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Nortel Multiservice Switch 15000, Media Gateway 15000 and Multiservice Data Manager in Carrier Voice over IP Networks

Configuration Attribute Summary

PT-AAL1/UA-AAL1/UA-IP

NN10225-512

Nortel Multiservice Switch 15000, Media Gateway 15000 and Multiservice Data Manager in Carrier Voice over IP Networks

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PT-AAL1/UA-AAL1/UA-IP

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About this document

Within the Carrier VoIP portfolio's solutions for PT-AAL1, UA-AAL1, and UA-IP, most configuration for the Nortel Multiservice Switch 15000 nodes occurs during initial and incremental installation and commissioning. This document summarizes the component and attribute values set during initial configuration so that you can better understand how the node was configured and so that you can troubleshoot any problems.

> ***Note 1:*** To ensure performance levels and prevent equipment outages, Nortel recommends that you DO NOT change the initial installation configuration, or configure additional components and services on Multiservice Switch 15000 nodes.
>
> ***Note 2:*** Nortel recommends that all configuration changes contained in the Global Bulletin System (GBS) and the Method of Procedure (MOP) for the current release be reflected on the Multiservice Switch 15000s before performing the upgrade.

The focus of this document is on those components and attribute values specific to the portfolio. The document may not describe the complete hierarchy of a component if the subcomponents and attributes under that component are not relevant to the solution. It does not include or describe default values unless the defaults are relevant. It also does not include detailed descriptive information about the components. See NN10600-060 *Nortel Multiservice Switch 7400/15000/20000 Component Reference* for complete component descriptions and hierarchies.

The following topics are discussed in this section:

Who should read this document and why

This document is intended for network operators that want a greater understanding of how Nortel Multiservice Switch 15000 equipment within the PT-AAL1, UA-AAL1, and UA-IP solutions are initially installed or configured during incremental commissioning.

What you need to know

Before you read this document, you need to have a general understanding of how Nortel Multiservice Switch 15000/Media Gateway 15000 nodes are configured within the PT-AAL1, UA-AAL1, and UA-IP solutions. For more information, see NN10114-511 *Nortel Multiservice Switch 15000, Media Gateway 15000 and Multiservice Data Manager in Carrier Voice over IP Networks Configuration Overview PT-AAL1/UA-AAL1/UA-IP*.

You also should have a general understanding of Multiservice Switch software and the component hierarchies. For more information, see NN10600-060 *Nortel Multiservice Switch 7400/15000/20000 Component Reference*.

How this document is organized

The summary of the configuration of Nortel Multiservice Switch 15000/ Media Gateway 15000 nodes is broken down into three main areas:

- the base software configuration
- the configuration of the function processors
- the configuration of the links between components

Within each of these areas there is a further focus on related components and attributes.

NN10225-512 *Nortel Multiservice Switch 15000, Media Gateway 15000 and Multiservice Data Manager in Carrier Voice over IP Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP* contains the following sections:

- "Shelf-wide and CP configuration" (page 25)
- "Summary of FP configuration" (page 63)
- "Summary of link configuration" (page 95)
- "Summary of Multiservice Data Manager server configuration" (page 261)

Note: This version of the NN10225-512 *Nortel Multiservice Switch 15000, Media Gateway 15000 and Multiservice Data Manager in Carrier Voice over IP Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP* does not include the configuration attribute values for the configuration of DSL, however, DSL is supported. Please contact Nortel Global Professional Services for more information on how to configure DSL features.

This document describes standardized Multiservice Switch 15000 configurations for Carrier VoIP solutions. Nortel Multiservice Data Manager is the Element Management System (EMS) for Multiservice Switch 15000 network elements (NE). This includes Multiservice Switch 15000 nodes configured as a packet/core aggregator or as a Media Gateway 15000. Some configuration is common to both of these applications, while other configuration aspects are unique to one of the applications.

The same components are not necessarily configured for all solutions.Therefore, the tables in this document specify whether they are for PT-AAL1, UA-AAL1, and UA-IP, or for all of these solutions. A table indicates each component or logical group of components to create or change using the Nodal Provisioning (NP) tool.

Generally, standardized templates simplify the configuration task, as compared to using manual configuration. In some instances however, to allow flexibility, the user is required to apply a template repetitively. For example, to configure one OC-3 time division multiplexing (TDM) port, 84 trunks must be configured.

For more information, see the chapters as follows:

- Chapter 1, “Shelf-wide and CP configuration,” (page 25)
- Chapter 2, “Summary of FP configuration,” (page 63)
- Chapter 3, “Summary of link configuration,” (page 95)

What’s new in this document

This document includes the following new features:

- “Internode Emergency Stand Alone (ESA)” (page 20).
- “SDM/MDM interworking enhancements” (page 21)
- “MDM Admin Server configuration for centralized user administration with the Operator Client application” (page 21).
- “Auto-patching of MSS/MG15000 nodes from the MDM” (page 21)
- “MDM Templates to configure MG15000 nodes for PT-AAL2” (page 21)

Internode Emergency Stand Alone (ESA)

MG9000 InterNode ESA is an optional feature that requires extra configuration. All the components that are required to add MG9000 InterNode ESA support to a previously commissioned MSS15000 in the UA-AAL1 solution are found throughout this NTP. Not all components are required for all configurations. Each related group of components that must be created or changed is covered in separate tables that follow each component’s general configuration table. See the following chapters:

- “Shelf-wide and CP configuration” (page 25)
- “Summary of FP configuration” (page 63)
- “Summary of link configuration” (page 95)

SDM/MDM interworking enhancements

SALC server now has -name and -nodeId command line options. The -name option allows multiple SALC server processes to run independently and it affects the configuration file the SALC server reads as well as the target log files it creates. The -nodeId option identifies the node to which the SALC server is sending logs. The SALC server can be configured to send SALs in custlogV2 (SCC2) format to an SDM running release SN08 or higher. See "Security Audit Log Collector (SALC) server configuration" (page 279).

MDM Admin Server configuration for centralized user administration with the Operator Client application

The MDM Admin Server must be configured for centralized AAA and the Radius client of each of the MSS/MG15000 nodes must be configured to use the RADIUS interface on the MDM Admin Server.

The Policy Manager and User Manager applications are used to associate policies to roles and users to roles which defines the access that a user or role can have to the tools and the network. See "Policy and role configuration for Operator Client user administration in a VoA network on the MDM Admin Server" (page 305) to see the policies configured for user access.

Auto-patching of MSS/MG15000 nodes from the MDM

See the attributes that need to be configured for the ppautopatch script under "Auto-patching of MSS/MG15000 nodes from the MDM" (page 315).

MDM Templates to configure MG15000 nodes for PT-AAL2

Two new templates are available to configure MG15000 nodes for PT-AAL2:

- IF-MGC-IPSEC-2pOC3ChSmIrVsp3-o

  This template configures the SPD component structure to add IPSec protection for the Control connection to MGC on 2pOC3ChSmIrVsp3 FP's.

- IF-MGC-IPSEC-ping-2pOC3ChSmIrVsp3-o

  This template configures policy components to allow ICMP pings to be sent and recieved on 2pOC3ChSmIrVsp3 FP's.

Branding changes

The following terms have been rebranded in conjunction with the new Nortel brand simplified naming format:

- Preside Multiservice Data Manager (Preside MDM) has been rebranded to Multiservice Data Manager (MDM)
- Passport 8600 (PP8600) has been rebranded to Ethernet Routing Switch 8600 (ERS 8600)
- Succession has been rebranded to Carrier Voice over IP (CVoIP).

For more information on the Multiservice Data Manager product rebranding, refer to 241-6001-001 *Nortel Multiservice Data Manager What's New in MDM Documentation*.

For more information on the product rebranding, refer to NN10600-000 *Nortel Networks Multiservice Switch 7400/15000/20000 What's New in PCR6.1*.

Related documents

See the following documents for related information:

- NN10114-511 *Nortel Multiservice Switch 15000, Media Gateway 15000 and Multiservice Data Manager in Carrier Voice over IP Networks Configuration Overview PT-AAL1/UA-AAL1/UA-IP*
- NN10028-111 *Nortel Multiservice Switch 15000, Media Gateway 15000 and Multiservice Data Manager in Carrier Voice over IP Networks Product and Technology Basics PT-AAL1/UA-AAL1/UA-IP*
- NN10180-611 *Nortel Multiservice Switch 15000, Media Gateway 15000 and Multiservice Data Manager in Carrier Voice over IP Networks Security and Administration PT-AAL1/UA-AAL1/UA-IP*
- NN10600-605 *Nortel Multiservice Data Manager Network Security Fundamentals*
- NN10600-606 *Nortel Multiservice Data Manager Network Security: User Access Configuration*
- NN10600-607 *Nortel Multiservice Data Manager Network Security: Secure Communications Configuration*

- NN10443-100 *UA-AAL1 Solution-level Basics*
- NN10441-100 *PT-AAL2 Solution-level Basics*
- NN10442-100 *Packet Trunking/Packet Transit - IP Solution-level Basics (PT-IP)*
- NN10446-100 *Universal Access - IP Solution-level Basics (UA-IP)*

How to get more help

For information on training, problem reporting, and technical support, see "Nortel support services" section in the *NN10600-030 Nortel Multiservice Switch 7400/15000/20000 Overview*.

Chapter 1
Shelf-wide and CP configuration

Before configuring the function processors (FPs) and links to other components in Nortel Multiservice Switch nodes the shelf-wide and control processor (CP) software must be configured. This section describes the specifics of that configuration.

CAUTION
Performance degrades and outages may occur
To ensure performance levels and prevent outages, Nortel recommends you DO NOT change the initial installation configuration, or configure additional components and services.

Access control configuration

Nortel Multiservice Switch 15000 access control restricts node access through user IDs, passwords, and authorized remote IP access. Access control is set through the configuration of the *AccessControl* component and subcomponents. Review the following information to understand how access control was configured on your nodes. This table lists the base set for Nortel Multiservice Data Manager to manage Multiservice Switch nodes. You may need to add your own user IDs and passwords for other network devices that need IP access to the node.

Table 1
Access control configuration

Components	Attributes	Configured values	Notes
EM			
Access Control (Ac)			
Ac Userid/root	password (passwd)	<customer defined>	ASCII string of 5 to 8 characters
	customerIdentifier (cid)	0	Default value
	commandScope (scope)	network	A commandScope of *network* indicates that the userid can manage components that affect the operation of the network. The commandScope attribute is hierarchical: a userid provisioned with *network* scope can issue components at lower scope levels.
(Sheet 1 of 6)			

Table 1 (Continued)
Access control configuration

Components	Attributes	Configured values	Notes
	commandImpact (impact)	debug	A commandImpact of *debug* indicates that the userid can issue all debugging commands. The commandImpact attribute is hierarchical: a userid provisioned with *debug* impact can issue all other commands at lower impact levels.
	allowedAccess (nmifs)	local fmip ~telnet ftp	Indicates the set of network management interfaces through which this userid is allowed incoming access to the nodes.
	loginDirectory (dir)	/	The user logging in with this userid will be placed in this directory after login.
Ac Userid/mdm	password (passwd)	<customer defined>	ASCII string of 5 to 8 characters
	customerIdentifier (cid)	0	Default value
(Sheet 2 of 6)			

Table 1 (Continued)
Access control configuration

Components	Attributes	Configured values	Notes
	commandScope (scope)	network	A commandScope of *network* indicates that the userid can manage components that affect the operation of the network. The commandScope attribute is hierarchical: a userid provisioned with *network* scope can issue all other commands at lower impact levels.
	commandImpact (impact)	sysAdmin	A commandImpact of *sysAdmin* indicates that the userid can issue commands on security components, such as the Userid and IpAccess components.
	allowedAccess (nmifs)	~local fmip ~telnet ftp	Indicates the set of network management interfaces through which the userid is allowed incoming access to the nodes. Access can be configured. For example, some ILECs allow the use of telnet, others do not.
	loginDirectory (dir)	/	The user logging in with this userid will be placed in this directory after login.
(Sheet 3 of 6)			

Table 1 (Continued)
Access control configuration

Components	Attributes	Configured values	Notes
Ac Userid/maint	password (passwd)	<customer defined>	ASCII string of 5 to 8 characters
	customerIdentifier (cid)	0	This is the default value.
	commandScope (scope)	network	A commandScope of *network* indicates that the userid can manage components that affect the operation of the network. The commandScope attribute is hierarchical: a userid provisioned with *network* scope can issue all other commands at lower impact levels.
	commandImpact (impact)	config	A commandImpact of *config* indicates that the userid can issue commands to alter the configuration of the nodes.
	allowedAccess (nmifs)	~local fmip ~telnet ftp	Indicates the set of network management interfaces through which the userid is allowed incoming access to the nodes.
	loginDirectory (dir)	/	The user logging in with this userid will be placed in this directory after login.
(Sheet 4 of 6)			

Table 1 (Continued)
Access control configuration

Components	Attributes	Configured values	Notes
IpAccess/<IP address>		<IP address of a MDM server>	This is the IP address of a MDM server that can access the node. The number and type of MDM servers that will need to access the nodes and will need to have IpAccess components configured for them varies based on customer deployment scenarios. These scenarios will determine how many IpAccess components were configured on your nodes.
(Sheet 5 of 6)			

Table 1 (Continued)
Access control configuration

Components	Attributes	Configured values	Notes
	ipAddress Mask (mask)	<customer defined>	Defined according to the customer IP addressing/ subnet plan. This is a mask indicating which byte of the IP address to ignore when evaluating an incoming IP address. For example, 255.255.255.0 tells the node to ignore the last byte in the address, allowing all devices with the first three bytes identical to the IpAccess/ <IP address> to access the node. When the mask is combined with the IP address, it defines a subnetwork.
(Sheet 6 of 6)			

ATM routing configuration

Review the following information to understand how ATM routing was configured on the Nortel Multiservice Switch 15000 nodes. To show the ATM routing component, at least one function processor (FP) must be configured with ATM.

Table 2
ATM routing configuration

Components	Attributes	Configured values	Notes
EM			
ModuleData (Md)			
	nodePrefix	<customer defined>	This is defined according to your addressing plan. Node prefix can be set with either the mod node Prefix attribute or the Artg pnni nodeAddressPrefix.
AtmRouting (ARtg)			This component appears automatically when there is one FP in the shelf with atmpnni and atmuni configured on it.
	discardCalls OnOverload (disc)	enabled	Incoming calls on egress FPs will be discarded when the card is overloaded.
(Sheet 1 of 8)			

Table 2 (Continued)
ATM routing configuration

Components	Attributes	Configured values	Notes
ARtg SparedServices	sparing	enabled	For PT-AAL1/UA-AAL1. If enabled, the active CP sends routing information to the standby CP. This decreases the routing outage during CP switchover and hitless software migration. The standby CP routing database is synchronized with the active CP routing database. All FPs continuously communicate with both CPs.
		disabled	For UA-IP.
Artg Pnni			
	nodeAddress Prefix	<customer defined>	This attribute is set to Atm address prefix or node prefix.
(Sheet 2 of 8)			

Table 2 (Continued)
ATM routing configuration

Components	Attributes	Configured values	Notes
	avcrMt	1 (UA-AAL1) 3 (UA-IP- the default)	This attribute sets the average cell rate minimum threshold. This attribute multiplied by the Maximum Cell Rate specifies the minimum threshold used in the algorithms that determine significant change for average cell rate parameters. For UA-IP, sparing is disabled.
	avcrPm	50	This attribute sets the average cell rate proportional multiplier.This attribute multiplied by the current Available Cell Rate specifies the threshold used in algorithms that determine significant change for AVCR parameters.
	pathDiversity	<customer defined>	See *NN10600-702 Nortel Multiservice Switch 7400/15000/ 20000 ATM Routing and Signalling Fundamentals* for information on the path diversity attribute.
(Sheet 3 of 8)			

Table 2 (Continued)
ATM routing configuration

Components	Attributes	Configured values	Notes
Pnni ConfiguredNode (CfgNode)			Configure one *CfgNode* component for each peer group in which the node participates. The *CfgNode* instance value defines the number of bits of the address prefix representing the prefix for the peer group. This component permits the configuration of summary addresses, which you will need if there are MG4000s whose AESA addresses are not the same as their node prefix. For more information, see NN10600-702 *Nortel Multiservice Switch 7400/15000/20000 ATM Routing and Signalling Fundamentals*.
	peerGroupId (pgId)	<customer defined>	
	nodeId	<customer defined>	
	reachability	internal	
ARtg Pnni LoadBalancing (Lb)	cbr rtvbr nrtvbr ubr		Use load balancing to control route and path utilization behavior and to equalize the bandwidth usage on multiple links. See Nortel Multiservice Switch Release Notes for information on load balancing.
(Sheet 4 of 8)			

Table 2 (Continued)
ATM routing configuration

Components	Attributes	Configured values	Notes
	maxPaths	<customer defined>	If you set the *Lb maxPaths* attribute to a value of more than *3*, you must set the *Lb method* attribute to *random*. When this attribute is set to a value greater than 3, *maxNumEntries* in the *ARtg Pnni Cache* subcomponent is limited to ensure that maximum memory consumption by the route cache on the CP does not increase when *maxPaths* is greater than 3. *maxNumEntries* may not exceed the value of *30000/ maxPaths*.
	method	maxAvCr random avCrProb optMetric Prob avCrOptMetricProb	If you set the *Lb maxPaths* attribute to a value of more than *3*, you must set the *Lb method* attribute to *random*. Default value is *random*.
(Sheet 5 of 8)			

Table 2 (Continued)
ATM routing configuration

Components	Attributes	Configured values	Notes
	minVariance (minVar)	Vector value of: Decimal (0 to 4294967295) Optimization metrics of: cdv maxCtd aw	This attribute is a vector value indexed by the optimization metric. Default value is 0.
	slope Variance (slopeVar)	Vector value of: Decimal (0 to 1900). Optimization metrics of: cdv maxCtd aw	This attribute is a vector value indexed by the optimization metric. The vector value is expressed as a percentage.
Pnni Cache			Configure route caching to reduce the call loading on the control processors and improve call routing performance. Use *Nortel Multiservice Switch Release Notes* to understand your cache configuration.
	agingPeriod	600	Keep the aging period of the cache short because of the high call rate of the Packet Trunking - AAL1 solution network during congestion.
(Sheet 6 of 8)			

Table 2 (Continued)
ATM routing configuration

Components	Attributes	Configured values	Notes
	maxNumEntries	Decimal (100 to 10000)	Default value is *5000*.
	maxPathsToIntermediateNode	Decimal (1 to 20)	The value you set for this attribute ensures that up to that number of paths is kept to an intermediate node during a Dijkstra expansion. Default value is *1*.
	purgeEntryAtPathInvalid	yes	Setting this attribute to *no* reduces the frequency of route computation because only invalid paths are cleared from the cache rather than the entire cache entry.
(Sheet 7 of 8)			

Table 2 (Continued)
ATM routing configuration

Components	Attributes	Configured values	Notes
Shelf	repeatFanAlarm cpEquipmentProtection	on hot	Provisioning data is delivered to the standby CP. Changing the value of the attribute causes the standby CP to reset. ***Note:*** Setting the cpEquipmentProtection attribute to hot causes the standby CP to reset.
	commentText	<customer defined>	The release, the patch level of the MDM server used to commission the node, and the version of the Engineering Specification Book used to commission the node. For example: SN07, MDM 134-09, Spec 2.01.
(Sheet 8 of 8)			

Data collection system configuration

The following types of data are collected by Nortel Multiservice Switch 15000 nodes: alarms, accounting, logs, debug information, state change notifications, traps, real time statistics, and statistics. In the PT-AAL1, UA-AAL1, and UA-IP solutions, only alarms, logs, state change notifications, and real time statistics are collected. The data collection system is configured through the *Collector* component. Review the following information to understand how data collection was configured on your nodes.

Table 3
Data collection system configuration

Components	Attributes	Configured values	Notes
EM			
Collector (Col)			
Col/accounting (acc) Spooler (Sp)	Spooling (spool)	off	
Col/alarm (ala) Spooler (Sp)	Spooling (spool)	on	
	maximum NumberOfFiles (maxFile)	30	The *maxFile* attribute indicates how many closed spooling files are stored on the system for this data type.
Col/debug Spooler (Sp)	Spooling (spool)	on	
	maximum NumberOfFiles (maxFile)	2	
Col/log Spooler (Sp)	Spooling (spool)	on	
	maximum NumberOfFiles (maxFile)	0	This attribute cannot be set. The value 0 is set by the system. It means that the number of files is unlimited.
	daysToRetainFiles	30	
Col/scn Spooler (Sp)	Spooling (spool)	on	
	maximum NumberOfFiles (maxFile)	30	
Col/trap Spooler (Sp)	Spooling (spool)	off	
Col/stats Spooler (Sp)	Spooling (spool)	off	
Col/rtStats (rts) Spooler (Sp)	Spooling (spool)	off	

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Table 3 (Continued)
Data collection system configuration

Components	Attributes	Configured values	Notes
Lp/0 Engineering (Eng)			*<n>* represents the number of the logical processor that you configured
Lp/0 Eng DataStream (DS)			
Lp/0 Eng DS/accounting (acc) Override (Ov)	agentQueueSize (agentQ)	0	The *agentQueueSize* attribute indicates the maximum number of records that will be stored in the queue for that data type. Any records received after the maximum is reached are discarded.
Lp/0 Eng DS/alarm (ala) Override (Ov)	agentQueueSize (agentQ)	100	
Lp/0 Eng DS/debug Override (Ov)	agentQueueSize (agentQ)	50	
Lp/0 Eng DS/log Override (Ov)	agentQueueSize (agentQ)	100	The *Lp Eng DS/log* component is only available on Lp/0 because only control processors generate log data.
Lp/0 Eng DS/scn Override (Ov)	agentQueueSize (agentQ)	200	
Lp/0 Eng DS/trap Override (Ov)	agentQueueSize (agentQ)	0	
Lp/0 Eng DS/stats Override (Ov)	agentQueueSize (agentQ)	0	
Lp/0 Eng DS/rtStats (rts) Override (Ov)	agentQueueSize (agentQ)	200	

(Sheet 2 of 2)

LP feature configuration (PT-AAL1/UA-AAL1)

Review the following information to understand how the features required for the Carrier VoIP portfolio have been configured on the Nortel Multiservice Switch 15000 logical processors (LPs).

See "Lp feature configuration (PT-AAL1/UA-AAL1) with Internode ESA" (page 43). If you will be using MG9000 internode ESA, also see "Configuration of Virtual Router for bearer and control traffic with Internode ESA" (page 59).

Table 4
LP feature configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
EM			
Software (Sw)	avList (avl)	base_XXXX networking_XXXX atmNetworking_X XXX ip_XXXX wanDte_XXXX	For example, base_*CD02S1A* is added to the avList for PCR 4.2. For in-band OAM only.
Sw LogicalProcessorType (Lpt)/CP	featureList (fl)	oamEnet ip externalTiming activeAlarmList	
Sw Lpt/<Lpt name>	featureList (fl)	atmUni atmPnni aps	4-port OC3 4-port OC12
		atmMpe ip	For in-band OAM only.

(Sheet 1 of 2)

Table 4 (Continued)
LP feature configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	featureList (fl)	atmUni imaAtmForumHot	4-port DS3 DS1-IMA
	featureList (fl)	atmPnni atmMpe ip atmUni	12-port DS3 12pDS3Atm atmMpe and ip are in your software list only if have in-band OAM configured.
	featureList (fl)	atmUni atmPNNI aps pbg atmMpe ip	16-port OC3 atmMpe and ip are in your software list only if have in-band OAM configured.
Sw Lpt/ATM<fl>		atmmpe ip	
(Sheet 2 of 2)			

Lp feature configuration (PT-AAL1/UA-AAL1) with Internode ESA

Review the following information to understand how Internode ESA for the Carrier VoIP portfolio has been configured on the Nortel Multiservice Switch 15000 logical processors (LPs).

See “LP feature configuration (PT-AAL1/UA-AAL1) with internode ESA” (page 44) for information about the Sw component. Also, see “Configuration of Virtual Router for bearer and control traffic with Internode ESA” (page 59).

Table 5
LP feature configuration (PT-AAL1/UA-AAL1) with internode ESA

Software Component	Attributes	Configured Values	Notes
Sw	avList (avl)	ip_CF01XXX wanDte_CF01xxx	If not already in the list.
sw lpt/cp	feature list <fl>	ip, mvr	Add if not already there
sw lpt/ATM<n>	feature list <fl>	ip, atmmpe	Add if not already there

LP feature configuration (UA-IP)

This section presents the configuration of logical processor (LP) features for a Nortel Multiservice Switch 15000 node in a UA-IP solution.

See Table 6, "LP feature configuration (UA-IP)," (page 45) for information.

Table 6
LP feature configuration (UA-IP)

Components	Attributes	Configured values	Notes
EM			
Software (Sw)	avList (avl)	base_CF01XXX networking_CF01XXX atmNetworking_CF01 XXX ip_CF01XXX wanDte_CF01XXX ethernet_CF01XXX	
		pvg_CXXXXXX	
		aal1Ces_CXXXXXX	For VSP3 and 4pOC3TDM card configuration only.
Sw LogicalProcessorType (Lpt)/CP	featureList (fl)	oamEnet ip externalTiming mvr activeAlarmList	
Sw LogicalProcessorType (Lpt)/GE<n>	featureList (fl)	lag ip atmmpe	

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Table 6 (Continued)
LP feature configuration (UA-IP)

Components	Attributes	Configured values	Notes
Sw Lpt/ATM<n>	featureList (fl)	aps atmUni atmPnni ip atmmpe	
Sw Lpt/TDM<n>	featureList	aps aal1Ces	For 4pOC3ChSmIr FP.
Sw Lpt/VSP<n>	featureList		For 2pOC3ChSmirVsp3 FP.
		ip	For *Vr CustSpec* component.
		vgsIp	On VSp3-o, handles either G.711 or G.729, with the number of DS0s at full capacity.
		dlep aps	
		atmMpe	Required when using VR for bearer/control traffic.
Sw Lpt/VSP<n>	featureList		For 2pGeMmSrVsp3 with G.711 only.
		ip	For *Vr CustSpec* component.
		vgsIp	
		AtmMpe	Required with VR for bearer/control traffic.
		pvgIpsec	For VSP3-o only

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Table 6 (Continued)
LP feature configuration (UA-IP)

Components	Attributes	Configured values	Notes
Sw Lpt/VSP<n>	featureList		For 2pGeMmSrVsp3 with G.711 or G.729 only.
		ip	For *Vr CustSpec* component.
		vgsIpG729	On VSP3, handles either G.711 or G.729, but limits the number of supported DS0s. Therefore, use only if G.729 is required.
		AtmMpe	Required when using VR for bearer/control traffic.
Sw Lpt/ATM<n>	featureList (fl)	atmUni	For 12pDS3.
		atmUni imaAtmForumHot	For 4pDS3ChAtm (DS1-IMA).
(Sheet 3 of 3)			

Shelf/Module data configuration

Review the following information to understand how the various attributes used by internal and external systems were configured to identify Nortel Multiservice Switch 15000 nodes. Module data configuration is done through the *ModuleData* component.

For Module data configuration, see Table 7, "Module data configuration," (page 48).

For Shelf data configuration, see Table 8, "Shelf configuration," (page 49).

Table 7
Module data configuration

Components	Attributes	Configured values	Notes
EM			
ModuleData (Mod)	nodeId	<customer defined>	Decimal value from 1 through 4095. The *nodeId* value is typically unique across all Multiservice Switch nodes in the network.
	nodeName	<customer defined>	The *nodeName* value must be set to an 11-character Common Language Location Identifier (CLLI). The *nodeName* value is typically unique across all Multiservice Switch nodes in the network.
	namsId	<customer defined>	Decimal value in the range of 256 to 49151. The *namsId* value is typically unique across all Multiservice Switch nodes in the network.

(Sheet 1 of 2)

Table 7 (Continued)
Module data configuration

Components	Attributes	Configured values	Notes
	regionId	1	
	nodePrefix	<customer defined>	ASCII string of 0 to 26 characters. The *nodePrefix* value is typically unique across all Multiservice Switch nodes in the network.
(Sheet 2 of 2)			

Table 8
Shelf configuration

Components	Attributes	Configured values	Notes
Shelf	repeatFanAlarm	on	
	cpEquipmentProtection	hot	
Shelf Card/<x>	cardType (card)	CPeD	<x> = 0, 1
LogicalProcessor (Lp)/0	mainCard (main)	Shelf Card/0	The number of the card you configured.
	spareCard (spare)	Shelf Card/1	The number of the card acting as the spare to the one that you configured.

Network clock synchronization configuration

Network clock synchronization (NCS) is configured on Nortel Multiservice Switch 15000 nodes to ensure that all the nodes in the network are operating at a synchronized clock rate. NCS on Multiservice Switch nodes is controlled through the *NetworkSynchronization* component. Review the following information to understand how network clock synchronization was configured on your nodes.

Table 9
Network clock synchronization configuration

Components	Attributes	Configured values	Notes
EM			
lp/0 EDS1/0	lineType	esf	
lp/0 EDS1/1	lineType	esf	
NetworkSynchronization (NS)	primaryReference (priRef)	LP/0 EDS1/0	The number of the port that is the first choice for a network clock source.
	secondaryReference (secRef)	LP/0 EDS1/1	The number of the port that is the second choice for a network clock source.
	tertiaryReference (tertRef)	!	

Out-of-band OAM connectivity configuration

Review the following information to understand how out-of-band OAM connectivity was configured on your standalone or Gateway Nortel Multiservice Switch 15000 nodes.

Table 10
Out-of-band OAM connectivity configuration

Components	Attributes	Configured values	Notes
EM			
Shelf			
Lp/0 OamEthernet (OamEnet)/0			The number of the ports on the CP that you configured.
	applicationFramerName (framer)	La/0 Framer	The value specifies which Lan Application is running on this port.
	lineSpeed	autoConfig	The *lineSpeed* attribute indicates the operating speed of the OAM Ethernet port. When this attribute value is set to *autoConfig*, the autoNegotiation process determines the actual operating speed. You can see the actual line speed by displaying the operational attribute *Lp OamEnet actualLineSpeed*.
(Sheet 1 of 3)			

Table 10 (Continued)
Out-of-band OAM connectivity configuration

Components	Attributes	Configured values	Notes
	duplexMode	autoConfig	When this attribute value is set to *autoConfig*, the autoNegotiation process determines the duplex mode. You can see the actual mode by displaying the operational attribute *Lp OamEnet actualDuplexMode*.
	switchoverHoldOff (soHoldoff)	10	This value indicates the time interval in seconds between the detection of a link or port failure, and the initiation of a CP switchover.
	switchoverOn Failure (switch)	enabled	This attribute indicates that a CP switchover will occur in the event of a link or port failure.
LanApplication (La)/0			
	linkToProtocolPort	Vr/0 PP/OamEnet	
La/0 Framer	interfaceName	Lp/0 OamEnet/0	This value specifies the port on which the LAN Application will run.
VirtualRouter (Vr)			
Vr ProtocolPort (Pp)/ OamEnet			This component links the protocol port to a media application.
	linkToMedia (media)	La/0	
Vr Pp IpPort			

(Sheet 2 of 3)

Table 10 (Continued)
Out-of-band OAM connectivity configuration

Components	Attributes	Configured values	Notes
Vr Pp IpPort IpLogicalInterface (LogicalIf)/<IP address>		<customer defined>	Defined according to the customer IP addressing/subnet plan. The IP address of the node being managed out-of-band.
	netMask	<customer defined>	Defined according to the customer IP addressing/subnet plan.
	broadcast Address	<customer defined>	Defined according to the customer IP addressing/subnet plan.
	link Destination Address	<customer defined>	Defined according to the customer IP addressing/subnet plan.
(Sheet 3 of 3)			

In-band OAM management connectivity configuration

Review the following information to understand how the management virtual routers (VR) for OAM connectivity were configured on your Remote and Gateway Nortel Multiservice Switch 15000 nodes.

Table 11
In-band OAM management connectivity configuration

Components	Attributes	Configured values	Notes
EM			
Shelf Card/<x>	cardType (card)	CPeD 16pOC3SmIrAtm 4pOC3SmIrAtm 4pOC12SmIrAtm 12pDS3Atm	ATMMPE is only supported on PNNI links associated with the ATM card types. 4pDS3ChAtm (DS1-IMA) PNNI is not supported. In-band over 12pDS3Atm or 16pOC3SmIrAtm is not supported for Multiservice Switch 15000 nodes in UA-IP.
Vr/0 ProtocolPort (Pp)/ <MpeX>	linkToMedia (media)	ATMMpe/<x>	This component links the protocol port to a media application.
Vr/0 Pp IpPort/ <MpeX> Ipp Log /<IP address>	netMask	<customer defined>	Defined according to the customer IP addressing/subnet plan.
	broadcast Address	<customer defined>	Defined according to the customer IP addressing/subnet plan.

(Sheet 1 of 3)

Table 11 (Continued)
In-band OAM management connectivity configuration

Components	Attributes	Configured values	Notes
Vr/0 Ip Static Route/ <Fwd entry> Nh/ <Gateway addr>	metric	1	*<Fwd entry>* is the subnet in the direction of Gateway Multiservice Switch 15000 1 or Gateway Multiservice Switch 15000 2 together with a default entry of 0.0.0.0,0.0.0.0,0 *<Gateway addr>* is either the Ethernet-connected IP LAN/ WAN router or a Multiservice Switch 15000 node.
	vrp	lp/0	
Lp/0 OamEthernet (OamEnet)/0	lineSpeed	autoConfig	The number of the ports on the CP that you configured. Settings are recommended for a Remote Multiservice Switch 15000 nodes on which initial Ethernet connectivity remains in place for emergency access.
	duplexMode	autoConfig	

(Sheet 2 of 3)

Table 11 (Continued)
In-band OAM management connectivity configuration

Components	Attributes	Configured values	Notes
	switchoverHoldOff (switch)	10	
	switchoverOn Failure (switch)	enabled	For a remote Multiservice Switch 15000 nodes managed via in-band access, it is recommended to set this to disabled.
(Sheet 3 of 3)			

Configuration of Virtual Router for bearer and control traffic (UA-IP)

Review the following information to understand how the bearer or user traffic virtual routers (VR) for OAM connectivity are configured on your Remote and Gateway Nortel Multiservice Switch 15000 nodes. See also: "Vr for bearer and control traffic with internode ESA" (page 59).

