Maintenance

for the

Avaya™ G700 Media Gateway

controlled by an

Avaya™ S8300 Media Server or an

Avaya™ S8700 Media Server

555-234-101
Issue 2
October 2002

Notice

Every effort was made to ensure that the information in this document was complete and accurate at the time of printing. However, information is subject to change.

Preventing Toll Fraud

“Toll fraud” is the unauthorized use of your telecommunications system by an unauthorized party (for example, a person who is not a corporate employee, agent, subcontractor, or is not working on your company's behalf). Be aware that there may be a risk of toll fraud associated with your system and that, if toll fraud occurs, it can result in substantial additional charges for your telecommunications services.

Avaya Fraud Intervention

If you suspect that you are being victimized by toll fraud and you need technical assistance or support, in the United States and Canada, call the Technical Service Center's Toll Fraud Intervention Hotline at 1-800-643-2353.

How to Get Help

For additional support telephone numbers, go to the Avaya Web site:

http:/www.avaya.com/support/

If you are:

- Within the United States, click *Escalation Lists*, which includes escalation phone numbers within the USA.
- Outside the United States, click *Escalation Lists* then click *Global Escalation List*, which includes phone numbers for the regional Centers of Excellence.

Providing Telecommunications Security

Telecommunications security (of voice, data, and/or video communications) is the prevention of any type of intrusion to (that is, either unauthorized or malicious access to or use of) your company's telecommunications equipment by some party.

Your company's “telecommunications equipment” includes both this Avaya product and any other voice/data/video equipment that could be accessed via this Avaya product (that is, “networked equipment”).

An “outside party” is anyone who is not a corporate employee, agent, subcontractor, or is not working on your company's behalf. Whereas, a “malicious party” is anyone (including someone who may be otherwise authorized) who accesses your telecommunications equipment with either malicious or mischievous intent.

Such intrusions may be either to/through synchronous (time-multiplexed and/or circuit-based) or asynchronous (character-, message-, or packet-based) equipment or interfaces for reasons of:

- Utilization (of capabilities special to the accessed equipment)
- Theft (such as, of intellectual property, financial assets, or toll-facility access)
- Eavesdropping (privacy invasions to humans)
- Mischief (troubling, but apparently innocuous, tampering)
- Harm (such as harmful tampering, data loss or alteration, regardless of motive or intent)

Be aware that there may be a risk of unauthorized intrusions associated with your system and/or its networked equipment. Also realize that, if such an intrusion should occur, it could result in a variety of losses to your company (including but not limited to, human/data privacy, intellectual property, material assets, financial resources, labor costs, and/or legal costs).

Responsibility for Your Company’s Telecommunications Security

The final responsibility for securing both this system and its networked equipment rests with you - Avaya’s customer system administrator, your telecommunications peers, and your managers. Base the fulfillment of your responsibility on acquired knowledge and resources from a variety of sources including but not limited to:

- Installation documents
- System administration documents
- Security documents
- Hardware-/software-based security tools
- Shared information between you and your peers
- Telecommunications security experts

To prevent intrusions to your telecommunications equipment, you and your peers should carefully program and configure:

- Your Avaya-provided telecommunications systems and their interfaces
- Your Avaya-provided software applications, as well as their underlying hardware/software platforms and interfaces
- Any other equipment networked to your Avaya products.

Voice Over Internet Protocol (VoIP)

If the equipment supports Voice over Internet Protocol (VoIP) facilities, you may experience certain compromises in performance, reliability and security, even when the equipment performs as warranted. These compromises may become more acute if you fail to follow Avaya's recommendations for configuration, operation and use of the equipment. YOU ACKNOWLEDGE THAT YOU ARE AWARE OF THESE RISKS AND THAT YOU HAVE DETERMINED THEY ARE ACCEPTABLE FOR YOUR APPLICATION OF THE EQUIPMENT. YOU ALSO ACKNOWLEDGE THAT, UNLESS EXPRESSLY PROVIDED IN ANOTHER AGREEMENT, YOU ARE SOLELY RESPONSIBLE FOR (1) ENSURING THAT YOUR NETWORKS AND SYSTEMS ARE ADEQUATELY SECURED AGAINST UNAUTHORIZED INTRUSION AND (2) BACKING UP YOUR DATA AND FILES.

Standards Compliance

Avaya Inc. is not responsible for any radio or television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by Avaya Inc. The correction of interference caused by such unauthorized modifications, substitution or attachment will be the responsibility of the user. Pursuant to Part 15 of the Federal Communications Commission (FCC) Rules, the user is cautioned that changes or modifications not expressly approved by Avaya Inc. could void the user’s authority to operate this equipment.

Product Safety Standards

This product complies with and conforms to the following international Product Safety standards as applicable:

Safety of Information Technology Equipment, IEC 60950, 3rd Edition including all relevant national deviations as listed in Compliance with IEC for Electrical Equipment (IECEE) CB-96A.

Safety of Information Technology Equipment, CAN/CSA-C22.2 No. 60950-00 / UL 60950, 3rd Edition

Safety Requirements for Customer Equipment, ACA Technical Standard (TS) 001 - 1997

One or more of the following Mexican national standards, as applicable: NOM 001 SCFI 1993, NOM SCFI 016 1993, NOM 019 SCFI 1998

The equipment described in this document may contain Class 1 LASER Device(s). These devices comply with the following standards:
EN 60825-1, Edition 1.1, 1998-01
21 CFR 1040.10 and CFR 1040.11.

The LASER devices operate within the following parameters:

- Maximum power output: -5 dBm to -8 dBm
- Center Wavelength: 1310 nm to 1360 nm

Luokan 1 Laserlaite
Klass 1 Laser Apparat

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposures. Contact your Avaya representative for more laser product information.

Electromagnetic Compatibility (EMC) Standards

This product complies with and conforms to the following international EMC standards and all relevant national deviations:

Limits and Methods of Measurement of Radio Interference of Information Technology Equipment, CISPR 22:1997 and EN55022:1998.

Information Technology Equipment – Immunity Characteristics – Limits and Methods of Measurement, CISPR 24:1997 and EN55024:1998, including:

- Electrostatic Discharge (ESD) IEC 61000-4-2
- Radiated Immunity IEC 61000-4-3
- Electrical Fast Transient IEC 61000-4-4
- Lightning Effects IEC 61000-4-5
- Conducted Immunity IEC 61000-4-6
- Mains Frequency Magnetic Field IEC 61000-4-8
- Voltage Dips and Variations IEC 61000-4-11
- Powerline Harmonics IEC 61000-3-2
- Voltage Fluctuations and Flicker IEC 61000-3-3

Federal Communications Commission Statement

Part 15:

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Part 68: Answer-Supervision Signaling. Allowing this equipment to be operated in a manner that does not provide proper answer-supervision signaling is in violation of Part 68 rules. This equipment returns answer-supervision signals to the public switched network when:

- answered by the called station,
- answered by the attendant, or
- routed to a recorded announcement that can be administered by the customer premises equipment (CPE) user.

This equipment returns answer-supervision signals on all direct inward dialed (DID) calls forwarded back to the public switched telephone network. Permissible exceptions are:

- A call is unanswered.
- A busy tone is received.
- A reorder tone is received.

Avaya attests that this registered equipment is capable of providing users access to interstate providers of operator services through the use of access codes. Modification of this equipment by call aggregators to block access dialing codes is a violation of the Telephone Operator Consumers Act of 1990.

This equipment complies with Part 68 of the FCC Rules and the requirements adopted by the ACTA. On the rear of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. The digits represented by ## are REN without a decimal point (e.g., 03 is a REN of 0.3). If requested, this information must be provided to the telephone company.

The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive RENs on the telephone line may result in devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs should not exceed 5.0. To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company.

REN is not required for some types of analog or digital facilities.

Means of Connection

Connection of this equipment to the telephone network is shown in the following table.

Manufacturer's Port Identifier	FIC Code	SOC/REN/ A.S. Code	Network Jacks
Ground start CO trunk	02GS2	0.5A	RJ11C
Loop start CO trunk	02LS2	0.5A	RJ11C
DID CO trunk	02RV2-T	AS.2	RJ11C
1.544 Mbit digital interface	04DU9-BN 04DU9-DN 04DU9-IKN 04DU9-ISN	6.0Y 6.0Y 6.0Y 6.0Y	RJ48C RJ48C RJ48C RJ48C
Primary Rate Interface	04DU9-ISN(PRI)	6.0Y	RJ48C
Basic Rate Interface	02IS5	6.0F	RJ49C

If the terminal equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

If trouble is experienced with this equipment, for repair or warranty information, please contact the Technical Service Center at 1-800-242-2121 or contact your local Avaya representative. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant.

It is recommended that repairs be performed by Avaya certified technicians.

The equipment cannot be used on public coin phone service provided by the telephone company. Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

This equipment, if it uses a telephone receiver, is hearing aid compatible.

Canadian Department of Communications (DOC) Interference Information

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

DECLARATIONS OF CONFORMITY

United States FCC Part 68 Supplier's Declaration of Conformity (SDoC)

Avaya Inc. in the United States of America hereby certifies that the equipment described in this document and bearing a TIA TSB-168 label identification number complies with the FCC's Rules and Regulations 47 CFR Part 68, and the Administrative Council on Terminal Attachments (ACTA) adopted technical criteria.

Avaya further asserts that Avaya handset-equipped terminal equipment described in this document complies with Paragraph 68.316 of the FCC Rules and Regulations defining Hearing Aid Compatibility and is deemed compatible with hearing aids.

Copies of SDoCs signed by the Responsible Party in the U. S. can be obtained by contacting your local sales representative and are available on the following Web site:

http://www.avaya.com/support (select "Declarations of Conformity").

All MultiVantage™ system products are compliant with FCC Part 68, but many have been registered with the FCC before the SDoC process was available. A list of all Avaya registered products may be found at:

http://www.part68.org/

by conducting a search using "Avaya" as manufacturer.

European Union Declarations of Conformity

CE

Avaya Inc. declares that the equipment specified in this document bearing the "CE" (*Conformité Europeénne*) mark conforms to the European Union Radio and Telecommunications Terminal Equipment Directive (1999/5/EC), including the Electromagnetic Compatibility Directive (89/336/EEC, Class B) and Low Voltage Directive (73/23/EEC). This equipment has been certified to meet CTR3 Basic Rate Interface (BRI) and CTR4 Primary Rate Interface (PRI) and subsets thereof in CTR12 and CTR13, as applicable.

Copies of these Declarations of Conformity (DoCs) can be obtained by contacting your local sales representative and are available on the following Web site:

http://www.avaya.com/support (select "Declarations of Conformity").

Japan

This is a Class B product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may occur, in which case, the user may be required to take corrective actions.

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Attention: Avaya Account Management

E-mail: totalware@gwsmail.com

Contents

About this Book

Purpose

This document provides procedures to monitor, test, and maintain an Avaya™ S8300 Media Server with an Avaya™ G700 Media Gateway system. It covers many of the faults and troubles that can occur in the system. Most maintenance requirements are simple procedures due to the self-testing nature of the system.

Simple, traditional troubleshooting methods are sometimes sufficient to locate and clear faults. The traditional methods include substitution, visual inspections, continuity checks, and clarification of operating procedures with end users.

Using this documentation, the Avaya technicians and the technicians of their business partners and customers should be able to follow detailed procedures for the following tasks:

- Monitoring, testing, and maintaining an S8300 Media Server with an G700 Media Gateway system
- Using troubleshooting methods to clear faults
- Following procedures for required substitutions, visual inspections, continuity checks, and the clarification of operating procedures with end users

Intended Audience

The information in this book is intended for use by:

Avaya technicians, provisioning specialists, business partners, and customers, specifically:

- Trained Avaya technicians
- A maintenance technician dispatched to an S8300 Media Server with an G700 Media Gateway site in response to a trouble alarm or a user trouble report
- A maintenance technician located at a remote maintenance facility
- The customer's assigned maintenance technician. The technician is expected to have a knowledge of telecommunications fundamentals and of the S8300 Media Server with an G700 Media Gateway to the extent that the procedures in this book can be performed, in most cases, without assistance.

