, except during UAS-IMA condition, in the previous 24 hour interval	DS1IAMLink	DS1 IMA Link Statistics: 24-hour Current Data	Link Ne Sev Errored Secs	imaLinkTotalTable	IMA-MIB	No	SN05	This OM cannot be externally invoked by a manual action. It will only occur if there is some HW or SW errors. The easiest way to generate is using the "fakelgrppm" command in the /hal/ima MG9K Dshell directory.
imaLinkTotalFeSevErroredSecs	Gauge32	Rolling 24 hour total	Count of one second intervals containing one or more RDI-IMA defects, except during UAS-IMA-FE condition, in the previous 24 hour interval	DS1IAMLink	DS1 IMA Link Statistics: 24-hour Current Data	Link Fe Sev Errored Secs	imaLinkTotalTable	IMA-MIB	No	SN05	Display this OM, on the IMA card pull and replace the DS1 cable, display this count again. The count will be higher.
imaLinkTotalNeUnavailSecs	Gauge32	Rolling 24 hour total	Count of unavailable seconds at near-end in the previous 24 hour interval: unavailability begins at the onset of 10 contiguous SES-IMA and ends at the onset of 10 contiguous seconds with no SES-IMA	DS1IAMLink	DS1 IMA Link Statistics: 24-hour Current Data	Link Ne Unavail Secs	imaLinkTotalTable	IMA-MIB	No	SN05	Same as above
imaLinkTotalFeUnavailSecs	Gauge32	Rolling 24 hour total	Count of unavailable seconds at far-end in the previous 24 hour interval: unavailability begins at the onset of 10 contiguous SES-IMA-FE and ends at the onset of 10 contiguous seconds with no SES-IMA-FE	DS1IAMLink	DS1 IMA Link Statistics: 24-hour Current Data	Link Fe Unavail Secs	imaLinkTotalTable	IMA-MIB	No	SN05	This OM cannot be externally invoked by a manual action. It will only occur if there is some HW or SW errors. The easiest way to generate is using the "fakelgrppm" command in the /hal/ima MG9K Dshell directory.
imaLinkTotalNeTxUnusableSecs	Gauge32	Rolling 24 hour total	Tx Unusable seconds: count of Unusable seconds at the near-end Tx LSM in the previous 24 hour interval	DS1IAMLink	DS1 IMA Link Statistics: 24-hour Current Data	Link Ne Tx Unusable Secs	imaLinkTotalTable	IMA-MIB	No	SN05	Display this OM, on the IMA card pull and replace the DS1 cable, display this count again. The count will be higher.
imaLinkTotalNeRxUnusableSecs	Gauge32	Rolling 24 hour total	Rx Unusable seconds: count of Unusable seconds at the near-end Rx LSM in the previous 24 hour interval	DS1IAMLink	DS1 IMA Link Statistics: 24-hour Current Data	Link Ne Rx Unusable Secs	imaLinkTotalTable	IMA-MIB	No	SN05	Same as above
imaLinkTotalFeTxUnusableSecs	Gauge32	Rolling 24 hour total	Tx Unusable seconds at far-end: count of seconds with Tx Unusable indications from the far-end Tx LSM in the previous 24 hour interval	DS1IAMLink	DS1 IMA Link Statistics: 24-hour Current Data	Link Fe Tx Unusable Secs	imaLinkTotalTable	IMA-MIB	No	SN05	Same as above
imaLinkTotalFeRxUnusableSecs	Gauge32	Rolling 24 hour total	Rx Unusable seconds at far-end: count of seconds with Rx Unusable indications from the far-end Rx LSM in the previous 24 hour interval	DS1IAMLink	DS1 IMA Link Statistics: 24-hour Current Data	Link Fe Rx Unusable Secs	imaLinkTotalTable	IMA-MIB	No	SN05	Same as above
imaLinkTotalNeTxNumFailures	Gauge32	Rolling 24 hour total	The number of times a near-end transmit failure alarm condition has been entered on this link (i.e., some form of implementation specific transmit fault) in the previous 24 hour interval	DS1IAMLink	DS1 IMA Link Statistics: 24-hour Current Data	Link Ne Tx Num Failures	imaLinkTotalTable	IMA-MIB	No	SN05	Same as above
imaLinkTotalNeRxNumFailures	Gauge32	Rolling 24 hour total	The number of times a near-end receive failure alarm condition has been entered on this link (i.e., LIF, LODS, RFI-IMA, Mis-Connected, or some form of implementation specific receive fault) in the previous 24 hour interval	DS1IAMLink	DS1 IMA Link Statistics: 24-hour Current Data	Link Ne Rx Num Failures	imaLinkTotalTable	IMA-MIB	No	SN05	Same as above
imaLinkTotalFeTxNumFailures	Gauge32	Rolling 24 hour total	The number of times a far-end transmit failure alarm condition has been entered on this link (i.e., Tx-Unusable-FE) in the previous 24 hour interval. This is an optional attribute	DS1IAMLink	DS1 IMA Link Statistics: 24-hour Current Data	Link Fe Tx Num Failures	imaLinkTotalTable	IMA-MIB	No	SN05	Same as above
imaLinkTotalFeRxNumFailures	Gauge32	Rolling 24 hour total	The number of times a far-end receive failure alarm condition has been entered on this link (i.e., Rx-Unusable-FE) in the previous 24 hour interval. This is an optional attribute	DS1IAMLink	DS1 IMA Link Statistics: 24-hour Current Data	Link Fe Rx Num Failures	imaLinkTotalTable	IMA-MIB	No	SN05	Same as above
imaLinkTotalTxStuffs	Gauge32	Rolling 24 hour total	Count of stuff events inserted in the transmit direction in the previous 24 hour interval. This is an optional attribute	DS1IAMLink	DS1 IMA Link Statistics: 24-hour Current Data	Link Tx Stuffs	imaLinkTotalTable	IMA-MIB	No	SN05	Display this OM, it should be non-zero, wait a short time, display count again. This count will be higher. This will not increase if the link is offline and disabled.
imaLinkTotalRxStuffs	Gauge32	Rolling 24 hour total	Count of stuff events detected in the receive direction in the previous 24 hour interval. This is an optional attribute	DS1IAMLink	DS1 IMA Link Statistics: 24-hour Current Data	Link Rx Stuffs	imaLinkTotalTable	IMA-MIB	No	SN05	Same as above
UEMG-PERFMON-MIB											
nnPmUtilOmRecentTable			This table contains measurements of CPU, Ram, Flash and Channel Usage. Measurements in this table are rolling (peak and average values) on the most recent 15 minutes.								

nnPmUtilRecentCpuPeak	Integer	Counts only for current 15 min	Peak CPU Occupancy (as a percentage of usage)	ITP, OC3, IMA, ITX, DS1, and ABI Card	Performance Utilization Statistics: Current data	Peak CPU Occupancy	nnPmUtilOmRecentTable	UEMG-PERFMON-MIB	No	SN06	Since these are usage measurements they will always change over time. Collect a measurement when the system is quite. Generate different levels of CallP traffic. Collect measurements on each card (every 15 min) and insure the values increase as usage increases.
nnPmUtilRecentCpuAvg	Integer	Counts only for current 15 min	Average CPU Occupancy (as a percentage of usage)	ITP, OC3, IMA, ITX, DS1, and ABI Card	Performance Utilization Statistics: Current data	Average CPU Occupancy	nnPmUtilOmRecentTable	UEMG-PERFMON-MIB	No	SN06	Same as above
nnPmUtilRecentRamPeak	Integer	Counts only for current 15 min	Peak RAM Usage (as a percentage of usage)	ITP, OC3, IMA, ITX, DS1, and ABI Card	Performance Utilization Statistics: Current data	Peak RAM Usage	nnPmUtilOmRecentTable	UEMG-PERFMON-MIB	No	SN06	Same as above
nnPmUtilRecentRamAvg	Integer	Counts only for current 15 min	Average RAM Usage (as a percentage of usage)	ITP, OC3, IMA, ITX, DS1, and ABI Card	Performance Utilization Statistics: Current data	Average RAM Usage	nnPmUtilOmRecentTable	UEMG-PERFMON-MIB	No	SN06	Same as above
nnPmUtilRecentFlashPeak	Integer	Counts only for current 15 min	Peak Flash Memory Usage (as a percentage of usage)	ITP, OC3, IMA, ITX, DS1, and ABI Card	Performance Utilization Statistics: Current data	Peak Flash Usage	nnPmUtilOmRecentTable	UEMG-PERFMON-MIB	No	SN06	Same as above
nnPmUtilRecentFlashAvg	Integer	Counts only for current 15 min	Average Flash Memory Usage (as a percentage of usage)	ITP, OC3, IMA, ITX, DS1, and ABI Card	Performance Utilization Statistics: Current data	Average Flash Usage	nnPmUtilOmRecentTable	UEMG-PERFMON-MIB	No	SN06	Same as above
nnPmUtilRecentChanPeak	Integer	Counts only for current 15 min	Peak Channel Usage (as a percentage of usage)	ITP, OC3, IMA, ITX, DS1, and ABI Card	Performance Utilization Statistics: Current data	Peak Channel Usage	nnPmUtilOmRecentTable	UEMG-PERFMON-MIB	No	SN06	Same as above
nnPmUtilRecentChanAvg	Integer	Counts only for current 15 min	Average Channel Usage (as a percentage of usage)	ITP, OC3, IMA, ITX, DS1, and ABI Card	Performance Utilization Statistics: Current data	Average Channel Usage	nnPmUtilOmRecentTable	UEMG-PERFMON-MIB	No	SN06	Same as above
nnPmUtilOmIntervTable			This table contains history measurements of CPU, Ram, Flash and Channel Usage. Measurements in this table are rolling (peak and average values) of each 15 minute interval up to 24 hours old.								
nnPmUtilIntervCpuPeak	Integer	Counts only for last 15 min	Peak CPU Occupancy (as a percentage of usage)	ITP, OC3, IMA, ITX, DS1, and ABI Card	Performance Utilization Statistics: History data	Peak CPU Occupancy	nnPmUtilOmIntervTable	UEMG-PERFMON-MIB	Yes	SN06	Since these are usage measurements they will always change over time. Collect a measurement when the system is quite. Generate different levels of CallP traffic. Collect measurements on each card (every 15 min) and insure the values increase as usage increases. Also insure that the counts move to the next intreval every 15 min.
nnPmUtilIntervCpuAvg	Integer	Counts only for last 15 min	Average CPU Occupancy (as a percentage of usage)	ITP, OC3, IMA, ITX, DS1, and ABI Card	Performance Utilization Statistics: History data	Average CPU Occupancy	nnPmUtilOmIntervTable	UEMG-PERFMON-MIB	Yes	SN06	Same as above
nnPmUtilIntervRamPeak	Integer	Counts only for last 15 min	Peak RAM Usage (as a percentage of usage)	ITP, OC3, IMA, ITX, DS1, and ABI Card	Performance Utilization Statistics: History data	Peak RAM Usage	nnPmUtilOmIntervTable	UEMG-PERFMON-MIB	Yes	SN06	Same as above
nnPmUtilIntervRamAvg	Integer	Counts only for last 15 min	Average RAM Usage (as a percentage of usage)	ITP, OC3, IMA, ITX, DS1, and ABI Card	Performance Utilization Statistics: History data	Average RAM Usage	nnPmUtilOmIntervTable	UEMG-PERFMON-MIB	Yes	SN06	Same as above
nnPmUtilRecentFlashPeak	Integer	Counts only for last 15 min	Peak Flash Memory Usage (as a percentage of usage)	ITP, OC3, IMA, ITX, DS1, and ABI Card	Performance Utilization Statistics: History data	Peak Flash Usage	nnPmUtilOmIntervTable	UEMG-PERFMON-MIB	Yes	SN06	Same as above
nnPmUtilRecentFlashAvg	Integer	Counts only for last 15 min	Average Flash Memory Usage (as a percentage of usage)	ITP, OC3, IMA, ITX, DS1, and ABI Card	Performance Utilization Statistics: History data	Average Flash Usage	nnPmUtilOmIntervTable	UEMG-PERFMON-MIB	Yes	SN06	Same as above
nnPmUtilRecentChanPeak	Integer	Counts only for last 15 min	Peak Channel Usage (as a percentage of usage)	ITP, OC3, IMA, ITX, DS1, and ABI Card	Performance Utilization Statistics: History data	Peak Channel Usage	nnPmUtilOmIntervTable	UEMG-PERFMON-MIB	Yes	SN06	Same as above
nnPmUtilRecentChanAvg	Integer	Counts only for last 15 min	Average Channel Usage (as a percentage of usage)	ITP, OC3, IMA, ITX, DS1, and ABI Card	Performance Utilization Statistics: History data	Average Channel Usage	nnPmUtilOmIntervTable	UEMG-PERFMON-MIB	Yes	SN06	Same as above
nnPmSnmpRecentRequestsPeak	Interger32	Counts only for current 15 min	The Peak number of SNMP Requests/PDUs in the most recent 15 minutes. These are accumulated on 1-minute cycles.	OC3 and IMA Card	SNMP Messaging Current Data	Peak number of SNMP Requests	N/A	UEMG-PERFMON-MIB	No	SN06	Since these are usage measurements they will always change over time. Collect a measurement when the system is quite. Generate different levels of OAM&P traffic. Collect measurements (every 15 min) and insure the values increase as usage increases.
nnPmSnmpRecentRequestsAvg	Interger32	Counts only for current 15 min	The average number of SNMP Requests/PDUs in the most recent 15 minutes. These are accumulated on 1-minute cycles. Thus, the average is the average of the last 15 x 1-minute cycles.	OC3 and IMA Card	SNMP Messaging Current Data	Average number of SNMP Requests	N/A	UEMG-PERFMON-MIB	No	SN06	Same as above
nnPmSnmpRecentNotifsPeak	Interger32	Counts only for current 15 min	The Peak number of SNMP Notifications sent in the most recent 15 minutes. These are accumulated on 1-minute cycles.	OC3 and IMA Card	SNMP Messaging Current Data	Peak number of SNMP Notifications	N/A	UEMG-PERFMON-MIB	No	SN06	Same as above
nnPmSnmpRecentNotifsAvg	Interger32	Counts only for current 15 min	The average number of SNMP Notifications sent in the most recent 15 minutes. These are accumulated on 1-minute cycles. Thus, the average is the average of the last 15 x 1-minute cycles.	OC3 and IMA Card	SNMP Messaging Current Data	Average number of SNMP Notifications	N/A	UEMG-PERFMON-MIB	No	SN06	Same as above
nnPmSnmpOmIntervTable			This table contains measurements of SNMP requests and events. Measurements in this table are rolling (peak and average values) of each 15 minute interval up to 24 hours old.								
nnPmSnmpIntervReqPeak	Interger32	Counts only for last 15 min	The Peak number of SNMP Requests/PDUs in the most Recent 15 mins. These are accumulated on 1-minute cycles.	OC3 and IMA Card	SNMP Messaging History Data	Peak number of SNMP Requests	nnPmSnmpOmIntervTable	UEMG-PERFMON-MIB	Yes	SN06	Since these are usage measurements they will always change over time. Collect a measurement when the system is quite. Generate different levels of OAM&P traffic. Collect measurements (every 15 min) and insure the values increase as usage increases. Also insure that the counts move to the next intreval every 15 min.
nnPmSnmpIntervReqAvg	Interger32	Counts only for last 15 min	The Avg number of SNMP Requests/PDUs in the most Recent 15 mins. These are accumulated on 1-minute cycles. Thus, the avg is the avg of the last 15x 1-minute cycles. Precision is tenths, thus 816 is 81.6	OC3 and IMA Card	SNMP Messaging History Data	Average number of SNMP Requests	nnPmSnmpOmIntervTable	UEMG-PERFMON-MIB	Yes	SN06	Same as above
nnPmSnmpIntervNotifPeak	Interger32	Counts only for last 15 min	The Peak number of SNMP Notifications in the most Recent 15 mins. These are accumulated on 1-minute cycles.	OC3 and IMA Card	SNMP Messaging History Data	Peak number of SNMP Notifications	nnPmSnmpOmIntervTable	UEMG-PERFMON-MIB	Yes	SN06	Same as above
nnPmSnmpIntervNotifAvg	Interger32	Counts only for last 15 min	The Avg number of SNMP Notifications sent in the most Recent 15 mins. These are accumulated on 1-minute cycles. Thus, the avg is the avg of the last 15x 1-minute cycles. Precision is tenths, thus 816 is 81.6	OC3 and IMA Card	SNMP Messaging History Data	Average number of SNMP Notifications	nnPmSnmpOmIntervTable	UEMG-PERFMON-MIB	Yes	SN06	Same as above

nnPmOvldRscDccIntervTable								UEMG-PERFMON-MIB			
nnPmOvldRscDccIntervPduRatePeak	Interger32	Counts only for last 15 min	Peak # received AAl5 PDUs per sec for this 15 minute interval	OC3 and IMA Card	DCC Overload Interval Statistics: History Data	Peak number of received AAL5 PDUs per second	nnPmOvldRscDccIntervTable	UEMG-PERFMON-MIB	Yes	SN06.2	
nnPmOvldRscDccIntervPduRateAvg	Interger32	Counts only for last 15 min	Avg num recvd AAL5 PDUs per sec for this 15 minute interval	OC3 and IMA Card	DCC Overload Interval Statistics: History Data	Average number of recvd AAL5 PDUs per second	nnPmOvldRscDccIntervTable	UEMG-PERFMON-MIB	Yes	SN06.2	
nnPmOvldRscDccIntervCbvMsgRPeak	NnPerfMon Hundredths	Counts only for last 15 min	Peak recvd conn request msgs per sec for this 15 minute interval	OC3 and IMA Card	DCC Overload Interval Statistics: History Data	Peak received conn request msgs per second	nnPmOvldRscDccIntervTable	UEMG-PERFMON-MIB	Yes	SN06.2	
nnPmOvldRscDccIntervCbvMsgRAvg	NnPerfMon Hundredths	Counts only for last 15 min	Avg conn request msgs per sec for this 15 minute interval	OC3 and IMA Card	DCC Overload Interval Statistics: History Data	Average connection request messages per second	nnPmOvldRscDccIntervTable	UEMG-PERFMON-MIB	Yes	SN06.2	
nnPmOvldRscDccIntervConQDelPeak	NnPerfMon Hundredths	Counts only for last 15 min	Milliseconds...peak time a connRequest is pending in its queue for this 15 minute interval	OC3 and IMA Card	DCC Overload Interval Statistics: History Data	Peak time in milliseconds a connRequest is pending in its queue	nnPmOvldRscDccIntervTable	UEMG-PERFMON-MIB	Yes	SN06.2	
nnPmOvldRscDccIntervConQDelAvg	NnPerfMon Hundredths	Counts only for last 15 min	Milliseconds...Avg time a connRequest is pending in its queue for this 15 minute interval	OC3 and IMA Card	DCC Overload Interval Statistics: History Data	Ave time in milliseconds a connRequest is pending in its queue	nnPmOvldRscDccIntervTable	UEMG-PERFMON-MIB	Yes	SN06.2	
nnPmOvldRscDccIntervCpuUtilPeak	NnPerfMon Percent	Counts only for last 15 min	Peak cpu occupancy for this 15 minute interval	OC3 and IMA Card	DCC Overload Interval Statistics: History Data	Peak CPU Occupancy	nnPmOvldRscDccIntervTable	UEMG-PERFMON-MIB	Yes	SN06.2	
nnPmOvldRscDccIntervCpuUtilAvg	NnPerfMon Percent	Counts only for last 15 min	Avg cpu occupancy this 15 minute interval	OC3 and IMA Card	DCC Overload Interval Statistics: History Data	Average CPU Occupancy	nnPmOvldRscDccIntervTable	UEMG-PERFMON-MIB	Yes	SN06.2	
nnPmOvldConnDenyIntervTable											
nnPmOvldConnDenyIntervCoun	Interger32	Counts only for last 15 min	Count of the number of Connection requests Denied for this 15 minute interval	OC3 and IMA Card	DCC Overload Conn Deny Statistics: History Data	Number of Connection requests Denied	nnPmOvldConnDenyIntervTable	UEMG-PERFMON-MIB	Yes	SN06.2	
DS3-MIB											
dsx3CurrentTable											
dsx3CurrentPESs	PerfCurrentCount	Counts since last 15 min interval	The counter associated with the number of P - bit Errored Seconds encountered by a SONET (STS1 with DS3 payload selected) Section in the current 15 minute interval.	STS1	DS3 Path Statistics : Current Data	P -bit Number of errored seconds	dsx3CurrentTable	DS3 - MIB	No	SN07	On the OC3 connect a test box that has the ability to inject errors (e.g. ADTECH). With out injecting any errors collect the OM and it should be 0. Inject toward the near-end OC3 the error and collect the OM and it should reflect the correct error count.
dsx3CurrentPSESs	PerfCurrentCount	Counts since last 15 min interval	The counter associated with the number of P - bit Severely Errored Seconds encountered by a SONET (STS1 with DS3 payload selected) Section in the current 15 minute interval.	STS1	DS3 Path Statistics : Current Data	P -bit Number of severely errored seconds	dsx3CurrentTable	DS3 - MIB	No	SN07	Same as above
dsx3CurrentSEFSs	PerfCurrentCount	Counts since last 15 min interval	The counter associated with the number of Severely Errored Framing Seconds encountered by a SONET (STS1 with DS3 payload	STS1	DS3 Path Statistics : Current Data	Number of severely errored seconds	dsx3CurrentTable	DS3 - MIB	No	SN07	Same as above
dsx3CurrentUASs	PerfCurrentCount	Counts since last 15 min interval	The counter associated with the numb er of Unavailable Seconds encountered by a SONET (STS1 with DS3 payload selected) Section in the current 15 minute interval.	STS1	DS3 Path Statistics : Current Data	Number of unavailable seconds	dsx3CurrentTable	DS3 - MIB	No	SN07	Same as above
dsx3CurrentPCVs	PerfCurrentCount	Counts since last 15 min interval	The counter associated with the number of P - bit Coding Violations encountered by a SONET (STS1 with DS3 payload selected) Section in the current 15 minute interval.	STS1	DS3 Path Statistics : Current Data	P -bit Number of coding violations	dsx3CurrentTable	DS3 - MIB	No	SN07	Same as above
dsx3CurrentCCVs	PerfCurrentCount	Counts since last 15 min interval	The counter associated with the number of C - bit Coding Violations encountered by a SONET (STS1 with DS3 payload selected) Section in the current 15 minute interval.	STS1	DS3 Path Statistics : Current Data	C -bit Number of coding violations	dsx3CurrentTable	DS3 - MIB	No	SN07	Same as above
dsx3CurrentCESs	PerfCurrentCount	Counts since last 15 min interval	The counter associated with the number of C - bit Errored Seconds encountered by a SONET (STS1 with DS3 payload selected) Section in the current 15 minute interval.	STS1	DS3 Path Statistics : Current Data	C -bit Number of errored seconds	dsx3CurrentTable	DS3 - MIB	No	SN07	Same as above
dsx3CurrentCSESs	PerfCurrentCount	Counts since last 15 min interval	The counter associated with the number of C - bit Severely Errored Seconds encountered by a SONET (STS1 with DS3 payload selected) Section in the current 15 minute interval.	STS1	DS3 Path Statistics : Current Data	C -bit Number of severely errored seconds	dsx3CurrentTable	DS3 - MIB	No	SN07	Same as above
dsx3IntervalTable											
dsx3IntervalPESs	PerfIntervalCount	Counts only for last 15 min	The counter associated with the number of P - bit Errored Seconds encountered by a SONET (STS1 with DS3 payload selected) Section in the current 15 minute interval.	STS1	DS3 Path Statistics : History Data	P -bit Number of errored seconds	dsx3IntervalTable	DS3 - MIB	No	SN07	On the OC3 connect a test box that has the ability to inject errors (e.g. ADTECH). With out injecting any errors collect the OM and it should be 0. Inject toward the near-end OC3 the error and collect the OM and it should reflect the correct error count. Collect all 96 intervals, waiting 15+ minutes between tests, the counts will move to a higher interval each 15 minutes.
dsx3IntervalPSESs	PerfIntervalCount	Counts only for last 15 min	The counter associated with the number of P - bit Severely Errored Seconds encountered by a SONET (STS1 with DS3 payload selected) Section in the current 15 minute interval in the past 24 hours.	STS1	DS3 Path Statistics : History Data	P -bit Number of severely errored seconds	dsx3IntervalTable	DS3 - MIB	No	SN07	Same as above
dsx3IntervalSEFSs	PerfIntervalCount	Counts only for last 15 min	The counter associated with the number of Severely Errored Framing Seconds encountered by a SONET (STS1 with DS3 payload selected) Section in the current 15 minute interval in the past 24 hours.	STS1	DS3 Path Statistics : History Data	Number of severely errored seconds	dsx3IntervalTable	DS3 - MIB	No	SN07	Same as above
dsx3IntervalUASs	PerfIntervalCount	Counts only for last 15 min	The counter associated with the numb er of Unavailable Seconds encountered by a SONET (STS1 with DS3 payload selected) Section in the current 15 minute interval in the past 24 hours	STS1	DS3 Path Statistics : History Data	Number of unavailable seconds	dsx3IntervalTable	DS3 - MIB	No	SN07	Same as above
dsx3IntervalPCVs	PerfIntervalCount	Counts only for last 15 min	The counter associated with the number of P - bit Coding Violations encountered by a SONET (STS1 with DS3 payload selected) Section in the current 15 minute interval in the past 24 hours.	STS1	DS3 Path Statistics : History Data	P -bit Number of coding violations	dsx3IntervalTable	DS3 - MIB	No	SN07	Same as above
dsx3IntervalCCVs	PerfIntervalCount	Counts only for last 15 min	The counter associated with the number of C - bit Coding Violations encountered by a SONET (STS1 with DS3 payload selected) Section in the current 15 minute interval in the past 24 hours.	STS1	DS3 Path Statistics : History Data	C -bit Number of coding violations	dsx3IntervalTable	DS3 - MIB	No	SN07	Same as above

dsx3IntervalCESs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of C - bit Errored Seconds encountered by a SONET (STS1 with DS3 payload selected) Section in the current 15 minute interval.	STS1	DS3 Path Statistics : History Data	C -bit Number of errored seconds	dsx3IntervalTable	DS3 - MIB	No	SN07	Same as above
dsx3IntervalCSESs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of C - bit Severely Errored Seconds encountered by a SONET (STS1 with DS3 payload selected) Section in the current 15 minute interval in the past 24 hours.	STS1	DS3 Path Statistics : History Data	C -bit Number of severely errored seconds	dsx3IntervalTable	DS3 - MIB	No	SN07	Same as above
dsx3FarEndCurrentTable											
dsx3FarEndCurrentCESs	PerfCurrent Count	Counts since last 15 min interval	The counter associated with the number of FarEnd Errored Seconds encountered by a SONET (STS1 with DS3 payload selected) interface in the current 15 minute interval.	STS1	DS3 FarEndPath Statistics : Current Data	Number of errored seconds	dsx3FarEndCurrentTable	DS3 - MIB	No	SN07	On the OC3 connect a test box that has the ability to inject errors (e.g. ADTECH). With out injecting any errors collect the OM and it should be 0. Inject toward the far-end OC3 the error and collect the OM and it should reflect the correct error count.
dsx3FarEndCurrentCSESs	PerfCurrent Count	Counts since last 15 min interval	The counter associated with the number of Far End Severely Errored Seconds encountered by a SONET (STS1 with DS3 payload selected) Path interface in the current 15 minute interval.	STS1	DS3 FarEndPath Statistics : Current Data	Number of severely errored seconds	dsx3FarEndCurrentTable	DS3 - MIB	No	SN07	Same as above
dsx3FarEndCurrentCCVs	PerfCurrent Count	Counts since last 15 min interval	The counter associated with the number of Far End Coding Violations reported via the far end block error count encountered by a SONET (STS1 with DS3 payload selected)) Path interface in the current 15 minute interval.	STS1	DS3 FarEndPath Statistics : Current Data	Number of coding violations	dsx3FarEndCurrentTable	DS3 - MIB	No	SN07	Same as above
dsx3FarEndCurrentUASs	PerfCurrent Count	Counts since last 15 min interval	The counter associated with the number of Far End Unavailable Seconds encountered by a SONET (STS1 with DS3 payload selected) Path interface in the current 15 minute interval.	STS1	DS3 FarEndPath Statistics : Current Data	Number of unavailable seconds	dsx3FarEndCurrentTable	DS3 - MIB	No	SN07	Same as above
dsx3FarEndIntervalTable											
dsx3FarEndIntervalCESs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of Far End Errored Seconds encountered by a SONET (STS1 with DS3 payload selected) Path interface in a particular 15-minute interval in the past 24 hours.	STS1	Sonet Far End Path Statistics : History data	Number of errored seconds	dsx3FarEndIntervalTable	DS3 - MIB	No	SN07	On the OC3 channel connect a test box that has the ability to inject errors (e.g. ADTECH). With out injecting any errors collect the OM and it should be 0. Inject toward the Far-end OC3 the error and collect the OM and it should reflect the correct error count. Collect all 96 intervals, waiting 15+ minutes between tests, the counts will move to a higher interval each 15 minutes.
dsx3FarEndIntervalCSESs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of Far End Severely Errored Seconds encountered by a SONET (STS1 with DS3 payload selected) Path interface in a particular 15-minute interval in the past 24 hours.	STS1	Sonet Far End Path Statistics : History data	Number of severely errored seconds	dsx3FarEndIntervalTable	DS3 - MIB	No	SN07	Same as above
dsx3FarEndIntervalCCVs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of Far End Coding Violations reported via the far end block error count encountered by a SONET (STS1 with DS3 payload selected) Path interface in a particular 15-minute interval in the past 24 hours.	STS1	Sonet Far End Path Statistics : History data	Number of coding violations	dsx3FarEndIntervalTable	DS3 - MIB	No	SN07	Same as above
dsx3FarEndIntervalUASs	PerfInterval Count	Counts only for last 15 min	The counter associated with the number of Far End Unavailable Seconds encountered by a SONET (STS1 with DS3 payload selected) Path interface in a particular 15-minute interval in the past 24 hours.	STS1	Sonet Far End Path Statistics : History data	Number of unavailable seconds	dsx3FarEndIntervalTable	DS3 - MIB	No	SN07	Same as above
NORTEL-UEMG-RELMSGING-MIB											
nnRelMsgSctpAssocOmCurrTable											
nnRelMsgSctpAscCurrClosed	Unsigned32	Counts only for last 15 min	number of times that this association closed (both aborts and shutdowns)				nnRelMsgSctpAssocOmCurrTable	NORTEL-UEMG-RELMSGING-MIB	Yes	SN07	
nnRelMsgSctpAscCurrAbort	Unsigned32	Counts only for last 15 min	number of times that this association aborted.				nnRelMsgSctpAssocOmCurrTable	NORTEL-UEMG-RELMSGING-MIB	Yes	SN07	
nnRelMsgSctpAscCurrOutPacks	Unsigned32	Counts only for last 15 min	number of packets transmitted				nnRelMsgSctpAssocOmCurrTable	NORTEL-UEMG-RELMSGING-MIB	Yes	SN07	
nnRelMsgSctpAscCurrInPacks	Unsigned32	Counts only for last 15 min	number of packets received, this association				nnRelMsgSctpAssocOmCurrTable	NORTEL-UEMG-RELMSGING-MIB	Yes	SN07	
nnRelMsgSctpAscCurrDiscPacks	Unsigned32	Counts only for last 15 min	number of packets discarded by this association.				nnRelMsgSctpAssocOmCurrTable	NORTEL-UEMG-RELMSGING-MIB	Yes	SN07	
nnRelMsgSctpAscCurrRetranPacks	Unsigned32	Counts only for last 15 min	number of packets retransmitted by this association, this interval				nnRelMsgSctpAssocOmCurrTable	NORTEL-UEMG-RELMSGING-MIB	Yes	SN07	
nnRelMsgSctpAscCurrT1expires	Unsigned32	Counts only for last 15 min	number of T1 Expires				nnRelMsgSctpAssocOmCurrTable	NORTEL-UEMG-RELMSGING-MIB	Yes	SN07	
nnRelMsgSctpAscCurrT2expires	Unsigned32	Counts only for last 15 min	number of T2 expires.				nnRelMsgSctpAssocOmCurrTable	NORTEL-UEMG-RELMSGING-MIB	Yes	SN07	
nnRelMsgSctpAscCurrT3expires	Unsigned32	Counts only for last 15 min	number of T3 expires				nnRelMsgSctpAssocOmCurrTable	NORTEL-UEMG-RELMSGING-MIB	Yes	SN07	
nnRelMsgSctpAscCurrCongCount	Unsigned32	Counts only for last 15 min	number of times this assoc entered congestion.				nnRelMsgSctpAssocOmCurrTable	NORTEL-UEMG-RELMSGING-MIB	Yes	SN07	
nnRelMsgSctpAscCurrCongCleared	Unsigned32	Counts only for last 15 min	number of times congestion cleared by audit.				nnRelMsgSctpAssocOmCurrTable	NORTEL-UEMG-RELMSGING-MIB	Yes	SN07	
nnRelMsgSctpAssocOmIntervTable											
nnRelMsgSctpAscIntervClosed	Unsigned32	Counts only for last 15 min	number of times that this association closed (both aborts and shutdowns)				nnRelMsgSctpAssocOmIntervTable	NORTEL-UEMG-RELMSGING-MIB	No	SN07	
nnRelMsgSctpAscIntervAbort	Unsigned32	Counts only for last 15 min	number of times that this association aborted.				nnRelMsgSctpAssocOmIntervTable	NORTEL-UEMG-RELMSGING-MIB	No	SN07	
nnRelMsgSctpAscIntervOutPacks	Unsigned32	Counts only for last 15 min	number of packets transmitted				nnRelMsgSctpAssocOmIntervTable	NORTEL-UEMG-RELMSGING-MIB	No	SN07	
nnRelMsgSctpAscIntervInPacks	Unsigned32	Counts only for last 15 min	number of packets received, this association				nnRelMsgSctpAssocOmIntervTable	NORTEL-UEMG-RELMSGING-MIB	No	SN07	
nnRelMsgSctpAscIntervDiscPacks	Unsigned32	Counts only for last 15 min	number of packets discarded by this association.				nnRelMsgSctpAssocOmIntervTable	NORTEL-UEMG-RELMSGING-MIB	No	SN07	
nnRelMsgSctpAscIntervRetranPacks	Unsigned32	Counts only for last 15 min	number of packets retransmitted by this association, this interval				nnRelMsgSctpAssocOmIntervTable	NORTEL-UEMG-RELMSGING-MIB	No	SN07	
nnRelMsgSctpAscIntervT1expires	Unsigned32	Counts only for last 15 min	number of T1 Expires				nnRelMsgSctpAssocOmIntervTable	NORTEL-UEMG-RELMSGING-MIB	No	SN07	
nnRelMsgSctpAscIntervT2expires	Unsigned32	Counts only for last 15 min	number of T2 expires.				nnRelMsgSctpAssocOmIntervTable	NORTEL-UEMG-RELMSGING-MIB	No	SN07	

nnRelMsgSctpAscIntervT3expires	Unsigned32	Counts only for last 15 min	number of T3 expires				nnRelMsgSctpAssocOmIntervTable	NORTEL-UEMG-RELMSGING-MIB	No	SN07	
nnRelMsgSctpAscIntervCongCount	Unsigned32	Counts only for last 15 min	number of times this assoc entered congestion.				nnRelMsgSctpAssocOmIntervTable	NORTEL-UEMG-RELMSGING-MIB	No	SN07	
nnRelMsgSctpAscIntervCongCleared	Unsigned32	Counts only for last 15 min	number of times congestion cleared by audit.				nnRelMsgSctpAssocOmIntervTable	NORTEL-UEMG-RELMSGING-MIB	No	SN07	

Appendix C: Succession VOA/IP Passport 15000 and Preside MDM Alarm Log Summary

Introduction

This document provides a list of Passport 15000 (PP15000), Passport Voice Gateway (PVG) and Preside Multiservice Data Manager (MDM) alarm logs applicable to up to Succession SN06.2 for Voice over ATM (VOA) and Voice over IP (VOIP) solutions. This document supercedes the PP15000/MDM portions of [1], which contains alarm logs applicable to pre-SN04 Succession releases.

The purpose of this document includes:

- It provides a Succession VOA/VOIP customer (and more specifically an OSS Fault application writer) a summarized subset of the possible alarms that can appear when PP15000 and MDM are configured for the Succession VOA/VOIP application. The descriptions of the alarms are found in [3] and [4].
- When configured to receive PP15000/MDM Alarm logs in SCC2 format from the Supernode Data Manager (SDM), it also provides the mapping information needed to interpret the SCC2 format.
- It is also input to solution-level OSS Guide information which is in progress of being delivered to provide this information in the FCAPS-based solution documentation.

