Lucent Technologies
Bell Labs Innovations

Gateway Platform
System Release Notes

Release 5.1.0.1
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Support

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Information product support

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1. Scope

This document provides information regarding the system software version 5.1.0.1 for the System Processor (SP), Compute Modules (CMs) and Input/Output Modules (IOMs). Topics covered are:

- File contents and notes
- Element Management System (EMS) and Billing server requirements
- New features and product improvements
- New and modified TL1 commands
- Known hardware limitations
- Known software limitations

Note: Although this document describes all of the features in version 5.1.0.1, only the Lucent Network Gateway features have been released for General Availability in version 5.1.0.1.

All hardware supported by this release is listed by CLEI code and part number in your copy of the *Planning and Engineering Guide*. This information is listed under the Part Information chapter in the manual.

2. Upgrade Files

The following files are required to upgrade to version 5.1.0.1.

- CPU = 5.1.0.0.254.SP.1
- CM = 5.1.0.0.10
- DS1_2 = 5.1.0.0.12
- OCTDS3 = 5.1.0.0.13
- OCTDS3_2 = 5.1.0.0.13
- OCTDS3_3 = 5.1.0.0.13
- TRIDS3 = 5.1.0.0.13
- TRIDS3_3 = 5.1.0.0.13
- VPS = 5.1.0.0.18
- ENA = 5.1.0.0.13

3. Upgrade Notes

An in-service upgrade from 5.1.0.0.254 to version 5.1.0.0.254.SP.1 is supported.

Note: Upon completion of an in-service upgrade, in order to revert back to the previous version of the switch software you need to re-load the previous version and perform a switch restart.

4. EMS/Billing/Traffic Server Requirements

- Element Management System (EMS) version 9.7.0.0 or higher is required.
- Billing and Traffic System (BTS) version 5.1.0.0.14 or higher is required.
- Traffic Collection Application (TCA) version 2.0.0.86 or higher is required.

5. New Features and Product Improvements

For software version 5.1.0.1, version 3.9 Class 4/Transit Switch features have been combined with initial distributed architecture support to provide Class 4/Transit Switch routing functionality. Please refer to the Plexus platform CD documentation set "07-09-04 with 3.9.0 and 3.9.0.7 release notes and SNMP MIBs" for more information regarding version 3.9 features.

Note: Class 5 features are not supported in this version

Note: Gateway MSC services are not supported in this version.

This version of system software provides the following features and improvements.

5.1 Distributed Architecture

5.1.1 Overview and Softswitch Products

This is the first release of a distributed architecture, which enables service providers to deploy multiple network topologies ranging from TDM or packet-based end-offices to nationwide communications networks. It has been designed to provide switching transparency to other network elements including legacy network switches and other standards-based network elements, regardless of nodal configurations.

The components include the Lucent Network Gateway, Lucent Network Controller, and Lucent Signaling Gateway.

Listed below are the softswitch products:

- The Lucent Network Gateway (LNG) is the cornerstone of the converged network, solving the problem of introducing next-generation services while still economically meeting the ongoing demand for traditional services. It is the bearer component of Lucent's Plexus platform product family.
- The Lucent Network Controller (LNC) is a critical network element residing at the core of voice networks. The LNC provides call processing, intelligence, services, and resource management functions for traditional and emerging packet applications.
- The Lucent Signaling Gateway (LSG) couples the distributed network to the SS7 network. ISUP and TCAP signaling messages are passed between the SS7 network and the LNC through an open, standardized M3UA/SCTP interface. The LSG provides the physical layer interface with the SS7 network and MTP 2 layer processing of SS7 messages. Higher layers are processed by the LNC.
- The Lucent Fully Distributed Softswitch delivers all the features and capabilities of PLUS in a traditional softswitch configuration and enables carriers to deploy networks of more than 500,000 ports.
- The Lucent Compact Switch (LCS) delivers all the features and capabilities in a single, compact chassis and enables carriers to deploy focused applications that support up to 80,000 ports.
- The Lucent Compact Controller integrates two major softswitch functions, signaling gateway and media gateway controller, into one convenient chassis and enables carriers to deploy networks of more than 200,000 VoIP ports
- The PlexView Management System (EMS) is a robust and flexible platform that has all the necessary capabilities to efficiently manage all the components of a PLUS softswitch-based architecture.

5.1.2 Operations Overview

The Operations Architecture is based on an open, modular, and flexible network management framework. ThePlexView EMS fits into the Telecommunications Managed Network (TMN) architecture at the Element Management Layer and provides an integrated solution for managing Fault, Configuration, Accounting, Performance, and Security functions for the Softswitch products.

A single EMS is used to operate, administer, manage and provision all softswitch products regardless of applications and physical network element configurations. For example, in the case of a Compact Softswitch, the same provisioning commands would be used as with a Fully Distributed configuration. However, the component-specific system software processes would be provisioned by the end-user to use the same local-defined IP addresses to communicate instead of remote, network-defined IP addresses.

In addition, the PlexView EMS can provide a northbound interface for alarms and faults to HP OpenView or equivalent network management systems.

5.1.3 Supported Common Equipment

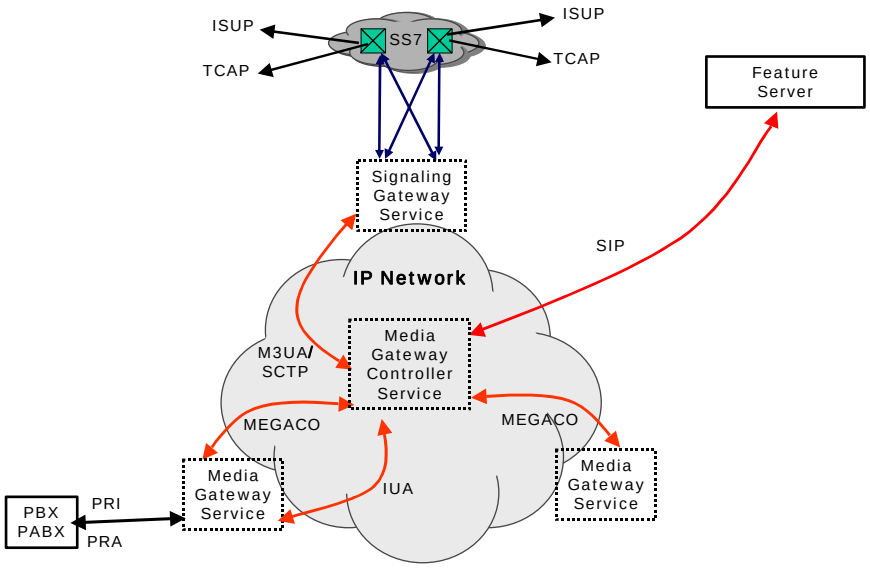
The following hardware modules are supported in this version. **Note:** The hardware modules in gray background are supported but are manufacturing discontinued.

Comcode	Part Number	Part Description
300729829	**85-3005-B**	Plexus 9000 Fan Tray (high speed fans)
#N/A	**85-3007-A**	Plexus 9000 Chassis Midplane III
300723814	**85-3008-A**	Plexus 9000 Chassis 14U High
300723830	**85-3009-A**	Plexus 9000 Fan Tray (high speed fans)
300729936	**89-0363-D**	Switch Fabric Module
300729944	**89-0364-A**	Switch Fabric A Rear Module
300730025	**89-0368-A**	DS1 I/O Rear Protection Module
300730041	**89-0375-A**	Switch Fabric B Rear Module
300730066	**89-0383-A**	Octal DS3 I/O Rear Module
300730082	**89-0386-A**	Octal DS3 Rear Protection Module
300730124	**89-0390-A**	10/100/1000 Ethernet Network Access Module
300746906	**89-0390-B**	10/100/1000 Ethernet Network Access Module w/RAM
300730132	**89-0391-A**	Quad 1000 Base T Ethernet Rear Module
300730157	**89-0395-B**	Voice Server Module 2688 Channel
300730199	**89-0399-B**	Quad 1000Base-LX Rear
#N/A	**89-0400-A**	Channelized Network Access Module
#N/A	**89-0402-A**	Channelized Network Access Quad OC-3 Rear Module
300730207	**89-0406-A**	System Processor Timing Module (SP3): Dual
300730215	**89-0410-A**	Triple DS3 STS-1 I/O with Tone Detect
300730223	**89-0411-A**	Octal DS3 STS-1 I/O with Tone Detect
300746922	**89-0414-A**	DS1/E1/J1 I/O Termination Module

Comcode	Part Number	Part Description
300730231	**89-0415-A**	DS1/E1/J1 I/O Rear Card
300730249	**89-0417-A**	System Processor III/Timing Module Rear (SP3): Dual
300763885	**89-0419-B**	Compute Module Front
#N/A	**89-0420-A**	Compute Module Rear
300730256	**89-0421-A**	Quad 1000Base-SX Rear
300730264	**89-0424-A**	Triple DS3 I/O Module With Tone Detect
300730272	**89-0425-A**	Octal DS3 I/O Module With Tone Detect

5.1.4 Signaling and Control Interfaces

Distributed system software functions transparently enable this range of network configurations. A single system software base results in substantially decreased development effort, enhanced system reliability, and improved time to market.



Note: The distributed architecture is compliant with all or major portions of the following standards, in so far as they apply to the subject applications that are supported in this version.

5.1.4.1 Lucent Network Gateway Interfaces

MEGACO
MEGACO interface support as defined by IETF RFC3015 and ITU-T H.248, equivalent to that in release 3.9.

The following H.248 packages are supported on the LNG.

- H248.7 (Generic Announcement support)
- H248.8 (Error Code and Service Change Reasons)
- H.248.11 (Media Gateway Overload Control Package)
- H248.14 (Inactivity Timer Package)
- H248.17 (Line Test Packages – limited subset only)
- H248.25 (Basic CAS)
- H248.24 (MF Tone Gen/Detection)
- H248.26 (Enhanced Analog packages)

The Lucent Network Gateway supports the following capabilities (under the control of the Lucent-defined Network Controller extensions) via Lucent-defined MEGACO extensions on the LNG.