This book is not intended to solve all levels of troubles. It is limited to troubles that can be solved using the Alarm Log, Error Log, trouble-clearing procedures, maintenance tests, and traditional troubleshooting methods. If the trouble still has not been resolved, it is the maintenance technician's responsibility to escalate the problem to a higher level of technical support. Escalation should conform to the procedures in the Technical and Administration Escalation Plan.

Admonishments

Admonishments used in this book have the following meanings:

CAUTION:
This sign indicates possible harm to software, possible loss of data, or possible service interruptions.

WARNING:
This sign indicates possible harm to hardware or equipment.

DANGER:
This sign indicates possible harm or injury to people.

!

SECURITY ALERT:
This sign is used to draw attention to possible toll-fraud issues.

Security Issues

To ensure the greatest security possible for customers, Avaya offers features such as toll-fraud protection and media encryption to reduce security-related liabilities. Contact your Avaya representative for more security information.

Safety Precautions

When performing maintenance or translation procedures on the system, users must observe certain precautions. Observe all caution, warning, and danger admonishments to prevent loss of service, possible equipment damage, and possible personal injury. In addition, the following precautions regarding electromagnetic interference (EMI) and static electricity must be observed:

Electromagnetic Interference

This equipment generates, uses, and can radiate radio frequency energy. Electromagnetic fields radiating from the switch may cause noise in the customer's equipment. If the equipment is not installed and used in accordance with the instruction book, radio interference may result.

WARNING:
To maintain the EMI integrity of the system, maintenance personnel must ensure that all cabinet panels, covers, and so forth, are firmly secured before leaving the customer's premises.

Trademarks and Service Marks

This document contains references to the following Avaya trademarked products:

- Avaya™ G700 Media Gateway
- Avaya™ S8300 Media Server and Avaya™ S8700 Media Server
- AUDIX®
- Cajun™ and CajunView™
- DEFINITY® and DEFINITY One™
- INTUITY™
- MultiVantage™
- Softconsole
- VisAbility™

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- Windows 95™, 98™, NT™, Millennium Edition™, and Windows 2000™ are trademarks, and Windows® is a registered trademark, of Microsoft® Corporation.
- Windows HyperTerminal™ is a trademark of Microsoft® Corporation.

Where to Call for Technical Support

If you need additional help, the following resources are available. You may need to purchase an extended service agreement to use some of these resources. See your Avaya representative for more information.

DEFINITY Helpline of Avaya (for help with feature administration and system applications)	+1-800-225-7585
Avaya National Customer Care Center Support Line (for help with maintenance and repair)	+1-800-242-2121
Avaya Toll Fraud Intervention	+1-800-643-2353
Avaya Corporate Security	+1-800-822-9009 +1-925-224-3401
Avaya Centers of Excellence	
North America	1-800-248-1111
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1 Maintenance Strategy

This chapter provides readers with a brief description of the system functionality and maintenance strategy for the Avaya™ S8300 Media Server with an Avaya™ G700 Media Gateway.

The Avaya S8300 Media Server with an Avaya G700 Media Gateway System

For introductory information about the S8300 Media Server with the G700 Media Gateway, refer to the "*Avaya MultiVantage™ Solutions Hardware Guide, 555-233-200*".

What is the S8300 Media Server with G700 Media Gateways?

The S8300 Media Server with G700 Media Gateways solution is a family of components that seamlessly delivers a business's voice, fax, and messaging capabilities over an IP network. The value of the S8300 Media Server with G700 Media Gateways solution is that it provides a standards-based, IP communications infrastructure that enables Avaya to lower customers' total cost of ownership i.e. applications to the edge of the network, high reliability for critical applications, and multi-service networking with feature transparency. The S8300 Media Server with G700 Media Gateways infrastructure is comprised of three modular elements: Media Gateways, Media Servers, and Software.

How does the S8300 Media Server with G700 Media Gateways fit into Your System?

The S8300 Media Server with G700 Media Gateways incorporates the following features that help it fit easily into your system:

- It is built around open IP standards (H.248 and H.323).
- It seamlessly integrates traditional circuit switched interfaces (analog stations, analog trunks, FAX, multifunction digital stations, E1/T1 trunking, ISDN-BRI and PRI, etc.) and IP switched interfaces (IP telephones, IP trunking). This seamless integration allows the user to evolve easily from the current circuit switched telephony infrastructures to next generation IP infrastructures.

- It is built on Cajun data equipment technology in order to integrate naturally into customer data networks and provide additional value in a Cajun networking environment. It provides the highly reliable Cajun hardware scheme with high-speed octaplane technology. See "*Avaya™ P330 Manager User Guide*" for more information on the Cajun hardware.

For information on network assessment and readiness testing, refer to "*Network Assessment*" in the "*Network Reference for the Avaya™ S8300 Media Server with an Avaya™ G700 Media Gateway*."

Maintenance Strategy

This section provides an overview of the maintenance strategy for the S8300 Media Server with G700 Media Gateways.

The maintenance strategy is intended to provide easy fault isolation procedures and to isolate problems to field replaceable parts.

Table 1 shows the three main maintenance arenas associated with the S8300 Media Server with G700 Media Gateways:

Table 1. Avaya S8300 Media Server with G700 Media Gateway Maintenance Arenas

Arena	Detail
AVAYA MultiVantage™ Software 1.2 System Access Terminal (SAT) commands	Very similar to standard MultiVantage SAT commands that readers are familiar with from other Avaya products
G700 CLI commands — see "CLI Reference for the G700 Media Gateway Processor"	Unique to the Avaya S8300 Media Server with G700 Media Gateway platform. Used for administration, maintenance, and status functions on the G700. Users can also access the Layer 2 Switching Processor CLI for Layer 2 Switching Processor-related CLI commands)
Web Interface	Users can enter commands and perform alarm testing through the web interface.

Accessing the S8300 Media Server with G700 Media Gateways for Maintenance

Note: For detailed procedures to access the S8300 and G77, refer to "*Access Procedures*" in the "*Welcome to Avaya™ S8300 Media Server and Avaya™ G700 Media Gateway."*

There are several methods by which you can access Avaya S8300 Media Server with G700 Media Gateway for maintenance:

- Remote access via ppp link
- Telnet from customer LAN to the:
  - S8300 IP address
  - G700 processor IP address
  - Avaya stack IP address
- Web server access to the S8300 IP address (Accesses Web page with Online Help)
- Through the Avaya stack IP address (Accesses the Device Manager)
- Through Avaya Site Administration
- Telnet to the S8300 IP address to port 5023 to get MultiVantage access
- Through a serial cable

Replacing the Power

The G700 Media Gateway contains a detachable power cord. Users can add power by plugging the power cord into the G700 receptacle, then plugging the cord into the wall outlet.

Users can remove power by properly powering down the S8300, unplugging the power cord from the wall outlet, and then unplugging the power cord from the G700 receptacle.

The actual power supply in the G700 is not replaceable.

Logins and Passwords

Customer login and password information has been intentionally left out of this document.

Media Module Maintenance

Media Module maintenance is controlled by MultiVantage maintenance software. Maintenance for each Media Module is very similar to that for its respective DEFINITY server counterpart.

Hot Swap

The following Media Modules are hot swappable:

- DCP Media Module (MM712)
- Analog Trunk/Telephone Port Board Media Module (MM711)
- E1/T1 Media Module with CSU (MM710)
- VoIP Media Module (MM760)
- BRI Media Module (MM720)

For procedures on adding, removing, or replacing Media Modules, refer to "*Inserting Media Modules*" in the "*Installation and Upgrades for the Avaya™ G700 Media Gateway controlled by an Avaya™ S8300 Media Server or an Avaya™ S8700 Media Server"* and "Media Module Replacement" on page 76.

CAUTION: The S8300 Media Server is NOT hot swappable and can reset the entire G700 upon insertion or removal, as well as resetting each G700 that is currently registered with it. When removing the S8300, initiate a shutdown process by first depressing the button (for 2 seconds) located next to the fourth GREEN "Ok-to-Remove" LED (specific to the S8300). This LED will first blink; then go steady. Once steady, this GREEN LED indicates that the disk drive has been parked properly and is ready to be removed. See "Replacing the S8300 Media Server" on page 73.

CAUTION: If you remove the S8300 before the disk is parked, you may corrupt important data. See "Replacing the S8300 Media Server" on page 73.

CAUTION: The Avaya Expansion Modules and Cascade Modules — are NOT hot-swappable. They are service-disrupting and can reset the entire G700 upon insertion or removal. Power down the system prior to any insertion or removal of Avaya Expansion and Cascade modules.

LEDs

The general use for LEDs is to give a quick overall understanding of the health of the system and subsystems. When alarms or problems occur, LEDs indicate that attention by a technician is needed. Further diagnosis or troubleshooting is supported by software-based solutions that can provide detailed text explaining the error condition. Troubleshooting and diagnostic tasks can be supported by software accessed by laptops in the field or remotely from an administrator's computer. LEDs are not suitable for conveying any large permutation of potential diagnostic results.

The S8300 Media Server and G700 Media Gateway employ LEDs in three areas:

- G700 LEDs
- Media Module LEDs (either traditional DEFINITY server or augmented DEFINITY server)
- S8300 LEDs that give elementary S8300 status

For detailed information on specific LEDs and their use, see "LED Locations on the Media Modules" on page 279 and "Media Module LEDs" on page 286.

G700 Media Gateway Processor CLI

The G700 Media Gateway Processor Command Line Interface (MGP CLI) provides access to configurable and read-only data of all G700 subsystems as well as running test and displaying results. As a minimum, MGP CLI supports all functionality the Device Manager provides. It provides access to the status, parameters, and/or test of Media Modules, IP Entity Configuration, TFTP Servers, and DSP/VoIP resources. "CLI Reference for the G700 Media Gateway Processor" provides a detailed description of each MGP CLI command.

Layer 2 Switching Processor CLI

The Layer 2 Switching Processor CLI manages the layer 2 switching of the entire stack.

For more information about the L2 Processor CLI refer to "*Avaya™ P330 Manager User Guide*".

Upgrading Software

For information on software upgrades, refer to "*Upgrading/Downloading Software/Firmware*" in the "*Installation and Upgrades for the Avaya™ G700 Media Gateway controlled by an Avaya™ S8300 Media Server or an Avaya™ S8700 Media Server*".

2 Alarming

This chapter provides background information on alarming. For detailed information on G700 Media Gateway Alarming and Media Server Alarming, refer to Chapter 3, G700 Traps and Alarms and Chapter 4, Media Server Alarms .

Alarming Background Terms

See Table 2 for a useful explanation of terms before you read this chapter.

Table 2. Alarming Background Terms

Term	Explanation
TRAP	A trap is an event notification that is sent to the SNMP trap manager and received from the Media Gateway Processor, Layer 2 Switching Processor, or RTCP Monitor (VisAbility).
ALARM	Some traps are determined to be an alarm. If determined to be an alarm they are sent to an appropriate alarm management platform as determined by the ossinfo file.
INADS	Integrated Alarming and Dispatching System

Alarms

All alarms include a date and time stamp that reflects the date and time of the sending device. The alarm contains:

- device type
- component type
- device name
- current ip address
- any other information necessary for identification of alarm origination
- a severity level to indicate the priority of the alarm

Alarms originating from an S8300 have a prefix denoting that of an S8300.

The alarm log is viewable and follows that defined in *"Maintenance for Avaya DEFINITY® Server R, 555-233-117"*

Alarm-Related LEDs

The following alarm-related LEDs appear on the faceplate of the G700. Table 3 shows how certain LEDs reflect specific alarm situations.