SCC2 Log Format

The SCC2 log report for Passport and MDM alarms comprises a one line header, followed by seven lines of body text, as per the following example:

```
 37 PPEM300 8169 TBL
      time: 2002 01 11 15 37 06
      event: clear
      compId: EM P15KF LP 7 SONET 3
      severity: cleared
      faultCode: 70115201
      alarmType: communications
      commentData: Loss of frame condition has been cleared.
```

The header is of format:

aabbcdddeeefgghhijjjj

Each field, as applicable for Passport and MDM alarms, is described in Table 1.

Table 1 Passport 15000 and MDM SCC2 Header Field Description

Field	Description	Applicable Log Values
aa	Alarm severity Passport/MDM alarm log severity	"*C" = critical alarm "**" = major alarm "* " = minor and warning and indeterminate alarm " " = clear alarm Two characters, left justified, padded with blanks.

Field	Description	Applicable Log Values
bb	Minute indicator Two numeric character indicator representing the minutes after the hour. Generated by SDM at time SDM receives the alarm log from MDM.	Ranges from 00 to 59, right justified, padded with zeros.
c	single space	" "
dddd	Log Name Assigned by SDM. Based upon the first four digits ("Index Group") of the eight-digit Passport or MDM alarm identifier.	Four characters, left justified, padded with blanks. "CA " for index group 0000. "PPEM" for index groups beginning with 70xx and some fault codes in group 0999. "MDM " for index groups beginning with 30xx and some fault codes in group 0999.
eee	Log Number Three numeric characters representing the Passport or MDM Alarm Type. Note that the Alarm Type "debug" is not translated as a fault, but rather as information log.	"300" = communications "301" = quality of service "302" = processing "303" = equipment "304" = environmental "305" = security "306" = operator "307" = unknown
f	A single space for all Passport and MDM alarm logs.	" "
gg	Global Sequence Number Generated by SDM. Two numeric characters, incremented by SDM upon receipt of every alarm log.	Ranges from 00 to 99, right justified, padded with zeros.
hh	Device Sequence Number Generated by SDM. Two numeric characters, incremented by SDM upon receipt of every device specific alarm log from MDM (originated by Passport or MDM).	Ranges from 00 to 99, right justified, padded with zeros.
i	single space	" "
jjjj	Event Type Assigned by SDM. String assigned for all Passport and MDM alarm logs.	"TBL " Four characters, left justified, padded with blanks.
Lines 2, 3, 4, 5, 6, 7, 8	Body Text Seven textual lines, each of form <AlarmFieldname>: <AlarmFieldValue>	"time: " "event: " "compId: " "severity: " "faultCode: " "alarmType: " "commentData: " Comment data is truncated so that entire log does not exceed 900 bytes.

Passport 15000 Alarm Logs

Table 2 presents the list of Passport set/clear alarm logs that are applicable for Succession VOA/VOIP.

Table 2 does not explicitly state all Passport clear alarm logs that correspond to each set. The SCC2 header for the clear differs from its corresponding set by only the first two characters. The characters “aa” are replaced by “ “ (two spaces). This format is presented in Table 1.

The Passport alarm identifier consists of an eight-digit number identifying the alarm. The first four digits comprise the **Index Group**, which represents logical groupings of alarms. The last four digits are the **SubIndex**, which is an identifier within each index group.

Component Name indicates the managed object against which the alarm Log is generated. This table contains the CLI format of a component name. The “compId” field in SCC2 format contains this information (with the module’s <nodename> pre-pended). Also, “compId” follows the MDM API-style format (with component type and instance separated by a space instead of a slash, and ‘$’ appearing in place of a null instance value). Variables (usually instance value ranges) are denoted by <> and the reader should reference the Alarms NTP’s [3] and [4] for further information.

Table 2 Passport 15000 Set/Clear Alarms Supported for Succession

Passport Index Group	Component Name	PP/PVG configuration (N/A)	Passport SubIndex	Importance Category (N/A)	SCC2 Header
0000	OSI administrative state changes, general engineering and memory alarms, internal software error detected, etc.				
	This alarm can apply to many Passport components.		0000		bb CA eee gghh TBL where: eee = 302, 303, 306
	This alarm can apply to many Passport components.		1000		aabb CA eee gghh TBL where: aa = “*C”, “**”, “* ” eee = 300, 306
	This alarm can apply to many Passport components.		1001		aabb CA 303 gghh TBL where: aa = “*C”, “**”, “* ”
	This alarm can apply to many Passport components.		3000		aabb CA eee gghh TBL where: aa = “*C”, “**”, “* ” eee = 300, 302
	This alarm can apply to many Passport components.		3001		aabb CA 302 gghh TBL where: aa = “*C”, “**”, “* ”
			3002		
7000	Provisioning alarms. These alarms apply to failures resulting from provisioning attempts. e.g., loading a provisioning file has failed.				
	Prov		0007		aabb PPEM306 gghh TBL where: aa = “*C”, “**”, “* ”

Passport Index Group	Component Name	PP/PVG configuration (N/A)	Passport SubIndex	Importance Category (N/A)	SCC2 Header
	This alarm can apply to many Passport components.		0010		* bb PPEM302 gghh TBL
	Prov Migration		0033		aabb PPEM306 gghh TBL where: aa = "*C", "* "
	Prov		0036		aabb PPEM301 gghh TBL where: aa = "**", "* "
	Prov		0037		*Cbb PPEM301 gghh TBL
	Prov		0038		* bb PPEM301 gghh TBL
	Prov		0040		**bb PPEM302 gghh TBL
	Provisioning Patch		0041		* bb PPEM306 gghh TBL
7002	Backplane control system alarms; e.g., communication failure between a card and the backplane. Note: FabricCard instance range (<i>): X, Y Card instance range (<n>): 0-15				
	Shelf FabricCard/<i>		0002		**bb PPEM303 gghh TBL
	Shelf FabricCard/<i>		0003		* bb PPEM303 gghh TBL
	Shelf FabricCard/<i>		0005		**bb PPEM302 gghh TBL
	Shelf FabricCard/<i>		0006		**bb PPEM302 gghh TBL
	Shelf FabricCard/<i>		0007		**bb PPEM302 gghh TBL
	Shelf Card/<n>		0008		* bb PPEM303 gghh TBL
	Shelf FabricCard/<i>		0009		* bb PPEM303 gghh TBL
7003	Data collection system alarms; e.g., an alarm or log queue size has exceeded a threshold. Collector instance range (<t>): accounting, alarm, log, debug, scn, trap, stats, rtstats, appl Agent instance range (<n>): 0-15 LP instance range (<n>): 0-15				
	Collector/<t> Agent/<n>		0001		**bb PPEM301 gghh TBL
	Collector/<t> Spooler		0002		**bb PPEM302 gghh TBL
	Collector/<t> Spooler		0003		* bb PPEM301 gghh TBL
	LP/<n> Eng AAList		0007		**bb PPEM301 gghh TBL
	Collector/<t> Spooler		0008		* bb PPEM306 gghh TBL

Passport Index Group	Component Name	PP/PVG configuration (N/A)	Passport SubIndex	Importance Category (N/A)	SCC2 Header
7008	File system alarms. Disk instance range (<n>): 0-1 Card instance range (<x>): 0-1				
	FileSystem		1001		**bb PPEM302 gghh TBL
	FileSystem		1002		*Cbb PPEM302 gghh TBL
	FileSystem		1004		*Cbb PPEM303 gghh TBL
	FileSystem		1005		* bb PPEM303 gghh TBL
	FileSystem		1006		**bb PPEM302 gghh TBL
	FileSystem Disk/<n>		1008		**bb PPEM303 gghh TBL
			1009		
			1010		
			1011		
	FileSystem		1019		* bb PPEM303 gghh TBL
7011	Port management system and Automatic Protection Switching alarms. LP instance range (<n>): 0-15 Port types (<type>): Sonet, EDS1, DS3, BridgedSonet(Bso), Ethernet, Sdh Sonet instance range (<n2>): 0-15 (16-port); 0-3 (4-port) EDS1 instance range (<n2>): 0-1 IMA instance range (<n3>): 0-13 LK instance range (<n4>): 0-31 DS3 instance range (<n2>): 0-3 (4-port); 0-11 (12-port) DS1 instance range (<n3>): 1-28 Ethernet instance range (<n2>): 0-3 LAPS instance range (<n>): 0-15999 Chan instance range (<n4>): 0-23 Bso instance range (<n2>): 0-15 Pbg instance range (<n>): 0-15999 Sdh instance range (<n2>): 0-3 Sts instance range (<n2>): 0-2 Lag instance range (<y>): 0-7 Lag link instance range (<z>): 0-31				
	LP/<n> DS3/<n2> IMA <n3>		1100		*Cbb PPEM300 gghh TBL
	LP/<n> DS3/<n2> IMA/<n3>… …LK/<n4>		1200		*Cbb PPEM300 gghh TBL
			1210		
			1211		
			1212		
			1213		
			1214		
			1215		
			1216		
	LP/<n> Lag/<y>		1500		*Cbb PPEM300 gghh TBL

Passport Index Group	Component Name	PP/PVG configuration (N/A)	Passport SubIndex	Importance Category (N/A)	SCC2 Header
	LP/<n> Lag/<y> Link/<z>		1501		*Cbb PPEM300 gghh TBL
	LP/<n> <type>/<n2>		2000		*Cbb PPEM303 gghh TBL
	LP/0 EDS1/<n2> LP/<n> DS3/<n2> DS1/<n3> Lp/<n> Sdh/<n2> Vc4/0 Vc12/{1-3,1-7,1-3} E1 Lp/<n> Sonet/<n2> Sts/<n2> Vt1dot5/{1-7,1-4} DS1		5000		*Cbb PPEM300 gghh TBL
	LP/0 EDS1/<n2> LP/<n> DS3/<n2> DS1/<n3> Lp/<n> Sdh/<n2> Vc4/0 Vc12/{1-3,1-7,1-3} E1 Lp/<n> Sonet/<n2> Sts/<n2> Vt1dot5/{1-7,1-4} DS1		5001		* bb PPEM300 gghh TBL
	LP/0 EDS1/<n2> Lp/<n> Sdh/<n2> Vc4/0 Vc12/{1-3,1-7,1-3} E1 Lp/<n> Sonet/<n2> Sts/<n2> Vt1dot5/{1-7,1-4} DS1		5002		*Cbb PPEM300 gghh TBL
	LP/<n> DS3/<n2> DS1/<n3> Lp/<n> Sdh/<n2> Vc4/0 Vc12/{1-3,1-7,1-3} E1 Lp/<n> Sonet/<n2> Sts/<n2> Vt1dot5/{1-7,1-4} DS1		5003		*Cbb PPEM300 gghh TBL
	LP/<n> DS3/<n2> DS1/<n3> Lp/<n> Sdh/<n2> Vc4/0 Vc12/{1-3,1-7,1-3} E1 Lp/<n> Sonet/<n2> Sts/<n2> Vt1dot5/{1-7,1-4} DS1		5004		*Cbb PPEM300 gghh TBL
	LP/<n> DS3/<n2> DS1/<n3> Lp/<n> Sdh/<n2> Vc4/0 Vc12/{1-3,1-7,1-3} E1 Lp/<n> Sonet/<n2> Sts/<n2> Vt1dot5/{1-7,1-4} DS1		5005		*Cbb PPEM300 gghh TBL
	LP/<n> DS3/<n2> DS1/<n3> Lp/<n> Sdh/<n2> Vc4/0 Vc12/{1-3,1-7,1-3} E1 Lp/<n> Sonet/<n2> Sts/<n2> Vt1dot5/{1-7,1-4} DS1		5006		**bb PPEM300 gghh TBL
	LP/<n> DS3/<n2> DS1/<n3> Lp/<n> Sonet/<n2> Sts/<n2> Vt1dot5/{1-7,1-4} DS1 Lp/<n> Sdh/<n2> Vc4/0 Vc12/{1-3,1-7,1-3} E1		5010		* bb PPEM300 gghh TBL
	LP/<n> DS3/<n2> DS1/<n3>		5011		* bb PPEM300 gghh TBL

Passport Index Group	Component Name	PP/PVG configuration (N/A)	Passport SubIndex	Importance Category (N/A)	SCC2 Header
	LP/0 EDS1/<n2>		5050		aabb PPEM303 gghh TBL where: aa = “*C”, “* “
	LP/<n> DS3/<n2> Lp/<n> Sdh/<n2> Vc4/0 Vc12/{1-3,1-7,1-3} E1 Lp/<n> Sonet/<n2> Sts/<n2> Vt1dot5/{1-7,1-4} DS1		5100		*Cbb PPEM300 gghh TBL
	LP/<n> DS3/<n2>		5101		*Cbb PPEM300 gghh TBL
			5102		
			5103		
			5104		
	LP/<n> DS3/<n2>		5105		* bb PPEM300 gghh TBL
	LP/<n> DS3/<n2>		5110		*Cbb PPEM300 gghh TBL
	LP/<n> DS3/<n2>		5111		* bb PPEM300 gghh TBL
			5120		
			5121		
			5122		
	LP/<n> Sonet/<n2> LP/<n> Sdh/<n2>		5200		*Cbb PPEM300 gghh TBL
			5201		
			5202		
	LP/<n> Sonet/<n2> LP/<n> Sdh/<n2>		5203		* bb PPEM300 gghh TBL
			5204		
			5210		
			5211		
	LP/<n> Sonet/<n2> Sts/<n2> Lp/<n> Sdh/<n2> Vc4/0 LAPS/<n> Sts/<n2> LAPS/<n> Vc4/0 Pbg/<n> Sts/0		5250		*Cbb PPEM300 gghh TBL
			5251		
	LP/<n> Sonet/<n2> Sts/<n2> Lp/<n> sdh/<n2> Vc4/0 LAPS/<n> Sts/<n2> LAPS/<n> Vc4/0 Pbg/<n> Sts/0		5252		* bb PPEM300 gghh TBL
	LP/<n> Sonet/<n2> Sts/<n2> Lp/<n> Sdh/<n2> Vc4/0 LAPS/<n> Sts/<n2> LAPS/<n> Vc4/0 Pbg/<n> Sts/0		5253		*Cbb PPEM300 gghh TBL

Passport Index Group	Component Name	PP/PVG configuration (N/A)	Passport SubIndex	Importance Category (N/A)	SCC2 Header
	LP/<n> Sonet/<n2> Sts/<n2> Lp/<n> Sdh/<n2> Vc4/0 LAPS/<n> Sts/<n2> LAPS/<n> Vc4/0 Pbg/<n> Sts/0		5254		*Cbb PPEM300 gghh TBL
	LP/<n> Sonet/<n2> Sts/<n2> Lp/<n> Sdh/<n2> Vc4/0 LAPS/<n> Sts/<n2> LAPS/<n> Vc4/0 Pbg/<n> Sts/0		5255		*Cbb PPEM300 gghh TBL
	Lp/<n> Sonet/<n2> Sts/<n2> Lp/<n> Sdh/<n2> Vc4/0 Lp/<num1> Sdh/<n2> Vc4/0 Vc12/{1-3, 1-7, 1-3} Laps/<n> Sts/<num3> Laps/<n> Sdh/<num2> Vc4/0 Laps/<n> Sdh/<n2> Vc4/0 Vc12/{1-3, 1-7, 1-3} Pbg/<n> Sts/{0-11}		5256		*Cbb PPEM300 gghh TBL
	LP/<n> Sonet/<n2> Sts/<n2> LP/<n> Sdh/<n2> Vc4/0 LAPS/<n> Sts/<n2> LAPS/<n> Vc4/0 Pbg/<n> Sts/0		5260 5261		* bb PPEM300 gghh TBL
	LAPS/<n>		5270		**bb PPEM300 gghh TBL
	LAPS/<n>		5271		* bb PPEM300 gghh TBL
	LAPS/<n>		5272		* bb PPEM300 gghh TBL
	LAPS/<n>		5273		* bb PPEM300 gghh TBL
	LAPS/n		5274		* bb PPEM300 gghh TBL
	LAPS/<n>		5275		*Cbb PPEM300 gghh TBL
	LP/<n> Sdh/<n2> Vc4/0 Vc12/{1-3,1-7,1-3} Lp/<n> Sonet/<n2> Sts/<n2> Vt1dot5/{1-7,1-4} LAPS/<n> Vc4/0 Vc12//{1-3,1-7,1-3} LAPS/<n> Sts/<n2> Vt1dot5/{1-7,1-4}		5290 5291 5292 5293 5294		* bb PPEM303 gghh TBL

Passport Index Group	Component Name	PP/PVG configuration (N/A)	Passport SubIndex	Importance Category (N/A)	SCC2 Header
	LP/<n> Sdh/<n2> Vc4/0 Vc12/{1-3,1-7,1-3} Lp/<n> Sonet/<n2> Sts/<n2> Vt1dot5/{1-7,1-4} LAPS/<n> Vc4/0 Vc12//{1-3,1-7,1-3} LAPS/<n> Sts/<n2> Vt1dot5/{1-7,1-4}		5295 5296		*Cbb PPEM303 gghh TBL
	LP/<n> Sdh/<n2> Vc4/0 Vc12/{1-3,1-7,1-3} Lp/<n> Sonet/<n2> Sts/<n2> Vt1dot5/{1-7,1-4} LAPS/<n> Vc4/0 Vc12//{1-3,1-7,1-3} LAPS/<n> Sts/<n2> Vt1dot5/{1-7,1-4}		5297		*Cbb PPEM303/6 gghh TBL
	LP/<n> Ethernet/<n2> LP/<n> Ethernet/<n2> LP/<n> Ethernet/<n2> LP/<n> Ethernet/<n2> LP/<n> Ethernet/<n2> OpticalModule		5400 5401 5402 5403 5480		*Cbb PPEM300 gghh TBL *Cbb PPEM300 gghh TBL *Cbb PPEM300 gghh TBL *Cbb PPEM300 gghh TBL **bb PPEM300 gghh TBL
	LP/<n> Sonet/<n2> LP/<n> Sonet/<n2> Sts/0 LAPS/<n> Sts/0 LP/<n> DS3/<n2> LP/<n> DS3/<n2> DS1/<n3> LP/<n> DS3/<n2> DS1/<n3> Chan/<n4> Pbg/<n> Sts/0		5501		**bb PPEM300 gghh TBL
	LP/<n> DS3/<n2>		5601 5602		* bb PPEM300 gghh TBL
	LP/<n> DS3/<n2>		5603 5604		**bb PPEM300 gghh TBL
7012	Processor control system alarms. LP instance range (<n>): 0-15 Card instance range (<n>): 0-15 FabricCard instance range (<i>): X, Y				
	Shelf		0050		**bb PPEM303 gghh TBL
	Shelf		0051		aabb PPEM303 gghh TBL where: aa = “**”, “* ”
	Shelf Shelf FabricCard/<i>		0052		**bb PPEM303 gghh TBL

Passport Index Group	Component Name	PP/PVG configuration (N/A)	Passport SubIndex	Importance Category (N/A)	SCC2 Header
	Shelf		0053		**bb PPEM303 gghh TBL
	Shelf		0055		aabb PPEM303 gghh TBL where: aa = “**”, “* ”
	Shelf		0056		* bb PPEM303 gghh TBL
	Shelf		0057		**bb PPEM303 gghh TBL
			0058		
	Shelf		0059		*Cbb PPEM304 gghh TBL
	Shelf Card/<n>		0100		aabb PPEM303 gghh TBL where: aa = “*C”, “* “
	Shelf Card/<n>		0103		**bb PPEM303 gghh TBL
			0104		
	Shelf Card/<n>		0105		* bb PPEM306 gghh TBL
	LP/<n>		0200		*Cbb PPEM302 gghh TBL
	LP/<n>		0202		* bb PPEM306 gghh TBL
	Shelf Card/<n> SpServ		0301		* bb PPEM302 gghh TBL
7013	Message block usage alarms. LP instance range (<n>): 0-15				
	LP/<n>		0000		* bb PPEM301 gghh TBL
	LP/<n>		0001		**bb PPEM301 gghh TBL
	LP/<n>		0002		* bb PPEM301 gghh TBL
			0003		
			0004		
			0005		
			0011		
	LP/<n>		0021		**bb PPEM301 gghh TBL
	LP/<n>		0022		* bb PPEM301 gghh TBL
7014	Memory management alarms				
	LP/<n>		0000		* bb PPEM301 gghh TBL
	LP/<n>		0001		**bb PPEM301 gghh TBL
7015	Network time-of-day (TOD) synchronization alarms. Server instance range (<n>): 1-10				
	Time		0000		**bb PPEM304 gghh

Passport Index Group	Component Name	PP/PVG configuration (N/A)	Passport SubIndex	Importance Category (N/A)	SCC2 Header
			0002		TBL
	Time Server/<n>		0010		* bb PPEM300 gghh TBL
			0011		
	Time Server/<n>		0012		* bb PPEM300 gghh TBL
7017	Network clock synchronization alarms				
	NS		1000		* bb PPEM300 gghh TBL
7021	Internet protocol alarms. For Succession VOA, the IP stack is used only for network management connectivity purposes. For VOIP VR is used to connect to IP network. More than 1 VR may be provisioned in this configuration. VR instance range (<i>): any string, but often specified simply as a digit (e.g., "0") Cache instance range (<n>): 0-15 Name of the vrf (<y>) LP number (<lpnum>): 0-15 IP address (<ipaddress>): address of the local IpLogicalInterface				
	Vr/<i> Ip Cache/<n>		0006		**bb PPEM302 gghh TBL
	Vr/<i> Ip Cpp IsolatedDa/<ipaddress>, <lpnum> Rtr/<i> Cpp IsolatedDa/<ipaddress>, <lpnum> Rtr/<i> Vrf/<y> Cpp IsolatedDa/<ipaddress>, <lpnum>		0013		* bb PPEM305 gghh TBL
			0014		**bb PPEM305 gghh TBL
7026	LAN port management system alarms. For Succession VOA, the LAN port management system is used only for network management connectivity purposes Same alarms are used for VOIP.				
	LP/0 OamEnet/0		3000		*Cbb PPEMeee gghh TBL where: eee = 300, 303
	LP/0 OamEnet/0		3005		* bb PPEMeee gghh TBL where: eee = 300, 303
7039	ATM Core alarms. AtmIf instance range (<n>): 1-4095 Vcc instance range (<n2.n3>): n2 is VPI; n3 is VCI				
	Atmif/<n>		1000		* bb PPEM300 gghh TBL
	Atmif/<n> Vcc/<n2.n3>		2000		* bb PPEM302 gghh TBL
			2003		
	Atmif/<n> Vpt/<n2>		3000		* bb PPEM300 gghh TBL
	Atmif/<n>		4001		**bb PPEM300 gghh TBL

Passport Index Group	Component Name	PP/PVG configuration (N/A)	Passport SubIndex	Importance Category (N/A)	SCC2 Header
	Atmif/<n>		5000		*Cbb PPEM300 gghh TBL
7041	ATM Networking alarms. AtmIf instance range (<n>): 1-4095 Vpt instance range (<n2>): 0-4095 CfgNode instance range (<n>): 0-104				
	Atmif/<n> Uni Ilmi		0050		**bb PPEMeee gghh TBL where: eee = 300, 303
	Atmif/<n> Uni Sig Atmif/<n> Pnni Sig		0150		**bb PPEM300 gghh TBL
	Atmif/<n> Uni Sig Atmif/<n> Pnni Sig Atmif/<n> Uni Ilmi Atmif/<n> Pnni Rcc		0200		**bb PPEM300 gghh TBL
	Atmif/<n> Pnni Rcc		0250		**bb PPEM300 gghh TBL
	Atmif/<n> Pnni Rcc		0253		**bb PPEM300 gghh TBL
	Artg Pnni		0301		**bb PPEM300 gghh TBL
	Artg Pnni CfgNode<n> Rcc		0302		**bb PPEM300 gghh TBL
	Atmif/<n> Uni Atmif/<n> Pnni		0400		* bb PPEM300 gghh TBL
	Atmif/<n>		0401		**bb PPEM30? gghh TBL
	Atmif/<n> Uni Atmif/<n> Pnni		0500		* bb PPEM300 gghh TBL
	Atmif/<n> Uni Atmif/<n> Pnni		0600 0601		* bb PPEM302 gghh TBL
	Artg Pnni CfgNode /<n>		0700		**bb PPEM300 gghh TBL
	Atmif/<n> Pnni Rcc		0701		**bb PPEM300 gghh TBL
	Artg Pnni CfgNode /<n>		0703		* bb PPEM300 gghh TBL
7042	Circuit Emulation Service (CES) alarms. Aal1Ces instance range (<n>) : 1-16383				
	Aal1Ces/<n>		0001		**bb PPEM301 gghh TBL
	Aal1Ces/<n>		0002		**bb PPEM302 gghh TBL
	Aal1Ces/<n>		0003		**bb PPEM300 gghh TBL
7054	Sparing panel subsystem alarms. Card instance range (<n>): 0-15				
	Shelf Card/<n>		0100 0101		**bb PPEM303 gghh TBL

Passport Index Group	Component Name	PP/PVG configuration (N/A)	Passport SubIndex	Importance Category (N/A)	SCC2 Header
			0102		
			0103		
			0104		
			0105		
7056	Voice Services Processor (VSP) / Narrowband Service Trunk over ATM (Nsta) This group is specific to PVG application (e.g. severe failure of the VSP card) Lp instance range (<x>): 0-15 PModule instance range (<y>): 1-24 PBlock instance range (<z>): 1-2 NSTA instance range (<i>): 0-15999 GigE instance range (<m>): 0-1 Control instance range (<n>): mg or sg Conn instance range (<l>): 0-128 Brag instance range (<d>): 0-159999 Q921 instance range (<r>): 1-31 LapV5 instance value (<w>): 15, 16, 31 Tag instance range (<u>): 0-16777215 AtmTConn instance range (<h>): 1-2700 (max 4094) dBrag instance range (<t>): 0-127 BragS instance range (<k>): 0-15 CasDefn instance range (<z>): 0-24				
	Lp/<x> Vsp PModule/<y>		0002		** bb PPEM306 gghh TBL
	Lp/<x> Vsp PModule/<y> PBlock/<z>		0003		*Cbb PPEM303 gghh TBL
	Lp/<x> Vsp GigE/<m>		0500		** bb PPEM300 gghh TBL
			0501		
			0502		
	Nsta/<i> Conn/<l> Nsta/<i> Vgs AtmTConn/<h>		1000		**bb PEM300 gghh TBL
	Nsta/<l> Vgs		1200		* bb PPEM300 gghh TBL
	Nsta/<i> Vgs IpMConn		1201		** bb PPEM300 gghh TBL
	Nsta/<i> Vgs Control/<n> Mediagateway Nsta/<i> Vgs Control/<n> Signalingateway		1202		** bb PPEM300 gghh TBL

Passport Index Group	Component Name	PP/PVG configuration (N/A)	Passport SubIndex	Importance Category (N/A)	SCC2 Header
	Nsta/<i> Vgs Control/<n> MediaGataway Aap Nsta/<i> Vgs Control/<n> Signalinggateway Aap Nsta/<i>Vgs Control/<n> SpvcAp Nsta/<i> Vgs IpMConn Aap Nsta/<i> Vgs IpMConn SpvcAp Nsta/<i> Vgs AtmTConn/<h> Aap Nsta/<I> Vgs AtmTConn/<h> Aap		1203		** bb PPEM300 gghh TBL
	Nsta/<i> Vgs		1204		* bb PPEM302 gghh TBL
	Nsta/<i> Vgs CasDefn/<z>		1208		* bb PPEM302 gghh TBL
	Lp/<x> Vsp PModule/y>		1209		* bb PPEM303 gghh TBL
	Nsta/<x> Vgs Brag/<d> Q921/<r> Nsta/<i> Vgs BragS/<k> dBrag/<t> Q921		1210		** bb PPEM300 gghh TBL
	Nsta/<x> Vgs Iua		1211		** bb PPEM300 gghh TBL
	Nsta/<x> Vgs Brag/<d> V5Link LapV5/<w>		1213		** bb PPEM300 gghh TBL
	Nsta/<x> Vgs Tag/<u>		1217		*Cbb PPEM302 gghh TBL
7060	ATM and Frame Resource Control alarms. LP instance range (<n>): 0-15 Aqm instance range (<n2>): 0-3				
	LP/<n> Eng Fcrc		1000		**bb PPEM300 gghh TBL
	LP/<n> Eng Arc Aqm/<n2>		1100		* bb PPEM300 gghh TBL

The following table specifies the alarms where field “event” has the value “message”. There won’t be a “clear” for these, but some action may still be required (e.g., security issue).

Table 3 Passport 15000 Message Alarms Supported for Succession VOA/VOIP

Passport Index Group	Component Name	Solution Notes	Passport Subindex	Importance Category	SCC2 Header
0000	OSI administrative state changes, general engineering and memory alarms, etc.				
	These alarms can apply to many Passport components. Often, it is: EM/<nodename>		9000		* bb CA eee gghh TBL where:
			9001		
			9002		

Passport Index Group	Component Name	Solution Notes	Passport Subindex	Importance Category	SCC2 Header
			9003		eee = 300, 302
7000	Provisioning alarms. These alarms apply to failures resulting from provisioning attempts. e.g., loading a provisioning file has failed.				
	Prov		0001		*Cbb PPEM302 gghh TBL
	Prov		0002		* bb PPEM302 gghh TBL
	Prov		0003		*Cbb PPEM302 gghh TBL
	Prov		0004		*Cbb PPEM302 gghh TBL
	Prov		0005		* bb PPEM302 gghh TBL
	Prov		0006		*Cbb PPEM302 gghh TBL
	Prov		0008		**bb PPEM302 gghh TBL
	Prov		0009		**bb PPEM302 gghh TBL
	Prov		0012		* bb PPEM306 gghh TBL
	Prov		0013		* bb PPEM302 gghh TBL
	Prov		0015		* bb PPEM302 gghh TBL
	Prov		0016		* bb PPEM30? gghh TBL
	Prov		0029		* bb PPEM30? gghh TBL
	Prov		0030		* bb PPEM30? gghh TBL
	Prov		0031		* bb PPEM302 gghh TBL
	Prov		0032		* bb PPEM30? gghh TBL
	This alarm can apply to many Passport components.		0035		* bb PPEM307 gghh TBL
	Prov		0039		* bb PPEM306 gghh TBL
7002	Backplane control system alarms; e.g., communication failure between a card and the backplane. Note: Card instance range (<n>): 0-15 FabricCard instance range (<i>): X,Y				
	Shelf FabricCard/<i>		0010		* bb PPEM303 gghh TBL
	Shelf FabricCard/<i>		0012		* bb PPEM303 gghh TBL
	Shelf FabricCard/<i>		0013		* bb PPEM303 gghh TBL
	Shelf FabricCard/<i>		0014		* bb PPEM303 gghh TBL

Passport Index Group	Component Name	Solution Notes	Passport Subindex	Importance Category	SCC2 Header
	Shelf Card/<n>		1000		*Cbb PPEM303 gghh TBL
7003	Data collection system alarms; e.g., an alarm or log queue size has exceeded a threshold. Collector instance range (<t>): accounting, alarm, log, debug, scn, trap, stats, rtstats, appl Agent instance range (<n>): 0-15				
	Collector/<t> Agent/<n>		0004		* bb PPEM301 gghh TBL
	Collector/<t> Spooler		0008		* bb PPEM306 gghh TBL
7006	Network Management Interface system alarms. Management Interface type (<type>): Fmip, Ftp, Local, Telnet Session instance range (<n>): 1-35 (Fmip); 1-16 (Ftp); 1-2 (Local); 1-16 (Telnet)				
	Nmis <type>		0001		**bb PPEM305 gghh TBL
	Nmis <type> Session/<n>		0002		* bb PPEM305 gghh TBL
	Nmis <type> Session/<n>		0003		**bb PPEM300 gghh TBL
	Nmis Ftp		0005		**bb PPEM302 gghh TBL
	Nmis Fmip		0006		**bb PPEM305 gghh TBL
	Nmis <type> Session/<n>		0007		**bb PPEM300 gghh TBL
	Nmis Fmip		0008		**bb PPEM300 gghh TBL
7008	File system alarms. Disk instance range (<n>): 0-1				
	FileSystem		1003		**bb PPEM302 gghh TBL
	FileSystem Disk/<n>		1012		* bb PPEM303 gghh TBL
	FileSystem Disk/<n>		1013		**bb PPEM303 gghh TBL
	FileSystem Disk/<n>		1014		**bb PPEM307 gghh TBL
	FileSystem Disk/<n>		1015		* bb PPEM307 gghh TBL
	FileSystem Disk/<n>		1016		* bb PPEM307 gghh TBL
	FileSystem Disk/<n>		1018		* bb PPEM303 gghh TBL
	FileSystem		1020		* bb PPEM303 gghh TBL
	Shelf Card/<x>		1021		**bb PPEM303 gghh TBL
7011	Port management system and Automatic Protection Switching alarms. LP instance range (<n>): 0-15 Port types (<type>): Sonet, DS3 Sonet instance range (<n2>): 0-15 (16-port); 0-3 (4-port) DS3 instance range (<n2>): 0-11 (12-port); 0-3 (4-port)				

Passport Index Group	Component Name	Solution Notes	Passport Subindex	Importance Category	SCC2 Header
	LP/<n> <type>/<n2>		2002		**bb PPEM303 gghh TBL
	LP/<n> DS3/<n2>		5112		* bb PPEM300 gghh TBL
	LP/<n> <type>/<n2>		8000		* bb PPEM300 gghh TBL
7012	Processor control system alarms. LP instance range (<n>): 0-15 Card instance range (<n>): 0-15				
	Shelf		0054		**bb PPEM303 gghh TBL
	Shelf Card/<n>		0101		* bb PPEM303 gghh TBL
	Shelf Card/<n>		0102		* bb PPEM301 gghh TBL
	Shelf Card/<n>		0151		**bb PPEM302 gghh TBL
			0152		
			0153		
	Shelf Card/<n>		0154		**bb PPEM303 gghh TBL
			0155		
			0156		
	LP/<n>		0201		* bb PPEM306 gghh TBL
	LP/0		0203		* bb PPEM303 gghh TBL
	LP/<n>		0204		* bb PPEM306 gghh TBL
	Shelf Card/<n> SpServ		0300		aabb PPEMeee gghh TBL where: aa = “*C”, “* “ eee=any
7015	Network time-of-day (TOD) synchronization alarms.				
	Time		0001		* bb PPEMeee gghh TBL eee=304, 306, 307
7017	Network clock synchronization alarms.				
	Ns		1001		* bb PPEM301 gghh TBL
7021	Internet protocol alarms. For Succession VOA, the IP stack is used only for network management connectivity purposes. For VOIP VR is used to connect to IP network. OSPF and IP static Routes can be used. More than 1 VR can be provisioned. VR instance range (<i>): any string, but often specified simply as a digit (e.g., “0”)				
	VR/<i> Ip		0000		* bb PPEM300 gghh TBL
	VR/<i> Ip OSPF		1000		
	VR/<i> Ip OSPF		1001		
	VR/<i> Ip OSPF		1002		
	VR/<i> Ip OSPF		1003		

Passport Index Group	Component Name	Solution Notes	Passport Subindex	Importance Category	SCC2 Header
	VR/<i> Ip OSPF		1011		
			1016		
	VR/<i> Ip OSPF		1017		
	VR/<I> Ip OSPF		1100		
	VR/<i> Ip		4000		
	Vr/<i>		1021		**bb PPEM302 gghh TBL
	Vr/<i> Ip Ospf		1101		* bb PPEM302 gghh TBL
7026	LAN port management system alarms. For Succession VOA, the LAN port management system is used only for network management connectivity purposes. For VOIP same alarms are used.				
	LP/0 OamEnet/0		3002		* bb PPEM30? gghh TBL
	LP/0 OamEnet/0		3003		* bb PPEM303 gghh TBL
	LP/0 OamEnet/0		3006		* bb PPEM302 gghh TBL
7039	ATM Core alarms. AtmIf instance range (<n>): 1-4095 Vcc instance range (<n2.n3>): n2 is VPI; n3 is VCI				
	Atmif/<n> Vcc/<n2.n3>		2001		* bb PPEM302 gghh TBL
	Atmif/<n>		4000		* bb PPEM300 gghh TBL
7041	ATM Networking alarms. AtmIf instance range (<n>): 1-4095 CfgNode instance range (<n>): 0-104 Top instance range (<n>): 0-104 Node instance range (<id>): 44-hex digit id Vpt instance range (<n2>): 0-4095				
	Atmif/<n> Uni		0000		* bb PPEM306 gghh TBL
	Atmif/<n> Uni		0001		* bb PPEM303 gghh TBL
	Atmif/<n> Uni Ilmi		0051		**bb PPEM300 gghh TBL
	Atmif/<n> Uni Atmif/<n> Pnni Atmif/<n> Vpt/<n2> Uni Atmif/<n> Vpt/<n2> Pnni		0151		*Cbb PPEM300 gghh TBL
	Atmif/<n> Pnni Rcc		0251		**bb PPEM300 gghh TBL
	Atmif/<n> Pnni Rcc		0252		**bb PPEM300 gghh TBL
	Artg Pnni Top/<n> Node/<id>		0602		**bb PPEM301 gghh TBL

Passport Index Group	Component Name	Solution Notes	Passport Subindex	Importance Category	SCC2 Header
	Artg		0603		**bb PPEM303 gghh TBL
7056	Voice Services Processor (VSP) / Narrowband Service Trunk over ATM (Nsta) This group is specific to PVG application (e.g. severe failure of the VSP card) Lp instance range (<x>): 0-15 PModule instance range (<y>): 1-24 PBlock instance range (<z>): 1-2 NSTA instance range (<i>): 0-15999 Conn instance range (<l>): 0-128 Brag instance range (<d>): 0-159999 BragS instance range (<p>): 0-15				
	Lp/<x> Vsp PModule/<y>		0006		* bb PPEM303 gghh TBL
	Nsta/<i> Conn/<l> Brag/<d> Ccst		1101		* bb PPEM300 gghh TBL
	Nsta/<i> Vgs lua		1212		* bb PPEM300 gghh TBL
	Lp/<x> Vsp PModule/<y>		1214		**bb PPEM302 gghh TBL
	Nsta/<i> Vgs BragS/<p>		1215		** bb PPEM302 gghh TBL
7060	ATM and Frame Resource Control alarms. LP instance range (<n>): 0-15				
	LP/<n> Eng Arc Ov		1200		* bb PPEM301 gghh TBL
	LP/<n> Eng		1300		
	LP/<n> Eng		1400		
	LP/<n> Eng		1500		
	LP/<n> Eng		1600		
7071	LAN ApplicationLAN application instance (<n>): 0-255				
	LA/<n>		1000		*Cbb PPEM302 gghh TBL
7080	Software file system. <name> = name of the software application				
	Sw Av/<name>		0100		**bb PPEM302 gghh TBL

Reference [3] provides detailed descriptions of Passport alarm logs, of which only a portion are applicable for Succession VOA/VOIP.