- Enable or disable echo cancellations nonlinear processor (NLP) on a system-wide basis
- Set echo cancellation to be one of G.168, G.165, or G.164 on a system-wide basis
- Set padding (amplification or attenuation) of the bearer path on a system-wide basis

IUA

- Transport of ISDN D-channel messages via IUA/SCTP as defined in IETF RFC3057

LAPD

- TR-NWT-1268 - ISDN PRI Call Control Switching and Signaling Requirements

5.1.4.2 Lucent Network Controller

MEGACO

- MEGACO interface support as defined by IETF RFC3015 and ITU-T H.248, equivalent to that in release 3.9. The following H.248 packages are supported on the LNC.
  - H248.7 (Generic Announcement support)
  - H248.8 (Error Code and Service Change Reasons)
  - H.248.11 (Media Gateway Overload Control Package)
  - H248.17 (Line Test Packages)
  - H248.25 (Basic CAS)

- H248.24 (MF Tone Gen/Detection)
- H248.26 (Enhanced Analog packages)

The LNC supports the following capabilities via Lucent-defined MEGACO extensions on the LNC.

- Enable or disable echo cancellations nonlinear processor (NLP) on a per trunk group basis
- Set echo cancellation to be one of G.168, G.165, or G.164 on a per trunk group basis
- Set padding (amplification or attenuation) of the bearer path on a per trunk group basis

SIP Trunking

- SIP trunking as defined in IETF RFC 3261 is supported for connections to Feature Servers (e.g. Broadsoft) and VoIP Gateways (e.g., Cisco AS5300). SIP Trunking support is equivalent to that in release 3.9.

M3UA/SCTP

- Transport of ISUP and TCAP messages over M3UA/SCTP to and from a signaling gateway, as defined in IETF RFC3332, is supported.

National ISUP

- GR-317-CORE, Switching Systems Generic Requirements for Call Control Using Integrated Services Digital Network, Issue 3, November 1999
- GR-394-CORE, Switching System Generic Requirements for Interexchange Carrier Interconnection Using the Integrated Services Digital Network User Part (ISDNUP), Issue 3, November 1999

National Intelligent Network protocols

- GR-1298, AINGR: Switching Systems, Issue 5, November 1999
- GR-1299, AINGR: Switch - Service Control Point (SCP)/Adjunct Interface, Issue 5, November 1999

International ISUP

- ITU 97 (backwards compatible to 92), ETSI V2, Q.767 (1991)

International SS7 Variants

- Australian SS7 - Telstra CA.030 - ISUP; Issue 15/08/2003
- Mexican SS7 - NOM-112-SCT1-1999

IUA

- Transport of ISDN D-channel messages via IUA/SCTP as defined in IETF RFC3057 is supported. The LNC maintains one SCTP stream per D-channel interface. The LNC has the ability to connect to two IUA SGPs, one primary and one secondary. Upon detection of a connectivity fault to the primary IUA SGP, the LNC automatically switches over to the secondary IUA SGP.

ISDN PRI

- Telecordia TR-NWT-1268 ISDN PRI Call Control Switching and Signaling Requirements

5.1.4.3 Lucent Signaling Gateway Interfaces

M3UA/SCTP

- Transport of ISUP and TCAP messages over M3UA/SCTP to and from the Signaling Gateway, as defined in IETF RFC3332, is supported.

National SS7

- GR-246-CORE, Bell Communications Research Specification of Signaling System Number 7, Issue 3, December 1998
- GR-606-CORE, Common Channel Signaling, Issue 2, October 1996 w/Rev 1 November 1999, and Rev 2, November 1998

International SS7

- MTP3 - ITU 88 (Blue book) /ITU 92 (ITU White book)

International SS7 Variants

- Australian SS7 - Telstra CA.030 - ISUP; Issue 15/08/2003
- Mexican SS7 - NOM-112-SCT1-1999

5.2 New Hardware Modules

The following new hardware modules are supported in version 5.1.0.1.

5.2.1 Compute Modules

This module is similar to a System Processor but resides in an IOM slot. Front Compute Modules, part number 89-0419, are single-board quad-processor computers that provide call processing functions within the NC. Rear Compute Modules, part number 89-420, provide 60 GB of hard disk storage for the Front Compute Modules. Compute Modules are field replaceable and utilize 1:1 redundancy. A maximum of 7 protected pairs are supported to provide scalable call processing and an additional Compute Module protected pair is used for centralized call processing. In-service addition of Compute Modules is supported. Front Compute Modules can be changed without disconnecting the cables on the Rear Compute Modules. The switch chassis provides shared dual -48V DC power, cooling, and network access for the Compute Modules. They are only supported with Midplane III in the 85-3008 chassis.

Note: If a Compute Module needs to be moved from one slot to another, the corresponding MGs must be deleted prior to removing the CM. The corresponding MGs must then be re-entered after the CM has been installed in the new slot.

5.2.2 DS-1/E1 Modules

Modules provide first-time support for E1 interfaces. They also provide first-time support for DS-1 CAS as well as increased performance versus the current DS-1 IOM, part number 89-0360. DS-1/E1/J1 rear card, part number 89-0415, provides 28 DS-1 or E1 ports on two 64-pin Amp connectors. This module does not support a mix of T1 or E1; all ports must be the same protocol and are provisioned on a per module basis. Front IOMs can be protected by corresponding 89-0414 Front IOMs. Protection Front IOMs require DS-1 Rear Protect cards, part number 89-0368. These IOMs are only supported in a chassis with Midplane II (85-3004 chassis) and Midplane III (85-3007 and 85-3008 chassis). Modules also provide hardware support for J1 interface and DS-1 GR-303.

5.2.3 Channelized OC-3 I/O Modules

The Channelized OC-3 front module provides 224 DS1 interfaces capable of supporting SS7 and ISDN protocols in a Lucent Network Gateway (LNG) or a Lucent Signaling Gateway (LSG). An OC-3 module, 89-0400-A, requires a Midplane III (chassis 85-3007 or 85-3008). It also requires an OC-3 rear module (89-0492-A). The rear module can terminate four OC-3 lines. Only the first eight STS-1s can be provisioned. STS-1 through STS-6 can be bulk provisioned; STS-7 and STS-8 cannot be bulk provisioned, but must be provisioned individually.

A maximum of four protected pairs of Channelized OC-3 modules are supported. A Channelized OC-3 module cannot be provisioned if there is a card in its mated pair I/O slot that is not a Channelized OC-3 module. The protected pairs can be installed in:

- I/O-1 and I/O-2
- I/O-3 and I/O-4
- I/O-5 and I/O-6
- I/O-7 and I/O-8

5.3 Platform Features

5.3.1 IP Interface Failover Enhancement

The non-aliased IP address on the backup SP is now active so that the connect state of the IP interface is known prior to failover.

5.3.2 Own Point Codes

The LSG supports up to eight own Point Codes. The LNC supports up to four own Point Codes. The LNC also supports the ability to validate and route incoming/outgoing calls for a signaling gateway that supports multiple Originating Point Codes (OPC).

5.3.3 Trunk Groups

Trunk groups that span multiple Media Gateways are supported. Trunk group hunting algorithms can also be used against these trunk groups.

5.4 CLASS 4/Transit Switching

5.4.1 Routing/Translations

Call routing can be provisioned by originating parameters such as carrier, trunk group, subscriber or other factors like time-of-day, day-of-week, least-cost routes and more. Class 4 switching is supported, as implemented in version 3.9.

CLASS 4 router features:

- Partitioning by: Ingress Trunk Group, ISUP Parameters, Schedule
- Multiple route plans per partition
- Multiple keys used for routing
- Route Advance
- Least cost and time of day routing
- Class/quality of service routing
- VPN/private dialing plan support
- CLASS 4 Subscriber: ANI based services and Controls
- Digit Modification DN: Modifies: CDPN, CGPN, CHRGN
- Digit Modification: Gen: Modifies: Gen Address and Gen Digits Parameters
- Digit Modification: Parameters Modifies: CPC, OLI, JIP, CIP, Call Type, LATA
- Digit Modification TNS: Modifies: Carrier ID Code and 1NX/0ZZ codes
- Parameter Suppression: Removes all specified parameters from inbound or outbound messages
- Parameter Defaults: Parameters and values that will be modified on all inbound or outbound messages
- Call Treatments: Play Announcements, Tones, Re-Route (optionally with digit modification), Recursion

Refer to the Advanced Routing section in the *Product Overview Guide* for a more detailed description of this feature.

5.5 International Features

The initial international version of PLUS provides a Packet Tandem application with Transit Routing Services.

Note: IP access customers requiring Class 5 residential and business services are served via a third-party Feature Server (e.g., Broadsoft) with the Plexus acting as the PSTN gateway.

5.5.1 SS7

Up to 256 Destination Point Codes are supported per LSG. Up to 4 linksets can be defined per Destination Point Code. A maximum of 1024 SS7 MTP3 Routes are supported (256 * 4). Linksets that are assigned to a particular Destination Point Code can be assigned the same priority or different priorities. A maximum of 64 linksets are supported. Up to 16 links are supported per linkset. Access Links (A-links), fully associated links (F-links), and extended links (E-links) are supported. Up to 64 low-speed signaling links are supported per LSG.

5.5.2 Numbering Plans

International Number Plan support provides country-specific dialing functionality for countries outside the North American Numbering Plan (NANP). Country-specific numbering plans can be selected by the end-user and include numbering plan properties (e.g., min/max area code lengths), special numbers properties and numbering plan prefixes. This version supports numbering plans for Australia and Mexico.

5.5.3 Routing/Translations

The following routing enhancements were added in this version to support International requirements.

5.5.3.1 Calling Party Category Routing

Ability to route on Calling Party Category now supports International CPC values.

5.5.3.2 Overdecadic Digits Routing

Overdecadic digits are received and sent by the switch as prefixes for routing purposes over ISUP. Support for overdecadic digits (A, B, C, D, E, F) in CDPN, CGPN and GAP parameters has been added.

5.5.4 Tones Plan

The Ringback call progress tone required for a Class 4 transit application is the only call progress tone supported in this version. Ringback tone is generated for incoming calls from the PSTN network that terminate on the feature server. Note: For IP access, all call progress tones are generated by the SIP phone or by the far-end terminating switch. This version supports tone plans for Australia, and Mexico.

5.5.5 CODEC Support

Support for the G.711 A-law CODEC has been added in this version. G.711 μ- law, G.726, G.729a and G.723.1 codecs, as implemented in version 3.9 are also supported. All CODECs frame sizes are configurable and negotiable, with the exception of G.723.1. Supported frames sizes are 10, 20, 30, and 40 ms. G.723.1 is limited to 30ms and 60ms frame sizes.

5.5.6 Announcements

This version supports a single instance of the standard system announcements per switch. Pre-recorded system announcements are available at all TDM and IP interface points in A-Law encoding for Australia and Mexico. Australian announcements are recorded in English with an Australian accent. Mexican announcements are recorded in Spanish.