Table 3. Alarm-Related LEDs

LED	Location	Alarm-Related Cause
ALARM LED	Attendant Console	The system alarm causes the attendant console ALARM LED to light.
ACK LED	Attendant Console	The ACK LED on the attendant console reflects the state of acknowledgement of the alarm report from INADS. However, this is only possible for S8700-based Media Servers.
RED ALM or ALARM LED	LED Panel of G700 Media Gateway	The RED ALM or ALARM LED indicates the "health" of the G700 by lighting when there are impaired functions of the Media Gateway Processor, Layer 2 Switching Processor, or VOIP engine. It lights when the power supply voltage is out of bounds, if the G700 cannot locate any Media Servers, or when the unit is overheating. It also indicates that the system is in Power-up mode, or that a Media Module is resetting.

SNMP Manager Agent coverage

SNMP management is a function of the Avaya™ MultiService Network Manager. For additional information, including information on event logs and trap logs, please refer to the "*Avaya™ P333T User's Guide*".

Alarm and Error Reporting -- Avaya MultiVantage Software

During normal operations, software or firmware may detect error conditions pertaining to specific Maintenance Objects (MOs). The system automatically attempts to either fix or circumvent these problems. Errors are detected in two ways:

- Firmware on the component detects the occurrence of an error during ongoing operations.
- A “periodic test” or a “scheduled test” started by the software detects the error.

The technician can run periodic and scheduled tests on demand.

When an error is detected, the maintenance software puts the error in the Error Log and increments the error counter for that error. When an error counter is “active” (greater than 0), there is a maintenance record for the MO. If a hardware component incurs too many errors, an alarm is raised.

Alarm Classifications

Alarms are classified depending on their effect on system operation:

- MAJOR alarms identify failures that cause a critical degradation of service. These alarms require immediate attention.
- MINOR alarms identify failures that cause some service degradation but that do not render a crucial portion of the system inoperable. Minor alarms require attention. However, typically a minor alarm affects only a few trunks, stations, or a single feature.
- WARNING alarms identify failures that cause no significant degradation of service or equipment failures external to the switch. These failures are not reported to INADS or to the attendant console.
- ON-BOARD problems originate in the circuitry on the alarmed Media Module.
- OFF-BOARD problems originate in a process or component that is external to the Media Module.

MultiVantage Alarm Log

Alarms logged by Avaya MultiVantage are stored in an alarm log. Access the alarm log to determine which alarms have been logged, and then clear them using alarm clearing procedures.

Note: Use standard MultiVantage alarm clearing procedures to clear these alarms.

Alarming Options

Alarming on the S8300 Media Server with G700 Media Gateways occurs in several areas:

- Media Modules, servers, and the Layer 2 Switching Processor are all capable of detecting internal failures and generating traps and alarms
- The G700 detects faults and alerts the Media Server; the Media Server then raises an alarm
- Avaya MultiVantage alarms reflect G700 health status
- The Web Interface displays platform alarms

Alarm Sources

Alarms originate from the following:

- Avaya MultiVantage
- G700 Motherboard
- Media Modules

Alarm Destinations

The following are alarm destinations:

- Media Server
- Web Interface

View Alarms

View alarms through the following:

- Layer 2 Switching Processor CLI
- S8300 SAT CLI
- Avaya MultiVantage Web Interface

Note: For non-MultiVantage alarms, utilize the Web Page header "Alarms and Notification" and "Diagnostics: View System Log". Users should choose the appropriate heading and, if necessary, call Avaya support.

Alarm Management

This section describes methods to determine the source of alarms that are generated when an error occurs. Technicians can view alarms via the Web Interface, CLI, and SAT command-line interface. Alarming for the G700 Media Gateway follows the S8700 Media Server Alarming Architecture Design; see "Maintenance for the Avaya™ Media Server with MCC1/SCC1 Media Gateways". For convenience, the following sections include some brief information.

Alarm Transmission to INADs

A services organization, either the Avaya TSO or a VAR, receives alarms from the S8300 Media Server with G700 Media Gateways system and connects to the product for troubleshooting. There are currently two product-connect strategies: dialup modem access and VPN access over the Internet.

For dialup modem access:

1. Place a modem connected to a telephone line in front of the Media Server connecting to the USB port on the faceplate.

   You will have to enable the modem from the Web Interface. In addition, there is a Setup Modem Interface under the Configure Server pages.

2. Via this modem, a client PC uses the PPP to access the Media Server and connect via telnet to a Linux shell.

3. Once logged into the Media Server, the user telnets out to G700s and other devices on the network.

Note: Additionally, this modem can be used to allow the Media Server to call out to the INADS or other alarm receiving system to report alarms.

The VPN alternative is achieved via the use of the Intelligent Site Manager (ISM). The ISM is a VPN gateway that resides on the customer's LAN and provides a means for services personnel to gain access to the customer's LAN in a secure manner via the Internet. Telnet is then used to access the Media Server and/or Media Gateways and other IP network equipment.

G700 Media Gateway Alarms

For information on G700 alarms, refer to Chapter 3, G700 Traps and Alarms .

Media Server Alarms

For specific information on Media Server alarms, refer to Chapter 4, Media Server Alarms .

3 G700 Traps and Alarms

The following sections provide information on alarms originating on the Avaya™ G700 Media Gateway.

Performing Remote Diagnostic Tests

CAUTION:
When performing remote diagnostic tests, Services personnel should disable alarm call-outs to INADS to avoid generating unnecessary alarms.

Note: Alarm suppression is released after 30 minutes. If you are remotely logged in through the modem you prevent alarms from being generated because you are utilizing the modem.

G700 Boot Traps

Table 4 illustrates the boot traps that apply to the G700:

Table 4. G700 Boot Traps

Command	Description
CMG could not find its primary controller	If a G700 cannot register with its primary server, a trap of critical severity is sent, indicating that the primary server cannot be located.
CMG could not find its primary controller: clear trap	Clears the trap.
CMG cannot find any controllers on the MGC list	If the G700 is unable to register with any server, this trap is sent to an alarm manager that then generates an appropriate INADS alarm. This trap functions as an effective means for the server to alarm its own outage, for example, if the entire system is down.
CMG cannot find any controllers on the MGC list: clear trap	Clears the trap.

QOS Alarm Requirements

An RTCP monitor using the local SNMP agent generates traps to a pre-administered trap collector. The following alarms are generated:

- The voip-callqos alarm is generated if a single session exceeds configured QOS levels. It can generate a warning or an SNMP trap. Warnings are used for less severe problems. They can be accumulated internally within Avaya™ VoIP Monitoring Manager for use by the alarms defined below.
- The voip-systemqos alarm is generated if the number of voip-callqos warnings from all terminals exceeds a configured count over a given period (e.g. 100 alarms over 24 hours). The alarm causes a SNMP trap to be sent.
- The voip-terminalqos alarm is like the voip-systemqos alarm except it applies to a single terminal. If any one terminal generates a number of voip-callqos warnings that exceed a threshold then the alarm is generated.

G700 Traps

G700 Media Gateways (serving either as standalone port networks, or as port networks within a Multi-Connect system) report alarms to the primary server (either an S8300 or S8700 Media Server) using SNMP traps. Like the primary server's own alarms, alarms from a G700 Media Gateway:

- Reside in the primary server's alarm log.
- Can be viewed using the SAT command **display alarms**
- Can be viewed using the Web Interface Display Alarms option.
- Can be viewed using the server's Linux command **almdisplay -v**

However, the format of these displayed alarms is slightly different. Using the G700 MO's Event ID #1 (the first entry in Table 5) as an example, a displayed G700 alarm has the following format:

```
n CMG 1 WRN 07/17/2002:13:45 121.1.1.2:cmgMultipleFanFault
```

Within the previous alarm-display string, the value:

- "n" is a sequential alarm ID.
- "CMG" identifies a G700 Media Gateway as the MO.
- "1" is the event's ID (1st column of Table 5).

This table also contains each alarm's corresponding SNMP trap # in the 2nd column of Table 5. However, many of the MIB-defined traps have been excluded, either because:

- A specific trap (such as, Trap #3) is the SNMP mechanism to clear an alarm logged by another specific trap (in this case, Trap #2).
- The specific event indicated by a trap is not severe enough to justify an entry in the primary server's alarm log.

  - A trap is defined, but not implemented.
  - A trap # is reserved for future use.
- "WRN" is the event's severity (3rd column of Table 5).
- "07/17/2002:13:45" is the event's date and time stamp.
- "121.1.1.2" is the IP address for Telnet access to the alarmed G700 Media Gateway Processor (MGP).
- "cmgMultipleFanFault" is an alarm description (4th column of Table 5).

Although these alarms can be viewed from the primary server, they are normally resolved from within the G700 Media Gateway. The G700 generates the following traps. Follow the error resolution procedures in Table 5 to resolve errors indicated by these traps.

Table 5. G700 Alarms (SNMP Traps) to the Primary Media Server

Event ID	Trap #	Alarm Level	Description / Recommendation
1	2	WRN	cmgMultipleFanFault — At least two G700 fans have been operating at less than 90% of their nominal speed for >= 5 minutes. (This may be an early warning of overheating.) 1. Verify there are faults in the system. Use the Avaya™ G700 Media Gateway Processor (MGP) Command Line Interface (CLI) command **show faults** to display any faults on the G700. 2. If there is a fan/temperature fault, check to see if the fans are working, and/or if there is sufficient space around the G700 for air circulation. 3. Maintenance software monitors voltages applied to the Media Modules and other components of the G700, and compares these to the general power supply unit (PSU) status bit. If none of these voltages are out of tolerance, but the PSU status indicates failure,this generates the fan fault, which will be indicated in the **show faults** command output. Replace the entire G700. Fans and the PSU are not field replaceable.

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Table 5. G700 Alarms (SNMP Traps) to the Primary Media Server

Event ID	Trap #	Alarm Level	Description / Recommendation
2	4	MIN	cmgPsuBriefFanFault — A G700's PSU fan has been operating at less than 90% of its nominal speed for between 5 and 15 minutes. (This may be an early warning of overheating.) 1. Verify there are faults in the system. Use the Avaya™ G700 Media Gateway Processor (MGP) Command Line Interface (CLI) command **show faults** to display any faults on the G700. 2. If there is a fan/temperature fault, check to see if the fans are working and/or if there is sufficient space around the G700 for air circulation. 3. Maintenance software monitors voltages applied to the Media Modules and other components of the G700, and compares these to the general power supply unit (PSU) status bit. If none of these voltages are out of tolerance, but the PSU status indicates failure, this generates the fan fault, which will be indicated in the **show faults** command output. Replace the entire G700. Fans and the PSU are not field replaceable.
3	6	MIN	cmgPsuProlongedFanFault — A G700's fan has been operating at less than 90% of its nominal speed for >= 15 minutes. (This may be an early warning of overheating.) 1. Verify there are faults in the system. Use the Avaya™ G700 Media Gateway Processor (MGP) Command Line Interface (CLI) command **show faults** to display any faults on the G700. 2. If there is a fan/temperature fault, check to see if the fans are working and/or if there is sufficient space around the G700 for air circulation. 3. Maintenance software monitors voltages applied to the Media Modules and other components of the G700, and compares these to the general power supply unit (PSU) status bit. If none of these voltages are out of tolerance, but the PSU status indicates failure, this generates the fan fault, which will be indicated in the **show faults** command output. Replace the entire G700. Fans and the PSU are not field replaceable.

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Table 5. G700 Alarms (SNMP Traps) to the Primary Media Server

Event ID	Trap #	Alarm Level	Description / Recommendation
4	10	MIN	cmgCpuTempWarningFault — A G700's CPU temperature sensor has exceeded its warning threshold. 1. Verify there are faults in the system. Use the Avaya™ G700 Media Gateway Processor (MGP) Command Line Interface (CLI) command **show faults** to display any faults on the G700. 2. If there is a temperature fault, turn off the G700 and allow it to cool. 3. Reboot the G700. Check to see if the fans are working and/or if there is sufficient space around the G700 for air circulation. Use the MGP CLI **show faults** command to check for fan problems. 4. Low voltage may be responsible for slower fans. Voltage may be reduced by a short in one of the Media Modules or a bad power supply. If there are no fan faults, use the MGP CLI command **show voltages** to display voltages applied to components on the motherboard and to the Media Modules. 5. If the Media Module voltage is out of tolerance, systematically, remove each Media Module to determine if one of the Media Modules is responsible for reducing the voltage level. If one is found, replace the Media Module. 6. If no Media Module is found to be bad, the power supply is suspect. Replace the G700.