MDM Alarm Logs

Table 4 presents the list of MDM and MDM proxy set/clear alarm logs that are applicable for Succession VOA/VOIP.

Applicable MDM set/clear alarms logs include those due to MDM software failure, and alarms related to the monitoring of the platform on which MDM is operating. MDM proxy alarm logs are alarms that MDM initiates on behalf of Passport (for a number of reasons) and injects into the Passport alarm log stream.

The table does not explicitly state all MDM clear alarm logs that correspond to each set. The clear differs from its corresponding set by only the first two characters. The characters “aa” are replaced by “ “ (two spaces). This format is presented in Table 1.

The MDM alarm identifier consists of an eight-digit number identifying the alarm. The first four digits comprise the **Index Group**, which represents logical groupings of alarms. The last four digits are the **SubIndex**, which is an identifier within each index group.

Component Name indicates the managed object against which the alarm Log is generated. This table contains the CLI format of a component name. The “compId” field in SCC2 format contains this information (with the module’s <nodename> pre-pended). Also, “compId” follows the MDM API-style format (with component type and instance separated by a space instead of a slash, and ‘$’ appearing in place of a null instance value). Variables (usually instance value ranges) are denoted by <> and the reader should reference the Alarms NTP’s [3] and [4] for further information.

Table 4 MDM Set/Clear Alarms Supported for Succession VOA/VOIP

MDM Index Group	Component Name	N/A	MDM SubIndex	Importance category (N/A)	SCC2 Header
0999	Loss of access to a Passport shelf from MDM. MDM tries to reconnect and when it succeeds in doing so, will do a “state walk” of major components on the shelf and issue alarms for those components that are out-of-service. EM instance range (<nodename>): a string, typically the CLLI identifier for the PP15000				
	EM/<nodename>		0001		*Cbb MDM 303 gghh TBL
0999	MDM Proxy-alarm. MDM-originated alarm sent on behalf of the Passport, either due to a state walk or a state-change notification.				
	This alarm can apply to many Passport components.		0012		**bb PPEMeee gghh TBL where: eee = 300, 301, 302, 303, 304, 305, 306, 307
3010	Indicates faults on MDM server processes, which are needed by the MDM tools/applications. The MDM Log Display GUI or corresponding Unix Utility (nmslog) may also be used to find the information for the cause of the problem. NMS instance range (<x>): a string, typically the hostname of the MDM server platform APP instance range (<a>): a string, denoting the name of an MDM software application GROUP instance range (<g>): a string, which is the HGDS group name for a set of Passports PP instance range (<nodename>): a string, typically the CLLI identifier for the PP15000				
	NMS/<x> APP/<a>		0000		**bb MDM 302 gghh TBL
	NMS/<x> GROUP/<g>		0700		* bb MDM 305 gghh TBL

MDM Index Group	Component Name	N/A	MDM SubIndex	Importance category (N/A)	SCC2 Header
	NMS/<x> PP/<nodename>		0701		* bb MDM 300 gghh TBL
	NMS/<x> PP/<nodename>		0702		* bb MDM 300 gghh TBL
	NMS/<x> APPL/TODCHANGEOVER		0703		* bb MDM 304 gghh TBL
3011	MDM Platform monitoring; e.g. Solaris and Sun monitoring, including: CPU, disk space, memory, local ports and connectivity to adjacent neighbors. The severity of resource problems are determined via thresholds. Connectivity problems are determined using ping command. NMS instance range (<x>): a string, typically the hostname of the MDM server platform APP instance range (<a>): a string, denoting the name of an MDM software application DISK instance range (<v>): a string, denoting disk volume name CPU instance range (<c>): a string, denoting the CPU id PORT and CONNECTION instance range (<ip>): an IP address or host name SDS instance range (<d>): logical disk name				
	NMS/<x> APP/<a>		0001		*Cbb MDM 303 gghh TBL
	NMS/<x> DISK/<v>		0100		aabb MDM 303 gghh TBL where: aa = “*C”, “**”, “* ”
	NMS/<x> CPU/<c>		0200		aabb MDM 303 gghh TBL where: aa = “*C”, “**”, “* ”
	NMS/<x> MEMORY		0300		aabb MDM 303 gghh TBL where: aa = “*C”, “**”, “* ”
	NMS/<x> PORT/<ip>		0401		**bb MDM 303 gghh TBL
	NMS/<x> CONNECTION/<ip>		0501		*Cbb MDM 303 gghh TBL
	NMS/<x> SDS/<d>		0600		*Cbb MDM 303 gghh TBL
	NMS/<x>		0700		aabb MDM 303 gghh TBL where: aa = “*C”, “**”
600x	MDP application alarms. NMS instance range (<x>): a string, typically the hostname of the MDM server platform MDP instance range (<a>): a string, denoting the name of an MDP software application				
	NMS/<x> MDP/<a>		00001-40000		aabb MDM 307 gghh TBL where: aa = “*C”, “**”, “* “

Reference [4] provides detailed descriptions of MDM and MDM proxy alarm logs, of which only a portion are applicable for Succession VOA/VOIP.

SN06(VOA)-to-SN06.2(VOA/VOIP) Delta Summary

The following table captures the SN06.2 (VOA/VOIP) alarm log delta that includes PVG application as compared with SN06 (VOA) documentation that did not include any PVG application specifics

Table 5 SN06 (non PVG content) -to-SN06.2 (including PVG content) Change Summary Description

Fault Code	Description of Change
SET ALARMS	
70115400	New
70115401	New
70115402	New
70115403	New
70115480	New
7026 3000	New
7056 0002	New
7056 0003	New
7056 0500	New
7056 0501	New
7056 0502	New
7056 1000	New
7056 1200	New
7056 1201	New
7056 1202	New
7056 1203	New
7056 1204	New
7056 1209	New
7056 1210	New
7056 1211	New
7056 1213	New
MESSAGE Alarms	
7000 0039	New
7021 1000	New
7021 1002	New
7021 1003	New
7021 1004	New
7021 1005	New
7021 1006	New
7021 100B	New
7021 1100	New
7056 1101	New
7056 1212	New
70561214	New
7056 1215	New
7060 1300	New

7060 1400	New
7060 1500	New
7060 1600	New
7071 1200	New

SN06.2-to-SN07(VOA/VOIP) Delta Summary

The following table captures the SN07 (VOA/VOIP) alarm log delta as compared with SN06.2 (VOA/VOIP) documentation.

Table 6 SN06.2-to-SN07 Change Summary Description

Fault Code	Description of Change
SET ALARMS	
7000 0041	New
7003 0008	New
7011 1500	New
7011 1501	New
7011 5254	New
7011 5255	New
7011 5256	New
7012 0059	New
7021 0013	New
7021 0014	New
7041 0700	New
7041 0701	New
7041 0703	New
7056 1208	New
7056 1217	New
MESSAGE Alarms	
7008 1021	New
7021 1021	New
7021 1101	New
7041 0151	New
7056 0006	New
7080 0100	New

References

1. Passports and MDM Logs, draft 1.2, March 2001 (PassportMDMLog_v1.2.doc), by the SDM team.
2. Passport 15000 for Universal Access – AAL1 (SN06) Integrated Solution Specification, Issue 3.04, Oct 22, 2002
3. NTP 241-5701-500 Passport 6400, 7400, 15000, 20000 Alarms, 5.2S1, Nov/2003.
4. NTP 241-6001-501 MDM Proxy Alarms Reference Guide, 14.3RSUP, 2003.
5. NTP 241-6001-309 Preside MDM Management Data Provider User Guide, 14.3RSUP, 2003.
6. Supernode Data Manager - Log Applications Enhancement Design Summary (DSUM), 2002.
7. NTP NN10600-500 Multiservice Switch 7400/15000/20000 Alarms Reference, 6.1M2, July 2004

Appendix D: USP OMs

OM TYPE	OM TITLE	OM DESCRIPTION
Accumulation OM	ATM Driver Messaging, Plane 1 CRC Error Count	This OM measures the number of Plane 1 CRC errors.
Accumulation OM	ASP Path Management, Application Server became Active	This OM measures the total number of times per measurement period that an Application Server became active either by a controlled or a forced change of activity.
Accumulation OM	ASP Path Management, Application Server became Inactive	This OM measures the total number of times per measurement period that an Application Server became inactive either by a controlled or a forced change of activity.
Accumulation OM	ASP Path Management, Path Active Time	This OM measures the total time that a Path was inactive and in the Restoring state.
Accumulation OM	ASP Path Management, Path entered Active state	This OM measures the total number of times per measurement period that a Path entered the Active state.
Accumulation OM	ASP Path Management, Path entered Down state	This OM measures the total number of times per measurement period that a Path entered the Down state.
Accumulation OM	ASP Path Management, Path entered Restoring state	This OM measures the total number of times per measurement period that a Path entered the Restoring state.
Accumulation OM	ASP Path Management, Path Inactive Time	This OM measures the total time that a Path was inactive and in the Restoring state.
Accumulation OM	ASP Path Traffic, Discarded MSUs Count	This OM measures the total number of received MSUs on an ASP Path which were discarded because the Network Appearance (or System Identity) associated with the incoming message was not found on the USP.
Accumulation OM	ASP Path Traffic, Originated MSUs Count	This OM measures the number of originated MSUs (MSUs that contain the PC or capability code for the USP in the OPC field) that are successfully passed to the ASP Path for transmission (for example, network management messages).
Accumulation OM	ASP Path Traffic, Received MSUs Count	This OM measures the total number of received MSUs on an ASP Path.
Accumulation OM	ASP Path Traffic, Terminated MSUs Count	This OM measures the number of terminated MSUs (acknowledged, incoming MSUs that contain the PC or capability code of the USP in the DPC field) received.
Accumulation OM	ASP Path Traffic, Through-Switched MSUs Count	This OM measures the number of through-switched MSUs (MSUs that do not contain the PC or capability code for the USP in either the OPC or DPC) that are acknowledged, translated, and successfully passed to the ASP Path for transmission.
Accumulation OM	ASP Path Utilization, DAUD Received Count	This OM measures the number of destination audit (DAUD) messages transmitted.
Accumulation OM	ASP Path Utilization, DAVA Transmitted Count	This OM measures the number of destination available (DAVA) messages transmitted.
Accumulation OM	ASP Path Utilization, DUNA Transmitted Count	This OM measures the number of destination unavailable messages transmitted.
Accumulation OM	ASP Path Utilization, SCON Transmitted Count	This OM measures the number of Signaling Congestion (SCON) messages transmitted.
Accumulation OM	ATM Driver Messaging, Duplicate Messages Count	This OM measures the number of duplicate messages.
Accumulation OM	ATM Driver Messaging, IP Message Count	This OM measures the number of incoming IP messages.
Accumulation OM	ATM Driver Messaging, Plane 1 Messages Count	This OM measures the number of incoming Plane 1 messages.
Accumulation OM	ATM Driver Messaging, Plane 2 CRC Error Count	This OM measures the number of Plane 2 CRC errors.
Accumulation OM	ATM Driver Messaging, Plane 2 Messages Count	This OM measures the number of incoming Plane 2 messages.
Accumulation OM	ATM Driver Messaging, Raw Cell Count	This OM measures the number of raw cells. Raw cells are typically bad cells or OAM cells.

Accumulation OM	ATM Driver Messaging, Raw Message Count	This OM measures the number of ATM raw messages. Raw messages are messages not assigned to a protocol.
Accumulation OM	ATM Driver Messaging, Sequence Number Reset Count	This OM measures the number of times the sequence numbers are reset due to the receipt of five consecutive duplicate cells.
Accumulation OM	ATM Driver Messaging, SSCOP Message Count	This OM measures the number of incoming SSCOP messages.
Accumulation OM	ATM Link Traffic, Discarded cells with HEC Viol.	This OM measures the number of ATM cells discarded due to Header Error Control (HEC) violations.
Accumulation OM	ATM Link Traffic, Discarded cells with Prot. Errs	This OM measures the number of cells discarded due to Protocol (ATM-Layer Header) Errors.
Accumulation OM	ATM Link Traffic, In NDC-valid cells on HSL VCL	This OM measures the number of incoming Network Data Collection (NDC) valid cells on the High Speed Links (HSL) VCL.
Accumulation OM	ATM Link Traffic, Incoming ATM UI cells	This OM measures the number of incoming ATM User Information (UI) cells.
Accumulation OM	ATM Link Traffic, OCD Anomalies	This OM measures the number of Out of Cell Delineation (OCD) anomalies.
Accumulation OM	ATM Link Traffic, Out NDC-valid cells on HSL VCL	This OM measures the number of outgoing Network Data Collection (NDC) valid cells on the High Speed Links (HSL) VCL.
Accumulation OM	ATM Link Traffic, Outgoing ATM UI cells	This OM measures the number of outgoing ATM User Information (UI) cells.
Accumulation OM	BICC Received Message Counts, BICC Call P Received Count	This OM measures the number of BICC call processing messages received from the SS7 Network.
Accumulation OM	BICC Received Message Counts, BICC Error No OPC Route	This OM measures the number of BICC messages discarded as a result of not being able to find the associated OPC route for the received BICC message.
Accumulation OM	BICC Received Message Counts, BICC Error No Path	This OM measures the number of BICC messages discarded as a result of not being able to find an inservice path to a given AS.
Accumulation OM	BICC Received Message Counts, BICC Error No Route	This OM measures the number of BICC messages discarded as a result of not being able to find a route to a given AS.
Accumulation OM	BICC Received Message Counts, BICC Maint Received Count	This OM measures the number of BICC maintenance messages received from the SS7 Network.
Accumulation OM	BICC Received Message Counts, Wrong NE Received Count	This OM measures the number of BICC messages discarded as a result of not receiving the message for a SG Network Element.
Accumulation OM	Carrier, Far End Line - Errored Seconds	This OM measures the Far End Performance data: Far End Errored Seconds - Line.
Accumulation OM	Carrier, Far End P - Sev Err Frm/AIS Sec	This OM measures the Far End Performance data: Far End Severely Errored Frame/AIS Seconds - Path.
Accumulation OM	Carrier, Far End P - Severely Err Secs	This OM measures the Far End Performance data: Far End Severely Errored Seconds - Path.
Accumulation OM	Carrier, Far End P - Unavailable Seconds	This OM measures the Far End Performance data: Far End Unavailable Seconds - Path.
Accumulation OM	Carrier, Far End Path - Code Violations	This OM measures the Far End Performance data: Far End Code Violations - Path.
Accumulation OM	Carrier, Far End Path - Controlled Slips	This OM measures the Far End Performance data: Far End Controlled Slips - Path.
Accumulation OM	Carrier, Far End Path - Errored Seconds	This OM measures the Far End Performance data: Far End Errored Seconds - Path.
Accumulation OM	Carrier, Far End Path - Failure Count	This OM measures the Far End Performance data: Far End Failure Count - Path.
Accumulation OM	Carrier, Line - Code Violations	This OM measures the Near End Performance data: Code Violations - Line.
Accumulation OM	Carrier, Line - Errored Seconds	This OM measures the Near End Performance data: Errored Seconds -Line.

Accumulation OM	Carrier, Line - Loss of Signal Seconds	This OM measures the Near End Performance data: Loss of Signal Seconds - Line. All performance parameters including this parameter are defined in ANSI T1.231-1997 'Digital Hierarchy - Layer 1 in-Service Digital Transmission Performance Monitoring'.
Accumulation OM	Carrier, Line - Severely Errored Seconds	This OM measures the Near End Performance data: Severely Errored Seconds - Line.
Accumulation OM	Carrier, P - Severely Err Frame/AIS Secs	This OM measures the Near End Performance data: Severely Errored Frame/AIS Seconds - Path.
Accumulation OM	Carrier, Path - AIS Seconds	This OM measures the Near End Performance data: AIS Seconds - Path.
Accumulation OM	Carrier, Path - Code Violations	This OM measures the Near End Performance data: Code Violations - Path.
Accumulation OM	Carrier, Path - Errored Seconds	This OM measures the Near End Performance data: Errored Seconds - Path.
Accumulation OM	Carrier, Path - Failure Count	This OM measures the Near End Performance data: Failure Count - Path.
Accumulation OM	Carrier, Path - Severely Errored Seconds	This OM measures the Near End Performance data: Severely Errored Seconds - Path.
Accumulation OM	Carrier, Path - Unavailable Seconds	This OM measures the Near End Performance data: Unavailable Seconds - Path.
Accumulation OM	Gateway Screening Results, Disallowed Cld Party Addr Count	This OM measures the number of MSUs rejected on a particular link, because of disallowed SCCP Called Party Addresses.
Accumulation OM	Gateway Screening Results, Disallowed ISUP Count	This OM measures the number of MSUs rejected on a particular link, because of a disallowed ISDN User Part message type.
Accumulation OM	Gateway Screening Results, Disallowed Trans Type Count	This OM measures the number of MSUs rejected on a particular link, because of a disallowed SCCP GTT type.
Accumulation OM	Gateway Screening Results, Invalid Affct Destination Count	This OM measures the number of MSUs rejected on a particular link, because the destination fields in signaling-routeset-test, TFx/TCx, or TFC messages from the MSUs did not pass GWS checking based on the provisioned criteria.
Accumulation OM	Gateway Screening Results, Invalid Affct PC-SSN Count	This OM measures the number of MSUs rejected on a particular link, because the affected PCs in SCCP subsystem-prohibited (SSP) and subsystem-allowed (SSA) messages and an invalid PC or SSN in SCCP subsystem-status-test (SST) messages from the MSUs did not pass GWS checking based on the provisioned criteria.
Accumulation OM	Gateway Screening Results, Invalid Cng Party Addr Count	This OM measures the number of MSUs rejected on a particular link, because the Calling Party Addresses (PC or SSN) from the MSUs did not pass GWS checking based on the provisioned criteria.
Accumulation OM	Gateway Screening Results, Invalid DPC Count	This OM measures the number of MSUs rejected on a particular link, because the DPCs from the MSUs did not pass GWS checking based on the provisioned criteria.
Accumulation OM	Gateway Screening Results, Invalid OPC Count	This OM measures the number of MSUs rejected on a particular link, because the OPCs from the MSUs did not pass GWS checking based on the provisioned criteria.
Accumulation OM	Gateway Screening Results, Invalid SIO Count	This OM measures the number of MSUs rejected on a particular link, because the SIOs from the MSUs did not pass GWS checking based on the provisioned criteria.
Accumulation OM	GTT Type, GTTs Not Performed Count	This OM measures the total number of GTTs that could not be performed for a particular translation type (all reasons).
Accumulation OM	GTT Type, GTTs Performed Count	This OM measures the total number of MSUs that successfully completed GTT (that is, a match was found for the global title) for a particular translation type.

Accumulation OM	GTT Type, No Translation for Addr Count	This OM measures the number of times the Address Not Found error was encountered for a particular translation type (that is, there was no match found for the global title in the GTT table).
Accumulation OM	ISUP Received Message Counts, ACM Received Count	This OM measures the number of ISUP Address Complete Messages (ACM) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, ALT Received Count	This OM measures the number of ISUP Altering Messages (ALT) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, ANM Received Count	This OM measures the number of ISUP Answer Messages (ANM) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, BLA Received Count	This OM measures the number of ISUP Blocking Acknowledgement (BLA) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, BLO Received Count	This OM measures the number of ISUP Blocking Messages (BLO) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, CCR Received Count	This OM measures the number of ISUP Continuity Check Request Messages (CCR) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, CFN Received Count	This OM measures the number of ISUP Confusion Messages (CFN) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, CGB Received Count	This OM measures the number of ISUP Circuit Group Blocking Messages (CGB) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, CGBA Received Count	This OM measures the number of ISUP Circuit Group Blocking Acknowledgement Messages (CGBA) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, CGU Received Count	This OM measures the number of ISUP Circuit Group Unblocking Messages (CGU) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, CGUA Received Count	This OM measures the number of ISUP Circuit Group Unblocking Acknowledgement Messages (CGUA) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, CMC Received Count	This OM measures the number of ISUP Call Modification Completed Messages (CMC) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, CMR Received Count	This OM measures the number of ISUP Call Modification Request Messages (CMR) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, CMRJ Received Count	This OM measures the number of ISUP Call Modification Rejected Messages (CMRJ) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, CON Received Count	This OM measures the number of ISUP Connect Messages (CON) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, COT Received Count	This OM measures the number of ISUP Continuity Test Messages (COT) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, CPG Received Count	This OM measures the number of ISUP Call Progress Messages (CPG) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, CQM Received Count	This OM measures the number of ISUP Circuit Query Messages (CQM) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, CQR Received Count	This OM measures the number of ISUP Circuit Query Response Messages (CQR) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, CRA Received Count	This OM measures the number of ISUP Circuit Reservation Acknowledgement Messages (CRA) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, CRG Received Count	This OM measures the number of ISUP Charge Information Messages (CRG) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, CRM Received Count	This OM measures the number of ISUP Circuit Reservation Messages (CRM) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, CSVR Received Count	This OM measures the number of ISUP Closed User Group Selection and Validation Request Messages (CSVR) received from the SS7 Network.

Accumulation OM	ISUP Received Message Counts, CSVS Received Count	This OM measures the number of ISUP Closed User Group Selection and Validation Response Messages (CSVS) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, CVR Received Count	This OM measures the number of ISUP Circuit Validation Response Messages (CVR) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, CVT Received Count	This OM measures the number of ISUP Circuit Validation Test Messages (CVT) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, DRS Received Count	This OM measures the number of ISUP Delayed Release Messages (DRS) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, EXM Received Count	This OM measures the number of ISUP Exit Messages (EXM) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, FAA Received Count	This OM measures the number of ISUP Facility Accepted Messages (FAA) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, FAC Received Count	This OM measures the number of ISUP Facility Messages (FAC) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, FAD Received Count	This OM measures the number of ISUP Facility Deactivated Messages (FAD) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, FAI Received Count	This OM measures the number of ISUP Facility Information Messages (FAM) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, FAR Received Count	This OM measures the number of ISUP Facility Request Messages (FAR) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, FOT Received Count	This OM measures the number of ISUP Forward Transfer Messages (FOT) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, FRJ Received Count	This OM measures the number of ISUP Facility Rejected Messages (FRJ) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, GRA Received Count	This OM measures the number of ISUP Circuit Group Reset Acknowledgement Messages (GRA) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, GRS Received Count	This OM measures the number of ISUP Circuit Group Reset Messages (GRS) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, IAM Received Count	This OM measures the number of ISUP Initial Address Message Messages (IAM) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, IAMN1 Received Count	This OM measures the number of ISUP Initial Address Message Not Priority One Messages (IAMN1) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, IDR Received Count	This OM measures the number of ISUP Identification Request Messages (IDR) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, INF Received Count	This OM measures the number of ISUP Information Messages (INF) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, INR Received Count	This OM measures the number of ISUP Information Request Messages (INR) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, IRS Received Count	This OM measures the number of ISUP Identification Response Messages (IRS) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, ISUP Error No AS for OPC/CIC	This OM measures the number of ISUP messages discarded as a result of not being able to find a valid AS for a given OPC/CIC.
Accumulation OM	ISUP Received Message Counts, ISUP Error No OPC/CIC Data	This OM measures the number of ISUP messages discarded as a result of missing database entry for a given OPC/CIC.
Accumulation OM	ISUP Received Message Counts, ISUP Error No Path	This OM measures the number of ISUP messages discarded as a result of not being able to find a path to a given AS.
Accumulation OM	ISUP Received Message Counts, ISUP Error No Route	This OM measures the number of ISUP messages discarded as a result of not being able to find a route to a given AS.
Accumulation OM	ISUP Received Message Counts, ISUP Error Unknown Message	This OM measures the number of unrecognized ISUP Messages received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, LOP Received Count	This OM measures the number of ISUP Loop Prevention Messages (LOP) received from the SS7 Network.

Accumulation OM	ISUP Received Message Counts, LPA Received Count	This OM measures the number of ISUP Loop Back Acknowledgement Messages (LPA) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, NRM Received Count	This OM measures the number of ISUP Network Resource Management Messages (NRM) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, PAM Received Count	This OM measures the number of ISUP Pass Along Message Messages (PAM) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, PRG Received Count	This OM measures the number of ISUP Progress Messages (PRG) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, REL Received Count	This OM measures the number of ISUP Release Messages (RLC) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, RES Received Count	This OM measures the number of ISUP Resume Messages (RES) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, RLC Received Count	This OM measures the number of ISUP Release Complete Messages (RLC) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, RPM Received Count	This OM measures the number of ISUP Reconfiguration Progress Message Messages (ACM) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, RSC Received Count	This OM measures the number of ISUP Reset Circuit Messages (RSC) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, SAM Received Count	This OM measures the number of ISUP Subsequent Address Message Messages (SAM) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, SGM Received Count	This OM measures the number of ISUP Segmentation Messages (SGM) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, SUS Received Count	This OM measures the number of ISUP Suspend Messages (SUS) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, UBA Received Count	This OM measures the number of ISUP Unblocking Acknowledgement Messages (UBA) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, UBL Received Count	This OM measures the number of ISUP Unblocking Messages (UBL) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, UCIC Received Count	This OM measures the number of ISUP Unequipped Circuit Identification Code Messages (UCIC) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, UPA Received Count	This OM measures the number of ISUP User Part Available Messages (UPA) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, UPT Received Count	This OM measures the number of ISUP User Part Test Messages (UPT) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, USR Received Count	This OM measures the number of ISUP User-to-User Information Messages (USR) received from the SS7 Network.
Accumulation OM	ISUP Received Message Counts, Wrong NE Received Count	This OM measures the number of ISUP messages discarded as a result of not receiving the message from at a SG Network Element
Accumulation OM	Link Faults and Performance, Number of negative ack received	1.9 of Q.752 This OM measures number of negative acknowledgements received on the link indicating that the far end did not receive the message correctly.
Accumulation OM	Link Faults and Performance, Number of SUs received in error	1.8 of Q.752 This OM measures signaling units on a link, received in error.
Accumulation OM	Link Faults and Performance, Octets Retransmitted	3.2 of Q.752 This OM counts number of bytes that are retransmitted. This count includes SIO, SIF, opening flags and check bits.
Accumulation OM	Link Faults and Performance, SL alignment or proving failure	1.7 of Q.752 This OM measures link synchronization failures during alignment or proving and indicates a signaling data link fault which prevents the SdL moving into service.

Accumulation OM	Link Faults and Performance, SL failure-Abnormal FIBR/BSNR	1.3 of Q.752 This OM measures link synchronization failures and indicates complex failures in transmission or an intermittent hardware fault or even designer error.
Accumulation OM	Link Faults and Performance, SL failure-All reasons	1.2 of Q.752 This OM measures in_service link failures due to any reason. It does not count link activation failures.
Accumulation OM	Link Faults and Performance, SL failure-Exc. delay of ack	1.4 of Q.752 This OM measures link synchronization failures and indicates serious disturbances or an interruption of signaling data link.
Accumulation OM	Link Faults and Performance, SL failure-Exc. duration of cong.	1.6 of Q.752 This OM measures link synchronization failures caused by prolonged congestion on the link.
Accumulation OM	Link Faults and Performance, SL failure-Excessive error rate	1.5 of Q.752 This OM measures link synchronization failures and indicates noisy link.
Accumulation OM	Link Faults and Performance, SL failure-Other reasons	This OM measures link synchronization failures due to reasons other than Abnormal FIBR/BSNR, Excessive delay of ack, Excessive error rate or Excessive duration of congestion .
Accumulation OM	Link Management, Changeover Procedure Count	This OM measures the number of times the changeover procedure is used to move traffic from a link taken out of service to one or more alternate in-service links.
Accumulation OM	Link Management, Far End Mgmt Inhibit Count	This OM measures the number of times a link was successfully inhibited from the far end.
Accumulation OM	Link Management, Level 1 Congestion Count	This OM measures the number of times a link entered Level 1 congestion from no congestion.
Accumulation OM	Link Management, Level 1 Congestion Duration	This OM measures the total time, in seconds, a link was in Level 1 congestion.
Accumulation OM	Link Management, Level 2 Congestion Count	This OM measures the number of times a link entered Level 2 congestion from Level 1 or no congestion.
Accumulation OM	Link Management, Level 2 Congestion Duration	This OM measures the total time, in seconds, a link was in Level 2 congestion.
Accumulation OM	Link Management, Level 3 Congestion Count	This OM measures the number of times a link entered Level 3 congestion from Level 1, Level 2, or no congestion.
Accumulation OM	Link Management, Level 3 Congestion Duration	This OM measures the total time, in seconds, a link was in Level 3 congestion.
Accumulation OM	Link Management, Link Available Duration	This OM measures the total time, in seconds, a link was available to MTP Level 3.
Accumulation OM	Link Management, Link Deactivated Duration	This OM measures the total time, in seconds, a link was manually made unavailable to MTP Level 3 by deactivation.
Accumulation OM	Link Management, Link Local Inhibit Duration	This OM measures the total time, in seconds, a link was manually made unavailable to MTP Level 3 by local inhibition.
Accumulation OM	Link Management, Link Remote Inhibit Duration	This OM measures the total time, in seconds, a link was manually made unavailable to MTP Level 3 by remote inhibition.
Accumulation OM	Link Management, Near End Forced Unavailable Count	This OM measures the number of times a link was manually made unavailable to MTP Level 3.
Accumulation OM	Link Management, RPO Count	This OM measures the number of times a link became unavailable to MTP Level 3 after the system received SIPO from the far end. This OM is not applicable for SAAL-based High Speed Links.
Accumulation OM	Link Management, RPO Cumulative Duration	This OM measures the total time, in seconds, that a link was unavailable to MTP Level 3 after the system received SIPO from the far end. This OM is not applicable for SAAL-based High Speed Links.
Accumulation OM	Link Management, Unavailable Duration	This OM measures the total time, in seconds, a link was unavailable (automatically or manually made unavailable) to MTP Level 3.

Accumulation OM	Link Traffic, MSUs Received Count	This OM measures the number of MSUs received on a link, including those MSUs for which retransmission was requested in the SS7 network. For the SAAL-based High Speed Links, the above description applies to Messages (MTP User Data + MTP L3 Data) instead of MSUs (MTP User Data + MTP L3 Data + MTP L2 Data).
Accumulation OM	Link Traffic, MSUs Requiring GTT Count	This OM measures the number of incoming MSUs that require GTT, regardless of the outcome of any GWS operation. For the SAAL-based High Speed Links, this count applies to Messages (MTP User Data + MTP L3 Data) instead of MSUs (MTP User Data + MTP L3 Data + MTP L2 Data).
Accumulation OM	Link Traffic, MSUs Transmitted Count	This OM measures the number of MSUs transmitted to the far end, including those MSUs that were retransmitted in the SS7 network. For the SAAL-based High Speed Links, the above description applies to Messages (MTP User Data + MTP L3 Data) instead of MSUs (MTP User Data + MTP L3 Data + MTP L2 Data).
Accumulation OM	Link Traffic, Network Indicator Discard Count	This OM measures the number of received MSUs which were discarded due to a mismatch between the MSU's network indicator (NI) and the NI provisioned in this system. The NI may be provisioned on a network appearance basis. For the SAAL-based High Speed Links, this count applies to Messages (MTP User Data + MTP L3 Data) instead of MSUs (MTP User Data + MTP L3 Data + MTP L2 Data).
Accumulation OM	Link Traffic, Octets Received Count	This OM measures the total number of octets actually received for all MSUs counted in the MSUs Received Count OM, before the octets are removed in MTP Level 2 processing for the SS7 network. For the MTP2-based links, this count accounts for MTP User Data + MTP L3 Data + MTP L2 Data octets. For the SAAL-based High Speed Links, this count applies to Message octets (MTP User Data + MTP L3 Data octets).
Accumulation OM	Link Traffic, Octets Requiring GTT Count	This OM measures the total number of MSU octets received for MSUs requiring GTT, including octets removed in MTP Level 2 processing. For the MTP2-based links, this count applies to MSU octets (MTP User Data + MTP L3 Data + MTP L2 Data octets). For the SAAL-based High Speed Links, this count applies to Message octets (MTP User Data + MTP L3 Data octets).
Accumulation OM	Link Traffic, Octets Transmitted Count	This OM measures the total number of octets actually transmitted for all MSUs counted in the MSUs Transmitted Count OM, including octets added in MTP Level 2 processing for the SS7 network. For the MTP2-based links, this count accounts for MTP User Data + MTP L3 Data + MTP L2 Data octets. For the SAAL-based High Speed Links, this count applies to Message octets (MTP User Data + MTP L3 Data octets).
Accumulation OM	Link Traffic, Originated MSU Octets Count	This OM measures the total number of originated MSU octets (MSU that contains the PC or capability code of this system in the OPC field) transmitted, including those octets that were added in MTP Level 2 processing for the SS7 network. For the MTP2-based links, this count accounts for MTP User Data + MTP L3 Data + MTP L2 Data octets. For the SAAL-based High Speed Links, this count applies to Message octets (MTP User Data + MTP L3 Data octets).

Accumulation OM	Link Traffic, Originated MSUs Count	This OM measures the number of originated MSUs (MSUs that contain the PC or capability code of this system in the OPC field) that are successfully passed to Level 2 for transmission (for example, network management messages and MSUs completing GTT) in the SS7 network. For the MTP2-based links, this count applies to MSU octets (MTP User Data + MTP L3 Data + MTP L2 Data octets). For the SAAL-based High Speed Links, this count applies to Message octets (MTP User Data + MTP L3 Data octets).
Accumulation OM	Link Traffic, Pri 0 MSU Inbd Discard Count	This OM measures the number of priority 0 MSUs discarded by the inbound link due to congestion at levels 1, 2, or 3 in the transmit buffers for the outbound link in the SS7 network. For the SAAL-based High Speed Links, this count applies to Messages (MTP User Data + MTP L3 Data) instead of MSUs (MTP User Data + MTP L3 Data + MTP L2 Data).
Accumulation OM	Link Traffic, Pri 0 MSU Outbd Discard Count	This OM measures the number of priority 0 MSUs discarded due to congestion at levels 1, 2, or 3 in the SS7 network. For the SAAL-based High Speed Links, this count applies to Messages (MTP User Data + MTP L3 Data) instead of MSUs (MTP User Data + MTP L3 Data + MTP L2 Data).
Accumulation OM	Link Traffic, Pri 1 MSU Inbd Discard Count	This OM measures the number of priority 1 MSUs discarded by the inbound link due to congestion at levels 2 or 3 in the transmit buffers in the outbound link in the SS7 network. For the SAAL-based High Speed Links, this count applies to Messages (MTP User Data + MTP L3 Data) instead of MSUs (MTP User Data + MTP L3 Data + MTP L2 Data).
Accumulation OM	Link Traffic, Pri 1 MSU Outbd Discard Count	This OM measures the number of priority 1 MSUs discarded due to congestion at levels 2 or 3 in the SS7 network. For the SAAL-based High Speed Links, this count applies to Messages (MTP User Data + MTP L3 Data) instead of MSUs (MTP User Data + MTP L3 Data + MTP L2 Data).
Accumulation OM	Link Traffic, Pri 2 MSU Inbd Discard Count	This OM measures the number of priority 2 MSUs discarded by the inbound link due to congestion at level 3 in the transmit buffers for the outbound link in the SS7 network. For the SAAL-based High Speed Links, this count applies to Messages (MTP User Data + MTP L3 Data) instead of MSUs (MTP User Data + MTP L3 Data + MTP L2 Data).
Accumulation OM	Link Traffic, Pri 2 MSU Outbd Discard Count	This OM measures the number of priority 2 MSUs discarded due to level 3 congestion in the SS7 network. For the SAAL-based High Speed Links, this count applies to Messages (MTP User Data + MTP L3 Data) instead of MSUs (MTP User Data + MTP L3 Data + MTP L2 Data).
Accumulation OM	Link Traffic, Pri 3 MSU Inbd Discard Count	This OM measures the number of priority 3 MSUs discarded by the inbound link due to full transmit buffers for the outbound link in the SS7 network. For the SAAL-based High Speed Links, this count applies to Messages (MTP User Data + MTP L3 Data) instead of MSUs (MTP User Data + MTP L3 Data + MTP L2 Data).
Accumulation OM	Link Traffic, Pri 3 MSU Outbd Discard Count	This OM measures the number of priority 3 MSUs discarded due to a full transmit buffer in the SS7 network. For the SAAL-based High Speed Links, this count applies to Messages (MTP User Data + MTP L3 Data) instead of MSUs (MTP User Data + MTP L3 Data + MTP L2 Data).