5.5.7 Telstra Switch-based LNP

For incoming PSTN calls, the Plexus screens for ported numbers and releases the call with cause code 14 if there is a match. For outgoing calls, if the Plexus receives a release with cause code 14, it re-attempts the call by pre-pending D522 to the called number. In the case of an IP access application, the feature server would route all ported calls to the Plexus, which maintains the list of ported numbers. If there is a match, the Plexus pre-pends a ported-number prefix D522 to the called party number and then routes the call to the PSTN.

Note: LNP screening via INAP (CS1/CS2) is not supported in this version.

5.5.8 Class 4 Transit Interworking

This version supports the interworking of SIP and ISUP trunks. Specific countries supported in this release are Australia and Mexico. SIP – ISUP interworking is compliant with SIP-ISUP (RFC3398).

5.5.9 ISUP Charging Message

Transiting of ISUP Charge message is supported for ISUP-ISUP transit calls.

5.5.10 Supplementary Services

Transiting of Calling Line Identification Presentation (CLIP) and Calling Line Identification Restriction (CLIR) is supported in this version.

5.6 Billing/Statistics File Based GDI Version 2

This version incorporates several enhancements to the GDI record buffer format and transfer protocol. Instead of using a single large pre-allocated record buffer file with separate record index and buffer maintenance files, the new architecture writes blocks of records to smaller individual buffer files. File name conventions and various sub-directories to hold the record files have replaced maintenance files. In addition, all log messages use the standard switch logging so the control file and trace sub-directory have been removed. Normal software trace goes to log/gdi_trans.out. Any record buffer file problem messages need to persist across reboots, so they are written to /home/bts/intervention.out.

The record buffer files are initially created in /home/bts/tmp and accumulate records until the time (default five seconds), space (default 1MB), or record count (default 2000) threshold is exceeded. The file is then closed and moved into /home/bts/pri. Files in /home/bts/pri are transferred to the BTS server in the order created. As each file transfer is confirmed from the BTS, the file is moved into /home/bts/sec. The file transfer protocol is TFTP over UDP, but using GDI private ports (1986, the same as the original BTS but UDP instead of TCP).
The file name convention incorporates both GMT timestamp and file sequence number. A sorted directory list will always be in file creation order, even when the sequence number wraps from 999999 to 000000. The basic filename format looks like YYYYMMDDhhmmss.SSSSSS.R (e.g., 20040511143324.000001.0) where Y thru s is year:month:day:hour:minute:second, S is the sequence number, and R is the restart indicator (normally 0, only expected to be 1 the first time the SP or CM ever creates a file and initializes to sequence 0). The sequence number allows for missing file detection. The timestamp indicates when a file was produced AND maintains the correct file order when the sequence number wraps back to zero.

To avoid generating excessive files in a single directory, which would degrade file system performance, the filename is actually split between the hour and minute characters, with the left portion used as a sub-directory name and the right portion as the actual filename. Only one hour of record buffer files are collected in a single sub-directory.

Once a record buffer file is transferred to a BTS server (ANY BTS!), it is moved from the pri/ directory to the sec/ directory and will not be transferred to any other BTS server (unlike the prior GDI architecture).

A sample directory structure for May 12, 2004 at 08:13 GMT is listed below:
/home/bts/intervention.out - persistent log
/home/bts/intervention/ - no intervention files
/home/bts/pri/2004051208/1320.000008.0 - waiting for transfer
/home/bts/sec/2004051208/1315.000007.0 - already transferred
/home/bts/tmp/2004051208/1325.000009.0 - accumulating records

Gdi_trans will attempt to keep the record buffer disk partition(s) full of old record buffer files. As it needs to make space available for new records, the oldest secondary files will be removed to maintain about 10 minutes of free disk space (parameters in a database table are used to calculate the number of bytes required in 10 minutes). If a connection to a BTS server is unavailable, the files will remain in the primary directory where they can't be cleaned up. Eventually gdi_trans will raise the record buffer full alarm when there is no more space for new buffer files. NEVER manually move files between tmp, pri, and sec while the switch is running. Gdi_trans maintains an internal list of the files and locations that it only rebuilds at boot time.

The new GDI transfer protocol uses UDP instead of TCP, so the concept of *connection* is different. If gdi_trans successfully communicates with the GDI server on BTS, it considers the connection UP. If it encounters a failure (timeout or bad reply) during a transfer, it considers the connection DOWN. If gdi_trans has no files to transfer for 60 seconds, it will attempt to transfer a dummy file to test for a valid response from the BTS server and use that to determine connection UP or DOWN.

5.7 Release 3.x.x and PLUS Release 5.0 Interworking

5.7.1 Interconnect Options

SIP, ISUP and CAS interconnect is supported between version 3.x switches and the PLUS 5.0 architecture options that are supported in this version. Please contact your Lucent Sales Engineer for additional information regarding interconnect and R3.9 migration options.

5.8 Regulatory Compliances and Agency Approvals

Safety	ANSI/UL 60950-1 CAN/CSA C22.2 No. 60950-1-03 IEC 60950-1:2001, First Edition EN 60950-1
EMC	FCC 47 CFR Part 15 Class A EN 55022:1998/A1:2000/A2:2003 Class A VCCI Class A/B AS/NZS CISPR 22:2002 Class A EN 300 386 v1.3.1 EN6100-4-3 EN6100-4-4 EN6100-4-2 EN6100-4-6 EN6100-4-5

5.9 New TL1 Commands

The following TL1 commands were added in version 5.0.

5.9.1 Facility Commands

These commands appear under the heading “Facility Commands” in the TL1 Commands Reference Guide.

- OPR/RLS-PROTNSW-OC3 - Defined in GR 833; Operate Protection Switch OC3 Facility - this command initiates an external SONET line protection request. The request remains active until it is released via the RLS-PROTNSW-OC3 command or is overridden by a higher priority, externally initiated or automatic, protection switch request.
- DLT-E1 – Enables you to disconnect an E1 port from operation. Refer to the *Installation and Operations Manual*, DLP-608, for procedures.
- ED/ENT/RTRV-E1 – Enables you to edit, enter or retrieve parameters associated with an E1 port on an I/O module, or a timing port, in the Plexus. These parameters include framing, line code, service mode, timing reference, primary state, and secondary state. ENT-E1 will not work unless ENT-EQPT has already been issued. Refer to the *Installation and Operations Manual*, DLP-608, for procedures.
- INIT-REG/RTRV-PM-E1 – Enables you to retrieve current and historical performance data for E1 ports on DS3 IOMs.

- RTRV/SET-TH-E1 – Enables you to retrieve or set the current threshold level of one or more monitored performance counts associated with specific E1 ports in the Plexus.
- DLT-OC3 – Enables you to disconnect an OC3 port from operation.
- ED/ENT/RTRV-OC3 – Enables you to edit, enter or retrieve parameters associated with an OC3 port on an I/O module, or a timing port, in the Plexus. These parameters include framing, line code, service mode, timing reference, primary state, and secondary state. ENT-OC3 will not work unless ENT-EQPT has already been issued.
- ALW/INH-LPBK-OC3 – Enables the Plexus to automatically allow or inhibit remote end initiated loopbacks that are on a specified OC3 port in the Plexus.
- OPR/RLS-LPBK-OC3 - Enables you to operate or release a loopback on a specified OC3 port associated with a test access session in the Plexus. The loop may be accomplished at either the near or the far end.
- ED/RTRV-T0 – Enables you to change or retrieve the default behavior for a DS0 on a T1 in a Plexus configured as a network gateway.

5.9.2 ISDN PRI Commands

These commands appear under the heading “ISDN Primary Rate Interface Commands” in the *TL1 Commands Reference Guide*.

- DLT-ISDN-BCHAN – Enables you to delete an ISDN B channel.
- ED/ENT/RTRV-ISDN-BCHAN – Enables you to change, enter or retrieve the properties of an ISDN B channel. ENT-ISDN-BCHAN will not work unless ENT-MGC-MGASSOC, ENT-MGC-MGIUA, ENT-ISDN-LNK, and ENT-ISDN-IF have already been issued.

5.9.3 ISDN User Adaptation Commands

These commands appear under the heading “ISDN User Adaptation” in the *TL1 Commands Reference Guide*. Refer to the *Installation and Operations Manual*, DLP-633, for procedures.

- DLT-IUA-SYS – Enables you to delete the IUA (ISDN User Adaptation) system and free the resources allocated to the IUA layer. You must first delete all other IUA entities; i.e., AS, ASP, ASP endpoints, and interfaces.
- ED/ENT/RTRV-IUA-SYS – Enables you to change, establish, or retrieve the properties of the IUA (ISDN User Adaptation) system in the Plexus.
- DLT-IUA-ASP – Enables you to delete an ASP (Application Server Process; i.e., a remote media gateway controller) node in the IUA (ISDN User

Adaptation) system in the Plexus. You must issue DLT-IUA-ASP for each IP address list in the ASP to delete the ASP.

- ENT/RTRV-IUA-ASP – Enables you to establish or retrieve the description for an ASP (Application Server Process; i.e., a remote media gateway controller) node in the IUA (ISDN User Adaptation) system in the Plexus. ENT-IUA-ASP will not work unless ENT-IUA-SYS and ENT-IUA-ENDPTASP have already been issued.
- DLT/ENT/RTRV-IUA-ENDPTASP – Enables you to delete, establish or retrieve a list of remote IP addresses (endpoints) with their associated Plexus ports, for ASPs (Application Server Processes; i.e., remote media gateway controllers). ENT-IUA-ENDPTASP will not work unless ENT-IUA-SYS has already been issued.
- DLT-IUA-AS – Enables you to delete an AS (Application Server) from the IUA (ISDN User Adaptation) system in the Plexus. You must issue DLT-IUA-AS for each AS/ASP combination in the AS to delete the AS.
- ENT-IUA-AS – Enables you to establish an AS (Application Server – a logical grouping of remote peer ASP nodes) in the IUA (ISDN User Adaptation) system in the Plexus. Issue this command for each ASP included in the AS. ENT-IUA-AS will not work unless ENT-IUA-ASP has already been issued.
- RTRV-IUA-AS – Enables you to retrieve the priority currently assigned to an AS (Application Server – a logical grouping of remote peer ASP nodes) in the IUA (ISDN User Adaptation) system in the Plexus. Refer to the *Installation and Operations Manual*, DLP-633, for procedures.
- DLT-IUA-LNK – Enables you to delete an IUA Interface Identifier that is associated with a physical interface for signaling messages on the Plexus (i.e., the ISDN D-channel on a specific port) with an Application Server (containing one or more Application Server Processes).
- ENT/RTRV-IUA-LNK – Enables you to create or retrieve an IUA Interface Identifier that is associated with a physical interface for signaling messages on the Plexus (i.e., the ISDN D-channel on a specific port) with an Application Server (containing one or more Application Server Processes). ENT-IUA-LNK will not work unless ENT-IUA-AS has already been issued. SS7 Transport (MTP2/3) Commands.