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Table 5. G700 Alarms (SNMP Traps) to the Primary Media Server

Event ID	Trap #	Alarm Level	Description / Recommendation
5	12	MIN	cmgDspTempWarningFault — The temperature sensor in a G700's DSP complex has exceeded its warning threshold. 1. Verify there are faults in the system. Use the Avaya™ G700 Media Gateway Processor (MGP) Command Line Interface (CLI) command **show faults** to display any faults on the G700. 2. If there is a temperature fault, turn off the G700 and allow it to cool. 3. Reboot the G700. Check to see if the fans are working and/or if there is sufficient space around the G700 for air circulation. 4. Low voltage may be responsible for slower fans. Voltage may be reduced by a short in one of the Media Modules or a bad power supply. If there are no fan faults, use the MGP CLI command **show voltages** to display voltages applied to components on the motherboard and to the Media Modules. 5. If the Media Module voltage is out of tolerance, systematically, remove each Media Module to determine if one of the Media Modules is responsible for reducing the voltage level. If one is found, replace the Media Module. 6. If no Media Module is found to be bad, the power supply is suspect. Replace the G700.

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Table 5. G700 Alarms (SNMP Traps) to the Primary Media Server

Event ID	Trap #	Alarm Level	Description / Recommendation
6	14	MAJ	cmgTempShutdownFault — The temperature sensor in a G700's CPU has exceeded its shutdown threshold. The system is about to begin controlled shutdown. 1. Verify there are faults in the system. Use the Avaya™ G700 Media Gateway Processor (MGP) Command Line Interface (CLI) command **show faults** to display any faults on the G700. 2. If there is a temperature fault, turn off the G700 and allow it to cool. 3. Reboot the G700. Check to see if the fans are working and/or if there is sufficient space around the G700 for air circulation. 4. Issue MGP CLI command **show voltages** to determine voltages for Media Modules and other components of the G700. While the +12V fan supply is not directly monitored, it is included in the general power supply unit (PSU) status bit. Use the **show faults** command to determine if there is a fan problem. If none of the monitored voltages are out of tolerance, but the PSU status indicates failure, this would generate a fan fault. If fans are faulty, then replace the entire G700. Fans are not field replaceable. 5. Voltage may also be reduced by a short in one of the Media Modules. Systematically, remove each Media Module to determine if one of the Media Modules is responsible for reducing the voltage levels.
7	16	MAJ	cmgMgpPowerFault — The voltage reading at the server's +5.1V power source is out of tolerance. 1. Check voltages. Issue the MGP CLI command **show voltages** to determine voltages for Media Modules and other components of the G700. Voltage may be reduced by a short in one of the Media Modules or a bad power supply. 2. Systematically, remove each Media Module to determine if one of the Media Modules is responsible for reducing the voltage levels. Replace faulty Media Module. 3. If the alarm clears in 10-20 seconds, it was a probable voltage spike. Do not replace the G700. Use a power monitor to monitor the power line. 4. If a brown-out condition is suspected, use a power monitor to monitor the power line. 5. If the fault persists and the **show voltages** command continues to show the level is out of tolerance, then replace the G700.

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Table 5. G700 Alarms (SNMP Traps) to the Primary Media Server

Event ID	Trap #	Alarm Level	Description / Recommendation
8	18	MAJ	cmgMediaModulePowerFault — The voltage reading at the Media Modules' -48V power source is out of tolerance. 1. Check voltages. Issue the MGP CLI command **show voltages** to determine voltages for Media Modules and other components of the G700. Voltage may be reduced by a short in one of the Media Modules or a bad power supply. 2. Systematically, remove each Media Module to determine if one of the Media Modules is responsible for reducing the voltage levels. Replace faulty Media Module. 3. If the alarm clears in 10-20 seconds, it was a probable voltage spike. Do not replace the G700. Use a power monitor to monitor the power line. 4. If a brown-out condition is suspected, use a power monitor to monitor the power line. 5. If the fault persists and the **show voltages** command continues to show the level is out of tolerance, then replace the G700.
9	20	MAJ	cmgVoipPowerFault — The voltage reading at the VOIP complexes' +3.4V power source is out of tolerance. 1. Check voltages. Issue the MGP CLI command **show voltages** to determine voltages for Media Modules and other components of the G700. Voltage may be reduced by a short in one of the Media Modules or a bad power supply. 2. Systematically, remove each Media Module to determine if one of the Media Modules is responsible for reducing the voltage levels. Replace faulty Media Module. 3. If the alarm clears in 10-20 seconds, it was a probable voltage spike. Do not replace the G700. Use a power monitor to monitor the power line. 4. If a brown-out condition is suspected, use a power monitor to monitor the power line. 5. If the fault persists and the **show voltages** command continues to show the level is out of tolerance, then replace the G700.

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Table 5. G700 Alarms (SNMP Traps) to the Primary Media Server

Event ID	Trap #	Alarm Level	Description / Recommendation
10	22	MAJ	cmgDspPowerFault — The voltage reading at the DSP units' +1.58V power source is out of tolerance. 1. Check voltages. Issue the MGP CLI command **show voltages** to determine voltages for Media Modules and other components of the G700. Voltage may be reduced by a short in one of the Media Modules or a bad power supply. 2. Systematically, remove each Media Module to determine if one of the Media Modules is responsible for reducing the voltage levels. Replace faulty Media Module. 3. If the alarm clears in 10-20 seconds, it was a probable voltage spike. Do not replace the G700. Use a power monitor to monitor the power line. 4. If a brown-out condition is suspected, use a power monitor to monitor the power line. 5. If the fault persists and the **show voltages** command continues to show the level is out of tolerance, then replace the G700.
11	24	MAJ	cmg8620PowerFault — The voltage reading at the VoIP Processor's +2.5V power source is out of tolerance. 1. Check voltages. Issue the MGP CLI command **show voltages** to determine voltages for Media Modules and other components of the G700. Voltage may be reduced by a short in one of the Media Modules or a bad power supply. 2. Systematically, remove each Media Module to determine if one of the Media Modules is responsible for reducing the voltage levels. Replace faulty Media Module. 3. If the MM760 Media Module is not present, the VoIP engine on the motherboard is possibly bad. Use the **show faults** command to check for VoIP faults. Replace the G700. 4. If the alarm clears in 10-20 seconds, it was a probable voltage spike. Do not replace the G700. Use a power monitor to monitor the power line. 5. If a brown-out condition is suspected, use a power monitor to monitor the power line. 6. If the fault persists and the **show voltages** command continues to show the level is out of tolerance, then replace the G700.

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Table 5. G700 Alarms (SNMP Traps) to the Primary Media Server

Event ID	Trap #	Alarm Level	Description / Recommendation
14	30	MAJ	cmgSyncSignalFault — Synchronization signal lost. 1. Check that provisioned clock-sync source has a good signal by issuing a Media Gateway Processor (MGP) Command Line Interface (CLI) command **show sync timing** Procedure for setting synchronization timing sources on E1/T1 MM or MM710: 1. Be sure that the E1/T1 MM has been added properly on the Avaya™ S8300 Media Server or Avaya™ S8700 Media Server, otherwise go to System Access Terminal (SAT) and issue a **ADD DS1** command before going to the MGP CLI and issuing a **set sync interface** or **set sync source** command. Otherwise the MGP CLI will not allow these commands to be executed. 2. Go to the MGP's CLI, and first specify the primary and secondary clock sources for synchronizing the E1/T1 span, using the **set synch interface** command. Note: You don't specify the internal clock source from the CLI - only the primary and secondary. The local clock is "built-in" and not provisionable. 3. Issue a **set sync source** command to set to the specific MM710 E1/T1 Media Module to be used as the active clock reference. 4. Verify whether or not these commands were executed by issuing a **show sync timing** command to ensure that the source is provisioned and active, or visually inspect the Yellow LED on the MM710 Media Module. Note: When the Yellow LED is on 2.7 seconds and off 0.3 seconds, this means the tone-clock synchronizer is in "active" mode, and an external synchronization source is being used as a synchronization reference. Setting the sync timing was successful. When the Yellow LED is on 0.3 seconds and off 2.7 seconds, this means the tone-clock synchronizer is in "active" mode and the internal (on-board) clock is being used as a synchronization reference. Setting the sync timing was not successful. 5. If there is more than one MM710 Media Module, and they have been set up as primary and secondary, this behavior could be on the second and not the timing of the bus. For more details, please consult the maintenance documentation under LEDs and E1/T1 Media Module, or see http://support.avaya.com/elmodocs2/S8300/cd/index.htm

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Table 5. G700 Alarms (SNMP Traps) to the Primary Media Server

Event ID	Trap #	Alarm Level	Description / Recommendation
15	32	MAJ	cmgVoipHardwareFault — A DSP complex serving the VoIP engines has failed. 1. Check IP configuration. 2. Reset or replace Media Module.
	50		cmgModuleRemove — A Media Module has been removed.
16	52		cmgModuleInsertFault — The insertion sequence for a Media Module has failed.
	53		cmgModuleInsertSuccess — A Media Module has been inserted.
	54		cmgMgBusyout — An administrator has busied-out a Media Module or a port.
	70		cmgFirmwareDownloadBegun — A Media Gateway began downloading a software module.
	71		cmgFirmwareDownloadSuccess — A Media Gateway successfully downloaded a software module.
	73		cmgRegistrationSuccess — A Media Gateway successfully registered with a controller.
	74		cmgMgManualReset — A Media Gateway is beginning a user-requested reset operation.
	75		cmgModuleManualReset — A Media Module is beginning a user-requested reset operation.
	76		cmgVoipManualReset — A VoIP engine is beginning a user-requested reset operation.
	77		cmgDsuManualReset — An E1 or T1's DSU is beginning a user-requested reset operation.
	78		cmgConfigUploadBegun — A Media Gateway began uploading a configuration file.
	79		cmgConfigUploadSuccess — The Media Gateway successfully uploaded the configuration file.

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Table 5. G700 Alarms (SNMP Traps) to the Primary Media Server

Event ID	Trap #	Alarm Level	Description / Recommendation
17	90	MAJ	cmgMemoryFault — The Media Gateway Processor has detected a low processor memory condition. If an attempt by a software module to allocate memory fails, or if available memory falls below four million bytes, this trap is generated. If available memory later rises above five million bytes, this trap is cleared. If available memory falls below a half a million bytes, the Media Gateway Processor is automatically reset. 1. Check the Media Gateway Processor and insure that it has the latest version of firmware installed. If it does not, install the latest version of firmware and continue to monitor. 2. If this trap occurs infrequently and is automatically cleared, the trap may be due to an unusual transient condition. Monitor future traps. 3. If this trap occurs frequently and is automatically cleared, it is likely that the Media Gateway Processor software has the wrong limits set for its memory monitoring. These limits are hard coded in the software. Escalate. 4. If this trap occurs and does not clear, the Media Gateway may be functionally impaired. Do not reset the Media Gateway. Escalate and have Tier 3 personnel capture the trap information and the event logs for analysis. 5. If this trap occurs and the Media Gateway Processor automatically resets, then a severe processor memory shortage occured. Escalate and have Tier 3 personnel capture the trap information and the event logs for analysis.
18	92	MAJ	cmgDhcpRequestFault — The Media Gateway cannot contact its DHCP server, or the DHCP server did not respond to a request. 1. Either correct the DHCP problem, or correct the Media Module's configuration file.
19	94	MAJ	cmgFirmwareDownloadFault — An attempt to download a software module has failed. 1. Check the event log to find the specific error. 2. Troubleshoot the specific error according to the information found. For example, if the string "File not found" appears in the log, then verify that the image file: a. Exists b. Has the correct name c. Resides in the correct directory

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Table 5. G700 Alarms (SNMP Traps) to the Primary Media Server