Accumulation OM	Link Traffic, Terminated MSU Octets Count	This OM measures the total number of terminated MSU octets (acknowledged, incoming MSU that contains the PC or capability code of this system in the DPC field) received, including octets removed in MTP Level 2 processing for the SS7 network. For the MTP2-based links, this count accounts for MTP User Data + MTP L3 Data + MTP L2 Data octets. For the SAAL-based High Speed Links, this count applies to Message octets (MTP User Data + MTP L3 Data octets).
Accumulation OM	Link Traffic, Terminated MSUs Count	This OM measures the number of terminated MSUs (acknowledged, incoming MSUs that contain the PC or capability code of this system in the DPC field) received from the SS7 network. For the MTP2-based links, this count applies to MSUs (MTP User Data + MTP L3 Data + MTP L2 Data). For the SAAL-based High Speed Links, this count applies to Messages (MTP User Data + MTP L3 Data).
Accumulation OM	Link Traffic, Through-Switched MSUs Count	This OM measures the number of through-switched MSUs (MSUs that do not contain the PC or capability code of this system in either the OPC or DPC) that are acknowledged, translated, and successfully passed to MTP Level 2 for transmission in the SS7 network. For the MTP2-based links, this count applies to MSUs (MTP User Data + MTP L3 Data + MTP L2 Data). For the SAAL-based High Speed Links, this count applies to Messages (MTP User Data + MTP L3 Data).
Accumulation OM	Link Traffic, Thru-Switched MSU Octets Count	This OM measures the total number of through-switched MSU octets (MSU that does not contain the PC or capability code of this system in either the OPC or DPC) received, including those octets that were added in MTP Level 2 processing for the SS7 network. For the MTP2-based links, this count accounts for MTP User Data + MTP L3 Data + MTP L2 Data octets. For the SAAL-based High Speed Links, this count applies to Message octets (MTP User Data + MTP L3 Data octets).
Accumulation OM	Linkset Utilization, Linkset Inactivity Duration	This OM measures the total time, in seconds, that all links in the linkset were unavailable (automatically or manually made unavailable) to MTP Level 3.
Accumulation OM	Linkset Utilization, RST Received Count	This OM measures the number of restart (RST) messages received.
Accumulation OM	Linkset Utilization, RST Transmitted Count	This OM measures the number of restart (RST) messages transmitted.
Accumulation OM	Linkset Utilization, TFA and TCA Received Count	This OM measures the number of transfer-allowed (TFA) and transfer-cluster-allowed (TCA) messages received.
Accumulation OM	Linkset Utilization, TFA and TCA Transmitted Count	This OM measures the number of transfer-allowed (TFA) and transfer-cluster-allowed (TCA) messages transmitted.
Accumulation OM	Linkset Utilization, TFC Received Count	This OM measures the number of transfer-controlled (TFC) messages received by the gateway, listed by the originating network.
Accumulation OM	Linkset Utilization, TFC Transmitted Count	This OM measures the number of transfer-controlled (TFC) messages transmitted by the gateway, listed by the destination network.
Accumulation OM	Linkset Utilization, TFP and TCP Received Count	This OM measures the number of transfer-prohibited (TFP) and transfer-cluster-prohibited (TCP) messages received.
Accumulation OM	Linkset Utilization, TFP and TCP Transmitted Count	This OM measures the number of transfer-prohibited (TFP) and transfer-cluster-prohibited (TCP) messages transmitted.
Accumulation OM	Linkset Utilization, TFR and TCR Received Count	This OM measures the number of transfer-restricted (TFR) and transfer-cluster-restricted (TCR) messages received.
Accumulation OM	Linkset Utilization, TFR and TCR Transmitted Count	This OM measures the number of transfer-restricted (TFR) and transfer-cluster-restricted (TCR) messages transmitted.

Accumulation OM	Log Server, Critical Alarms Ack Count	This OM measures the number of critical alarms acknowledged by the Log server.
Accumulation OM	Log Server, Critical Alarms Cleared Count	This OM measures the number of critical alarms cleared by the Log server.
Accumulation OM	Log Server, Critical Alarms Received Count	This OM measures the number of critical alarms received by the Log server.
Accumulation OM	Log Server, Major Alarms Ack Count	This OM measures the number of major alarms acknowledged by the Log server.
Accumulation OM	Log Server, Major Alarms Cleared Count	This OM measures the number of major alarms cleared by the Log server.
Accumulation OM	Log Server, Major Alarms Received Count	This OM measures the number of major alarms received by the Log server.
Accumulation OM	Log Server, Minor Alarms Ack Count	This OM measures the number of minor alarms acknowledged by the Log server.
Accumulation OM	Log Server, Minor Alarms Cleared Count	This OM measures the number of minor alarms cleared by the Log server.
Accumulation OM	Log Server, Minor Alarms Received Count	This OM measures the number of minor alarms received by the Log server.
Accumulation OM	NP Database Totals, Add/Change Updates	This OM measures the total number of add/change updates received from the LSMS.
Accumulation OM	NP Database Totals, Delete Updates	This OM measures the total number of delete updates received from the LSMS.
Accumulation OM	NP Database Totals, Emergency Updates	This OM measures the total number of application database updates received from the USP debug facility and can only be displayed from the debug facility Note: Debug is only accessible by Nortel Networks Support Personnel.
Accumulation OM	NP Database Totals, Operational Time	This OM measures the total time within the OM interval that the NPDB was operational.
Accumulation OM	NP Database Totals, Retransmitted Updates	This OM measures the total number of updates retransmitted within the BroadBand STP.
Accumulation OM	NP INAP Totals, INAP CdPN Normalize Failures	This OM measures the number of called party number normalization failures.
Accumulation OM	NP INAP Totals, INAP Indeterminate Queries	This OM measures the number of INAP indeterminate queries.
Accumulation OM	NP INAP Totals, INAP Invalid Context	This OM measures the number of INAP queries with invalid application context.
Accumulation OM	NP INAP Totals, INAP Queries Non-Ported	This OM measures the number of INAP non ported number queries received.
Accumulation OM	NP INAP Totals, INAP Queries Ported	This OM measures the number of INAP ported number queries received.
Accumulation OM	NP INAP Totals, INAP Queries Ported Across	This OM measures the number of INAP ported across number queries received.
Accumulation OM	NP INAP Totals, INAP Queries Ported In	This OM measures the number of INAP ported in number queries received.
Accumulation OM	NP INAP Totals, INAP Queries Ported Out	This OM measures the number of INAP ported out number queries received.
Accumulation OM	NP INAP Totals, INAP Queries Unknown	This OM measures the number of INAP queries received for numbers with unknown ported status.
Accumulation OM	NP INAP Totals, INAP Query Failures	This OM measures the number of INAP query failures.
Accumulation OM	NP INAP Totals, INAP Query Time Outs	This OM measures the total number of INAP query time outs.
Accumulation OM	NP INAP Totals, INAP Total Queries	This OM measures the total number of INAP queries received.
Accumulation OM	NP LSSI Totals, MR Query Received	This OM measures the total number of MR queries received by an NPC or NPS system node.
Accumulation OM	NP LSSI Totals, NP Query Received	This OM measures the total number of NP queries received by an NPC or an NPS system node.
Accumulation OM	NP NETID Totals, MR Failures	This OM measures the total number of MR query failures identified. The MR Failures value is based upon the Network ID of a received SCCP message.

Accumulation OM	NP NETID Totals, MR GTT Overrides	This OM measures the total number of MR queries receiving GTT override. The MR GTT Overrides value is based upon the Network ID of a received SCCP message.
Accumulation OM	NP NETID Totals, MR Loop Detection	This OM measures the total number of potential looping detections. The MR Loop Detection value is based upon the Network ID of a received SCCP message.
Accumulation OM	NP NETID Totals, MR Non-Ported	This OM measures the total number of MR queries received for non-ported numbers. The MR Non-Ported value is based upon the Network ID of a received SCCP message.
Accumulation OM	NP NETID Totals, MR Ported	This OM measures the total number of MR queries received for ported numbers. The MR Ported value is based upon the Network ID of a received SCCP message.
Accumulation OM	NP NETID Totals, MR Total	This OM measures the total number of MR queries received. The MR Total value is based upon the Network ID of a received SCCP message.
Accumulation OM	NP NETID Totals, NP Failures	This OM measures the total number of NP query failures. The NP Failures value is based upon the Network ID of a received TCAP message.
Accumulation OM	NP NETID Totals, NP Non-Ported	This OM measures the total number of NP queries received for non-ported numbers. The NP Non-Ported value is based upon the Network ID in the TCAP message.
Accumulation OM	NP NETID Totals, NP Ported	This OM measures the total number of NP queries received for ported numbers. The NP Ported value is based upon the Network ID contained in the NETID of a received TCAP message.
Accumulation OM	NP NETID Totals, NP Total	This OM measures the total number of NP queries received. The NP Total value is based upon the Network ID of a received TCAP message.
Accumulation OM	NP Service Rule Totals, Service Rule Match	This OM measures the total number of matches for the Service Rule.
Accumulation OM	NP Service Rule Totals, Service Rule Mismatch	This OM measures the total number of mismatches for all the Service Rules.
Accumulation OM	NP Service Totals, Database Mismatches	This OM measures the total number of Database mismatches. This OM is collected by Service ID.
Accumulation OM	NP Service Totals, GTA Normalization Failures	This OM measures the total number of GTA number normalization failures. This OM is collected by Service ID.
Accumulation OM	NP Service Totals, GTA Replacement	This OM measures the total number of service queries receiving GTA replacement. This OM is collected by Service ID.
Accumulation OM	NP Service Totals, GTT Overrides	This OM measures the total number of service queries receiving GTT override. This OM is collected by Service ID.
Accumulation OM	NP Service Totals, RN Check Failures	This OM measures the total number of RN check failures on incoming messages using the NoA/RN table. This OM is collected by Service ID.
Accumulation OM	NP Service Totals, Service Failures	This OM measures the total number of Service query failures identified. Service query failures occur when the query logic is unable to process the Service query. This OM is collected by Service ID.
Accumulation OM	NP Service Totals, Service Non-Ported	This OM measures the total number of Service queries received for non-ported numbers. This OM is collected by Service ID.
Accumulation OM	NP Service Totals, Service Ported	This OM measures the total number of Service queries received for ported numbers. The Service Ported value is the total of OMR_SERVICE_PORTED_IN, OMR_SERVICE_PORTED_OUT, and OMR_SERVICE_PORTED_ACROSS This OM is collected by Service ID.
Accumulation OM	NP Service Totals, Service Total	This OM measures the total number of Service queries received. This OM is collected by Service ID.

Accumulation OM	NP Service Totals, TT Replacement	This OM measures the total number of service queries receiving TT replacement. This OM is collected by Service ID.
Accumulation OM	NP SMI Totals, High Congestion	This OM measures the total number of times that the high level congestion state was entered.
Accumulation OM	NP SMI Totals, Login Failures	This OM measures the total number of failed LSMS login attempts.
Accumulation OM	NP SMI Totals, Low Congestion	This OM measures the total number of times that the low level congestion state was entered.
Accumulation OM	NP SMI Totals, Medium Congestion	This OM measures the total number of times that the medium level congestion state was entered.
Accumulation OM	NP SMI Totals, Messages Invalid	This OM measures the total number of invalid messages received from the LSMS.
Accumulation OM	NP SMI Totals, Messages Received	This OM measures the total number of messages received from the LSMS.
Accumulation OM	NP SMI Totals, Messages Rejected	This OM measures the total number of received messages from the LSMS that were rejected.
Accumulation OM	NP SRF Totals, SRF Ind. Routing with Ref. Sub.	This OM measures the number of SRF messages relayed to the subscription network via indirect routing with reference to the subscription network.
Accumulation OM	NP SRF Totals, SRF No NP DB Record Found	This OM measures the number of SRF queries received when no record is found in the NP DB.
Accumulation OM	NP SRF Totals, SRF Queries Non-Ported	This OM measures the number of SRF non ported number queries received.
Accumulation OM	NP SRF Totals, SRF Queries Ported Across	This OM measures the number of SRF ported across number queries received.
Accumulation OM	NP SRF Totals, SRF Queries Ported In	This OM measures the number of SRF ported in number queries received.
Accumulation OM	NP SRF Totals, SRF Queries Ported Out	This OM measures the number of SRF ported out number queries received.
Accumulation OM	NP SRF Totals, SRF Queries Unknown	This OM measures the number of SRF queries received for numbers with unknown ported status.
Accumulation OM	NP SRF Totals, SRF Query Failures	This OM measures the number of SRF query failures.
Accumulation OM	NP SRF Totals, SRF Relayed to HLR	This OM measures the number of SRF messages relayed to the HLR.
Accumulation OM	NP SRF Totals, SRF Successful Messages to MSC	This OM measures the number of SRF successful messages sent back to the MSC.
Accumulation OM	NP SRF Totals, SRF Total Queries	This OM measures the total number of SRF queries received.
Accumulation OM	NP SRF Totals, SRF Total Queries Ported	This OM measures the total number of SRF ported number queries received.
Accumulation OM	NP SRF Totals, SRF Transaction Errors Sent Out	This OM measures the number of SRF transaction error messages sent out.
Accumulation OM	NP TnT Totals, TNT Acks Sent	This OM measures the number of Tariff non Transparency acknowledgement messages transmitted.
Accumulation OM	NP TnT Totals, TNT Decode Errors	This OM measures the number of Tariff non Transparency MAP decode failures due to incorrect parameters that could not be decoded.
Accumulation OM	NP TnT Totals, TNT Decode Invalid Params	This OM measures the number of Tariff non Transparency MAP decode failures due to invalid parameters. (i.e. IMSI instead of MSISDN included)
Accumulation OM	NP TnT Totals, TNT No NP DB Rec Found	This OM measures the number of Tariff non Transparency queries received for numbers not found in the NP DB.
Accumulation OM	NP TnT Totals, TNT Queries Non-Ported	This OM measures the number of Tariff non Transparency non ported number queries received.
Accumulation OM	NP TnT Totals, TNT Queries Ported Across	This OM measures the number of Tariff non Transparency ported across number queries received.
Accumulation OM	NP TnT Totals, TNT Queries Ported In	This OM measures the number of Tariff non Transparency ported in number queries received.

Accumulation OM	NP TnT Totals, TNT Queries Ported Out	This OM measures the number of Tariff non Transparency ported out number queries received.
Accumulation OM	NP TnT Totals, TNT Queries Unknown	This OM measures the number of Tariff non Transparency queries received for numbers with unknown ported status.
Accumulation OM	NP TnT Totals, TNT Query Failures	This OM measures the number of Tariff non Transparency query failures during processing.
Accumulation OM	NP TnT Totals, TNT Total Messages Received	This OM measures the total number of Tariff non Transparency queries received.
Accumulation OM	NP TnT Totals, TNT Total Queries Ported	This OM measures the total number of Tariff non Transparency ported number queries received.
Accumulation OM	NP TnT Totals, TNT Transmission Failures	This OM measures the number of Tariff non Transparency failures during transmission of Ack.
Accumulation OM	Route Set Management, RouteSet Congested Count	This OM measures the number of times, a routeset went into network congestion.
Accumulation OM	Route Set Management, Routeset Man-busied Count	This OM measures the number of times a routeset was manually made unavailable.
Accumulation OM	Route Set Management, Routeset Unavailability Count	This OM measures the number of times a routeset was unavailable.
Accumulation OM	Route Set Management, Routeset Unavailability Dur.	This OM measures the total time, in seconds, a routeset was unavailable.
Accumulation OM	RTC Sanity, RTC12 Passive Audit Count	This OM hooks into the node maintenance audit, and is pegged on the control shelf CCs, when it does not receive audit request from RTC12 even once. Thus this is a passive audit of RTC
Accumulation OM	RTC Sanity, RTC15 Passive Audit Count	This OM hooks into the node maintenance audit, and is pegged on both the control shelf CCs, when it does not receive audit request from RTC15 even once. Thus this is a passive audit of RTC.
Accumulation OM	SAAL Link Management, Cum. Dur. of FE Processor Out.	This OM measures the cumulative duration in seconds during which the use of the link was precluded due to a remote (far-end) processor outage condition, summed across all far-end processor outage events.
Accumulation OM	SAAL Link Management, Cum. Dur. of Lack-of-Credit	This OM measures the cumulative duration of time in seconds during which SSCOP had PDUs to send to its peer but could not do so because it was not given credit by the far end, summed over all the Lack-of-Credit events occurring during the measurement interval.
Accumulation OM	SAAL Link Management, Duration of Link in Service	This OM measures the number of seconds the link is regarded in service.
Accumulation OM	SAAL Link Management, Invalid SSCOP PDUs Rx	This OM measures the number of Invalid SSCOP PDUs Received.
Accumulation OM	SAAL Link Management, Lack of Credit Events	This OM measures the number of Lack-of-Credit Events.
Accumulation OM	SAAL Link Management, PDUs Tx Requiring RTx	This OM measures the number of SSCOP PDUs transmitted that required retransmission because they were not acknowledged by the far-end's SSCOP peer.
Accumulation OM	SAAL Link Management, Signaling Link Alig. Failures	This OM measures the number of Signaling Link Alignment Failures.
Accumulation OM	SAAL Link Management, SSCOP Connection Disconnects	This OM measures the number of SSCOP Connection Disconnects which are characterized by the expiry of Timer_NO_RESPONSE.
Accumulation OM	SAAL Link Management, SSCOP Connection Init. Fails	This OM measures the number of SSCOP Initiation Failures, i.e. the inability to establish an SSCOP Connection.
Accumulation OM	SAAL Link Management, SSCOP Connection Re-est/Resync	This OM measures the number of SSCOP Re-establishments/Resynchronizations.
Accumulation OM	SAAL Link Management, SSCOP Connection Sum-of-Errors	This OM measures the total number of SSCOP Connection Disconnects, Connection Initiation Failures and Connection Re-establishment/Resynchronization.

Accumulation OM	SAAL Link Management, SSCOP PDUs Sum-of-Errors	This OM measures the total number of Unexpected SSCOP PDUs, Invalid SSCOP PDUs and SSCOP PDUs with Other/List Element Errors.
Accumulation OM	SAAL Link Management, SSCOP PDUs with List Elem. Errs	This OM measures the number of SSCOP PDUs Received with List Element Errors.
Accumulation OM	SAAL Link Management, Unexpected SSCOP PDUs Rx	This OM measures the number of Unexpected SSCOP PDUs Received.
Accumulation OM	SAAL Link Traffic, PDU Octets RTx	This OM measures the number of octets associated with retransmitted SSCOP Sequenced Data PDUs.
Accumulation OM	SAAL Link Traffic, PDU Octets Rx	This OM measures the number of octets associated with SSCOP Sequenced Data PDUs received.
Accumulation OM	SAAL Link Traffic, PDU Octets Tx	This OM measures the number of octets associated with SSCOP Sequenced Data PDUs transmitted, including retransmissions.
Accumulation OM	SAAL Link Traffic, PDUs RTx	This OM measures the number of SSCOP Sequenced Data PDUs retransmitted.
Accumulation OM	SAAL Link Traffic, PDUs Rx	This OM measures the number of SSCOP Sequenced Data PDUs received.
Accumulation OM	SAAL Link Traffic, PDUs Tx	This OM measures the number of SSCOP Sequenced Data PDUs transmitted including retransmissions.
Accumulation OM	SAAL Link Traffic, Total PDU Octets Rx	This OM measures the number of octets associated with received SSCOP PDUs of all types.
Accumulation OM	SAAL Link Traffic, Total PDU Octets Tx	This OM measures the number of octets associated with transmitted SSCOP PDUs of all types which may include Sequenced Data PDU retransmissions.
Accumulation OM	SAAL Link Traffic, Total PDUs Rx	This OM measures the number of SSCOP PDUs of all types received.
Accumulation OM	SAAL Link Traffic, Total PDUs Tx	This OM measures the number of transmitted SSCOP PDUs of all types including Sequenced Data PDU retransmissions.
Accumulation OM	SCCP GTT, Alt Routing on Cong Count	This OM measures the number of times a message is routed to the backup system because the routeset to the primary system is congested.
Accumulation OM	SCCP GTT, GTT Performed Count	This OM measures the total number of MSUs that successfully completed GTT (that is, a match was found for the global title). The count is kept across all translation types.
Accumulation OM	SCCP GTT, Hop Counter Violation Count	This OM measures the number of times that a SCCP hop counter violation has occurred.
Accumulation OM	SCCP GTT, No Translation for Addr Count	This OM measures the number of times a match could not be found for the GTA in the translation table. The count is kept across all translation types.
Accumulation OM	SCCP GTT, Trans Type Not Found Count	This OM measures the number of times the translation type specified in the MSU was not supported by the USP.
Accumulation OM	SCCP Local Subsystem, # Msgs for Local SS discarded	This OM measures the number of messages destined to local subsystems that were discarded.
Accumulation OM	SCCP Local Subsystem, # Msgs for Local SS UDTSed	This OM measures the number of messages destined to local subsystems that receive an error response (UDTS).
Accumulation OM	SCCP Local Subsystem, Subsystem Activated	This OM measures the number of times a subsystem has been manually activated.
Accumulation OM	SCCP Local Subsystem, Subsystem Allowed	This OM measures the number of times a subsystem has gone in service (allowed).
Accumulation OM	SCCP Local Subsystem, Subsystem Allowed Duration	This OM measures the total duration that the subsystem was in service (allowed).
Accumulation OM	SCCP Local Subsystem, Subsystem Deactivated	This OM measures the number of times a subsystem has been manually deactivated.
Accumulation OM	SCCP Local Subsystem, Subsystem Prohibited	This OM measures the number of times a subsystem has gone out of service (prohibited). Unit of measure is a 10 second period.

Accumulation OM	SCCP Local Subsystem, Subsystem Prohibited Duration	This OM measures the total duration that a subsystem was out of service (prohibited). Unit of measure is a 10 second period.
Accumulation OM	SCCP LSS Instance, SSI Activated	This OM measures the number of times a subsystem instance has been manually activated.
Accumulation OM	SCCP LSS Instance, SSI Allowed	This OM measures the number of times a subsystem instance has gone in service (allowed).
Accumulation OM	SCCP LSS Instance, SSI Allowed Duration	This OM measures the duration that the subsystem instance was in service (allowed). Unit of measure is a 10 second period.
Accumulation OM	SCCP LSS Instance, SSI Application Failure	This OM measures the number of times a subsystem instance has gone out of service (application failure).
Accumulation OM	SCCP LSS Instance, SSI Congested	This OM measures the number of times a subsystem instance has gone into congestion.
Accumulation OM	SCCP LSS Instance, SSI Deactivated	This OM measures the number of times a subsystem instance has gone out of service (manually deactivated).
Accumulation OM	SCCP LSS Instance, SSI Platform Failure	This OM measures the number of times a subsystem instance has gone out of service (platform failure).
Accumulation OM	SCCP LSS Instance, SSI Prohibited Duration	This OM measures the duration a local subsystem instance has been out of service (prohibited). Unit of measure is a 10 second period.
Accumulation OM	SCCP System Totals, Conn-Orient IP Dist Viol Count	This OM measures the number of IP originated connection-oriented messages that were discarded because they requested SCCP distribution
Accumulation OM	SCCP System Totals, Conn-Orient Msg Handled Count	This OM measures the number of connection- oriented messages that were successfully routed
Accumulation OM	SCCP System Totals, Conn-Orient Msg Rtg Fail Count	This OM measures the number of connection- oriented messages that the USP was unable to route
Accumulation OM	SCCP System Totals, LUDT Msg Rcvd Count	This OM measures the number of LUDT messages that the SCCP level received.
Accumulation OM	SCCP System Totals, LUDT Msg Sent Count	This OM measures the number of LUDT messages that the SCCP level sent.
Accumulation OM	SCCP System Totals, LUDTS Msg Rcvd Count	This OM measures the number of LUDTS messages that the SCCP level received.
Accumulation OM	SCCP System Totals, LUDTS Msg Sent Count	This OM measures the number of LUDTS messages that the SCCP level sent.
Accumulation OM	SCCP System Totals, Msg Incompatibility	This OM measures the number of LUDTS messages that the SCCP level sent.
Accumulation OM	SCCP System Totals, Msg too large for segmentation	This OM measures the number of times segmentation fails due to an over-long message.
Accumulation OM	SCCP System Totals, MSUs Disc-Unrec SCCP Msg Count	This OM measures the number of MSUs discarded because of an unrecognized SCCP message type.
Accumulation OM	SCCP System Totals, Out of sequence SCCP msg count	This OM measures the number of times Segments are received out of sequence
Accumulation OM	SCCP System Totals, Reassembly buffer unavailable	This OM measures the number of times Reassembly resources unavailable occurred
Accumulation OM	SCCP System Totals, Reassembly failed	This OM measures the number of times Reassembly fails for any non-specified reason.
Accumulation OM	SCCP System Totals, Reassembly Timer Expired	This OM measures the number of times Reassembly Timer expired
Accumulation OM	SCCP System Totals, Routing Failure - Unequip.User	This OM measures the number of times SCCP Routing control fails to find a subsystem to route the message.
Accumulation OM	SCCP System Totals, SCCP Routing Failure Count	This OM measures the number of messages that SCCP was unable to route.
Accumulation OM	SCCP System Totals, Segmentation failed	This OM measures the number of times segmentation fails for any non-specified reason.
Accumulation OM	SCCP System Totals, SSA Received Count	This OM measures the number of subsystem-allowed (SSA) messages received.
Accumulation OM	SCCP System Totals, SSA Transmitted Count	This OM measures the number of subsystem-allowed (SSA) messages transmitted.

Accumulation OM	SCCP System Totals, SSP Received Count	This OM measures the number of subsystem-prohibited (SSP) messages received.
Accumulation OM	SCCP System Totals, SSP Transmitted Count	This OM measures the number of subsystem-prohibited (SSP) messages transmitted.
Accumulation OM	SCCP System Totals, SST Received Count	This OM measures the number of subsystem-status-test (SST) messages received.
Accumulation OM	SCCP System Totals, SST Transmitted Count	This OM measures the number of subsystem-status-test (SST) messages transmitted.
Accumulation OM	SCCP System Totals, Total messages handled	This OM measures all messages processed by SCCP routing control in both incoming and outgoing directions, whether or not the message is processed or delivered successfully. It includes Class 2 and Class 3 connection oriented messages. It does not include Subsystem Status messages such as SSP, SSA, or SST.
Accumulation OM	SCCP System Totals, UDT Msg Rcvd Count	This OM measures the number of UDT messages that the SCCP level received.
Accumulation OM	SCCP System Totals, UDT Msg Sent Count	This OM measures the number of UDT messages sent from the SCCP level.
Accumulation OM	SCCP System Totals, UDTS Msg Rcvd Count	This OM measures the number of UDTS messages that the SCCP level received.
Accumulation OM	SCCP System Totals, UDTS Msg Sent Count	This OM measures the number of UDTS messages sent from the SCCP level.
Accumulation OM	SCCP System Totals, XUDT Msg Rcvd Count	This OM measures the number of XUDT messages that the SCCP level received.
Accumulation OM	SCCP System Totals, XUDT Msg Sent Count	This OM measures the number of XUDT messages sent from the SCCP level.
Accumulation OM	SCCP System Totals, XUDTS Msg Rcvd Count	This OM measures the number of XUDTS messages that the SCCP level received.
Accumulation OM	SCCP System Totals, XUDTS Msg Sent Count	This OM measures the number of XUDTS messages sent from the SCCP level.
Accumulation OM	SCTP Management/Traffic Counts, Association Aborted Count	This OM measures the number of associations that are aborted by the application, the peer connection or a failure in the network.
Accumulation OM	SCTP Management/Traffic Counts, Association Establish Attempts	This OM measures the number of associations which the user or peer SCTP tried to established.
Accumulation OM	SCTP Management/Traffic Counts, Association Terminated Count	This OM measures the number of associations that are terminated by the application or the peer connection.
Accumulation OM	SCTP Management/Traffic Counts, Chunk Retransmitted Count	This OM measures the number of SCTP chunks retransmitted due to SCTP Packets or SCTP Sacks lost in the network. Note: A SCTP packet may contain more than one chunk.
Accumulation OM	SCTP Management/Traffic Counts, Chunks Received Count	This OM measures the number of SCTP chunks received. Note: A SCTP packet may contain more than one chunk.
Accumulation OM	SCTP Management/Traffic Counts, Chunks Transmitted Count	This OM measures the number of SCTP chunks transmitted. Note: A SCTP packet may contain more than one chunk.
Accumulation OM	SCTP Management/Traffic Counts, Established Association Count	This OM measures the number of associations which are in a established state.
Accumulation OM	SCTP Management/Traffic Counts, Out of Blue SCTP Packet	This OM measures the number of SCTP packets that are received but are not able to identify the association to which they belong.
Accumulation OM	SLR Database Totals, Add/Change Updates	This OM measures the total number of add/change updates received from the HLR provisioning system.
Accumulation OM	SLR Database Totals, Delete Updates	This OM measures the total number of delete updates received from the HLR provisioning system.
Accumulation OM	SLR Database Totals, Emergency Updates	This OM measures the total number of application database updates received from the USP debug facility and can only be displayed from the debug facility Note: Debug is only accessible by Nortel Networks Support Personnel.

Accumulation OM	SLR Database Totals, Operational Time	This OM measures the total time within the OM interval that the SLRDB was operational.
Accumulation OM	SLR Database Totals, Retransmitted Updates	This OM measures the total number of updates retransmitted within the BroadBand STP.
Accumulation OM	SLR LSSI Totals, Total Failed Queries	This OM measures the total number of SLR queries received by an NPC or NPS system node that failed for any reason across all services and message types.
Accumulation OM	SLR LSSI Totals, Total Queries Received	This OM measures the total number of SLR queries received by an NPC or an NPS system node across all services and message types.
Accumulation OM	SLR Message Type Totals, IMSI Failed Queries	This OM measures the total number of IMSI queries received by an NPC or an NPS system node that failed for any reason.
Accumulation OM	SLR Message Type Totals, IMSI Failed SLRDB Lookup	This OM measures the total number of IMSI queries received by an NPC or an NPS system node that failed in their SLRDB lookup.
Accumulation OM	SLR Message Type Totals, IMSI Query Received	This OM measures the total number of IMSI queries received by an NPC or an NPS system node.
Accumulation OM	SLR Message Type Totals, IMSI Successful SLRDB Lookup	This OM measures the total number of IMSI queries received by an NPC or an NPS system node that succeeded in their SLRDB lookup.
Accumulation OM	SLR Message Type Totals, MSISDN Failed Queries	This OM measures the total number of MSISDN queries received by an NPC or an NPS system node that failed for any reason.
Accumulation OM	SLR Message Type Totals, MSISDN Failed SLRDB Lookup	This OM measures the total number of MSISDN queries received by an NPC or an NPS system node that failed in their SLRDB lookup.
Accumulation OM	SLR Message Type Totals, MSISDN Query Received	This OM measures the total number of MSISDN queries received by an NPC or an NPS system node.
Accumulation OM	SLR Message Type Totals, MSISDN Successful SLRDB Lookup	This OM measures the total number of MSISDN queries received by an NPC or an NPS system node that succeeded in their SLRDB lookup.
Accumulation OM	SLR SMI Totals, High Congestion	This OM measures the total number of times that the high level congestion state was entered.
Accumulation OM	SLR SMI Totals, Login Failures	This OM measures the total number of failed HLR provisioning system login attempts.
Accumulation OM	SLR SMI Totals, Low Congestion	This OM measures the total number of times that the low level congestion state was entered.
Accumulation OM	SLR SMI Totals, Medium Congestion	This OM measures the total number of times that the medium level congestion state was entered.
Accumulation OM	SLR SMI Totals, Messages Failed Authentication	This OM measures the total number of received messages from the HLR provisioning system that failed authentication of the retrieved RN against an associated GTT entry with an RN matching the retrieved value.
Accumulation OM	SLR SMI Totals, Messages Invalid	This OM measures the total number of invalid messages received from the HLR provisioning system.
Accumulation OM	SLR SMI Totals, Messages Passed Authentication	This OM measures the total number of received messages from the HLR provisioning system that successfully authenticated the retrieved RN against an associated GTT entry with an RN matching the retrieved value.
Accumulation OM	SLR SMI Totals, Messages Received	This OM measures the total number of messages received from the HLR provisioning system.
Accumulation OM	SLR SMI Totals, Messages Rejected	This OM measures the total number of received messages from the HLR provisioning system that were rejected.
Accumulation OM	Special Study Totals, MSUs Received Count	This OM measures the number of incoming MSUs acknowledged on the specified linkset with the specified OPC/DPC/SIO combination.
Accumulation OM	Special Study Totals, MSUs Transmitted Count	This OM measures the number of outgoing MSUs successfully transmitted to the far end on the specified linkset with the specified OPC/DPC/SIO combination.

Accumulation OM	Special Study Totals, Octets Received Count	This OM measures the total number of MSU octets received on a specified linkset with the specified OPC/DPC/SIO combination, including the octets removed in MTP Level 2 processing.
Accumulation OM	Special Study Totals, Octets Transmitted Count	This OM measures the total number of MSU octets transmitted on the specified linkset with the specified OPC/DPC/SIO combination, including those octets that were added in MTP Level 2 processing.
Accumulation OM	System Node State, Disabled, Locked Duration	This OM measures the number of seconds that a specific RTC, CC, or application system node is disabled and locked.
Accumulation OM	System Node State, Disabled, Unlocked Duration	This OM measures the number of seconds that a specific RTC, CC, or application system node is disabled and unlocked.
Accumulation OM	System Node State, Enabled, Locked Duration	This OM measures the number of seconds that a specific RTC, CC, or application system node is enabled and locked.
Accumulation OM	System Node State, Enabled, Unlocked Duration	This OM measures the number of seconds that a specific RTC, CC, or application system node is enabled and unlocked.
Accumulation OM	System Node State, Locked, Off-line Duration	This OM measures the number of seconds that a specific RTC, CC, or application system node is locked and off-line.
Accumulation OM	System Totals, No Route MSU Discard Count	This OM measures the number of MSUs discarded due to routing failure of various causes (for example, an inaccessible DPC).
Accumulation OM	Task Management, Idle Task Duration	This OM measures the number of milliseconds spent in idle time.
Accumulation OM	TUP Received Message Counts, B/TUP Error No AS for OPC/CIC	This OM measures the number of TUP messages discarded as a result of not being able to find a valid AS for a given OPC/CIC.
Accumulation OM	TUP Received Message Counts, B/TUP Error No OPC/CIC Data	This OM measures the number of TUP and BTUP messages discarded as a result of missing database entry for a given OPC or OPC/CIC.
Accumulation OM	TUP Received Message Counts, B/TUP Error No Path	This OM measures the number of TUP and BTUP messages discarded as a result of not being able to find an inservice path to a given AS.
Accumulation OM	TUP Received Message Counts, B/TUP Error No Route	This OM measures the number of TUP messages discarded as a result of not being able to find a route to a given AS.
Accumulation OM	TUP Received Message Counts, BTUP Call P Received Count	This OM measures the number of BTUP call processing messages received from the SS7 Network.
Accumulation OM	TUP Received Message Counts, BTUP Maint Received Count	This OM measures the number of BTUP maintenance messages received from the SS7 Network.
Accumulation OM	TUP Received Message Counts, TUP Call P Received Count	This OM measures the number of TUP call processing messages received from the SS7 Network.
Accumulation OM	TUP Received Message Counts, TUP Maint Received Count	This OM measures the number of TUP maintenance messages received from the SS7 Network.
Accumulation OM	TUP Received Message Counts, Wrong NE Received Count	This OM measures the number of TUP messages discarded as a result of not receiving the message for a SG Network Element
Accumulation OM	UDP, Full Socket Count	This OM measures the number of counts that the udpstat full_socket variable has changed in the om period.
Maximum OM	Link Traffic, Link utilization	This OM provides percentage of link utilization. For LSL it is calculated in erlangs while for HSL it is calculated as percentage of processor utilization.
Maximum OM	NP Database Totals, Max Average Update Rate	This OM measures the highest update rate (in updates per second) averaged over a 60 second period. i.e. total updates over the 60 second window divided by 60. If the number of updates received in the 60 second window is less than 60 , the OM will be 0.