Table 12
Configuration of Virtual Router for bearer and control traffic (UA-IP)

Components	Attributes	Configured values	Notes
Virtual Router/VOIP	vrp	lp/0	
	vpnMode	carrier	For MG15000-specific setup.
VirtualRouter/VOIP CustomSpecification	customizationType	pvg	For a shelf that contains VSP or 4pGE cards.
VirtualRouter/VOIP DiffServDomain/ packetVoice PerHopBehaviour/EF	dropPrecedence	high	
VirtualRouter/VOIP DiffServDomain/ packetVoice PerHopBehaviour/ CS5	trafficClass	network	
VirtualRouter/VOIP DiffServDomain/ packetVoice PerHopBehaviour/ CS6	trafficClass	bronze	
Virtual Router/VOIP DiffServDomain/ packetVoice TrafficClass/premium	sc8q	5	
(Sheet 1 of 2)			

Table 12 (Continued)
Configuration of Virtual Router for bearer and control traffic (UA-IP)

Components	Attributes	Configured values	Notes
Virtual Router/VOIP DiffServDomain/ packetVoice TrafficClass/network	sc8q	4	
VirtualRouter/VOIP Ip	preConfigFwdPath	enabled	
VirtualRouter/VOIP Ip Static	maxEcmpNextHops	1	
VirtualRouter/VOIP Ip Static DiscardRouteEntry/ 0.0.0.0,0.0.0.0,0			Cannot be configured on a node with both GE links in PCR6.1.
VirtualRouter/VOIP Ip Ospf	ecmpStatus	disabled	
	routerId	<customer defined>	
	alarmGeneration	all	
	spareInstance	enabled	
	asBdrRtrStatus	true	
VirtualRouter/VOIP Ip Ospf AreaEntry/ <customer defined>			Create only.
VirtualRouter/VOIP Ip Ospf Export/0	advertise	send	This component is optional depending on your deployment.
	protocol	all	
VirtualRouter/VOIP Ip Ospf Export/0 NetList/ 0	address	10.0.0.0	This component is optional depending on your deployment.
	mask	255.0.0.0	

(Sheet 2 of 2)

Configuration of Virtual Router for bearer and control traffic with Internode ESA

Review the following information to understand how the Virtual Router (Vr) has been configured for Internode ESA in the portfolio for Nortel Multiservice Switch 15000 logical processors (LPs).

See "Vr for bearer and control traffic with internode ESA" (page 59) for information about the Vr component.

Table 13
Vr for bearer and control traffic with internode ESA

Virtual router Components	Attributes	Configured Values	Notes
vr/ESA	vpnMode	customer	
	vrp	lp/0	
vr/ESA ip	preConfigFwdPath	enabled	
vr/ESA ip static	maxEcmpNextHops	<n>	This is required to route traffic between MSS15000s where InterNode ESA groups span more than one MSS15000.
	DiscardRouteEntry/ 0.0.0.0.0.0.0.0		
vr/ESA ip static Route/ <sub-net> nextHop/ <next-hop-address>	metric	1	

Time-of-day configuration

There are three types of time to consider when configuring the time-of-day on a Nortel Multiservice Switch 15000 node:

- Reference time is the date and time that is the official reference around the world. The universally accepted reference time is Coordinated Universal Time (UTC).

- Network time is the date and time to which all nodes in the network synchronize internally.
- Module time is the time on a particular Multiservice Switch 15000 node.

Time-of-day on Multiservice Switch 15000 nodes is controlled through the *Time* component. Review the following information to understand how time of day was configured on your nodes.

Table 14
Time of day configuration

Components	Attributes	Configured values	Notes
EM			
Time			
	moduleTime	<yyyy-mm-dd> <hh:mm:ss>	This is an operational attribute indicating the current date and time on the Multiservice Switch 15000 node.
	offset	<customer defined>	The offset attribute indicates the number of minutes to be added to the reference time. Decimal value in range of -720 and +720, which represents a range of 24 hours. A time offset between 0 and 720 minutes (+12 hours) represents a time ahead of UTC (or east of the prime meridian). A time offset value between 0 and -720 minutes (-12 hours) represents a time behind UTC (or west of the prime meridian).
Time Server/<n>		1	Instance value of the first MDM server acting as a network time server
(Sheet 1 of 2)			

Table 14 (Continued)
Time of day configuration

Components	Attributes	Configured values	Notes
	ipAddress (ipAddr)	<IP address of the first MDM server>	This value indicates the IP address of the network time server with which the node attempts to synchronize.
	ipStack	Vrlp	
Time Server/<n>		2	Instance value of the second MDM server acting as a network time server.
	ipAddress (ipAddr)	<IP address of the second MDM server>	This value indicates the IP address of the network time server with which the node attempts to synchronize.
	ipStack	vrlp	
(Sheet 2 of 2)			

Chapter 2
Summary of FP configuration

After configuring the base software, the function processors installed in Nortel Multiservice Switch 15000 nodes must be configured. This section describes how the function processors supported in the PT-AAL1, UA-AAL1, and UA-IP solutions are configured.

Function processor (FP) cards in a Multiservice Switch 15000 node are typically configured at initial commissioning time, immediately after control processor (CP), and Shelf-level setup. For incremental commissioning, one typically adds and configures an FP pair one at a time, in order to increase capacity.

CAUTION

Performance degrades and outages may occur

To ensure performance levels and prevent outages, Nortel recommends you DO NOT change the initial installation configuration, or configure additional components and services.

This chapter includes the following sections:

FP configuration for Multiservice Switch 15000 (PT-AAL1/ UA-AAL1)

This section includes function processor (FP) configurations for Nortel Multiservice Switch 15000 nodes in PT-AAL1 or UA-AAL1 solutions.

These configurations are as follows:

- "4-port OC-3 function processor configuration (PT-AAL1/UA-AAL1)" (page 64)
- "16-port OC-3 function processor configuration (PT-AAL1/UA-AAL1)" (page 66)
- "4-port OC-12 function processor configuration (PT-AAL1/UA-AAL1)" (page 71)
- "4-port DS3ChATM function processor configuration (UA-AAL1)" (page 73)
- "12-port DS3ATM function processor configuration (UA-AAL1)" (page 74)

4-port OC-3 function processor configuration (PT-AAL1/UA-AAL1)

Review the following information to understand how this function processor was configured on your Nortel Multiservice Switch 15000 node for a UA-AAL1 solution.

Table 15
4-port OC-3 function processor configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
EM			
Shelf			
Shelf Card/<x>	cardType (card)	4pOC3SmIrAtm	
LogicalProcessor (Lp)/<n>	mainCard (main)	Shelf Card/<x>	The number of the card you configured.
(Sheet 1 of 3)			

Table 15 (Continued)
4-port OC-3 function processor configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	logicalProcessorType (lpt)	Sw Lpt/<Lpt name>	
	spareCard		No value is configured for this attribute. Sparing is accomplished for optical cards by defining APS-protection on at least one of the FP's ports.
Lp/<n> Sonet/<p>			The number of the port that you configured. This attribute will have a value between 0 and 3.
	clockingSource	module	This attribute defines the type of clocking source used for synchronizing the transmit clock.
Lp/<n> Eng AtmResourceControl (Arc)			
Lp/<n> Eng Arc Override (Ov)	connectionPoolCapacity	13204	
	protectedConnectionPoolCapacity	13204	
Lp/<n> Eng FrameCoreResourceControl (Fcrc)			

(Sheet 2 of 3)

Table 15 (Continued)
4-port OC-3 function processor configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
Lp/<n> Eng Fcrc Pqc			
Lp/<n> Eng Fcrc Pqc Override (Ov)	ipRoutesPoolCapacity (ipRtsCap)	4096	
(Sheet 3 of 3)			

16-port OC-3 function processor configuration (PT-AAL1/UA-AAL1)

Review the following information to understand how this function processor was configured on your Nortel Multiservice Switch 15000 node in a PT-AAL1 or UA-AAL1 solution.

Table 16
16-port OC-3 function processor configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
EM			
Shelf			
Shelf Card/<x>	cardType (card)	16pOC3SmIrAtm	
LogicalProcessor (Lp)/<n>	mainCard (main)	Shelf Card/<x>	The number of the card you configured.
	logicalProcessorType (lpt)	Sw Lpt/<Lpt name>	
	spareCard		No value is configured for this attribute. Sparing is accomplished for optical cards by defining APS-protection on at least one of the FP's ports.
(Sheet 1 of 5)			

Table 16 (Continued)
16-port OC-3 function processor configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
Lp/<n> Sonet/<p>			The number of the port that you configured. This attribute will have a value between 0 and 15.
	clockingSource	module	This attribute defines the type of clocking source used for synchronizing the transmit clock.
Lp/<n> Eng AtmResourceControl (Arc)			
(Sheet 2 of 5)			

Table 16 (Continued)
16-port OC-3 function processor configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
Lp/<n> Eng Arc Override (Ov)	connectionPoolCapacity	3301	For in-band OAM or MG9000 internode ESA configurations, the combined total of this setting and the setting of protectedConnectionPoolCapacity cannot exceed 29440. connectionPoolCapacity = 2101 * <n>; protectedConnectionPoolCapacity= 2101 * <m>. <n> is the number of unprotected links and <m> is the number of protected links. For out-of-band, setting this attribute value to 3301 assumes that there is only one unprotected link on this FP. If additional unprotected links have been configured on this FP, this attribute value will have been configured as follows: (n * 3301) where *n* is the number of unprotected links.
(Sheet 3 of 5)			

Table 16 (Continued)
16-port OC-3 function processor configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	protectedConnection PoolCapacity		For in-band OAM or MG9000 internode ESA configurations, the combined total of this setting and the setting of *connectionPoolCapacity* cannot exceed 29440. *connectionPoolCapacity* = 2101 * <n>; *protectedConnectionPoolCapacity*= 2101 * <m>. <n> is the number of unprotected links and <m> is the number of protected links. Setting this attribute value to 52816 assumes that there is only one unprotected link on this FP. If additional unprotected links have been configured on this FP, the *protectedConnectionPoolCapacity* attribute will have been configured as follows: 56117 - <value of the *connectionPoolCapacity* attribute>
(Sheet 4 of 5)			

Table 16 (Continued)
16-port OC-3 function processor configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
Lp/<n> Eng Arc Apc/ <m> Ov	connectionPoolCapacity	2101x <n>	<n> is the number of ports being used. *Apc/0* represents the APC device managing ports 0-3, *Apc/1* manages ports 4-7, *Apc/2* manages ports 8-11, and *Apc/3* manages ports12-15.
Lp/<n> Eng FrameCoreResource Control (Fcrc)			
Lp/<n> Eng Fcrc Pqc			
lp/<n> eng fcrc Pqc Override (Ov)	ipRoutesPoolCapacity (ipRtsCap)	4096 0	You must set this attribute to a non-zero value when this card terminates an inband OAM or MG9000 internode ESA connection (for example, 4096) and must be zero otherwise.
(Sheet 5 of 5)			

4-port OC-12 function processor configuration (PT-AAL1/UA-AAL1)

Review the following information to understand how this function processor was configured on your Nortel Multiservice Switch 15000 nodes in a PT-AAL1 or UA-AAL1 solution.

Table 17
4-port OC-12 function processor configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
EM			
Shelf			
Shelf Card/<x>	cardType (card)	4pOC12SmIrAtm	
LogicalProcessor (Lp)/ <n>	mainCard (main)	Shelf Card/<x>	The number of the card you configured.
	logicalProcessorType (lpt)	Sw Lpt/<Lpt name>	
	spareCard		No value is configured for this attribute. Sparing is accomplished for optical cards by defining APS-protection on at least one of the FP's ports.
Lp/<n> Sonet/<p>			The port number for this attribute is a value between 0 and 3.
	clockingSource	module	This attribute defines the type of clocking source used for synchronizing the transmit clock.
(Sheet 1 of 2)			

Table 17 (Continued)
4-port OC-12 function processor configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
Lp/<n> Eng AtmResourceControl (Arc)			
Lp/<n> Eng Arc Override (Ov)	connectionPoolCapacity	6	
	protectedConnectionPoolCapacity	52816	
Lp/<n> Eng FrameCoreResourceControl (Fcrc)			
Lp/<n> Eng Fcrc Pqc			
Lp/<n> Eng Fcrc Pqc Override (Ov)	ipRoutesPoolCapacity (ipRtsCap)	4096 0	Provision a value of *0* if you want to use both types of 4-port OC-12 FPs, NTHW11 and NTWH86, together as a redundant FP pair. Change the configured value prior to installing the NTHW11 FP as a replacement FP. ***Note:*** The NTHW11 FP cannot be deployed in a CVoIP Network employing in-band OAM.

(Sheet 2 of 2)

4-port DS3ChATM function processor configuration (UA-AAL1)

Review the following information to understand how this function processor was configured on your Nortel Multiservice Switch 15000 nodes in a UA-AAL1 solution only.

Table 18
4-port DS3ChATM function processor configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
EM			
Shelf			
Shelf Card/<x>	cardType (card)	4pDS3ChAtm	
	sparingConnection	Not applicable	
LogicalProcessor (Lp)/ <n>	mainCard (main)	Shelf Card/<x>	The even number of the card you configured.
	logicalProcessorType (lpt)	Sw Lpt/<Lpt name>	
	spareCard	Shelf Card/<x>+1	The number of the spare card you configured.
Sw Lpt/atmIma	featureList	imaAtmForumHot atmUni	
Lp/<n> Eng AtmResourceControl (Arc)			
Lp/<n> Eng Arc Override (Ov)	connectionPoolCapacity		
	protectedConnectionPoolCapacity	5000	

(Sheet 1 of 2)

Table 18 (Continued)
4-port DS3ChATM function processor configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
Lp/<n> Eng FrameCoreResource Control (Fcrc)			
Lp/<n> Eng Fcrc Pqc			
Lp/<n> Eng Fcrc Pqc Override (Ov)	ipRoutesPoolCapacity	100	
(Sheet 2 of 2)			

For information about configuring the *Lp Eng DS* component, see "4-port OC-3 function processor configuration (UA-IP)" (page 77).

12-port DS3ATM function processor configuration (UA-AAL1)

Review the following information to understand how this function processor was configured on your Nortel Multiservice Switch 15000 nodes in a UA-AAL1 solution only.

Table 19
12-port DS3ATM function processor configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
EM			
Shelf			
Shelf Card/<x>	cardType (card)	12pDS3Atm	<x> is the number of the card you are configuring
	sparingConnection	notApplicable	Leave as default for 1:1 sparing
LogicalProcessor (Lp)/ <x>	mainCard (main)	Shelf Card/<x>	The even-numbered FP you are configuring
(Sheet 1 of 2)			

Table 19 (Continued)
12-port DS3ATM function processor configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
	spareCard (spare)	Shelf Card/<x+1>	The adjacent (to the main FP) odd-numbered spare card you are configuring
	logicalProcessorType (lpt)	Sw Lpt/ 12pDS3ATM	
Lp/<n> Eng AtmResourceControl (Arc)			
Lp/<n> Eng Arc Override (Ov)	connectionPoolCapacity		
	protectedConnectionPoolCapacity	15000	
Lp/<n> Eng FrameCore ResourceControl (Fcrc)			
Lp/<n> Eng Fcrc Pqc			
Lp/<n> Eng Fcrc Pqc Override (Ov)	ipRoutesPoolCapacity (ipRtsCap)	4096	

(Sheet 2 of 2)

FP configuration for Multiservice Switch 15000 (UA-IP)

This section includes the function processor (FP) card configurations for Nortel Multiservice Switch 15000 nodes in a UA-IP solution.

These configurations are as follows:

4-port OC-3 function processor configuration (UA-IP)

This section presents the configuration of a 4-port OC-3 function processor (FP), on Nortel Multiservice Switch 15000 nodes in a UA-IP solution.

Review Table 20, "4-port OC-3 function processor configuration (UA-IP)," (page 77) to understand how this FP is configured on your nodes.

Table 20
4-port OC-3 function processor configuration (UA-IP)

Components	Attributes	Configured values	Notes
EM			
Shelf			
Shelf Card/<x>	cardType (card)	4pOC3SmIrAtm	
LogicalProcessor (Lp)/<n>	mainCard (main)	shelf card/*	The number of the card you configured.
	logicalProcessorType (lpt)	<customer defined>	
	spareCard		No value is configured for this attribute. Sparing is accomplished for optical cards by defining APS-protection on at least one of the FP's ports.
	logicalProcessorType		No value is configured for this attribute. Sparing is accomplished for optical cards by defining APS-protection on at least one of the FP's ports.
Lp/<n> Eng Arc Override (Ov)	connectionPoolCapacity	13204	

(Sheet 1 of 2)

Table 20 (Continued)
4-port OC-3 function processor configuration (UA-IP)

Components	Attributes	Configured values	Notes
	protectedConnectionPoolCapacity	13204	
Lp/<n> Eng Fcrc Pqc Override (Ov)	ipRoutes	96000	
Lp/<n> Eng DS/Debug Override (Ov)	agentQueueSize (agentQ)	50	
Lp/<n> Eng DS/ Accounting (Acc) Override (Ov)	agentQueueSize (agentQ)	0	The *agentQueueSize* attribute indicates the maximum number of records that are stored in the queue for that data type. Any records received after the maximum is reached are discarded.
Lp/<n> Eng DS/trap Override (Ov)	agentQueueSize (agentQ)	0	
Lp/<n> Eng DS/rtStats (rts) Override (Ov)	agentQueueSize (agentQ)	200	

(Sheet 2 of 2)

16-port OC-3 function processor configuration (UA-IP)

This section presents the configuration of a 16-port OC-3 function processor (FP) on a Nortel Multiservice Switch 15000 nodes in a UA-IP solution.

Review Table 21, "16-port OC-3 function processor configuration (UA-IP)," (page 79) to understand how this FP is configured on your nodes.

Note: A nodal provisioning (NP) template is not available for this FP card. This configuration information is provided for your reference only.

Table 21
16-port OC-3 function processor configuration (UA-IP)

Components	Attributes	Configured values	Notes
EM			
Shelf			
Shelf Card/<x>	cardType (card)	16pOC3SmIrAtm	
LogicalProcessor (Lp)/ <n>	mainCard (main)	shelf card/*	The number of the card you configured.
	logicalProcessorType (lpt)	<customer defined>	
	spareCard		No value is configured for this attribute. Sparing is accomplished for optical cards by defining APS-protection on at least one of the FP's ports.
Lp/<n> Eng Arc Override (Ov)	connectionPoolCapacity	1	
	protectedConnectionPoolCapacity	29685	
(Sheet 1 of 2)			

Table 21 (Continued)
16-port OC-3 function processor configuration (UA-IP)

Components	Attributes	Configured values	Notes
lp/<n> eng fcrc Pqc Override (Ov)	ipRoutes	96000	
Lp/<n> Eng DS/ Debug Override (Ov)	agentQueueSize (agentQ)	50	
Lp/<n> Eng DS/ Accounting (Acc) Override (Ov)	agentQueueSize (agentQ)	0	The *agentQueueSize* attribute indicates the maximum number of records that are stored in the queue for that data type. Any records received after the maximum is reached are discarded.
Lp/<n> Eng DS/trap Override (Ov)	agentQueueSize (agentQ)	0	
Lp/<n> Eng DS/ rtStats (rts) Override (Ov)	agentQueueSize (agentQ)	200	
(Sheet 2 of 2)			

4-port OC-12 function processor configuration (UA-IP)

This section presents the configuration of a 4-port OC-12 function processor (FP) on a Nortel Multiservice Switch 15000 nodes in a UA-IP solution.

Review Table 22, "4-port OC-12 function processor configuration (UA-IP)," (page 81) to understand how this FP is configured on your nodes.

Table 22
4-port OC-12 function processor configuration (UA-IP)

Components	Attributes	Configured values	Notes
EM			
Shelf			
Shelf Card/<x>	cardType (card)	4pOC12SmIrAtm	
LogicalProcessor (Lp)/ <n>	mainCard (main)	shelf card/*	The number of the card you configured.
	logicalProcessorType (lpt)	<customer defined>	
Lp/<n> Eng Arc Override (Ov)	connectionPoolCapacity	1	If an OC-12 CS-LAN interface is added to either of these LPs, this value must be 257. The operator must add 256 to this number for each OC-12 CS-LAN link (unprotected) on one of these FP cards.
	protectedConnectionPoolCapacity	52816	
Lp/<n> Eng Fcrc Pqc Override (Ov)	ipRoutes	96000	
Lp/<n> Eng DS/ Debug Override (Ov)	agentQueueSize (agentQ)	50	
(Sheet 1 of 2)			

Table 22 (Continued)
4-port OC-12 function processor configuration (UA-IP)

Components	Attributes	Configured values	Notes
Lp/<n> Eng DS/ Accounting (Acc) Override (Ov)	agentQueueSize (agentQ)	0	The *agentQueueSize* attribute indicates the maximum number of records that are stored in the queue for that data type. Any records received after the maximum is reached are discarded.
Lp/<n> Eng DS/trap Override (Ov)	agentQueueSize (agentQ)	0	
Lp/<n> Eng DS/ rtStats (rts) Override (Ov)	agentQueueSize (agentQ)	200	

(Sheet 2 of 2)

1-port OC-48 function processor configuration (UA-IP)

This section presents the configuration of a 1-port OC-48 function processor (FP) on a Nortel Multiservice Switch 15000 nodes in a UA-IP solution.

Review Table 23, "1-port OC48ChATM function processor configuration (UA-IP)," (page 83) to understand how this FP is configured on your nodes.

Note: A nodal provisioning (NP) template is not available for this FP card. This configuration information is provided for your reference only.

Table 23
1-port OC48ChATM function processor configuration (UA-IP)

Components	Attributes	Configured values	Notes
EM			
Shelf			
Shelf Card/<x>	cardType (card)	1pOC48ChSmIrAtm	
LogicalProcessor (Lp)/<n>	mainCard (main)	shelf card/*	The even number of the card you configured.
	logicalProcessorType (lpt)	<customer defined>	
Lp/<n> Eng Arc Override (Ov)	connectionPoolCapacity	1	
	protectedConnectionPoolCapacity	29685	
Lp/<n> Eng Fcrc Pqc Override (Ov)	ipRoutes	96000	
Lp/<n> Eng DS/ Debug Override (Ov)	agentQueueSize (agentQ)	50	

(Sheet 1 of 2)

Table 23 (Continued)
1-port OC48ChATM function processor configuration (UA-IP)

Components	Attributes	Configured values	Notes
Lp/<n> Eng DS/ Accounting (Acc) Override (Ov)	agentQueueSize (agentQ)	0	The *agentQueueSize* attribute indicates the maximum number of records that are stored in the queue for that data type. Any records received after the maximum is reached are discarded.
Lp/<n> Eng DS/trap Override (Ov)	agentQueueSize (agentQ)	0	
Lp/<n> Eng DS/ rtStats (rts) Override (Ov)	agentQueueSize (agentQ)	200	

(Sheet 2 of 2)

4-port GE function processor configuration (UA-IP)

This section presents the configuration of a 4-port Gigabit Ethernet (GE) function processor (FP), on a Nortel Multiservice Switch 15000 nodes in a UA-IP solution.

Review Table 24, "4-port GE configuration (UA-IP)," (page 85) to understand how this FP is configured on your nodes.

Table 24
4-port GE configuration (UA-IP)

Components	Attributes	Configured values	Notes
EM			
Shelf			
Shelf Card/<n>	cardType (card)	4pGE	
LogicalProcessor (Lp)/ <n>	mainCard (main)	shelf card/*	The even number of the card you configured.
	logicalProcessorType (lpt)	<customer defined>	
LpGroup/<n> Lp/ <n>	migrationBehaviour	stayInServiceShelf	
LpGroup/<n> Lp<n+1>	migrationBehaviour	moveToMigrationShelf	
Lp/<n> Eng DS/ Debug Override (Ov)	agentQueueSize (agentQ)	50	

(Sheet 1 of 2)

Table 24 (Continued)
4-port GE configuration (UA-IP)

Components	Attributes	Configured values	Notes
Lp/<n> Eng DS/ Accounting (Acc) Override (Ov)	agentQueueSize (agentQ)	0	The *agentQueueSize* attribute indicates the maximum number of records that are stored in the queue for that data type. Any records received after the maximum is reached are discarded.
Lp/<n> Eng DS/trap Override (Ov)	agentQueueSize (agentQ)	0	
Lp/<n> Eng DS/ rtStats (rts) Override (Ov)	agentQueueSize (agentQ)	200	

(Sheet 2 of 2)

4-port DS3ChATM function processor configuration (UA-IP)

This section presents the configuration of a 4-port DS3ChATM function processor (FP) on a Nortel Multiservice Switch 15000 nodes in a UA-IP solution.

Review Table 25, "4-port DS3ChATM function processor configuration (UA-IP)," (page 87) to understand how this FP is configured on your nodes.

Table 25
4-port DS3ChATM function processor configuration (UA-IP)

Components	Attributes	Configured values	Notes
EM			
Shelf			
Shelf Card/<x>	cardType (card)	4pDS3ChAtm	
	sparingConnection	NotApplicable	
LogicalProcessor (Lp)/ <n>	mainCard (main)	shelf card/<x>	The even number of the card you configured.
	spareCard	shelf card/<x>+1	The number of the spare card you configured.
	logicalProcessorType (lpt)	<customer defined>	
Lp/<n> Eng Arc Override (Ov)	connectionPoolCapacity	1	
	protectedConnectionPoolCapacity	5000	
Lp/<n> Eng DS/ Debug Override (Ov)	agentQueueSize (agentQ)	50	

(Sheet 1 of 2)

Table 25 (Continued)
4-port DS3ChATM function processor configuration (UA-IP)

Components	Attributes	Configured values	Notes
Lp/<n> Eng DS/ Accounting (Acc) Override (Ov)	agentQueueSize (agentQ)	0	The *agentQueueSize* attribute indicates the maximum number of records that are stored in the queue for that data type. Any records received after the maximum is reached are discarded.
Lp/<n> Eng DS/trap Override (Ov)	agentQueueSize (agentQ)	0	
Lp/<n> Eng DS/ rtStats (rts) Override (Ov)	agentQueueSize (agentQ)	200	

(Sheet 2 of 2)

12-port DS3ATM function processor configuration (UA-IP)

This section presents the configuration of a 12-port DS3ATM function processor (FP) on a Nortel Multiservice Switch 15000 nodes in a UA-IP solution.

Review Table 26, "12-port DS3ATM function processor configuration (UA-IP)," (page 89) to understand how this FP is configured on your nodes.

Table 26
12-port DS3ATM function processor configuration (UA-IP)

Components	Attributes	Configured values	Notes
EM			
Shelf			
Shelf Card/<x>	cardType (card)	12pDS3Atm	<x> is the number of the card you are configuring
	sparingConnection	NotApplicable	Leave as default for 1:1 sparing
LogicalProcessor (Lp)/ <x>	mainCard (main)	shelf card/<n>	The even-numbered FP you are configuring
	spareCard (spare)	shelf card/<n+1>	The adjacent (to the main FP) odd-numbered spare card you are configuring
	logicalProcessorType (lpt)	<customer defined>	
Lp/<n> Eng Arc Override (Ov)	connectionPoolCapacity	1	
	protectedConnectionPoolCapacity	15000	
Lp/<n> Eng DS/ Debug Override (Ov)	agentQueueSize (agentQ)	50	

(Sheet 1 of 2)

Table 26 (Continued)
12-port DS3ATM function processor configuration (UA-IP)

Components	Attributes	Configured values	Notes
Lp/<n> Eng DS/ Accounting (Acc) Override (Ov)	agentQueueSize (agentQ)	0	The *agentQueueSize* attribute indicates the maximum number of records that are stored in the queue for that data type. Any records received after the maximum is reached are discarded.
Lp/<n> Eng DS/trap Override (Ov)	agentQueueSize (agentQ)	0	
Lp/<n> Eng DS/ rtStats (rts) Override (Ov)	agentQueueSize (agentQ)	200	
(Sheet 2 of 2)			

FP configuration for MSS15000/MG15000 (UA-IP)

This section includes configurations specific to the function processors (FPs) on a Nortel Multiservice Switch 15000 Media Gateway in a UA-IP solution.

These configurations are as follows:

- "2-port GE VSP3 function processor configuration (UA-IP)" (page 91)
- "2-port OC-3 VSP3-o function processor configuration (UA-IP)" (page 91)
- "4-port OC-3 (TDM) function processor configuration (UA-IP)" (page 93)

2-port GE VSP3 function processor configuration (UA-IP)

This section presents the configuration of a 2-port Gigabit Ethernet (GE) multi-mode (MM) Voice Services Processor (VSP) function processor (FP) on a Nortel Multiservice Switch 15000 Media Gateway in a UA-IP solution.

Review Table 27, "2-port GE VSP3 function processor configuration (UA-IP)," (page 91) to understand how this FP is configured on your nodes.

Table 27
2-port GE VSP3 function processor configuration (UA-IP)

Components	Attributes	Configured values	Notes
EM			
Shelf			
Shelf Card/<n> Shelf Card/<n+1>	cardType (card)	2pGeMmSrVsp3	<n> is the number of the card you are configuring
LogicalProcessor (Lp)/<n>	mainCard (main)	shelf card/<n>	The even-numbered FP you are configuring
	spareCard (main)	shelf card/<n+1>	
	logicalProcessorType (lpt)	Sw LPT/VSP<n>	
Lp/<n> Eng AaList Override (Ov)	maxListSize	200	
Lp/<n> Eng Ds/ala Override (Ov)	agentQueueSize	200	
Lp/<n> Eng Ds/scn Override (Ov)	agentQueueSize	400	

2-port OC-3 VSP3-o function processor configuration (UA-IP)

This section presents the configuration of a 2-port OC-3 ChSmIr voice services processor (VSP3-o) FP card on a Nortel Multiservice Switch 15000 Media Gateway in a UA-IP solution.

Review Table 28, "2-port OC-3 VSP3-o function processor configuration (UA-IP)," (page 92) to understand how this FP is configured on your nodes.

Table 28
2-port OC-3 VSP3-o function processor configuration (UA-IP)

Components	Attributes	Configured values	Notes
EM			
Shelf			
Shelf Card/<n> Shelf Card/<n+1>	cardType (card)	2pOC3ChSmIrVsp3	<n> is the number of the card you are configuring
LogicalProcessor (Lp)/<n> LogicalProcessor (Lp)/<n+1>	mainCard (main)	shelf card/*	The even-numbered FP you are configuring
	logicalProcessorType (lpt)	Sw LPT/VSP<n>	
Dlep/<n/2>	mainLp	Lp/<n>	The *DLEP* instance range is 0 through 7. Therefore, the recommended convention is <n/2>, where <n> is the even-numbered slot in the card pair.
	spareLp	Lp/<n+1>	
Lp/<n> Eng AaList Override (Ov) Lp/<n+1> Eng AaList Override (Ov)	maxListSize	200	

(Sheet 1 of 2)

Table 28 (Continued)
2-port OC-3 VSP3-o function processor configuration (UA-IP)

Components	Attributes	Configured values	Notes
Lp/<n> Eng Ds/ala Override (Ov) Lp/<n+1> Eng Ds/ala Override (Ov)	agentQueueSize	200	
Lp/<n> Eng Ds/scn Override (Ov) Lp/<n+1> Eng Ds/scn Override (Ov)	agentQueueSize	400	

(Sheet 2 of 2)

4-port OC-3 (TDM) function processor configuration (UA-IP)

This section presents the configuration of a 4-port OC-3 time division multiplexing (TDM) function processor (FP) card on a Nortel Multiservice Switch 15000 Media Gateway in a UA-IP solution. The FP card is of type 4pOC3ChSmIr.

Review Table 29, "4-port OC-3 (TDM) function processor configuration (UA-IP)," (page 93) to understand how this FP is configured on your nodes.

Table 29
4-port OC-3 (TDM) function processor configuration (UA-IP)

Components	Attributes	Configured values	Notes
EM			
Shelf			
Shelf Card/<n>	cardType (card)	4pOC3ChSmIr	<n> is the number of the FP card you are configuring
LogicalProcessor (Lp)/ <n>	mainCard (main)	shelf card/*	<n> is the even-numbered FP card you are configuring.

(Sheet 1 of 2)

Table 29 (Continued)
4-port OC-3 (TDM) function processor configuration (UA-IP)

Components	Attributes	Configured values	Notes
	logicalProcessorType (lpt)	Sw LPT/TDM<n>	
Lp/<n> Eng AaList Override (Ov) Lp/<n+1> Eng AaList Override (Ov)	maxListSize	200	
Lp/<n> Eng Ds/ala Override (Ov) Lp/<n+1> Eng Ds/ala Override (Ov)	agentQueueSize	200	
Lp/<n> Eng Ds/scn Override (Ov) Lp/<n+1> Eng Ds/scn Override (Ov)	agentQueueSize	400	
(Sheet 2 of 2)			

Chapter 3
Summary of link configuration

CAUTION

Performance degrades and outages may occur

To ensure performance levels and prevent outages, Nortel recommends you DO NOT change the initial installation configuration, or configure additional components and services.

Link configuration (PT-AAL1/UA-AAL1)

This chapter describes link configuration in Nortel Multiservice Switch 15000 for PT-AAL1 or UA-AAL1 solutions including:

- "SAM 21 SC link configuration (UA-AAL1)" (page 166)
- "UAS/MS2020 ATM UNI link configuration (UA-AAL1)" (page 172)
- "Bridged SAM 21 SC link configuration (UA-AAL1)" (page 178)

ATM PNNI link configuration (PT-AAL1/UA-AAL1)

Review the following information to understand how these asynchronous transfer mode (ATM) private network-to-network links are configured on Nortel Multiservice Switch 15000 nodes in PT-AAL1 and UA-AAL1 solutions. See the table "ATM PNNI link configuration (PT-AAL1/UA-AAL1)" (page 96) for the basic configuration of the components and values.

If MG9000 internode ESA support is required over the PNNI link, the AtmIf Vcc Nep, AtmMpe Ac, and Virtual Router Protocol Port components need to be configured as described in "MSS15000 to MSS15000 configuration to support MG9000 internode ESA" (page 105).