Event ID	Trap #	Alarm Level	Description / Recommendation
20	96	WRN	cmgProcessRestart — a software module on the Media Gateway Processor failed. The Media Gateway Processor will attempt to restart the failing module. A successful restart of the module will clear this trap 1. Check the Media Gateway Processor and insure that it has the latest version of firmware installed. If it does not, install the latest version of firmware and continue to monitor. 2. If this trap occurs infrequently and is automatically cleared, the trap may be due to an unusual transient condition.Monitor future traps. 3. If the trap occurs frequently and is automatically cleared, it may indicate an issue with a particular software module. Reset the Media Gateway at a time convenient with the customer. Escalate and have Tier 3 personnel capture the trap information and the event logs for analysis. 4. If the trap occurs and does not clear, the Media Gateway may be functionally impaired. Reset the Media Gateway at a time convenient with the customer and consistent with the impairment. Escalate and have Tier 3 personnel capture the trap information and the event logs for analysis..
21	98	MAJ	cmgIccMissingFault — An internal communications controller, expected in Slot 1, is missing. 1. Check for presence of S8300. 2. If present, check the G700 administration. 3. If the administration is correct, suspect the S8300.
22	100	MAJ	cmgIccAutoReset — The Media Gateway automatically reset the internal communications controller. 1. If the problem persists, escalate.
23	102	MAJ	cmgPrimaryControllerFault — The Media Gateway cannot contact the first controller in its controller list. 1. Verify that the controller list is correct. From the MGP CLI, issue the command **show mgc list**. The IP address should match the S8700 Media Server CLAN or the S8300 Media Server IP addresses. 2. If needed, correct this in 'configure' mode on the MGP's CLI by clearing the mgc list first with the **clear mgc list** command, and then issuing a **set mgc list** with the correct IP addresses. 3. If so, verify that the primary controller is up. 4. If so, shut down every LSP.

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Table 5. G700 Alarms (SNMP Traps) to the Primary Media Server

Event ID	Trap #	Alarm Level	Description / Recommendation
24	104	MAJ	cmgNoControllerFault — The Media Gateway does not have any controllers in its controller list. 1. Verify that the controller list is empty. From the MGP CLI, issue the command **show mgc list** to verify that there are no controllers listed. 2. If none are listed, correct this by adding the correct IP address of the S8700/S8300. In 'configure' mode on the MGP's CLI, issue a **set mgc list** command with the correct IP address.
25	106	MAJ	cmgRegistrationFault — The Media Gateway cannot register with any controllers in its controller list. 1. Verify that the controller list is correct. From the MGP CLI, issue the command **show mgc list**. The IP address should match the S8700 Media Server CLAN or the S8300 Media Server IP addresses. 2. If needed, correct this in 'configure' mode on the MGP's CLI by clearing the mgc list with the **clear mgc list** command, and then issuing a **set mgc list** with the correct IP addresses. 3. If the IP address in the mgc list matches the S8700 Media Server CLAN or the S8300 Media Server IP addresses, there may be a network problem. 4. Verify that the primary controller is up.
26	108	MIN	cmgH248LinkDown — An H.248 link between the Media Gateway and its controller is down. 1. Check the S8300 or S8700. 2. If down, bring up. 3. If **not**, check the G700 administration. *Since the following command causes a brief service outage, it should only be executed at the customer's convenience.* 4. If the administration is correct, reboot the G700. 5. If the problem persists, check network connectivity. Use **ping** or **traceroute** to the S8300/S8700 to check connectivity. 6. If the problem persists, escalate.

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Table 5. G700 Alarms (SNMP Traps) to the Primary Media Server

Event ID	Trap #	Alarm Level	Description / Recommendation
29	114	WRN	cmgMgAutoReset — The Media Gateway Processor automatically reset (rebooted). The processor automatically resets when a critical error occurs from which it cannot recover. The error may be software or hardware related. It may also automatically reset in response to a maintenance test running on the call controller. (A reset performed at the request of a SAT or CLI command entered by craft or Tier technical support generates a different trap indicating a manual reset.) Finally, it may automatically reset when it reregisters with a call controller after being out of touch for too long. This trap is is generated as the Media Gateway Processor comes back up after resetting. If the Media Gateway Processor resets and fails to come back up, this trap will not be generated. 1. Check to see if a maintenance test that is supposed to reset the processor was run. 2. Check that the reset was not due to the link with the call controlling going down. If the reset is due to a link failure with the call controller, follow call controller link failure troubleshooting procedures. 3. Check the Media Gateway Processor and insure that it has the latest version of firmware installed. If it does not, install the latest version of firmware and continue to monitor. 4. If this trap occurs infrequently, the trap may be due to an unusual transient condition. Monitor future traps. 5. If this trap occurs and the Media Gateway Processor is frequently resetting, manually reset the media gateway. Escalate and have Tier 3 personnel capture the trap information and the event logs for analysis. 6. If this trap occurs frequenty and the Media Gateway Processor is not resetting, the Media Gateway may be functionally impaired, and is not capable of resetting itself to restore service. If service is impaired, reset the Media Gateway manually. Escalate and have Tier 3 personnel capture the trap information and the event logs for analysis.

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Table 5. G700 Alarms (SNMP Traps) to the Primary Media Server

Event ID	Trap #	Alarm Level	Description / Recommendation
30	116	WRN	cmgModuleAutoReset — A Media Module in the Media Gateway automatically reset (rebooted). A Media Module automatically resets when it fails a sanity test performed by the Media Gateway Processor. It may also automatically reset in response to a maintenance test running on the call controller. (A reset performed at the request of a SAT or CLI command entered by craft or Tier technical support generates a different trap indicating a manual reset.). 1. Check to see if a maintenance test that is supposed to reset the Media Module was run. 2. Check the Media Module and insure that it has the latest version of firmware installed. If it does not, install the latest version of firmware and continue to monitor. 3. If this trap occurs infrequently, the trap may be due to an unusual transient condition. Monitor future traps. 4. If this trap occurs and the Media Module does not return to service, or if this trap occurs frequently, attempt to reset the failing module from the SAT or CLI and see if this returns it to stable service. 5. If manually resetting the Media Module does not return it to service, and if a spare Media Module of the same time is available, replace the failing Media Module with the spare and see if the spare Media Module goes into service. If so, follow procedures for dealing with the original, bad, Media Module. 6. If the spare Media Module fails to go into service, it is of course possible that the spare Media Module is bad as well. But that aside, try manually resetting the Media Gateway Processor at a time convenient to the customer and see if this restores service. If so, the both the original and the spare Media Modules can probably be considered okay, and the problem is probably with the Media Gateway Processor itself. Escalate and have Tier 3 personnel capture the trap information and the event logs for analysis.
32	118	MIN	cmgModulePostFault — A Media Module failed its power-on start-up test. 1. Reset or replace the Media Module.

Continued on next page

Table 5. G700 Alarms (SNMP Traps) to the Primary Media Server

Event ID	Trap #	Alarm Level	Description / Recommendation
34	122	MAJ	cmgConfigUploadFault — An attempt to upload a configuration file failed. 1. Check the event log for an error message during the backup/restore process. 2. Troubleshoot the specific error according to the information found. 3. Retry the upload (backup) command; for example: copy mgp-config tftp <filename> <ipaddress> *Since the following command causes a brief service outage, it should only be executed at the customer's convenience.* 4. If the problem persists, reboot the G700.

Continued on next page

Table 5. G700 Alarms (SNMP Traps) to the Primary Media Server

Event ID	Trap #	Alarm Level	Description / Recommendation
37	128	WRN	cmgVoipAutoReset — A VOIP (Voice Over IP) module in the Media Gateway automatically reset (rebooted). A VOIP module automatically resets when it fails a sanity test performed by the Media Gateway Processor. It may also automatically reset in response to a maintenance test running on the call controller. (A reset performed at the request of a SAT or CLI command entered by craft or Tier technical support generates a different trap indicating a manual reset.) It automatically resets when its IP address is administered. Finally, it automatically resets when it fails a ping test performed by the Media Gateway Processor against the VOIP module's IP address. 1. Check to see if a maintenance test that is supposed to reset the VOIP module was run. 2. Check to see if the VOIP module had its IP address readministered. 3. Check to see if the IP address administered on the VOIP module is correct. 4. Check to see if the IP address of the Media Gateway itself can be pinged. Physical or logical connectivity issues (cabling or routing problems) in the data network can cause ping failures. 5. Check the VOIP module and insure that it has the latest version of firmware installed. If it does not, install the latest version of firmware and continue to monitor. 6. If this trap occurs infrequently, the trap may be due to an unusual transient condition. Monitor future traps. 7. If this trap occurs and the VOIP module does not return to service, or if this trap occurs frequently, attempt to reset the failing module from the SAT or CLI and see if this returns it to stable service. 8. If manually resetting the VOIP module does not return it to service, and if a spare VOIP module of the same type is available, replace the failing VOIP module with the spare and see if the spare VOIP module goes into service. If so, follow procedures for dealing with the original, bad, VOIP module. (Steps continued on next page)

Continued on next page

Table 5. G700 Alarms (SNMP Traps) to the Primary Media Server

Event ID	Trap #	Alarm Level	Description / Recommendation
37	128	WRN	9. If the spare VOIP module fails to go into service, it is of course possible that the spare VOIP module is bad, as well. There may be a power issue, also. 10. Try manually resetting the Media Gateway Processor at a time convenient to the customer and see if this restores service. If so, both the original and the spare VOIP modules can probably be considered okay, and the problem is probably with the Media Gateway Processor itself. Capture the trap information. If possible, capture the event logs, using the **show event-log** CLI command, for analysis. Escalate. 11. If none of this works, capture the trap information. If possible, capture the event logs, using the **show event-log** CLI command, for analysis. Escalate.

Continued on next page

4 Media Server Alarms

Note: For additional Media Server alarm information, refer to "*Maintenance for the Avaya™ S8700 Media Server for Multi-Connect Configurations, 555-233-143*".

In the Avaya S8300 Media Server with G700 Media Gateway system, some maintenance processes take place on the G700 while others are controlled by MultiVantage and pertain to the S8300.

Table 15 through Table 31 include selected MultiVantage Media Server alarms. In an Avaya S8300 Media Server with G700 Media Gateway system they may come from either an S8300 or an S8700.

Media Server Alarms

In Avaya S8300 Media Server with G700 Media Gateway, a Linux-based Media Server (internal or external) is configured so that it serves as the trap collector and provides external alarm notification.

A process called the Global Maintenance Manager (GMM) runs on the Media Server and collects events that are logged to the Linux syslog_d process. These events consist primarily of failure notification events logged by the MultiVantage and Intuity maintenance subsystems. For events that require external notification, the most basic choice is to call the Avaya technical service center's INADs (Integrated Alarming and Dispatching System). However, other possible methods are sending an email and/or page to specified destinations and sending an SNMP trap to a specified network management station.

The Media Server also has an SNMP trap manager that collects traps from:

- MM LEDs
- MM insertion and removal
- Uploads and downloads to the MMs
- VoIP MM
- VoIP engine on the motherboard
- G700-associated UPS systems.

Viewing the Alarm

The technician views alarms and events through the commands in Table 12, which are available via the Web Interface, CLI, and SAT command-line interface:

Table 12. Commands for Viewing Alarms

Command	Description
To view all outstanding platform alarms	These are the alarms that have not yet been cleared, either manually or via an Expert System.
To view system alarm status	This shows the existence (yes/no) of any major or minor alarm condition in the system, whether MultiVantage or Platform.

Note: The first command only views non-MultiVantage-originated alarms. To view MultiVantage alarms, the technician uses the SAT interface.

Clearing the Alarm

Clear MultiVantage alarms with various SAT commands and corrective actions documented in the "*Maintenance for Avaya DEFINITY® Server R, 555-233-117*".

CAUTION:
Only trained Avaya technicians should clear alarms.