Maximum OM	NP Transaction Mgmt Totals, TxMgr Percent Used	This OM measures the maximum percentage of used transactions in the Transaction Management application.
Maximum OM	SLR Database Totals, Max. Update Rate	This OM measures the highest update rate (in updates per second) during any 60 second period
No Action	System Node State, Percentage Enabled	This OM measures the percentage of time that a specific RTC, CC, or application system node is enabled, or busy (for the Processor Utilization OM, GR-82-CORE section 6.4.5, item 10). The value for this OM ranges from 0 to 100 percent.
No Action	Task Management, Collection Period Duration	This OM measures the total number of milliseconds for an OM collection period. This OM can be used to calculate the percentage of use for all the other Task Management OMs.
No action	Task Management, Level 0 Priority Task Duration	This OM measures the number of milliseconds spent in Level 0 priority task(s).
No Action	Task Management, Level 1 Priority Task Duration	This OM measures the number of milliseconds spent in Level 1 priority task(s).
No Action	Task Management, Level 2 Priority Task Duration	This OM measures the number of milliseconds spent in Level 2 priority task(s).
No Action	Task Management, Level 3 Priority Task Duration	This OM measures the number of milliseconds spent in Level 3 priority task(s).
No Action	Task Management, Level 4 Priority Task Duration	This OM measures the number of milliseconds spent in Level 4 priority task(s).
No Action	Task Management, Level 5 Priority Task Duration	This OM measures the number of milliseconds spent in Level 5 priority task(s).
No Action	Task Management, Level 6 Priority Task Duration	This OM measures the number of milliseconds spent in Level 6 priority task(s).
No Action	Task Management, Level 7 Priority Task Duration	This OM measures the number of milliseconds spent in Level 7 priority task(s).
No Action	Task Management, Level 8 Priority Task Duration	This OM measures the number of milliseconds spent in Level 8 priority task(s).
No Action	Task Management, Level 9 Priority Task Duration	This OM measures the number of milliseconds spent in Level 9 priority task(s).
No Action	Task Management, OS System Tasks Duration	This OM measures the number of milliseconds spent in VxWorks OS tasks.

New or changed in SN07

Appendix E: MG9000 Reported Alarms, Event Logs, Audit Logs

Fault Subsystem (MIB)	Alarm Id	Fault Type	Severity	Description	SN06 VoA Telcordia Coverage?	Supported	Procedure To Generate Alarm	Alarm Recovery Procedure	EM Supported	SCC2 LOG Output Example	NTSTD LOG Output Example
	CES305	cesLossOfCell	Major	Loss of Cells	Y	Yes	This alarm is raised when CES IWF stops recieving cells for the ATM network. To introduce this condition SVC between the local endpoint and the remote endpoint must be broken. This can be done 2 different ways: 1. At **Dshell** prompt, type /cesrv/disconn ffIndex. 2. From EM, this can only be done for 'hall services'. Disconnect the remote endpoint to observe Loss of Cells at the local.	This condition is observed in the field when there is an issue with ATM connectivity. The alarm will be cleared when ATM connection is restored. So, any issue with the ATM connection needs to be investigated.	SN04		
norCarrFault (NORTEL-UEMG-CARRIER-MIB)	MGCA301	los	DS1 - Minor OC3 - Critical	lossOfSignal	Y	yes	On DS1 Link, pull Rx fiber to set LOS		SN04		
	MGCA302	ais	DS1 - Minor OC3 - Critical	alarm indication signal	Y	yes	On DS1 Link, use test set (TBERD) to inject line AIS		SN04		
	MGCA303	lof	DS1 - Minor OC3 - Critical	lossOfFrame	Y	yes	On DS1 Link, Use test (TBERD) set to inject LOF		SN04		
	MGCA304	rai	DS1 - Minor	remote alarm indication	N	yes			SN04		
	MGCA305	bersf	OC3 - Critical	bitErrorRate S F...	Y	yes	On DS1 Link, Use test set (TBERD) to inject line B2, Bit Error Rate of 10e-3		SN04		
	MGCA306	bersd	OC3 - Major	bitErrorRate SigDegrade	Y	yes	On DS1 Link, Use test set (TBERD) to inject line B2, Bit Error Rate of 10e-5		SN04		
	MGCA307	rdi	OC3 - Minor	remote defect indication	Y	yes	On DS1 Link, Use test set (TBERD) to inject line RDI		SN04		
	MGCA308	plm	OC3 - Minor	path label mismatch	Y	yes	On DS1 Link, Use test set (TBERD) to change C2 label from 0x13 to 0x00		SN04		
	MGCA309	lop	OC3 - Minor	loss of Pointer	Y	yes	On DS1 Link, Use test set (TBERD) to inject path LOP error		SN04		
	MGCA310	uneq	OC3 - Minor	unequipped	Y	yes	On DS1 Link, Use test set (TBERD) to set C2 to 0x00 (unequipped)		SN04		
	MGCA312	Ima Link Lif	Minor	IMA link- Loss of IMA Frame	N	yes	At the IMA card pull the DS1 cable **(Can't report Alarm if link is down)**		SN05		
	MGCA313	Ima Link Lods	Minor	IMA link- Loss of delayed synchronization	Y	yes	This alarm cannot be externally invoked by a manual action. It will only occur if there is some HW or SW errors. The easist way to generate is using the "takelinkfm" command in the /hal/ima MG9K Dshell directory.		SN05		
	MGCA314	Ima Link RFI	Minor	IMA link- Remote failure indication	Y	yes	At the Edgelink (or other MUX) manually send AIS to the PP15000		SN05		
	MGCA315	Ima Link T-Mis Connect	Minor	IMA link Transmit misconnect	Y	yes	This alarm cannot be externally invoked by a manual action. It will only occur if there is some HW or SW errors. The easist way to generate is using the "takelinkfm" command in the /hal/ima MG9K Dshell directory.		SN05		
	MGCA316	Ima Link R-Mis Connect	Minor	IMA link receive misconnect	Y	yes	Same as above		SN05		
	MGCA317	Ima Link T-Fault	Minor	IMA link transmit fault	Y	yes	Change the "transmit Clock Mode" to ITC on the IMA link at the PP15000		SN05		
	MGCA318	Ima Link Rx Fault	Minor	IMA link receive fault	Y	yes	This alarm cannot be externally invoked by a manual action. It will only occur if there is some HW or SW errors. The easist way to generate is using the "takelinkfm" command in the /hal/ima MG9K Dshell directory.		SN05		
	MGCA319	Ima Link Tx Unusable Fe	Minor	IMA link transmit unusable far end	Y	yes	Change the "transmit Clock Mode" to ITC on the IMA link at the PP15000		SN05		
	MGCA320	Ima Link Rx Unusable Fe	Minor	IMA link receive unusable far end	Y	yes	Same as above		SN05		
	MGCA321	Ima Group Startup Fe	Major	IMA group startup far end	Y	yes	This alarm cannot be externally invoked by a manual action. It will only occur if there is some HW or SW errors. The easist way to generate is using the "takelgrpfm" command in the /hal/ima MG9K Dshell directory.		SN05	*C01 MGCA330 0746 TBL MG9K NorCarrFault Location: 1-RM9K-Frame000.Shelf1.Slot06.Port00 Notification Id: 824 State: not acknowledged Category: Communication Alarm Cause: Loss Of Signal Time: Apr 24 14:01:11 2003 Component Id: Port.frame0.shelf1.slot6.ABI.abi Specific Problem: NorCarrFault - ABI loss of signal Description: Loss Of Signal (i.e., Low Light Level) on DS512 Optical Link Site Flr RPos Bay_id FFFF FF FFF FFFF FFF	MSH10_IO6BE *** MGCA330 APR24 14:01:11 0746 TBL MG9K NorCarrFault Location: 1-RM9K-Frame000.Shelf1.Slot06.Port00 Notification Id: 824 State: not acknowledged Category: Communication Alarm Cause: Loss Of Signal Time: Apr 24 14:01:11 2003 Component Id: Port.frame0.shelf1.slot6.ABI.abi Specific Problem: NorCarrFault - ABI loss of signal Description: Loss Of Signal (i.e., Low Light Level) on DS512 Optical Link Site Flr RPos Bay_id FFFF FF FFF FFFF FFF
	MGCA322	ImaGroupCfgAbort	Critical	IMA group configuration abort	Y	yes	Same as above		SN05		
	MGCA323	ImaGroupCfgAbortFe	Major	IMA group configuration abort far end	Y	yes	Same as above		SN05		
	MGCA324	ImaGroupInsuffLnks	Critical	IMA group insufficient links	N	yes	At the IMA card pull the DS1 cable **(Can't report Alarm if link is down)**		SN05		
	MGCA325	ImaGroupInsuffLnks Fe	Major	IMA group insufficient links far end	Y	yes	Same as above		SN05		
	MGCA326	ImaGroupBlockedFe	Minor	IMA group blocked far end	Y	yes	Block the IMA group at the PP15000		SN05		
	MGCA327	ImaGroupTimingSynch	Major	IMA group timing synchronization	Y	yes	Change the "transmit Clock Mode" to ITC on the IMA link at the PP15000		SN05		
	MGCA328	abiLossOfClock	Critical	ABI Loss of Clock on DS512 optical link	Y	yes	On the DS512 link, Use test set (TBERD) to set LOC		SN05		
	MGCA329	abiLossOfFrame	Critical	ABI Loss of Frame on DS512 optical link	Y	yes	On the DS512 link, Use test set (TBERD) to set LOF		SN05		
	MGCA330	abiLossLightLevel	Critical	ABI Loss of Signal (low light level) on DS512 optical link	Y	yes	On the DS512 link, Use test set (TBERD) to set LOS		SN05		
	MGCA331	abiChannelParityError	Minor	ABI Channel parity error on DS512 optical link	Y	yes	On the DS512 link, Use test set (TBERD) to set C2 to 0x00 (unequipped)		SN05		
	MGCA332	tim	Minor	S ON Path Trace Identifier Mismatch Alarm (only applies to SDH and not SONET). The Path Trace Identifier being seen by the OC3 card at the carrier Path level does not match what has been provisioned for that carrier.	Y	yes		1) Ensure that the host carrier is generating the correct Trace Identifier . 2) Ensure that the correct fiber is connected to the OC3 card. 3) Update the Path Trace Identifier at the LCI. 4) Using the STM-1 EM GUI screen button check the transmitted Path Trace Identifier to ensure it is the "provisioned" Path Trace Identifier.	SN06		
	MGCA333	ds3Ais		DS3 - Alarm Indication Signal - Check far-end carrier fault.		yes			SN07		
	MGCA334	ds3Lof		DS3 - Loss Of Frame		yes			SN07		
	MGCA335	ds3Rai		DS3 - Remote Indication Signal - Check far-end carrier fault.		yes			SN07		
nnAtmFaultType (NORTEL-UEMG-ATM-MIB)	VC301	vclTpAis	Minor	atmVcl Alarm indication signal	Y	yes	This Alarm cannot be generated under normal condition or with a test set. The following Dshell commacd must be used "cd atmss/atmoam" aisalarm	Tear down the SVC and reestablish, check DS1 card for propper operation	SN04		
	VC302	vclTpRdi	Minor	atmVcl Remote Detection Indicator	Y	yes	This Alarm cannot be generated under normal condition or with a test set. The following Dshell commacd must be used "cd atmss/atmoam" rdialarm	Tear down the SVC and reestablish, check DS1 card for propper operation	SN04		
	VC303	vclLoc	Minor	loss of continuity, vcl	Y	yes	This Alarm cannot be generated under normal condition or with a test set. The following Dshell commacd must be used "cd atmss/atmoam" coalarmon	Tear down the SVC and reestablish, check DS1 card for propper operation	SN04		
	VC304	vccTpAis	Minor	atmVcc Alarm indication signal	Y	yes	This Alarm cannot be generated under normal condition or with a test set. The following Dshell commacd must be used "cd atmss/atmoam" aisalarm	Tear down the SVC and reestablish, check DS1 card for propper operation	SN04		
	VC305	vccTpRdi	Minor	atmVcc Remote Detection Indicator	Y	yes	This Alarm cannot be generated under normal condition or with a test set. The following Dshell commacd must be used "cd atmss/atmoam" rdialarm	Tear down the SVC and reestablish, check DS1 card for propper operation	SN04		
	VC306	vccLoc	Minor	loss of continuity, vcc	Y	yes	This Alarm cannot be generated under normal condition or with a test set. The following Dshell commacd must be used "cd atmss/atmoam" coalarmon	Tear down the SVC and reestablish, check DS1 card for propper operation	SN04		
nnShlFault (NORTEL-UEMG-SHF-MIB)	SHLF301	shelfTalkBatteryA	Critical	SIC Talk Battery A	Y	yes	Pull Talk Battery A Fuse (at BIP pannel)	Check Fuse	SN04		
	SHLF302	shelfTalkBatteryB	Critical	SIC Talk Battery B	Y	yes	Pull Talk battery B fuse (at BIP pannel)	Check Fuse	SN04		
	SHLF303	shelfSignalBatteryA	Major	SIC Signal Battery A	Y	yes	Pull Signal Battery A fuse (at BIP pannel)	Check Fuse	SN04		
	SHLF304	shelfSignalBatteryB	Major	SIC Signal Battery B	Y	yes	Pull Signal Battery B fuse (at BIP pannel)	Check Fuse	SN04		
	SHLF305	shelfSignalBatteryAfuse	Major	SIC Signal Battery A Fuse	Y	yes	Put Blown Signal Battery A fuse in BIP Panel	Check Fuse	SN04		
	SHLF306	shelfSignalBatteryBfuse	Major	SIC Signal Battery B Fuse	Y	yes	Put Blown Signal Battery B fuse in BIP Panel	Check Fuse	SN04		
	SHLF307	shelfFailLED	Indeterminate	SIC Shelf Fail LED	N	yes	Any Shelf failure	Remove all Shelf Failures	SN04		
	SHLF308	bipSignalBattery A1	Major	BIP Signal Battery A1	Y	yes	Pull Signal Battery A1 Fuse (at BIP pannel)	Check Fuse	SN04		
	SHLF309	bipSignalBattery A2	Major	BIP Signal Battery A2	Y	yes	Pull Signal Battery A2 Fuse (at BIP pannel)	Check Fuse	SN04		
	SHLF310	bipSignalBattery B1	Major	BIP Signal Battery B1	Y	yes	Pull Signal Battery B1 Fuse (at BIP pannel)	Check Fuse	SN04		
	SHLF311	bipSignalBattery B2	Major	BIP Signal Battery B2	Y	yes	Pull Signal Battery B2 Fuse (at BIP pannel)	Check Fuse	SN04		
	SHLF312	bipTalkBatteryA	Minor	BIP Talk Battery A	Y	yes	Remove (or Offline/Lock ate EM) TB A Filter card	Re-insert (or Unlock/Online ate EM) TB A Filtercard	SN04		
	SHLF313	bipTalkBatteryB	Minor	BIP Talk Battery B	Y	yes	Remove (or Offline/Lock ate EM) TB B Filter card	Re-insert (or Unlock/Online ate EM) TB B Filtercard	SN04		
	SHLF314	bipFilterA	Minor	BIP Filter A Fail	Y	yes	Requires Bad card or use of Dshell to generate the alarm	Replace bad card	SN04		
	SHLF315	bipFilterB	Minor	BIP Filter B Fail	Y	yes	Requires Bad card or use of Dshell to generate the alarm	Replace bad card	SN04		
	SHLF316	bipScanPoint1	Indeterminate	BIP Scan Point 1	N	yes	Requires closure of Specifid Scan Point pins on the Scan Point cable. This may require a test board. Alternitively **Dshell** can be used to generate this alarm. To do this Telnet into an active ITX card and enter the following command "/glan/dsend **XX** 03 01 b5 70 06 07 00 82 **YY** 01 00 b2 e9". To clear the alarm use "/glan/dsend **XX** 03 01 b5 70 06 07 00 82 **YY** 00 00 b2 e9". XX = ITP slot number and YY = 08	Investigate Scan Point Source to determine problem	SN04		
	SHLF317	bipScanPoint2	Indeterminate	BIP Scan Point 2	N	yes	Same as above except XX = 09	Investigate Scan Point Source to determine problem	SN04		
	SHLF318	bipScanPoint3	Indeterminate	BIP Scan Point 3	N	yes	Same as above except XX = 0a	Investigate Scan Point Source to determine problem	SN04		
	SHLF319	bipScanPoint4	Indeterminate	BIP Scan Point 4	N	yes	Same as above except XX = 0b	Investigate Scan Point Source to determine problem	SN04		
	SHLF320	bipScanPoint5	Indeterminate	BIP Scan Point 5	N	yes	Same as above except XX = 0c	Investigate Scan Point Source to determine problem	SN04		
	SHLF321	bipScanPoint6	Indeterminate	BIP Scan Point 6	N	yes	Same as above except XX = 0d	Investigate Scan Point Source to determine problem	SN04		
	SHLF322	bipScanPoint7	Indeterminate	BIP Scan Point 7	N	yes	Same as above except XX = 0e	Investigate Scan Point Source to determine problem	SN04		
	SHLF323	bipScanPoint8	Indeterminate	BIP Scan Point 8	N	yes	Same as above except XX = 0f	Investigate Scan Point Source to determine problem	SN04		
	SHLF324	bipScanPoint9	Indeterminate	BIP Scan Point 9	N	yes	Same as above except XX = 10	Investigate Scan Point Source to determine problem	SN04		
	SHLF325	bipScanPoint10	Indeterminate	BIP Scan Point 10	N	yes	Same as above except XX = 11	Investigate Scan Point Source to determine problem	SN04		
	SHLF326	bipScanPoint11	Indeterminate	BIP Scan Point 11	N	yes	Same as above except XX = 12	Investigate Scan Point Source to determine problem	SN04		
	SHLF327	bipTalkBatteryA1	Major	Talk Battery A1 Power Feed	Y	yes	Pull PDA fuse	Check Power feed connection and PDA fuse	SN04		
	SHLF328	bipTalkBatteryA2	Major	Talk Battery A Power Feed	Y	yes	Pull PDA fuse	Check Power feed connection and PDA fuse	SN04		
	SHLF329	bipTalkBatteryB1	Major	Talk Battery B1 Power Feed	Y	yes	Pull PDA fuse	Check Power feed connection and PDA fuse	SN04		
	SHLF330	bipTalkBatteryB2	Major	Talk Battery B2 Power Feed	Y	yes	Pull PDA fuse	Check Power feed connection and PDA fuse	SN04		
	SHLF332	bipEcuTemp0	Minor	BIP Environmental Control Unit 0 Temperature	Y	yes	Through **Dshell** reset the the threshold to value that will trigger this alarm. To do this Telnet into an active ITX card and enter the following command "/glan/dsend **XX** 03 01 b5 70 06 07 00 82 **YY** 01 00 b2 e9". To clear the alarm use "/glan/dsend **XX** 03 01 b5 70 06 07 00 82 **YY** 00 00 b2 e9". XX = ITP slot number and YY = 18		SN04		
	SHLF333	bipEcuTemp1	Minor	BIP Environmental Control Unit 1 Temperature	Y	yes	Through **Dshell** reset the the threshold to value that will trigger this alarm. To do this Telnet into an active ITX card and enter the following command "/glan/dsend **XX** 03 01 b5 70 06 07 00 82 **YY** 01 00 b2 e9". To clear the alarm use "/glan/dsend **XX** 03 01 b5 70 06 07 00 82 **YY** 00 00 b2 e9". XX = ITP slot number and YY = 1A		SN04		
	SHLF334	bipEcuFan0	Minor	BIP Environmental Control Unit 0 Fan	Y	yes	Remove Fan Cable	Check Fan cable, fuses, or replace fan	SN04		
	SHLF335	bipEcuFan1	Minor	BIP Environmental Control Unit 1 Fan	Y	yes	Remove Fan Cable	Check Fan cable, fuses, or replace fan	SN04		
	SHLF336	bipRemoteAlarmcutoff	Indeterminate	BIP Remote Alarm Cut Off	N	yes	Engage Remote Alarm Cut Off button on BIP panel	Disengage Alarm cut Off button on BIP panel	SN04		
	SHLF337	bipLocalAlarmcutoff	Indeterminate	BIP Local Alarm Cut Off	N	yes	Engage Alarm Cut Off button on BIP panel	Disengage Remote Alarm cut Off button on BIP panel	SN04		
	SHLF338	bipAbsFusefail	Major	BIP ABS Fuse Fail	Y	yes	Remove ABS fuse	Replace ABS fuse	SN04		
	SHLF339	bipAbsPowerSupply	Critical	BIP ABS Battery Power Supply	Y	yes	Remove ABS power cable	Check (Replace if necessary) ABS Power supply, Check Power supply power cables and leads	SN04		
	SHLF340	bipShlfBreakerTrip	Major	BIP Shelf Circuit Breaker Trip	Y	yes	Turn off Breaker	Check Breaker, Turn on Breaker.	SN04		
	SHLF341	MaCs Apresence	Major	Presence of BIP's Current-Sense Card A	Y	yes	Remove BIP's Current-Sense Card A	Install BIP's Current-Sense Card A	SN05		
	SHLF342	MaCs Spresence	Major	Presence of BIP's Current-Sense Card B	Y	yes	Remove BIP's Current-Sense Card B	Install BIP's Current-Sense Card B	SN05		
	SHLF343	bipAlm Relay Presence	Major	Presence of BIP's Alarm Relay Card	Y	yes	Remove BIP's Alarm Relay Card	Install BIP's Alarm Relay Card	SN05		
	SHLF344	bipCSAshf0 HighThres	Minor	Current-Sense Card A Shelf 0 High Threshold exceeded	Y	yes	Through **Dshell** reset the the threshold to value that will trigger this alarm. To do this Telnet into an active ITX card and enter the following command "/glan/dsend **XX** 03 01 b5 70 06 07 7a 92 **YY** 04 c0 ff". To clear the alarm use "/glan/dsend **XX** 03 01 b5 70 06 07 68 92 **YY** 03 c0 ff". XX = ITP slot number and YY = 3E		SN05		
	SHLF345	bipCSAshf1 HighThres	Minor	Current-Sense Card A Shelf 1 High Threshold	Y	yes	Same as above except YY = 3F		SN05		
	SHLF346	bipCSAshf2 HighThres	Minor	Current-Sense Card A Shelf 2 High Threshold	Y	yes	Same as above except YY = 40		SN05		
	SHLF347	bipCSAshf3 HighThres	Minor	Current-Sense Card A Shelf 3 High Threshold	Y	yes	Same as above except YY = 41		SN05		
	SHLF348	bipCSBshf0 HighThres	Minor	Current-Sense Card B Shelf 0 High Threshold	Y	yes	Same as above except YY = 42		SN05		
	SHLF349	bipCSBshf1 HighThres	Minor	Current-Sense Card B Shelf 1 High Threshold	Y	yes	Same as above except YY = 43		SN05		
	SHLF350	bipCSBshf2 HighThres	Minor	Current-Sense Card B Shelf 2 High Threshold	Y	yes	Same as above except YY = 44		SN05		
	SHLF351	bipCSBshf3 HighThres	Minor	Current-Sense Card B Shelf 3 High Threshold	Y	yes	Same as above except YY = 45		SN05		
	SHLF352	bipTempHighThres	Minor	Current High Temperature Threshold exceeded	Y	yes	Through **Dshell** reset the the threshold to value that will trigger this alarm. To do this Telnet into an active ITX card and enter the following command "/glan/dsend **XX** 03 01 b5 70 06 07 50 92 3d 04 cc ff". XX = ITP slot number.		SN05		
	SHLF353	bipCSAshf0LowThres	Minor	Current-Sense Card A Shelf 0 Low Threshold exceeded	Y	yes	Through **Dshell** reset the the threshold to value that will trigger this alarm. To do this Telnet into an active ITX card and enter the following command "/glan/dsend **XX** 03 01 b5 70 06 07 6f 92 **YY** 02 c0 ff". To clear the alarm use "/glan/dsend **XX** 03 01 b5 70 06 07 58 92 **YY** 01 c0 ff". XX = ITP slot number and YY = 3E		SN05		
	SHLF354	bipCSAshf1LowThres	Minor	Current-Sense Card A Shelf 1 Low Threshold	Y	yes	Same as above except YY = 3F		SN05		
	SHLF355	bipCSAshf2LowThres	Minor	Current-Sense Card A Shelf 2 Low Threshold	Y	yes	Same as above except YY = 40		SN05		
	SHLF356	bipCSAshf3LowThres	Minor	Current-Sense Card A Shelf 3 Low Threshold	Y	yes	Same as above except YY = 41		SN05		
	SHLF357	bipCSBshf0LowThres	Minor	Current-Sense Card B Shelf 0 Low Threshold	Y	yes	Same as above except YY = 42		SN05		
	SHLF358	bipCSBshf1LowThres	Minor	Current-Sense Card B Shelf 1 Low Threshold	Y	yes	Same as above except YY = 43		SN05		
	SHLF359	bipCSBshf2LowThres	Minor	Current-Sense Card B Shelf 2 Low Threshold	Y	yes	Same as above except YY = 44		SN05		
	SHLF360	bipCSBshf3LowThres	Minor	Current-Sense Card B Shelf 3 Low Threshold	Y	yes	Same as above except YY = 45		SN05		
	SHLF361	bipTempLowThres	Minor	Current Low Temperature Threshold exceeded	Y	yes	Through **Dshell** reset the the threshold to value that will trigger this alarm. To do this Telnet into an active ITX card and enter the following command "/glan/dsend **XX** 03 01 b5 70 06 07 00 92 3d 01 c0 ff". XX = ITP slot number.		SN05		
	SHLF362	MaSignalBatteryFuse	Major	Status of the Signal Battery Fuse	Y	yes	Pull Signal Battery Fuse at the BIP panel	Check fuse and replace if necessary	SN05		
	SHLF363	bipTalkBatteryAFuse	Major	Status of Talk Battery A Fuse	Y	yes	Pull Talk Battery A Fuse at the BIP panel	Check fuse and replace if necessary	SN05		
	SHLF364	bipTalkBatteryBFuse	Major	Status of Talk Battery B Fuse	Y	yes	Pull Talk Battery B Fuse at the BIP panel	Check fuse and replace if necessary	SN05		
	SHLF365	bipEcuFuse0	Minor	Status of Cooling Unit 0 Fuse	Y	yes	Pull Cooling Unit 0 Fuse at the BIP panel	Check fuse and replace if necessary	SN05		
	SHLF366	bipEcuFuse1	Minor	Status of Cooling Unit 1 Fuse	Y	yes	Pull Cooling Unit 1 Fuse at the BIP panel	Check fuse and replace if necessary	SN05		

	SHLF367	bipEndAisleFuse	Minor	Status of the End-Aisle Fuse	Y	yes	Pull End-Aisle Fuse at the BIP panel	Check fuse and replace if necessary	SN05		
	SHLF368	bipSignalDistribution1	Indeterminate	BIP Signal Distribution Point 1	N	yes	At the MG9000 EM enable this SDP		SN04		
	SHLF369	bipSignalDistribution2	Indeterminate	BIP Signal Distribution Point 2	N	yes	At the MG9000 EM enable this SDP		SN04		
	SHLF370	bipSignalDistribution3	Indeterminate	BIP Signal Distribution Point 3	N	yes	At the MG9000 EM enable this SDP		SN04		
	SHLF371	bipSignalDistribution4	Indeterminate	BIP Signal Distribution Point 4	N	yes	At the MG9000 EM enable this SDP		SN04		
	SHLF372	bipVisualCritical	Indeterminate	BIP Visual Critical	N	yes	Generate any Critical Alarm on an MG9000 within the Frame	Clear all Critical Alarm on an MG9000 within the Frame	SN04		
	SHLF373	bipVisualMajor	Indeterminate	BIP Visual Major	N	yes	Generate any Major Alarm on an MG9000 within the Frame	Clear all any Major Alarm on an MG9000 within the Frame	SN04		
	SHLF374	bipVisualMinor	Indeterminate	BIP Visual Minor	N	yes	Generate any Minor Alarm on an MG9000 within the Frame	Clear all any Minor Alarm on an MG9000 within the Frame	SN04		
	SHLF375	bipAudibleCritical	Indeterminate	BIP Audible Critical	N	yes	Generate any Critical Alarm on an MG9000 within the Frame	Clear all Critical Alarm on an MG9000 within the Frame	SN04		
	SHLF376	bipAudibleMajor	Indeterminate	BIP Audible Major	N	yes	Generate any Major Alarm on an MG9000 within the Frame	Clear all any Major Alarm on an MG9000 within the Frame	SN04		
	SHLF377	bipAudibleMinor	Indeterminate	BIP Audible Minor	N	yes	Generate any Minor Alarm on an MG9000 within the Frame	Clear all any Minor Alarm on an MG9000 within the Frame	SN04		
	SHLF378	bipAlarmCutOffLED	Indeterminate	BIP Alarm CutOff LED	N	yes	Engage Alarm Cut Off button on BIP panel	Disengage Remote Alarm cut Off button on BIP panel	SN04		
	SHLF379	bipTalkBatteryFailALED	Indeterminate	BIP Talk Battery A Fail LED	N	yes	Remove (or Offline/Lock ate EM) TB A Filter card	Re-insert (or Unlock/Online ate EM) TB A Filtercard	SN04		
	SHLF380	bipTalkBatteryFailBLED	Indeterminate	BIP Talk Battery B Fail LED	N	yes	Remove (or Offline/Lock ate EM) TB B Filter card	Re-insert (or Unlock/Online ate EM) TB B Filtercard	SN04		
	SHLF381	bipCriticalLEDbank	Indeterminate	BIP Critical LED Bank	N	yes	Generate any Critical Alarm on an MG9000 within the Frame	Clear all Critical Alarm on an MG9000 within the Frame	SN04		
	SHLF382	bipMajorLEDbank	Indeterminate	BIP Major LED Bank	N	yes	Generate any Major Alarm on an MG9000 within the Frame	Clear all any Major Alarm on an MG9000 within the Frame	SN04		
	SHLF383	bipMinorLEDbank	Indeterminate	BIP Minor LED Bank	N	yes	Generate any Minor Alarm on an MG9000 within the Frame	Clear all any Minor Alarm on an MG9000 within the Frame	SN04		
	SHLF384	bipEcu1LED	Indeterminate	BIP Environmental Control Unit 0 LED	N	yes	Remove Fan Cable	Check Fan cable, fuses, or replace fan	SN04		
	SHLF385	bipEcu2LED	Indeterminate	BIP Environmental Control Unit 1 LED	N	yes	Remove Fan Cable	Check Fan cable, fuses, or replace fan	SN04		
	SHLF386	bipAlarmFailLED	Indeterminate	BIP Alarm Processor Card Fail LED	N	yes	At EM Offline/Lock the BIP Alarm Processor Card	At EM Online/Unlock the BIP Alarm Processor Card	SN04		
	SHLF387	bipAisleAlarm	Indeterminate	BIP Aisle Alarm	N	yes	Generate any SHLF alarm	Clear all SHLF alarms	SN04		
	SHLF388	bipFrameFail	Indeterminate	BIP Frame Fail	N	yes	Generate any Frame alarm	Clear all Frame alarms	SN04		
	SHLF389	bipAlmRelayLed	Indeterminate	Presence of BIP's Alarm Relay Card LED	N	yes	Remove BIP's Alarm Relay Card	Install BIP's Alarm Relay Card	SN05		
	SHLF390	bipCrAlmLed	Indeterminate	Status of Current-Sense Card A LED	N	yes	At EM Offline/Lock the BIP Current-Sense Card A	At EM Online/Unlock the BIP Current-Sense Card A	SN05		
	SHLF391	bipCrBmLed	Indeterminate	Status of Current-Sense Card B LED	N	yes	At EM Offline/Lock the BIP Current-Sense Card B	At EM Online/Unlock the BIP Current-Sense Card B	SN05		
	SHLF392	shelfCompatibility		This log is generated when a shelfCompatibility fault is registered	N	yes			SN07		
	SHLF393	cardDiscovery		This log is generated when a cardDiscovery fault is	N	yes			SN07		
		cardDiscPowUp		This log is generated when a cardDiscPowUp fault is	N	yes			SN07		
		cardDiscPowSb		This log is generated when a cardDiscPowSb fault is	N	yes			SN07		
		cardDbcSlot02		This log is generated when a cardDbcSlot02 fault is	N	yes			SN07		
		cardDbcSlot03		This log is generated when a cardDbcSlot03 fault is	N	yes			SN07		
		cardDbcSlot04		This log is generated when a cardDbcSlot04 fault is	N	yes			SN07		
		cardDbcSlot05		This log is generated when a cardDbcSlot05 fault is	N	yes			SN07		
		cardDbcSlot06		This log is generated when a cardDbcSlot06 fault is	N	yes			SN07		
		cardDbcSlot07		This log is generated when a cardDbcSlot07 fault is	N	yes			SN07		
		cardDbcSlot08		This log is generated when a cardDbcSlot08 fault is	N	yes			SN07		
		cardDbcSlot09		This log is generated when a cardDbcSlot09 fault is	N	yes			SN07		
		cardDbcSlot10		This log is generated when a cardDbcSlot10 fault is	N	yes			SN07		
		cardDbcSlot11		This log is generated when a cardDbcSlot11 fault is	N	yes			SN07		
		cardDbcSlot12		This log is generated when a cardDbcSlot12 fault is	N	yes			SN07		
		cardDbcSlot13		This log is generated when a cardDbcSlot13 fault is	N	yes			SN07		
		cardDbcSlot14		This log is generated when a cardDbcSlot14 fault is	N	yes			SN07		
		cardDbcSlot15		This log is generated when a cardDbcSlot15 fault is	N	yes			SN07		
		cardDbcSlot16		This log is generated when a cardDbcSlot16 fault is	N	yes			SN07		
		cardDbcSlot17		This log is generated when a cardDbcSlot17 fault is	N	yes			SN07		
		cardDbcSlot18		This log is generated when a cardDbcSlot18 fault is	N	yes			SN07		
		cardDbcSlot19		This log is generated when a cardDbcSlot19 fault is	N	yes			SN07		
		cardDbcSlot20		This log is generated when a cardDbcSlot20 fault is	N	yes			SN07		
		cardDbcSlot21		This log is generated when a cardDbcSlot21 fault is	N	yes			SN07		
norLineFault (NORTEL-UEMG-LINE-MIB)	**SWLN301**	lineFault	Minor	Line in Fault	Y	yes	Requires bad hardware.	Perform Line Card diag and replace card if faulty.	SN04		
	SWLN302	lineProtectionFault	Minor	Hazardous Voltage	Y	yes	Apply higher voltage across the loop. An alternitive if to do the following: You can force a line to be in fault (HazardVoltage) via the sethazard command on the active itp. (/inemtc/circuit/setbabble). Do this on a WLC based linecard circuit. ITP [3 2 12] dSH> setbabble 2 31 Slot: 2 Circuit: 31	Remove voltage. Perform Line Card Diag and Replace card if faulty.	SN04		
	SWLN303	lineBabbleState	Minor	Line in Babbling state	Y	yes	Requires test gear to generate this alarm condition. An alternitive if to do the following:You can force a line to be in fault (HazardVoltage) via the setbabble command on the active itp. (/inemtc/circuit/sethazard). Do this on a WLC based linecard circuit. ITP [3 2 12] dSH> sethazard 2 31 Slot: 2 Circuit: 31	Perform Line Card diag and replace card if faulty.	SN04		
nnDslFault (NORTEL-UEMG-DSL-MIB)	**XDSL301**	losATUC	Minor	Loss of signal - Local modem	N	yes	At the DSL line card pull the cable connector	See lolATUC	SN04		
	XDSL302	lolATUC	Minor	Loss of frame - Local modem	N	yes	Utilize the UASHOST PC program to generate faults. A notebook PC is connected directly to the line card via a serial cable and RS232-TTL converter.	See loATUC	SN04		
	XDSL303	lprATUC	Critical	Loss of Power - Local modem	N	yes	Utilize the UASHOST PC program to generate faults. A notebook PC is connected directly to the line card via a serial cable and RS232-TTL converter.	Reset and/or reseat line card. Investigate shelf/linecard power supplies.	SN04		
	XDSL304	lolATUC	Minor	Loss of link - Local modem	N	yes	At the DSL line card pull the cable connector	Generally indicates the CPE has been powered off. If customer complains, it may indicate loop impairment or faulty modem. Check subscriber connection to line card.	SN04		
	XDSL305	losATUR	Minor	Loss of signal - Remote modem	N	yes	Using an ADSL Modem **test set** inject this type of fault.	See loATUR	SN04		
	XDSL306	lofATUR	Minor	Loss of frame - Remote modem	N	yes	Using an ADSL Modem **test set** inject this type of fault.	See loATUR	SN04		
	XDSL307	lprATUR	Minor	Loss of power - Remote modem	N	yes	Using an ADSL Modem **test set** inject this type of fault.	None. This signifies a Dying Gasp from the remote modem (normal power-off condtion).	SN04		
	XDSL308	loiATUR	Minor	Loss of link - Remote modem	N	yes	Using an ADSL Modem **test set** inject this type of fault.	See loATUC	SN04		
	XDSL309	aturNotPresent	Minor	No remote modem present	N	yes	At the DSL line card pull the cable connector (wait a minute or two)	If persistent, changing provisioning parameters of the circuit may improve immunity to loop impairments. Replacing the remote modem or linecard may also correct the problem.	SN04		
	XDSL310	noClock	Critical	Local modem clock failure	N	yes	Using an ADSL Modem **test set** inject this type of fault.	same as above	SN04		
	XDSL311	handshakeFail	Critical	Protocol error	N	yes	At the ADSL Modem set it to G.lite	same as above	SN04		
	XDSL312	linkMismatch	Critical	Config uration error	N	yes	Using an ADSL Modem **test set** inject this type of fault.	same as above	SN04		
	XDSL313	vpiNonzero	Critical	ATM traffic dropped at WAC - upstream	N	yes	Using an ATM test set (ADTECH) injetst this type of fault	If persistent, reset and/or reseat the linecard. If still not clear, replace linecard.	SN04		
	XDSL314	lodlATUC	Critical	Loss of sync of ATM cells - upstream	N	yes	Using an ATM test set (ADTECH) injetst this type of fault	If persistent, reset and/or reseat the linecard. If still not clear, replace remote modem and/or linecard	SN04		
	XDSL315	lodlATUR	Critical	Loss of sync of ATM cells - downstream	N	yes	Using an ATM test set (ADTECH) injetst this type of fault	same as above	SN04		
	XDSL316	failATUC	Critical	Local modem critical failure - not responding, in Kernel mode, download failure or message corrupted	N	yes	Using an ADSL Modem test set inject this type of fault.	See vpiNonzero	SN04		
	XDSL317	circuitHardwareFault	Critical	General H/W fault indication - circuit	N	yes	Utilize the UASHOST PC program to generate faults. A notebook PC is connected directly to the line card via a serial cable and RS232-TTL converter.	Replace linecard.	SN04		
BWShelfFault (NORTEL-UEMG-BANDWIDTH-MIB)	**BW300**	bwResBandwShelfFault	Warning	Reserved bandwidth used on the indicated shelf has exceeded the Bandwidth Congestion Threshold	N	yes	At EM (Bandwidth Management view) set this threshold to a very low value. Generate enough traffic on the shelf (including PLoA) to exceed the threshold.	Alarm is cleared when reserved bandwidth on the shelf is 10% below the Bandwidth Congestion Threshold. Increase threshold, try to decrease the number of active calls on the shelf, or take no action	SN04		
BandwidthFault (NORTEL-UEMG-BANDWIDTH-MIB)	**BW301**	bwResBandwTotalFault	Warning	This alarm is generated when reserved bandwidth use on the network interface has exceeded the Bandwidth Congestion Threshold. The alarm is cleared when reserved bandwidth on the network interface is 10% less than the threshold.	N	yes	At EM (Bandwidth Management view) set this threshold to a very low value. Generate enough traffic on the MG9000 (including PLoA) to exceed the threshold.	The alarm is cleared when reserved bandwidth on the network interface is 10% less than the threshold.	SN04		
	BW302	bwResBandwSloaFault	Warning	This alarm is generated when reserved bandwidth dedicated to switched lines connections on the network interface has exceeded the Bandwidth Congestion Threshold with respect to the amount of bandwidth configured the network interface for	N	yes	At EM (Bandwidth Management view) set this threshold to a very low value. Generate enough SLoA traffic on the MG9000 to exceed the threshold.	The alarm is cleared when reserved Switched lines bandwidth on the network interface is 10% less than the threshold.	SN04		
	BW304	bwSwitchFabricTotalFault	Warning	Overall Cell Queue Congestion Alarm. Overall atm cell queue is at least 90% full	N	yes	This fault is very difficult to produce during normal operations with a test set or manual action. The best way to generate this fault is using the following **Dshell** command. To do this "cd" to SNMP and use the "bwevents" command with the "swfabric" option.	Alarm is cleared when the overall cell queue fill is less than 80% full	SN04		
	BW305	bwSwitchFabricCbrFault	Warning	CBR Cell Queue Congestion Alarm. Atm cell queue for this service type is at least 90% full.	N	yes	This fault is very difficult to produce during normal operations with a test set or manual action. The best way to generate this fault is using the following **Dshell** command. To do this "cd" to SNMP and use the "bwevents" command with the "swfabric" option.	Alarm is cleared when this service type cell queue is less than 80% full.	SN04		
	BW306	bwSwitchFabricRtVbrFault	Warning	RT-VBR Cell Queue Congestion Alarm. Atm cell queue for this service type is at least 90% full.	N	yes	This fault is very difficult to produce during normal operations with a test set or manual action. The best way to generate this fault is using the following **Dshell** command. To do this "cd" to SNMP and use the "bwevents" command with the "swfabric" option.	Alarm is cleared when this service type cell queue is less than 80% full.	SN04		
	BW307	bwSwitchFabricNrtVbrFault	Warning	NRT-VBR Cell Queue Congestion Alarm. Atm cell queue for this service type is at least 90% full.	N	yes	This fault is very difficult to produce during normal operations with a test set or manual action. The best way to generate this fault is using the following **Dshell** command. To do this "cd" to SNMP and use the "bwevents" command with the "swfabric" option.	Alarm is cleared when this service type cell queue is less than 80% full.	SN04		
	BW308	bwSwitchFabricUbrFault	Warning	UBR Cell Queue Congestion Alarm. Atm cell queue for this service type is at least 90% full.	N	yes	This fault is very difficult to produce during normal operations with a test set or manual action. The best way to generate this fault is using the following **Dshell** command. To do this "cd" to SNMP and use the "bwevents" command with the "swfabric" option.	Alarm is cleared when this service type cell queue is less than 80% full.	SN04		
	BW309	bwSwitchFabricUbrPlusFault	Warning	UBR-PLUS Cell Queue Congestion Alarm. Atm cell queue for this service type is at least 90% full.	N	yes	This fault is very difficult to produce during normal operations with a test set or manual action. The best way to generate this fault is using the following **Dshell** command. To do this "cd" to SNMP and use the "bwevents" command with the "swfabric" option.	Alarm is cleared when this service type cell queue is less than 80% full.	SN04		
	BW310	bwSwitchFabricControlFault	Warning	CONTROL Channel Cell Queue Congestion Alarm. Atm cell queue for this service type is at least 90% full.	N	yes	This fault is very difficult to produce during normal operations with a test set or manual action. The best way to generate this fault is using the following **Dshell** command. To do this "cd" to SNMP and use the "bwevents" command with the "swfabric" option.	Alarm is cleared when this service type cell queue is less than 80% full.	SN04		
	BW311	bwResBandwAbiFault	Warning	This alarm is generated when reserved bandwidth dedicated to ABI lines connections on the network interface has exceeded the Bandwidth Congestion Threshold with respect to the amount of bandwidth configured the network interface for switched lines.	N	yes	At EM (Bandwidth Management view) set this threshold to a very low value. Generate enough ABI traffic on MG9000 to exceed the threshold.	The alarm is cleared when reserved ABI lines bandwidth on the network interface is 10% less than the threshold.	SN05?		
nnClkSyncFault (NORTEL-UEMG-CLOCKSYNC-MIB)	**CLK301**	lossOfPhaseLock	Minor	Phase PLD [altera 7064b] detected a minimum phase difference greater than eight nano seconds. (FRAME PULSES BETWEEN ITPs DO NOT MATCH)	Y	yes	This alarm cannot be generated by a test set or manual action. These are HW or SW faults. The easist way to produce them is to use the MG9000 FITS **Dshell** commands. To set it ---> 1. /hal/writew 0x1230a08a 0x1324;/hal/writel 0x1230a092 0x0020 2. /hal/writew 0x1230a08a 0x1324;/hal/writel 0x1230a090 0x0020 To clear it --> 1. /hal/writew 0x1230a08a 0x1324;/hal/writel 0x1230a092 0x0000 2. /hal/writew 0x1230a08a 0x1324;/hal/writel 0x1230a090 0x0020		SN05		
	CLK302	lossOfFramePulseLock	Major	Frame pulse alignment did not get established with the active card -- it should occur in the inactive card only.(FRAME PULSES BETWEEN ITP DO NOT	Y	yes	Pull the Mate ITP card		SN05		
	CLK303	lossOfMyClock	Major	The high and low levels of the SYNC PLL clock are not toggling. (OUTPUT OF FREQUENCY PLL HAS BEEN LOST)	Y	yes	This alarm cannot be generated by a test set or manual action. These are HW or SW faults. The easist way to produce them is to use the MG9000 FITS **Dshell** commands. To set it ---> 1. /hal/writew 0x1230a08a 0x1324;/hal/writel 0x1230a092 0x0080 2. /hal/writew 0x1230a08a 0x1324;/hal/writel 0x1230a090 0x0080 To clear it --> 1. /hal/writew 0x1230a08a 0x1324;/hal/writel 0x1230a092 0x0000 2. /hal/writew 0x1230a08a 0x1324;/hal/writel 0x1230a090 0x0080		SN05		
	CLK304	lossOfMateClock	Minor	The high and Low levels of the mate clock are not	Y	yes	Pull the Mate ITP card		SN05		