5.9.4 SS7 Transport (MTP2/3) Commands

These commands appear under the heading “SS7 Transport (MTP2/3) Commands” in the *TL1 Commands Reference Guide*. Refer to the *Installation and Operations Manual*, DLP-675, for procedures.

- DLT-PRFL-ISUPANSI – Enables you to delete a profile for a circuit identification code in the North American Numbering Plan.

- ED/ENT/RTRV-PRFL-ISUPANSI - Enables you to edit, enter or retrieve a profile for a circuit identification code in the North American Numbering Plan. Use ED-PRFL-ISUPANSI to change the values of the ISUP timers for the CIC.
- DLT-PRFL-ISUPITU – Enables you to delete a profile for a circuit identification code in the European or Australian numbering plans.
- ED/ENT/RTRV-PRFL-ISUPITU – Enables you to edit, enter or retrieve a profile for a circuit identification code in the European or Australian numbering plans. Use this command to change the values of the ISUP timers for the CIC. Use ED-PRFL-ISUPITU to change the values of the ISUP timers for the CIC.
- DLT-PRFL-ISUPITUQ767 – Enables you to delete a profile for a circuit identification code in the European or Australian numbering plans defined by ITU Q.767.
- ED/ENT/RTRV-PRFL-ISUPITUQ767 – Enables you to edit, enter, or retrieve a profile for a circuit identification code in the European or Australian numbering plans defined by ITU Q.767. Use this command to change the values of the ISUP timers for the CIC.
- DLT-PRFL-ISUPMEXICO - Enables you to delete a profile for a circuit identification code in the Mexican numbering plan.
- ED/ENT/RTRV-PRFL-ISUPMEXICO – Enables you to edit, enter or retrieve a profile for a circuit identification code in the Mexican numbering plan. Use this command to change the values of the ISUP timers for the CIC. Inter-Machine Trunks Commands.

5.9.5 Inter-Machine Trunk Commands

These commands appear under the heading “Inter-Machine Trunk Commands” in the *TL1 Commands Reference Guide*.

- DLT-SG-ISUPPROXY – Enables you to delete the association between an LSG and a remote or adjacent switch.
- ENT/RTRV-SG-ISUPPROXY – Enables you to establish or retrieve the ISUP variant to use for communications between an LSG and a remote or adjacent switch. ENT-SG-ISUPPROXY will not work unless ENT-SG-PCOWN and ENT-SG-PC have already been issued.

5.9.6 Routing Commands

These commands appear under the heading “Routing Commands” in the *TL1 Commands Reference Guide*. Refer to the *Installation and Operations Manual*, DLP-660, for procedures.

- DLT-DEF-GENIE – Enables you to delete a generic information element definition from the system.
- ED/ENT/RTRV-DEF-GENIE – Enables you to change, enter or retrieve the type of information required for user-specific or network-specific information elements, or for generic digits.

5.9.7 Global Configuration Commands

These commands appear under the heading "Global Configuration Commands" in the *TL1 Commands Reference Guide*.

- DLT-MGC-PRFLMEGACO – Enables you to delete a profile for configuring MEGACO protocol parameters used by an LNC when communicating with MEGACO-controlled media gateways. Refer to the *Installation and Operations Manual*, DLP-589, for procedures.
- ED/ENT/RTRV-MGC-PRFLMEGACO – Enables you to change, enter or retrieve a profile for configuring MEGACO protocol parameters used by an LNC when communicating with MEGACO-controlled media gateways. Refer to the *Installation and Operations Manual*, DLP-589, for procedures.
- DLT-MGC-MGASSOC – Enables you to delete an association between an LNC and a media gateway. Refer to the *Installation and Operations Manual*, DLP-676, for procedures.
- ED/ENT/RTRV-MGC-MGASSOC – Enables you to change, enter or retrieve the primary state of the association between an LNC and a media gateway. Refer to the *Installation and Operations Manual*, DLP-676, for procedures.
- DLT-MGC-SGASSOC – Enables you to delete an association between an LSG and an LNC. Refer to the *Installation and Operations Manual*, DLP-676, for procedures.
- ED/ENT/RTRV-MGC-SGASSOC – Enables you to change, establish or retrieve an association between an LSG and an LNC by defining the signaling gateway's IP addresses and state, and the port on the LNC that transmits M3UA data to the signaling gateway over SCTP (Simple Control Transport Protocol). Refer to the *Installation and Operations Manual*, DLP-676, for procedures.
- DLT-MGC-PCOWN – Enables you to delete an own point code for an LNC. Refer to the *Installation and Operations Manual*, DLP-549, for procedures.
- ED-MGC-PCOWN – Enables you to change whether the own point code can be used by IN services. You cannot negate the ability of the own point code to be used by IN services if the point code is in use by an IN service. Refer to the *Installation and Operations Manual*, DLP-549, for procedures.

- ENT-MGC-PCOWN – Enables you to establish an own point code for a Lucent Network Controller. An LNC can support up to four own point codes. Refer to the *Installation and Operations Manual*, DLP-549, for procedures.
- RTRV-MGC-PCOWN – Enables you to retrieve the own point code for an LNC. Refer to the *Installation and Operations Manual*, DLP-549, for procedures.
- DLT-MGC-PC – Enables you to delete the association of an own point code for the LNC with the destination point code for a remote media gateway controller. Refer to the *Installation and Operations Manual*, DLP-549, for procedures.
- ED/ENT/RTRV-MGC-PC – Enables you to change, establish, or retrieve the attributes of a trunk between the LNC and a remote media gateway controller. Refer to the *Installation and Operations Manual*, DLP-549, for procedures.
- ED-MGC-SYS – Enables you to assign a port range for CALEA and configure the M3UA-SCTP (Simple Control Transport Protocol) subsystem on the LNC. Refer to the *Installation and Operations Manual*, DLP-677, for procedures.
- RTRV-MGC-SYS - Enables you to retrieve the port range for CALEA and the attributes of the M3UA-SCTP (Simple Control Transport Protocol) subsystem on the LNC. Refer to the *Installation and Operations Manual*, DLP-677, for procedures.
- DLT/ED/ENT/RTRV-MGC-MGIUA – Enables you to delete, change, create or retrieve an association between the IUA subsystem in an LNC and a remote media gateway. Although this command concerns the LNC, RFC 3057 considers the IUA subsystem as part of the signaling gateway. Refer to the *Installation and Operations Manual*, DLP-633, for procedures.
- DLT-SG-PCOWN – Enables you to delete an own point code for an LSG. You cannot delete the own point code without first deleting any association with a remote switch established with ENT-SG-ISUPPROXY. Refer to the *Installation and Operations Manual*, DLP-549, for procedures.
- ED/ENT/RTRV-SG-PCOWN – Enables you to change, establish, or retrieve the own point code for an LSG. An LNC can support up to four own point codes. An LSG can support up to eight own point codes. Refer to the *Installation and Operations Manual*, DLP-549, for procedures.
- DLT-SG-MGCASSOC – Enables you to delete an association between an LNC and an LSG. Refer to the *Installation and Operations Manual*, DLP-676, for procedures.
- ED-SG-MGCASSOC – Enables you to change the primary state of an LNC associated with an LSG. Refer to the *Installation and Operations Manual*, DLP-676, for procedures.

- ENT-SG-MGCASSOC – Enables you to establish an association between an LNC and an LSG by defining the own point code(s) for the LNC, it's SP-A IP address, the starting port number for the range of 512 ports used for Connection Control and Signaling (CCS) processes, and the LNC's primary state. Refer to the *Installation and Operations Manual*, DLP-676, for procedures.
- RTRV-SG-MGCASSOC – Enables you to retrieve an LNC's own point code(s), SP-A IP address, starting port number for the range of 512 ports used for Connection Control and Signaling (CCS) processes, and state. Refer to the *Installation and Operations Manual*, DLP-676, for procedures.
- DLT-SG-PC – Enables you to delete an adjacent or remote point code for a signaling gateway. You cannot delete a point code without first deleting any association with the Plexus established with ENT-SG-ISUPPROXY. Refer to the *Installation and Operations Manual*, DLP-549, for procedures.
- ED/ENT/RTRV-SG-PC – Enables you to change, establish, or retrieve the attributes of an adjacent or remote point code for a signaling gateway. ENT-SG-PC will not work unless ENT-PRFL-PC has already been issued. Refer to the *Installation and Operations Manual*, DLP-549 for procedures.
- RTRV-STATUS-SGPC – Enables you to retrieve information indicating the status of a point code for a signaling gateway.
- ED/RTRV-SG-SYS – Enables you to configure or retrieve the attributes of the MTP3 and M3UA-SCTP (Simple Control Transport Protocol) subsystems on an LSG. Refer to the *Installation and Operations Manual*, DLP-677, for procedures.
- RTRV-PM-TRKGRP – Enables you to retrieve current and historical performance data for a trunk group.
- INIT-REG/RTRV-PM-MGCMEGACOMSG – Enables you to reset, or retrieve performance monitoring data for a MEGACO association between the LNC and a specific MG.
- INIT-REG/RTRV-PM-MGCMGIUA – Enables you to reset, or retrieve the performance monitoring data for the IUA protocol layer, or the individual IUA Interface (D-Channel). The data gathered is maintained, collected by the IUA layer at the local LNC.

5.9.8 Network Controller Protocol Commands

These commands appear under the heading "Media Gateway Controller Commands" in the *TL1 Commands Reference Guide*.

- DLT-MGC-ASSOC – Enables you to delete the association between an LNG and a media gateway controller. Refer to the *Installation and Operations Manual*, DLP-676, for procedures.
- ED/ENT/RTRV-MGC-ASSOC - Enables you to change, establish, or retrieve the attributes of an association between the LNG and a media gateway controller. Refer to the *Installation and Operations Manual*, DLP-676, for procedures.
- ED/RTRV-MEGACO-SYS – Enables you to modify or retrieve the various thresholds, timers, and other parameters related to provisioning a MEGACO stack. Refer to the I*nstallation and Operations Manual*, DLP-589, for procedures.
- ED-MG-SYS – Enables you to change the primary state of the LNG and the amount of time until it shuts down. Refer to the *Installation and Operations Manual*, DLP-677, for procedures.
- RTRV-MG-SYS – Enables you to retrieve the state of the LNG and the amount of time until it shuts down. Refer to the *Installation and Operations Manual*, DLP-677, for procedures.
- RESTART-MG - sends a MEGACO Service Change command with method "Restart" to the media gateway controller. Note: It is up to the MGC to perform audits and free-up terminations.