Obtaining Information from MultiVantage Alarms

If you can get the MultiVantage application to run either from a telnet session (SAT window) or Avaya™ Site Administration, you can use the following SAT commands to obtain more information.

Obtain Information from MultiVantage Alarms

Begin

1. Use **display alarms** command:

   Issuing the **display alarms** command at the administration terminal shows where maintenance thinks the problem lies. The alarms are a good indication of why the system went down. They should be used along with the following two methods.

2. Observe red LEDs on the Media Modules to determine where software or firmware had a problem.

3. Use the **reset** command.

End

Alarming on the Avaya S8300 Media Server

S8300 Maintenance Commands can also be tested and corrected using SAT commands.

Alarming on the External Media Server

Maintenance for External Media Servers is the same as for the S8700 or DEFINITY servers. See "*Maintenance for the Avaya™ S8700 Media Server for Multi-Connect Configurations, 555-233-143*" or "*Maintenance for Avaya DEFINITY® Server R, 555-233-117*".

Alarming on the S8300 Functioning in Local Survivable Mode

The S8300 Functioning in Local Survivable Mode sends an alarm when it becomes active. It also sends an alarm for every G700 that registers with it. It does NOT send alarms when IP phones register with it; rather, it sends a warning.

Avaya MultiVantage™ Software Alarms

The following sections address MultiVantage Software alarms for internal and external configurations.

Avaya MultiVantage™ Software S8300 Alarms

Table 13 illustrates the traps that apply to MultiVantage Software on the S8300.

Table 13. MultiVantage Software S8300 Traps

Trap	Description
CMG Controller HW trap	Hardware faults are analyzed by maintenance software and correlate fault conditions to determine the appropriate action. If appropriate action requires attention, a trap of critical severity is sent.
Media Gateway controller HW clear trap	Hardware faults that have created traps send a clear trap upon clearing.
CMG controller with administered MG that's not registered	If a Media Server has an administered G700 but it has not registered after an appropriate amount of time, send an alarm of major severity indicating such.

Note: The Avaya S8300 Media Server with G700 Media Gateway platform has several watchdog timers. If any one of them is not verified regularly, a trap of major severity is sent. The timer associated with the S8300 is the S8300 Software watchdog, which resets the S8300 processor if its connection is not verified regularly.

Backup and Restore

The S8300 uses the LAN to backup a copy of its translation data. Table 14 illustrates the backup and restore traps.

Table 14. Backup and Restore Traps

Trap	Description
successfully stored backup	A trap of informational severity is sent when backup is successful. (REPLY_ACK) The trap reads “Successful backup of S8300 translation data,” and names the backup location stored in the string “BACKUP_LOCATION.” This information also goes to the local maintenance screen, since it is very possible that backup is being requested as a result of an on-site attempt to replace the S8300.
no backup data stored	A trap of major severity is sent as soon as a REPLY_ERROR message is returned. The trap states “Translation Data backup not available,” and names the backup location stored in the string “BACKUP_LOCATION.”

S8700 Alarms

The Virtual Announcement Media Module faults are managed as MultiVantage alarms. There is no change of alarming implementation from S8700 alarming. See “*Maintenance for the Avaya™ S8700 Media Server for Multi-Connect Configurations, 555-233-143*”.

S8300 Alarms--_WD

See Table 15 through Table 24 for a list of S8300 Alarms--_WD.

Table 15. Alarm #8

Number	8
Source	_WD
Event ID	4
Alarm Level	Major
Alarm Text Description	Maximum retries for app start
Possible Causes	Application failed (cannot start) maximum allowed number of times. The application is present but not launching.
Determining Cause	Go to the Web Interface; choose Diagnostics; View System Logs; select Watchdog Logs
Resolution	1. On the Web Interface, choose View Process Status and select the appropriate settings 2. From the Web Interface, choose Alarms and Notification; select the appropriate alarm; choose Clear

Table 16. Alarm #9

Number	9
Source	_WD
Event ID	6
Alarm Level	Major
Alarm Text Description	Cannot open config parameter file
Possible Causes	Watchdog cannot read is configuration file /etc/opt/ecs/watchd.conf
Determining Cause	Go to the Web Interface; choose Diagnostics; View System Logs; select Watchdog Logs
Resolution	1. Get a fresh copy of watchd.conf (from the CD for field, and from remote server or /root2 for the labs). 2. From the Web Interface, choose Alarms and Notification; select the appropriate alarm; choose Clear

Table 17. Alarm #10

Number	10
Source	_WD
Event ID	7
Alarm Level	Major
Alarm Text Description	Cannot open exe using config file PID
Possible Causes	Watchdog has a bad path name for an application it is supposed to start.
Determining Cause	Go to the Web Interface; choose Diagnostics; View System Logs; select Watchdog Logs
Resolution	1. Verify that the file named in the log exists and is executable. 2. Verify that the string in watchd.conf is correct. 3. From the Web Interface, choose Alarms and Notification; select the appropriate alarm; choose Clear

Table 18. Alarm #11

Number	11
Source	_WD
Event ID	15
Alarm Level	Major
Alarm Text Description	Detected a rolling reboot
Possible Causes	Watchdog has detected x number of Linux reboots within y minutes, where x and y are configurable in /etc/opt/ecs/watchd.conf. A variety of bad things could have happened to cause a rolling reboot, it's not possible to list them all.
Determining Cause	Go to the Web Interface; choose Diagnostics; View System Logs; select Watchdog Logs
Resolution	1. (Lab only) Make sure all the executables listed in the watchd.conf exist and are executable. It has been found that the most common cause for rolling reboot is that files are not where they are expected 2. If everything looks OK with step 1, further investigation of trace log is necessary.

Table 19. Alarm #12

Number	12
Source	_WD
Event ID	18
Alarm Level	Warning
Alarm Text Description	Application Restarted
Possible Causes	An application has failed and watchdog has restarted it successfully.
Determining Cause	Go to the Web Interface; choose Diagnostics; View System Logs; select Watchdog Logs
Resolution	From the Web Interface, choose Alarms and Notification; select the appropriate alarm; choose Clear

Table 20. Alarm #13

Number	13
Source	_WD
Event ID	19
Alarm Level	Minor
Alarm Text Description	Application failed unintentionally
Possible Causes	Watchdog is bringing the system down because an application has failed to start correctly. The application may have failed to start because the file did not exist (coincident with 7), or required parameters for the application in watchd.conf were missing or invalid.
Determining Cause	Go to the Web Interface; choose Diagnostics; View System Logs; select Watchdog Logs
Resolution	1. Verify that the file named in the log exists and is executable. 2. Verify that the string in watchd.conf is correct. 3. From the Web Interface, choose Alarms and Notification; select the appropriate alarm; choose Clear

Table 21. Alarm #14

Number	14
Source	_WD
Event ID	20
Alarm Level	Major
Alarm Text Description	Application totally failed
Possible Causes	Application failed maximum allowed number of times.
Determining Cause	Go to the Web Interface; choose Diagnostics; View System Logs; select Watchdog Logs
Resolution	1. Access the web page; view summary status 2. If the application is down, use “start -s application” to start the application. 3. From the Web Interface, choose Alarms and Notification; select the appropriate alarm; choose Clear

Table 22. Alarm #15

Number	15
Source	_WD
Event ID	22
Alarm Level	Minor
Alarm Text Description	Application was shutdown
Possible Causes	Watchdog successfully shut down the named application
Determining Cause	Go to the Web Interface; choose Diagnostics; View System Logs; select Watchdog Logs
Resolution	From the Web Interface, choose Alarms and Notification; select the appropriate alarm; choose Clear

Table 23. Alarm #16

Number	16
Source	_WD
Event ID	23
Alarm Level	Major
Alarm Text Description	Watchd high monitor thread is rebooting the system
Possible Causes	The lo-monitor thread is missing heartbeats (can't get CPU time) and the hi-monitor thread has tried 3 times to recover the system by killing processes in an infinite loop. That is, if after 3 CPU occupancy profiles and recovery, the lo-monitor thread is still not heartbeating, then watchd will reboot the server.
Determining Cause	Go to the Web Interface; choose Diagnostics; View System Logs; select Watchdog Logs
Resolution	Clear alarm: From the Web Interface, choose Alarms and Notification; select the appropriate alarm; choose Clear. Watch to see if alarm returns. The server should've rebooted by the time a support person can analyze the system. A reboot normally fixes problems with unresponsive software.

Table 24. Alarm #17

Number	17
Source	_WD
Event ID	24
Alarm Level	Major
Alarm Text Description	Watchd high monitor thread is stopping tickling of hw
Possible Causes	This if rebooting the server for alarm 23 does not work. This reboot is done through a Linux system call which may not succeed. This can occur if Linux kernel semaphore is stuck. watchd starts a timer prior to calling reboot. If the timer expires, watchd will stop the HW sanity tickling in hope that the HW sanity watchdog will reboot the processor (i.e. a hard reboot).
Determining Cause	Go to the Web Interface; choose Diagnostics; View System Logs; select Watchdog Logs
Resolution	Clear alarm: From the Web Interface, choose Alarms and Notification; select the appropriate alarm; choose Clear. Watch to see if alarm returns. The server should've rebooted by the time a support person can analyze the system. A reboot normally fixes problems with unresponsive software.

S8300 Alarms--ENV

See Table 25 for a list of S8300 Alarms--ENV.

Table 25. Alarm #22

Number	22
Source	ENV
Event ID	4
Alarm Level	Major
Alarm Text Description	Temperature reached Critical High
Possible Causes	Motherboard's Temperature reached Critical High
Determining Cause	Alarm condition present indicates the problem occurred.
Resolution	1) look for any obstructions blocking the G700 fans 2) check for G700 fan alarms 3) clear alarms 4) shutdown 5) restart 6) If the alarm condition is not present, use "almclear -n #id" to manually clear the alarm. 7) From the Web Interface, choose Alarms and Notification; select the appropriate alarm; choose Clear

S8300 Alarms--login

See Table 26 through Table 30 for a list of S8300 Alarms--login.

Table 26. Alarm #44

Number	44
Source	login
Event ID	1
Alarm Level	Warning
Alarm Text Description	
Possible Causes	
Determining Cause	Choose View Current Alarms
Resolution	Notify Customer

Table 27. Alarm #45

Number	45
Source	login
Event ID	2
Alarm Level	Warning
Alarm Text Description	
Possible Causes	
Determining Cause	Choose View Current Alarms
Resolution	Notify Customer

Table 28. Alarm #46

Number	46
Source	login
Event ID	3
Alarm Level	Minor
Alarm Text Description	
Possible Causes	Security violation
Determining Cause	Choose View Current Alarms
Resolution	Notify customer

Table 29. Alarm #47

Number	47
Source	login
Event ID	4
Alarm Level	Minor
Alarm Text Description	
Possible Causes	Security violation
Determining Cause	Choose View Current Alarms
Resolution	Notify customer

Table 30. Alarm #48

Number	48
Source	login
Event ID	5
Alarm Level	Major
Alarm Text Description	
Possible Causes	Security violation
Determining Cause	Choose View Current Alarms
Resolution	Notify customer

S8300 Alarms--_TM

See Table 31 for a list of S8300 Alarms-- _TM.

Table 31. Alarm #48

Number	18
Source	_TM
Event ID	1
Alarm Level	Major
Alarm Text Description	Can not read translations
Possible Causes	Disk failure or software failure.
Determining Cause	Choose View Current Alarms
Resolution	1. Backup translations to a unique location (for possible later diagnostic use) 2. Restore most recent previous translations. 3. Restart MultiVantage (reset System 4). 4. Notify Tier 3.

5 G700 Component Maintenance

This chapter describes the maintenance of Avaya™ G700 Media Gateway components.

G700 Component Maintenance

Maintenance of the G700 Media Gateway components is performed by resident software. Components not maintained by the resident software, such as Media Modules, are maintained by Avaya MultiVantage™ Software in a manner similar to their DEFINITY server counterparts; see "*Maintenance for Avaya DEFINITY® Server R, 555-233-117*".