	CLK305	lossOfClockOutput	Major	Phase PLD reference clock oscillator not toggling. (OUTPUT OF PHASE PLL HAS BEEN LOST)	Y	yes	This alarm cannot be generated by a test set or manual action. These are HW or SW faults. The easist way to produce them is to use the MG9000 FITS **Dshell** commands. To set it ---> 1. /hal/writelw 0x1230a08a 0x1324;/hal/writel 0x1230a092 0x0100 2. /hal/writew 0x1230a08a 0x1324;/hal/writel 0x1230a090 0x0100 To clear it --> 1. /hal/writelw 0x1230a08a 0x1324;/hal/writel 0x1230a092 0x0000 2. /hal/writew 0x1230a08a 0x1324;/hal/writel 0x1230a090 0x0100		SN05		
	CLK306	singleReferenceFailure	Minor	Single monitored reference source has been lost	Y	yes	With the MG9000 using BITS but with network clocking available, pull the BITS cable		SN05		
	CLK307	allReferenceFailure	Major	Absolute and Delta reference source signals have been lost	Y	yes	Remove the receive side of the active DCC cards fiber		SN04		
	CLK308	singleSyncUnitFailure	Major	Stratum 3 unit on ITP failed	Y	yes	This alarm cannot be generated by a test set or manual action. These are HW or SW faults. The easist way to produce them is to use the MG9000 **Dshell** FITS commands		SN04		
	CLK312	signalLos	Minor	Single/All source reference occurred due to loss of	Y	yes	Remove both Clock sources (BITS and Network Interface)		SN05		
	CLK313	signalLof	Minor	Single/All source reference occurred due to loss of	Y	yes	3		SN05		
		FlashRsrc	Major	Flash Memory	Y	yes	GW software may not detect all alarm conditions listed. However, GW provides capability to generate these alarms using the debug commands in DSHELL. In DSHELL enter the following commands: > cd /mtc/resources > injectfault When this command is entered, values for additional parameters are listed.	Lock/Unlock the card, wait for the restart to finish, and then run diagnostics. If the faults re-appear, then replace the card.	SN05		
		ProcessorRsrc	Major	Processor	Y	yes	GW software may not detect all alarm conditions listed. However, GW provides capability to generate these alarms using the debug commands in DSHELL. In DSHELL enter the following commands: > cd /mtc/resources > injectfault When this command is entered, values for additional parameters are listed.	Lock/Unlock the card, wait for the restart to finish, and then run diagnostics. If the faults re-appear, then replace the card.	SN05		
		IdpromRsrc	Major	Idprom	Y	yes	Same as Processor fault	same as above	SN06		
		Atm50PortRsrc	Minor	ATM200 Port [0-19]: Not at 200 speed, or Init failed	N	yes	Same as Processor fault	same as above	SN06.2		
		RamRsrc	Major	RAM	Y	yes	Same as Processor fault	same as above	SN05		
		CardTypeMismatchRsrc	Critical	Incorrect Card In Slot	N	yes	Same as Processor fault	same as above	SN06.2		
		RedundancyLostRsrc	Warning	Simplex Mode - No Redundancy	N	yes	Same as Processor fault	same as above	SN06.2		
		CardPairOOSRsrc	Warning	Active/Master Card Out Of Service	N	yes	Same as Processor fault	same as above	SN06.2		
		CardRsrc	Major	DS1 Card	Y	yes	Same as Processor fault	Lock/Unlock the card, wait for the restart to finish, and then run diagnostics. If the faults re-appear, then replace the card.	SN04		
		DS1Aal1SarRsrc	Major	AAL1 SAR - DS1 Card TDM to ATM converter	Y	yes	Same as Processor fault	Lock/Unlock the card, wait for the restart to finish, and then run diagnostics. If the faults re-appear, then replace the card.	SN04		
		DS1LinkRsrc	Minor	DS1 Link [0 to 15]	Y	yes	Same as Processor fault	same as above	SN05		
		DS1FramerRsrc	Major	DS1 Framer for DS1 links [0-7, or 8-15]	Y	yes	Same as Processor fault	same as above	SN04		
		DS1LIURsrc	Major	DS1 Line IF Unit for DS1 links [0-7, or 8-15]	Y	yes	Same as Processor fault	same as above	SN04		
		CardRsrc	Major	ITP card	Y	yes	Same as Processor fault	Lock/Unlock the card, wait for the restart to finish, and then run diagnostics. If the faults re-appear, then replace the card.	SN04		
		ITPTimeswitchRsrc	Major	Timeswitch - call processing enging	Y	yes	Same as Processor fault	Lock/Unlock the card, wait for the restart to finish, and then run diagnostics. If the faults re-appear, then replace the card.	SN04		
		TPDspServiceCircuitsRsrc	Major	DSP [0-3]	Y	yes	Same as Processor fault	Lock/Unlock the card, wait for the restart to finish, and then run diagnostics. If the faults re-appear, then replace the card.	SN04		
		ITPEchoCancellationRsrc	Minor	ECAN	Y	yes	Same as Processor fault	same as above	SN04		
		ITPAal1SarRsrc	Major	AAL1 SAR - Call Traffic TDM to ATM converter	Y	yes	Same as Processor fault	same as above	SN04		
	NE301	ITPAtmBusControllerRsrc	Major	Serial Link Control - controls communication with ITX cards	Y	yes	Same as Processor fault	If these types of alarms appear in conjuntion with external faults, deal with the external faults first. If they appear alone, treat them as a card fault.	SN04		
		ITPDdcIdpromRsrc	Minor	DDC Idprom - DSP Daughter Card Idprom	N	yes	Same as Processor fault	Lock/Unlock the card, wait for the restart to finish, and then run diagnostics. If the faults re-appear, then replace the card.	SN06.2		
		ITPDdcCallistoRsrc	Major	DDC Calisto - DSP Daughter Card Calisto	N	yes	Same as Processor fault	same as above	SN06.2		
		ITPVoicePathRsrc	Critical	Voice Path	N	yes	Same as Processor fault	same as above	SN06.2		
		CardRsrc	Major	ITX Card	Y	yes	Same as Processor fault	Lock/Unlock the card, wait for the restart to finish, and then run diagnostics. If the faults re-appear, then replace the card.	SN04		
		CardRsrc	Major	SCO/SCI card	Y	yes	Same as Processor fault	Lock/Unlock the card, wait for the restart to finish, and then run diagnostics. If the faults re-appear, then replace the card.	SN05		
		SCTerminalIfRsrc	Warning	RS-232 Port	N	yes	Same as Processor fault	same as above	SN05		
		SCBootFlashMemRsrc	Warning	Flash Memory containing software load	N	yes	Same as Processor fault	same as above	SN05		
		SCLocalBusRamRsrc	Major	Local Memory	Y	yes	Same as Processor fault	same as above	SN05		
		SCEthernetIfRsrc	Warning	Ethernet port	N	yes	Same as Processor fault	same as above	SN05		
		SCSWRsrc	Minor	ATM Switch - MMC Chipset	Y	yes	Same as Processor fault	Lock/Unlock the card, wait for the restart to finish, and then run diagnostics. If the faults re-appear, then replace the card.	SN05		
		SCNetworkIfRsrc	Major	Network Interface (SCO) [0-7] (SCI)	Y	yes	Same as Processor fault	same as above	SN05		
		SCAtmFwdRsrc	Critical	ATM Cell Forwarder	N	yes	Same as Processor fault	same as above	SN06.2		
		CardRsrc	Major	ABI card	Y	yes	Same as Processor fault	Lock/Unlock the card, wait for the restart to finish, and then run diagnostics. If the faults re-appear, then replace the card.	SN05		
		ABITimeswitchNetSideRsrc	Major	Timeswitch - call p engine (network side)	Y	yes	Same as Processor fault	Lock/Unlock the card, wait for the restart to finish, and then run diagnostics. If the faults re-appear, then replace the card.	SN05		
		ABITimeswitchLineSideRsrc	Major	Timeswitch - call p engine (Line side)	Y	yes	Same as Processor fault	same as above	SN05		
		ABITimeswitchRsrc	Major	Timeswitch - call processing engine	Y	yes	Same as Processor fault	same as above	SN05		
		ABIEchoCancellationRsrc	minor	ECAN - unit 0 ECAN - unit 1	Y	yes	Same as Processor fault	same as above	SN05		
		ABIAal1SarRsrc	Major	AAL1 SAR - Call Traffic TDM to ATM converter	Y	yes	Same as Processor fault	same as above	SN05		
		ABIAal1NetSideRsrc	Major	Aal1 Network side - unit 0 Aal1 Network side - unit 1	Y	yes	Same as Processor fault	same as above	SN05		
		ABIAal1LineSideRsrc	Major	Aal1 Line side - unit 0 Aal1 Line side - unit 1	Y	yes	Same as Processor fault	same as above	SN05		
		ABIAtmBusControllerRsrc	Major	Serial Link Control - controls communication with ITX cards	Y	yes	Same as Processor fault	If these types of alarms appear in conjuntion with external faults, deal with the external faults first. If they appear alone, treat them as a card fault.	SN05		
		ABIVoicePathRsrc	Critical	Voice Path	N	yes	Same as Processor fault	same as above	SN06.2		
		CardRsrc	Major	8X8 ADSL Card	Y	yes	Same as Processor fault	Lock/Unlock the card, wait for the restart to finish, and then run diagnostics. If the faults re-appear, then replace the card.	SN06		
		AtmDataSyncRsrc	Critical	ATM Data Sync	Y	yes	Same as Processor fault	Lock/Unlock the card and the card will restart, most likely causing the alarm to go away. Wait to make sure that the card goes enabled after the restart and no faults re-appear.	SN05		
		BalDataSyncRsrc	Critical	BAL Data Sync	Y	yes	Same as Processor fault	same as above	SN05		
		MegacoDataSyncRsrc	Critical	Megaco Data Sync	Y	yes	Same as Processor fault	same as above	SN05		
		BaseSubsystemRsrc	Critical	Startup failure: Base Platform	Y	yes	Same as Processor fault	same as above	SN05		
		CarrMSubsystemRsrc	Critical	Startup failure: Carrier Maintenance	Y	yes	Same as Processor fault	same as above	SN05		
		NodeSubsystemRsrc	Critical	Startup failure: Node Maintenance	Y	yes	Same as Processor fault	same as above	SN05		
		MegacoSubsystemRsrc	Critical	Startup failure: Megaco	Y	yes	Same as Processor fault	same as above	SN05		
		DLMSubsystemRsrc	Critical	Startup failure: Data Line Maintenance	Y	yes	Same as Processor fault	same as above	SN05		
		TestSubsystemRsrc	Critical	Startup failure: Test Mib	Y	yes	Same as Processor fault	same as above	SN05		
		MTASubsystemRsrc	Critical	Startup failure: MTA Mib	Y	yes	Same as Processor fault	same as above	SN05		
		ShfSubsystemRsrc	Critical	Startup failure: Shelf Maintenance	Y	yes	Same as Processor fault	same as above	SN05		
		LineSubsystemRsrc	Critical	Startup failure: Line Maintenance	Y	yes	Same as Processor fault	same as above	SN05		
		ClkSyncSubsystemRsrc	Critical	Startup failure: Clock Sync Mib	Y	yes	Same as Processor fault	same as above	SN05		
		PatchSubsystemRsrc	Critical	Startup failure: Patching	Y	yes	Same as Processor fault	same as above	SN05		
		DTASubsystemRsrc	Critical	Startup failure: DTA	Y	yes	Same as Processor fault	same as above	SN05		
	NE302	MegOMsSubsystemRsrc	Critical	Startup failure: Megaco OMs	Y	yes	Same as Processor fault	same as above	SN05		
		UpgSubsystemRsrc	Critical	Startup failure: Software Upgrade	Y	yes	Same as Processor fault	same as above	SN05		
		SnmpMASubsystemRsrc	Critical	Startup failure: SNMP Master Agent	Y	yes	Same as Processor fault	same as above	SN05		
		TimeSubsystemRsrc	Critical	Startup failure: Time of Day	Y	yes	Same as Processor fault	same as above	SN05		
		ESASubsystemRsrc	Critical	Startup failure: ESA	Y	yes	Same as Processor fault	same as above	SN05		
		LKMSubsystemRsrc	Critical	Startup failure: Link Maintenance	Y	yes	Same as Processor fault	same as above	SN05		
		MarketFitSubsystemRsrc	Critical	Startup failure: Market Fit	N	yes	Same as Processor fault	same as above	SN06.2		
		TestRsrc	variable	Test Resource	Y	yes	Same as Processor fault	same as above	SN05		
		HeapRsrc	Critical/Major	Low Memory	Y	yes	Same as Processor fault	same as above	SN06		
		MateCommunicationRsrc	Critical	Mate Card Communication Failure	N	yes	Same as Processor fault	same as above	SN06.2		
		SCAtmCPCSUniRsrc	Major	CPCS UNI Signalling	N	yes	Same as Processor fault	same as above	SN06.2		
		ITPWBCallConnRsrc	Major	Call Control Connection	Y	yes	Same as Processor fault	Lock/Unlock the card and the card will restart, most likely causing the alarm to go away. Wait to make sure that the card goes enabled after the restart and no faults re-appear.	SN05		
		NEDataSyncRsrc	Critical	NE Data Sync	Y	yes	Same as Processor fault	Lock/Unlock the card and the card will restart, most likely causing the alarm to go away. Wait to make sure that the card goes enabled after the restart and no faults re-appear.	SN05		
		ABIWBCallConnRsrc	Major	Call Control Connection	Y	yes	Same as Processor fault	Lock/Unlock the card and the card will restart, most likely causing the alarm to go away. Wait to make sure that the card goes enabled after the restart and no faults re-appear.	SN05		
	NE303		Crit/Maj/Minor	Card Restored (SWACT and now inactive)							
		DS1NetworkLinkRsrc	Minor	Link to DCC Card in slot [10 or 11] - Isolation In Progress	Y	yes	Same as Processor fault	This alarm means two cards cannot communicate with each other. The diagnostics will determine (isolate) wher the fault is and this alarm will change into an NE305 within 3 minutes.	SN06.2		
		ITPLineSideExternalRsrc	Minor	Line Card 0, or link to Line Card	Y	yes	Same as Processor fault	same as above	SN06.2		
		ITPNetworkLinkRsrc	Minor	Link to ITX, port [0 to 1] - Isolation in progress Link to Mate ITP	Y	yes	Same as Processor fault	same as above	SN06.2		
		ITXLinkRsrc	Minor	Link to DCC in slot [10 or 11] - Isolation in progress Link 4 to ITP card - Isolation in progress Link 5 to ITP card - Isolation in progress Link 6 to ITP card - Isolation in progress Link 7 to ITP card - Isolation in progress Link 8 to ITP card - Isolation in progress Link 9 to ITP card - Isolation in progress Link 10 to ITP card - Isolation in progress Link 11 to ITP card - Isolation in progress Link 12 to ITP card - Isolation in progress Link 13 to ITP card - Isolation in progress Link 14 to ITP card - Isolation in progress Link 15 to ITP card - Isolation in progress Link 16 to ITP card - Isolation in progress Link 17 to ITP card - Isolation in progress Link 18 to ITP card - Isolation in progress Link 19 to ITP card - Isolation in progress	Y	yes	Pull cable on ITP card (to ITX card)	same as above	SN06.2		
	NE304	SCLineLinkRsrc	Minor	Link to Master Shf ITP 13 - Isolation in progress Link to Master Shf ITP 12 - Isolation in progress Link to Mate DCC - Isolation in progress Link to card in slot 2 - Isolation in progress Link to card in slot 6 - Isolation in progress Link to card in slot 14 - Isolation in progress Link to card in slot 18 - Isolation in progress Link to card in slot 3 - Isolation in progress Link to card in slot 7 - Isolation in progress Link to card in slot 15 - Isolation in progress Link to card in slot 19 - Isolation in progress Link to card in slot 4 - Isolation in progress Link to card in slot 8 - Isolation in progress Link to card in slot 16 - Isolation in progress Link to card in slot 20 - Isolation in progress Link to card in slot 5 - Isolation in progress Link to card in slot 9 - Isolation in progress Link to card in slot 17 - Isolation in progress Link to card in slot 21 - Isolation in progress	Y	yes	Pull an ITX card	same as above	SN06.2		
		ABINetworkLinkRsrc	minor	Link to DCC Card in slot 10 - Isolation in progress Link to DCC Card in slot 11 - Isolation in progress	N	yes	Same as Processor fault	same as above	SN06.2		
		Aal5SarRsrc	Major	AAL5-SAR, Messaging	Y	yes	Same as Processor fault	If these types of alarms appear in conjuntion with external faults, deal with the external faults first. If they appear alone, treat them as a card fault.	SN04		
		DS1NetworkExternalRsrc	minor	EXTERNAL: DCC Slot 10 EXTERNAL: DCC Slot 11	N	yes	Same as Processor fault	Check the DCC to see if it has alarms. If so, handle them first. If no alarms on DCC, or only EXTERNAL alarms on the DCC, there is a backplane issue between the DS1 and DCC. Reseat DS1 card, see if problem clears. Reseat DCC card, see if problem clears.	SN06.2		
		DS1NetworkPortRsrc	Minor	Serial Device 0 - to DCC Card in slot 10 Serial Device 1 - to DCC Card in slot	Y	yes	Same as Processor fault	If these types of alarms appear in conjuntion with external faults, deal with the external faults first. If they appear alone, treat them as a card fault.	SN04		
		DS1UtopiaBridgeRsrc	Major	Utopia Bus Master - AAL1, AAL5 to ATM PHYs	Y	yes	Same as Processor fault	same as above	SN04		
		ITPNetworkExternalRsrc	Minor	EXTERNAL: Mate ITP EXTERNAL: ITX attached to port [0,1]	N	yes	Same as Processor fault	Check the ITX to see if it has alarms. If so, handle them first. If no alarms on ITX, or only EXTERNAL alarms on the ITX, replace the cable between ITX and ITP.	SN06.2		
		ITPNetworkPortRsrc	Minor	Serial Device [0 to 1] - to ITX cards HDLC Device - Connects to mate ITP	Y	yes	Same as Processor fault	If these types of alarms appear in conjuntion with external faults, deal with the external faults first. If they appear alone, treat them as a card fault.	SN04		
		ITPLineSideIfRsrc	Major	Serial device 0 - to Line Card	Y	yes	Same as Processor fault	If these types of alarms appear in conjuntion with external faults, deal with the external faults first. If they appear alone, treat them as a card fault.	SN04		
		ITPDDCAAL5SARRsrc	Major	DDC AAL5 SAR - Call Traffic TDM to IP converter							

norNodeFault (NORTEL-UEMS-NODE-MIB)	NE305	ITXExternalRsrc	Minor	EXTERNAL: DCC Slot 10 serial device EXTERNAL: DCC Slot 11 serial device EXTERNAL: ITP attached to port [0-7]	N	yes	Same as Processor fault	Check the ITP to see if it has alarms. If so, handle them first. If no alarms on ITP, or only EXTERNAL alarms on the ITX, replace the cable between ITX and ITP. If the alarm is to a DCC card, fix any DCC alarms first. Reseat ITX card, see if problem clears. Reseat DCC card, see if problem clears.	SN06.2		
		ITXPortRsrc	Minor	Serial Device 0 - to DCC card in slot 10 Serial Device 1 - to DCC card in slot 11 Serial Device 4 - to ITP card Serial Device 5 - to ITP card Serial Device 6 - to ITP card Serial Device 7 - to ITP card Serial Device 8 - to ITP card Serial Device 9 - to ITP card Serial Device 10 - to ITP card Serial Device 11 - to ITP card Serial Device 12 - to ITP card Serial Device 13 - to ITP card Serial Device 14 - to ITP card Serial Device 15 - to ITP card Serial Device 16 - to ITP card Serial Device 17 - to ITP card Serial Device 18 - to ITP card Serial Device 19 - to ITP card	Y	yes	Same as Processor fault	same as above	SN04	**59 NE 318 1513 TBL MG9K NorNodeFault Location: 1-RM9K-Frame000.Shelf2.Slot12 Notification Id: 850 Statu: not acknowledged Category: Equipment Alarm Cause: Equipment Malfunction Time: Apr 24 14:59:40 2003 Component Id: Card.frame0.shelf2.slot12.ITP Specific Problem: Node Fault - Proxy fault Description: Card communication failure - Proxy mode activated Site Flr RPos Bay_Id FFFF FF FFF FFFF FFF	MSH10_I06BE ** NE318 APR24 14:59:40 1513 TBL MG9K NorNodeFault Location: 1-RM9K-Frame000.Shelf2.Slot12 Notification Id: 850 State: not acknowledged Category: Equipment Alarm Cause: Equipment Malfunction Time: Apr 24 14:59:40 2003 Component Id: Card.frame0.shelf2.slot12.ITP Specific Problem: Node Fault - Proxy fault Description: Card communication failure - Proxy mode activated Site Flr RPos Bay_Id FFFF FF FFF FFFF FFF
		ITXLineSideGrpRsrc	Major	Link [0 to 7] to ITP pair	Y	yes	Same as Processor fault	same as above	SN04		
		ITXNetForwarderRsrc	Major	Net side cell forwarder	Y	yes	Same as Processor fault	If these types of alarms appear in conjunction with external faults, deal with the external faults first. If they appear alone, treat them as a card fault.	SN04		
		ITXLineForwarderRsrc	Major	Line side cell forwarder	Y	yes	Same as Processor fault	If these types of alarms appear in conjunction with external faults, deal with the external faults first. If they appear alone, treat them as a card fault.	SN04		
		SCLineExternalRsrs	Minor	EXTERNAL: Master Shelf ITP slot 13 EXTERNAL: Master Shelf ITP slot 12 EXTERNAL: Mate DCC EXTERNAL: Card in slot [2-9, 14-21]	N	yes	Same as Processor fault	Check the far end slot to see if it has alarms. If so, handle them first. If no alarms on far end card, or only EXTERNAL alarms on the far end slot, there is a backplane issue between the far end card and DCC. Reseat other card in question, see if problem clears. Reseat DCC card, see if problem clears.	SN06.2		
		SCLinePortRsrc	Minor	Serial Device 0 - to Master Shelf ITP Slot 13 Serial Device 1 - to Master Shelf ITP Slot 12 Serial Device 3 - Link to Mate DCC Card Serial Device 4 - to card in slot 2 Serial Device 5 - to card in slot 6 Serial Device 6 - to card in slot 14 Serial Device 7 - to card in slot 18 Serial Device 8 - to card in slot 3 Serial Device 9 - to card in slot 7 Serial Device 10 - to card in slot 15 Serial Device 11 - to card in slot 19 Serial Device 12 - to card in slot 4 Serial Device 13 - to card in slot 8 Serial Device 14 - to card in slot 16 Serial Device 15 - to card in slot 20 Serial Device 16 - to card in slot 5 Serial Device 17 - to card in slot 9 Serial Device 18 - to card in slot 17 Serial Device 19 - to card in slot 21	Y	yes	Same as Processor fault	If these types of alarms appear in conjuntion with external faults, deal with the external faults first. If they appear alone, treat them as a card fault.	SN05		
		SCQuadSerContGrpRsrc	Major	Group of Serial Ports	Y	yes	Same as Processor fault	same as above	SN05		
		ABINetworkExternalRsrc	Minor	EXTERNAL: DCC slot [10 or 11]	N	yes	Same as Processor fault	Check the DCC to see if it has alarms. If so, handle them first. If no alarms on DCC, or only EXTERNAL alarms on the DCC, there is a backplane issue between the ABI and DCC. Reseat ABI card, see if problem clears. Reseat DCC card, see if problem clears.	SN06.2		
		ABINetworkPortRsrc	minor	Serial Device 0 - to DCC Card in slot 10 Serial Device 1 - to DCC Card in slot 11	Y	yes	Same as Processor fault	If these types of alarms appear in conjunction with external faults, deal with the external faults first. If they appear alone, treat them as a card fault.	SN05		
		ABINetworkSideGrpRsrc	Critical	Both links to DCC Card	Y	yes	Same as Processor fault	same as above	SN05		
	NE306	GlanRsrc	minor	GLAN Link to hub on Active ITP card	Y	yes	Same as Processor fault	The GLAN hub is located on the active ITP in the shelf where the fault appears. First try swacting ITPs and re-run diags on the afflicted card. If that fixes the problem, replace the newly inactive ITP, otherwise treat the fault as a card fault.	SN05		
		ITPGlanHubRsrc	Critical	GLAN Hub, communicates with other cards on shelf	Y	yes	Same as Processor fault	The GLAN hub is located on the active ITP in the shelf where the fault appears. First try swacting ITPs and re-run diags on the afflicted card. If that fixes the problem, replace the newly inactive ITP, otherwise treat the fault as a card fault.	SN04		
	NE307	ABILineSideIfRsrc	Major	DS512 port	Y	yes	Same as Processor fault	- Verify UEMS is in service - Verify this ABI card is unlocked - Verify this ABI card is not disabled, if so, solve other issues causing this card to be disabled. - Check DS512 fibers. (light check, clean fibers, verify fibers are present)	SN05		
		ABILineSideExternalRsrc	minor	XPM unit, or DS512 connection	Y	yes	Same as Processor fault	same as above	SN05		
		ABILkmAllChnlsRsrc	Major	All DS512 channels closed	Y	yes	Pull cable to XPM	- Verify UEMS is in service - Verify this ABI card is unlocked - Verify this ABI card is not disabled, if so, solve other issues causing this card to be disabled. - Check DS512 fibers. (light check, clean fibers, verify fibers are present)	SN05		
	NE308	SCWanBldrOAMPRsrc	Major	Inband Messaging OAMP Link [0,1]	Y	yes	Same as Processor fault	- Check for alarms on shelf controller - Use LCI to verify that AESA provisioning information is correct. - if the problem persists, call your next level of support.	SN05		
		SCWanBldrCCRsrc	Major	Inband Messaging CC Link [0,1]	Y	yes	Same as Processor fault	same as above	SN05		
		SCWanBldrHBRsrc	Major	Heartbeat to Element Manager	N	yes	Same as Processor fault	same as above	SN06.2		
		SCWanBldrDS512Rsrc	Major	Inband Messaging DS512 Link [0,1]	Y	yes	Same as Processor fault	same as above	SN05		
	NE309	ITPClockSyncRsrc	Critical	Clock Sync	Y	yes	Same as Processor fault	- If fault is on both ITPs 1) Verify Clock source is connected. 2) Wait up to 2 minutes for the clock audit to have a chance to detect clock source. 3) If fault persists, lock/unlock to restart the card. 4) If fault persists, call next level of support. - If fault is on one ITP 1) Verify Clock source is connected. 2) Wait up to 2 minutes for the clock audit to have a chance to detect clock source. 3) If fault persists, lock/unlock to restart the card. 4) Replace the faulty card.	SN04		
		ITPClockPhaseLockRsrc	Major	Clock Sync: Loss of Phase Lock	Y	yes	Same as Processor fault	same a Clock Sync above	SN05		
		ITPClockFramePulseRsrc	Major	Clock Sync: Loss of Frame Pulse Lock	Y	yes	Same as Processor fault	same a Clock Sync above	SN05		
		ITPClockMyClockRsrc	Major	Clock Sync: Loss of My Clock	Y	yes	Same as Processor fault	same a Clock Sync above	SN05		
		ITPClockMateClockRsrc	Minor	Clock Sync: Loss of Mate Clock	Y	yes	Same as Processor fault	same a Clock Sync above	SN05		
		ITPClockOutputRsrc	Major	Clock Sync: Loss of Clock Output	Y	yes	Same as Processor fault	same a Clock Sync above	SN05		
		ITPSyncSingleRefRsrc	Minor	Clock Sync: Single Reference Failure	Y	yes	Same as Processor fault	same a Clock Sync above	SN05		
		ITPSyncAllRefRsrc	Major	Clock Sync: All Reference Failure	Y	yes	Same as Processor fault	same a Clock Sync above	SN05		
		ITPSyncSingleSyncRsrc	Major	Clock Sync: Single Sync Unit Failure	Y	yes	Same as Processor fault	same a Clock Sync above	SN05		
		ITPSyncLOSRsrc	Minor	Clock Sync: Loss of Signal	Y	yes	Same as Processor fault	same a Clock Sync above	SN05		
		ITPSyncOOFRsrc	Minor	Clock Sync: Out of Frame	Y	yes	Same as Processor fault	same a Clock Sync above	SN05		
		ITPClockRsrc	variable	Clock Sync: Clock	Y	yes	Same as Processor fault	same a Clock Sync above	SN05		
		ITPSyncRsrc	variable	Clock Sync: Sync	Y	yes	Same as Processor fault	same a Clock Sync above	SN05		
		ITPSyncHORsrc	Minor	Clock Sync: Holdover Mode	N	yes	Same as Processor fault	same a Clock Sync above	SN06.2		
		SCBitsFwdRsrc	Major	BITS Forwarder	N	yes	Same as Processor fault	same a Clock Sync above	SN06.2		
		SCBitsRefRsrc	Minor	BITS clock reference [A or B]	N	yes	Same as Processor fault	same a Clock Sync above	SN06.2		
		ITXFramerRsrc	Major	Framer - timing synchronization device	Y	yes	Same as Processor fault	- If fault is on both ITPs 1) Verify Clock source is connected. 2) Wait up to 2 minutes for the clock audit to have a chance to detect clock source. 3) If fault persists, lock/unlock to restart the card. 4) If fault persists, call next level of support. - If fault is on one ITP 1) Verify Clock source is connected. 2) Wait up to 2 minutes for the clock audit to have a chance to detect clock source. 3) If fault persists, lock/unlock to restart the card. 4) Replace the faulty card.	SN04		
		ITXBITSrefRsrc	Minor	BITS clock reference A	Y						
		ITXBITSrefRsrc	Minor	BITS clock reference B	Y						
	NE310	ITXNetworkSideIfPortRsrc	Minor	Port 2 on serial device - port only used by Diagnostics	Y						
		SCQuadsercontPortRsrc	Minor	Serial Port 1 - UNUSED link to ITP slot 12	Y						
		SCQuadsercontPortRsrc	Minor	Serial Port 0 - UNUSED link to ITP slot 13	Y						
		SCSerLinkRsrc	Minor	Unused (was serial link #)	Y	yes	Same as Processor fault	N/A	SN05		
		SCOctalPhyContRsrc	Warning	Octal PHY [Unused] Device for ports [0-5] or [8-13]	N	yes	Same as Processor fault	No action required.	SN05		
		SCOctalPhyContPortRsrc	Warning	Octal PHY [Unused] Port [0-13]	N	yes	Same as Processor fault	No action required.	SN05		
	NE311	SCTimeOfDayRsrc	minor	Time of Day: Access to time server [ip] failed	Y	yes	Same as Processor fault	Attempts to access the provisioned time server have failed. - Verify the provisioned ip address of time server is correct - Verify time server is operational and online. - Use the LCI to re-submit the Time of day parameters, this forces immediate time server access.	SN05		
	NE312	ITPCableRsrc	minor	Cable configuration conflict	Y	yes	Same as Processor fault	One of the cables to the ITXs has been connected in an unsupported way. Check to see if the cable on the two ITXes match, and that the ITP ends of the cable are in the right ports			
		ITXCableRsrc	Minor	Cable configuration conflict, port [0 to 7]	Y	yes	Same as Processor fault	One of the cables to the ITPs has been connected in an unsupported way. Check to see if the cable on this ITX matches the mate ITX, and that the ITP ends of the cable are in the right ports.	SN05		
	NE313	ABIActivityCableRsrc	minor	Activity control cable between ABI cards	Y	yes	Pull activity cable between ABI card pair	The activity control cable is a small cable on the front of the ABI cards that is used for activity determination. - Verify the cable is attached to both cards. - Replace cable. - If the fault persists, replace the inactive card. - If the problem still persists, swact, replace newly inactive card.	SN05		
	NE314	SCXcRsrc	Minor	Backplane Cross Connect	Y	yes	Same as Processor fault	The carriers between the two DCC cards cannot communicate. - Verify and fix any CARRIER alarms - If seen on Active DCC 1) Restart the inactive DCC 2) If problem persists, replace inactive DCC 3) If problem persists, call next level of support - If seen on inactive DCC 1) Restart the inactive DCC 2) If problem persists, swact DCC cards. This will cause carriers to go down momentarily. Be sure to call next level to verify it is permissable to swact. 3) Restart the newly inactive DCC card. 4) If problem persists, replace the newly inactive card. 5) If problem persists, call next level of support. - If both DCCs have this fault, there is a backplane problem in the shelf. Replace the entire shelf backplane.	SN05		
	NE315	SCLinksRsrc	Major	Resource Bandwidth	Y	yes	Same as Processor fault	Some of the carriers are not providing bandwidth. - Verify and fix any CARRIER alarms. - If problem persists, restart the card.	SN05		
	NE316	downstreamFIFO	Major	ADSL: Downstream FIFO	Y	yes		Throttle back the downstream data from the SCO	SN06		
		downstreamHEC	Major	ADSL: Downstream HEC error	Y	yes		?	SN06		
		atm50Fault	Critical	ADSL: ATM50 fault	Y	yes		Restart linecard	SN06		
		upstream buffer overflow	Critical	ADSL: Upstream buffer overflow	Y	yes		Throttle back the upstream data rate on the linecard	SN06		
		downstream buffer overflow	Critical	ADSL: Downstream buffer overflow	Y	yes		Throttle back the downstream data to the linecard	SN06		
		atm device timeout	Critical	ADSL: ATM Device timeout	Y	yes		Reset linecard	SN06		
		clock accuracy	Critical	ADSL: Loss of clock accuracy	Y	yes		Reset linecard	SN06		