5.9.9 Numbering Configuration Commands

These commands appear under the heading "Numbering Configuration Commands" in the *TL1 Commands Reference Guide*. Refer to the *Installation and Operations Manual*, DLP-572, for procedures.

- DLT-AREACODE – Enables you to delete from the system an area code in a country that is not part of the North American Numbering Plan (NANP).
- ED/ENT/RTRV-AREACODE – Enables you to change, enter or retrieve the attributes of an area code in a country that is not part of the North American Numbering Plan.
- ED-COUNTRY - Enables you to change the minimum and maximum number of digits, including country code, in the called party number.

5.9.10 Channel-Associated Signaling Commands

- DLT/ED/ENT/RTRV-MGC-PRFLCAS – Enables you to delete, change, establish, or retrieve a CAS (Channel-Associated Signaling) profile for an LNC. Refer to the *Installation and Operations Manual*, DLP-602, for procedures.
- DLT/ED/ENT/RTRV-MG-PRFLCAS – Enables you to delete, change, establish, or retrieve a CAS (Channel-Associated Signaling) profile for an

LNG. Refer to the Installation and Operations Manual, DLP-602, for procedures.

5.9.11 VoIP Connections Commands

- RTRV-PM-VOIPCKT – Enables you to retrieve current and historical performance data for a Voice over IP (VoIP) termination (circuit). Refer to the *Installation and Operations Manual*, DLP-653, for procedures.
- RTRV-PM-VCCVOIP - based on the GR833 RTRV-PM command set, retrieves Performance Monitoring data for a VoIP Virtual Circuit Connection (VCC) carrying Voice over IP (VoIP).

5.10 Modified TL1 Commands

The following commands were modified in version 5.0.

5.10.1 Facility Commands

- RTRV-COND-<ReptAid> - Added E1 and OC3 to AID.
- RTRV-PM-T3 - Changed definition for *monlev* parameter for known restriction – reference: anomaly 30077.
- INIT-REG-T1 / T3 - Changed input AIDs from *entity_id* to *pm_id*.
- ENT/ED/DLT/RTRV-STS1 – Added *timd (*Trace Id Mismatch Detection) parameter (default enabled).
- ED/ENT/DLT/RTRV-OC3 - Added *swMode, wtrTmr, sdTmr, sfTmr* parameters for the Channelized OC3 I/O module.

5.10.2 Equipment Commands, Chassis

- ED/RTRV-CHASSIS-EQPT - Added 23 new parameters. Removed 6 parameters. Reordered parameter syntax. Changed range for *chassisType* parameter. Refer to the *Installation and Operations Manual*, DLP-544, for procedures.
- ED/RTRV-SWITCH-CFG - Added *nmbPlan* parameter. Removed *locNumLen*, *custUse1*-5, and *custVar1*-5 parameters. Refer to the *Installation and Operations Manual*, DLP-582, for procedures.
- DLT/ENT/RTRV-IPROUTE - Substituted “SPMGT” and “SPSIG” for “SP” as values for 1st part of AID. Refer to the *Installation and Operations Manual*, DLP-567, for procedures.

- ED/RTRV-TMGREF - Added value TMG-E1 to range for *primarySrcType* parameter. Refer to the *Installation and Operations Manual*, DLP-522, for procedures.

5.10.3 Equipment Commands, Module

- INIT-T0 - Changed maximum DS0 range in AID from 24 to 31 for STS1/T3.
- CPY-MEM – Added support for System Processor (SP) modules. Refer to the *Installation and Operations Manual*, DLP-611, for procedures.

5.10.4 Fault Commands

- RTRV-ALM - Added E1 and OC3 values to AID.

5.10.5 ISDN PRI Commands

- DLT/ED/ENT/RTRV-ISDN-LNK - Added *iuaId* parameter. Added `porttype` parameter (options T1 or E1). Changed AID from *src* to *isdnLnkId* and made it mandatory. Changed AID to support *ifNum* up to 2,147,483,645. Changed command descriptions and examples. Replaced *port* parameter with *termed* parameter. Removed *startChanNum* and *endChanNum* parameters. Refer to the *Installation and Operations Manual*, DLP-529, for procedures.
- DLT/ED/ENT/RTRV-ISDN-IF - Added *mgNam*e (up to 30 chars, mandatory). Added *t302* parameter. Removed *svcType, N200, N201, T200, T203* parameters. Refer to the *Installation and Operations Manual*, DLP-546, for procedures.
- SW-TOPROTN_ISDN - Changed *infNum* to support up to 2,147,483,645.
- RTRV-STATS-ISDNMSG – Changed AID to support *infNum* up to 2,147,483,645.

5.10.6 ISDN User Adaptation Commands

- INIT-REG-LAPD/ RTRV-PM-LAPD - Moved command from ISDN section to IUA section. Removed ISDN and GR303 from AID. Corrected input and output examples. Refer to the *Installation and Operations Manual*, DLP-673, for procedures.

5.10.7 Media Resources

- ED/RTRV-AUDIO-SYS – Added `anncPlan` parameter. Noted that “CA” and “MX” values for `anncPlan` are not yet implemented.

5.10.8 SS7 Transport (MTP 2/3) Commands

- DLT/ED/ENT/RTRV-PRFL-PC - Added *mtp3ITUT19* and *mtp3ITUT21* parameters. Maximum range for *mtp3T18* and *mtp3T25* was changed from 6553.5 to 100. Changed default values for *mtp3T6* to 0.5, *mtp3T10* to 30, and *mtp3T11* to 65. Refer to the *Installation and Operations Manual*, DLP-524 for procedures.
- DLT/ED/ENT/RTRV-SLK - Added *sgId* parameter. Added E1 support to *iomPort* parameter. AID maximum range was changed from 40 to 64. Changed max range for *chan* from 24 to 31. Changed max range for *lsetId* from 20 to 64. Changed max range for *mtp2PrflId* from 40 to 128. Changed max range for *mtp3PrflId* from 20 to 128. Changed default value for *resetMtp3T31* from "Y" to "N". Refer to the *Installation and Operations Manual*, DLP-526, for procedures.
- ED/RTRV-STATE-SLK - Changed AID maximum range from 40 to 64. Refer to the *Installation and Operations Manual*, DLP-595, for procedures.
- RTRV-STATUS-SLK - Changed AID maximum range from 40 to 64. Refer to the *Installation and Operations Manual*, DLP-635, for procedures.
- DLT/ED/ENT/RTRV-PRFL-SLKL2 - AID maximum range was changed from 40 to 128. Maximum range for *mtp2T1* was changed from 20 to 50. Maximum range for *mtp2T2* was changed from 30 to 150. Default for *mtp2T3* was changed to 11.5. Default value for *mtp2T7* was changed from 0.5 to 0.2. Maximum range for *mtp2ProvNormal* was changed from 5 to 10. Refer to the *Installation and Operations Manual*, DLP-531, for procedures.
- DLT/ED/ENT/RTRV-PRFL-SLKL3 - Added *mtp3T19, mtp3ITUT22,* and *mtp3ITUT23* parameters. AID maximum range was changed from 20 to 128. Maximum range for *mtp3T31* was changed from 6553.5 to 200. Maximum range for *mtp3T33* was changed from 6553.5 to 600. Maximum range for *mtp3T34* was changed from 6553.5 to 200. Refer to the *Installation and Operations Manual*, DLP-550, for procedures.
- DLT/ED/ENT/RTRV-LSET - Added *opc* parameter. Added dependencies. AID maximum range was changed from 20 to 64. Range was changed for *adjDpc* to support international point codes. Refer to the *Installation and Operations Manual*, DLP-525, for procedures.
- ED/RTRV-STATE-LSET - AID maximum range was changed from 20 to 64. Refer to the *Installation and Operations Manual*, DLP-595, for procedures.
- RTRV-STATUS-LSET - AID maximum range was changed from 20 to 64. Maximum range for *ss7LsetStaNmbActLnks* was changed from 40 to 128. Refer to the *Installation and Operations Manual*, DLP-596, for procedures.
- DLT/ENT/RTRV-ROUTE-SS7 - Changed 1st part of AID range to support international point codes. Changed 2nd part of AID maximum range from 20

to 64. Changed *lsetPriority* to name-defined. Refer to the *Installation and Operations Manual*, DLP-552, for procedures.

- RTRV-STATUS-ROUTESS7 - Changed 1st part of AID range to support international point codes. Changed 2nd part of AID maximum range from 20 to 64. Refer to the *Installation and Operations Manual*, DLP-640, for procedures.
- OPR-CVT - Corrected input example.

5.10.9 Test and Diagnosis Commands

- INIT-REG/RTRV-PM-CC - Changed AID to support *mgName* (up to 30 chars) in addition to Plexus. Refer to the *Installation and Operations Manual*, DLP-571, for procedures.
- TRC-CALL-EQPT – Changed output format.
- TRC-CALL-LNK – Changed output format.
- TRC-CALL-TRK – Changed output format.

5.10.10 Inter-Machine Trunks Commands

- ED/ENT/RTRV-TRKGRP - Added *icOverlap, minDgts, maxDgts, minDgtTmr, maxDgtTmr, custUse1, custVar1, custUse2*, and *custVar2* parameters. Added "NONE" to allowed values for *echoCtrlType* parameter. Removed BICC from *sigtype* parameter range. Replaced ISUP in *sigtype* range with national and international variants. Changed *dpc* parameter to *ownDpc*. Changed *cotFreq* parameter default from 8 to 0. Changed ENT-PRFL references for *tgProfile* parameter. Refer to the *Installation and Operations Manual*, DLP-528, for procedures.
- ED/ENT/RTRV-PRFL-SDP - Removed BICC references. Refer to the *Installation and Operations Manual*, DLP-656, for procedures.
- ED/ENT/RTRV-SS7-TRK - Added *mgName* and *termId* parameters. Removed *iomPortDs0* parameter. Changed *trkName* range from 20 to eight characters. Changed name-defined *stateInfo* in RTR-SS7-TRK to position-defined <*pst*>[,<*sst*>]. Changed examples. Changed dependencies. Explained RESET value. Refer to the *Installation and Operations Manual*, DLP-528, for procedures.
- DLT/ED/ENT/RTRV-CAS-TRK - Added *mgName* and *termId* to parameter block. Changed AID from *casTrkAid* [channel on a port] to *casTrkId* [CAS member on a trunk group]. Changed set of values for *sst* parameter. Changed examples. Changed dependencies. Removed *tgn* block parameter. Refer to the *Installation and Operations Manual*, DLP-602, for procedures.