Table 30
ATM PNNI link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
EM			
LogicalProcessor (Lp)/<n>			<n> is the number of the logical processor you configured.
Lp/<n> Sonet/<p>	clockingSource	module	This attribute defines the type of clocking source used for synchronizing the transmit clock.
(Sheet 1 of 10)			

Table 30 (Continued)
ATM PNNI link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
LineAutomaticProtectionSwitching (Laps)/<a>	workingLine (working)	Lp/<n> Sonet/<p>	This attribute value works in conjunction with the *protectionLine* attribute value. These attributes link ports on two different LPs. The port numbers must match on both LPs. Therefore, port 0 on Lp/n must match port 0 on Lp/n+1. <a> is the instance value of the *Laps* component. <a> = <n> * 100 + <p> <n> is the lowest even-numbered LP that is available. <p> is the number of the port you configured.
	protectionLine (protection)	Lp/<n+1> Sonet/<p>	This attribute value is configured on the LP paired with the workingLine LP. The port numbers must match on both LPs. Therefore, port 0 on Lp/n+1 must match port 0 on Lp/n. <n> is the lowest even number of available Lp. <p> is the number of the port you configured.

(Sheet 2 of 10)

Table 30 (Continued)
ATM PNNI link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	signalDegradeRatio (sdRatio)	-8	
Laps/<a> Sts/0	concatNumber	12	For 4pOC12 only.
Laps/<a> Sts/0 AtmCell	correctSingleBitHeader Errors	on	
AtmInterface (AtmIf)/<c>	interface Name	Laps/<a> Sts/0 Lp<n> ds/<p>	*Laps/<a> Sts/0* is for a protected optical link. <a> is the numerical designation of the slot number and port numbers of the Lp on which Laps has been configured. For example, 200 would indicate that the LP in slot 2, and port 0 on that card and port 0 on its paired Lp are configured for Laps. c is equal to a. *Lp<n> ds/<p>* is for a 12pDS3 card. <n> is the LP instance number. <p> is the number of the port you configured

(Sheet 3 of 10)

Table 30 (Continued)
ATM PNNI link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	remoteAtmInterfaceLabel (remoteAtmIf)	EM/<remoteNodeName> ATMIF/<remoteAtmIfinstance>	<remoteNodeName> is the unique node name on the remote Multiservice Switch 15000 node. <remoteAtmIfinstance> is the instance number of the ATM interface component on the remote Multiservice Switch 15000 node.
	oamSegmentBoundary (sb)	no	
AtmIf VirtualChannelConnection (Vcc)			If you are associating the virtual connection with a virtual path terminator, complete the values for the attributes below for the *AtmIf Vpt Vcc Nrp* component.
AtmIf Vcc NailedUpRelayPoint (Nrp)	nextHop	Atmif Vcc Nrp	For in-band OAM, this value is configured for intermediate Multiservice Switch 15000 nodes. Enter the instance value of the second ATM interface and the instance value of the second Vcc component.
	oamSegmentboundary (sb)	sameAsInterface	
(Sheet 4 of 10)			

Table 30 (Continued)
ATM PNNI link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	bandwidthElastic (bwElastic)	no	Do not set the attribute to yes; leave the attribute value set as no.
	overrideHoldingPriority (ohpri)	noOverride	
AtmIf Vcc Nailed Up End Point (Nep)	applicationName	Atmmpe/ <x> AC/ <m>	For in-band OAM, this value terminates an ATMMPE connection on a Gateway or Remote Multiservice Switch 15000 nodes.
Atmmpe/<x>	mtu	9188	
	encapType	llcEncap	
	linkToProtocolPort	Vr/0 PP<MpeX>	There is only one ATMMPE for each subnet.
Atmmpe/<x> ATM connection (AC)/<m>	link	Atmif<n2> Vcc/ <vpi.vci> Nep	For Sonet-APS PNNI, one AC per Remote Multiservice Switch 15000 node. For DS3 PNNI, two AC's per Remote Multiservice Switch 15000 node. ***Note:*** For DS3, there is still a single IP address, but it is distinguished by ipCos values.
(Sheet 5 of 10)			

Table 30 (Continued)
ATM PNNI link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	ipCos	0 1	Specific to DS3 PNNI. The AC with value 0 is used exclusively unless this AC is unavailable. The AC with a value 1 is used when other AC is unavailable.
AtmIf Vcc Virtual Channel Descriptor (Vcd)	atmServiceCategory	nrtVbr	For in-band OAM, this value terminates an ATMMPE connection on a Gateway or Remote Multiservice Switch 15000 nodes.
	txTdt	6	
	txTdp	1 <line rate> 2 1000 2 32	<line rate> is: 96000 for DS3 plcp 104268 for DS3 direct 353207 for OC-3 1412830 for OC-12
	endToEndLoopback	on	Configured on both ends when Vcc has intermediate hops.
AtmIf Vcc NailedUpRelayPoint (Nrp)	nextHop	Atmif/<n2> Vcc/ <vpi.vci> Nrp	Configured for intermediate Multiservice Switch 15000 nodes.
(Sheet 6 of 10)			

Table 30 (Continued)
ATM PNNI link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
AtmIf/<c> ConnectionAdministrator (CA)	maxVccs (vccs)	2100 1230 3300 13200	For in-band OAM, the combination of *maxVcc* and *maxVpc* must equal 2100. For 12pDS3 For 4pOC3 and 16pOC3 For 4pOC12. The value entered for the *maxVccs* attribute must be greater than or equal to the difference between the values set for the *maxAutoSelectedVcifo rVpiZero* attribute and the *minAutoSelectedVcifor VpiZero* attribute.
(Sheet 7 of 10)			

Table 30 (Continued)
ATM PNNI link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	maxAutoSelectedVciForVpiZero (maxVciVpi Zero)	4095 16383	For 4pOC3, 16pOC3, 12pDS3. For 4pOC12. The value entered for the *maxAutoSelectedVcioforVpiZero* attribute must be less than the value entered for the *numVccsForVpiZero* attribute (the *nZvccs* parameter in *AtmIfConnMap Override (Ov)*. However, for scalability reasons, you should set the value for the *maxAutoSelectedVcioforVpiZero* attribute as large as possible.
	minAutoSelectedVciForVpiZero (minVciVpiZero)	380	
	maxVpcs (vpcs)	0	For in-band OAM, the combination of *maxVcc* and *maxVpc* must equal 2100.
	maxVpts (vpts)	0	

(Sheet 8 of 10)

Table 30 (Continued)
ATM PNNI link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	bandwidthPool (bwPool)	Vector values of: 1 70 2 30	This attribute is a vector value. This vector consists of an index entry that ranges in value from 1 through 5 and a decimal entry that ranges in value from 0 to 12 800. The decimal entry sets the percentage of link bandwidth allowed in the bandwidth pool defined by the index entry.
AtmIf/<c> CA RealTimeVariableBitRate (RtVbr)	pool	pool2	
	usageParameterControl (upc)	disabled	
AtmIf/<c> CA ConstantBitRate (Cbr)	pool	pool1	
	usageParameterControl (upc)	disabled	
	txQueueLimit	autoconfig	
	unshapedTransmitQueueing	perVc	
AtmIf/<c> CA NonRealTimeVariableBitRate (NrtVbr)	pool	pool2	
	usageParameterControl (upc)	disabled	

(Sheet 9 of 10)

Table 30 (Continued)
ATM PNNI link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
AtmIf/<c>CA Unspecified bit rate (Ubr)	minPerVcQLimit	92	
AtmIf/<c> ConnectionMapping (ConnMap)			For 16pOC3 or 4pOC12.
AtmIf/<c> ConnMap Override (Ov)	numVccsForVpiZero (nZVccs)	4096 16384	For 16pOC3. For 4pOC12.
AtmIf/<c> Private Network-Network Interface (PNNI)	accountCollection (aco)	~bill ~test ~study ~audit ~force	The template default settings must be turned off.
	accountConnectionType (act)	origTerm	
(Sheet 10 of 10)			

MSS15000 to MSS15000 configuration to support MG9000 internode ESA

Internode ESA is optional and requires extra configuration. The following table gives the extra configuration that is required to support MG9000 internode ESA.

The following components must be provisioned to support InterNode ESA IP MG9000 on MSS15000 interfaces. If an internode ESA group spans more than one Multiservice Switch 15000, there needs to be at least one IP path amongst all the MSS15000's over PNNI links.

Table 31
MSS15000 to MSS15000 configuration for internode ESA

Component	Attribute	Configured value	Notes
AtmIf/<n*100+p> Vcc/0.33 Nep	applicationName	AtmMpe/<n> Ac/1	
AtmIf/<n*100+p> Vcc/0.33 vcd Tm	atmServiceCategory	rtVbr	
	txPacketWiseDiscard	enabled	
	txTrafficDescriptorType	6	
	txTrafficDescriptorPa-rameters	1 4000 2 2000 3 32	
AtmMpe/<n>	linkToProtocolPort	Vr/ESA Pp/<EM><AtmIf>_ESA	
AtmMpe/<n> Ac/1	atmConnection	AtmIf/<n> Vcc/0.33 nep	
Vr/ESA Pp/PP<n>_ESA	linkToMedia	AtmMpe/<n>	
Vr/ESA Pp/PP<n>_ESA ipport LogicalInterface/<PP_IPaddr>	netMask	255.255.255.252	

CS2000 link configuration (PT-AAL1/UA-AAL1)

Review the following information to understand how these links were configured on Nortel Multiservice Switch 15000 nodes in PT-AAL1 or UA-AAL1 solutions.

Table 32
CS2000 link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
EM			
LogicalProcessor (Lp)/<n>			<n> is the number of the logical processor you configured.
Lp/<n> Sonet/<p>	clockingSource	module	This attribute defines the type of clocking source used for synchronizing the transmit clock.
Lp/<n> Sonet/<p> Sts/0			<n> is the number of the logical processor. <p> is the number of the port you configured.
Lp/<n> Sonet/<p> Sts/0 AtmCell (Cell)	correctSingleBitHeaderErrors	on	
AtmInterface (AtmIf)/<c>	interfaceName	Lp/<n> Sonet/<p> Sts/0	<c> is the instance value of the ATM interface. <c> = <n> * 100 + <p> <n> is the number of the logical processor. <p> is the number of the port you configured.

Table 32 (Continued)
CS2000 link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	remoteAtmInterfaceLabel (remoteAtmIf)	GEN/ CS2K_<uniquelabel>	*<uniquelabel>* is a string that uniquely identifies the far end CS2000 High-capacity Input/ Output Processor (HIOP) port in your network. For example, <CLLI>_PO/ slot<slot number>_port<port number> is a unique label.
	oamSegmentBoundary (sb)	no	
AtmIf/<c> ConnectionAdministrator (CA)	maxVccs (vccs)	3300	The value entered for the *maxVccs* attribute must be greater than or equal to the difference between the values set for the *maxAutoSelectedVciforVpiZero* attribute and the *minAutoSelectedVciforVpiZero* attribute.
	maxAutoSelectedVciForVpZero (maxVciVpiZero)	4095	
	minAutoSelectedVciForVpiZero (minVciVpiZero)	380	
	maxVpcs (vpcs)	0	
	maxVpts (vpts)	0	
(Sheet 2 of 7)			

Table 32 (Continued)
CS2000 link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	bandwidthPool (bwPool)	Vector values of: 1 98 2 10000	This attribute is a vector value. This vector consists of an index entry that ranges in value from 1 through 5 and a decimal entry that ranges in value from 0 to 12 800. The decimal entry sets the percentage of link bandwidth allowed in the bandwidth pool defined by the index entry.
AtmIf/<c> CA RealTimeVariableBitRate (RtVbr)	pool	pool2	
	usageParameterControl (upc)	enforced	
	cdvt	10000	
	trafficShaping (trShaping)	disabled	
AtmIf/<c> CA ConstantBitRate (Cbr)	pool	pool1	
	usageParameterControl (upc)	disabled	
AtmIf/<c> CA NonRealTimeVariableBitRate (NrtVbr)	pool	pool2	

(Sheet 3 of 7)

Table 32 (Continued)
CS2000 link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	usageParameterControl (upc)	enforced	
	cdvt	10000	
AtmIf/<c> UserNetworkInterface (Uni)	version	atmForum40	
	side	network	
	accountCollection (aco)	~bill ~test ~study ~audit ~force	
	accountConnectionType (act)	origTerm	
AtmIf/<c> UserNetworkInterface (Uni) Sig	operatingMode	provisionOnly	
AtmIf/<c> Uni Ilmi	operatingMode	ilmiDisabled	
AtmIf/<c> ConnectionMapping (ConnMap)			For 16pOC3 only.
AtmIf/<c> ConnMap Override (Ov)	numVccsForVpiZero (nZVccs)	4096	
AtmIf/<c> Vcc/<d> Vcd TrafficManagement (Tm)	atmServiceCategory (service)	rtVbr	

(Sheet 4 of 7)

Table 32 (Continued)
CS2000 link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	usageParameterControl	sameAsCA	To enable policing, the *upc* attribute must be set to enforced for the CA on the MG4000, LSA, STS1, IW-SPM, DPT-SPM, and XA-Core.
	txTrafficDescType (txTdt)	6	
(Sheet 5 of 7)			

Table 32 (Continued)
CS2000 link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	txTrafficDescParm (txTdp)	Vector values of: 1 1400 2 600 3 120	This attribute is a vector value. This vector consists of an index entry that ranges in value from 1 through 5 and a decimal entry that ranges in value from 0 to 2147483647. The decimal entry sets the values for PCR, SCR, MBS or CDVT depending on the type of traffic management defined by the *txtrafficDescType* attribute. The index entry indicates the traffic descriptor parameter with which the PCR, SCR, MBS or CDVT value is associated. To configure two VCs on each of the MG4000 interfaces, the vector values for the MG4000 must be: 1 1600, 2 850, and 3 225.
(Sheet 6 of 7)			

Table 32 (Continued)
CS2000 link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	rxTrafficDescType (rxTdt)	6	
	rxTrafficDescParm (rxTdp)	Vector values of: 1 1600 2 850 3 225	This attribute is a vector value. This vector consists of an index entry that ranges in value from 1 through 5 and a decimal entry that ranges in value from 0 to 2147483647. The decimal entry sets the values for PCR, SCR, MBS or CDVT depending on the type of traffic management defined by the *rxtrafficDescType* attribute. The index entry indicates the traffic descriptor parameter with which the PCR, SCR, MBS or CDVT value is associated. To configure two VCs on each of the MG4000 interfaces, the vector values for the MG4000 must be: 1 1400, 2 600, and 3 120.
(Sheet 7 of 7)			

Bridged CS2000 link configuration (UA-AAL1)

Optional unprotected SONET links on Nortel Multiservice Switch 15000 nodes in UA-AAL1 solutions are configured using the following two components:

- a bridged SONET component
- a port bridged group component

Hitless software migration (HSM) for unprotected SONET interface pairs allows the Communications Server 2000 (CS2000) platforms to be connected to a single Multiservice Switch 15000 node and not sustain an outage during a software migration.

Review the following information to understand how these links were configured on your nodes.

Table 33
Bridged CS2000 link configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
EM			
LogicalProcessor (Lp)</n>and Lp/<m>			*Lp/<n>* and *Lp/<m>* are mated LPs. LPs linked to two cards in a shelf such that the two cards are in adjacent slots and the lowered slot is an even number. For example, slots 4 and 5 are typically Lp/4 and Lp/5. For Pbg, there will be at least two mated LPs, where one may be linked to Lp/4 so/0 and lp/5 bso/0, and the other is linked to lp/4 bso/1 and lp/5 so/1.
Lp/<n> Sonet/<p>	clockingSource	module	This attribute defines the type of clocking source used for synchronizing the transmit clock.
	vendor	<customer defined>	
	commentText	<customer defined>	
Lp/<m> BridgeSonet/<p>			
Pbg/<c>	workingLine	Lp/<n> Sonet/<p>	
	bridgeLine	Lp/<m> BridgedSonet/<p>	

(Sheet 1 of 5)

Table 33 (Continued)
Bridged CS2000 link configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
Pbg/<c> Sts/0 AtmCell (Cell)	correctSingleBigHeaderErrors	on	
AtmInterface (Atmif)/<c>	interfaceName	Pbg/<c> Sts/0	
	remoteAtmInterfaceLabel	GEN/CS2K-<uniquelabel>	The -<*uniquelabel*> string uniquely identifies the far end CS2000 HIOP port in your network. For example, -PO/slot<slot number>_port<port number>-<CLLI> is a unique label.
	oamSegmentBoundary	no	
AtmIf ConnectionAdministrator (CA)	maxVccs (vccs)	3300	The value entered for the *maxVccs* attribute must be greater than or equal to the difference between the values set for the *maxAutoSelectedVciforVpiZero* attribute and the *minAutoSelectedVciforVpiZero* attribute.

(Sheet 2 of 5)

Table 33 (Continued)
Bridged CS2000 link configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
	maxAutoSelectedVciForVpiZero (maxVciVpiZero)	4095	The default template value of 4095 must be changed. The value entered for the *maxAutoSelectedVciforVpiZero* attribute must be less than the value entered for the *numVccsForVpiZero* attribute (the *nZvccs* parameter in *AtmIfConnMap Override (Ov)*. However, for scalability reasons, you should set the value for the *maxAutoSelectedVciforVpiZero* attribute as large as possible.
	minAutoSelectedVciForVpiZero (minVciVpiZero)	380	
	maxVpcs (vpcs)	0	
	maxVpts (vpts)	0	
(Sheet 3 of 5)			

Table 33 (Continued)
Bridged CS2000 link configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
	bandwidthPool (bwPool)	Vector values of: 1 98 2 10000	This attribute is a vector value. This vector consists of an index entry that ranges in value from 1 through 5 and a decimal entry that ranges in value from 0 to 12 800. The decimal entry sets the percentage of link bandwidth allowed in the bandwidth pool defined by the index entry.
AtmIf CA RealTimeVariableBitRate (RtVbr)	pool	pool2	
AtmIf CA RtVbr/0	usageParameterControl (upc)	enforced	
	cdvt	10000	
	emissionPriority	2	
AtmIf CA ConstantBitRate (Cbr)	pool	pool1	
	usageParameterControl (upc)	disabled	
AtmIf CA NonRealTimeVariableBitRate (NrtVbr)	pool	pool2	
AtmIf CA NrtVbr/0	usageParameterControl (upc)	enforced	
	cdvt	10000	
AtmIf ConnectionMapping (ConnMap)			For 16pOC3 only.

(Sheet 4 of 5)

Table 33 (Continued)
Bridged CS2000 link configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
AtmIf ConnMap Override (Ov)	numVccsForVpiZero (nZVccs)	4096	
AtmIf UserNetworkInterface (Uni)	version	atmForum40	
	side	network	
	accountCollection (aco)	~bill ~test ~study ~audit ~force	
	accountConnectionType (act)	origTerm	
AtmIf Uni Sig	operatingMode	provisionOnly	
AtmIf Uni Ilmi	operatingMode	ilmiDisabled	
(Sheet 5 of 5)			

DPT-SPM and IW-SPM link configuration (PT-AAL1/UA-AAL1)

Review the following information to understand how these links were configured on Nortel Multiservice Switch 15000 shelves in PT-AAL1 or UA-AAL1 solutions.

Table 34
DPT-SPM and IW-SPM link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
EM			
LogicalProcessor (Lp)/<n>			<n> is the number of the logical processor you configured.
Lp/<n> Sonet/<p>	clockingSource	module	This attribute defines the type of clocking source used for synchronizing the transmit clock.
LineAutomaticProtectionSwitching (Laps)/<a>	workingLine (working)	Lp/<n> Sonet/<p>	This attribute value works in conjunction with the protectionLine attribute value. These attributes link ports on two different LPs. The port numbers must match on both LPs. Therefore, port 0 on Lp/<n> must match port 0 on Lp/n+1. <a> = <n> * 100 + <p> <n> is the lowest even-numbered LP that is available. <p> is the number of the port you configured.

(Sheet 1 of 8)

Table 34 (Continued)
DPT-SPM and IW-SPM link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	protectionLine (protection)	Lp/<n+1> Sonet/<p>	This attribute value is configured on the LP paired with the workingLine LP. The port numbers must match on both LPs. Therefore, port 0 on Lp/n+1 must match port 0 on Lp/n. <n> is the lowest even number of available Lp. <p> is the number of the port you configured.
	signalDegradeRatio (sdRatio)	-8	
Laps/<a> Sts/0			
Laps/<a> Sts/0 AtmCell	correctSingleBitHeaderErrors	on	

(Sheet 2 of 8)

Table 34 (Continued)
DPT-SPM and IW-SPM link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
AtmInterface (AtmIf)/<c>	interfaceName	Laps/<a> Sts/0	<a> is the numerical designation of the slot number and port numbers of the Lp on which Laps has been configured. <c> = <a> For example, 200 would indicate that the LP in slot 2, and port 0 on that card and port 0 on its paired Lp are configured for Laps.
	remoteAtmInterfaceLabel (remoteAtmIf)	GEN/DPT-SPM-<SPMID>-<CLLI> or GEN/IW-SPM-<SPMID> -<CLLI>	The *-<SPMID>-<CLLI>* string uniquely identifies the far end DPT-SPM or IW-SPM in your network.
	oamSegmentBoundary (sb)	no	
AtmIf/<c> ConnectionAdministrator (CA)	maxVccs (vccs)	3300	

(Sheet 3 of 8)

Table 34 (Continued)
DPT-SPM and IW-SPM link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	maxAutoSelectedVciForVpiZero (maxVciVpiZero)	4095	The value entered for the *maxAutoSelectedVciforVpiZero* attribute must be less than the value entered for the *numVccsForVpiZero* attribute (the *nZvccs* parameter in *AtmIfConnMap Override (Ov)*. However, for scalability reasons, you should set the value for the *maxAutoSelectedVciforVpiZero* attribute as large as possible.
	minAutoSelectedVciForVpiZero (minVciVpiZero)	52	
	maxVpcs (vpcs)	0	
	maxVpts (vpts)	0	
(Sheet 4 of 8)			

Table 34 (Continued)
DPT-SPM and IW-SPM link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	bandwidthPool (bwPool)	Vector values of: 1 98 2 10000	This attribute is a vector value. This vector consists of an index entry that ranges in value from 1 through 5 and a decimal entry that ranges in value from 0 to 12 800. The decimal entry sets the percentage of link bandwidth allowed in the bandwidth pool defined by the index entry.
AtmIf/<c> CA RealTimeVariableBitRate (RtVbr)	pool	pool2	
	usageParameterControl (upc)	enforced	
	cdvt	10000	
	trafficShaping (trShaping)	disabled	
AtmIf/<c> CA ConstantBitRate (Cbr)	pool	pool1	
	usageParameterControl (upc)	disabled	
	txQueueLimit (txql)	230	
	unshapedTransmitQueueing (unshap)	perVc	
(Sheet 5 of 8)			

Table 34 (Continued)
DPT-SPM and IW-SPM link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
AtmIf/<c> CA NonRealTimeVariableBitRate (NrtVbr)	pool	pool2	
	usageParameterControl (upc)	enforced	
	cdvt	10000	
AtmIf/<c> UserNetworkInterface (Uni)	version	atmForum40	
	side	network	
	accountCollection (aco)	~bill ~test ~study ~audit ~force	
	accountConnectionType (act)	origTerm	
	loopPrevention	disabled	
AtmIf/<c> Uni Ilmi	operatingMode	ilmiDisabled	
AtmIf/<c> Uni Signalling (Sig)			
AtmIf/<c> Uni Sig VirtualChannelDescriptor (Vcd)	trafficDescType (tdt)	6	
	atmServiceCategory (service)	rtVbr	

Table 34 (Continued)
DPT-SPM and IW-SPM link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	trafficDescParm (tdp)	Vector values of: 1 500 2 300 3 50 4 0 5 0	This attribute is a vector value. This vector consists of an index entry that ranges in value from 1 through 5 and a decimal entry that ranges in value from 0 to 2147483647. The decimal entry sets the values for PCR, SCR, MBS or CDVT depending on the type of traffic management defined by the *trafficDescType* attribute. The index entry indicates the traffic descriptor parameter with which the PCR, SCR, MBS or CDVT value is associated.
	usageParameterControl (upc)	sameAsCA	To enable policing, the upc attribute must be set to enforced for the CA on the MG4000, LSA, STS1, IW-SPM, DPT-SPM, and XA-Core.
	qosClass (qos)	2	Supports a QoS that meets Service Class B performance requirements (Vbr audio and video).
(Sheet 7 of 8)			

Table 34 (Continued)
DPT-SPM and IW-SPM link configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
AtmIf ConnectionMapping (ConnMap)			For 16pOC3 only.
AtmIfConnMap Override (Ov)	numVccsForVpiZero (nZVccs)	4096	
(Sheet 8 of 8)			

MG4000 ATM interface configuration (PT-AAL1/UA-AAL1)

Review the following information to understand how these links were configured on the Nortel Multiservice Switch 15000 nodes in PT-AAL1 or UA-AAL1 solutions.

Table 35
MG4000 ATM interface configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
EM			
LogicalProcessor (Lp)/<n>			<n> is the number of the logical processor you configured.
Lp/<n> Sonet/<p>	clockingSource	module	This attribute defines the type of clocking source used for synchronizing the transmit clock.
(Sheet 1 of 13)			

Table 35 (Continued)
MG4000 ATM interface configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
LineAutomaticProtectionSwitching (Laps)/<a>	workingLine (working)	Lp/<n> Sonet/<p>	This attribute value works in conjunction with the protectionLine attribute value. These attributes link ports on two different LPs. The port numbers must match on both LPs. Therefore, port 0 on Lp/<n> must match port 0 on Lp/n+1. <a> = <n> * 100 + <p> <n> is the lowest even-numbered LP that is available. <p> is the number of the port you configured.
(Sheet 2 of 13)			

Table 35 (Continued)
MG4000 ATM interface configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	protectionLine (protection)	Lp/<n+1> Sonet/<p>	This attribute value is configured on the LP paired with the workingLine LP. The port numbers must match on both LPs. Therefore, port 0 on Lp/n+1 must match port 0 on Lp/n. <n> is the lowest even number of available Lp. <p> is the number of the port you configured.
	signalDegradeRatio (sdRatio)	-8	
Laps/<a> Sts			
Laps/<a> Sts/0 AtmCell	correctSingleBitHeaderErrors	on	
(Sheet 3 of 13)			

Table 35 (Continued)
MG4000 ATM interface configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
AtmInterface (AtmIf)/<c>	interfaceName	Laps/<a> Sts/0	<a> is the numerical designation of the slot number and port numbers of the Lp on which Laps has been configured. For example, 200 would indicate that the LP in slot 2, and port 0 on that card and port 0 on its paired Lp are configured for Laps. c is equal to a.
	remoteAtmInterfaceLabel (remoteAtmIf)	GEN/MG4K-<SPMID>-<CLLI>	The -<*SPMID*>-<*CLLI*> string uniquely identifies the far end MG4000 in your network.
	oamSegmentBoundary (sb)	no	
AtmIf/<c> ConnectionAdministrator (CA)	maxVccs (vccs)	3300	The value entered for the *maxVccs* attribute must be greater than or equal to the difference between the values set for the *maxAutoSelectedVcifor VpiZero* attribute and the *minAutoSelectedVcifor VpiZero* attribute.
(Sheet 4 of 13)			

Table 35 (Continued)
MG4000 ATM interface configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	maxAutoSelectedVciForVpiZero (maxVciVpiZero)	4095	The value entered for the *maxAutoSelectedVciforVpiZero* attribute must be less than the value entered for the *numVccsForVpiZero* attribute (the *nZvccs* parameter in *AtmIfConnMap Override (Ov)*. However, for scalability reasons, you should set the value for the *maxAutoSelectedVciforVpiZero* attribute as large as possible.
	minAutoSelectedVciForVpiZero (minVciVpiZero)	380	
	maxVpcs (vpcs)	0	
	maxVpts (vpts)	0	
(Sheet 5 of 13)			

Table 35 (Continued)
MG4000 ATM interface configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	bandwidthPool (bwPool)	Vector values of: 1 98 2 10000	This attribute is a vector value. This vector consists of an index entry that ranges in value from 1 through 5 and a decimal entry that ranges in value from 0 to 12 800. The decimal entry sets the percentage of link bandwidth allowed in the bandwidth pool defined by the index entry.
AtmIf/<c> CA RealTimeVariableBitRate (RtVbr)	pool	pool2	
	usageParameterControl (upc)	enforced	
	cdvt	10000	
	trafficShaping (trShaping)	disabled	
AtmIf/<c> CA RtVbr/0	txQueueLimit (txql)	1440	
AtmIf/<c> CA ConstantBitRate (Cbr)	pool	pool1	
	usageParameterControl (upc)	disabled	
	unshapedTransmitQueueing (unshap)	perVc	
	txQueueLimit	230	
(Sheet 6 of 13)			

Table 35 (Continued)
MG4000 ATM interface configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
AtmIf/<c> CA NonRealTimeVariableBitRate (NrtVbr)	pool	pool2	
	usageParameterControl (upc)	enforced	
	cdvt	10000	
AtmIf/<c> UserNetworkInterface (Uni)	version	atmForum40	
	side	network	
	accountCollection (aco)	~bill ~test ~study ~audit ~force	
	accountConnectionType (act)	origTerm	
	loopPrevention	disabled	
AtmIf/<c> Uni Ilmi	operatingMode	ilmiDisabled	
AtmIf/<c> Uni Signalling (Sig)			
AtmIf/<c> Uni Sig VirtualChannelDescriptor (Vcd)	trafficDescType (tdt)	6	
	atmServiceCategory (service)	rtVbr	
(Sheet 7 of 13)			

Table 35 (Continued)
MG4000 ATM interface configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	trafficDescParm (tdp)	Vector values of: 1 500 2 300 3 50 4 0	This attribute is a vector value. This vector consists of an index entry that ranges in value from 1 through 5 and a decimal entry that ranges in value from 0 to 2147483647. The decimal entry sets the values for PCR, SCR, MBS or CDVT depending on the type of traffic management defined by the *trafficDescType* attribute. The index entry indicates the traffic descriptor parameter with which the PCR, SCR, MBS or CDVT value is associated.
	usageParameterControl (upc)	sameAsCA	To enable policing, the upc attribute must be set to enforced for the CA on the MG4000, LSA, STS1, IW-SPM, DPT-SPM, and XA-Core.
	qosClass (qos)	2	Supports a QoS that meets Service Class B performance requirements (Vbr audio and video).
(Sheet 8 of 13)			

Table 35 (Continued)
MG4000 ATM interface configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
AtmIf/<c> VirtualChannelConnection (Vcc)/<d>			To complete configuration of the MG4000 ATM interface, you must configure two PVC connections between each MG4000 and the CS2000. If you are associating the virtual connection with a virtual path terminator, complete the values for the attributes below for the *AtmIf Vpt Vcc Vcd* component and *Tm* subcomponent.
AtmIf/<c> Vcc/<d> VirtualChannelDescriptor (Vcd)	segLinkSideLoopback (segLkLbk)	sameAsInterface	
	segSwitchSideLoopback (segSwLbk)	sameAsInterface	
	endToEndLoopback (eeLbk)	sameAs Interface	
AtmIf/<c> Vcc/<d> Vcd TrafficManagement (Tm)	atmServiceCategory (service)	rtVbr	
	usageParameterControl	sameAsCA	To enable policing, the upc attribute must be set to enforced for the CA on the MG4000, LSA, and STS1.

(Sheet 9 of 13)

Table 35 (Continued)
MG4000 ATM interface configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	txTrafficDescType (txTdt)	6	
	txTrafficDescParm (txTdp)	Vector values of: 1 1600 2 850 3 225	This attribute is a vector value. This vector consists of an index entry that ranges in value from 1 through 5 and a decimal entry that ranges in value from 0 to 2147483647. The decimal entry sets the values for PCR, SCR, MBS or CDVT depending on the type of traffic management defined by the *txtrafficDescType* attribute. The index entry indicates the traffic descriptor parameter with which the PCR, SCR, MBS or CDVT value is associated. To configure two VCs on each of the CS2000 interfaces, the vector values for the CS2000 must be: 1 1400, 2 600, and 3 120.
	rxTraffic DescType (rxTdt)	6	
(Sheet 10 of 13)			

Table 35 (Continued)
MG4000 ATM interface configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	rxTrafficDescParm (rxTdp)	Vector values of: 1 1400 2 600 3 120	This attribute is a vector value. This vector consists of an index entry that ranges in value from 1 through 5 and a decimal entry that ranges in value from 0 to 2147483647. The decimal entry sets the values for PCR, SCR, MBS or CDVT depending on the type of traffic management defined by the *rxtrafficDescType* attribute. The index entry indicates the traffic descriptor parameter with which the PCR, SCR, MBS or CDVT value is associated. To configure two VCs on each of the CS2000 interfaces, the vector values for the CS2000 must be: 1 1600, 2 850, and 3 225.
(Sheet 11 of 13)			

Table 35 (Continued)
MG4000 ATM interface configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
			If you provision the MG4000 PVCs using the Nodal Provisioning application, parameters 1 through 3 for both the *txTrafficDescParm* and *rxTrafficDescParm* attributes are provisioned with the same set of values. The correct values need to be entered.
AtmIf VirtualChannelConnection (Vcc)			If you are associating the virtual connection with a virtual path terminator, complete the values for the attributes below for the *AtmIf Vpt Vcc Nrp* component.
AtmIf Vcc NailedUpRelayPoint (Nrp)	nextHop	Atmif<n2> Vcc/ <vpi.vci> Nrp	For in-band OAM, this value is configured for intermediate Multiservice Switch 15000 nodes. Enter the instance value of the second ATM interface and the instance value of the second *Vcc* component.
(Sheet 12 of 13)			

Table 35 (Continued)
MG4000 ATM interface configuration (PT-AAL1/UA-AAL1)

Components	Attributes	Configured values	Notes
	oamSegmentboundary (sb)	sameAsInterface	
	bandwidthElastic (bwElastic)	no	Do not set the attribute to yes; leave the attribute value set as no.
	overrideHoldingPriority (ohpri)	noOverride	
AtmIf ConnectionMapping (ConnMap)			For 16pOC3 only.
AtmIfConnMap Override (Ov)	numVccsForVpiZero (nZVccs)	4096	
(Sheet 13 of 13)			

MG9000 ATM interface configuration (PT-AAL1/UA-AAL1)

Review the following information to understand how these links were configured on the Nortel Multiservice Switch 15000 nodes in PT-AAL1 or UA-AAL1 solutions. See the table "MG9000 ATM interface configuration" (page 140) for the basic configuration of the components and values.

Extra configuration is required if you have elected to use the optional MG9000 internode ESA. See "OC-3 configuration for internode ESA" (page 147) for information about the components that must be provisioned to support MG9000 internode ESA IP on 1+1 OC-3 interfaces.