Field Replaceable Components

In addition to Media Modules, the following components on the G700 are field-replaceable. Failure of other components (such as the power supply, fans, or motherboard) requires that the entire box be replaced. Table 32 and Table 33 show the G700 field-replaceable components.

Table 32. Equipment List: G700

G700		
Material Code: 170896	Apparatus Code: MGW1	Not Optional
G700 ComCode (for Maintenance Ordering Only)		
ComCode	**Number of Items**	**Description**
700018534	1	G700
700017932	1	Rack mount screw set (attach ears to rack)
700021769	2	Rack Mount Ears
901342105	6	Rack Mount screw set ear to box
700051055	4	Feet
H600434G10	1	Tech Laptop Cable
The following field replaceable components are contained In 700018534		
108934316	1	LED Module
700021769	2	Rack Mount Ears

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Table 32. Equipment List: G700 *Continued*

G700		
901342105	6	Rack Mount screw set ear to box
	1	Avaya Expansion Blank
	1	Avaya Octaplane Blank
700057060	3	Media Module Blanks

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Table 33. Equipment List: G700 Power Cords

G700 Power Cords		
Material Code: 170904	Apparatus Code: none	Not Optional
When you order this material code, a descriptive attribute will be required; the attributes are:		
Attribute	**Option**	**Comcode: Description**
CRD	30	405362641: PWR CORD 9X10 IN USA 17505
CRD	31	407786623: PWR CORD 98IN EUROPE 12013S
CRD	32	407786599: PWR CORD 98IN UNITED KINGDOM 14012
CRD	33	407786631: PWR CORD 98IN AUSTRALIA 15012
CRD	34	407790591: PWR CORD INDIA P250CIM
CRD	42	408161453: PWR CORD 96IN ARGENTINA

Processors

If it necessary to replace the Media Server, the following information is required to order Media Servers. See Table 34.

Table 34. Equipment List: Media Servers

Media Server		
S8300 Media Server		
Material Code: 170902	Apparatus Code DMM 7	Optional
CcomCode (for Maintenance Ordering Only): 108919994		
Local Survivable Processor		
Material Code: 170903	Apparatus Code: DMM 9	Optional
ComCode (for Maintenance Ordering Only): 108920026		

AVAYA Cajun Equipment

Use the information in Table 35 when ordering Avaya Cajun equipment for use with the Avaya S8300 Media Server with G700 Media Gateway system.

Table 35. Avaya Cajun Equipment

Avaya Cajun Equipment	
CASCADE/OCTAPLANE MODULE	
Material Code: 108562943	CAJUN MOD P330 STACKING
CASCADE CABLES	
Material code: 108592445	CAJUN P330 CABLE OCTAPLANE STACKING 1FT
Material code: 108592437	CAJUN P330 CABLE OCTAPLANE STACKING 6FT
Material code: 108563453	CAJUN CABLE ASSY X330RC REDUN STACKING
EXPANSION MODULES	

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Table 35. Avaya Cajun Equipment *Continued*

Avaya Cajun Equipment		
Material code: 108562927	CAJUN MOD P330 1000BSX UPLINK 2PT	The X330-S2 provides 1000Base-SX connectivity with two Multimode Fiber ports (up to 550 m,1804 ft) with LAG and Load Sharing
Material code: 108563032	CAJUN MOD P330 1000BLX UPLINK 2PT	The X330-L2 provides 1000Base-LX connectivity with two Single Mode Fiber ports (up to 5 km,3.11 miles) with Link Aggregation (LAG) and Load Sharing
Material code: 108562992	CAJUN MOD P330 1000BSX UPLINK 1PT	The X330-S1 provides 1000Base-SX connectivity with one Multimode Fiber port (up to 550 m,1804 ft)
Material code: 108562976	CAJUN MOD P330 1000BLX UPLINK 1PT	The X330-L1 provides 1000Base-LX connectivity with one Single Mode Fiber port (up to 5 km,3.11 miles)
Material code: 108562968	CAJUN MOD P330 10/100TX UPLINK 16PT	The X330-T16 adds 16 10/100Base-T ports. It allows up to 64 ports in a single switch and an impressive 640 per stack! Two LAGs can be created, with up to eight ports per group.
Material code: 108562950	CAJUN MOD P330 100FX UPLINK 2PT	The X330-F2 adds two 100Base-FX ports which can be aggregated using LAG to provide a 200 Mbps link for backbone or high-speed server applications.

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Table 35. Avaya Cajun Equipment *Continued*

Avaya Cajun Equipment		
Material code: 108659178	CAJUN P330 MOD EXP GBIC 2PT	The X330-G2 provides GBIC connectivity with an adapter for standard GBIC transceivers.
Material code: 108659194	CAJUN MOD DUAL SPD OC12/0C3 SMF 15KM	
Material code: 108659186	CAJUN MOD DUAL SPEED OC12 OC3 MMF 500M	

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Replacing the S8300 Media Server

The S8300 Media Server contains a Lithium/Manganese Dioxide battery.

CAUTION:
Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

Note: The S8300 Media Server is inserted into the G700 Slot V1 whether it is the primary server or a local survivable backup. The S8300 Media Server can only be inserted in Slot V1 on the left side of the G700. The LED module must be pulled from its housing to provide clearance for the S8300 Media Server.

Replacing the S8300 Media Server in Slot V1 of the G700

Begin

1. When removing the S8300, initiate a shutdown process by first depressing the button (for a few seconds) located next to the fourth GREEN “Ok-to-Remove” LED (specific to the S8300). This LED will first blink; then go steady. Once steady, this GREEN LED indicates that the disk drive has been parked properly and is ready to be removed.
2. Undo the 2 captive screws.
3. Disengage the LED module and remove it from the G700.

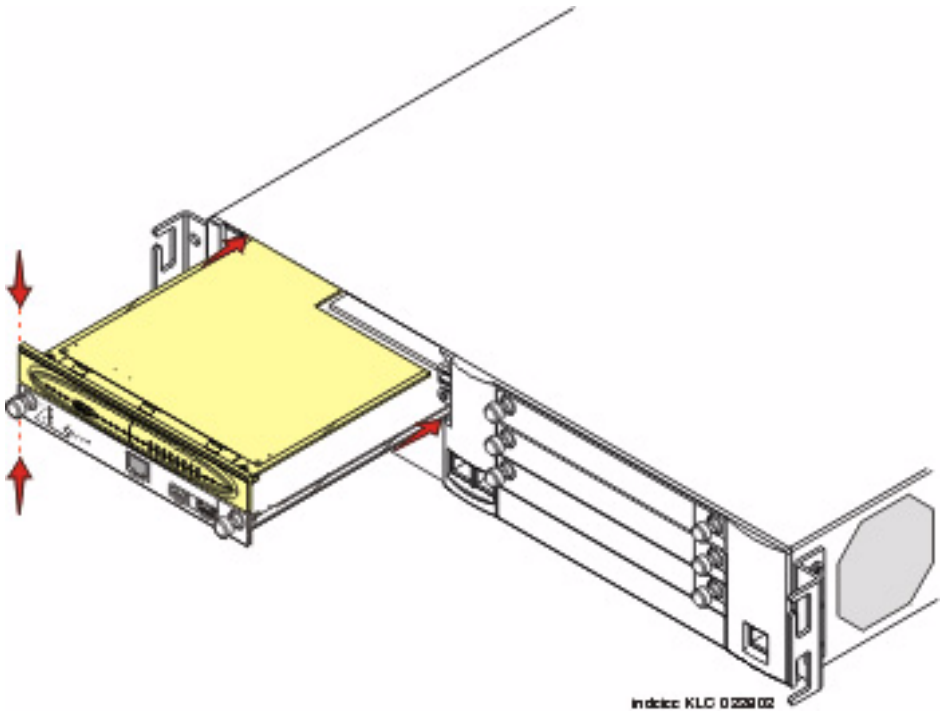
   When you insert the S8300 Media Server into its slot on the left side of the G700, you must pull out the LED module to provide clearance for the S8300 Media Server.
4. Engage both sides of the S8300 Media Server module in the interior guides and guide the module halfway into the chassis.

   Once the S8300 Media Server is engaged in the guides and inserted halfway into the chassis, the LED module should be engaged in its guides, and the two units should be pushed into place together.

5. Align the LED module in its guides and gently push it into place, keeping the LED module safely within its guides and maintaining an even pressure to assure that the module does not become twisted or disengage from the guides.

   Guide the longer, left side of the LED module into the chassis until the shorter, right edge of the module can engage in its guides. (Figure 1)

Figure 1. Align the LED module and the S8300 Media Server



6. Push steadily and firmly until the faceplates of the S8300 Media Server and the LED module are even and then push the two units into the housing together.
7. Apply firm pressure to engage the connectors.

   The connector has different length pins. The long pins will engage first to provide grounding. Medium length and short pins will provide power and signal.
8. Tighten the captive screws on the S8300 Media Server module.(Figure 2)

⚠ WARNING:
To prevent access to electrical hazards by unauthorized personnel and to ensure continued compliance to international radiated emissions requirements, all captive screws must be securely tightened such that they cannot be loosened without the use of a tool.

Figure 2. Tighten Screws

End

Media Modules

The information in the Table 36 is necessary when ordering or replacing Media Modules.

Table 36. Equipment List: Media Modules

Media Modules		
E1/T1 Media Module		
Material Code: 170900	Apparatus Code: DMM5	Optional
ComCode (for Maintenance Ordering Only): 108919978		
DEF DS1 LOOPBACK JACK 700A		
Provides the ability to remotely trouble shoot the E1/T1 Media Module. It is required for any customer with a maintenance contract and highly recommended for any other customer.		
Material Code: 107988867	Apparatus Code: None	Required for any customer with a maintenance contract and a E1/T1 Media Module, highly recommend for other customers to avoid expensive technician visit.
VoIP Media Module		
Material Code: 170901	Apparatus Code: DMM6	Optional
ComCode (for Maintenance Ordering Only): 108919986		
DCP Media Module		
Material Code: 170898	Apparatus Code: DMM3	Optional
ComCode (for Maintenance Ordering Only): 108919952		

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Table 36. Equipment List: Media Modules *Continued*

Media Modules		
Analog Station/Trunk Media Module		
Material Code: 170899	Apparatus Code: DMM4	Optional
ComCode (for Maintenance Ordering Only): 108919960		

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Media Module Replacement

There are several reasons for replacing a Media Module:

- Repairing a damaged Media Module
- Changing Media Module type

The modules on the G700 are not inserted until the G700 registers with Avaya MultiVantage. Likewise, all Media Modules and associated Maintenance Objects are removed if the G700 link goes down.

The term ‘board insertion process’ refers to the process in which the Media Modules are queried as to their type, suffix, and vintage. Use the ‘list config all’ or ’list congfig media-gateway <#>’ commands to access this information.

Any Media Module that does not agree with administration generates a process error and is flagged to the relevant administration form.

The removal of the Media Modules is detected. Listings of the G700 circuit packs show the relevant slot location as having ‘no board.’

The determination of E1/T1 modes of operation for the DS1 Media Modules is downloadable, since the DS1 Media Module can function as either a T1 or E1 interface.

Media Module Replacement

Upon Media Module replacement, modules are registered with the G700 Media Gateway, where board type, suffix, and vintage are verified. The G700 then sends appropriate H.248 messages to the controller, thus creating MultiVantage objects.

For detailed descriptions of the Media Modules see *“Avaya MultiVantage™ Solutions Hardware Guide, 555-233-200.”*

⚠ WARNING:
The G700 must not be operated with any slots open; empty slots should be covered with the supplied blank plates.

CAUTION:
The connector pins can be bent or damaged if the module is handled roughly or if misaligned and then forced into position.

CAUTION:
Separate ESD paths to the chassis ground connect to the Media Modules at the spring-loaded captive screws. Ensure the captive screws are securely tightened to prevent damage to the equipment.