5.10.11 Routing Commands

- ED/ENT/RTRV-ROUTE - Noted dependency of *dgtModKey* on *rtList* - reference: anomaly 28565. Changed ISDNIF range 1 to 2,147,483,645. Refer to the *Installation and Operations Manual*, DLP-573, for procedures.
- DLT/ED/ENT/RTRV-TRANS-PLAN – Changed *dialPlan* parameter type from enum to BoolYn (default - Y). Refer to the *Installation and Operations Manual*, DLP-659, for procedures.
- ED/ENT/RTRV-DIGITMOD-DN - Added NP to AID and *newNp* parameter. Replaced REPLACENAI with REPLACENAINP for *newNp* support.
- ED/ENT/RTRV-DIGIT-SCREEN - Added NP to AID.
- ENT/ED/RTRV-ROUTE-DIGITS – Added NP to AID for CDPN, CGPN, CHRGN.

5.10.12 Global Configuration Commands

- ED/RTRV-TRAFFICSTATS - Added *initCdrGen* parameter. Refer to the *Installation and Operations Manual*, DLP-563, for procedures.
- SET/RTRV-DATASERVER-HOSTCFG – Added timers.

5.10.13 Numbering Configuration Commands

- ED/ENT/RTRV-CALLING-AREA - Changed *dgtsDial* parameter type from BoolYn to enum. Refer to the *Installation and Operations Manual*, DLP-579, for procedures.

5.10.14 Equal Access to Carriers Commands

- ED/RTRV-INSYS - Added *scpReassyTmr* parameter. Renamed *defSstTmr* parameter to s*cpSstTmr* and changed to optional. Refer to the *Installation and Operations Manual*, DLP-591, for procedures.
- ED/ENT/RTRV-CARRIER – Added *kpMode* parameter. Refer to the *Installation and Operations Manual*, DLP-575, for procedures.

5.10.15 Intelligent Network Functions Commands

- ENT/ED/DLT/RTRV-SLHR-SCP - Added INAP, TCAP and SCCP variants. Added support for International Point Codes to *DPC* and *BPC*. Refer to the *Installation and Operations Manual*, DLP-591, for procedures.
- ENT/DLT/RTRV-SCCP-SSN - Added support for International Point-Codes. Changed parameters to name defined. Removed *BPC*. Refer to the *Installation and Operations Manual*, DLP-590, for procedures.
- ENT/DLT/RTRV-SCCP-ROUTE - Added support for International Point Codes. Moved pc to AID. Removed the dependency from pc, no longer need

to provision the DPC before provisioning the ROUTE. Refer to the *Installation and Operations Manual*, DLP-590, for procedures.

5.10.16 Session Initiation Protocol Commands

- ED/RTRV-SIP-SYS command. Changed timer units from milliseconds to seconds. Changed inviteTmout and t2 to decinum. Changed inviteTmout default to 45. Changed t1 range to 0.2 – 60. Changed t2 range to 1 to 180. Removed *idleTmr*, *cleanupTmr*, and *maxConn* parameters. Refer to the *Installation and Operations Manual*, DLP-628, for procedures.

5.10.17 VoIP Connections Commands

- RTRV-STATUS-CTXT - Expanded definitions for *tdmTermIdList* and *voipTermIdList* parameters. Refer to the *Installation and Operations Manual*, DLP-645, for procedures.
- RTRV-STATUS-VOIPTERMID - Changed AID syntax and examples. Refer to the *Installation and Operations Manual*, DLP-645, for procedures.
- RTRV-STATUS-TDMTERMID - Added *echoCancDisabler* and *echoCancResource*. Added *ds0Id* to output. Changed AID to be *tdmTermId* or *ds0Id*. Changed *TDM TermId* format. Refer to the *Installation and Operations Manual*, DLP-645, for procedures.

5.11 Removed TL1 Commands

ISDN PRI

- RTRV-STATUS-ISDNBCHAN
- RTRV-STATE-ISDNBCHAN

SS7 Transport (MTP 2/3)

- DLT/ED/ENT/RTRV-PC
- RTRV-STATUS-PC

System, OS Access

- EXEC-BULK-DOWNLOAD
- EXEC-RUN-PATCH
- EXEC-TOP

Inter-Machine Trunk

- DLT/ENT/RTRV-BICC-TRK
- DLT/ED/ENT/RTRV-PRFL-CIC

Global Configuration

- DLT/ED/ENT/RTRV-MGC
- DLT/ED/ENT/RTRV-SG
- ED/ENT/RTRV-SS7SYS

6. Corrected Defects

The following error defects have been resolved since the initial beta software release.

Tracking Number	Symptom	Resolution
37177	Jurisdiction number doesn't show for a PSTN to mobile call with NP and CALEA mobile.	Fixed in 5.1.0.0.160.
35468	Intermittent JDBC connection failure.	Fixed in 5.1.0.0.160.
36519	Billing: Mobile serial number displays incorrectly.	Fixed in 5.1.0.0.160.
36338	Generic Name parameter gets removed in a SS7-to-SIP-T call.	Fixed in 5.1.0.0.160.
36338	The Generic Name parameter is not being passed in the outgoing SIP-T INVITE for SS7-to-SIP-T calls.	Fixed in 5.1.0.0.254.
37643	The Connection Control and Signaling (CCS) log files contain debugging information in addition to alarms.	Fixed in 5.1.0.0.254.
37718	MGC-to-MGC call over SIP-T trunk group is not working.	Fixed in 5.1.0.0.254.
37778	LNP peg count for LNP_CALLS_REL_BY_DONSWTCH (number of calls released by other switch) is not incrementing properly.	Fixed in 5.1.0.0.254.
37777	The EMS montype for PM RCs "HAVE1PREFIX" does not match the TL1 spelling.	Fixed in EMS.
38251	Attempt to perform a RESET_ALL operation on a 16,000 CIC Trunk group times out	Fixed in 5.1.0.0.254.
38307	TL1 ENT-LIST-TRIGESC command does not accept endrange=NULL.	Fixed in 5.1.0.0.254.
38309	TL1 ED-LIST-TRIGESC command does not work correctly.	Fixed in 5.1.0.0.254.
38318	Deleting an IUA association to an MG does not the clear IUA alarms.	Fixed in 5.1.0.0.254.
38349	PM counters are not re-initialized to 0 after issuing TL1 INIT-REG commands.	Fixed in 5.1.0.0.254.
38471	SIP system process failure occurred during load testing.	Fixed in 5.1.0.0.254.
38526	TL1 ENT-SG-PC command returns All Resources Busy.	Fixed in 5.1.0.0.254.

Tracking Number	Symptom	Resolution
38533	Switch allows deletion of a DIGIT-SCREEN that is associated with a trunk group.	Fixed in 5.1.0.0.254.
38575	The range for LATA ID in RATE CENTER (100-999, 10000-99999) is not being enforced.	Fixed in 5.1.0.0.254.
38586	Condition Type in DATA SERVER Alarm is misleading to hardware FAULT as it is stated as PROGFLT	Fixed in 5.1.0.0.254.
38651	TL1 RTRV-STATUS-CM and RTRV-STATUS-MGCPROC commands display incomplete information.	Fixed in 5.1.0.0.254.
38668	TL1 RTRV-STATUS-CM does not display information for all MGs.	Fixed in 5.1.0.0.254.
38874	No ringback tone for SS7 to SIP/SIPT calls	Fixed in 5.1.0.0.254.
37691	Performance monitoring of SS7 Routes fails if there is more than one route to a DPC.	Fixed in 5.1.0.0.254.
37749	The TL1 RTRV-PM-T1 command is working properly, but the counter values cannot be initialized using the TL1 INIT-REG-T1 command.	Fixed in 5.1.0.0.254.
37755	The TL1 CALL-CAPTVERBOSE command for ISDN calls shows an incorrect completion message	Fixed in 5.1.0.0.254.
37408	The TL1 RTRV-STATUS-MGCPROC command does not show both the working and protection GDI_TRANS port 'connections' to the Billing and Traffic Server.	Fixed in 5.1.0.0.254.
37414	Billing record sequence numbers do not include the CM pair number in the highest two numbers of the record sequence number which is required to make them unique.	Fixed in 5.1.0.0.254.
37645	The HLR Queries to provisioned escape list entries are not being bypassed when the EndRange parameter in the ENT-LIST-TRIGESC command is set to a NULL value (which is the DEFAULT value).	Fixed in 5.1.0.0.254.
35803	The preferred packet size in the Media Gateway SDP Profile is not being used. Instead a default value of 20 ms is being used.	Fixed in 5.1.0.0.254.
36939	Blocking of class 4 subscriber calls is not working when specified by originating NPA, NPA-NXX, or full 10 digit number.	Fixed in 5.1.0.0.254.

Tracking Number	Symptom	Resolution
37742	DIGITMOD is not working. NATNUM is supposed to go as "UNKNOWN" NAI in the outgoing IAM but it is going as NATNUM. TL1 TEST-TRANS command indicates that there is no route to destination, even though the routing is working.	Fixed in 5.1.0.0.254.
37575	Intermittent egress ISUP encoding errors are occurring during ANSI-41 load testing (MsgType:1, parameter:239 dropped error100).	Fixed in 5.1.0.0.254.
37712	The EMS looses connectivity to the Signaling Gateway (SG) when the SG has 12 SS7 links configured and it is receiving MTP-2 abnormal BSN events.	In watch state.
37826	The VSM protection card is In-Service, Working, Protecting but the EMS is showing 0 for all available resources.	Invalid.
36520	Call Forwarding Busy and Call Forwarding Don't Answer calls have a Service Feature Code of 12 instead of 14 or 152.	Could not reproduce.
37764	MGC interoperability issue with simulated Empirix/Hammer MGs. Note: On-site engineering testing to obtain further interoperability information is scheduled for the week of May 9th.	Could not reproduce.
39070	The MG does not report an alarm indicating that it cannot communicate with the MGC when the MGC-MG association has been put into OOS&MA by the MGC.	Fixed in this version.
39065	The MGC is sending BYE packets containing two Max-Forwards headers.	Fixed in this version.

6.1 Unresolved Error Defects

Listed below are the unresolved error defects in this version.