Table 36
MG9000 ATM interface configuration

Component	Attribute	Configured value	Notes
EM			
LogicalProcessor (Lp)/<n>			<n> is the number of the logical processor you configured. The first LPs in the pair must occupy a slot with an even number. The second LP in the pair must occupy the adjacent slot to the right of the first FP. The slot number for the second FP must be an odd number and higher than the even numbered slot number.
Lp/<n> Sonet	clockingSource	module	This attribute defines the type of clocking source used to synchronize the transmit clock.
(Sheet 1 of 8)			

Table 36 (Continued)
MG9000 ATM interface configuration

Component	Attribute	Configured value	Notes
LineAutomaticProtectionSwitching (Laps)/<a>	workingLine (working)	Lp/<n> Sonet/<p>	This attribute value works in conjunction with the protectionLine attribute value. These attributes link ports on two different LPs. The port numbers must match on both LPs. Therefore, port 0 on Lp/n must match port 0 on Lp/n+1. <n> is the lowest even-numbered LP that is available. <p> is the number of the port you configured.
	protectionLine (protection)	Lp/<n+1> Sonet/<p>	This attribute value is configured on the LP paired with the workingLine LP. The port numbers must match on both LPs. Therefore, port 0 on Lp/n+1 must match port 0 on Lp/n. <n> is the lowest even number of available Lp. <p> is the number of the port you configured.
	signalDegradeRatio (sdRatio)	-8	
(Sheet 2 of 8)			

Table 36 (Continued)
MG9000 ATM interface configuration

Component	Attribute	Configured value	Notes
Laps/<a> Sts/0			<a> = <n> x 100 + <p>
Laps/<a> Sts/0 AtmCell	correctSingleBitHeaderErrors	on	
AtmInterface (AtmIf)/<c>	interfaceName	Laps/<a> Sts/0	<a> is the numerical designation of the slot number and port numbers of the Lp on which Laps has been configured. <c> = <a> For example, 200 would indicate that the LP in slot 2, and port 0 on that card and port 0 on its paired Lp are configured for Laps.
	remoteAtmInterfaceLabel (remoteAtmIf)	GEN/MG9K_ <uniquelabel>	The <uniquelabel> string uniquely identifies the far end MG9000 in your network.
	oamSegmentBoundary (sb)	no	
AtmIf/<c> ConnectionAdministrator (CA)	maxVccs (vccs)	3285	The value entered for the maxVccs attribute must be greater than or equal to the difference between the values set for the maxAutoSelectedVciforVpiZero attribute and the minAutoSelectedVciforVpiZero attribute.
(Sheet 3 of 8)			

Table 36 (Continued)
MG9000 ATM interface configuration

Component	Attribute	Configured value	Notes
	maxAutoSelectedVciForVpiZero (maxVciVpiZero)	2047	The value entered for the maxAutoSelectedVciforVpiZero attribute must be less than the value entered for the numVccsForVpiZero attribute (the nZvccs parameter in AtmIfConnMapOverride (Ov). However, for scalability reasons, you should set the value for the maxAutoSelectedVciforVpiZero attribute as large as possible.
	minAutoSelectedVciForVpiZero (minVciVpiZero)	32	
	maxAutoSelectedVpi (maxVpi)	15	
	minAutoSelectedVpi (minVpi)	1	
	minAutoSelectedVciForNonZeroVpi (minVciNonZeroVpi)	1024	
	maxAutoSelectedVciFor-NonZeroVpi (maxVciNonZeroVpi)	2047	
	maxVpcs (vpcs)	15	
(Sheet 4 of 8)			

Table 36 (Continued)
MG9000 ATM interface configuration

Component	Attribute	Configured value	Notes
	maxVpts (vpts)	0	
	bandwidthPool (bwPool)	Vector values of: 1 100 2 0 3 0	This attribute is a vector value. This vector consists of an index entry that ranges in value from 1 through 5 and a decimal entry that ranges in value from 0 to 12 800. The decimal entry sets the percentage of link bandwidth allowed in the bandwidth pool defined by the index entry.
AtmIf CA RealTimeVariable BitRate (RtVbr)	pool	pool1	
	cdvt	5000	
	emissionPriority	2	
AtmIf CA Constant- BitRate (Cbr)	pool	pool1	
	usageParameterControl (upc)	disabled	
	txQueueLimit (txql)	230	
	unshapedTransmitQueueing (unshap)	perVc	
(Sheet 5 of 8)			

Table 36 (Continued)
MG9000 ATM interface configuration

Component	Attribute	Configured value	Notes
AtmIf CA NonRealTimeVariableBitRate (NrtVbr)	pool	pool1	
AtmIf CA NrtVbr/0	usageParameterControl (upc)	enforced	
	cdvt	5000	
AtmIf CA UnspecifiedBitRate (Ubr)	minPerVcQLimit	92	
AtmIf UserNetworkInterface (Uni)	version	atmForum40	
	side	network	
	accountCollection (aco)	~bill ~test ~study ~audit ~force	
	accountConnectionType (act)	origTerm	
AtmIf Uni Ilmi	operatingMode	addressRegEnabled	
	prefixToRegister		Provision this value if different from the node prefix.
AtmIf Uni Signalling (Sig)			
(Sheet 6 of 8)			

Table 36 (Continued)
MG9000 ATM interface configuration

Component	Attribute	Configured value	Notes
AtmIf Uni Sig VirtualChannelDescriptor (Vcd)	trafficDescType (tdt)	6	
	atmServiceCategory (service)	nrtvbr	
	trafficDescParm (tdp)	Vector values of: 1 1200 2 600 3 18 4 0	This attribute is a vector value. This vector consists of an index entry that ranges in value from 1 through 5 and a decimal entry that ranges in value from 0 to 2147483647. The decimal entry sets the values for PCR, SCR, MBS or CDVT depending on the type of traffic management defined by the trafficDescType attribute. The index entry indicates the traffic descriptor parameter with which the PCR, SCR, MBS or CDVT value is associated.
	usageParameterControl (upc)	sameAsCa	
	qosClass (qos)	2	Supports a QoS that meets Service Class B performance requirements (Vbr audio and video).
AtmIf ConnectionMapping (ConnMap)			For 16pOC3 only.
(Sheet 7 of 8)			

Table 36 (Continued)
MG9000 ATM interface configuration

Component	Attribute	Configured value	Notes
AtmIfConnMap Override (Ov)	numVccsForVpiZero (nZVccs)	2048	
	numVccsPerNonZeroVpi (nVccs)	2048	
	numNonZeroVpisFor Vccs (nVpis)	2	
	firstNonZeroVpiFor Vccs (firstVpi)	15	
(Sheet 8 of 8)			

OC-3 configuration for internode ESA

The following table lists components that must be provisioned to support MG9000 internode ESA IP on 1+1 OC-3 interfaces.

MG9000 does not support ARP, therefore, you must provision a static ARP entry into the MSS15000 for each IP "host" on the MG9000.

Table 37
OC-3 configuration for internode ESA

Component	Attribute	Configured value	Notes
AtmIf/<n*100+p> Vcc/16.32 Nep	applicationName	AtmMpe/<n> Ac/1	
AtmIf/<n*100+p> Vcc/16.32 vcd Tm	atmServiceCategory	rtVbr	
	txPacketWiseDiscard	enabled	
	txTrafficDescriptorType	6	
(Sheet 1 of 2)			

Table 37 (Continued)
OC-3 configuration for internode ESA

Component	Attribute	Configured value	Notes
	txTrafficDescriptorPa-rameters	1 4000 2 2000 3 32	
AtmMpe/<n>	linkToProtocolPort	Vr/ESA Pp/ 9K<n>_ESA	
AtmMpe/<n> Ac/1	atmConnection	AtmIf/<n> Vcc/ <vpi.vci> nep	
Vr/ESA Pp/9K<n>_ESA	linkToMedia	AtmMpe/<n>	
Vr/ESA Pp/9K<n>_ESA ipport LogicalInterface/<ESA_IPaddr>	netMask	255.255.255.224	
Vr/ESA Ip Arp Host/ <ESA_IPaddr+m>,0	pvc	1	ARP entries must be provisioned for the 16 MG9000 ITP IP addresses
(Sheet 2 of 2)			

MG9000 DS3 ATM interface configuration (UA-AAL1)

Review the following information to understand how these links were configured on Nortel Multiservice Switch 15000 nodes in UA-AAL1 solutions.

This information provisions a DS3 ATM interface to an MG9000 component on a protected pair of DS3 links on 12-Port-DS3 ATM-type cards. See the table "MG9000 DS3 ATM interface configuration (UA-AAL1)" (page 149) for the basic configuration of the components and values.

If you have elected to use MG9000 internode ESA in your network, see "DS-3/STS-1 configuration to support MG9000 internode ESA" (page 154).

Table 38
MG9000 DS3 ATM interface configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
LP/<n>		12pDS3Atm	These are the configuration values in "4-port DS3ChATM function processor configuration (UA-AAL1)" (page 73).
Lp/<n> DS3/<p>	clockingSource	module	This attribute defines the type of clocking source used for synchronizing the transmit clock.
	cpbitParity	on	
	mapping	direct	
	lineLength	1	
	vendor	<customer defined>	
	commentText	<customer defined>	
AtmIf	interfaceName	Lp/n Ds3/m	
	remoteAtmInterfaceLabel	GEN/MG9K_<uniquelabel>	The -<*uniquelabel*> string uniquely identifies the far end MG9000 in your network.
	oamSegmentBoundary	No	

(Sheet 1 of 5)

Table 38 (Continued)
MG9000 DS3 ATM interface configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
AtmIf/<c> ConnectionAdministrator (CA)	maxVccs (vccs)	1230	The value should be equal to n * 44, where n is the maximum number of DS1s this interface will ever support.
	maxAutoSelectedVciForVpiZero (maxVciVpiZero)	2047	The value entered for the *maxAutoSelectedVciforVpiZero* attribute must be less than the value entered for the *numVccsForVpiZero* attribute (the *nZvccs* parameter in *AtmIfConnMap Override (Ov)*. However, for scalability reasons, you should set the value for the *maxAutoSelectedVciforVpiZero* attribute as large as possible.
	minAutoSelectedVciForVpiZero (minVciVpiZero)	32	
	maxAutoSelectedVpi (maxVpi)	15	
	minAutoSelectedVpi (minVpi)	1	

(Sheet 2 of 5)

Table 38 (Continued)
MG9000 DS3 ATM interface configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
	minAutoSelectedVciForNonZeroVpi (minVciNonZeroVpi)	32	
	maxAutoSelectedVciForNonZeroVpi (maxVciNonZeroVpi)	2047	
	maxVpcs (vpcs)	15	
	maxVpts (vpts)	0	
	bandwidthPool	1 100 2 0 3 0	
AtmIf CA RealTimeVariableBitRate (RtVbr)	pool	pool1	
	usageParameterControl (upc)	enabled	
	cdvt	5000	
AtmIf CA ConstantBitRate (Cbr)	pool	pool1	
	usageParameterControl (upc)	disabled	
	txQueueLimit (txql)	autoconfig	
	unshapedTransmitQueueing (unshap)	perVc	
AtmIf CA NonRealTimeVariableBitRate (NrtVbr)	pool	pool1	
	cdvt	5000	

Table 38 (Continued)
MG9000 DS3 ATM interface configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
	usageParameterControl (upc)	enforced	
AtmIf CA UnspecifiedBitRate (Ubr)	pool	pool1	
	usageParameterControl	disabled	
AtmIf UserNetworkInterface (Uni)	version	atmForum40	
	side	network	
	accountCollection (aco)	~bill ~test ~study ~audit ~force	
	accountConnectionType (act)	origTerm	
AtmIf Uni Ilmi	operatingMode	addressRegEnabled	
	prefixToRegister		Provision this value if different from the node prefix.
AtmIf Uni Sig VirtualChannelDescriptor (Vcd)	trafficDescType (tdt)	6	
	atmServiceCategory (service)	nrtVbr	

(Sheet 4 of 5)

Table 38 (Continued)
MG9000 DS3 ATM interface configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
	trafficDescParm (tdp)	Vector values of: 1 1200 2 600 3 18 4 0	This attribute is a vector value. This vector consists of an index entry that ranges in value from 1 through 4 and a decimal entry that ranges in value from 0 to 2147483647. The decimal entry sets the values for PCR, SCR, MBS or CDVT depending on the type of traffic management defined by the *trafficDescType* attribute. The index entry indicates the traffic descriptor parameter with which the PCR, SCR, MBS or CDVT value is associated.
	usageParameterControl (upc)	sameAsCa	
	qosClass (qos)	2	Supports a QoS that meets Service Class B performance requirements (Vbr audio and video).
(Sheet 5 of 5)			

DS-3/STS-1 configuration to support MG9000 internode ESA

Internode ESA is optional and requires extra configuration. The following table gives the extra configuration that is required to support MG9000 internode ESA.

The following components must be provisioned to support MG9000 internode ESA IP on a DS-3 interface. The provisioning consists of a Vcc Network Relay Point (NRP) to a Hairpin ATM Interface.

Table 39
DS-3/STS-1 interface configuration to support MG9000 internode ESA

Components	Attributes	Configured values	Notes
AtmIf/<n*100+p> Vcc/16/32 Nrp	nextHop	AtmIf/<HAI> Vcc/ <vpi.vci> Nrp	
AtmIf/<n*100+p> Vcc/16.32 Nrp Vcd Tm	atmServiceCategory	rtVbr	
	txPacketWiseDiscard	enabled	
	txTrafficDescriptorType	6	
	txTrafficDescriptorParameters	1 2000 2 1000 3 32	
Note: The hairpin interface configuration for the UA-AAL1 and UA-IP solutions are identical. Refer to the table Optical hairpin ATM (HAI) interface configuration (UA-IP) and the table Optical hairpin IP interface (HII) configuration (UA-IP).			
MG9000 Vcc component Hairpin ATM Interface (HAI)			
AtmIf/<HAI> Vcc/0.<vci> Nrp	nextHop	AtmIf/<MG> Vcc/ 16.32 Nrp	
AtmIf/<HAI> Vcc/0.<vci> Nrp Vcd Tm	atmServiceCategory	rtVbr	
	txPacketWiseDiscard	enabled	
(Sheet 1 of 2)			

Table 39 (Continued)
DS-3/STS-1 interface configuration to support MG9000 internode ESA

Components	Attributes	Configured values	Notes
	txTrafficDescriptorType	6	
	txTrafficDescriptorParameters		values depend on whether the MG9000 is IMA or DS3
MG9000 Vcc and Vr component Hairpin IP Interfaces (HII)			
AtmIf/<HII> Vcc/0.<vci> Nep	applicationName	AtmMpe/<n> Ac/1	
AtmIf/<HII> Vcc/0.<vci> vcd Tm	atmServiceCategory	rtVbr	
	txPacketWiseDiscard	enabled	
	txTrafficDescriptorType	6	
	txTrafficDescriptorParameters	7	
AtmMpe/<n>	linkToProtocolPort	Vr/ESA Pp/9K<n>_ESA	
AtmMpe/<n> Ac/1	atmConnection	AtmIf/<n> Vcc/<vpi.vci> nep	
Vr/ESA Pp/9K<n>_ESA	linkToMedia	AtmMpe/<n>	
Vr/ESA Pp/9K<n>_ESA ipportLogicalInterface/<ESA_IPaddr>	netMask	255.255.255.224	
Vr/ESA Ip Arp Host/<ESA_IPaddr+m>,0	pvc	1	
(Sheet 2 of 2)			

MG9000 DS1-IMA ATM interface configuration (UA-AAL1)

Review the following information to understand how these links were configured on Nortel Multiservice Switch 15000 nodes in UA-AAL1 solutions. See the table "MG9000 DS1-IMA DS3 port interface configuration (UA-AAL1)" (page 156) for the basic configuration of the components and values.

If you have elected to use MG9000 internode ESA in your network, see "DS-1 IMA configuration to support MG9000 internode ESA" (page 164).

Table 40
MG9000 DS1-IMA DS3 port interface configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
LP/<n>		4pDS3ChAtm	These are the configuration values in "4-port DS3ChATM function processor configuration (UA-AAL1)" (page 73).
Lp/<n> DS3/<p>	clockingSource	module	This attribute defines the type of clocking source used for synchronizing the transmit clock.
	cbitParity	on	
	mapping	direct	
	lineLength	1	
	vendor	<customer defined>	
	commentText	<customer defined>	

Table 41
MG9000 DS1-IMA DS1 channel and IMAlink configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
Lp/<n> DS3/<p>			These are the DS3 port configuration values in “MG9000 DS1-IMA ATM interface configuration (UA-AAL1)” (page 156).
Lp/<n> DS3/<p> DS1/<i>	clockingSource	sameAsDs3	This attribute defines the type of clocking source used for synchronizing the transmit clock.
	lineType	esf	
	zeroCoding	none	
	vendor	<customer defined>	
	commentText	<customer defined>	
Lp/<n> DS3/<p> DS1/<i> Chan/0	timeslots	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Chan/0 is defined with all timeslots.
	timeslotDataRate	doNotOverride	
	vendor	<customer defined>	
	commentText	<customer defined>	
(Sheet 1 of 7)			

Table 41 (Continued)
MG9000 DS1-IMA DS1 channel and IMAlink configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
Lp/<n> DS3/<p> Ima<x>			x is the Ima instance number on the DS3 port.
	linkSelectionCriterion	maxBandwidth	
	maxDiffDelay	25	msec
	linkRetryTimeout	10	seconds
	transmitClockMode	ctc	
	protocol	atmForum10	
Lp/<n> DS3/<p> Ima/<x> Link/<k>	interfaceName	Lp/<n> Ds3/<p> Ds1/<i> Chan/0	An Ima component has 2 to 8 link subcomponents and link/<k> points to a DS1 chan/0 component. <c> = <n> * 100 + <p> * 10 + <x>
AtmInterface (AtmIf)/<c>	interfaceName	Lp/<n> Ds3/<p> Ima/<x>	
	remoteAtmInterfaceLabel (remoteAtmIf)	GEN/MG9K_<uniquelabel>	The -<uniquelabel> string uniquely identifies the far end MG9000 in your network.
	oamSegmentBoundary (sb)	no	

(Sheet 2 of 7)

Table 41 (Continued)
MG9000 DS1-IMA DS1 channel and IMAlink configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
AtmIf/<c> ConnectionAdministrator (CA)	maxVccs (vccs)	350	The value should be equal to n * 44, where n is the maximum number of DS1s this interface will ever support.
	maxAutoSelectedVciForVpiZero (maxVciVpiZero)	2047	The value entered for the *maxAutoSelectedVciforVpiZero* attribute must be less than the value entered for the *numVccsForVpiZero* attribute (the *nZvccs* parameter in *AtmIfConnMap Override (Ov)*. However, for scalability reasons, you should set the value for the *maxAutoSelectedVciforVpiZero* attribute as large as possible.
	minAutoSelectedVciForVpiZero (minVciVpiZero)	32	
	maxAutoSelectedVpi (maxVpi)	15	
	minAutoSelectedVpi (minVpi)	1	
	minAutoSelectedVciForNonZeroVpi (minVciNonZeroVpi)	1024	
(Sheet 3 of 7)			

Table 41 (Continued)
MG9000 DS1-IMA DS1 channel and IMAlink configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
	maxAutoSelectedVciForNonZeroVpi (maxVciNonZeroVpi)	2047	
	maxVpcs (vpcs)	15	
	maxVpts (vpts)	0	
	bandwidthPool (bwPool)	Vector values of: 1 100 2 0 3 0 4 0 5 0	This attribute is a vector value. This vector consists of an index entry that ranges in value from 1 through 5 and a decimal entry that ranges in value from 0 to 12 800. The decimal entry sets the percentage of link bandwidth allowed in the bandwidth pool defined by the index entry.
AtmIf CA RealTimeVariableBitRate (RtVbr)	pool	pool1	
	usageParameterControl (upc)	enforced	
	holdlingPriority	1	
	svcMpHoldingPriority	1	
	cdvt	10000	
AtmIf CA ConstantBitRate (Cbr)	pool	pool1	

(Sheet 4 of 7)

Table 41 (Continued)
MG9000 DS1-IMA DS1 channel and IMAlink configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
	usageParameterControl (upc)	disabled	
	txQueueLimit (txql)	230	
	unshapedTransmitQueueing (unshap)	perVc	
	holdlingPriority	2	
	svcMpHoldingPriority	2	
AtmIf CA NonRealTimeVariableBitRate (NrtVbr)	pool	pool1	
	holdingPriority	1	
	svcMpHoldingPriority	1	
	cdvt	10000	
	usageParameterControl (upc)	enforced	
AtmIf CA UnspecifiedBitRate (Ubr)	pool	pool1	
	usageParameterControl	disabled	
	holdingPriority	3	
	svcMpHoldingPriority	3	
AtmIf UserNetworkInterface (Uni)	version	atmForum40	
	side	network	
	accountCollection (aco)	~bill ~test ~study ~audit ~force	
(Sheet 5 of 7)			

Table 41 (Continued)
MG9000 DS1-IMA DS1 channel and IMAlink configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
	accountConnectionType (act)	origTerm	
AtmIf Uni Address<address>	primary	<customer defined>	
AtmIf Uni Ilmi	operatingMode	addressRegEnabled	
	prefixToRegister		Provision this value if different from the node prefix.
AtmIf Uni Signalling (Sig)			
AtmIf Uni Sig VirtualChannelDescriptor (Vcd)	trafficDescType (tdt)	6	
	atmServiceCategory (service)	nrtvbr	
(Sheet 6 of 7)			

Table 41 (Continued)
MG9000 DS1-IMA DS1 channel and IMAlink configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
	trafficDescParm (tdp)	Vector values of: 1 400 2 200 3 32 4 0 5 0	This attribute is a vector value. This vector consists of an index entry that ranges in value from 1 through 5 and a decimal entry that ranges in value from 0 to 2147483647. The decimal entry sets the values for PCR, SCR, MBS or CDVT depending on the type of traffic management defined by the *trafficDescType* attribute. The index entry indicates the traffic descriptor parameter with which the PCR, SCR, MBS or CDVT value is associated.
	usageParameterControl (upc)	sameAsCa	
	qosClass (qos)	2	Supports a QoS that meets Service Class B performance requirements (Vbr audio and video).
(Sheet 7 of 7)			

DS-1 IMA configuration to support MG9000 internode ESA

Internode ESA is optional and requires extra configuration. The following table gives the extra configuration that is required to support MG9000 internode ESA.

The following components must be provisioned to support InterNode ESA IP MG9000 on a DS-1 IMA interface. This consists of a Vcc Network Relay Point (NRP) to a Hairpin ATM Interface.

Table 42
DS-1 IMA interface configuration to support MG9000 internode ESA

Components	Attributes	Configured values	Notes
AtmIf/<n*100+p*20+x> Vcc/16.32 Nrp	nextHop	AtmIf/<HAI> Vcc/ <vpi.vci> Nrp	
AtmIf/<n*100+p*20+x> Vcc/16.32 Nrp Vcd Tm	atmServiceCategory	rtVbr	
	txPacketWiseDiscard	enabled	
	txTrafficDescriptorType	6	
	txTrafficDescriptorParameters	1 950 2 380 3 32	
Note: The hairpin interface configuration for the UA-AAL1 and UA-IP solutions are identical. Refer to the table Optical hairpin ATM (HAI) interface configuration (UA-IP) and the table Optical hairpin IP interface (HII) configuration (UA-IP).			
MG9000 Vcc component Hairpin ATM Interface (HAI)			
AtmIf/<HAI> Vcc/0.<vci> Nrp	nextHop	AtmIf/<MG> Vcc/ 16.32 Nrp	
AtmIf/<HAI> Vcc/0.<vci> Nrp Vcd Tm	atmServiceCategory	rtVbr	
	txPacketWiseDiscard	enabled	
	txTrafficDescriptorType	6	
(Sheet 1 of 2)			

Table 42 (Continued)
DS-1 IMA interface configuration to support MG9000 internode ESA

Components	Attributes	Configured values	Notes
	txTrafficDescriptorParameters		values depend on whether the MG9000 is IMA or DS3
MG9000 Vcc and Vr component Hairpin IP Interfaces (HII)			
AtmIf/<HII> Vcc/0.<vci> Nep	applicationName	AtmMpe/<n> Ac/1	
AtmIf/<HII> Vcc/0.<vci> vcd Tm	atmServiceCategory	rtVbr	
	txPacketWiseDiscard	enabled	
	txTrafficDescriptorType	6	
	txTrafficDescriptorParameters	7	
AtmMpe/<n>	linkToProtocolPort	Vr/ESA Pp/ 9K<n>_ESA	
AtmMpe/<n> Ac/1	atmConnection	AtmIf/<n> Vcc/ <vpi.vci> nep	
Vr/ESA Pp/9K<n>_ESA	linkToMedia	AtmMpe/<n>	
Vr/ESA Pp/9K<n>_ESA ipport LogicalInterface/<ESA_IPaddr>	netMask	255.255.255.224	
Vr/ESA Ip Arp Host/ <ESA_IPaddr+m>,0	pvc	1	
(Sheet 2 of 2)			

Hairpin Interfaces

A hairpin requires two 1+1 protected optical ATM interfaces (either OC-3 or OC-12). For example, two inter-connected SONET ports on one card protected by two inter-connected SONET ports on a mate card. One of the protected port pairs is the ATM interface, the other is the IP interface. There is an MDM NP template to configure these interfaces in the UA-IP solution

that can be re-used. See "Hairpin ATM (HAI) interface configuration (UA-IP)" (page 220) and "Hairpin IP (HII) interface configuration (UA-IP)" (page 225).

SAM 21 SC link configuration (UA-AAL1)

Review the following information to understand how these links were configured on Nortel Multiservice Switch 15000 nodes in UA-AAL1 solutions.

Table 43
SAM 21 SC link configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
EM			
LogicalProcessor (Lp)/<n>			*<n>* is the number of the logical processor you configured.
Lp/<n> Sonet/<p>	clockingSource	module	This attribute defines the type of clocking source used for synchronizing the transmit clock.
Lp/<n> Sonet/<p> Sts/0			
Lp/<n> Sonet/<p> Sts/0 AtmCell (Cell)	correctSingleBitHeaderErrors	on	
AtmInterface (AtmIf)/<c>	interfaceName	Lp/<n> Sonet/<p> Sts/0	*<n>* is the number of the Lp. *<p>* is the number of the port you configured. *<c> = <n> * 100 + <p>*

(Sheet 1 of 6)

Table 43 (Continued)
SAM 21 SC link configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
	remoteAtmInterface Label (remoteAtmIf)	GEN/ SAM21_<uniquelabel>	The <uniquelabel> string uniquely identifies the far end SAM21 Shelf Controller in your network. For example, <CLLI>_SHELF<shelf number>_PO/SC<slot number> is a unique label.
	oamSegmentBoundary (sb)	no	
AtmIf ConnectionAdministrator (CA)	maxVccs (vccs)	3300	The value entered for the maxVccs attribute must be greater than or equal to the difference between the values set for the maxAutoSelectedVciforVpiZero attribute and the minAutoSelectedVciforVpiZero attribute.
(Sheet 2 of 6)			

Table 43 (Continued)
SAM 21 SC link configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
	maxAutoSelectedVciForVpiZero (maxVciVpiZero)	1023	The default template value of 4095 must be changed. The value entered for the *maxAutoSelectedVciforVpiZero* attribute must be less than the value entered for the *numVccsForVpiZero* attribute (the *nZvccs* parameter in *AtmIfConnMap Override (Ov)*. However, for scalability reasons, you should set the value for the *maxAutoSelectedVciforVpiZero* attribute as large as possible.
	minAutoSelectedVciForVpiZero (minVciVpiZero)	52	
	maxVpcs (vpcs)	0	
	maxVpts (vpts)	0	
(Sheet 3 of 6)			

Table 43 (Continued)
SAM 21 SC link configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
	bandwidthPool (bwPool)	Vector values of: 1 100	This attribute is a vector value. This vector consists of an index entry that ranges in value from 1 through 5 and a decimal entry that ranges in value from 0 to 12 800. The decimal entry sets the percentage of link bandwidth allowed in the bandwidth pool defined by the index entry.
AtmIf CA RealTimeVariableBitRate (RtVbr)	pool	pool1	
AtmIf CA RtVbr/0	usageParameterControl (upc)	enforced	
	cdvt	5000	
AtmIf CA ConstantBitRate (Cbr)	pool	pool1	
	usageParameterControl (upc)	disabled	
	cdvt	250	
AtmIf CA NonRealTimeVariableBitRate (NrtVbr)	pool	pool1	
	usageParameterControl (upc)	enforced	
AtmIf CA NrtVbr/0	usageParameterControl (upc)	enforced	
(Sheet 4 of 6)			

Table 43 (Continued)
SAM 21 SC link configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
	cdvt	5000	
AtmIf UserNetworkInterface (Uni)	version	atmForum40	
	side	network	
	accountCollection (aco)	~bill ~test ~study ~audit ~force	
	accountConnectionType (act)	origTerm	
AtmIf Uni Ilmi	operatingMode	addressRegEnabled	
	prefixToRegister		Provision this value if different from the default.
AtmIf Uni Signalling (Sig)			
AtmIf Uni Sig VirtualChannelDescriptor (Vcd)	trafficDescType (tdt)	6	
	atmServiceCategory (service)	NrtVbr	

Table 43 (Continued)
SAM 21 SC link configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
	trafficDescParm (tdp)	Vector values of: 1 1200 2 600 3 18 4 0	This attribute is a vector value. This vector consists of an index entry that ranges in value from 1 through 5 and a decimal entry that ranges in value from 0 to 2147483647. The decimal entry sets the values for PCR, SCR, MBS or CDVT depending on the type of traffic management defined by the *trafficDescType* attribute. The index entry indicates the traffic descriptor parameter with which the PCR, SCR, MBS or CDVT value is associated.
	usageParameterControl (upc)	sameAsCa	
	qosClass (qos)	2	Supports a QoS that meets Service Class B performance requirements (Vbr audio and video).
AtmIf ConnectionMapping (ConnMap)			For 16pOC3 only.
AtmIfConnMap Override (Ov)	numVccsForVpiZero (nZVccs)	4096	

(Sheet 6 of 6)

UAS/MS2020 ATM UNI link configuration (UA-AAL1)

Review the following information to understand how these links were configured on Nortel Multiservice Switch 15000 nodes in UA-AAL1 solutions.

Table 44
UAS/MS2020 ATM UNI link configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
EM			
LogicalProcessor (Lp)/<n>			*<n>* is the number of the logical processor you configured.
Lp/<n> Sonet/<p>	clockingSource	module	This attribute defines the type of clocking source used for synchronizing the transmit clock.
Lp/<n> Sonet/<p> Sts/0			
Lp/<n> Sonet/<p> Sts/o AtmCell (Cell)	correctSingleBitHeaderErrors	on	
AtmInterface (AtmIf)/<c>	interfaceName	Lp/<n> Sonet/<p> Sts/0	*<n>* is the number of the Lp. *<p>* is the number of the port you configured. *<c> = <n> * 100 + <p>*

Table 44 (Continued)
UAS/MS2020 ATM UNI link configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
	remoteAtmInterfaceLabel (remoteAtmIf)	GEN/ UAS_<uniquelabel>	The *-<uniquelabel>* string uniquely identifies the far end UAS or MS2020. For example, *<CLLI>_SHELF<shelf number>_PO/SC<slot number>* is a unique label.
	oamSegmentBoundary (sb)	no	
AtmIf/<c> ConnectionAdministrator (CA)	maxVccs (vccs)	3300	The value entered for the *maxVccs* attribute must be greater than or equal to the difference between the values set for the *maxAutoSelectedVcifOrVpiZero* attribute and the *minAutoSelectedVcifOrVpiZero* attribute.
(Sheet 2 of 7)			

Table 44 (Continued)
UAS/MS2020 ATM UNI link configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
	maxAutoSelectedVciForVpiZero (maxVciVpiZero)	4095	The value entered for the *maxAutoSelectedVciforVpiZero* attribute must be less than the value entered for the *numVccsForVpiZero* attribute (the *nZvccs* parameter in *AtmIfConnMap Override (Ov)*. However, for scalability reasons, you should set the value for the *maxAutoSelectedVciforVpiZero* attribute as large as possible.
	minAutoSelectedVciForVpiZero (minVciVpiZero)	52	
	maxVpcs (vpcs)	0	
	maxVpts (vpts)	0	
(Sheet 3 of 7)			

Table 44 (Continued)
UAS/MS2020 ATM UNI link configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
	bandwidthPool (bwPool)	Vector values of: 1 100	This attribute is a vector value. This vector consists of an index entry that ranges in value from 1 through 5 and a decimal entry that ranges in value from 0 to 12 800. The decimal entry sets the percentage of link bandwidth allowed in the bandwidth pool defined by the index entry.
AtmIf/<c> CA RealTimeVariableBitRate (RtVbr)	pool	pool1	
	usageParameterControl (upc)	disabled	
	emissionPriority	2	
AtmIf/<c> CA ConstantBitRate (Cbr)	pool	pool1	
	usageParameterControl (upc)	disabled	
	unshapedTrQueue	perVC	
AtmIf/<c> CA NonRealTimeVariableBitRate (NrtVbr)	pool	pool1	
	usageParameterControl (upc)	disabled	

(Sheet 4 of 7)

Table 44 (Continued)
UAS/MS2020 ATM UNI link configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
AtmIf CA UnspecifiedBitRate (Ubr)	minPerVcQLimit	92	
AtmIf/<c> UserNetworkInterface (Uni)	version	atmForum40	
	side	network	
	accountCollection (aco)	~bill ~test ~study ~audit ~force	
	accountConnectionType (act)	origTerm	
AtmIf/<c> Uni Ilmi	operatingMode	addressReg Enabled	
	prefixToRegister		Provision this value if different from the default.
AtmIf/<c> Uni Signalling (Sig)			
AtmIf/<c> Uni Sig VirtualChannelDescriptor (Vcd)	trafficDescType (tdt)	6	
	atmServiceCategory (service)	nrtvbr	

Table 44 (Continued)
UAS/MS2020 ATM UNI link configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
	trafficDescParm (tdp)	Vector values of: 1 5000 2 500 3 16 4 0	This attribute is a vector value. This vector consists of an index entry that ranges in value from 1 through 5 and a decimal entry that ranges in value from 0 to 2147483647. The decimal entry sets the values for PCR, SCR, MBS or CDVT depending on the type of traffic management defined by the *trafficDescType* attribute. The index entry indicates the traffic descriptor parameter with which the PCR, SCR, MBS or CDVT value is associated.
	usageParameterControl (upc)	sameAsCa	
	qosClass (qos)	2	Supports a QoS that meets Service Class B performance requirements (Vbr audio and video).
(Sheet 6 of 7)			

Table 44 (Continued)
UAS/MS2020 ATM UNI link configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
AtmIf/<c> ConnectionMapping (ConnMap)			For 16pOC3 only.
AtmIf/<c> ConnMap Override (Ov)	numVccsForVpiZero (nZVccs)	4096	
(Sheet 7 of 7)			

Bridged SAM 21 SC link configuration (UA-AAL1)

Review the following information to understand how these links were configured on Nortel Multiservice Switch 15000 nodes in UA-AAL1 solutions.