		dsp lockup	Critical	ADSL: DSP Lockup	Y	yes		Reload DSPs	SN06		
	NE317		Crit/Maj/Minor	Shelf SIC Card Alarm	Y				SN06		
			Crit/Maj/Minor	Shelf PIO Card Alarm	Y				SN06		
			Crit/Maj/Minor	Shelf BIP card Alarm	Y				SN06		
	NE318		Major	SCI Card NE Proxy	Y				SN06		
	NE320	AudRecoveryRsrc	Major	Require Audit Recovery Executed	Y	yes	Clear Flash on an ITP pair, Pull both cards and replace	No action required.	SN05		
MG9000 Manager Reported Faults	MGEM300	EmDbUnavailable	Major	Generated when MG9000 EM is not able to make connection to the Element Manager Database	Y	Yes	1. Make sure that persistence is turned on.2. Make the database unavailable. 3. Perform some action (add/delete/change) on a VMG or termination. 4. Check the alarm browser for the alarm being SET.	1. Re-establish the database connection. 2. Perform some action (add/delete/change) on a VMG or termination. 3. Check the alarm browser for the alarm being CLEARED.	SN04		
	MGEM301	CommsLostToNE	Critical	Generated when the MG9000 EM loses SNMP communication with MG9000	Y	Yes	Break connection between the GW and the MG9K EM server. This can be done by taking the GWs OC3 OOS at the PP15000, or disabling the Ethernet connect to the MG9K EM Server (disconnect the cable).	EM will periodically retry to establish communication to the Gateway. Check the following : 1. PING the IP address of the Shelf Controller to validate IP connectivity. 2. PING the IP address of the OC3 CtPOA port to validate IP connectivity. 3. Check connectivity between EM and MG. 4. Check for status of the OC3 card and Node Maintenance task.	SN04	*C57 MGEM301 9232 TBL MG9K CommsLostToNE Location: 2-HS9K Notification Id: 817 State: not acknowledged Category: Communication Alarm Cause: Communications Subsystem Failure Time: Apr 24 10:57:05 2003 Component Id: MG9k EM Comm Network Specific Problem: Comm Channel Down - Communication Lost to the NE Description: Loss of Heartbeat to NE Site Flr RPos Bay_Id FFFF FF FFF FFFF FFF	MSH10_i06BF *** MGEM301 APR24 10:57:05 9232 TBL MG9K CommsLostToNE Location: 2-HS9K Notification Id: 817 State: not acknowledged Category: Communication Alarm Cause: Communications Subsystem Failure Time: Apr 24 10:57:05 2003 Component Id: MG9k EM Comm Network Specific Problem: Comm Channel Down - Communication Lost to the NE Description: Loss of Heartbeat to NE Site Flr RPos Bay_Id FFFF FF FFF FFFF FFF
	MGEM302	invalidEMPAddress	Major	Generated when the MG9000 Manager has added an ne MG9000 and tries to discover the NE. It will check the MG9000 EM IP address provisioned at the MG9000 and if it is incorrect will raise this alarm	Y	Yes	At the MG9000 LCI set the IP address of the MG9000 Manager to an incorrect value. At the MG9000 Manager do a manual discovery of that MG9000.	At the MG9000 LCI check the IP address of the MG9000 Manager and correct if necessary.	SN05		
	MGEM303	AlarmsBeingThrottled	Critical	Generated when the MG9000 sends too many alarms within a 5 second window. When this happens the MG9000 Manager will request this particular MG9000 stop sending Alarms and display this particular alarm. This condition will clear when the number of alarm within 5 sec falls below a set number	Y	yes	At the MG9000 using DSHELL use the alarm generation utility an generate at least 15 alarms a second for at least 10 seconds.	At the MG9000 LCI check the IP address of the MG9000 Manager and correct if necessary.	SN06		
	MGEM304	MG9K AlarmAuditFailed	Critical	Alarm Audit Failed - The alarm audit on the GW failed		yes			SN06.2		
(MEDIA_GATEWAY_MIB)	MGC300	mediGwyInvalidControllerAddress		Indicates that a message was received from a controller that did not match any valid controller IP address	n/a	no	N/A	N/A	SN04		
	MGC301	mediGwyInvalidTerminationId		Indicates a mismatch of Termination ID	n/a	no	N/A	N/A	SN04		
	MGC30x	mediGwyInvalidPackageElement		Indicates that a message was received from a controller that contained an event, signal, or descriptor that was not recognized for the package	n/a	no	N/A	N/A	SN04		
nMtaFault (NORTEL_MG_MTA_mib)	TEST302	mtaSysHardwareFault			n/a	no	N/A	N/A	SN05		
	TEST303	mtaSysHardwareFault			n/a	no	N/A	N/A	SN05		
	TEST 304	sysConfigAmbiguity			n/a	no	N/A	N/A	SN05		
nnESAFAULT (NORTEL-UEMG-MEGACO-MIB)	ESA300	Entered ESA	Critical	Communication between GWC and GW is lost. Entered ESA mode	Y	yes	Break connection between the GW and the GWC when ESA is enabled. This can be done by taking the GWs OC3 OOS at the PP15000, or disabling the Ethernet connect to the GWC (disconnect the cable).	Using the Traceroute or Ping MG9000 Manager tool test the network communications path between the EM the the MG9K, and the EM and the GWC. Check OC3 connection at the MG900, PP15000, and the SAM21 Shelf Controller, Check the Ethernet connection at the GWC, PP9600, and SAM21 Shelf Controller, Check the state of the DCC cards at the MG9000. Correct any problems found	SN05		
	ESA301	nnESARetrieveFaul	Critical	Datadown load of ESA data from the CS2K Core has failed		yes			SN06.2		
	ESA302		Critical	Failed to set up FTP connection: login failure - EM failed to push ESA to VMG					SN07		
nnMegacoFault (NORTEL-UEMG-MEGACO-MIB)	VMG300	VMG OOS	Critical	Generated when Root Termination goes out of service (Communication between Gateway and GWC is lost and ESA is not enabled)	Y	yes	Break connection between the GW and the GWC when ESA is disabled. This can be done by taking the GWs OC3 OOS at the PP15000, or disabling the Ethernet connect to the GWC (disconnect the cable).	Using the Traceroute or Ping MG9000 Manager tool test the network communications path between the EM the the MG9K. Check OC3 connection at the MG900. Check the state of the DCC cards at the MG9000. Correct any problems found	SN05	*C11 VMG 300 1723 TBL MG9K NnMegacoFault Location: 1-RM9K-Frame000.Shelf2.Slot12 Notification Id: 885 State: not acknowledged Category: Equipment Alarm Cause: Equipment Malfunction Time: Apr 24 15:11:34 2003 Component Id: Card.frame0.shelf2.slot12.ITP Specific Problem: NnMegacoFault - Root Termination status change Description: Call Processing Out of Service. Site Flr RPos Bay_Id FFFF FF FFF FFFF FFF	NnMegacoFault Location: 1-RM9K-Frame000.Shelf2.Slot12 Notification Id: 885 State: not acknowledged Category: Equipment Alarm Cause: Equipment Malfunction Time: Apr 24 15:11:34 2003 Component Id: Card.frame0.shelf2.slot12.ITP Specific Problem: NnMegacoFault - Root Termination status change Description: Call Processing Out of Service. Site Flr RPos Bay_Id FFFF FF FFF FFFF FFF
nnMegacoQosFault (NORTEL-UEMG-MEGACO-MIB)	VMG301	BadCalls	Minor	QoS Alarm that is generated when the number of bad call reaches a certain threshold	N	SLoIP only	In the MG9000 EM set the QoS thresholds to a low level. Using a "Packet Storm" or "Shunra" test set, inject errors on the OC3/STM1 network interface on a particular active calls SVC	Check GWC QoS collector for any QoS error patterns. Narrow down probable areas where errors could occur. Run test calls to narrow down futher. If error is only on that one line there may be a card fault. If problem is in the network isolate problem area and correct.	SN06		
	VMG302	PacketLoss	Minor	QoS Alarm that is generated when the number of Packet Loss reaches a certain threshold	N	SLoIP only	Same as above	Same as above	SN06		
	VMG303	Jitter	Minor	QoS Alarm that is generated when IP message Jitter reaches a certain threshold	N	SLoIP only	Same as above	Same as above	SN06		
	VMG304	Latency	Minor	QoS Alarm that is generated when IP message Latency reaches a certain threshold	N	SLoIP only	Same as above	Same as above	SN06		
	VMG322	vmgAdminStatusOutOfService	Critical	Admin State Out Of Service - Call Processing Out of Service		Yes			SN07		
	VMG323	cardInitializing	Critical	VMG Initializing - Call Processing Out of Service		Yes			SN07		
	VMG324	cardLocked	Critical	Card Locked - Call Processing Out of Service		Yes			SN07		
	VMG325	cardDisabled	Critical	Card Disabled - Call Processing Out of Service		Yes			SN07		
	VMG328	lineMtcNotReady	Critical	Line Maintenance Not Ready - Call Processing Out of Service		Yes			SN07		
	VMG329	megacoMtcNotReady	Critical	Megaco Maintenance Not Ready - Call Processing Out of Service		Yes			SN07		
	VMG373	gwcUnreachable	Critical	GWC Unreachable - Call Processing Out of Service		Yes			SN07		
	VMG374	noGwcReply	Critical	GWC Reachable But No Reply To Service Change - Check LGRP/GWC state - Call Processing Out of		Yes			SN07		
	VMG376	aalBearerSubsysNotReady	Critical	AAL1 Bearer Not Ready - Call Processing Out of Service		Yes			SN07		
	VMG377	ipBearerSubsysNotReady	Critical	IP Bearer Not Ready - Call Processing Out of Service		Yes			SN07		
Performance (NORTEL-UEMG-PERFMON-MIB)	OVLD304	Performance Degraded	Minor/Major	Overload Detection Alarm that is generated whenever the MG9000 actually enters an overload condition.		Yes			SN06.2		
SCTP (NORTEL-UEMG-RELMSGING-MIB)	OVLD808	relMsgLinkFail	Critical	An external messaging link has closed and cannot send/receive		yes			SN07		
	OVLD809	relMsgLinkSevDegraded	Major	Message loss is high enough such that the message link is in a degraded service state. For ABI, this would mean that some calls are failing and perhaps maintenance action are failing (e.g. static data		yes			SN07		
	OVLD810	relMsgLinkDegraded	Minor	Message retransmissions are high enough that system is starting to see performance degradation. Potentially, this could mean increased latency, reduced messaging through the system, buffer overflows and perhaps heading toward congestion.		yes			SN07		

Supported in EM but not enabled at MG9000
New or changed in SN07

MG9000 Reported Event LOGs

LOG Subsystem (MIB)	LOG Id	LOG Type	Description	SN06 VoA Telcordia Coverage?	Supported/ Enabled	Procedure To Generate LOG	EM Supported	LOG Output Example
ATM Event (NORTEL-UEMG-ATM-MIB)	VC600	atmIntfPvcFailures-Trap	Indicates that one or more PVPLs or PVCLs on this interface has failed since the last atmPvcFailuresTrap was sent.	n/a	no	N/A	SN04	
	VC800	nn5AtmIfThreshold	Generated when an ATM interface stat exceeds the specified threshold	n/a	no	N/A	SN04	
	VC801	nnAtmStatsVcThreshTrap	Generated when the VC stat exceeds specified threshold.	n/a	no	N/A	SN04	
Data Audit Event	MGAU600	AuditLogNotification	Generated my the MG9000 Manager when an Audit is started, stopped, a data missmatch was found between them MG9000 and the MG9000 Manager, or a communications failure occurred while the Audit was running	N	yes	Clear the data from an ITP card, start the Audit, letting it run to compleation.	SN05	
Bandwidth Event (NORTEL-UEMG-BANDWIDTH-MIB)	BW800	nnBwSwitchFabricCongestion	A nnBwSwitchFabricCongestion Notification is generated when one of the input cellQueues Cross the configured threshold percentage.	N	yes	This fault is very difficult to produce during normal operations with a test set or manual action. The best way to generate this fault is using the following **Dshell** command. To do this "cd" to SNMP and use the "bwevents" command with the "swfabric" option.	SN04	NTL STD: RTPS BW800 JAN28 22:10:40 0462 THR MG9K BW Switch Fabric Congestion NE Number: 19 NE Name: CO_19 PhysLoc: Ne.ne19 Bandwidth Switch Fabric Congestion Type: CBR Switch Fabric Congestion Bandwidth Bandwith Notification Value: 70.0 % Bandwidth Current Total Queue Fill: 90.0 %
	BW801	nnBwBandwUtilizationCongestion	A nnBwBandwUtilization Notification is generated when the the total or dsl's cell rates Cross the configured threshold percentage.	N	yes	Set the DSL threshold (at BW Manager GUI an EM) to a low level, generate data traffic on a number of DSL lines until the LOG appears.	SN04	SCC2: 10 BW 800 8936 THR MG9K BW Switch Fabric Congestion NE Number: 19 NE Name: CO_19 PhysLoc: Ne.ne19 Bandwidth Switch Fabric Congestion Type: CBR Switch Fabric Congestion Bandwidth Bandwith Notification Value: 70.0 % Bandwidth Current Total Queue Fill: 90.0 %
DS1 Carrier Event (NORTEL-UEMG-CARRIER-MIB)	MGCA500	dsx1LineStatus-Change	Trap is sent when the value of an instance dsx1Line Status changes.	N	yes	Remove the DS1 cable and replace	SN04	
	MGCA600	apsTrapSwitchover	Sent when the value of an instance of apsChanSwitchover increments.	n/a	no	N/A	SN04	
	MGCA601	apsTrapModeMis-match	Sent when the value of an instance of apsStatusModeMismatch increments	n/a	no	N/A	SN04	
	MGCA602	apsProtSwitchRejectEvent		n/a	no	N/A	SN04	
	MGCA800	norCarrThreshold	Sent when a Carrier exceeds the specified threshold on a given performance Measure.	N	yes		SN04	
BIP Input/Output State Change (NORTEL-UEMG-SHF-MIB)	SHLF501	nnShfInputOutputOperStatus	TRAP sent when any BIP Input/Output state change event occurs for an Input/Output with an alarm severity of indeterminate.	N	yes	Change any BIP Input/Output Alarm Severity setting to indeterminate and then follow test procedure for that alarm.	SN04	
Test Event	TEST600	testComplete	Signifies that a test has completed for a particular entity	N	yes	Run a Line test or Run a Line card Diag	SN04	
Link Event	LINK500	linkDown	Signifies that the SNMPv2 entity has detected that the ifOperStatus object is about to enter the down state.	N	yes	Take the ITP card pair Lock and Offline	SN04	
	LINK501	linkUp	Signifies that the SNMP entity has detected that the ifOperStatus object left the down state.	N	yes	Take the ITP card pair online and Unlocked	SN04	
Clock Sync Event (NORTEL-UEMG-CLOCKSYNC-MIB)	CLK500	ClockSyncChange	A change has occured for Clock Sync: timingModeChange (1), clockModeChange (2),	N	yes	Remove the Colck source cable to the ITX card	SN04	
SLoA Event	SWL600	nnMtaTrapConnectionStatus	Sent when SNM indicates status of the connection	N	yes	Put line under test	SN04	
MEGACO Event	MGC500	medGwyLinkStatus-Change	Indicates that status of media gateway control link has changed.	n/a	no	N/A	SN04	
	MGC501	medGwyTermination-StatusChange	Sent when a termination changes Status.	n/a	no	N/A	SN04	
SNMP Event	SNMP600	snmpEnableAuthen-Traps	Indicates permission to generate authentificationFailure traps.	n/a	no	N/A	SN04	
	SNMP601	coldStart	Signifies that the SNMP entity is reinitializing itself and its configuration may have been altered.	N	yes	Initiate Coldstart from the MG9K LCI	SN04	
	SNMP602	warmStart	Signifies that the SNMP entity is reinitializing itself such that its configuration is unaltered.	n/a	no	N/A	SN04	
Network Element Event (NORTEL-UEMG-NODE-MIB)	NE500	norNodeSwact	Generated when the Node does a switch of activity.	N	yes	SWAC the OC3 card pair	SN04	
	NE501	norNodeStateChange	Generated when the Node changes state.	N	yes	Take ITP OOS, put back inservice	SN04	
	NE502	DS1SpareOperationEvent	Generated when a DS1 card is spared	N	yes	Manually spare a ds1 card	SN04	
	NE503		ABI Switch Mastership		yes		SN06.2	
	NE504		ABI State Change		yes		SN06.2	
	NE600	entConfigChange	Generated when the value of entLastChangeTime changes.	N	yes	Plug in new line card	SN04	
	NE601	norNodeRestartBegin	Generated when the Node is restarting.	N	yes	Restart ITP card	SN04	
	NE602	norNodeRestart-Complete	Generated when the Node completes its Restart	N	yes	Same as above	SN04	
	NE603	norNodeSWLoad-Complete	Generated when the Node completes its SoftwareLoad.	N	yes	Load an ITP with new SW load	SN04	
	NE604	norNodeSWUpgrade-Complete	Generated when a SW Upgrade has completed	N	yes	Same as above	SN04	
	NE605		Generated when a Network Element is deleted	N	yes	Delete a MG9K from the EM	SN04	
	NE602		Generated when a Reinitialize Gateway event occurs	N	yes	Envoke the Reinitialize option on the OC3 card	SN05	
	NE607	norNodeCardDeleted	Generated when a card is deleted	N	yes	Provision an MG9K card for deletion from the EM then pull the card from MG9K	SN04	
	NE608	norNodeCardInserted	Generated when a card is inserted	N	yes	Insert a MG9K card at the MG9K	SN04	
Alarm Reliability Event	ALM998	AlarmSequenceError	Generated when the MG9000 Manager detects it has missed Alarms from the MG9000	N	yes	Break connection (OC3) to MG9K, generate a number of alarms at MG9K, resetup MG9K connection.	SN04	
	ALM999	AlarmSequenceRestored	Generated when the MG9000 Manager recovered the missing Alarms from the MG9000	N	yes	Same as above	SN04	
DSL Event (NORTEL-UEMG-DSL-MIB)	XDSL600	adslAtucRateChangeTrap	The ATUCs transmit rate has changed (RADSL mode only)	n/a	no	N/A	SN04	
	XDSL601	adslAtucInitFailureTrap	ATUC initialization failed	n/a	no	N/A	SN04	
	XDSL602	adslAturRateChangeTrap	The ATURs transmit rate has changed (RADSL mode only)	N	yes	Using an ADSL Modem **test set** inject large numbers of this type of error.	SN04	
	XDSL800	adslAtucPerfLofsThreshTrap	Loss of Framing 15-minute interval threshold reached	N	yes	Using an ADSL Modem **test set** inject large numbers of this type of error.	SN04	
	XDSL801	adslAtucPerfLossThreshTrap	Loss of Signal 15-minute interval threshold reached	N	yes	Using an ADSL Modem **test set** inject large numbers of this type of error.	SN04	
	XDSL802	adslAtucPerfLprsThreshTrap	Loss of Power 15-minute interval threshold reached	N	yes	Using an ADSL Modem **test set** inject large numbers of this type of error.	SN04	
	XDSL803	adslAtucPerfESsThreshTrap	Errored Second 15-minute interval threshold reached	N	yes	Using an ADSL Modem **test set** inject large numbers of this type of error.	SN04	
	XDSL804	adslAtucPerfLolsThreshTrap	Loss of Link 15-minute interval threshold reached	N	yes	Using an ADSL Modem **test set** inject large numbers of this type of error.	SN04	
	XDSL805	adslAturPerfLofsThreshTrap	Loss of Framing 15-minute interval threshold reache	N	yes	Using an ADSL Modem **test set** inject large numbers of this type of error.	SN04	
	XDSL806	adslAturPerfLossThreshTrap	Loss of Signal 15-minute interval threshold reached	N	yes	Using an ADSL Modem **test set** inject large numbers of this type of error.	SN04	
	XDSL807	adslAturPerfLprsThreshTrap	LPRS 15-minute interval threshold reached	N	yes	Using an ADSL Modem **test set** inject large numbers of this type of error.	SN04	
	XDSL808	adslAturPerfESsThreshTrap	Errored Second 15-minute interval threshold reached	N	yes	Using an ADSL Modem **test set** inject large numbers of this type of error.	SN04	
	XDSL809	nnDSLThreshold Trap	a nnDslThreshold notification is sent when a DSL Interface exceeds the specified threshold on a given performanceMeasure, specified by the nnDslThresholdNotifyType: atucfec (1), atuccrc (2), atucncd (3), atucocd (4), atuchec (5), atuclcd (6), aturfec (7), aturblockError (8), aturncd (9), aturocd (10), aturhec (11), aturlcd (12)	N	yes	Using an ADSL Modem **test set** inject large numbers of this type of error.	SN04	
Manager Upgrade Event	UPGD600		indicating an upgrade is needed.	N	yes	Requires the customer to perform the upgrade or downgrade procedure. Follow MG9K EM upgrade procedutes	SN06	
	UPGD601		indicating an export has started	N	yes	Requires no immediate action	SN06	
	UPGD602		indicating an export has completed	N	yes	Same as above	SN06	
	UPGD603		indicating an import has started	N	yes	Same as above	SN06	
	UPGD604		indicating an import has completed	N	yes	Same as above	SN06	
	MGEM700		MG9000 Manager Server application Startup	N	yes	Telnet into the MG9000 Manager server and execute the shutdown procedure then execute following command "/opt/nortel/mg9ksrv_06/bin/mg9kimpl start"	SN06	
	MGEM701		MG9000 Manager Server application Shutdown	N	yes	Telnet into the MG9000 Manager server and execute the following command "/opt/nortel/mg9ksrv_06/bin/mg9kimpl stop"	SN06	

Manager Event	**MGEM702**		MG9000 Manager Mid-Tier Server application Startup	N	yes	Telnet into the MG9000 Manager Mid-Tier server and execute the shutdown procedure then execute the following command "/opt/nortel/mg9kmtr_06/bin/mg9kmidtimpl start"	SN06	
	MGEM703		MG9000 Manager Mid-Tier Server application Shutdown	N	yes	Telnet into the MG9000 Manager Mid-Tier server and execute the following command "/opt/nortel/mg9kmtr_06/bin/mg9kmidtimpl stop"	SN06	
	OMC700		MG9000 Manager Mid-Tier Server OM Collector application Startup	N	yes	Telnet into the MG9000 Manager Mid-Tier server and execute the shutdown procedure then execute the following command "/opt/nortel/omcltr_06/bin/OMimpl start"	SN06	
	OMC701		MG9000 Manager Mid-Tier Server OM Collector application Shutdown	N	yes	Telnet into the MG9000 Manager Mid-Tier server and execute the following command "/opt/nortel/omcltr_06/bin/OMimpl stop"	SN06	
Performance (NORTEL-UEMG-PERFMON-MIB)	**OVLD800**	ovldRscMonPduRateFault	Pdu Rate Threshold crossed.		yes		SN06.2	
	OVLD801	ovldRscMonCbvMsgRFault	Cbv Message Rate Overloaded Alarm		yes		SN06.2	
	OVLD802	ovldRscMonConnQueFault	Connection Queue Overloaded Alarm.		yes		SN06.2	
	OVLD803	ovldRscMonCpuUtilFault	PDU Rate Overloaded Alarm.		yes		SN06.2	
	OVLD804	perfMonCPUFault	CPU Utilization Overloaded Alarm		yes		SN06.2	
	OVLD805	perfMonRamFault	RAM Utilization Overloaded Alarm		yes		SN06.2	
	OVLD806	perfMonFlashFault	Flash Utilization Overloaded Alarm		yes		SN06.2	
	OVLD807	perfMonChannFault	Chan Utilization Overloaded Alarm		yes		SN06.2	

MG9000 Manager User Action Audit LOGs

LOG Subsystem	LOG Id	LOG Type	Description	SN06 VoA Telcordia Coverage?	Procedure To Generate LOG
MG9000 Manager	**MGEM600**	MG9000 HW	SWACT of ABI, ITP, ITX, OC3, or IMA card	n/a	See procedures in MG9000 FCAPS Document Fault Management section
	MGEM601	MG9000 HW	Lock of ABI, ITP, ITX, OC3, IMA, DS1, MTA, WLC, SAA, XDSL, SIC card	n/a	See procedures in MG9000 FCAPS Document Fault Management section
	MGEM602	MG9000 HW	Unlock of ABI, ITP, ITX, OC3, IMA, DS1, MTA, WLC, SAA, XDSL, SIC card	n/a	See procedures in MG9000 FCAPS Document Fault Management section
	MGEM603	MG9000 HW	Force Lock of ABI, ITP, ITX, OC3, IMA, DS1, MTA, WLC, SAA, XDSL, SIC card	n/a	See procedures in MG9000 FCAPS Document Fault Management section
	MGEM604	MG9000 HW	Force Unlock of ABI, ITP, ITX, OC3, IMA, DS1, MTA, WLC, SAA, XDSL, SIC card	n/a	See procedures in MG9000 FCAPS Document Fault Management section
	MGEM605	MG9000 HW	Diag of ABI, ITP, ITX, OC3, IMA, DS1, MTA, WLC, SAA, XDSL, SIC card	n/a	See procedures in MG9000 FCAPS Document Fault Management section
	MGEM606	SLoA Services	Create a VMG	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM607	SLoA Services	Delete a VMG	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM608	SLoA Services	ESA data configuration	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM609	SLoA Services	Gateway data configuration	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM610	SLoA Services	Create Termination	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM611	SLoA Services	Bulk Termination creation	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM612	SLoA Services	Create ESA Service Code	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM613	SLoA Services	Delete ESA Service Code	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM614	SLoA Services	Delete Termination	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM615	SLoA Services	Bulk Termination deletion	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM616	SLoA Services	Delete all termination on a card	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM617	SLoA Services	Change Termination data	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM618	PLoA Services	Create a PLoA Passive Endpoint	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM619	PLoA Services	Create a PLoA Active Endpoint	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM620	PLoA Services	Create a PLoA Hairpin connection	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM621	PLoA Services	PLoA Connection Admin State change	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM622	PLoA Services	PLoA Service Restart	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM623	PLoA Services	PLoA Connection SVC test initiated	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM624	PLoA Services	PLoA Connection SVC test abort	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM625	PLoA Services	PLoA Connection Unlock test	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM626	PLoA Services	Delete a PLoA Endpoint	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM627	ADSL Services	Modify ADSL data circuit provisioning attributes	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM628	ADSL Services	De-provision ADSL data circuit service	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM629	ADSL Services	Add new ADSL data circuit	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM630	ADSL Services	Change ADSL data circuit	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM631	ADSL Services	Delete ADSL data circuit	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM632	DS1 IMA	Set links in DS1 IMA group	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM633	DS1 IMA	Start DS1 IMA group pattern test	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM634	DS1 IMA	Stop DS1 IMA group pattern test	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM635	DS1 IMA	Add DS1 IMA link to group	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM636	DS1 IMA	Remove DS1 IMA link from group	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM637	DS1 IMA	Set administration state on DS1 IMA link	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM638	DS1 IMA	Set configuration state on DS1 IMA link	n/a	See procedures in MG9000 FCAPS Document Configuration Management

	MGEM639	Carrier	OC3, DS1 IMA, DS1, DS0, carrier lock	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM640	Carrier	OC3, DS1 IMA, DS1, DS0, multiple carrier lock	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM641	Carrier	OC3, DS1 IMA, DS1, DS0, carrier unlock	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM642	Carrier	OC3, DS1 IMA, DS1, DS0, multiple carrier unlock	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM643	Carrier	OC3, DS1 IMA, DS1, DS0, forced carrier lock	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM644	Carrier	OC3, DS1 IMA, DS1, DS0, forced multiple carrier lock	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM645	Carrier	OC3, DS1 IMA, DS1, DS0, forced carrier unlock	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM646	Carrier	OC3, DS1 IMA, DS1, DS0, forced multiple carrier unlock	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM647	Carrier	OC3, DS1 IMA, DS1, DS0, carrier online	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM648	Carrier	OC3, DS1 IMA, DS1, DS0, multiple carrier online	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM649	Carrier	OC3, DS1 IMA, DS1, DS0, carrier offline	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM650	Carrier	OC3, DS1 IMA, DS1, DS0, multiple carrier offline	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM651	Line Circuit	WLC, ADSL Data/Line, SAA Line circuit lock	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM652	Line Circuit	WLC, ADSL Data/Line, SAA Line circuit multiple lock	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM653	Line Circuit	WLC, ADSL Data/Line, SAA Line circuit unlock	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM654	Line Circuit	WLC, ADSL Data/Line, SAA Line circuit multiple unlock	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM655	Line Circuit	WLC, ADSL Data/Line, SAA Line circuit diagnostic check	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM656	Line Circuit	WLC, ADSL Data/Line circuit abort diagnostic check	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM657	Line Circuit	WLC, ADSL Data/Line, SAA Line circuit set end to end test port	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM658	Line Circuit	WLC, ADSL Data/Line, SAA Line circuit set PAV test port	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM659	Line Circuit	WLC, ADSL Data/Line, SAA Line circuit clear test	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM660	LCI	Create new LCI user	n/a	
	MGEM661	LCI	Delete existing LCI user	n/a	
	MGEM662	LCI	Modify existing LCI user data	n/a	
	MGEM663	DS1	Channelize DS1 carrier	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM664	DS1	Unchannelize DS1 carrier	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM665	DS1	Modify DS1 carrier provisioning attributes	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM666	DS1	Synchronize pre-provisioned bundles	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM667	DS1	Assign DS1 card spare	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM668	DS1	Rlease DS1 card spare	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM669	DS1	Revert DS1 card sparing activity	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM670	DS1	Initiate DS1 card sparing activity	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM671	DS1	Add DS1 card to protection group	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM672	DS1	Remove DS1 card from protection group	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM673	DS1 DS0	Provision DS0 bundle on DS1 carrier	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM674	DS1 DS0	Modify DS0 bundle	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM675	DS1 DS0	Set DS0 bundle ciruit identifier	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM676	DS1 DS0	Lock DS0 bundle	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM677	DS1 DS0	Unlock DS0 bundle	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM678	DS1 DS0	Delete DS0 bundle	n/a	See procedures in MG9000 FCAPS Document Configuration Management
	MGEM679	ABI	ABI Card Switch Mastership requested		
	MGEM679		getCardType(+ restart requested		
	MGEM679		Frame location update requested		
	MGEM680		getCardType(+ configuration state (Online/Offline/Deprovision/Re-Initialize change requested		
	MGEM681		Unused		

	MGEM682		Unused		
	MGEM683		Unused		
	MGEM684		Unused		
	MGEM685		Unused		
	MGEM686		Unused		
	MGEM687		Unused		
	MGEM688		Unused		
	MGEM689		Unused		
	MGEM690		Unused		
	MGEM691		Unused		
	MGEM692		Unused		
	MGEM693		Unused		
	MGEM694		Unused		
	MGEM695		Unused		
	MGEM696		Unused		
	MGEM697		Unused		
	MGEM698		Unused		
	MGEM699		Unused		
	MGEM700		Audit request for one NE		
	MGEM701		Software Download Requested-single card type		
	MGEM704		Delete NE request		
	MGEM705		getCardType(+ deprovision requested		
	MGEM706		Provision/Create a DFAD Tap		
	MGEM707		Deprovision/Delete a DFAD Tap		
	MGEM708		Unused		
	MGEM709		Provision/Create an MTAP request		
	MGEM710		Deprovision/Delete an MTAP request		
	MGEM711		Upgrade VMG requested		
	MGEM712		Submit a request for audit		
	MGEM713		Discovery request		

Appendix F: CICM Logs and Alarms for SN07

The following table is the list of events that can be generated by the SAM21 blade-based CICM product in SN07. Some notes on the table's contents at the time of writing:

- The CICM353 log events are unique to the SAM16-based CICM product and are not contained in the table below.
- The CICM303 log (CorruptVLCM alarm) has no identified clear in the table below. A software issue discovered late in the release found that the alarm was being delivered improperly (as an SNMP trap instead of routed to the /var/log logging system on CS2000 Management Tools). When the CR tracking this issue is resolved, the event will have no severity and through the /var/log logging system.
- The CICM328 log (WindowsRestart alarm) has no identified clear in the table below. The WindowsRestart alarm occurs when CICM restarts. When the CICM application comes up, there is a cold start trap generated which is not documented in the table below. It may be possible to use this event as a "clear" for WindowsRestart.