Tracking Number	Symptom
33674	The TL1 RTRV-PM-ISDNMSG command is not working properly.
33765	Performance monitoring of SIP messages (RTRV-PM-SIPMSG) is not working for some valid values (480 Temporarily Unavailable, 487 Request Terminated-> Call Forward No Answer, 302 Moved Temporarily -> Call Forward Universal, 406 Not Acceptable).

7. Hardware Installation and Provisioning Considerations

- A front SP-3 module, 89-406, requires a rear SP-3 module, 89-0417, front switch fabric card (89-0363-D), and Midplane III (chassis 85-3007 or 85-3008).

  Note: The OS port is above the SIGA port on the rear SP-3 module, whereas the OS port is below the SIG port on the rear SP module.

- Front and rear CM modules, 89-419 and 89-420 respectively, require SP-3 modules, and Midplane III (chassis 85-3008 ONLY). Slot I/O-9 cannot be used for a CM. Up to 8 protected CM pairs are allowed in a single chassis. A MGC chassis that is fully loaded with CMs has a power dissipation of 1800 Watts.

- The high performance Triple and Octal DS-3 Front IOMs, 89-0424 and 89-0425, require a Rear Octal DS-3 module, 89-0383, and a rear Octal Protection module, 89-0386. They are only supported in a chassis with Midplane II (85-3004) and Midplane III (85-3007 and 85-3008).

- The high performance Triple and Octal DS-3 Front IOMs, 89-0424 and 89-0425 can be protected by corresponding 89-0424/0425 IOMs as well as by 89-0410/0411 IOMs.

  Note: ISDN, MTP2, CAS and GR-303 peak signaling rates must be taken into account when using a 89-0410/0411 to protect a 89-0424/0425, since they support higher signaling rates than the 89-0410/0411 IOMs (25%, or greater, depending on the signaling).

  Note: They cannot be used to protect corresponding Triple and Octal DS-3/STS-1 IOMs, part numbers 89-0397/ 0398/ 0410/0411, since they do not support STS-1.

  Note: They cannot be used to replace previously provisioned Triple and Octal DS-3/STS-1 IOMs, part numbers 89-0397/ 0398/ 0410/ 0411, since they do not support STS-1.

- A VSM can be provisioned in any I/O slot, but it will only fail over to I/O slot 9. Version 5.0.0.0.47 is the minimum version that is required to support VSM protection in I/O slot 9.

  Note: In versions 3.X and earlier versions of 5.0, the VSM would only failover to slot I/O 17.

- ENA IOMs can only be provisioned in slot 8 and will only fail over to slot 10.

- A OC-3 module, 89-0400-A, requires a Midplane III (chassis 85-3007 or 85-3008). It also requires a OC-3 rear module (89-0492-A). The rear module can terminate four OC-3 lines. Only the first eight STS-1 can be provisioned. STS-1 through STS-6 can be bulk provisioned. STS-7 and STS-8 cannot be bulk provisioned. They must be provisioned individually. A maximum of four protected pairs of Channelized OC-3 modules are supported. A Channelized OC-3 module cannot be provisioned if there is a card in its mated

pair I/O slot that is other than a Channelizd OC-3 module. The protected pairs can be installed in:

  - I/O-1 and I/O-2
  - I/O-3 and I/O-4
  - I/O-5 and I/O-6
  - I/O-7 and I/O-8

- A Midplane III (85-3007 and 85-3008) chassis requires an Octal rear-protection IOM on DS3 IOMs regardless of whether the front IOMs are Octal or Triple DS3 IOMs (rear-working IOMs can be Triples, but the protection IOM must always be Octal).
- An Octal rev. A can be backed up with either an Octal rev. A or an Octal rev. B; however, an Octal rev. B can only be backed up with an Octal rev. B. IOM failover won't work if Octal rev. B tries to fail over to an Octal rev. A.
- A Switch Fabric (SF) module must be inserted before its associated SP module.
- SP and SF Rev. B or later are required for operation with Octal DS3 IOMs.
- Chassis Part Number 85-3000, CLEI Code BAM9LJ0GRA, does not support Octal IOMs.
- CAS is supported on Octal, part number 89-0398 and higher and triple DS3, part number 89-0397 and higher.
- When using the ENT-EQPT command, redundancy can be set equal to SEC (redundancy=sec) only if the IOM AID specified is in a protection slot. Attempting to provision an unsupported slot as a SEC redundancy returns a DENY message.
- You cannot provision slot 11 (IOM slot 9) if the ENA port 4 is provisioned, nor can you provision the ENA port 4 if slot 11 (IOM slot 9) contains a provisioned card. This is because there is a bandwidth limitation on the SF card.
- If an SP module is manually removed and then reinserted, it will not automatically be restored to service. You must enter the TL1 command, `RST-EQPT::SP-{A|B}`, to initialize and synchronize the previously removed SP.

8. Software Installation and Provisioning Considerations

8.1 Equipment Management Issues

- The absence of carrier on the signaling or management ports on the protection SP will not prevent the manually executed SW-TOPROTN-EQPT::SP-x TL1 command from being executed. It will result in an SP failover, even if the signaling or management ports do not have carrier (an Ethernet cable has been pulled).

Note: It is recommended that you check for alarms before issuing any equipment commands that force failovers.

- The associated Connection Control and Signaling (CCS) process must be rebooted when a TL1 DLT-MGC-MGASSOC command is issued.
- When an IOM or CM is manually put into an OOS state using the TL1 `SW-TOPROTN-EQPT` command or by selecting `Switch to Protection` within the EMS, it must be manually put back IS using the TL1 `RST-EQPT` command or by setting the card's state to IS with the EMS `Modify Card` screen prior to issuing a TL1 `SW-TOWORK-EQPT` command or EMS `Switch to Working` screen.
- If a CM needs to be moved from one slot to another, the corresponding MGs must be deleted prior to removing the CM. The corresponding MGs must then be re-entered after the CM has been installed in the new slot.
- Support for the following software features is not available in this software version but is on the roadmap for a future 5.X release: H248.2 (Text Conversation and FAX) – MG and MGC.
- The IP addresses must be correct and unique on both SPs before bringing the switches into service.
- IP addresses for OS, signaling and craft Ethernet ports should not be on the same subnet. If it is desired that they be on the same subnet, contact Lucent Worldwide Services at 1-866-582-3688 for provisioning assistance.
- If the signaling interfaces are not configured with IP addresses, an alarm from each SP, stating "lost link on signaling Ethernet," will be generated.
- When switching from SS7 to ISDN signaling or vice-versa, the signaling link and interface must be deleted and the Octal DS3/DS1/DS3 IOMs must be rebooted before provisioning can occur.
- If you pull an SP, thus taking it out of service, you must wait 10 seconds before reinserting the SP.
- Using the ED-DATE TL1 command to change the time is not required or recommended when the NTP is provisioned. If the new date differs by more than 1000 seconds, then the NTP daemon may shut down. If this happens, you should reset the NTP server to 0.0.0.0 then back to the correct server IP address.
- A single IOM cannot support signaling links of both 56K and 64K. The link speed must be the same for all links on a single IOM. This restriction does not apply to Triple DS3 IOMs, part numbers 89-0397 and higher, and Octal DS3 IOMs, part numbers 89-0398 and higher, as a mix in the link speed creates no problems.
- Midplane II (85-3004 chassis) and Midplane III (85-3007 and 85-3008 chassis) use slot pairs for provisioning line timing. Therefore, you cannot

have just one IOM in a paired slot. Slots 1 and 2 are paired, as are slots 8 and 10. To use line timing, any Triple DS3 IOMs must be in place in a given slot pair or any Octal DS3 IOMs.

8.1.1 DS3 IOMs

- The ED/ENT-T3 command does not support LINECDE=CCHAN; it only supports B3ZS.

8.1.2 STS-1 IOMs

- GR-253 (R6-372) states that there must be a method provided to detect and report the actual contents of the Received STS Path Trace message. The RTRV-STS1 command presently only supports the expected Rx Trace message and the Tx Trace message.
- The system reports an STS Trace ID Mismatch when the J1 byte is inaccessible. GR-253 (R6-382) states that STS Path Trace monitoring should be suspended if the J1 byte in the Path Overhead cannot be accessed (e.g., LOS, LOF, LOP-P and AIS-P). This means that the system should not report an STS Trace ID Mismatch just before it declares any of the above mentioned alarm conditions, or after they clear.
- STS reports Trace ID Mismatch events.

8.1.3 Voice Server Modules

- When the precedence of RTP packets is changed with `ED-VOIP-SYS`, the voice server module needs to be rebooted for the settings to take effect. This can be done with an IOM failover to the protection voice server module followed by an IOM revert of the voice server module.

8.1.4 Primary Rate ISDN Line

- As indicated by the ED/ENT-ISDN-IF command responses, the 4ESS ISDN PRI variant is currently not supported in this version.
- Two-way Primary Rate ISDN lines on the Plexus should be provisioned as National ISDN-2 or DMS-100.
- The Plexus supports National ISDN-2, 4ESS, 5ESS, and DMS-100 variants for one-way calls leaving the Plexus.

8.2 SS7 and ISDN Signaling

- The capturing of SS7 MTP3 signaling messages via `SigTrace` is supported in this version. The capture of ISDN Q.931 or CAS signaling messages is not supported in this version.

- When editing a T1 out-of-service the mode (OMODE) must be set to AIS in order to bring MTP2 and LAPD down.
- Currently, the signaling point code restart procedure is not supported.
- Alarms for ISUP timer expiry are disabled.
- Alarms are not generated if the initial condition for a remote Point Code is down.
- A maximum of 1250 destination point codes can be configured.
- A signaling link set must contain at least one signaling link with a link priority set to 0. Any additional links, in the link set, must have contiguous priorities.
- Plexus currently does not support T-321 timers.
- Trunk Group IDs must be unique in the system.
- There can be no more than 100,000 interfaces formed by TRKGRPS+ ISDNIF+CASIF in the router. The breakdown of each consists of the following: a maximum of 3808 configurable ISDN interfaces and TRKGRPS each; and a maximum of 91392 CAS-IF interfaces (currently, however, it is recommended that you not configure more than 64,000 CAS-IFs).

8.3 CAS Signaling

- The CAS profileID for an existing CAS trunk group cannot be edited. In order to change the CAS profileID, all of the trunks in the trunk group must be deleted, the trunk group must be then be deleted and subsequently re-added with the new CAS profile.
- The maximum CAS ports (T1s) that can be provisioned for one Octal (89-0398, 89-0411, 89-0425) is 150 T1 ports (3600 T0s).
- Parameters in the CAS-IF command cannot be edited after changing the ALLOC parameter equal to CIRCULAR for one CAS-IF entry.