Table 45
Bridged SAM 21 SC link configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
EM			
LogicalProcessor (Lp)/n			<n> is the number of the logical processor you configured
Lp/<n> Sonet/<p>	clockingSource	module	This attribute defines the type of clocking source used for synchronizing the transmit clock.
	vendor	<customer defined>	
	commentText	<customer defined>	
Lp/<n+1> BridgeSonet/<p>			
(Sheet 1 of 6)			

Table 45 (Continued)
Bridged SAM 21 SC link configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
Pbg/<c>	workingLine	Lp/n <p> /0	
	bridgeLine	Lp/n+1 Bridged <p>/0	
Pbg/<c> Sts/0 AtmCell (Cell)	correctSingleBigHeaderErrors	on	
AtmInterface (Atmif)/<c>	interfaceName	Pbg/<c> Sts/0	
	remoteAtmInterfaceLabel	GEN/SAM-<SPMID>-<CLLI>	The -<SPMID>-<CLLI> string uniquely identifies the far end SAM21 Shelf Controller in your network. For example, -SHELF<shelf number>_PO/SC<slot number>-<CLLI> is a unique label.
	oamSegmentBoundary	no	
AtmIfConnectionAdministrator (CA)	maxVccs (vccs)	3300	The value entered for the *maxVccs* attribute must be greater than or equal to the difference between the values set for the *maxAutoSelectedVcifor VpiZero* attribute and the *minAutoSelectedVcifor VpiZero* attribute.
(Sheet 2 of 6)			

Table 45 (Continued)
Bridged SAM 21 SC link configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
	maxAutoSelectedVciForVpiZero (maxVciVpiZero)	1023	The default template value of 4095 must be changed. The value entered for the *maxAutoSelectedVciforVpiZero* attribute must be less than the value entered for the *numVccsForVpiZero* attribute (the *nZvccs* parameter in *AtmIfConnMap Override (Ov)*. However, for scalability reasons, you should set the value for the *maxAutoSelectedVciforVpiZero* attribute as large as possible.
	minAutoSelectedVciForVpiZero (minVciVpiZero)	52	
	maxVpcs (vpcs)	0	
	maxVpts (vpts)	0	
(Sheet 3 of 6)			

Table 45 (Continued)
Bridged SAM 21 SC link configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
	bandwidthPool (bwPool)	Vector values of: 1 100	This attribute is a vector value. This vector consists of an index entry that ranges in value from 1 through 5 and a decimal entry that ranges in value from 0 to 12 800. The decimal entry sets the percentage of link bandwidth allowed in the bandwidth pool defined by the index entry.
AtmIf CA RealTimeVariableBitRate (RtVbr)	pool	pool1	
AtmIf CA RtVbr/0	usageParameterControl (upc)	enforced	
	cdvt	5000	
	emissionPriority	2	
AtmIf CA ConstantBitRate (Cbr)	pool	pool1	
	usageParameterControl (upc)	disabled	
AtmIf CA NonRealTimeVariableBitRate (NrtVbr)	pool	pool1	
AtmIf CA NrtVbr/0	usageParameterControl (upc)	enforced	
	cdvt	5000	

(Sheet 4 of 6)

Table 45 (Continued)
Bridged SAM 21 SC link configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
AtmIf ConnectionMapping (ConnMap)			For 16pOC3 only.
AtmIfConnMap Override (Ov)	numVccsForVpiZero (nZVccs)	4096	
AtmIf UserNetworkInterface (Uni)	version	atmForum40	
	side	network	
	accountCollection (aco)	~bill ~test ~study ~audit ~force	
	accountConnectionType (act)	origTerm	
AtmIf Uni Ilmi	operatingMode	addressRegEnabled	
	prefixToRegister		Provision this value if different from the default.
AtmIf Uni Signalling (Sig)			
AtmIf Uni Sig VirtualChannelDescriptor (Vcd)	trafficDescType (tdt)	6	
	atmServiceCategory (service)	NrtVbr	

Table 45 (Continued)
Bridged SAM 21 SC link configuration (UA-AAL1)

Components	Attributes	Configured values	Notes
	trafficDescParm (tdp)	Vector values of: 1 5000 2 600 3 18 4 0	This attribute is a vector value. This vector consists of an index entry that ranges in value from 1 through 5 and a decimal entry that ranges in value from 0 to 2147483647. The decimal entry sets the values for PCR, SCR, MBS or CDVT depending on the type of traffic management defined by the *trafficDescType* attribute. The index entry indicates the traffic descriptor parameter with which the PCR, SCR, MBS or CDVT value is associated.
	usageParameterControl (upc)	sameAsCa	
	qosClass (qos)	2	Supports a QoS that meets Service Class B performance requirements (Vbr audio and video)
(Sheet 6 of 6)			

Link configuration (UA-IP)

The section describes link configurations for Nortel Multiservice Switch 15000 nodes in UA-IP solutions. It includes the following topics:

For information about link configuration for Nortel Multiservice Switch 15000 Media Gateway in UA-IP solutions, see "Media Gateway 15000-specific interface configuration (UA-IP)" (page 231).

Multiservice Switch inter-shelf IP interface configuration (UA-IP)

This section presents the configuration of Nortel Multiservice Switch inter-shelf IP interface, in UA-IP solutions. This is an interface to another Multiservice Switch 15000 node on either a 4pOC12SmIrAtm, or 4pOC3SmIrAtm FP card. It provisions a line automatic protection switching (LAPS)-protected pair of synchronous optical network (SONET) ports with an ATMIF.

Multiservice Switch 15000 nodes are connected either directly with fiber or through a synchronous optical network (SONET) transport network.

The RWC bearer VCC configuration provides an asynchronous transfer mode (ATM) virtual channel connection (VCC) for IP connectivity between remote wire centers (RWCs).

This configuration provisions an ATM multi-protocol encapsulation (ATMMPE) connection on either an OC-12 or OC-3 IPoATM trunk between two Multiservice Switch 15000 nodes, for the purpose of IP bearer path connectivity between RWCs.

The VCC, nailed-up endpoint (NEP), and so on, must not be previously configured.

Review Table 46, "Multiservice Switch IP over ATM inter-shelf trunk interface configuration (UA-IP)," (page 185) to understand how these links are configured on your nodes.

Table 46
Multiservice Switch IP over ATM inter-shelf trunk interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
EM			
LogicalProcessor (Lp)/<n>			*<n>* is the number of the logical processor you configured.
Lp/<n> Sonet/<p>	clockingSource	module	*<p>* is the number of the port you configured.
	vendor	<customer defined>	
	commentText	<customer defined>	
(Sheet 1 of 8)			

Table 46 (Continued)
Multiservice Switch IP over ATM inter-shelf trunk interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
LineAutomaticProtectionSwitching (Laps)/<a>	workingLine (working)	Lp/<n> Sonet/<p>	This attribute value works with the *protectionLine* attribute value. These attributes link ports on two different LPs. The port numbers on both LPs must match. Therefore, port 0 on Lp/n must match port 0 on Lp/n+1. <*a*> is the instance value of the Laps component. <*a*> = <*n*> * 100 + <*p*> <*n*> is the lowest even-numbered LP that is available.
	protectionLine (protection)	Lp/<n+1> Sonet/<p>	This attribute value is configured on the LP paired with the *workingLine* LP. The port numbers on both LPs must match. Therefore, port 0 on *Lp/<n+1>* must match port 0 on Lp/<n>.
	signalDegradeRatio (sdRatio)	-8	
Laps/<a> Sts	concatNumber	12	For OC-12 only.
Laps/<a> Sts AtmCell	correctSingleBitHeader Errors	on	

(Sheet 2 of 8)

Table 46 (Continued)
Multiservice Switch IP over ATM inter-shelf trunk interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
AtmInterface (AtmIf)/<c>	interface Name	Laps/ <n*100+p> Sts/0	*<c> = <a>* *<p>* is the number of the port you configured.
	remoteAtmInterfaceLabel (remoteAtmIf)	EM/ <remoteNodeName> ATMIF/ <remoteAtmIfinstance>	*<remoteNodeName>* is the unique node name on the remote Multiservice Switch 15000 node. *<remoteAtmIfinstance>* is the instance number of the ATM interface component on the remote Multiservice Switch 15000 node.
	oamSegmentBoundary (sb)	no	
AtmIf/<c> Ep/2	minimumBandwidthGuarantee	5	
AtmIf/<c> Ep/4	minimumBandwidthGuarantee	5	
AtmIf/<c> ConnectionAdministrator (CA)	maxVccs (vccs)	3250/ 13000	For OC-3. For OC-12.
	maxAutoSelectedVciForVpiZero (maxVciVpi Zero)	16383	
	minAutoSelectedVciForVpiZero (minVciVpiZero)	380	
	maxVpcs (vpcs)	50/ 200	For OC-3. For OC-12.

Table 46 (Continued)
Multiservice Switch IP over ATM inter-shelf trunk interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
	maxVpts (vpts)	0	
	bandwidthPool (bwPool)	Vector values of: 1 100 2 0	
AtmIf/<c> ConnMap Override (Ov)	numVccsForVpiZero (nZVccs)	16384	For access protocol control (APC)-based cards only (4pOC-12).
AtmIf/<c> CA RealTimeVariableBitRate (rtVbr)	ep	2	
AtmIf/<c> Private Network-Network Interface (PNNI)	accountCollection (aco)	~bill ~test ~study ~audit ~force	The template default settings must be turned off.
	accountConnectionType (act)	origTerm	
AtmIf/<c> Vcc/0.32 Nailed Up End Point (Nep)	applicationName	AtmMpe/<n> Ac/1	For in-band OAM.
	atmServiceCategory	nrtVbr	For in-band OAM.
AtmIf/<c> Vcc/0.32 Vcd Tm	txPacketWiseDiscard	enabled	For in-band OAM.
	txTrafficDescriptorType	6	For in-band OAM.
(Sheet 4 of 8)			

Table 46 (Continued)
Multiservice Switch IP over ATM inter-shelf trunk interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
	txTrafficDescriptor Parameters	Vector values of: 1 353207/ 1412830 2 1000 3 32	For in-band OAM. For OC-3/OC-12.
AtmMpe/<n>	linkToProtocolPort	Vr/0 PP/ <EM><AtmIf>_OAM	For in-band OAM.
AtmMpe/<n> Ac/1	atmConnection	AtmIf/<n> Vcc/0.32 nep	For in-band OAM.
Vr/0 Pp/<EM><AtmIf>_OAM	linkToMedia	AtmMpe/ <n>	For in-band OAM.
Vr/0 Pp/<EM><AtmIf>OAM ipport LogicalInterface/ <OAM_IPaddr>	netMask	255.255.25 5.0	For in-band OAM.
AtmIf/<c> Vcc/0.33 Nailed Up End Point (Nep)	application name	AtmMpe/ <n> Ac/1	
AtmIf/<c> Vcc/0.33 vcd Tm	atmServiceCatego ry	rtVbr	
	txTrafficDescriptor Type	6	
	forcedTagging	enabled	
	txPacketWiseDisc ard	enabled	
(Sheet 5 of 8)			

Table 46 (Continued)
Multiservice Switch IP over ATM inter-shelf trunk interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
	txTrafficDescriptor Parameters	Vector values of: 1 <engine ered> 2 <engine ered> 3 1	For OC-3/OC-12.
AtmIf/<c> Vcc/0.34 Nailed Up End Point (Nep)	application name	AtmMpe/ <n> Ac/2	
AtmIf/<c> Vcc/0.34 vcd Tm	atmServiceCatego ry	rtVbr	
	txPacketWiseDisc ard	enabled	
	txTrafficDescriptor Type	6	
	txTrafficDescriptor Parameters	Vector values of: 1 12000 2 6000 3 210	For OC-3
		Vector values of: 1 16000 2 8000 3 210	For OC-12
AtmIf/<c> Vcc/0.35 Nailed Up End Point (Nep)	application name	AtmMpe/ <n> Ac/3	
(Sheet 6 of 8)			

Table 46 (Continued)
Multiservice Switch IP over ATM inter-shelf trunk interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
AtmIf/<c> Vcc/0.35 vcd Tm	atmServiceCategory	nrtVbr	Required if the remote node routes the remote MG9000 OAM traffic.
	txPacketWiseDiscard	enabled	
	txTrafficDescriptorType	6	
	txTrafficDescriptorParameters	Vector values of: 1 5000 2 2385 3 32	
AtmMpe/<n+100>	linkToProtocolPort	Vr/VOIP Pp/<EM><AtmIf>_CC	
AtmMpe/<n+100> Ac/1	atmConnection	AtmIf/<n> Vcc/0.33 nep	
	ipCos	3	
AtmMpe/<n+100> Ac/2	atmConnection	AtmIf/<n> Vcc/0.34 nep	
	ipCos	2	
AtmMpe/<n+100> Ac/3	atmConnection	AtmIf/<n> Vcc/0.35 nep	Required if the remote node routes the remote MG9000 OAM traffic.
	ipCos	1	
(Sheet 7 of 8)			

Table 46 (Continued)
Multiservice Switch IP over ATM inter-shelf trunk interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
Vr/VOIP Pp/<EM><AtmIf>_CC	linkToMedia	AtmMpe/ <n+100>	
Vr/VOIP Pp/ <EM><AtmIf>_CC ipport LogicalInterface/<PP_IPaddr>	netMask	255.255.255.252	
(Sheet 8 of 8)			

CS-LAN GE link configuration (UA-IP)

This section presents the configuration of a link to a CS-LAN, via Gigabit Ethernet (GE), on Nortel Multiservice Switch 15000 node in UA-IP solutions. The interface uses either one GE port on a 4pGe FP or a pair of GE ports in a Link Aggregation Group (LAG) on a 4pGe FP.

If three ports are required in the LAG, provision the third one manually.

It also configures protected static routes to the CS-LAN, for the following:

- bearer
- callp
- MG9000 operations, administration, and maintenance (OAM) VLANs

Review Table 47, "CS-LAN GE link configuration (UA-IP)," (page 192) to understand how these links are configured on your nodes.

Table 47
CS-LAN GE link configuration (UA-IP)

Components	Attributes	Configured values	Notes
Lp/<n> Ethernet/<m>	autoNegotiation	on	
	vendor	<customer defined>	
(Sheet 1 of 5)			

Table 47 (Continued)
CS-LAN GE link configuration (UA-IP)

Components	Attributes	Configured values	Notes
	commentText	<customer defined>	
Lp<n> Ethernet/<m> Om	type	lx	
Lp<n> Ethernet/<m> Tm Ep/2	minimumBandwidthGuarantee	5	
Lp<n> Ethernet/<m> Tm Ep/6	minimumBandwidthGuarantee	5	
Lp/<n> Lag/<x>	lacpMode	passive	If LAG is used to aggregate two or more links on the same card.
	partnerAdminSystemId	<customer defined>	
	collectorMaxDelay	10	
	minActiveLinks	1	
	partnerAdminKey	<customer defined>	
	partnerAdminSystemPriority	1	
Lp/<n> Lag/<x> link/<m>	interfaceName	Lp/<n> Eth/<m>	If LAG is used to aggregate two or more links on the same card.
Lan/<l>	linkToProtocolPort	Vr/VOIP Pp/8600_<id>	
Lan/<l> Framer	interfaceName	Lp/<n> Ethernet/* or Lp/<n> Lag/<x>	
Vr/VOIP Pp/8600_<id>	linkToMedia	Lan/<l>	
Vr/VOIP Pp/8600_<id> IpPort LogicalIf/<CS1_IpAddr>	netMask	255.255.255.252	

(Sheet 2 of 5)

Table 47 (Continued)
CS-LAN GE link configuration (UA-IP)

Components	Attributes	Configured values	Notes
Vr/VOIP Pp/8600_<id> IpPort LogicalIf/<CS1_IpAddr> OspfIf	type	broadCast	
	AreaId	<customer defined>	
	helloInt	1	
	rtrDead	4	
Lp/<n+1> Ethernet/<m>	autoNegotiation	on	
	vendor	<customer defined>	
	commentText	<customer defined>	
Lp/<n+1> Ethernet/<m> Om	type	lx	
Lp/<n+1> Ethernet/<m> Tm Ep/2	minimumBandwidthGuarantee	5	
Lp/<n+1> Ethernet/<m> Tm Ep/6	minimumBandwidthGuarantee	5	
Lp/<n+1> Lag/<x>	lacpMode	passive	If LAG is used to aggregate two or more links on the same card.
	partnerAdminSystemId	<customer defined>	
	collectorMaxDelay	10	
	minActiveLinks	1	
	partnerAdminKey	1	
	partnerAdminSystemPriority	1	
Lp/<n+1> Lag/<x> link/<m>	interfaceName	Lp/<n+1> Eth/<m>	If LAG is used to aggregate two or more links on the same card.

(Sheet 3 of 5)

Table 47 (Continued)
CS-LAN GE link configuration (UA-IP)

Components	Attributes	Configured values	Notes
Lan/<l+1>	linkToProtocolPort	Vr/VOIP Pp/8600_<id>	
Lan/<l+1> Framer	interfaceName	Lp/<n> Ethernet/* or Lp/<n> Lag/<x>	
Vr/VOIP Pp/8600_<id>	linkToMedia	Lan/<l+1>	
Vr/VOIP Pp/8600_<id> IpPort LogicalIf/<CS2_IpAddr>	netMask	255.255.255.252	
Vr/VOIP Pp/8600_<id> IpPort LogicalIf/<CS2_IpAddr> OspfIf	type	broadCast	
	AreaId	<customer defined>	
	helloInt	1	
	rtrDead	4	
Vr/VOIP Ip Static Route/ 0.0.0.0,0.0.0.0,0	protected		
	staticRemoteRtePreference	1	
(Sheet 4 of 5)			

Table 47 (Continued)
CS-LAN GE link configuration (UA-IP)

Components	Attributes	Configured values	Notes
Vr/VOIP Ip Static Route/ 0.0.0.0,0.0.0.0.,0 nextHop/<8600-1_IP>	metric	1	
Vr/VOIP Ip Static Route/ 0.0.0.0,0.0.0.0,0 nextHop/<8600-2_IP>	metric	1	
(Sheet 5 of 5)			

CS-LAN OC-12 link configuration (UA-IP)

This section presents the configuration of a link to the CS-LAN via synchronous optical network (SONET) on Nortel Multiservice Switch 15000 nodes in UA-IP solutions. The link is via IP on an ATM OC-12 FP card, specifically a 4pOC12SmIrAtm FP, to an Ethernet Routing Switch 8600 (Ethernet Routing Switch 8600) in the CS-LAN.

This interface is similar to a Multiservice Switch 15000-to-Multiservice Switch 15000 link, as described in "Multiservice Switch inter-shelf IP interface configuration (UA-IP)" (page 184), or in "option B" of section 10.1 of the Engineering Guidelines. Ethernet Routing Switch 8600 nodes only support unspecified bit rate (UBR). However, on Multiservice Switch 15000 nodes the ATM Vcc carrying the bearer, control and all operations, administration, and maintenance (OAM) is configured as non-real time variable bit rate (nrtVBR).

Review Table 48, "CS-LAN OC-12 link configuration (UA-IP)," (page 197) to understand how these links are configured on your nodes.

Table 48
CS-LAN OC-12 link configuration (UA-IP)

Components	Attributes	Configured values	Notes
Lp/<n> Sonet/<p>	clockingSource	module	<n> is the number of the logical processor you configured. <p> is the number of the port you configured.
	vendor	<customer defined>	
	commentText	<customer defined>	
Lp/<n> Sonet/<p> Sts/0	concatNumber	12	
Lp/<n> Sonet/<p> Sts/0 Atm-Cell (Cell)	correctSingleBit-HeaderErrors	On	
(Sheet 1 of 5)			

Table 48 (Continued)
CS-LAN OC-12 link configuration (UA-IP)

Components	Attributes	Configured values	Notes
AtmInterface (AtmIf)/<c>	interfaceName	Lp/<n> Sonet/<p> Sts/0	<c> is the instance value of the ATM interface. <c>=<n>*100+<p>
	remoteAtmInter-faceLabel (remoteAtmIf)	GEN/ 8600_<ID>	<ID> is a string that uniquely identifies the far end Passport 8600 in your network.
	oamSegment-Boundary (sb)	No	
AtmIf/<c> Ep/2	minimumBand-widthGuarantee	5	
AtmIf/<c> Ep/4	minimumBand-widthGuarantee	5	
AtmIf/<c> ConnectionAdministrator (CA)	maxVccs	256	
	maxAutoSelected-VciForVpiZero	4095	
	minAutoSelected-VciForVpiZero	4095	
	maxVpcs	0	
	maxVpts	0	
	bandwidthPool	Vector values of: 1 100 2 0	
AtmIf/<c> ConnMap Ov	numVccsForVpiZ-ero	16384	
(Sheet 2 of 5)			

Table 48 (Continued)
CS-LAN OC-12 link configuration (UA-IP)

Components	Attributes	Configured values	Notes
AtmIf/<c> Ca rtVbr	ep	2	
AtmIf/<c> Vcc/0.32 Nep	applicationName	AtmMpe/<n> Ac/1	For in-band OAM.
AtmIf/<c> Vcc/0.32 vcd Tm	atmServiceCategory	nrtVbr	For in-band OAM.
	txPacketWiseDiscard	enabled	For in-band OAM.
	txTrafficDescriptorType	6	For in-band OAM.
	txTrafficDescriptorParameters	Vector values of: 1 2000 2 1000 3 32	For in-band OAM.
AtmMpe/<n>	linkToProtocolPort	Vr/0 Pp/8600_<id>_OAM	For in-band OAM.
AtmMpe/<n> Ac/1	atmConnection	AtmIf/<n> Vcc/0.32 Nep	For in-band OAM.
Vr/0 Pp/8600_<id>_OAM	linkToMedia	AtmMpe/<n>	For in-band OAM.
Vr/0 Pp/8600_<id>_OAM ipport LogicalInterface/<OAM_IPaddr>	netMask	255.255.255.252	For in-band OAM.
AtmIf/<c> Vcc/0.33 Nep	applicationName	AtmMpe/<n> Ac/1	
AtmIf/<c> Vcc/0.33 vcd Tm	atmServiceCategory	nrtVbr	
(Sheet 3 of 5)			

Table 48 (Continued)
CS-LAN OC-12 link configuration (UA-IP)

Components	Attributes	Configured values	Notes
	txPacketWiseDiscard	enabled	
	txTrafficDescriptor-Type	6	
	forcedTagging	enabled	
	txTrafficDescriptor-Parameters	Vector values of: 1 1401600 2 1401600 3 1	
AtmMpe/<n+100>	linkToProtocolPort	Vr/VOIP Pp/8600_<id>_CC	
AtmMpe/<n+100> Ac/1	atmConnection	AtmIf/<n> Vcc/0.33 nep	
Vr/VOIP Pp/8600_<id>_CC	linkToMedia	AtmMpe/<n+100>	
Vr/VOIP Pp/8600_<id>_CC ipport LogicalInterface/<CC_IPaddr>	netMask	255.255.255.252	
Vr/VOIP Pp/8600_<id>_CC ipport LogicalInterface/<CC_IPaddr> OspfIf	type	broadcast	
	areaId	<customer defined>	
	helloInt	1	
	rtrDead	4	
(Sheet 4 of 5)			

Table 48 (Continued)
CS-LAN OC-12 link configuration (UA-IP)

Components	Attributes	Configured values	Notes
Vr/VOIP Ip Static Route/ <bearer_VLAN>,<mask>,0			
Vr/VOIP Ip Static Route/ <bearer_VLAN>,<mask>,0 nextHop/<local-8600_IP>	metric	1	<local-8600_IP> is the Ethernet Routing Switch 8600 at the other end of the OC-12 link.
Vr/VOIP Ip Static Route/ <callp_VLAN>,<mask>,0			
Vr/VOIP Ip Static Route/ <callp_VLAN>,<mask>,0 nextHop/<local-8600_IP>	metric	1	
Vr/VOIP Ip Static Route/ <oam_VLAN>,<mask>,0			
Vr/VOIP Ip Static Route/ <oam_VLAN>,<mask>,0 nextHop/<local-8600_IP>	metric	1	
(Sheet 5 of 5)			

MG9000 OC-3 link configuration (UA-IP)

This section presents the configuration of a 1+1 OC-3 link to an MG9000 on Nortel Multiservice Switch 15000 nodes in UA-IP solutions.

This configuration is for a LAPS-protected pair of synchronous optical network (SONET) ports with an ATMIF, on 4pOC3SmIrAtm FP cards.

Note: For MG9000 links, the nodal provisioning (NP) templates configure the basic CC (bearer and H.248) and the operations, administration, and maintenance (OAM) Vccs. They do not configure ABI connections. For these Vccs, the maximum traffic contract is given as the default. It assumes, for example, that 12 shelves are configured on the MG9000 OC-3. The installer must change this if necessary, using the values in the Specification Book.

Review the following information to understand how these links are configured on your nodes.

Table 49
MG9000 OC-3 link configuration (UA-IP)

Components	Attributes	Configured values	Notes
Lp/<n> Sonet/<p>	clockingSource	module	This attribute defines the type of clocking source used to synchronize the transmit clock. <n> is the number of the logical processor you configured. <p> is the number of the port you configured.
	vendor		
	commentText		
LineAutomaticProtectionSwitching (Laps)/<a>	workingLine (working)	Lp/<n> Sonet/<p>	This attribute value works with the *protectionLine* attribute value. These attributes link ports on two different LPs. The port numbers on both LPs must match. Therefore, port 0 on *Lp/<n>* must match port 0 on *Lp/<n+1>*. <a> = <n> * 100 + <p>
(Sheet 1 of 7)			

Table 49 (Continued)
MG9000 OC-3 link configuration (UA-IP)

Components	Attributes	Configured values	Notes
	protectionLine (protection)	Lp/<n+1> Sonet/<p>	This attribute value is configured on the LP paired with the *workingLine* LP. The port numbers on both LPs must match.Therefore, port 0 on *Lp/<n+1>* must match port 0 on *Lp/<n>*.
	signalDegradeRatio (sdRatio)	-8	
Laps/<a> Sts/0 AtmCell	correctSingleBitHeaderErrors	on	
AtmInterface (AtmIf)/<c>	interfaceName	Laps/<a> Sts/0	<c> = <a> For example, 200 indicates that the LP in slot 2, and port 0 on that card and port 0 on its paired Lp are configured for Laps.
	remoteAtmInterfaceLabel (remoteAtmIf)	GEN/MG9K-<id>	The *-<id>* string uniquely identifies the far end MG9000 in your network.
	oamSegmentBoundary (sb)	no	
AtmIf/<c> Ep/2	minimumBandwidthGuarantee	5	
(Sheet 2 of 7)			

Table 49 (Continued)
MG9000 OC-3 link configuration (UA-IP)

Components	Attributes	Configured values	Notes
AtmIf/<c> Ep/4	minimumBandwidthGuarantee	5	
AtmIf/<c> ConnectionAdministrator (CA)	maxVccs (vccs)	3285	*maxVccs* must be greater than or equal to the difference between *maxAutoSelectedVciforVpiZero* and *minAutoSelectedVciforVpiZero*.
	maxAutoSelectedVciForVpiZero (maxVciVpiZero)	2047	*maxAutoSelectedVciforVpiZero* must be less than *numVccsForVpiZero* (the *nZvccs* parameter in *AtmIfConnMap Override (Ov)*. However, for scalability, set *maxAutoSelectedVciforVpiZero* as large as possible.
	minAutoSelectedVciForVpiZero (minVciVpiZero)	32	
	maxAutoSelectVpi (maxVpi)	15	
	minAutoSelectVpi (minVpi)	1	
	minAutoSelectedVciForNonZero Vpi (minVciNonZeroVpi)	1024	
(Sheet 3 of 7)			

Table 49 (Continued)
MG9000 OC-3 link configuration (UA-IP)

Components	Attributes	Configured values	Notes
	maxAutoSelectedVciForNonZero Vpi (maxVciNonZeroVpi)	2047	
	maxVpcs (vpcs)	15	
	maxVpts (vpts)	0	
	bandwidthPool (bwPool)	Vector values of: 1 100 2 0 3 0	
AtmIf/<c> CA ConstantBitRate (Cbr)	pool	pool1	
	usageParameterControl (upc)	disabled	
	txQueueLimit (txql)	230	
AtmIf/<c> CA RealTimeVariableBitRate (RtVbr)	pool	pool1	
	emissionPriority	2	
	cdvt	5000	
	usageParameterControl	disabled	
AtmIf/<c> CA NonRealTimeVariableBitRate (NrtVbr)	pool	pool1	
	cdvt	5000	
	usageParameterControl	disabled	
(Sheet 4 of 7)			

Table 49 (Continued)
MG9000 OC-3 link configuration (UA-IP)

Components	Attributes	Configured values	Notes
AtmIf/<c> UserNetworkInterface (Uni)	version	atmForum40	
	side	network	
	accountCollection (aco)	~bill ~test ~study ~audit ~force	
	accountConnectionType (act)	origTerm	
AtmIf/<c> Uni Signalling (Sig)	operatingMode	provisionedOnly	
AtmIf/<c> Uni Ilmi	operatingMode	ilmiDisabled	
AtmIf/<c> Vcc/16.32 Nep	applicationName	AtmMpe/<n> Ac/1	
AtmIf/<c> Vcc/16.32 Nep vcd Tm	atmServiceCategory	rtVbr	
	txPacketWiseDiscard	enabled	
	txTrafficDescriptorType	6	
	txTrafficDescriptorParameters	Vector values of: 1 342600 2 342600 3 1	
AtmMpe/<n>	linkToProtocolPort	Vr/VOIP Pp/9K*_CC	
(Sheet 5 of 7)			

Table 49 (Continued)
MG9000 OC-3 link configuration (UA-IP)

Components	Attributes	Configured values	Notes
AtmMpe/<n> Ac/1	atmConnection	AtmIf/<n> Vcc/16.32 nep	
Vr/VOIP Pp/9K<n>_CC	linkToMedia	AtmMpe/<n>	
Vr/VOIP Pp/9K<n>_CC ipport LogicalInterface/ <CC_IPaddr>	netMask	255.255.255 .224	
Vr/VOIP Ip Arp Host/ <CC_IPaddr>,0w	pvc	1	Provision address resolution protocol (ARP) entries for the 16 MG9000 CC IP addresses.
AtmIf/<c> Vcc/16.33 Nep	applicationName	AtmMpe/<n> Ac/1	
AtmIf/<c> Vcc/16.33 Nep vcd Tm	atmServiceCategory	nrtVbr	
	txPacketWiseDiscard	enabled	
	txTrafficDescriptorTyp e	6	
	txTrafficDescriptorPar ameters	Vector values of: 1 5000 2 2358 3 32	
AtmMpe/<n+100>	linkToProtocolPort	Vr/VOIP Pp/ 9K*_OAM	
AtmMpe/<n+100> Ac/1	atmConnection	AtmIf/<n> Vcc/16.33 Nep	

(Sheet 6 of 7)

Table 49 (Continued)
MG9000 OC-3 link configuration (UA-IP)

Components	Attributes	Configured values	Notes
Vr/VOIP Pp/9K<n>_OAM	linkToMedia	AtmMpe/ <n+100>	
Vr/VOIP Pp/9K<n>_OAM ipport LogicalInterface/ <OAM_IPaddr>	netMask	255.255.255 .248	
Vr/VOIP Ip Arp Host/ <OAM_IPaddr>,0	pvc	1	Provision address resolution protocol (ARP) entries for the 2 MG9000 OAM IP addresses.
(Sheet 7 of 7)			

MG9000 STS-1/ DS3 link configuration (UA-IP)

This section presents the configuration of a DS3 ATM link to an MG9000, on Nortel Multiservice Switch 15000 nodes in UA-IP solutions. This is a protected pair of DS3 links on 12-port-DS3 ATM-type FP cards. This type of link is supported for ports 0 through 3 only on these FP cards.

This link requires the use of an optical hairpin, on either a 4-port, OC-12 or OC-3 ATM-type FP card. For more information, see "Hairpin ATM (HAI) interface configuration (UA-IP)" (page 220), and "Hairpin IP (HII) interface configuration (UA-IP)" (page 225).

The MG9000 STS-1/DS3 nodal provisioning (NP) template includes the information from the tables as follows:

- Table 50, "MG9000 STS-1/DS3 link configuration (UA-IP)," (page 209)
- Table 53, "MG9000 Vcc Nrp HAI interface configuration (UA-IP)," (page 224)
- Table 55, "MG9000 Vcc and Vr HII component configuration (UA-IP)," (page 229)

Review the information in Table 50, "MG9000 STS-1/DS3 link configuration (UA-IP)," (page 209) to understand how these links are configured on your nodes.