Appendix F: CICM Logs and Alarms for SN07

The following table is the list of events that can be generated by the SAM21 blade-based CICM product in SN07. Some notes on the table's contents at the time of writing:

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- The CICM328 log (WindowsRestart alarm) has no identified clear in the table below. The WindowsRestart alarm occurs when CICM restarts. When the CICM application comes up, there is a cold start trap generated which is not documented in the table below. It may be possible to use this event as a "clear" for WindowsRestart.

CICM Logs and Alarms in SN07

Log	CICM Output	Alarm	Severity	Category	Decription	Specific Problem
CICM300	/var/log/customerlog	LegacyError	None	environmental	Legacy Error Log.	Log details: XXX
CICM300	/var/log/customerlog	LegacyWarning	None	environmental	Legacy Warning Log.	Log details: XXX
CICM301	ALARM_TRAP_to_IEMS	softwareMismatch	Minor	environmental	Software Version Mismatch.	Version Mismatch. Local Version XXX. Mate Version XXX.
CICM301	ALARM_TRAP_to_IEMS	softwareMismatchClear	None	environmental	Software Version Mismatch.	Version Mismatch. Local Version XXX. Mate Version XXX.
CICM302	/var/log/customerlog	RouteOrElementStateMismatch	None	communications	Route/element state mismatch	Resetting adapter, state= XXX mate=XXX
CICM303	ALARM_TRAP_to_IEMS	CorruptVLCM	Warning	equipment	Corrupt VLCM.	VLCM name XXX is corrupt - in memory gateway already has id of XXX.
CICM304	/var/log/customerlog	UnableBindIP	None	communications	Unable to bind IP.	Unable to bind IP adress XXX to interface XXX.
CICM305	/var/log/customerlog	NoAdapterMib	None	processingError	Unable To Bind Adapter.	Unable to obtain dynamic adapter config from Mib - cannot bind adapter.
CICM306	/var/log/customerlog	NoAdminIPNodeA	None	processingError	No admin Ip for node A.	No admin address datafilled for node A
CICM306	/var/log/customerlog	NoAdminIPNodeB	None	processingError	No admin Ip for node B.	No admin address datafilled for node B
CICM306	/var/log/customerlog	NoAdminNetMask	None	processingError	No admin net mask.	No admin net mask datafilled
CICM306	/var/log/customerlog	InvalidAdminAddr	None	processingError	Invalid admin address.	Invalid admin ip address specified XXX
CICM306	/var/log/customerlog	InvalidAdminMask	None	processingError	Invalid admin mask.	Invalid admin mask specified XXX
CICM307	/var/log/customerlog	SkippingDisabledAdapter	None	communications	Skipping disabled adapter	Skipping disabled XXX adapter.
CICM308	/var/log/customerlog	UFTPSessionTimeout1	None	communications	UFTPSessionTimeout.	Timed out after XXX secs - No request details received from client
CICM308	/var/log/customerlog	UFTPSessionTimeout2	None	communications	UFTPSessionTimeout.	Timed out after XXX secs - No response from client
CICM308	/var/log/customerlog	UFTPSessionTimeout3	None	communications	UFTPSessionTimeout.	Timed out after XXX secs - Terminated after error occured
CICM309	/var/log/customerlog	NoStreamsAvailable	None	communications	NoStreamsAvailable.	No streams available for CreateConnection, XXX streams already allocated
CICM310	/var/log/customerlog	H248SendPortNotFoundInMIB	None	communications	H248 Send Port Not Found in MIB.	XXX : H248 send port not found in MIB.Defaulting to XXX
CICM310	/var/log/customerlog	H248ListenPortNotFoundInMIB	None	communications	H248 Listen Port Not Found in MIB.	XXX : H248 listen port not found in MIB.Defaulting to XXX

CICM311	/var/log/customer log	CouldNotOpenRegKey	None	processingError	Could not open registry key.	Could not open XXX in registry. New hierarchy needs to be created. This event can be generated during initial configuration of the gateway.
CICM311	/var/log/customer log	MibFailedOpenKey	None	processingError	Mib failed to open key.	Mib node error: failed to open key XXX.
CICM312	/var/log/customer log	MIBCompatFailure	None	processingError	MIB compatibility failure.	MIB compatability failure. Could not find the MIB entries for release XXX
CICM312	/var/log/customer log	MIBCompatRemFailure	None	processingError	MIB compatibility remote failure.	MIB compatability failure. Could not find the MIB entries for release XXX on remote node
CICM313	ALARM_TRAP_to_IEMS	GWCConnectionLoss	Critical	communications	GWC Connection Loss	CICM has lost connection with the GWC
CICM313	ALARM_TRAP_to_IEMS	GWCConnectionLossClear	None	communications	GWC Connection Loss	CICM has regained connection with GWC
CICM314	/var/log/customer log	MibReadFailure	None	processingError	Mib Registry Read Failure.	Mib registry error: failed to read attribute XXX in key XXX. Probable cause is out of date config data.
CICM316	/var/log/customer log	UnableCreateSocket	None	communications	Unable to create a socket.	Unable to create a socket. Error = XXX
CICM316	/var/log/customer log	UnableBindSocketAddr	None	communications	Unable to Bind Socket to IP.	Unable to Bind Socket to IP address.
CICM316	/var/log/customer log	AddrNotAvailable	None	communications	Addr not available.	Specified address is not available on the local host.
CICM316	/var/log/customer log	AddrInUse	None	communications	Addr already in use.	Specified address is already in use.
CICM316	/var/log/customer log	NoAsyncReadMode	None	communications	No async read mode	Unable to select asynchronous read mode. Error = XXX
CICM316	/var/log/customer log	ErrorSetSocketTMO	None	communications	Error setting socket tmo	Error setting socket timeout.Error = XXX
CICM322	ALARM_TRAP_to_IEMS	SystemShutdown	Critical	processingError	System Shutdown	System is shutting down due to user command.
CICM322	ALARM_TRAP_to_IEMS	SystemStartUp	None	processingError	System Shutdown	System is starting up.
CICM323	/var/log/customer log	SlaveAdapterReceivedNoPackets	None	communications	Slave adapter received no packets	Slave adapter XXX received no packets
CICM324	/var/log/customer log	FatalStateError	None	equipment	Fatal Error in state	Fatal error in state XXX.
CICM325	/var/log/customer log	ElementNotConfigured	None	processingError	Element Not Configured.	Element XXX is not configured.
CICM325	/var/log/customer log	ElementNotConfigured2	None	processingError	Config data missing.	Configuration data missing, service cannot start.
CICM326	/var/log/customer log	UnableToGetPhysicalLinkStatusForDevice	None	communications	Unable to get physical link status	Unable to get physical link status for device XXX
CICM327	/var/log/customer log	FailedStartNetObj	None	equipment	Failed to start network status	Failed to start network status object, hr=0x XXX

CICM328	ALARM_TRAP_to_IEMS	WindowsRestart	Critical	equipment	Windows restart	Auto reboot on failure is set. Initiating windows restart.
CICM329	/var/log/customerlog	AuditMateDown	None	equipment	Audit Mate Node Down	Node initialisation: mate node is down
CICM329	/var/log/customerlog	AuditMateActive	None	equipment	Audit Mate Node Down	Node initialisation: mate node is active in state XXX
CICM330	/var/log/customerlog	CantDoPhysicalCheckOnLink	None	communications	Can't do physical check on link	Can't do physical check on link XXX
CICM331	/var/log/customerlog	CompFailureShutdown	None	equipment	Component failure : shutdown	Component XXX has failed. Initiating shutdown. XXX
CICM332	/var/log/customerlog	BadTransition	None	equipment	Bad transition on mate node	Bad transition on mate node from XXX to XXX
CICM333	/var/log/customerlog	NoAccessRemoteName	None	communications	No access to remote name	No access to the remote name in the MIB.
CICM334	ALARM_TRAP_to_IEMS	MateFailure	Warning	equipment	Audit: Mate Node Failed	Mate node failed - Broadcast failure and ask components to promote to Master.
CICM334	ALARM_TRAP_to_IEMS	MateRecovered	None	equipment	Audit: Mate Node Failed	Mate node recovered.
CICM335	/var/log/customerlog	RouteElementInvalid	None	communications	Route Element Invalid	Local route element XXX or remote route element XXX is invalid
CICM336	/var/log/customerlog	NetworkRecovery	None	communications	Network loss and recovery	Network has been lost and then recovered, mate (slave) must reboot.
CICM337	ALARM_TRAP_to_IEMS	NoMessageToA	Major	equipment	Message To Node A Failed	Failed to send message to Node A.
CICM337	ALARM_TRAP_to_IEMS	NoMessageToAClear	None	equipment	Message To Node A Failed	Clear Failed to send message to Node A.
CICM338	/var/log/customerlog	NetworkElementHasFailed	None	communications	Network Element Failed	Network Element XXX Failed
CICM339	ALARM_TRAP_to_IEMS	NoMessageFromB	Major	equipment	No Message Received From B	Have not received a message from Node B for 1.5*ALARM_POLL_PERIOD Seconds. XXX
CICM339	ALARM_TRAP_to_IEMS	NoMessageFromBClear	None	equipment	No Message Received From B	Clear: Have not received a message from Node B for 1.5*ALARM_POLL_PERIOD Seconds. XXX
CICM340	/var/log/customerlog	CantSetLocalAdapter	None	communications	Can't set local adapter	Can't set local adapter, invalid adapter specified
CICM341	ALARM_TRAP_to_IEMS	BackupFail	Minor	processingError	Backup Fail.	Scheduled/on-demand backup failed during last iteration.
CICM341	ALARM_TRAP_to_IEMS	BackupFailClear	None	processingError	Backup Fail.	Scheduled/on-demand backup failed during last iteration.
CICM342	/var/log/customerlog	UnableToBindAdminIPAddressToInterface	None	communications	Unable to bind admin IP address to interface	Unable to bind admin IP address to interface XXX - will continue to attempt to bind
CICM344	/var/log/customerlog	CantSetSlaveAdapter	None	communications	Can't set slave adapter	Can't set slave adapter, invalid adapter specified xxx

CICM345	/var/log/customerlog	EMMateDown	None	communications	EM MAte Down	Mate node down. Name: XXX. XXX
CICM346	/var/log/customerlog	EMMibWriteFail	None	communications	EM Mate Down	Couldn't write EM remote node status to Mib
CICM348	/var/log/customerlog	ChangingSlaveAdapter	None	communications	Changing slave adapter	Changing slave adapter from XXX to XXX
CICM350	/var/log/customerlog	GetInterfaceDeviceMapping	None	communications	Get Interface Device Mapping Failed	Get Interface Device Mapping Failed
CICM352	/var/log/customerlog	CantMapAdapter	None	communications	Can't map adapter	Can't map XXX to an NT device, link state won't be checked
CICM354	/var/log/customerlog	maxRudpSessionsNotPresent	None	communications	maxRudpSessionsNotPresent.	Maximum sessions configuration not present
CICM354	/var/log/customerlog	UnableToSetMaxRUDPSessions	None	communications	UnableToSetMaxRUDPSessions.	unable to set max RUDP sessions [may already be started]
CICM355	/var/log/customerlog	VmgIpAddressBindFailed	None	communications	Bind UDP socket for vmg failed.	Failed to start UDP socket. hr XXX
CICM355	/var/log/customerlog	VmgTerminationInvalid	None	communications	VMG termination invalid.	VMG XXX termination XXX invalid
CICM356	/var/log/customerlog	AdapterDown	None	communications	Adapter down	Adapter XXX is down - aborting start until all adapters are up
CICM357	/var/log/customerlog	EchoServerPortNotPresent	None	communications	EchoServerPortNotPresent.	Echo server port configuration not present
CICM358	/var/log/customerlog	UnableToMapNETOInterfaceNumber	None	communications	Unable to map ne to an interface number	Unable to map ne XXX to an interface number
CICM360	/var/log/customerlog	AutoBindAdapter	None	communications	Auto-bind adapter problem	Auto-bind adapter XXX XXX
CICM361	/var/log/customerlog	HostPortNotPresent	None	communications	HostPortNotPresent.	Host port configuration not present
CICM362	/var/log/customerlog	SwactRequestRejected	None	communications	Swact request rejected	Swact request rejected XXX
CICM363	/var/log/customerlog	CreateConnectionAckFailed	None	communications	Create ConnectionAck Failed.	CreateConnectionAck::can't determine destination for message
CICM363	/var/log/customerlog	ModifyConnectionAckFailed	None	communications	Modify ConnectionAck Failed.	ModifyConnectionAck::can't determine destination for message
CICM363	/var/log/customerlog	SetConnectionAck Failed	None	communications	Set ConnectionAck Failed.	SetConnNetModeAck::can't determine destination for message
CICM363	/var/log/customerlog	noPtimeCanBeNegotiated	None	communications	no ptime can be negotiated.	Ensure a common ptime exists between the GWC and the CICM terminal audio profile
CICM363	/var/log/customerlog	noCodecCanBeNegotiated	None	communications	no codec can be negotiated.	Ensure a common codec exists between the GWC and the CICM terminal audio profile
CICM364	/var/log/customerlog	RegisterGatewayFailed	None	communications	Register Gateway Failed	Register Gateway XXX Failed

CICM364	/var/log/customer log	UnRegisterGatewayFailed	None	communications	UnRegister Gateway Failed	UnRegister Gateway XXX Failed
CICM365	/var/log/customer log	MibSyncMateFail	None	equipment	Mib Sync Mate Failure	Mate node failed during MIB syncronisation. This node will start partially Synchronised.
CICM366	/var/log/customer log	MibSyncSCMPollfail	None	equipment	Mib Sync SCM Poll Failure	Opening Service Control Manager FAILURE.
CICM367	/var/log/customer log	ErrorDatafillTones	None	equipment	Error Datafilling Tones	Error encountered datafilling tones!.
CICM368	/var/log/customer log	NoMaxSessions	None	equipment	Max Sessions Not Present	Invalid config. Max Sessions not present.
CICM368	/var/log/customer log	MaxSessionsNotPresent	None	communications	MaxSessionsNotPresent.	Maximum sessions configuration not specified
CICM369	/var/log/customer log	NoDomainLicense	None	equipment	No Domain License	No network domain license for terminal at XXX
CICM370	ALARM_TRAP_to_IEMS	MateFailure	Major	communications	Mate Failure.	Admin reports mate node failure.
CICM370	ALARM_TRAP_to_IEMS	MateStarting	None	communications	Mate Failure.	Admin reports Mate Node start.
CICM371	/var/log/customer log	TerminalError	None	equipment	An Error Occured on the Terminal	Terminal Error XXX
CICM372	/var/log/customer log	UnableToMapAdapter	None	communications	Unable to map adapter	Unable to map XXX adapter XXX to an ip address.
CICM373	/var/log/customer log	UFTPFirmwareFileOpenFailed	None	communications	UFTPFirmwareFileOpenFailed.	Failed to open file XXX.
CICM373	/var/log/customer log	UFTPFirmwareFileOpenFailedFatal	None	communications	UFTPFirmwareFileOpenFailed.	Invalid directory or file XXX not found
CICM373	/var/log/customer log	UFTPFirmwareFileReadError	None	communications	UFTPFirmwareFileReadError.	Firmware file XXX read error
CICM373	/var/log/customer log	UFTPCommandFileReadError	None	communications	UFTPCommandFileReadError.	UFTPCommandFileReadError
CICM373	/var/log/customer log	UFTPCommandFileCreationError	None	communications	UFTPCommandFileCreationError.	Command = XXX
CICM373	/var/log/customer log	UFTPBaseDirectoryMissing	None	communications	UFTPBaseDirectoryMissing.	UFTP base directory missing from registry
CICM374	/var/log/customer log	ReadPollPeriodFail	None	communications	Poll Period Read Fail	Couldn't read gwPollPeriod from mib. Defaulting to 30 seconds.
CICM375	ALARM_TRAP_to_IEMS	SAM21VersionMismatch	Minor	processingError	SAM21 Version Mismatch.	SAM21 Version Mismatch. Version XXX
CICM375	ALARM_TRAP_to_IEMS	SAM21VersionMismatchClear	None	processingError	SAM21 Version Mismatch.	SAM21 Version Mismatch. Version XXX
CICM376	/var/log/customer log	ShuttingDownTerminals	None	communications	ShuttingDownTerminals.	Shutdown counter set to zero minutes, shutting down terminals immediately
CICM376	/var/log/customer log	TerminalShutDownAborted	None	communications	TerminalShutDownAborted.	Terminal shutdown aborted
CICM377	ALARM_TRAP_to_IEMS	SyslogFailure	Major	communications	Syslog Failure.	Syslog failure. Last stream in failure XXX.
CICM377	ALARM_TRAP_to_IEMS	SyslogFailureClear	None	communications	Syslog Failure.	Syslog failure clear.

CICM378	/var/log/customer log	ExcessNodes	None	communications	Excessive Nodes on EM	More than 100 nodes present, unrecommended configuration
CICM379	/var/log/customer log	RegisterSessionFailed	None	communications	Register Session Failed	Register Session Failed on Gateway XXX
CICM379	/var/log/customer log	RegisterSessionFailedRange	None	communications	Register Gateway Failed	Register Gateway XXX Failed termination XXX is out of range
CICM379	/var/log/customer log	RegisterSessionFailedInvalid	None	communications	Register Gateway Failed	Register Gateway XXX Failed termination XXX is invalid
CICM379	/var/log/customer log	CouldntStartAuditTimer	None	communications	Couldn't start audit timer	Couldn't start audit timer
CICM380	ALARM_TRAP_to_IEMS	FailedPollMG	Warning	communications	Fail Poll MG	Failed to Poll Media Gateway XXX.
CICM380	ALARM_TRAP_to_IEMS	FailedPollMGClear	None	communications	Fail Poll MG	Failed to Poll Media Gateway XXX.
CICM381	ALARM_TRAP_to_IEMS	NetworkLoss	Critical	communications	Network Loss.	Critical network connection loss on adapter XXX
CICM381	ALARM_TRAP_to_IEMS	ClearNetworkLoss	None	communications	Network Loss.	Critical network connection loss cleared on adapter XXX
CICM381	ALARM_TRAP_to_IEMS	NetworkLossMajor	Major	communications	Network Loss.	Major network connection loss on adapter XXX
CICM381	ALARM_TRAP_to_IEMS	ClearNetworkLossMajor	None	communications	Network Loss.	Major network connection loss cleared on adapter XXX
CICM382	ALARM_TRAP_to_IEMS	RemoteHostFail	Minor	communications	Remote Host Fail.	Disabling client XXX with interface XXX.
CICM382	ALARM_TRAP_to_IEMS	RemoteHostFailClear	None	communications	Remote Host Fail.	Enabling client XXX with interface XXX.
CICM383	ALARM_TRAP_to_IEMS	FirmwareUpgradeFail	Warning	communications	Firmware upgrade failure.	Firmware upgrade failure.
CICM383	ALARM_TRAP_to_IEMS	FirmwareUpgradeFailClear	None	communications	Firmware upgrade failure.	Firmware upgrade failure.
CICM383	/var/log/customer log	FirmwareUpgradeNotSupportedUFTPOverUnistim	None	communications	FirmwareUpgradeNotSupportedUFTPOverUnistim.	Firmware upgrade is not supported via UFTP over Unistim. File XXX
CICM384	/var/log/customer log	NodeIsolatedForcingTransitionFromMasterToSlave	None	communications	Node Isolated - Forcing transition from master to slave	Node Isolated - Forcing transition from master to slave
CICM385	/var/log/customer log	SlaveNodeIsolated	None	communications	Slave Node isolated	Slave Node isolated
CICM386	/var/log/customer log	UFTPmaxSessionsMIBDataFatal	None	communications	UFTPmaxSessions value in the mib is incorrect	UFTPmaxSessions must be at least one. Value XXX is invalid
CICM386	/var/log/customer log	UFTPmaxSessionsMIBDataNonFatal	None	communications	UFTPmaxSessions value is missing from the mib	UFTPmaxSessions missing using default value XXX
CICM387	ALARM_TRAP_to_IEMS	CommsFailedCicm	Major	communications	CICM Poll Failed	Failed to Poll CICM Node XXX.
CICM387	ALARM_TRAP_to_IEMS	CommsFailedCicmClear	None	communications	CICM Poll Failed	Failed to Poll CICM Node XXX.
CICM388	/var/log/customer log	UFTPtimerTimeoutMIBDataNonFatal	None	communications	UFTPtimerTimeout value is missing from the mib	UFTPtimerTimeout missing using default value XXX

CICM389	/var/log/customerlog	UFTPInvalidClientMessage	None	communications	UFTP_INVALID_CLIENT_MESSAGE	UFTP_INVALID_CLIENT_MESSAGE XXX value XXX is invalid
CICM390	ALARM_TRAP_to_IEMS	FailedPAMConn	Major	communications	Failed To Connect PAM server	PAM server XXX is not responding to authentication requests
CICM390	ALARM_TRAP_to_IEMS	FailedPAMConnClear	None	communications	Failed To Connect PAM server	PAM server XXX is now responding to authentication requests
CICM391	/var/log/customerlog	ProcessNetworkStateTransitionStateError	None	communications	Invalid transition	ProcessNetworkStateTransition() called with invalid transition XXX
CICM392	/var/log/customerlog	PAMServerTMO	None	communications	PAM Server TMO	Timeout occurred whilst awaiting response from PAM server XXX
CICM393	/var/log/customerlog	TakeoverManualAbortedIsNotImplemented	None	communications	Takeover manual aborted, is not implemented	Takeover manual aborted, is not implemented
CICM394	/var/log/customerlog	FailedToUnbindAdapter	None	communications	Fatal error: Unable to unbind adapter	Fatal error: Unable to unbind adapter.
CICM395	/var/log/customerlog	MateNodeFailedTemporarily	None	communications	Mate node failed temporarily	Mate node failed temporarily for XXX iterations
CICM396	/var/log/customerlog	TakeoverAbortIsNotImplemented	None	communications	Takeover abort, is not implemented	Takeover abort, is not implemented
CICM397	/var/log/customerlog	MateNodeLostForcingTransitionFromSlaveToMaster	None	communications	Mate node lost - Forcing transition from slave to master	Mate node lost - Forcing transition from slave to master
CICM398	/var/log/customerlog	MateNodeLost	None	communications	Mate node lost	Mate node lost
CICM399	/var/log/customerlog	RouteMapError	None	communications	Route map error	Resetting adapter, state= XXX mate=XXX
CICM500	/var/log/customerlog	StateChange	None	processingError	State Change.	Admin reports a state change to XXX for component XXX.
CICM503	/var/log/customerlog	NetAccessStateChange	None	communications	Network Access State Change	Netork access state change to XXX
CICM504	/var/log/customerlog	EMNetworkChange	None	communications	EM Network State Change	Network connectivity XXX. hr=XXX
CICM505	/var/log/customerlog	StopMonitoring	None	communications	Stop Monitoring	Stopped monitoring node XXX
CICM506	/var/log/auditlog	MonitorStart	None	communications	Start Monitoring	Started to monitor node XXX.
CICM507	/var/log/auditlog	ConnectToPAMServer	None	environmental	Connect to PAM.	Connect to PAM.
CICM508	/var/log/customerlog	SlaveInstructedToChangeToInvalidAdapter	None	communications	Slave instructed to change to invalid adapter, selecting default	Slave instructed to change to invalid adapter, selecting default
CICM509	ALARM_TRAP_to_IEMS	ProcessStateChange	Critical	processingError	Critical Process State Change.	Critical Process XXX is not running.
CICM509	ALARM_TRAP_to_IEMS	ProcessStateChangeClear	None	processingError	Critical Process State Change.	Critical Process XXX is running.

CICM509	ALARM_TRAP_to_IEMS	ServiceStateChange	Major	processingError	Service State Change.	Service XXX is not running.
CICM509	ALARM_TRAP_to_IEMS	ServiceStateChangeClear	None	processingError	Service State Change.	Service XXX is running.
CICM510	/var/log/auditlog	EMMateUp	None	environmental	EM Mate Up.	EM Mate Up. Name: XXX.
CICM512	/var/log/customerlog	StartSWACT	None	processingError	Start SWACT.	Admin reports a request to start SWACT.
CICM512	/var/log/customerlog	PromoteToMaster	None	processingError	Promote to Master.	Admin reports a request to promote to Master.
CICM512	/var/log/customerlog	DemoteToSlave	None	processingError	Demote to Slave.	Admin reports a request to demote to slave.
CICM513	/var/log/auditlog	ChangingLocalAdapter	None	communications	Changing local adapter	Changing local adapter from XXX to XXX
CICM603	/var/log/customerlog	InvalidEventReport	None	processingError	Invalid Event Report.	Invalid report received from Admin.
CICM604	/var/log/customerlog	MateSyncErrState	None	processingError	Mate sync error state.	request for mate synchronisation received in state XXX.
CICM605	/var/log/customerlog	GWRegBadState	None	equipment	GW Reg in Bad State.	Gateway registration received in state XXX.
CICM606	/var/log/customerlog	PremSlaveGWReg	None	equipment	Premature reg slave gw.	Premature registration of the slave gateway.
CICM607	/var/log/customerlog	SwactReqRemoteMGM	None	equipment	Swact Request from Remote MGM.	Swact request received from the remote MGM.
CICM608	/var/log/customerlog	RetransRUDPMessagesThrottled	None	communications	Retransmitted RUDP messages.	Retransmitted XXX RUDP messages, XXX retransmissions were throttled.
CICM609	/var/log/customerlog	RetransRUDPMessages	None	communications	Retransmitted RUDP messages.	Retransmitted XXX RUDP messages.
CICM610	/var/log/customerlog	LossOfLogs	None	communications	Loss of logs.	XXX logs have been lost due to buffering.
CICM610	/var/log/customerlog	LossOfTraps	None	communications	Loss of traps.	XXX traps have been lost due to buffering.
CICM611	ALARM_TRAP_to_IEMS	ThresholdReached	Major	qualityOfService	Resource Threshold Crossed	Resource XXX is near or above its threshold of XXX
CICM611	ALARM_TRAP_to_IEMS	ThresholdReachedClear	None	qualityOfService	Threshold Crossed	Resource XXX is near or above its threshold value of XXX
CICM612	/var/log/customerlog	AuditStart	None	environmental	Start Audit.	Starting the daily audit.
CICM612	/var/log/customerlog	AuditEnd	None	environmental	Audit Complete	Daily audit completed.
CICM614	/var/log/customerlog	MsgFromInvalidComp	None	equipment	Message from invalid component	Message received from invalid component type = 0x XXX
CICM615	/var/log/customerlog	NodeForcedMaster	None	equipment	Node forced to master	Node is being forced to become master.
CICM615	/var/log/customerlog	NodeForcedSlave	None	equipment	Node forced to slave	Node is being forced to become slave.
CICM617	/var/log/customerlog	MibSyncPollFail	None	equipment	Mib Sync Poll Failure	Network status remote state query returned hr=0x XXX.

CICM618	/var/log/customer log	NoLineID	None	equipment	No Line ID	User XXX has no LineId attribute in the mib.
CICM619	/var/log/customer log	NoToneset	None	equipment	No Toneset Found	Toneset XXX not found A standard tone will be used in place of all toneIDs
CICM620	/var/log/customer log	InvalidToneIndex	None	equipment	Invalid Tone Component Index	Invalid tone component index toneset XXX toneid XXX
CICM621	/var/log/customer log	NoVolume	None	equipment	Invalid Volume Datafilled	No volume datafilled for toneset XXX toneid XXX
CICM622	/var/log/customer log	Invalidtone	None	equipment	Invalid Tone Frequency	Invalid tone frequency count toneset XXX toneid XXX
CICM623	/var/log/customer log	NoFrequency	None	equipment	Invalid Frequency Datafilled	No frequency datafilled for toneset XXX toneid XXX
CICM624	/var/log/customer log	InvalidCadenceCount	None	equipment	Invalid Cadence Count	Invalid tone cadence count toneset XXX toneid XXX
CICM625	/var/log/customer log	NoCadenceOff	None	equipment	No Cadence Off	No Cadence off datafilled for toneset XXX toneid XXX
CICM625	/var/log/customer log	NoCadenceOn	None	equipment	No Cadence On	No Cadence on datafilled for toneset XXX toneid XXX
CICM627	/var/log/customer log	InvalidConnMap	None	equipment	Connection mapped to invalid line	Connection XXX is mapped to line XXX which isn't valid.
CICM628	/var/log/customer log	ConnNonE1	None	equipment	Connection mapped not in E1_CONN state	Connection XXX is mapped to line XXX which isn't in E1_CONNECTION state.
CICM629	/var/log/customer log	ResetNoConn	None	equipment	Reset Connection isn't in NO_CONNECTION state	Resetting connection for line XXX which isn't in NO_CONNECTION state.
CICM630	/var/log/customer log	CreateConFail	None	equipment	Create Connection Fail	Create connection failed. Call type = XXX, result = XXX
CICM631	/var/log/customer log	DelConFail	None	equipment	Delete Connection Fail	Delete connection failed.
CICM632	/var/log/customer log	NoLineObject	None	equipment	No line object	Create Connection: Could not find line object for conflicting connection XXX with lineid = XXX
CICM633	/var/log/customer log	CorruptConnMap	None	equipment	Corrupt Connection Map	Connection map is corrupt, or media control is reusing handles, connection id XXX is already in use my lineid XXX.
CICM634	/var/log/customer log	NoConIDMap	None	equipment	No Connection Id map	Connection map is corrupt, or media control is reusing handles, connection id XXX could not be found in the map.
CICM635	/var/log/customer log	UnableChangeLoss	None	equipment	Unable Change Rx Loss	Unable to change rx loss for connection XXX
CICM636	/var/log/customer log	TooManyFeatures	None	equipment	Too Many Features	Terminal type has too many features on the main set (max is XXX).
CICM637	/var/log/customer log	TooManyFeaturesExt	None	equipment	Too Many Features	Terminal type has too many features on the extension set (max is XXX).

CICM638	/var/log/securitylog	AuthUserProblem	None	equipment	Auth User Failed	User XXX
CICM639	/var/log/securitylog	LogoutSuccess	None	equipment	Logout Success	User XXX
CICM639	/var/log/securitylog	LoginSuccess	None	equipment	Login Success	User XXX
CICM641	/var/log/securitylog	ChangePassword	None	equipment	Change Password Attempt	User XXX
CICM642	/var/log/securitylog	ReleaseAuth	None	equipment	Release Authentication	
CICM643	/var/log/customerlog	InvalidFirmwareProt	None	equipment	Invalid Firmware Protocol	Invalid FirmwareProtocol for TerminalType= XXX
CICM644	/var/log/customerlog	InvalidFWLevel	None	equipment	Invalid Firmware Level	Invalid Firmware level for TerminalType= XXX
CICM645	/var/log/customerlog	NoFWLevel	None	equipment	No Firmware Level	Terminal has no firmware level recorded in the MIB
CICM646	/var/log/customerlog	InvalidUFTHost	None	equipment	Invalid UFTP Host	Invalid UFTP host port
CICM647	/var/log/customerlog	InvalidUnistimHost	None	equipment	Invalid Unistim Host	Invalid Unistim host address
CICM648	/var/log/customerlog	InvalidFWTFTPAddr	None	equipment	Invalid Firmware TFPT Address	Invalid Firmware TFTP Address for TerminalType=XXX
CICM649	/var/log/auditlog	ConfigDataChange	None	processingError	Config Data Change.	Admin reports a configuration data change.
CICM650	/var/log/auditlog	InitialisingAsMaster	None	communications	Initialising as master	Initialising as master
CICM650	/var/log/auditlog	InitialisingAsMasterNoSlave	None	communications	Initialising as master (no slave)	Initialising as master (no slave)
CICM650	/var/log/auditlog	InitialisingAsSlave	None	communications	Initialising as slave	Initialising as slave
CICM650	/var/log/auditlog	StartingTakeover	None	communications	Starting takeover	Starting takeover
CICM650	/var/log/auditlog	TakeoverSucceededNowSlave	None	communications	Takeover succeeded, now slave	Takeover succeeded, now slave
CICM650	/var/log/auditlog	TakeoverSucceededNowMaster	None	communications	Takeover succeeded, now Master	Takeover succeeded, now Master
CICM650	/var/log/auditlog	ForcingTransitionFromSlaveToMaster	None	communications	Forcing transition from slave to master	Forcing transition from slave to master
CICM650	/var/log/auditlog	ForcingTransitionFromMasterToSlave	None	communications	Forcing transition from master to slave	Forcing transition from master to slave
CICM650	/var/log/auditlog	MateNodeRecoveredForcingtransitionFromSlaveToMaster	None	communications	Mate Node Recovered - Forcing transition from slave to master	Mate Node Recovered - Forcing transition from slave to master
CICM650	/var/log/auditlog	ProcessingSwact	None	communications	Processing Swact	Processing Swact request
CICM652	/var/log/auditlog	addGateway	None	communications	Adding a gateway	Gateway XXX has been added.
CICM653	/var/log/auditlog	deleteGateway	None	communications	Deleting a gateway	Deleting gateway XXX

CICM654	/var/log/auditlog	addProfile	None	communications	Adding a profile	Adding a XXX profile for gateway XXX
CICM655	/var/log/auditlog	delProfile	None	communications	Deleting a profile	Deleting XXX profile for gateway XXX
CICM656	ALARM_TRAP_to_IEMS	maxRxRateExceed	Minor	processingError	Max Rx Rate Exceeded.	Max rx rate of XXX has been exceeded by rate XXX.
CICM656	ALARM_TRAP_to_IEMS	maxRxRateExceedClear	None	processingError	Max Rx Rate Exceeded.	Clear max rx rate of XXX has been exceeded.
CICM657	ALARM_TRAP_to_IEMS	maxCreateAttempts	Minor	communications	Max Creation Attempts.	Reached the max creation attempts for the session.
CICM657	ALARM_TRAP_to_IEMS	maxCreateAttemptsClear	None	communications	Max Creation Attempts.	Reached the max creation attempts for the session.
CICM658	/var/log/auditlog	MateNodeRecovered	None	communications	Mate node recovered	Mate node recovered
CICM659	/var/log/auditlog	SlaveAdapterRecovered	None	communications	Slave adapter recovered	Slave adapter XXX recovered
CICM660	/var/log/securitylog	SuccessfulPAMAuthentication	None	environmental	Successful PAM Authentication.	User XXX has started a session on the CICM-EM
CICM661	/var/log/securitylog	PAMAuthenticationFailure	None	processingError	PAM Authenication Failure.	User XXX authentication failure
CICM662	/var/log/securitylog	UserRevoked	None	environmental	User Privileges Revoked.	Privileges revoked
CICM663	/var/log/securitylog	UserUpgraded	None	environmental	User Privileges upgraded.	Privileges upgraded
CICM664	/var/log/securitylog	InactiveUserTMO	None	environmental	Inactive User Timeout.	User XXX is no longer active on the CICM-EM
CICM665	/var/log/auditlog	NetworkElementHasRecovered	None	communications	Network Element recovered	Network Element XXX recovered
CICM668	ALARM_TRAP_to_IEMS	MaxNoSessions	Warning	processingError	Reached the maximum number of sessions.	Current number of active sessions has reached the maximum of XXX.
CICM668	ALARM_TRAP_to_IEMS	MaxNoSessionsClear	None	processingError	Reached the maximum number of sessions.	Current number of active sessions is below the maximum of XXX.
CICM680	/var/log/auditlog	RegisterGatewaySucceeded	None	communications	Register Gateway Succeeded	Register Gateway XXX Succeeded
CICM681	/var/log/auditlog	ConfigurationChange	None	communications	Configuration change	XXX
CICM682	/var/log/auditlog	ProvisioningChange	None	communications	Provisioning change	XXX
CICM749	/var/log/securitylog	AccountDisabled	None	equipment	Account Disabled	User XXX
CICM750	/var/log/securitylog	ChangePasswordFail	None	equipment	Change Password Attempt	User XXX

Succession

SN07 OSS Guide (ATM)

Advance Feature Guide

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