8.4 Call Processing

- The SS7 signaling links are not protected during an IOM hardware failover.
- When an IOM is in protection mode, attempting to add, modify or delete ISDN or signaling links from the protected IOM will return DENY messages.

8.5 Billing/Statistics

- The ISDN PRI Traffic CCS report does not currently update the available circuit (AVLCIRC) field to reflect ISDN channels that are OOS.
- Because Feature Group D functionality is fully supported from an Access Tandem and Inter-Exchange Carrier standpoint for CAS and ISUP in release 3.8 and above, originating carrier information (such as connect date, connect

time, and elapsed time) is only valid for Feature Group D trunks. Note: End Office Feature Group D functionality is not fully supported. For terminating carrier access calls, the carrier timing information is populated even if the incoming trunk group is not Feature Group D.

8.6 Session Initiation Protocol

- In release 3.10, the default NPI for CPN for SIP initiated calls was UNKNOWN. Starting with this release, the default NPI value is ISDN. Customers that were previously assuming that the default value was UNKNOWN or were using digitmods to change the NPI value, need to make appropriate configuration changes (add/remove the digitmods).
- Changing media streams in SIP 18x responses and subsequent 200 OK responses is not supported since it is it is contrary to RFC 3261.
- A SIP CANCEL message is not sent out after Invite Timer (T1) expiry which is consistent with RFC 3261 but inconsistent with RFC 3398.

8.7 Integrated VoIP

- The system does not currently verify the IP link connectivity state on IOM-8 prior to reverting.

  Note: You should verify the status of the IP links on IOM-8 prior to reverting.
- If you change the VSM `aal5enc` encoding parameter (VCMUX, LLCSNAP), a VSM reboot is required for the change to take effect.
- If you change the ENA `format` parameter (802.3, DIX II), an ENA reboot is required for the change to take effect.
- Tone Relay support is limited to DTMF Events per RFC2833, Section 3.10, Table 1. Other types of tones are not supported.
- Fax/modem support between the Plexus and some third-party equipment (such as gateways, IADs) is only available on G711 calls. For calls using compressed codecs (using G.729 protocol), fax/modem calls won't work with these vendors if they use proprietary signaling protocols.
- The Plexus supports G.711, G.726, G.729, G.723.1, CLEARMODE, X-CCD, CISCO-CLEAR-CHANNEL codecs, each with 10, 20, 30 and 40ms sampling, except for G.723.1, which supports 30 and 60ms sampling
- If you want to modify the endptvoip IP address on a GigE port, you must edit the ENET port Out of Service (OOS) and then use the RMV-EQPT command on the VSM. There is no way to dynamically update the IP addresses without dropping all calls associated with a VSM. For example, information would be entered as such:

  ED-ENET::IOM-8-ENET-1::::OOS; (GigE port)

RMV-EQPT::IOM-11; (VSM)

DLT-ENET-ENDPTVOIP::IOM-8-ENET-1;(Delete Endpoint)

ENT-ENET-ENDPTVOIP::IOM-8-ENET-:::IPADDR=10.18.140.211, MATEIPADDR=10.18.140.212,SUBNETMASK=255.255.255.0, DEFAULTGATEWAY=10.18.140.1:IS;
(Enter new IP address to the endpoint)

ED-ENET::IOM-8-ENET-1::::IS;

RST-EQPT::IOM-11;

- When the SDP profile contains multiple deep compression CODECs (G.729, G.723.1 or G.726), only the first available deep compression CODEC in the preference list will be included in the originating offer from the Plexus, e.g., G.729, G.711, G.726. This results in G.711 and G.729 being the offered CODECs in the originating offer (provided G.729 is available; otherwise, G.726 or G.711 would be offered). This limitation applies to CODEC negotiation across SIP.
- MF Tone detection is not supported on the VSM in this release. In order to support MF Tone detection, 89-0410/0411/0424/0425 IOMs, which have on-board DSPs to perform MF tone detection, must be used.
- The Plexus only supports Payload Type 13 comfort noise for G.711 and G.726.
- RTCP reports sent for T.38 calls are invalid and should be ignored.

8.8 System Software

- UNIX system security does not support password aging or security logging for FTP and remote login access.
- The date/time should be set before configuring the system and adding the IOM. It is advised that GMT time be used. Please contact Lucent Worldwide Services at 1-866-582-3688 for instructions on how to provision the switch clock for GMT time.
- If an IOM protection switch occurs, the monitoring function stops. Once an IOM revert occurs, the cross-connect to the test port has to be put out of service (OOS) and restored.
- Currently, there is no way to retrieve the status of a nailed up DS0 connection unless you know the exact DS0 of one of the connections. RTRV-CRS-T0 without an AID should return the status of test port settings.
- The ED-SERVICE-ACCESSCODE must put the VMS in-service to support voice mail. The command would appear as: ED-SERVICE-ACCESSCODE::VMS::::IS;.

8.9 SS7 MTP-2 Performance

- Listed below are the number of SS7 MTP-2 messages per second that can be supported by various IOMs at different IOM CPU utilization rates, assuming that the IOM is ONLY handling SS7 signaling and IMTs. The table does not indicate the calls per second for SS7 links since these performance numbers are a function of TCAP transactions as well as ISUP (or BICC) usage. Please contact your Lucent Sales Engineer, for assistance in determining the numbers of calls per second that can be supported for your particular application(s).

  Note: The total number of messages per second per chassis is 8,500 messages/sec (at 85% utilization).

Description	Part Number	MTP-2 Msgs/sec (80%)	MTP-2 Msgs/sec (40%)
3 DS-3/STS-1	89-0397	544	272
8 DS-3/STS-1	89-0398	544	272
3 DS-3/STS-1 w digit collect	89-0410	544	272
8 DS-3/STS-1 w digit collect	89-0411	544	272
28 T1/E1/J1	89-0414	768	384
3 DS-3 w digit collect	89-0424	768	384
8 DS-3 w digit collect	89-0425	768	384

9. TL1 Restrictions

- The EXEC-BULK-DOWNLOAD command is not supported in this version.
- The TEST-TRANS command has the following limitations:
  - It does not trigger/emulate any SCP interactions.
  - Treatments related to announcements capture the announcement ID. If the announcement takes multiple arguments, those may not be captured.
- The following parameters in the ED-MGC-SYS command cannot be edited in this version and should be left:
  - cdr
  - iua
  - m3ua
  - megaco
  - mgcp
  - sipStaPortRange
- The *sipCgpMap* parameter for SIP and SIP-T trunk groups in the ENT/ED/RTRV-TRKGRP command is not implemented; leave it blank.

- ED/ENT-TRKGRP incorrectly allows you to set the BEARERCAP parameter to RESDIGITAL or UN UNRESDIGITAL in the ITU-T stack. These are ASNI only values.
- The minDgt2Seize parameter in the DLT/ED/ENT/RTRV-PC is not supported in this version, even though TL1 incorrectly lets you provision this un-supported parameter.
- RTRV-PM-T3::IOM-1-T3-1-PORT-1; :: [<montype>], [<monlev>] should not be executed with *montype* parameter equal to *all* since the large amount of data returned will lead to a failure in writing the data on the TL1 -port and subsequently result in the TL1 session being closed.
- Occasionally a “reply timeout” message will be seen while trying to execute an ENT, ED or DLT TL1 command. The command may have still worked and should be validated with a RTRV.
- The number of TL1 retrieve (RTRV) commands is limited to five results per second.
- Signaling TL1 commands respond “All Resources Busy” while standby SP is synchronizing.
- Logging into the TL1 agent cannot be done during part of SP sync on the standby side.
- When using the INIT-SYS, ED-BILLSYS, and EXEC-RESTORE-PLEXUS commands, the target identifier (TID) must always be used. Therefore, the form of the command must be, as an example, INIT-SYS:TID:::10; or ED-BILLSYS:TID::::10; or EXEC-RESTORE-PLEXUS:TID::::10;
- Before restoring a backed up database using the EXEC-RESTORE-PLEXUS command, contact Lucent Worldwide Services at 1-866-582-3688 for assistance to ensure a successful database restoration.
- The *T3 Idle* and *T3 Map* parameters in the ENT/ED/RTRV-T3 command are not supported.
- For the commands INIT-REG-T1/T3/E1/OC3/STS1, NULL is the only accepted value in the *mondat* and *montm* parameters. *ALL* is the only *montype* that will clear the registers.
- The “state” information on the SIP-IPADDR command is not persistent. If the primary IP address has failed over to the secondary IP address, and then you fail over the SP, your first SIP call after the SP failover will initially attempt the call on the wrong IP address. The call will complete on the secondary IP address once the SP determines the primary is down. The secondary IP address will then be made “active” and all subsequent calls will be made using the "active" IP Address.
- For the DLT/ED/ENT/RTRV-SS7-TRK command, ITU TRKGRP CICs are restricted to 0-4095. This command has been modified to allow for ED/DLT

of non-contiguous ranges. RTRV returns a status of no more than 4,000 CICs at a time; re-invoke the command to return information for successive groups of 4,000.

- The RTRV-CAS-TRK command returns a status of no more than 4,000 CICs at a time; re-invoke the command to return information for successive groups of 4,000.

10. IP Security Considerations

IP Filtering, an IP packet filtering application that runs on the SPs is available in this build. It is important to note that IP packet filtering is only a subset of full firewall/Session Border Controller functionality (e.g., packet filtering, bandwidth management, user authentication, network access rules, network address translation, and back-to-back user-agent). Because IP filtering and processing filtering rules is a CPU-intensive task that can degrade overall switch performance, the use of an external network firewall is highly desirable and recommended.

However, in the absence of a firewall, IP filtering can protect the switch from unsophisticated attacks or accidental misuse.

IP Filtering **is not enabled** upon initial boot up. Should IP filtering be required, contact Lucent Worldwide Services at 1-866-582-3688 (Option 5) for assistance. An LWS representative will refer you to DLP-XXX, which contains specific steps for activating/de-activating and editing security settings. DLP-XXX can be obtained from your LWS representative. It is recommended that security be enabled during the switch maintenance window in order to minimize any impact to call completion during initial activation.

Secure Shell (SSH) is unavailable in this release. If OS-level switch access is required, and IP filtering is required on the switch, then add an IP filtering rule to enable TELNET clients to connect to the switch (on port 23) prior to enabling filtering.