Table 50
MG9000 STS-1/DS3 link configuration (UA-IP)

Components	Attributes	Configured values	Notes
EM			
LogicalProcessor (Lp)/<n>			
Lp/<n> DS3/<p>	clocking source	module	
	cpbitparity	on	
	mapping	direct	
	linelength	1	
(Sheet 1 of 5)			

Table 50 (Continued)
MG9000 STS-1/DS3 link configuration (UA-IP)

Components	Attributes	Configured values	Notes
	commentText		
AtmInterface (AtmIf)/<c>	interfaceName	Lp/<n> Ds3/<p>	<c> = <n> * 100 + <p>
	remoteAtmInterfaceLabel	GEN/MG9K_<id>	The <id> string uniquely identifies the far end MG9000 in your network.
	oamSegmentBoundary	No	
AtmIf/<c> ConnectionAdministrator (CA)	maxVccs	1230	
	maxAutoSelectedVciForVpiZero	2047	
	minAutoSelectedVciForVpiZero	32	
	maxAutoSelectVpi	15	
	minAutoSelectVpi	1	
	maxAutoSelectedVciForNonVpiZero	2047	
	minAutoSelectedVciForNonVpiZero	32	
	maxVpcs	15	
	maxVpts	0	
	bandwidthPool	Vector values of: 1 100 2 0 3 0	

Table 50 (Continued)
MG9000 STS-1/DS3 link configuration (UA-IP)

Components	Attributes	Configured values	Notes
AtmIf/<c> CA ConstantBitRate (Cbr)	pool	pool1	
	usageParameterControl	disabled	
	UnshapedTransmitQueueing	perVc	
AtmIf/<c> CA RealTimeVariableBitRate (RtVbr)/0	pool	pool1	
	usageParameterControl	disabled	
	cdvt	5000	
	ep	2	
AtmIf/<c> CA NonRealTimeVariableBitRate (NrtVbr)	pool	pool1	
	UsageParameterControl	disabled	
	cdvt	5000	
AtmIf/<c> CA UnspecifiedBitRate (Ubr)	pool	pool1	
	UsageParameterControl	disabled	
AtmIf/<c> EP/2	minBw	5	
AtmIf/<c> EP/4	minBw	5	
AtmIf/<c> UserNetworkInterface (Uni)	version	atmForum40	
	side	network	

(Sheet 3 of 5)

Table 50 (Continued)
MG9000 STS-1/DS3 link configuration (UA-IP)

Components	Attributes	Configured values	Notes
	accountCollection	~bill ~test ~study ~audit ~force	
	accountConnectionType	origTerm	
AtmIf/<c> Uni Signalling (Sig)	operatingMode	provisionedOnly	
AtmIf/<c> Uni Ilmi	operatingMode	ilmiDisabled	
	prefixToRegistrar		
AtmIf/<c> Vcc/16.32 Nrp	nextHop	AtmIf/<HAI> Vcc/0.<vci> Nrp	
AtmIf/<c> Vcc/16.32 Nrp Vcd Tm	atmServiceCategory	rtVbr	
	txPacketWiseDiscard	enabled	
	txTrafficDescriptorType	6	
	txTrafficDescriptorParameters	Vector values are: 1 99000 2 99000 3 1	

(Sheet 4 of 5)

Table 50 (Continued)
MG9000 STS-1/DS3 link configuration (UA-IP)

Components	Attributes	Configured values	Notes
AtmIf/<c> Vcc/16.33 Nrp	nextHop	AtmIf/<HAI> Vcc/ 0.<vci+1> Nrp	
AtmIf/<c> Vcc/16.33 Nrp Vcd Tm	atmServiceCategory	nrtVbr	
	txPacketWiseDiscard	enabled	
	txTrafficDescriptorType	6	
	txTrafficDescriptorParameters	Vector values are: 1 2000 2 1000 3 32	
(Sheet 5 of 5)			

MG9000 DS1-IMA link configuration (UA-IP)

This section presents the configuration of a DS1 inverse multiplexing for ATM (IMA) link to an MG9000 with 8 DS1s in an IMA group, on Nortel Multiservice Switch 15000 nodes in UA-IP solutions.

The MG9000 DS1 IMA link requires the use of an optical hairpin interface, on either a 4-port OC-12 or OC-3 ATM-type card. For more information, see "Hairpin ATM (HAI) interface configuration (UA-IP)" (page 220) and "Hairpin IP (HII) interface configuration (UA-IP)" (page 225).

The MG9000 DS1-IMA template for UA-IP includes the information from the tables as follows:

- Table 51, "MG9000 DS1 IMA link configuration (UA-IP)," (page 214)

- Table 53, "MG9000 Vcc Nrp HAI interface configuration (UA-IP)," (page 224)
- Table 55, "MG9000 Vcc and Vr HII component configuration (UA-IP)," (page 229)

Table 51
MG9000 DS1 IMA link configuration (UA-IP)

Components	Attributes	Configured values	Notes
LP/<n>		4pDS3ChAtm	
Lp/<n> DS3/<p>	clockingSource	module	This attribute defines the type of clocking source used to synchronize the transmit clock.
	cbitParity	on	
	mapping	direct	
	lineLength	1	
	vendor	<customer defined>	
	commentText	<customer defined>	
Lp/<n> DS3/<p> DS1/<i>	clockingSource	sameAsDs3	This attribute defines the type of clocking source used to synchronize the transmit clock.
	lineType	esf	
	zeroCoding	none	
	vendor	<customer defined>	
	commentText	<customer defined>	

(Sheet 1 of 7)

Table 51 (Continued)
MG9000 DS1 IMA link configuration (UA-IP)

Components	Attributes	Configured values	Notes
Lp/<n> DS3/<p> DS1/<i> Chan/0	timeslots	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Chan/0 is defined with all timeslots.
	timeslotDataRate	doNotOverride	
	vendor	<customer defined>	
	commentText	<customer defined>	
Lp/<n> DS3/<p> Ima<x>			<x> is the IMA instance number on the DS3 port.
	linkSelectionCriterion	maxBandwidth	
	maxDiffDelay	25	msec
	linkRetryTimeout	10	seconds
	transmitClockMode	ctc	
	protocol	atmForum10	
Lp/<n> DS3/<p> Ima/<x> Link/<k>	interfaceName	Lp/<n> Ds3/<p> Ds1/<i> Chan/0	An IMA component has 8 link subcomponents. Link/<k> points to a DS1 chan/0 component.
(Sheet 2 of 7)			

Table 51 (Continued)
MG9000 DS1 IMA link configuration (UA-IP)

Components	Attributes	Configured values	Notes
AtmInterface (AtmIf)/<c>	interfaceName	Lp/<n> Ds3/<p> Ima/<x>	<c> is the instance of AtmIf. It is a function of slot number <n>, DS3 port number <p>, and IMA instance <x>. <c> = <n> * 100 + <p> * 20 + <x>
	remoteAtmInterfaceLabel (remoteAtmIf)	GEN/MG9K_<id>	The *-<id>* string uniquely identifies the far end MG9000 in your network.
	oamSegmentBoundary (sb)	no	
AtmIf/<c> EP/2	minBw	5	
AtmIf/<c> EP/4	minBw	5	
AtmIf/<c> ConnectionAdministrator (CA)	maxVccs (vccs)	350	The value must be equal to n * 44, where n is the maximum number of DS1s this interface can support.
(Sheet 3 of 7)			

Table 51 (Continued)
MG9000 DS1 IMA link configuration (UA-IP)

Components	Attributes	Configured values	Notes
	maxAutoSelectedVciForVpiZero (maxVciVpiZero)	2048	*maxAutoSelectedVciforVpiZero* must be less than *numVccsForVpiZero* (the *nZvccs* parameter in *AtmIfConnMap Override (Ov)*. However, for scalability, set *maxAutoSelectedVciforVpiZero* as large as possible.
	minAutoSelectedVciForVpiZero (minVciVpiZero)	32	
	maxAutoSelectVpi (maxVpi)	15	
	minAutoSelectVpi (minVpi)	1	
	maxAutoSelectedVciForNonZeroVpi (maxVciNonZeroVpi)	2048	
	minAutoSelectedVciForNonZeroVpi (minVciNonZeroVpi)	1024	
	maxVpcs (vpcs)	15	
	maxVpts (vpts)	0	
(Sheet 4 of 7)			

Table 51 (Continued)
MG9000 DS1 IMA link configuration (UA-IP)

Components	Attributes	Configured values	Notes
	bandwidthPool (bwPool)	Vector values of: 1 100 2 0 3 0 4 0 5 0	This attribute is a vector value. It consists of an index entry and a decimal entry. The index entry ranges in value from 1 through 5. The decimal entry ranges in value from 0 to 12 800. It sets the percentage of link bandwidth allowed in the bandwidth pool defined by the index entry.
AtmIf/<c> CA RealTimeVariableBitRate (RtVbr)	pool	pool1	
	cdvt	10000	
	ep	2	
	usageParameterControl (upc)	disabled	
AtmIf/<c> CA NonRealTimeVariableBitRate (NrtVbr)	pool	pool1	
	cdvt	10000	
	usageParameterControl (upc)	disabled	

(Sheet 5 of 7)

Table 51 (Continued)
MG9000 DS1 IMA link configuration (UA-IP)

Components	Attributes	Configured values	Notes
AtmIf/<c> UserNetworkInterface (Uni)	accountCollection (aco)	~bill ~test ~study ~audit ~force	
	accountConnectionType (act)	origTerm	
AtmIf/<c> Uni Signalling (Sig)	operatingMode	provisionedOnly	
AtmIf/<c> Uni Ilmi	operatingMode	ilmiDisabled	
AtmIf/<c> Vcc/16.32 Nrp	nextHop	AtmIf<HAI> Vcc/0.<vci> Nrp	
AtmIf/<c> Vcc/16.32 Nrp Vcd Tm	atmServiceCategory	rtVbr	
	txPacketWiseDiscard	enabled	
	txTrafficDescriptorType	6	
	txTrafficDescriptorParameters	Vector values of: 1 2500 2 2500 3 1	
AtmIf/<c> Vcc/16.33 Nrp	nextHop	AtmIf/<HAI> Vcc/ 0.<vci+1> Nrp	
AtmIf/<c> Vcc/16.33 Nrp Vcd Tm	atmServiceCategory	nrtVbr	
	txPacketWiseDiscard	enabled	

(Sheet 6 of 7)

Table 51 (Continued)
MG9000 DS1 IMA link configuration (UA-IP)

Components	Attributes	Configured values	Notes
	txTrafficDescriptorType	6	
	txTrafficDescriptorParameters	Vector values of: 1 667 2 333 3 32	
(Sheet 7 of 7)			

Hairpin ATM (HAI) interface configuration (UA-IP)

This section presents the configuration of a hairpin ATM (HAI) interface on Nortel Multiservice Switch 15000 nodes in UA-IP solutions. This is used by MG9000 interfaces on electrical cards which do not support IP.

Review the following information to understand how these links are configured on your nodes.

Table 52, “Optical hairpin ATM (HAI) interface configuration (UA-IP),” (page 221) documents the components and attributes to provision for the optical Hairpin ATM Interface (HAI).

Table 53, “MG9000 Vcc Nrp HAI interface configuration (UA-IP),” (page 224) documents the Vcc Nrp components for one MG9000. A single hairpin can support many MG9000s, therefore, these components are typically applied several times.

If the MG9000 is on an FP pair that does not support IP (4pDS3ChAtm, 12pDS3Atm, 16pOC3SmIrAtm with ipRoutes = 0), the following is configured on the HII interface and a PVC (for example, two AtmIf vcc nrp components, one on the MG9000 interface, one on the HAI interface) must also be provisioned to ATM switch the ESA IP traffic to the FP card pair that does support IP.

Table 52
Optical hairpin ATM (HAI) interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
EM			
LogicalProcessor (Lp)/<n>			*<n>* is the number of the logical processor you configured.
Lp/<n> Sonet/<p>	clockingSource	module	This attribute defines the type of clocking source used for synchronizing the transmit clock.
	vendor	<customer defined>	
	commentText	<customer defined>	
Laps/<a>	workingLine	Lp/<n> Sonet/<p>	*<a> = <n> * 100 +<p>* *<n>* is the number of the Lp. *<p>* is the number of the port you configured.
	protectionLine	Lp/<n+1> Sonet/<p>	
	signalDegradeRatio	-8	
Laps/<a> Sts	concatNumber	12	For OC-12 only.
Laps/<a> Sts AtmCell	correctSingleBitHeaderErrors	On	
AtmInterface (AtmIf)/<c>	interfaceName	Laps/<a> Sts/0	*<c> = <a>*
	remoteAtmInterfaceLabel (remoteAtmIf)	EM/ <nodeName> atmif/<n>	

(Sheet 1 of 3)

Table 52 (Continued)
Optical hairpin ATM (HAI) interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
	oamSegmentBoundary (sb)	no	
AtmIf/<c> Ep/2	minimumBandwidthGuarantee	5	
AtmIf/<c> Ep/4	minimumBandwidthGuarantee	5	
AtmIf/<c> ConnMap Ov	numVccsForVpiZero	16384	For 4pOC-12 only.
AtmIf/<c> ConnectionAdministrator (CA)	maxVccs (vccs)	3250/13000	For OC-3 /OC-12. *maxVccs* must be greater than or equal to the difference between *maxAutoSelectedVciforVpiZero* and *minAutoSelectedVciforVpiZero*.
	maxAutoSelectedVciForVpiZero (maxVciVpiZero)	4095/16383	For OC-3/OC-12. *maxAutoSelectedVci-ForVpiZero* must be less than *numVccs-ForVpiZero* (*nZvccs* in *AtmIfConnMap Override (Ov)*. However, for scalability, set *maxAutoSelect-edVciforVpiZero* as large as possible.
	minAutoSelectedVciForVpiZero (minVciVpiZero)	2048	
	maxVpcs (vpcs)	0	

(Sheet 2 of 3)

Table 52 (Continued)
Optical hairpin ATM (HAI) interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
	maxVpts (vpts)	0	
	bandwidthPool (bwPool)	Vector values of: 1 100 2 0 3 0	This attribute is a vector value. This vector consists of an index entry and a decimal entry. The index entry ranges in value from 1 through 5. The decimal entry ranges in value from 0 to 12 800. It sets the percentage of link bandwidth allowed in the bandwidth pool defined by the index entry.
AtmIf/<c> CA RealTimeVariableBitRate (rtVbr)	emissionPriority (ep)	2	
	cdvt	5000	
	usageParameterControl (upc)	disabled	
AtmIf/<c> CA NonRealTimeVariableBitRate (NrtVbr)	cdvt	5000	
	usageParameterControl (upc)	disabled	

(Sheet 3 of 3)

Table 53, “MG9000 Vcc Nrp HAI interface configuration (UA-IP),” (page 224) documents the configuration of Vcc Nrp components for one MG9000.

Table 53
MG9000 Vcc Nrp HAI interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
AtmIf/<HAI> Vcc/0.<vci> Nrp	nextHop	AtmIf/<MG> Vcc/16.32 Nrp	
AtmIf/<HAI> Vcc/0.<vci> Nrp Vcd Tm	atmServiceCategory	rtVbr	
	txPacketWiseDiscard	enabled	
	txTrafficDescriptorType	6	
	txTrafficDescriptorParameters	<customer defined>	Values depend on whether the MG9000 is IMA or DS3.
AtmIf/<HAI> Vcc/0.<vci+1> Nrp	nextHop	AtmIf/<MG> Vcc/16.33 Nrp	
AtmIf/<HAI> Vcc/0.<vci+1> Nrp Vcd Tm	atmServiceCategory	nrtVbr	
	txPacketWiseDiscard	enabled	
	txTrafficDescriptorType	6	
	txTrafficDescriptorParameters	<customer defined>	Values depend on whether the MG9000 is IMA or DS3.

Hairpin IP (HII) interface configuration (UA-IP)

This section presents the configuration of an optical hairpin IP (HII) interface to an MG9000 on Nortel Multiservice Switch 15000 nodes in UA-IP solutions. This is used by MG9000 interfaces on electrical cards that do not support IP.

Table 54, "Optical hairpin IP interface (HII) configuration (UA-IP)," (page 225) documents the components and attributes to provision for the optical Hairpin IP Interface (HII). It provides this information for OC-3 and OC-12.

Table 55, "MG9000 Vcc and Vr HII component configuration (UA-IP)," (page 229) documents the Vcc, AtmMpe and Vr components required to support one MG9000. A single hairpin can support many MG9000, therefore, you would typically apply these components several times. You can create a separate nodal provisioning (NP) template to do this.

Review the following information to understand how these links were configured on your nodes in a UA-IP solution.

If the MG9000 is on an FP pair that does not support IP (4pDS3ChAtm, 12pDS3Atm, 16pOC3SmIrAtm with ipRoutes = 0), the following is configured on the HII interface and a PVC (for example, two AtmIf vcc nrp components, one on the MG9000 interface, one on the HAI interface) must also be provisioned to ATM switch the ESA IP traffic to the FP card pair that does support IP.

Table 54
Optical hairpin IP interface (HII) configuration (UA-IP)

Components	Attributes	Configured values	Notes
EM			
LogicalProcessor (Lp)/<n>			*<n>* is the number of the logical processor you configured.
(Sheet 1 of 4)			

Table 54 (Continued)
Optical hairpin IP interface (HII) configuration (UA-IP)

Components	Attributes	Configured values	Notes
Lp/<n> Sonet/<p>	clockingSource	module	This attribute defines the type of clocking source used for synchronizing the transmit clock. <*p*> is the number of the port you configured.
	vendor	<customer defined>	
	commentText	<customer defined>	
Laps<a>	workingLine	Lp/<n> Sonet/<p>	<a> = <n> * 100 + <p>
	protectionLine	Lp/<n+1> Sonet/<p>	
	signalDegradeRatio	-8	
Laps<a> Sts	concatNumber	12	For OC-12 only.
Laps<a> Sts AtmCell	correctSingleBitHeaderErrors	On	
AtmInterface (AtmIf)/<c>	interfaceName	Laps/ <n*100+p> Sts/0	<c> = <a>
	remoteAtmInterfaceLabel (remoteAtmIf)	EM/ <nodeName> atmif/<n>	
	oamSegmentBoundary (sb)	no	
AtmIf/<c> Ep/2	minimumBandwidthGuarantee	5	

(Sheet 2 of 4)

Table 54 (Continued)
Optical hairpin IP interface (HII) configuration (UA-IP)

Components	Attributes	Configured values	Notes
AtmIf/<c> Ep/4	minimumBandwidthGuarantee	5	
AtmIf/<c> ConnMap Ov	numVccsForVpiZero	16384	For 4pOC-12 only.
AtmIf/<c> ConnectionAdministrator (CA)	maxVccs (vccs)	3250 13000	For OC-3. For OC-12. *maxVccs* must be greater than or equal to the difference between *maxAutoSelectedVcifor VpiZero* and *minAutoSelectedVcifor VpiZero*.
	maxAutoSelectedVciFor VpiZero (maxVciVpiZero)	4095 16383	For OC-3. For OC-12. *maxAutoSelectedVcifor VpiZero* must be less than *numVccsForVpiZero* (*nZvccs* parameter in *AtmIfConnMap Override (Ov)*). However, for scalability, set *maxAutoSelectedVcifor VpiZero* as large as possible.
	minAutoSelectedVciForVpiZero (minVciVpiZero)	2048	
	maxVpcs (vpcs)	0	
	maxVpts (vpts)	0	

(Sheet 3 of 4)

Table 54 (Continued)
Optical hairpin IP interface (HII) configuration (UA-IP)

Components	Attributes	Configured values	Notes
	bandwidthPool (bwPool)	Vector values of: 1 100 2 0 3 0	This attribute is a vector value. This vector consists of an index entry and a decimal entry. The index entry ranges in value from 1 through 5. The decimal entry ranges in value from 0 to 12 800. It sets the percentage of link bandwidth allowed in the bandwidth pool defined by the index entry.
AtmIf/<c> CA RealTimeVariableBitRate (RtVbr)	emissionPriority (ep)	2	
	cdvt	5000	
	usageParameterControl (upc)	Disabled	
AtmIf/<c> CA NonRealTimeVariableBitRate (NrtVbr)	cdvt	5000	
	usageParameterControl (upc)	Disabled	
(Sheet 4 of 4)			

Table 55, "MG9000 Vcc and Vr HII component configuration (UA-IP)," (page 229) documents the Vcc Nrp components for one MG9000. A single hairpin can support many MG9000.

Table 55
MG9000 Vcc and Vr HII component configuration (UA-IP)

Components	Attributes	Configured values	Notes
AtmIf/<c> Vcc/0.<vci> Nep	applicationName	AtmMpe/<n> Ac/1	
AtmIf/<c> Vcc/0.<vci> vcd Tm	atmServiceCategory	nrtVbr	
	txPacketWiseDiscard	enabled	
	txTrafficDescriptorType	6	
	txTrafficDescriptorParameters		Values depend on whether MG9000 is IMA or DS3
AtmMpe/<n>	linkToProtocolPort	Vr/VOIP Pp/9k*_CC	
AtmMpe/<n> Ac/1	atmConnection	AtmIf/<HII> Vcc/0.<vci> nep	
Vr/VOIP Pp/9K<n>_CC	linkToMedia	AtmMpe/<n>	
Vr/VOIP Pp/9K<n>_CC ipport LogicalInterface/<CC_IPaddr>	netMask	255.255.255.224	
Vr/VOIP IP Arp Host/<CC_IPaddr>	pvc	1	Provision address resolution protocol (ARP) entries for the 16 MG9000 CC IP addresses
AtmIf/<c> Vcc/0.<vci+1> Nep	applicationName	AtmMpe/<n+100> Ac/1	

(Sheet 1 of 2)

Table 55 (Continued)
MG9000 Vcc and Vr HII component configuration (UA-IP)

Components	Attributes	Configured values	Notes
AtmIf/<c> Vcc/0.<vci+1> vcd Tm	atmServiceCategory	nrtVbr	
	txPacketWiseDiscard	enabled	
	txTrafficDescriptorType	6	
	txTrafficDescriptorParameters		Depends on whether the MG9000 is IMA or DS3.
AtmMpe/<n+100>	linkToProtocolPort	Vr/VOIP Pp/9K*_OAM	
AtmMpe/<n+100> Ac/1	atmConnection	AtmIf/<HII> Vcc/ 0.<vci+1> nep	
Vr/VOIP Pp/9K<n>_OAM	linkToMedia	AtmMpe/ <n+100>	
Vr/VOIP Pp/9K<n>_OAM ipport LogicalInterface/ <OAM_IPaddr>	netMask	255.255.255 .248	
Vr/VOIP IP Arp Host/ <OAM_IPaddr>	pvc	1	Provision ARP entries for the 2 MG9000 OAM IP addresses
(Sheet 2 of 2)			

The template for a single hairpin includes the following information from the tables:

- Table 52, "Optical hairpin ATM (HAI) interface configuration (UA-IP)," (page 221)

- Table 54, "Optical hairpin IP interface (HII) configuration (UA-IP)," (page 225)

Media Gateway 15000-specific interface configuration (UA-IP)

This section describes the configuration of time division multiplexing (TDM) trunks and trunk profiles, as follows, on Nortel Multiservice Switch 15000 Media Gateway 15000s in UA-IP solutions:

- "TDM OC-3 interface configuration (UA-IP)" (page 231)
- "TDM OC-3 VSP3-o interface configuration (UA-IP)" (page 233)
- "MGC - H.248 (VSP3) interface configuration (UA-IP)" (page 234)
- "MGC - H.248 (VSP3-o) interface configuration (UA-IP)" (page 237)

TDM OC-3 interface configuration (UA-IP)

This section presents the configuration of an interface to optical carrier level 3 (OC-3) time division multiplexing (TDM), on Nortel Multiservice Switch 15000 Media Gateway in UA-IP solutions.

This configuration provisions a LAPS-protected pair of synchronous optical network (SONET) ports on 4pOC3ChSmIr FP cards.

Review the following information to understand how these interfaces are configured on your Media Gateway nodes.

Table 56
TDM OC-3 interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
EM			
Lp/<n> Sonet/<p> Lp/<n+1> Sonet/<p>	clockingSource	module	This attribute defines the type of clocking source used for synchronizing the transmit clock.

(Sheet 1 of 2)

Table 56 (Continued)
TDM OC-3 interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
	vendor	<customer defined>	
	commentText	<customer defined>	
Laps<nnpp>	workingLine	Lp/<n> Sonet/<p>	
	protectionLine	Lp/<n+1> Sonet/<p>	
	signalDegradeRatio	-8	

(Sheet 2 of 2)

TDM OC-3 VSP3-o interface configuration (UA-IP)

This section presents the configuration of an interface to optical carrier level 3 (OC-3) time division multiplexing (TDM) on Nortel Multiservice Switch 15000 Media Gateway in UA-IP solutions.

This configuration provisions a LAPS-protected pair of synchronous optical network (SONET) ports on 2pOC3ChSmIrVsp3 FP cards. Review Table 57, "TDM OC-3 VSP3-o interface configuration (UA-IP)," (page 233) to understand how these interfaces are configured on your Media Gateway nodes.

Table 57
TDM OC-3 VSP3-o interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
EM			
Lp/<n> Sonet/<p> Lp/<n+1> Sonet/<p>	clockingSource	module	Only port 0 is supported on this card. This attribute defines the type of clocking source used for synchronizing the transmit clock.
	vendor	<customer defined>	
	commentText	<customer defined>	
Laps<nnpp>	workingLine	Lp/<n> Sonet/<p>	
	protectionLine	Lp/<n+1> Sonet/<p>	
	signalDegradeRatio	-8	

MGC - H.248 (VSP3) interface configuration (UA-IP)

This section presents the configuration of an interface to a Media Gateway Controller (MGC), using H.248, on Nortel Multiservice Switch 15000 Media Gateway 15000s in UA-IP solutions.

This configuration uses H.248, the ITU-T gateway control protocol, as the control interface between the MGC and the Multiservice Switch Media Gateway. It provisions the NSTA component structure with an IP interface to the MGC on 2pGeMmSrVsp3 FP cards.

Review Table 58, "MGC-H248 (VSP3) interface configuration (UA-IP)," (page 234) to understand how these links are configured on your nodes.

Table 58
MGC-H248 (VSP3) interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
Lp<n> Vsp	linkToApplication	Nsta/<n>	
Lp<n> Vsp PModule/1-3	moduleType	spm	
Lp<n> Vsp PModule/4-24	moduleType	vpm	
Nsta/<n>	linkToServer	Lp/<n>Vsp	
Nsta/<n> Vgs	defaultToneSet	canadaUsa	
	hostname	<customer defined>	Must match the value in the associated GWC. If the *hostname* value changes, calls are torn down.
	gatewayAtmAddress		Is auto-populated by the system because *nodePrefix* is defined. If the *gatewayAtmAddress* value changes, calls are torn down.

(Sheet 1 of 3)

Table 58 (Continued)
MGC-H248 (VSP3) interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
Nsta/<n> Vgs PktProf/0	digitTransport	relay	
	stateChangeSignallingMode	itu	
Nsta/<n> Vgs H248/0	mgMid	[<Ctrl/mg ipAddress>]: 2944	
	udpPortConnection	Nsta/<n> Vgs Ctrl/mg UdpPort/ 2944	
	mgcList	Nsta/<n> Vgs Mgc/0	Attribute type is List of Link. NP application requires user input.
Nsta/<n> Vgs Mgc/0	initialMgcAddress	<customer defined>	
	mgList	Nsta/<n> Vgs H248/0	Attribute type is List of Link, but set from other side. No user input required.
Nsta/<n> Vgs Ctrl/mg	ipAddress	<customer defined>	
Nsta/<n> Vgs Ctrl/mg Vrap	subnetAccessName	Vr/VOIP PP/ NSTA<n>_ MG Ipp LogicalIf/ <ipaddress>	
Nsta/<n> Vgs Ctrl/mg UdpPort/2944	linkToApplication	Nsta/<n> Vgs H248/0	
Vr/VOIP PP/NSTA<n>_MG	linkToMedia	Vm/<v> If/0	
(Sheet 2 of 3)			

Table 58 (Continued)
MGC-H248 (VSP3) interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
Vm/<v> If/0	linkToProtocolPort	Vr/VOIP PP/NSTA<n>_MG	
Vr/VOIP PP/NSTA<n>_MG Ipp LogicalIf/<ipaddress>	netMask	255.255.255.252	
Nsta/<n> Vgs IpMConn	ipAddress	<customer defined>	
Nsta/<n> Vgs IpMConn Vrap	subnetAccessName	Vr/VOIP PP/NSTA<n>_IPMCONN Ipp LogicalIf/<ipaddress>	
Vr/VOIP PP/NSTA<n>_IPMCONN	linkToMedia	Vm/<w> If/0	
Vm/<w> If/0	linkToProtocolPort	Vr/VOIP PP/NSTA<n>_IPMCONN	
Vr/VOIP PP/NSTA<n>_IPMCONN Ipp LogicalIf/<ipaddress>	netMask	255.255.255.252	
Nsta/<n> Vgs FaxRelayOverIp (create only)			
Nsta/<n> Vgs DigitCollection (create only)			
Nsta/<n> Vgs BragS/0	localAddress	<customer defined>	Use the auto-default. If more than one is needed, add them manually.

(Sheet 3 of 3)

MGC - H.248 (VSP3-o) interface configuration (UA-IP)

This section presents the configuration of an interface to a Media Gateway Controller (MGC) using an optical link and H.248 on Nortel Multiservice Switch 15000 nodes in UA-IP solutions.

This configuration uses H.248, the ITU-T gateway control protocol, as the control interface between the MGC and the Multiservice Switch Media Gateway. It provisions the NSTA component structure with an IP interface to the MGC on 2pOC3ChSmIrVsp3 FP cards.

NSTA component instances must match the lower card slot number of the VSP FP pair.

Review Table 59, "MGC-H248 (VSP3-o) interface configuration (UA-IP)," (page 237) to understand how these interfaces are configured on your nodes.

If you have elected to implement IPSec security, configuration of the interface to the MGC for call control connections between a switched MG node and an MGC in a Voice over IP (VoIP) is also included in Table 59, "MGC-H248 (VSP3-o) interface configuration (UA-IP)," (page 237) for the SecurityPolicyDatabase (spd) component. The spd component is a sub-component of the Nsta component's ctrl/mg component. Refer to the following for more information about Media Gateway services:

- NN10600-780 *Nortel Media Gateway 7480/15000 Technology Fundamentals*
- NN10600-782 *Nortel Media Gateway 7480/15000 Switched Service Configuration Management*

Table 59
MGC-H248 (VSP3-o) interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
Dlep/<n/2> Vsp	linkToApplication	Nsta/<n>	
Dlep/<n/2> Vsp PModule/1	moduleType	spm	
(Sheet 1 of 9)			

Table 59 (Continued)
MGC-H248 (VSP3-o) interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
Dlep/<n/2> Vsp PModule/2-23	moduleType	vpm	
Nsta/<n>	linkToServer	Dlep/<n/2>Vsp	
Nsta/<n> Vgs	defaultToneSet	canadaUsa	
	hostname	<customer defined>	Must match the value in the associated GWC. If the *hostname* value changes, calls are torn down.
	gatewayAtmAddress	N/A	Is auto-populated by the system because *nodePrefix* is defined. It the *gatewayAtmAddress* value changes, calls are torn down.
Nsta/<n> Vgs PktProf	digitTransport	relay	
	stateChangeSignalingMode	itu	
Nsta/<n> Vgs H248/0	mgMid	[<Ctrl/mg ipAddress]:2944	
	udpPortConnection	Nsta/<n> Vgs Ctrl/mg UdpPort/2944	
	mgcList	Nsta/<n> Vgs Mgc/0	Attribute type is List of Link. NP application requires user input.

(Sheet 2 of 9)

Table 59 (Continued)
MGC-H248 (VSP3-o) interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
Nsta/<n> Vgs Mgc/0	initialMgcAddress	<customer defined>	
	mgList	Nsta/<n> Vgs H248/0	Attribute type is List of Link, but set from the other side. No user input required.
Nsta/<n> Vgs Ctrl/mg	ipAddress	<customer defined>	
Nsta/<n> Vgs Ctrl/mg Vrap	subnetAccessName	Vr/VOIP PP/ NSTA<n>_ MG IppLogicalIf/ <ipaddress>	
Nsta/<n> Vgs Ctrl/mg UdpPort/2944	linkToApplication	Nsta/<n> Vgs H248/0	
Nsta/<n> Vgs Ctrl/mg spd/mg			MGC-H248 (VSP3-o) IPSec protected interface component configuration for the implementation of IPSec security on call control connections between a switched MG node and an MGC. The *IF-MGC-IPSEC-2pOC3ChSmIrVsp3-o* template contains the required input.
Nsta/<n> Vgs Ctrl/mg SPD/mg IkeProposal/1			Used for MGC-H248 (VSP3-o) IPSec protected interface component configuration.
(Sheet 3 of 9)			

Table 59 (Continued)
MGC-H248 (VSP3-o) interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
Nsta/<n> Vgs Ctrl/mg SPD/mg IkeProposal/1 IkeTransform/1	authMethod	preshared	Used for MGC-H248 (VSP3-o) IPSec protected interface component configuration.
	encryptAlgorithm	des	
	hashAlgorithm	sha1	
	diffieHellmanGroup	gp2	
	saTimeToLive	86400	
Nsta/<n> Vgs Ctrl/mg SPD/mg IkePolicy/1	remoteIpAddress	[<Ctrl/mg ipAddress>]	Used for MGC-H248 (VSP3-o) IPSec protected interface component configuration.
	description	IkeCCPolicy	
	ikePresharedKey	<customer defined>	You must supply this value. The value must match the corresponding provisioning on the MGC IKE provisioning.
	ikeProposal	Nsta/<n> Vgs Ctrl/mg SPD/mg IkeProposal/1	
Nsta/<n> Vgs Ctrl/mg SPD/mg SecurityAssociationProposal/1			Used for MGC-H248 (VSP3-o) IPSec protected interface component configuration.
(Sheet 4 of 9)			

Table 59 (Continued)
MGC-H248 (VSP3-o) interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
Nsta/<n> Vgs Ctrl/mg SPD/mg SecurityAssociationProposal/ 1SecurityAssociationTransform /1	encryptAlgorithm	null	Used for MGC-H248 (VSP3-o) IPSec protected interface component configuration.
	hashAlgorithm	sha1	
	replayProtection	on	
	saTimeToLive	28800	
	perfectForwardSecrecy	none	
Nsta/<n> Vgs Spd/mg policy/1	srcIpAddress[2]	[< Nsta/<n> Vgs Mgc/0 intialMgcAd dress>]	Used for MGC-H248 (VSP3-o) IPSec protected interface component configuration.
	dstIpAddress[2]	[<Nsta/<n> Vgs Ctrl/mg ipAddress>]	
	protocol	udp	
	srcPort	2944	
	dstPort	2944	
	direction	inbound	
	action	apply	
	description	inboundCCP olicy	
	ikePolicy	Nsta/<n> Vgs Ctrl/mg SPD/mg IkePolicy/1	
(Sheet 5 of 9)			

Table 59 (Continued)
MGC-H248 (VSP3-o) interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
	saProposals	Nsta/<n> Vgs Ctrl/mg SPD/mg SecurityAssociationProposal/1	
Nsta/<n> Vgs SPD/mg policy/2	srcIpAddress[2]	[<Nsta/<n> Vgs Ctrl/mg ipAddress>]	Used for MGC-H248 (VSP3-o) IPSec protected interface component configuration.
	dstIpAddress[2]	[< Nsta/<n> Vgs Mgc/0 intialMgcAddress>]	
	protocol	udp	
	srcPort	2944	
	dstPort	2944	
	direction	outbound	
	action	apply	
	description	outboundCCPolicy	
	ikePolicy	Nsta/<n> Vgs Ctrl/mg SPD/mg IkePolicy/1	
	saProposals	Nsta/<n> Vgs Ctrl/mg SPD/mg SecurityAssociationProposal/1	
(Sheet 6 of 9)			

Table 59 (Continued)
MGC-H248 (VSP3-o) interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
Nsta/<n> Vgs Spd/mg policy/3	srcIpAddress[2]	Default	Used for MGC-H248 (VSP3-o) IPSec protected interface component configuration to provide Ping support on IPSec (VSP3-o)protected interface interface. The *IF-MGC-IPSEC-ping-2pOC3ChSmIrVsp3-o* template is used to configure the policy components.
	dstIpAddress[2]	[<Ctrl/mg ipAddress>]	
	protocol	icmp	
	direction	inbound	
	action	bypass	
	description	inboundPing Policy	
(Sheet 7 of 9)			

Table 59 (Continued)
MGC-H248 (VSP3-o) interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
Nsta/<n> Vgs SPD/mg policy/4	srcIpAddress[2]	[<Ctrl/mg ipAddress>]	Used for MGC-H248 (VSP3-o) IPSec protected interface component configuration to provide Ping support on IPSec (VSP3-o)protected interface interface. The *IF-MGC-IPSEC-ping-2pOC3ChSmIrVsp3-o* template is used to configure the policy components.
	dstIpAddress[2]	Default	
	protocol	icmp	
	direction	outbound	
	action	bypass	
	description	outboundPingPolicy	
Vr/VOIP PP/NSTA<n>_MG	linkToMedia	Vm/<v> If/0	
Vm/<v> If/0	linkToProtocolPort	Vr/VOIP PP/NSTA<n>_MG	
Vr/VOIP PP/NSTA<n>_MG Ipp LogicalIf/<ipaddress>	netMask	255.255.255.252	
Nsta/<n> Vgs IpMConn	ipAddress	<customer defined>	

(Sheet 8 of 9)

Table 59 (Continued)
MGC-H248 (VSP3-o) interface configuration (UA-IP)

Components	Attributes	Configured values	Notes
Nsta/<n> Vgs IpMConn Vrap	subnetAccessName	Vr/VOIP PP/ NSTA<n>_ IPMCONN IppLogicalIf/ <ipaddress>	
Vr/VOIP PP/ NSTA<n>_IPMCONN	linkToMedia	Vm/<w> If/0	
Vm/<w> If/0	linkToProtocolPort	Vr/VOIP PP/ NSTA<n>_ IPMCONN	
Vr/VOIP PP/ NSTA<n>_IPMCONN Ipp LogicalIf/<ipaddress>	netMask	255.255.255 .252	
Nsta/<n> Vgs FaxRelayOverIp			Create only.
Nsta/<n> Vgs DigitCollection			Create only.
Nsta/<n> Vgs TdmNetworkProf/0			Create only. If more than one is needed, add manually.
(Sheet 9 of 9)			

TDM trunk configuration (UA-IP)

This section presents the configuration of time division multiplexing (TDM) trunks for Nortel Multiservice Switch 15000 Media Gateway in UA-IP solutions. It addresses three types of TDM trunks:

- ISUP
- primary rate interface (PRI)
- PTS

This section includes the following topics:

TDM trunk preparation - LAP STS (UA-IP)

This section presents the configuration of the line automatic protection switching (LAPS) Synchronous Transport Signal (STS) components needed for time division multiplexing (TDM) trunks on Nortel Multiservice Switch 15000 Media Gateway in UA-IP solutions.

The TDM trunks must be provisioned on a TDM function processor (FP) card, either 4pOC3ChSmIr (TDM) or 2pOC3ChSmIrVsp3 (VSP3o). This configuration provisions a LAPS STS on the FPs.

Review Table 60, "VSP3 cards - TDM trunk preparation - LAPS STS (UA-IP)," (page 247) to understand how these trunk preparations are configured on your Media Gateway nodes.

Table 60
VSP3 cards - TDM trunk preparation - LAPS STS (UA-IP)

Components	Attributes	Configured values	Notes
Laps/<nnmm> Sts/<v>			Create only.

TDM ISUP trunk (VSP3-o) configuration (UA-IP)

This section presents the configuration of a time division multiplexing (TDM) ISUP trunk on Nortel Multiservice Switch 15000 Media Gateway 15000 in UA-IP solutions.

This configuration provisions a TDM ISUP trunk on 2pOC3ChSmIrVsp3 function processor (FP) cards.

Review Table 61, "TDM ISUP trunk (VSP3-o) configuration (UA-IP)," (page 248) to understand how these trunks are configured on your Media Gateway nodes.

Table 61
TDM ISUP trunk (VSP3-o) configuration (UA-IP)

Components	Attributes	Configured values	Notes
Laps/<nnmm> Sts/<v> Vt1dot5/<x>,<y> Ds1 Chan/0	linkToApplication	Nsta/<n> Vgs Tag/<t>	<v> ranges in value from 0 through 2. \<x> ranges in value from 1 through 7. \<y> ranges in value from 1 through 4.
	timeslots	<all 24>	
Nsta/<n> Vgs Tag/<t>			Instance range is 0 through 16777215. Suggested naming convention is <nnmmvxy>.
(Sheet 1 of 2)			

Table 61 (Continued)
TDM ISUP trunk (VSP3-o) configuration (UA-IP)

Components	Attributes	Configured values	Notes
	interfaceName	Laps/ <nnmm> Sts/<v> Vt1dot5/ <x>,<y> Ds1 Chan/0	
	profile	Nsta/<n> Vgs TProf/0	
(Sheet 2 of 2)			

TDM ISUP trunk (VSP3) configuration (UA-IP)

This section presents the configuration of a time division multiplexing (TDM) ISUP trunk on Nortel Multiservice Switch 15000 Media Gateway in UA-IP solutions. On VSP3 FP cards, ISUP and primary rate interface (PRI) trunk settings are common.

This configuration provisions an ISUP trunk on a 2pGeMmSrVsp3 function processor (FP) card.

The Vt1Dot5 hierarchy and associated links must not have been configured previously.

Review Table 62, "TDM ISUP trunk (VSP3) configuration (UA-IP)," (page 250) to understand how these trunks are configured on your nodes.

Table 62
TDM ISUP trunk (VSP3) configuration (UA-IP)

Components	Attributes	Configured values	Notes
Laps/<nnmm> Sts/<v> Vt1dot5/<x>,<y> Ds1 Chan/0..4	linkToApplication	Aal1Ces/ <a>	<v> ranges in value from 0 through 2. <x> ranges in value from 1 through 7. <y> = 1
	timeslots	<all 24>	
Laps/<nnmm> Sts/<v> Vt1dot5/<x>,<y> Ds1 Chan/0 Tc			Create only.
Aal1Ces/<a>	interfaceName	Laps/ <nnmm> Sts/<v> Vt1dot5/ <x>,<y> Ds1 Chan/0..4	Instance range is 1 through 65535.
	serviceType	basicStructured	
	remoteEndtype	pvgExclusivePrs	
Aal1Ces/<a> Aep	addressToCall	<value of Nsta/<n> Vgs BragS/0 localAddress>	

TDM PRI trunk profile (VSP3-o) configuration (UA-IP)

This section presents the configuration of a time division multiplexing (TDM) primary rate interface (PRI) trunk profile on Nortel Multiservice Switch 15000 Media Gateway in UA-IP solutions.

This configuration provisions a trunk profile on 2pOC3ChSmIrVsp3 function processor (FP) cards. A PRI trunk profile is common to all PRI trunks on a VSP3-o FP.

The Vt1Dot5 hierarchy and associated links must not have been configured previously.

Review Table 63, "TDM PRI trunk profile (VSP3-o) configuration (UA-IP)," (page 251) to understand how these TDM trunk profiles are configured on your nodes.

Table 63
TDM PRI trunk profile (VSP3-o) configuration (UA-IP)

Components	Attributes	Configured values	Notes
Nsta/<n> Vgs Ctrl/sg	ipAddress	<customer defined>	
Nsta/<n> Vgs Ctrl/sg Vrap	subnetAccessName	Vr/<VOIP> PP/ NSTA<n>_SG Ipp LogicalIf/ <ipaddress>	
Nsta/<n> Vgs Ctrl/sg SctpPort/9900	linkToApplication	Nsta/<n> Vgs Iua	
Vr/<VOIP> PP/NSTA<n>_SG	linkToMedia	Vm/<v> If/0	
Vm/<v> If/0	linkToProtocolPort	Vr/<VOIP> PP/ NSTA<n>_SG	
Vr/<VOIP> PP/NSTA<n>_SG Ipp LogicalIf/<ipaddress>	netMask	255.255.255 .252	

(Sheet 1 of 2)

Table 63 (Continued)
TDM PRI trunk profile (VSP3-o) configuration (UA-IP)

Components	Attributes	Configured values	Notes
Nsta/<n> Vgs Iua	sctpPortConnection	Nsta/<n> Vgs Ctrl/sg SctpPort/ 9900	
Nsta/<n> Vgs Q921Prof/0			Create only.
(Sheet 2 of 2)			

TDM PRI trunk (VSP3-o) configuration (UA-IP)

This section presents the configuration of a time division multiplexing (TDM) primary rate interface (PRI) trunk on Nortel Multiservice Switch 15000 nodes in UA-IP solutions.

This configuration provisions a trunk on 2pOC3ChSmIrVsp3 function processor (FP) cards.

The Ctrl/SG hierarchy and associated links must not have been configured previously.

Review Table 64, "TDM PRI trunk configuration (VSP3-o) (UA-IP)," (page 253) to understand how these trunks are configured on your nodes.

Table 64
TDM PRI trunk configuration (VSP3-o) (UA-IP)

Components	Attributes	Configured values	Notes
Laps/<nnmm> Sts/<v> Vt1dot5/<x>,<y> Ds1 Chan/0	linkToApplication	Nsta/<n> Vgs Tag/<t>	*<v>* ranges in value from 0 through 2. *<x>* ranges in value from 1 through 7. *<y>* ranges in value from 1 through 4.
	timeslots	<1 to 23>	
Nsta/<n> Vgs Tag/<t>	interfaceName	Laps/ <nnmm> Sts/<v> Vt1dot5/ <x>,<y> Ds1 Chan/0	Instance range is 0 through 16777215. Suggested naming convention is *<nnmmvxy>*.
	profile	Nsta/<n> Vgs TdmNetProf/ 0	

(Sheet 1 of 2)

Table 64 (Continued)
TDM PRI trunk configuration (VSP3-o) (UA-IP)

Components	Attributes	Configured values	Notes
Laps/<nnmm> Sts/<v> Vt1dot5/<x>,<y> Ds1 Chan/1	linkToApplication	Nsta/<n> Vgs Q921/ <q>	
	timeslots	24	
Nsta/<n> Vgs Q921/<q>	interface name	Laps/ <nnmm> Sts/<v> Vt1dot5/ <x>,<y> Ds1 Chan/1	Instance range is 0 through 83. Therefore, there can be up to 84 instances per OC-3.
	profile	Nsta/<n> Vgs Q921Prof/0	

(Sheet 2 of 2)

TDM PRI trunk profile (VSP3) configuration (UA-IP)

This section presents the configuration of a primary rate interface (PRI) trunk profile on Nortel Multiservice Switch 15000 Media Gateway 15000 in UA-IP solutions. A trunk profile is common to all PRI trunks on a VSP3 FP card.

This configuration provisions a PRI trunk profile on a 2pGeMmSrVsp3 function processor (FP) card.

The Ctrl/SG hierarchy and associated links must not have been configured previously.

Review Table 65, "TDM PRI trunk profile (VSP3) configuration (UA-IP)," (page 255) to understand how these trunk profiles are configured on your nodes.

Table 65
TDM PRI trunk profile (VSP3) configuration (UA-IP)

Components	Attributes	Configured values	Notes
Nsta/<n> Vgs Ctrl/sg	ipAddress	<customer defined>	
Nsta/<n> Vgs Ctrl/sg Vrap	subnetAccessName	Vr/<VOIP> PP/ NSTA<n>_ SG Ipp LogicalIf/ <ipaddress>	
Nsta/<n> Vgs Ctrl/sg SctpPort/9900	linkToApplication	Nsta/<n> Vgs Iua	
Vr/<VOIP> PP/NSTA<n>_SG	linkToMedia	Vm/<v> If/0	
Vm/<v> If/0	linkToProtocolPort	Vr/<VOIP> PP/ NSTA<n>_ SG	
Vr/<VOIP> PP/NSTA<n>_SG Ipp LogicalIf/<ipaddress>	netMask	255.255.255 .252	

(Sheet 1 of 2)

Table 65 (Continued)
TDM PRI trunk profile (VSP3) configuration (UA-IP)

Components	Attributes	Configured values	Notes
Nsta/<n> Vgs Iua	sctpPortConnection	Nsta/<n> Vgs Ctrl/sg SctpPort/ 9900	
Nsta/<n> Vgs BragS/1	localAddress	<NSAP address>	ISUP uses *BragS/0*. If more are needed, they are added manually.
	eCan	alwaysOn	
Nsta/<n> Vgs BragS/1 Q921	side	N/A	Use default value of network.
(Sheet 2 of 2)			

TDM PRI trunk (VSP3) configuration (UA-IP)

This section presents the configuration of a time division multiplexing (TDM) PRI trunk on Nortel Multiservice Switch 15000 Media Gateway in UA-IP solutions. On VSP3 FP cards, ISUP and primary rate interface (PRI) trunk settings are common.

This configuration provisions a PRI trunk on a 2pGeMmSrVsp3 function processor (FP) card.

The Vt1Dot5 hierarchy and associated links must not have been configured previously.

Review Table 66, "TDM PRI trunk (VSP3) configuration (UA-IP)," (page 257) to understand how these trunks are configured on your nodes.

Table 66
TDM PRI trunk (VSP3) configuration (UA-IP)

Components	Attributes	Configured values	Notes
Laps/<nnmm> Sts/<v> Vt1dot5/<x>,<y> Ds1 Chan/0..4	linkToApplication	Aal1Ces/ <a>	*<v>* ranges in value from 0 through 2 *<x>* ranges in value from 1 through 7 *<y>* = 1
	timeslots	<all 24>	
Laps/<nnmm> Sts/<v> Vt1dot5/<x>,<y> Ds1 Chan/0 Tc			Create only.
Aal1Ces/<a>	interfaceName	Laps/ <nnmm> Sts/<v> Vt1dot5/ <x>,<y> Ds1 Chan/0..4	Instance range is 1 through 65535.
	serviceType	basicStructured	
	remoteEndtype	pvgExclusivePrs	
Aal1Ces/<a> Aep	addressToCall	<value of Nsta/<n> Vgs BragS/0 localAddress>	

TDM PTS trunk profile (VSP3-o) configuration (UA-IP)

This section presents the configuration of a time division multiplexing (TDM) Per Trunk Signalling (PTS) trunk profile on Nortel Multiservice Switch 15000 Media Gateway in UA-IP solutions.

This configuration provisions a TDM PTS trunk profile on a 2pOC3ChSmIrVsp3 function processor (FP) card. A trunk profile is common to all PTS trunks using a specific profile on a VSP3-o FP.

The CasDefn structure and associated links must not have been previously configured.

Review Table 67, "TDM PTS trunk profile (VSP3-o) configuration (UA-IP)," (page 258) to understand how these trunk profiles are configured on your nodes.

Table 67
TDM PTS trunk profile (VSP3-o) configuration (UA-IP)

Components	Attributes	Configured values	Notes
Nsta/<n> Vgs CasDefn/<c>	filename	<PTS profile>	There is more than one PTS profile. The instance range is 0 through 24.

TDM PTS trunk (VSP3-o) configuration (UA-IP)

This section presents the configuration of a time division multiplexed (TDM) PTS trunk on Nortel Multiservice Switch 15000 Media Gateway in UA-IP solutions. The trunk is configured on 2pOC3ChSmIrVsp3 function processor (FP) cards.

The Vt1Dot5 hierarchy and associated links must not have been configured previously.

Review Table 68, "TDM PTS trunk (VSP3-o) configuration (UA-IP)," (page 259) to understand how these trunks are configured on your nodes.

Table 68
TDM PTS trunk (VSP3-o) configuration (UA-IP)

Components	Attributes	Configured values	Notes
Laps/<nnmm> Sts/<v> Vt1dot5/<x>,<y> Ds1	lineType	esfCas	<*v*> ranges in value from 0 through 2 <*x*> ranges in value from 1 through 7 <*y*>ranges in value from 1 through 4
Laps/<nnmm> Sts/<v> Vt1dot5/<x>,<y> Ds1 Chan/0	linkToApplication	Nsta/<n> Vgs Tag/<t>	<*v*> ranges in value from 0 through 2 <*x*> ranges in value from 1 through 7 <*y*> ranges in value from 1 through 4
	timeslots	<all 24>	
	noServiceResponse	noResponse	
Laps/<nnmm> Sts/<v> Vt1dot5/<x>,<y> Ds1 Chan/0 Tc			Create only.

(Sheet 1 of 2)

Table 68 (Continued)
TDM PTS trunk (VSP3-o) configuration (UA-IP)

Components	Attributes	Configured values	Notes
Nsta/<n> Vgs Tag/<t>	interfaceName	Laps/ <nnmm> Sts/<v> Vt1dot5/ <x>,<y> Ds1 Chan/0 Tc	Instance range is 0 through 16777215. Suggested convention: *<nnmmvxy>*.
	profile	Nsta/<n> Vgs TProf/0	
Nsta/<n> Vgs Tag/<t> Cas	casDefinition	Nsta/<n> Vgs CasDefn/ <c>	

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Chapter 4
Summary of Multiservice Data Manager server configuration

When upgrading to new releases of Carrier VoIP software, configure or upgrade the Nortel Multiservice Data Manager (MDM) first, before upgrading Nortel Multiservice Switch 15000 nodes. MDM software is backwards compatible with Multiservice Switch software which means it supports earlier releases of Multiservice Switch 15000 software.

This chapter describes how MDM servers supported in the PT-AAL1, UA-AAL1, and UA-IP solutions are configured. It includes the sections as follows:

- "Workstation surveillance configuration" (page 287)
- "MDP user configuration" (page 290)
- "MDP server configuration" (page 290)
- "MDP configuration" (page 294)
- "MDP configuration for File Prober" (page 295)
- "Clean up of the cron file configuration" (page 296)
- "Firewall configuration" (page 297)
- "Policy and role configuration for Operator Client user administration in a VoA network on the MDM Admin Server" (page 305)
- "Auto-patching of MSS/MG15000 nodes from the MDM" (page 315)

Boot prompt configuration

Review the following information to understand the initial configuration for Nortel Multiservice Data Manager UNIX workstations.

Table 69
Server configuration prompts and attribute values

Prompts	Attributes	Configured values	Notes
Language	English	0	
Version	USA English (ASCII)	0	
Network Interface	Twisted-Pair Ethernet (connector)	hme0	The connection between this MDM server and the Communication Server LAN goes across this interface.
Network Interface name		<host name>	This is the host name of the hme0 interface.
Network environment		yes	
IP address	MDM server	<xx.xxx.xxx.xxx>	This is the IP address of the MDM server.

(Sheet 1 of 2)

Table 69 (Continued)
Server configuration prompts and attribute values

Prompts	Attributes	Configured values	Notes
Service Name	no service name	none	
Subnet	have subnet	yes	
Netmask	Netmask	<netmask>	
Time zone	Region	<region name>	This is the name of the region where the MDM server is located, for example, Canada.
	Time zone	<time zone name>	This is the name of the time zone or the offset from GMT where the MDM server is located, for example, eastern time has an offset of +5.
Automatic shutdown	Active	N	N indicates that automatic shutdown is not active.

(Sheet 2 of 2)

Remote login configuration

Review the following information to understand how remote login is configured on Nortel Multiservice Data Manager servers.

Table 70
Remote login configuration and attribute values

File	Attributes	Configured values	Notes
/etc/default/login			Edit this file on the MDM server.
	CONSOLE=	`#CONSOLE=/dev/console`	By default, the root user is not allowed to login from a remote console. Adding a number sign comments the line and allows remote login. ***Note:*** Configure this value when the Solaris software is installed.

IP address to host name mapping configuration

Review the following information to understand how IP addresses map to host names for Nortel Multiservice Data Manager servers. A sample file appears in “Sample /etc/hosts file” (page 265).

Note: Values for the host names of the interfaces refer to the various ports of MDM servers connected to Nortel Multiservice Switch 15000 nodes. These are configured during the initial installation of MDM software.

Table 71
IP address to host name mapping configuration and attribute values

File	Attributes	Configured values	Notes
/etc/hosts			Edit this file on the MDM server. Entries in this file should correspond to entries made for attribute *IpAccess/<IP address>* in table “Access control configuration” (page 26).
	Localhost mapping	<xxx.x.x.x> <host name>	*<xxx.x.x.x>* is the IP address and <host name> is the local host name.
	Remotehost mapping	<x.x.x.x> <hostname>	*<x.x.x.x>* is the IP address and <hostname> of the redundant MDM server.
Note: Configure these values when the Solaris software is installed.			

Figure 1
Sample /etc/hosts file

```
127.0.0.1 mdm2
127.0.0.1 localhost
47.1.2.3 mdm1 loghost
47.1.2.4 mdm2
```

Default gateway configuration

Review the following information to understand how the default Nortel Multiservice Data Manager gateway server is configured.

Table 72
Default gateway configuration and attribute values

File	Attributes	Configured values	Notes
/etc/defaultrouter			Edit this file on the MDM server.
	Connection Host	<MDM_hme0_IP Address>	The IP address of the host connection.
Note: Configure these values when the Solaris software is installed.			

MDM software license configuration

Review the following information to understand how the Nortel Multiservice Data Manager (MDM) software license is configured.

Table 73
MDM software license configuration and attribute values

File	Attributes	Configured values	Notes
/etc/opt/Magellan/ LICcustName.cfg			Edit this file on the MDM server.
	Customer name	<customer name>	The customer name is your company's name.
/etc/opt/Magellan/ LIClicenses.cfg			Edit this file on the MDM server.
	License number	NMS <release number> <customer name>	<release number> is the licence key provided to you by Nortel. The customer name is your company's name.
Note: Configure these values using the QuickStart tool when the MDM software is installed.			

Shared memory segment size configuration

Review the following information to understand how shared memory segment size is configured.

Table 74
Shared memory segment configuration commands and values

Command	Attributes	Configured values	Notes
/opt/MagellanNMS/system/config/config_sys_shmem		256	This command creates segments of 32 Mbyte.
/opt/MagellanNMS/system/config/config_sys_semaphores		50	
Note: Configure these values using the QuickStart tool when the MDM software is installed.			

Host group directory server configuration

The Host Group Directory Server (HGDS) provides network management information to Nortel Multiservice Data Manager that describes the system configuration of your network by reporting how Nortel Multiservice Switch 15000 nodes in the network are grouped.

For Multiservice Switch node access, the HGDS maps groups to their member hosts the following and node hostnames to their IP addresses. Then it provides the mapped information to the FMIP management data router (FMDR) on the MDM server. The FMDR process uses this information to login to Multiservice Switch nodes and manage the connections to them.

Review the following information to understand how the host group directory server is configured. Edit this file on the MDM server.

Table 75
Host group directory configuration component and attribute values

Attributes	Configured values	Notes
FGroup:	<clli>	The group name for the office is represented by the CLLI. This is used for real time statistics collection, MDM surveillance and command access. There may be multiple FGroups; one for each office.
FMember:	<node name>	The node name identifies each node by name. These names are the same ones that are defined in the */etc/hosts* file. An FMember must be specified for each Multiservice Switch node.
IPAddress:	<xxx.x.x.x>	*<xxx.x.x.x>* is the IP address of the FMember. An IPAddress must be specified for each Multiservice Switch node.
Member	<node name>	The lists of the nodes that are associated with the FGroup.
Note: You can configure these values using the MDM Server Administration tool.		

MDM server launch (SVMList) configuration

Review the following information to understand how Nortel Multiservice Data Manager server launches are configured.

Use SVMadm to configure servers. To manage the MDP servers, you must also use the Server Administration tool (SVMadm), see “MDP server configuration” (page 290).

For more information about the servers listed in the following table, see 241-6001-310 *Nortel Multiservice Data Manager Server Reference*.

Table 76
SVMList server configuration prompts and attribute values

Attributes	Configured values	Notes
Backup Controller	/opt/MagellanNMS/bin/nsctlbck	The Backup Controller receives requests from the MSS/ MG15000s and SNMP Backup tools (GUI and CLI) and connects to the PP Backup Provider. The Backup Controller and PP Backup Provider must be started as a pair. This server is required on the MDM server set. It is not required on the client set.
Communication Manager (FDTM)	/opt/MagellanNMS/bin/fdtm -offset <offset from UTC> -reConnTime 10 -ping 2 -msgTransTime 10 -connHeartBeatTime 15	The offset value is the time difference between Coordinated Universal Time (UTC) and the time on this MDM workstation. This time difference is expressed in minutes (0 to 1440) and must be specified as though you are travelling around the globe in an easterly direction starting at UTC. The offset value that you enter will vary depending upon the time zone in which the node is located. This server is required on the MDM server set. It is not required on the client set.
Context server	/opt/MagellanNMS/bin/ctxsvr	This server is required on the MDM server set and client set.
Data management agent (dma)	/opt/MagellanNMS/bin/dma -f	Supports global alarm clear. The file /opt/MagellanNMS/cfg/ DmaClrPP.cfg must be present and filled.
Data Synchronization Server	/opt/MagellanNMS/bin/ dataSyncServer	Supports the MSS Service Data Backup/Restore tool. Required on the server set only.
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Table 76 (Continued)
SVMList server configuration prompts and attribute values

Attributes	Configured values	Notes
Data Viewer Agent (PMAGENT)	/opt/MagellanNMS/bin/pmagent	This server is required on the MDM server set. It is not required on the client set.
FMDR(s)	/opt/MagellanNMS/bin/fmdr -u <MDM ID for office> -p /opt/MagellanNMS/cfg/private/ <password file> -g <CLLI group> -l AL	*<MDM ID for office>* is the surveillance user ID defined on the Multiservice Switch 15000 shelves. *<password file>* is the file that contains the encrypted MDM passwords for the Multiservice Switch 15000 node user ID, for the office. *<CLLI group>* reflects the HGDS group (defined earlier) used for surveillance of the office. This server is required on the MDM server set. It is not required on the client set.
General Management Data Router (GMDR)	/opt/MagellanNMS/bin/gmdr	This server is required on the MDM server set. It is not required on the client set.
GMDRAGENT	/opt/MagellanNMS/bin/gmdragent	GMDRAGENT provides the interface between the Operator Client and GMDR server to access alarm information, alarm counts, and status counts for devices in the network.
Host Group Directory Server HGDS	/opt/MagellanNMS/bin/hgds	This server is required on MDM server set. It is not required on the MDM client set.
idi_PP8600DCD	/opt/MagellanNMS/ext/lib/macros/ idi_PP8600dcd -d 1	MDM server-set or standalone system only.
(Sheet 2 of 7)		

Table 76 (Continued)
SVMList server configuration prompts and attribute values

Attributes	Configured values	Notes
IP Discovery Server (ipdsvr)	/opt/MagellanNMS/bin/ipdsvr	This server is used for ERS 8600 enrolment.
Log collector (OAMC)	/opt/MagellanNMS/bin/oamc -f /opt/MagellanNMS/data/log/oamc.log	This server is required on MDM server set and client set.
MNSD agent	/opt/MagellanNMS/bin/mnsdagent	This server is required on the MDM server set and client set.
MNSD level 2	/opt/MagellanNMS/bin/mnsd -2 <MDMhost1> <MDMhost2>	MNSD level 2 communicates with the remote MDM hosts to track the service name and socket number of their server processes. It feeds the information to MNSD agent and allows an application to connect to the server remotely and automatically.
MSS Command Access Server	/opt/MagellanNMS/bin/eteserver -n PPAccessServer -p 6601	This server is required on the MDM server set. It is not required on the client set.
MSS Config Model Server	/opt/MagellanNMS/bin/pcms	This server is required for the MDM server set.
Network Data Access Mediator (NDAM)	/opt/MagellanNMS/bin/ndam	This server is required on the MDM server set. It is not required on the client set.
Network Model co-ordinator	/opt/MagellanNMS/bin/dnmnmc	This server is required on the MDM server set. It is not required on the client set.
Network Model edit server	/opt/MagellanNMS/bin/edserver	This server is required on the MDM server set. It is not required on the client set.
Network Model server	/opt/MagellanNMS/bin/nmserver -c 5000	This server is required on the MDM server set. It is not required on the client set.
(Sheet 3 of 7)		

Table 76 (Continued)
SVMList server configuration prompts and attribute values

Attributes	Configured values	Notes
Network Model Surveillance updater	/opt/MagellanNMS/bin/surnup	This server is required on the MDM server set. It is not required on the client set.
NMAGENT	/opt/MagellanNMS/bin/nmagent	NMAGENT provides the interface between Operator Client and Multiservice Data Manager Network Model server to provide information about the states of components and devices in the network.
NP configuration manager	/opt/MagellanNMS/bin/configman -cfgSAL	This server is needed on the MDM server set. It is not needed on the client set.
NP configuration server	/opt/MagellanNMS/bin/pcserver	This server is required by the MDM server set. It is not required by the client set.
(Sheet 4 of 7)		

Table 76 (Continued)
SVMList server configuration prompts and attribute values

Attributes	Configured values	Notes
Performance Measurement Stream Processor PMSP ***Note:*** This server is required for server-set and stand-alone MDMs only. PMSP is not required for the MDM Admin Server.	/opt/MagellanNMS/bin/pmsp -u <MDM ID for office> -p /opt/MagellanNMS/cfg/private/ <password file> -g <CLLI group> -ppexpire 30 -nosync -hgds -officeId <office CLLI> -5port <5 min TCP port> -30port <30 min TCP port> -savefile	*<MDM ID for office>* is the user ID used to collect real-time performance data. This user ID is defined on Multiservice Switch 15000 shelves. *<password file>* is the file that contains the encrypted MDM passwords for the Multiservice Switch 15000 node user ID, for the office. *<CLLI group>* reflects the HGDS group (defined earlier) used to collect real-time performance data, for the office. *<office CLLI>* is the name of the office that appears in the performance records. *<5 min TCP port>* is the IP socket number where the 5-minute records are available. *<30 min TCP port>* is the IP socket number where the 30-minute records are available. This server is required on the MDM server set. PMSP runs on selected systems. It is not required on the client set.
PP Backup Provider	/opt/MagellanNMS/bin/pbckpp	This server is required on the MDM server set. It is not required on the client set. The Backup Controller and PP Backup Provider must be started as a pair.
(Sheet 5 of 7)		

Table 76 (Continued)
SVMList server configuration prompts and attribute values

Attributes	Configured values	Notes
PP Restore Provider	/opt/MagellanNMS/bin/prstpp	This server is required on the MDM server set. It is not required on the client set. The Restore Controller and PP Restore Provider must be started as a pair.
pserver ***Note:*** This server is required for server-set and stand-alone MDMs only. The pserver is not required for the MDM Admin Server.	/opt/MagellanNMS/bin/pserver -m -e 3197 /opt/MagellanNMS/bin/gmdrapi -h localhost	This is used to communicate alarms to the SDM. The -h option specifies the host where the gmdrapi is running. This server is required on the MDM server-set. It is not required on the client-set.
Real time alarm collection	/opt/MagellanNMS/bin/rtaccol -filecleanup10	This server is required on the MDM server set. It is not required on the client set.
Restore Controller	/opt/MagellanNMS/bin/nsctlrst	This server is required on the MDM server set. It is not required on the client set. The Restore Controller and PP Restore Provider must be started as a pair. The Restore Controller receives requests from the MSS/MG15000s and SNMP Backup tools (GUI and CLI) and connects to the PP Restore Provider.
RTACAGENT	/opt/MagellanNMS/bin/rtacagent	RTACAGENT provides the interface between Operator Client and Real Time Alarm Collection (RTAC) server to access archived information about alarms for devices in the network.
SALCserver	/opt/MagellanNMS/data/log/salcserver and /opt/MagellanNMS/data/security	The logs are found in both of these directories.
(Sheet 6 of 7)		

Table 76 (Continued)
SVMList server configuration prompts and attribute values

Attributes	Configured values	Notes
SecureFTPD	/opt/MagellanNMS/bin/ launchSecureFTPD	This server is required on the MDM server set. It is not required on the client set.
SMDR	/opt/MagellanNMS/bin/smdr	MDM server-set or standalone system only.
TSVR	/opt/MagellanNMS/bin/tsvr	MDM server-set or standalone system only.
Workstation Surveillance	/opt/MagellanNMS/bin/sfm	This server is required on the MDM server set and client set.
Note: You can configure these values using the MDM Server Administration tool.		
(Sheet 7 of 7)		

General Management Data Router server configuration

Review the following information to understand how both the FMDR, OAMC, and SMDR, which make up the general management data router servers, are configured.

For more information on the GMDR, see NN10180-611 *Nortel Multiservice Switch 15000, Media Gateway 15000 and Multiservice Data Manager in Carrier Voice over IP Networks Security and Administration PT-AAL1/UA-AAL1/UA-IP* and 241-6001-310 *Nortel Multiservice Data Manager Server Reference*.

Table 77
General Management Data Router server configuration and attribute values

Name	Host	Notes
FMDR_xxx	(local host)	xxx is the name provided in the MDM Server Administration tool. Repeat for each office.
FMDR_xxx	(remote host)	Requires a node user ID and password. Repeat for each office on the remote MDM server.
OAMC	(local host)	User capability left blank. To operate correctly, OAMC must connect to GMDR.
OAMC_xxx	(remote host)	Password left blank. Repeat for each remote MDM server in the network.
SMDR	(local host)	User capability and password left blank.
SMDR	(remote host)	User capability and password left blank.
Note: You can configure these values using the MDM GMDR Administration tool.		

Security Audit Log Collector (SALC) server configuration

For each Carrier VoIP office, there is one SALC server configured on an MDM server platform. FMDR servers are added to each node cross feeding their alarms and log streams to each SALC server to provide redundant log information from the network. As well, MSS SAL records are captured from FMDR to SALC. The OAMC servers deliver security information about the MDMs to each SALC server process. The SALC server can be configured to send security audit logs in custlogV2 format to an SDM running SN08 or higher.

SALC server now has -name and -nodeId command line options. The -name option allows multiple SALC server processes to run independently and it affects the configuration file the SALC server reads as well as the target log files it creates. The -nodeId option identifies the nodeId in the log records from where the logs are sent. It also triggers the SALC server to change the log output format to custlogV2.

SALC server configuration requires a node access level of system administrator. If the FMDR userid is set to a level lower than system administrator, it needs to be modified.

Review the following information to understand the recommended SALC server command line options. See “Security Audit Log (SALC) server configuration and attribute values” (page 280).

For more information on SALC, see NN10180-611 *Nortel Multiservice Switch 15000, Media Gateway 15000 and Multiservice Data Manager in Carrier Voice over IP Networks Security and Administration PT-AAL1/UA-AAL1/UA-IP* and 241-6001-310 *Nortel Multiservice Data Manager Server Reference*.

Table 78
Security Audit Log (SALC) server configuration and attribute values

Option	SDM1	SDM N[1]	IEMS 1	IEMS N[2]	No Northbound
-OAMCFacility[3]	local1	local1	1) local1 2) local3	1) local1 2) local3	not used
-passportfacility[4]	local1	local1	1) local1 2) local3	1) local1 2) local3	not used
-queue[5]	5000	5000	5000	5000	5000
-outputSyslog[6]	W=<SDM1 name or address>	X=<SDM N name or address>	Z=<IEMS name or address>	Z=<IEMS N name or address>	not used
-outputFile[7]	yes	not used	1) not used	1) not used	yes
-logFile[8]	yes	yes	1) yes 2) yes	1) yes 2) yes	yes
-name	custlog.<W>	custlog.<X>	1) custlog.<Y> 2) syslog.<Y>	1) custlog.<Z> 2) syslog.<Z>	not used
-nodeID	<local MDM name or address>	<local MDM name or address>	1) <local MDM name or address> 2) not used	1) local MDM name or address> 2) not used	not used

(Sheet 1 of 2)

Table 78 (Continued)
Security Audit Log (SALC) server configuration and attribute values

Option	SDM1	SDM N[1]	IEMS 1	IEMS N[2]	No Northbound
Note: You can configure these values using the MDM GMDR Administration tool.					
1. Any other SDM being fed by the same pair of MDMs.					
2. Any other IEMS being fed by the same pair of MDMs.					
3. Specifies how to handle security audit logs originated by the MDM. The default is local0.					
4. Specifies how to handle security audit logs originated by MSS15000/MG15000. The default is local1.					
5. Specifies how many security audit logs should be held to detect duplicates. The default is 5000.					
6. Specifies one or more destinations for the security audit log stream. The default is localhost.					
7. The default is “security.nlog”. When -name is used, then the format is “security_<name options value>.nlog”.					
8. The default is “salcserver.alog”. When -name is used, then the format is “salcserver_<name options value>.alog”.					
(Sheet 2 of 2)					

SALC configuration file

A SALC server configuration file specifies the servers from which security audit logs should be retrieved.

The following information is required for SALC server configuration:

- FMDR entry for the <local> MDM platform
- FMDR entry for the <mate> MDM platform
- OAMC entry for the <local> MDM platform
- OAMC entry for the <mate> MDM platform

The following information is optional for SALC server configuration:

- OAMC for <client-set> platform
- OAMC for <admin server> platform

An example SALC configuration for OAMC and FMDR servers running on MDM is shown below:

```
Hostname: <local>
Servername: OAMC

Hostname: <mate>
Servername: OAMC

Hostname: <local>
Servername: FMDR_PPTEST
UserID: <userid>
Password: <password>
Emcrypted Password: xxxxxxxxxxxx

Hostname: <mate>
Servername: FMDR_PPTEST
UserID: <userid>
Password: <password>
EncryptedPassword: xxxxxxxxxxxx
```

Network Time Synchronization system configuration

Network Time Synchronization (NTS) refers to the synchronization of the time-of-day on Nortel Multiservice Data Manager servers and Multiservice Switch nodes. This synchronization ensures that the clocks on the servers and nodes have a consistent time-of-day and that all accounting records, alarms, statistics, and logs bear a consistent timestamp.

MDM Release 15.2 uses Solaris NTP software to perform Network Time Synchronization. It uses the Solaris NTP software that is part of the SUNWnptr and SUNWnptu packages to do this. When the SUN NTP software is installed, MDM servers and Multiservice Switch nodes in the

network form a timing hierarchy in which each device obtains its time-of-day from a time source and, optionally, acts as a time source for one or more other devices in the network.

For more information on the NTS system, see 241-6001-303 *Nortel Multiservice Data Manager Customization and Administration*.

> ***Note:*** The NTS system synchronizes the time-of-day on MDM servers and Multiservice Switch nodes. Network clock synchronization (NCS) is responsible for clocking on synchronous data links but not with synchronizing the time-of-day.

The Solaris synchronization executable is located in directory /etc/init.d/xntpd. The file that defines the configuration of the synchronization process is /etc/inet/ntp.conf. The process automatically starts at system restart by the /etc/rc2.d/S74xntpd executable, if the file /etc/inet/ntp.conf exists.

Setting up the NTP configuration

To set up the NTP configuration, proceed as follows, using UNIX commands:

1 Copy the file ntp.server to ntp.conf, using a UNIX command as follows:

```
cp /etc/inet/ntp.server /etc/inet/ntp.conf
```

2 Edit the ntp.conf file to set a particular server as the timing reference, as follows:

   a. Find the line that begins with “server 127.127”. Change it to:

   ```
   server <ip address of clocking source> prefer
   ```

   For example, where the IP address is 127.127.1.1, change it as follows:

   ```
   server 127.127.1.1 prefer
   ```

   b. Add references to any other servers from which MDM can obtain time synchronization information. This is usually the Integrated Element Management System (IEMS) or the SuperNode Data Manager (SDM).

   c. The MDM server can be in a peer relationship, also known as a server set, with another MDM server. In that case, the ntp.conf file must exist on each of the servers. Each ntp.conf file must specify the IP addresses of both servers. Use the syntax as follows:

   ```
   server <ip address of clocking source> prefer

   peer <ip address of MDM server 1>

   peer <ip address of MDM server 2>
   ```

3 Using the comment character (#), comment out the line that begins with “fudge 127.127”.

4 Using the comment character (#), comment out the line that begins with “broadcast”.

5 Using the comment character (#), comment out the lines that contains the encryption keys.

   Note: If you do not comment out these key lines, the default value of 0 allows anyone to access the workspace and set the clock.

6 Save the file.

An example of an ntp.conf file is as follows:

```
server <ip address of clocking source> prefer

peer <ip address of MDM server 1>

peer <ip address of MDM server 2>

#fudge 127.127.XType.0 stratum 0

#broadcast 224.0.1.1 ttl 4
```

```
#trustedkey 0

#requestkey 0

#controlkey 0
```

Set up the drift file

Set up the drift file. The drift file contains the oscillator frequency offset of the clocking source. If you know the oscillator frequency offset, enter it in this file. Otherwise, enter 0, and the XNTP daemon determines it automatically. It just takes a little longer for the time to stabilize to a consistent value.

1 Edit the file /etc/inet/nts.drift.

2 Enter the value of the oscillator frequency offset, if you know it. Otherwise, enter 0.

3 Save the file.

Setting up file permissions and owner

Set up permissions for the configuration and drift files:

1 Change the file permissions for the files ntp.conf and ntp.drift to 500.

2 Change the owner of both the files to root.

Starting the server

Start the server, or XNTP daemon.

1 Enter the command as follows:

```
/etc/init.d/xntpd start
```

The next time the system restarts, the server starts automatically.

Note: To query the ntpd configuration, and the ntpd status, enter the command as follows:

```
ntpq
```

See the table "Network time synchronization system configuration and attribute values" (page 286) to understand how the Network Time Synchronization system is configured.

Note: You can use the UNIX vi editor to configure these values.

Table 79
Network time synchronization system configuration and attribute values

File	Attributes	Configured values	Notes
/etc/inet/ntp.conf			Create and edit this file on the MDM server.
	external clocking device server	server <xxx.x.x.x> prefer	*<xxx.x.x.x>* is the IP address of the external clocking device. "prefer" indicates that this is the preferred clocking source.
	alternate clocking sources server	server <xxx.x.x.x>	*<xxx.x.x.x>* is the IP address of the alternate clocking servers
	MDM peer	peer <xxx.xxx.x.x>	*<xxx.xxx.x.x>* is the IP address of the peer MDM server, for servers in a server set.
	trustedkey	# trustedkey 0	Prevents unauthorized access to encryption keys.
	requestkey	# requestkey 0	
	controlkey	# controlkey 0	
	broadcast mode	# broadcast 224.0.1.1 ttl 4	Comment out this line.
	additional clock information	# fudge 127.127.XType.0 stratum 0	Comment out this line.
/etc/inet/ntp.drift			Edit this file on the MDM server.
		<oscillator frequency offset> 0	If known. Otherwise enter 0.

Workstation surveillance configuration

The configuration of workstation surveillance permits the integrated surveillance of Nortel Multiservice Data Manager servers to ensure that a single hardware or software failure does not jeopardize Multiservice Switch system OAM. Workstation surveillance involves monitoring the usage of:

- the CPU, disks, and memory
- the state of the physical ports on the servers
- the connectivity between MDM servers
- the state of MDM software processes

Review the following information to understand how MDM workstation surveillance is configured.

Table 80
Workstation surveillance configuration and attribute values

File	Configured values	Notes
/opt/MagellanNMS/cfg/ SFM.config		Edit this file on the MDM server.
	Interval 30	
	CPU_Load Minor 70	Threshold for percentage of workstation CPU usage, minor alarm.
	CPU_Load Major 80	Threshold for percentage of workstation CPU usage, major alarm.
	CPU_Load Critical 90	Threshold for percentage of workstation CPU usage, critical alarm.
	Mem_Minor 80	Threshold for percentage of virtual memory usage, minor alarm.
	Mem_Major 90	Threshold for percentage of virtual memory usage, major alarm.
	Mem_Critical 95	Threshold for percentage of virtual memory usage, critical alarm.
	FS_Minor 80	Threshold for percentage of disk usage, minor alarm.
	FS_Major 90	Threshold for percentage of disk usage, major alarm.
	FS_Critical 95	Threshold for percentage of disk usage, critical alarm.
	Manage_FS /var /localdisk /tmp	The file system to be managed by the MDM. A space separates each file in the SFM configuration file.
	Local_Port_Connection <ipaddresses>	IP addresses for local workstation where connectivity should be monitored. A space separates each address in the SFM.config file.
	Remote_Connection <ipaddresses>	IP addresses for remote workstation where connectivity should be monitored. A space separates each address in the SFM.config file.
Note: Configure these values using the /opt/MagellanNMS/bin/SFM_config script.		

MDP user configuration

Review the following information to understand how MDP users are configured.

Table 81
MDP group configuration and attribute values

File	Attributes	Configured values	Notes
/etc/group			Edit this file with the Sun admintool.
	MDP group name	mdpgroup	Identifies the mdp administration group.
	MDP group userids	mdpadmin, mdpprobe	Identifies the mdp group member userids.
Note: Configure these values using the QuickStart tool when the MDM software is installed.			

MDP server configuration

Review the following information to understand how to configure MDP servers. It lists the MDP servers that must be active.

To configure MDP servers, use the Server Administration tool (SVMadm). You must ensure that the MDP servers start in the correct order.

The following servers do not depend on other servers and can start in any order:

- MDP Disk Manager (mdpdiskmgr)
- MDP File Mover Manager (mdpfmmgr)
- MDP MSS Data Model Manager (mdpdmm)

Some servers depend on other servers. These servers must start in a particular order. These servers include servers that manage file acquisition from Nortel Multiservice Switch nodes or that clean up disks so the workstation does not run out of file space. They are as follows:

- MDP File Prober Manager (mdpfpmgr). It requires:

— the MDP MSS Data Model Manager and HGDS. This is the most important dependency. The MDP Data Model Manager and the HGDS must be running BEFORE this server starts. The activation describes a sane startup order for the servers.

— the MDP MSS File Manager, for conversion of MSS files from fast management information protocol (FMIP) to BDF

— the MDP File Mover Manager, to transfer files to the OSS.

- the MDP MSS File Manager (mdpppmgr). It requires:

  — the MDP MSS Prober Manager, to acquire node data.

  — the MDP Disk Manager, to manage disk space.

  — the MDP File Mover Manager, to transfer files to operational support systems (OSSs), and so on.

Note 1: Only active on MDM servers that are running the MDP application.

Note 2: MDP is running on selected MDM server-set systems.

Note 3: Use SVMadm to configure servers.

Table 82
MDP server configuration

Attributes	Configured values	Notes
MDP Data Model Manager	/opt/MagellanMDP/bin/mdpdmm	MDP Data Model Manager identifies Multiservice Switch 15000 data models and determines if the data model exists on the MDP host. Manages the MDP daemon. This server is not required on the MDM server set unless PM is running. Configuration daemon is not required on the client set.
MDP Disk Manager	/opt/MagellanMDP/bin/mdpdiskmgr	Disk Manager manages the disk space by deleting old files. This server is not required on the MDM client set.
(Sheet 1 of 3)		

Table 82 (Continued)
MDP server configuration

Attributes	Configured values	Notes
MDP File Mover Manager	/opt/ MagellanMDP/bin/ mdpfmmgr	MDP File Mover Manager manages the MDP File Mover. This server is not required on the MDM client set.
MDP MSS File Manager	/opt/ MagellanMDP/bin/ mdpppmgr	MDP MSS File Manager manages the access to the Multiservice Switch 15000s. This server is not required on the MDM server set unless PM is running. MSS Manager is not required on the client set.
(Sheet 2 of 3)		

Table 82 (Continued)
MDP server configuration

Attributes	Configured values	Notes
MDP MSS Prober Manager	/opt/ MagellanMDP/bin/ mdpfpmgr	MDP File Prober Manager controls the process that probes the Multiservice Switch 15000 for spooled information. This server is not required on the MDM server set unless PM is running. File Prober Manager is not required on the client set.
(Sheet 3 of 3)		

MDP configuration

Review the following information to understand how to configure Management Data Provider (MDP). For configuration tabs not listed in this table, use the defaults. To configure File Prober, see “MDP configuration for File Prober” (page 295).

Table 83
MDP configuration and attribute values

Executable	MDP configuration tabs	Configured values	Notes
/opt/MagellanMDP/bin/ gmdpconfig			This is an executable that populates the following files with configuration data.
	Disk Manager	<customer defined>	
	Setup hosts	<customer defined>	
	MSS	Alarm Log SCN	For Convert raw files to BDF in dump directories, check each of the configured values.
		Alarm Log SCN	For BDF field delimiter, type colons (:) for the configured values.

(Sheet 1 of 2)

Table 83 (Continued)
MDP configuration and attribute values

Executable	MDP configuration tabs	Configured values	Notes
	Surveillance		Check Enable MDP to send MDM alarms.
	File Mover	Remote MDM name	Check the FTP destination directory, and use the following files: /opt/MagellanMDP/data/mdp/dump/alarm /opt/MagellanMDP/data/mdp/dump/scn /opt/MagellanMDP/data/mdp/dump/log
(Sheet 2 of 2)			

MDP configuration for File Prober

Review the following information to understand how to configure File Prober.

Table 84
File Prober configuration

Host	Configured values	Notes
Host1	ala log scn	In the Collection Time tab, set each configured value (ala, log, scn) as follows: Every day on: all, all, all Month: all, all, all Hour: 0, 0, 0 Minute: 0, 15, 30
Note: Configure these values using the GMDR Administration tool.		

Clean up of the cron file configuration

Review the following information to understand how regular clean up of the records in the root cron file are configured.

Table 85
File cleanup cron jobs configuration and attribute values

Attributes	Configured values	Notes
PMSP file cleanup	30 0 * * * (cd '/opt/MagellanNMS/data/pmsp'; /bin/rm 'find . -name "*.csv" -mtime +1 -print')	The cron file for deleting temp PMSP files over a day old
	40 0 * * * (cd '/opt/MagellanNMS/data/pmsp'; /bin/rm 'find . -name "*.THIRTY.CSV" -mtime +10 -print')	The cron file for deleting 30-minute PMSP files older than 10 days
	50 0 * * * (cd '/opt/MagellanNMS/data/pmsp'; /bin/rm 'find . -name "*.FIVE.CSV" -mtime +5 -print')	The cron file for deleting 5-minute PMSP files older than 5 days
MDMlogclean	55 0 * * * /opt/MagellanNMS/bin/mdmlogclean	The cron file, which is run daily, to delete MDM log files.
Note: Configure these values by editing the crontab file using the crontab -e command.		

Firewall configuration

Review the following information to understand how the firewall has been configured to allow data to pass.

Table 86
Firewall port configuration

Port name	Port number	Configurable or fixed values	Notes
apache	8080 8443	configurable	Internal to MDM.
Configman	6760 (for Operator Client desktop port 3463	configurable	Used by the nodal provisioning application to communicate with Configman. Called by another MDM workstation nodal provisioning application, or internally on the server set.
DBsync Controller	5757		
FDTr	>1024	dynamic configurable	Used for inter-process communication between MDM servers and nodes. The range is specified with an entry in */opt/MagellanNMS/cfg/private/IPCPortRange.cfg* (The entry is the range allowed by the server.). FDTr is called by MDM client set to the server set, and by the server set to the node (3 connections per node, 2 per client).
(Sheet 1 of 8)			

Table 86 (Continued)
Firewall port configuration

Port name	Port number	Configurable or fixed values	Notes
FMDR	IPI	configurable	Used in the node fault stack. It is configurable by specifying the entry in */opt/MagellanNMS/lib/cfg/IPCNameMap.cfg.* Used internally in MDM server set. Can be called by another MDM workstation Component Information Viewer application.
FMIP	5928		MDM/MSS/MG communications
FTP	20, 21		FTP between MDM servers and OSS, or another MDM server. Called by OSS. Can also be used to communicate with another MDM server or with nodes (where secure FTP is not deployed).
gmdpconfig	1099		For MDP communication
GMDR	3458	configurable	Used in the node fault stack. It is configurable by specifying the entry in /opt/MagellanNMS/lib/cfg/IPCNameMap.cfg. Used internally in MDM server set. Can be called by another MDM workstation Component Information Viewer application.
(Sheet 2 of 8)			

Table 86 (Continued)
Firewall port configuration

Port name	Port number	Configurable or fixed values	Notes
HGDS	IPI	configurable	Used in the node connection stack. It is configurable by specifying the entry in */opt/MagellanNMS/lib/cfg/IPCNameMap.cfg.* Used internally in MDM server set. Can be called by another MDM workstation Command Console application.
Http server	80		Used by tomcat server. Internal to all MDM servers.
IPI	>1024 11200-11500	dynamic configurable	Used for inter-process communication between MDM servers and nodes. The range is specified with an entry in /opt/MagellanNMS/cfg/private/IPCPortRange.cfg (The entry is the range allowed by the server.) IPI is internal to all MDM servers. For MDM/MSS/MG communications, ports 11200-11500.
LDAP			
mdmftpd	2374	fixed	For secure FTP port. On MDM server set. Call out to node, called by node.
(Sheet 3 of 8)			

Table 86 (Continued)
Firewall port configuration

Port name	Port number	Configurable or fixed values	Notes
MDM help	8081	fixed	Used by the Help server to provide context sensitive help, local to the MDM server. Internal to MDM client set.
MNSD	5502 5503	fixed	Stores server port number and service names. Allows MDM servers to communicate with each other. Called by other MDM workstation MNSDagents.
MNSDagent	5934	configurable	Allows MDM applications to request port numbers for other applications from the MNSD server.
Network Model (NMAGENT)	3456	configurable	Used in the node fault stack. It is configurable by specifying the entry in */opt/MagellanNMS/lib/cfg/IPCNameMap.cfg.* Used internally in MDM server set. Can be called by another MDM workstation Network Viewer application.
NFS	2049		Used to exchange Sun disk partitions between MDM servers. Called by another MDM server.
nsvagent	3461		For MDM/Operator Client desktop
NTP	123		MDM/MSS/MG communications
(Sheet 4 of 8)			

Table 86 (Continued)
Firewall port configuration

Port name	Port number	Configurable or fixed values	Notes
OAMC (formerly IMDR)	IPI	configurable	Used in the node fault stack. It is configurable by specifying the entry in /opt/MagellanNMS/lib/cfg/IPCNameMap.cfg. Used internally in MDM server sets and MDM Admin Servers. Can be called by another MDM workstation GMDR_sub.
pbckpp	5020	configurable	Called by the nsctlbck server (internal to MDM server set).
pcms	pcms	configurable	MSS Configuration Model Server administers the allocation of node provisioning models for nodal provisioning applications. Used internally in MDM server set.
pcserver	6767		pcserver is used by Configman to communicate with the MSS Configuration server. Used internally on the MDM server set.
ping	9595		Used between MDM servers and nodes to determine if the node is reachable. node connectivity, and called by MDM server set.
(Sheet 5 of 8)			

Table 86 (Continued)
Firewall port configuration

Port name	Port number	Configurable or fixed values	Notes
pmagent	5505 3462	configurable	Used for Data Viewer tool to communicate with its daemon. It is configurable by specifying the entry in /opt/MagellanNMS/lib/cfg/IPCNameMap.cfg. Used internally in the MDM server set, or called by Data Viewer tool. For Operator Client desktop use port 3462.
PMSP	1646 1647	configurable configurable	For 5-minute and 30-minute NTM CSV records. Use one pair of port addresses per PMSP server on the MDM. On the MDM server set this port set communicates with the SDM or the Integrated EMS.
prstpp	5021	configurable	Called by the nsctlrst server (internal to MDM server set).
pserver	3197	configurable	You should only configure the port on the MDM server set. This port: • Communicates alarms to SDM or OSS • Communicates between MDM and IEMS
(Sheet 6 of 8)			

Table 86 (Continued)
Firewall port configuration

Port name	Port number	Configurable or fixed values	Notes
Fault Device Access Agent (psvagent)	3460	configurable	This server is required for the Shelf View application launch in the local MDM. Can be called by another MDM workstation's psvagent, or internally in the MDM server set.
RADIUS	1812		
RTAC Agent	3457	configurable	Used in the node fault stack. It is configurable by specifying the entry in /opt/MagellanNMS/lib/cfg/IPCNameMap.cfg. Used internally in MDM server set. Can be called by another MDM workstation Component Information Viewer application.
SALC	NA	NA	SALC needs to communicate with MNSD, MNSDagent, FMDRs, and OAMC.
SMDR	IPI	configurable	Used in the Ethernet Routing Switch 8600 fault stack. It is configurable by specifying the entry in */opt/MagellanNMS/lib/cfg/IPCNameMap.cfg.* Used internally in MDM server set. Can be called by another MDM workstation GMDR_sub.
(Sheet 7 of 8)			

Table 86 (Continued)
Firewall port configuration

Port name	Port number	Configurable or fixed values	Notes
SNMP	161, 162		Port 162 is used to receive traps from Ethernet Routing Switch 8600. Port 161 is called by the Ethernet Routing Switch 8600. Port 161 is called by the MDM server set.
SSH/SFTP	22		For MDM/MDM and MDM/Operator Client desktop.
Sun ONE DS	389		
Sun ONE IS admin	58888		
Sun ONE IS webserver	58080		
Telnet	23		Used between the operator desktop and MDM client-set or standalone server. Can also be used to communicate directly with a node. Called by operator desktop to all MDM servers.
Tomcat	8081		
X11	6000, 6001, 6602, 6603	X11	X11 clients. Required between the MDM client-set (or standalone server) and the operator's desktop.
(Sheet 8 of 8)			

Policy and role configuration for Operator Client user administration in a VoA network on the MDM Admin Server

Review the following tables for examples of Resource Type utilization and rule and role configuration in policies:

For the MSS NE Access Resource Type there is only one Resource, All Resources. The Actions allowed are as follows:

Table 87
MSS NE Resource Type

Resource	Action	Value
All	Customer Identifier:	Integer
	Command Scope:	Application, Device or Network
	Command Impact:	Passive, Service, Configuration, System Administration or Debug
	Local Access Allowed:	Yes or No
	Telnet Access Allowed:	Yes or No
	FMIP Access Allowed	Yes or No
	FTP Access Allowed:	Yes or No
	Telnet Out Access Allowed:	Yes or No
	Login Directory:	String
	Timeout Protocol:	Enabled or Disabled

For the MDM Applications Resource Type. The Resources are as follows:

Note: The only Action allowed for the Resources is Launch (Allow or Deny).

Table 88
MDM Applications Resource Type

Resource	Action	Value
All Resources:	Launch	Allow or Deny
Security-User:		Allow or Deny
Performance:		Allow or Deny
Nodal Access-MPE:		Allow or Deny
Configuration-MSS:		Allow or Deny
Nodal Access-MSS15000:		Allow or Deny
Utilities:		Allow or Deny
Configuration-Admin:		Allow or Deny
Configuration-MPE:		Allow or Deny
Nodal Access:		Allow or Deny
Utilities-CLI:		Allow or Deny
Fault:		Allow or Deny

For the MDM Application Actions Resource Type, there is only one Resource, All Resources. The Actions are as follows:

Table 89
Application Action Resource Type

Resource	Action	Value
All	Fault View:	Unset, Allow or Deny
	Fault Manage:	Unset, Allow or Deny
	Fault Admin:	Unset, Allow or Deny
	Config View:	Unset, Allow or Deny
	Config Manage:	Unset, Allow or Deny
	Config Admin:	Unset, Allow or Deny
(Sheet 1 of 2)		

Table 89 (Continued)
Application Action Resource Type

Resource	Action	Value
	Accounting View:	Unset, Allow or Deny
	Accounting Manage:	Unset, Allow or Deny
	Accounting Admin:	Unset, Allow or Deny
	Performance View:	Unset, Allow or Deny
	Performance Manage:	Unset, Allow or Deny
	Performance Admin:	Unset, Allow or Deny
	Security View:	Unset, Allow or Deny
	Security Manage:	Unset, Allow or Deny
	Security Admin:	Unset, Allow or Deny
	Operational View:	Unset, Allow or Deny
	Operational Manage:	Unset, Allow or Deny
	Operational Admin:	Unset, Allow or Deny
(Sheet 2 of 2)		

Review the following tables to understand how the different roles and rules associated under each policy are configured.

Table 90
Access Configuration Attributes - MDM Applications

Attribute	Value
Policy Name	Administrate MDM Applications
Subjects (Role)s	View, Manage and Administrative Role
Rule Name: Nodal Access	Resource Type: Applications Resources: Nodal Access-MSS15000 Actions: Launch: Allow
Rule Name: Utilities	Resource Type: Applications Resources: Utilities Actions: Launch: Allow
(Sheet 1 of 2)	

Table 90 (Continued)
Access Configuration Attributes - MDM Applications

Attribute	Value
Rule Name: Fault	Resource Type: Applications Resources: Fault Actions: Launch: Allow
Rule Name: Performance	Resource Type: Applications Resources: Performance Actions: Launch: Allow
Rule Name: Utilities-CLI	Resource Type: Applications Resources: Utilities-CLI Actions: Launch: Allow
Rule Name: Nodal Access-MSS15000	Resource Type: Applications Resources: Nodal Access-MSS15000 Actions: Launch: Allow
Rule Name: Configuration-MSS15000	Resource Type: Applications Resources: Configuration-MSS15000 Actions: Launch: Allow
Rule Name: Security-User	Resource Type: Applications Resources: Security-User Actions: Launch: Allow
Rule Name: Configuration-Admin	Resource Type: Applications Resources: Configuration-Admin Actions: Launch: Allow
(Sheet 2 of 2)	

Table 91
View Access Configuration Attributes - MSS15000 Access

Attribute	Value
Policy Name	MSS15000 Access View
Subjects (Role)	View Role
Rule Name: PP Access RO	Resource Type: MSS NE Access Resources: All Resources Actions: • Customer Identifier: 0 • Command Scope: Network • Command Impact: Passive • Local Access Allowed: No • Telnet Access Allowed: No • FMIP Access Allowed: Yes • FTP Access Allowed: No • Telnet Out Access Allowed: No • Login Directory: / • Timeout Protocol: Enabled

Table 92
View Access Configuration Attributes - MDM Application Actions

Attribute	Value
Policy Name MDM	Application Actions View
Subjects (Role)	View Role
Rule Name: MDM View Actions	Resource Type: Application Actions Resources: All Resources Actions: • Fault View: Allow • Fault Manage: Deny • Fault Admin: Deny • Config View: Allow • Config Manage: Deny • Config Admin: Deny • Accounting View: Deny • Accounting Manage: Deny • Accounting Admin: Deny • Performance View: Allow • Performance Manage: Deny • Performance Admin: Deny • Security View: Allow • Security Manage: Deny • Security Admin: Deny • Operational View: Allow • Operational Manage: Deny • Operational Admin: Deny

Table 93
Manage Access Configuration Attributes - MSS15000

Attribute	Value
Policy Name	MSS15000 Access Manage
Subjects (Role)	Manage Role
Rule Name: PP Access Manage	Resource Type: MSS NE Access Resources: All Resources Actions: • Customer Identifier: 0 • Command Scope: Network • Command Impact: System Administration • Local Access Allowed: No • Telnet Access Allowed: Yes • FMIP Access Allowed: Yes • FTP Access Allowed: Yes • Telnet Out Access Allowed: No • Login Directory: / • Timeout Protocol: Enabled

Table 94
Manage Policy Configuration Attributes - MDM Application Actions

Attribute	Value
Policy Name	Manage MDM Application Actions
Subjects (Role)	Manage Role
Rule Name: MDM Manage Actions	Resource Type: Application Actions Resources: All Resources Actions: • Fault View: Allow • Fault Manage: Allow • Fault Admin: Deny • Config View: Allow • Config Manage: Allow • Config Admin: Deny • Accounting View: Deny • Accounting Manage: Deny • Accounting Admin: Deny • Performance View: Allow • Performance Manage: Allow • Performance Admin: Deny • Security View: Allow • Security Manage: Allow • Security Admin: Deny • Operational View: Allow • Operational Manage: Allow • Operational Admin: Deny

Table 95
Administrative Policy Configuration Attributes - MSS15000

Attribute	Value
Policy Name	MSS15000 Access Administrate
Subjects (Role)	Administrative Role
Rule Name: PP Access Manage	Resource Type: MSS NE Access Resources: All Resources Actions: • Customer Identifier: 0 • Command Scope: Network • Command Impact: System Debug • Local Access Allowed: Yes • Telnet Access Allowed: Yes • FMIP Access Allowed: Yes • FTP Access Allowed: Yes • Telnet Out Access Allowed: Yes • Login Directory: / • Timeout Protocol: Enable

Table 96
Administrative Policy Configuration Attributes - MDM Application Actions

Attribute	Value
Policy Name Manage	MDM Application Actions
Subjects (Role)	Manage Role
Rule Name: View All Applications except Accounting	Resource Type: Application Actions Resources: All Resources Actions: • Fault View: Allow • Fault Manage: Allow • Fault Admin: Allow • Config View: Allow • Config Manage: Allow • Config Admin: Allow • Accounting View: Deny • Accounting Manage: Deny • Accounting Admin: Deny • Performance View: Allow • Performance Manage: Allow • Performance Admin: Allow • Security View: Allow • Security Manage: Allow • Security Admin: Allow • Operational View: Allow • Operational Manage: Allow • Operational Admin: Allow

Auto-patching of MSS/MG15000 nodes from the MDM

Review the following table to understand how the auto-patch script is configured.

Table 97
Auto-patching script attributes

Component	Attribute	Value
The following must be configured for scheduling in the cron utility or your other chosen scheduling utility.		
Time interval	<min> <hour> <day> <mon> <dow>	<0 to 59> (minutes) <00 to 23> (hours) <1 to 31> (day of month) <1 to 12> (month of year) <0 to 6> (day of week, 0=Sunday) These values are the start times (T_0) determined from the <Patch distribution completion> information for the MDM that is the SDS. For the mate MDM add the <Patch distribution completion> to the SDS's <max_duration> time to determine the start time.
The following must be configured in the *ppautopatch* script for activation.		
ppautopatch	-download	To select the patch download operation at the time configured. This attribute downloads the patch from the SDS to the MSS/MG15000 nodes. ***Note:*** You must select at least one of the download or apply attributes or both in the script.
	-apply	To select the patch apply operation at the time configured. This attribute applies the downloaded patch on the node. ***Note:*** You must select at least one of the download or apply operations or both in the script.
	-host	<SDS hostname or SDS IP address>
(Sheet 1 of 3)		

Table 97 (Continued)
Auto-patching script attributes

Component	Attribute	Value
	-huser	<<SDS userid><SDS password>> This is for authentication of the user ID and password required to connect to the SDS.
	-nodes	<HGDS group name with all MSS/MG15000 nodes | node | <filename>> This is one or more MSS nodes. You can enter a node name, a group of nodes, or a list of nodes that is stored in a file. All node or group names must be configured in HGDS. It is recommended that you use the <HGDS group name>.
	-nuser	<<MSS/MG15000 userid><MSS/MG15000 password>> This is for authentication of the user ID and password required to connect to the node(s).
	-max_duration	<<n> h | m> Defines the maximum time for the auto-patch tool to complete the patch download and, or application operations on each node. Specify the amount of time <n> with the units h for hour or m for minutes. One hour (1h) is the recommended amount of time.
The following are three optional parameters that you can configure in the script as well.		
	-successfile	<filename> This is an option that lets you identify a file other than the default file to store the names of all of the nodes where the auto-patch tool successfully performed the download and, or apply operations.
(Sheet 2 of 3)		

Table 97 (Continued)
Auto-patching script attributes

Component	Attribute	Value
	-failedfile	<filename> This is an option that lets you identify a file other than the default file to store the names of all of the nodes where the auto-patch tool unsuccessfully performed the download and, or apply operations.
	-log_verbose	[-log_verbose] This is an optional operation that you can include with the -apply attribute to show the output of the patch query that is run by the auto-patch tool.
(Sheet 3 of 3)		

Nortel Multiservice Switch 15000, Media Gateway 15000 and Multiservice Data Manager in Carrier Voice over IP Networks

Configuration Attribute Summary

PT-AAL1/UA-AAL1/UA-IP

(I)SN08 and up

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