Replacing Media Modules

Begin

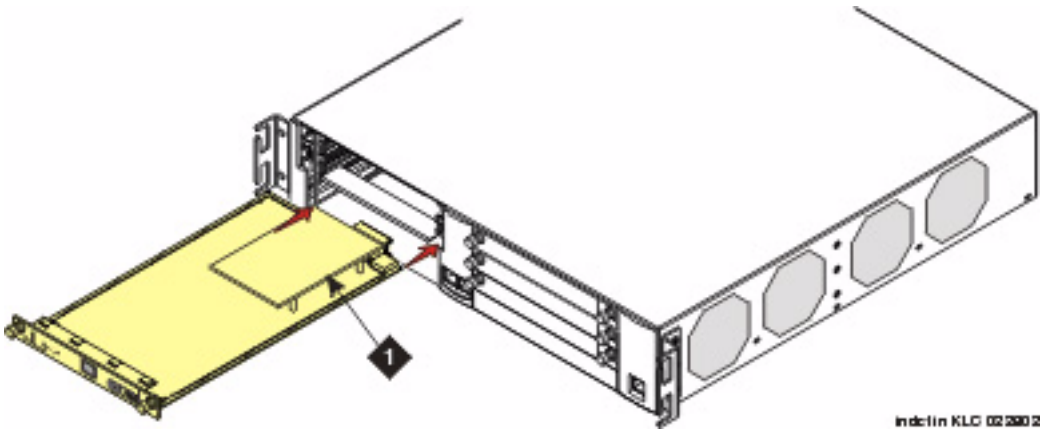
1. Identify and mark all cables.
2. Undo the cables.
3. Undo the captive screws and slide out the old Media Module.
4. Position the Media Module squarely before the selected slot on the front of the G700 chassis and engage both sides of the module in the interior guides.
5. Slide the module slowly into the chassis, maintaining an even pressure to assure that the module does not become twisted or disengage from the guides. (Figure 3)
6. Apply firm pressure to engage the connectors.

   The Media Module connector has different length pins. The long pins will engage first to provide grounding. Medium length and short pins will provide power and signal.
7. Lock the Media Module into the chassis by tightening the spring-loaded captive screws on the front of the module.
8. Plug in the cables in the correct order.

End

WARNING:
To prevent access to electrical hazards by unauthorized personnel and to ensure continued compliance to international radiated emissions requirements, all captive screws must be securely tightened such that they cannot be loosened without the use of a tool.

Figure 3. Inserting Media Modules



Replacing an Avaya Expansion Module

The Avaya Expansion Modules provide vastly increased networking and connectivity capabilities. For a complete description of the Avaya Expansion Modules, see *"Avaya™ P330 Manager User Guide."* These modules may be mounted in the G700 in the Expansion Module slot on the left side of the faceplate. The G700 must be powered off before you insert or remove an Avaya Expansion Module.

⚠ WARNING:
The G700 must not be operated with any slot open; empty slots must be covered with the supplied blank plates.

⚠ CAUTION:
The G700 must be powered off before you insert or remove an Avaya Expansion Module.

Replacing an Expansion Module in the G700

Begin

Power off the unit if the equipment has been in operation.

1. Identify and mark all cables.
2. Undo the cables.
3. Remove the blank plate covering the slot.
4. Align the printed circuit board with the interior guide rails.

   Note: The printed circuit board fits into the guide rail. The metal base plate does not.
5. Firmly press the Expansion Module until it is completely inserted into the G700.
6. Tighten the two screws on the front panel of the Expansion Module.

End

⚠ WARNING:
To prevent access to electrical hazards by unauthorized personnel and to ensure continued compliance to international radiated emissions requirements, all captive screws must be securely tightened such that they cannot be loosened without the use of a tool.

Replacing an Avaya Octaplane Stacking Module

G700 Media Gateways can be mounted in equipment stacks with routers, switches, or other G700s. The stack is limited to ten elements. To link multiple units, each G700 must be equipped with an Avaya Octaplane Stacking Module which is mounted through the rear panel of the G700. See *"Avaya MultiVantage™ Solutions Hardware Guide, 555-233-200"* for a general description of the hardware.

Insert an Avaya Octaplane Stacking Sub-Module

Begin

1. Undo the cables.
2. Remove the blank plate from the back of the G700.
3. Insert theAvaya Octaplane Stacking Sub-Module gently in the slot, ensuring that the metal base plate is aligned with the guide rails.
4. Press the Avaya Octaplane Stacking Sub-Module in firmly until the connector at the back of the module is completely inserted into the internal connector on the G700.
5. Tighten the screws on either side of the module.

End

Setting G700 Synchronization

If the Avaya™ G700 Media Gateway contains an Avaya™ MM710 Media Module (DS1), it is usually advisable to set the MM710 up as the primary synchronization source for the G700. In so doing, clock sync signals from the Central Office (CO) are used by the MM710 to synchronize all operations of the G700. If no DS1 is present, it is not necessary to set synchronization.

If Avaya MultiVantage™ Software 1.2 is running on an Avaya™ S8300 Media Server, however, the usual SAT screens for “display sync” and “change sync” are not present. It becomes necessary to set clock synchronization using the CLI interface with the Media Gateway Processor. Use the following procedure:

1. Login at the **Welcome to Media Gateway Server** menu.
   You are now logged-in at the Supervisor level on the Media Gateway Processor. The prompt appears as **MG-mmm-1(super)**>, where **mmm** is the administered G700 Media Gateway number in the network.
2. Type **configure** to access the configuration prompt.
   The prompt will change to indicate that you are in configuration mode. In the configuration mode, you may use the **set** commands.
3. At the prompt, type **set sync interface primary <mmid>**.
   The MM710 Media Module is now configured as the primary clock synchronization source for the G700 Media Gateway.
4. At the prompt, type **set syn sou pri**.
5. If the G700 Media Gateway contains a second MM710 Media Module, type **set sync interface secondary**.
   If, for any reason, the primary MM710 Media Module cannot function as the clock synchronization source, the system defaults to the secondary MM710 Media Module for that function. If neither MM710 Media Module can function as clock synchronization source, the system defaults to the local clock running on the S8300 Media Server.

▲ CAUTION:
Verify that the other end of the DS1 that you have selected as primary or secondary is not syncing from you.

Viewing G700 Sync Sources

If you want to determine the locations of the clock synchronization sources, do the following:

1. As in the procedure above, open a session in the Media Gateway Processor.
   The command prompt should appear as **MG-mmm-1(super)>**, where **mmm** is the number by which the G700 Media Gateway is registered in the network.
2. Type **show sync timing**
   This command displays the locations and status of the primary, secondary, and local clock sources.

```
SOURCE      MM     STATUS           FAILURE
---------   ----   --------------   ---------------
Primary     V4     Active           None
Secondary          Not Configured
Local       v0     Standby          None

MG-001-1(configure)#

test board 1v4 long                                          Page   1

                                TEST RESULTS

Port        Maintenance Name  Alt. Name Test No. Result          Error Code

001V4       MG-DS1                      50       ABORT           1412
001V4       MG-DS1                      52       PASS
001V4       MG-DS1                      138      PASS
001V4       MG-DS1                      139      PASS
001V4       MG-DS1                      140      PASS
001V4       MG-DS1                      141      PASS
001V4       MG-DS1                      142      PASS
001V4       MG-DS1                      143      PASS
001V4       MG-DS1                      144      PASS
001V4       MG-DS1                      145      PASS
001V4       MG-DS1                      146      PASS
001V4       MG-DS1                      1227     ABORT           1412
001V401     TIE-DS1           0001/001  7        ABORT           1412
```

Avaya™ MultiVantage Software Maintenance

MultiVantage Software maintenance is executed in the same manner in the S8300 Media Server as in previous releases of call processing software. That is, users will use the SAT commands to execute tests in the same manner as they would in Avaya MultiVantage.

Note: Tests that do not run on the G700 will abort with Abort Code 1412. Tests that abort are listed under each MO, but are not described.

IP Telephones

Note: Refer to *"4600 Series IP Telephone LAN Administration, 555-233-507"* for troubleshooting details and error codes, as well as the phone administration information.

The Avaya 4600-Series IP Telephones are relatively trouble-free. Table 37 provides the most common problems an end user might encounter. For other IP Telephone questions or problems, contact your Telephone System Administrator. Some typical problems are as follows:

- Phone does not activate after connecting it the first time
- Phone does not activate after a power interruption
- Characters do not appear on the Display screen
- Display shows an error/informational message
- No dial tone
- Echo, noise or static when using a headset
- Phone does not Ring
- Speakerphone does not operate
- A feature does not work as indicated in the User Guide
- All other IP Phone problems

Table 37. IP Phone Problems and Solutions

Problem/Symptom	Suggested Solution
Phone does not activate after connecting it the first time	Unless your System Administrator has already initialized your telephone, you may experience a delay of several minutes before it becomes operational. Upon plug-in, your telephone immediately begins downloading its operational software, its IP address and any special features programmed by your System Administrator from the server to which it is connected. Report any delay of more than 8-10 minutes to your System Administrator.
Phone does not activate after a power interruption	Allow a few minutes for re-initialization after unplugging, powering down the phone, server problems or other power interruption causes.

1 of 3

Table 37. IP Phone Problems and Solutions *Continued*

Problem/Symptom	Suggested Solution
Characters do not appear on the Display screen	See "*Phone does not activate after connecting it the first time*" above. Check the power source to be sure your telephone is receiving power. Check all lines into the phone to be sure it is properly connected. Perform the Test procedure: with the telephone idle, press and hold the **Trnsfr** button; the line/feature indicators should light and the display should show all shaded blocks. Release the **Trnsfr** button to end the test. If the above suggested solutions do not resolve the problem, reset or power cycle the phone.
Display shows an error/informational message	Most messages involve server/phone interaction. If you cannot resolve the problem based on the message received, contact your Telephone System Administrator for resolution.
No dial tone	Make sure both the handset and line cords into the phone are securely connected. Note that there may be a slight operational delay if you unplug and reconnect the phone. If you have a 4612 or 4624 IP Telephone, check to be sure the phone is powered (press **Menu**, then **Exit**); if nothing appears on the display, check your power source. If you have a 4612 or 4624 IP Telephone, check to be sure your phone is communicating with the switch; press **Menu**, then any of the softkey features (e.g., Timer). If the selected feature activates, the switch/IP phone connection is working. Reset or power cycle the phone. See your Telephone System Administrator if the above steps do not produce the desired result. Check the status of the VoIP board.
Echo, noise or static when using a headset; handset operation works properly	Check the headset connection. If the connection is secure, verify that you are using an approved headset, base unit and/or adapter, as described in the list of approved Avaya Communication compatible Headsets.

2 of 3

Table 37. IP Phone Problems and Solutions *Continued*

Problem/Symptom	Suggested Solution
Phone does not ring	If you have a 4612 or 4624 IP Telephone, use the Menu to access the **RngOf** (Ringer Off) feature; if a carat (downward triangle) appears above that feature, your phone is set to not ring. To correct, press the softkey below **RngOf**; when the carat does not display, your ringer is active. If "Ringer Off" is programmed on a Line/Feature button, that button's indicator light will appear as steady green; reactivate the ringer by pressing that Line/Feature button again. Set your ringer volume to a higher level using the Up/Down Volume keys. From another phone, place a call to your extension to test the above suggested solutions.
Speakerphone does not operate	Ask your System Administrator if your speakerphone has been disabled.
A feature does not work as indicated in the User Guide	Verify the procedure and retry. For certain features, you must lift the handset first or place the phone off-hook. See your Telephone System Administrator if the above action does not produce the desired result; your telephone system may have been specially programmed for certain features applicable only to your installation.
All other IP Phone problems	Contact your Telephone System Administrator.

3 of 3

Reset and Power Cycle

Reset your IP Telephone when other Troubleshooting suggestions do not correct the problem. Use a Power Cycle with the approval of your System Administrator only when a reset does not resolve the problem.

To reset your phone

This basic reset procedure should resolve most problems.

1. Press **Hold**.
2. Using the dial pad, press the following keys in sequence: **73738#**

   The display shows the message “Reset values? * = no # = yes.”
3. Choose one of the following from Table 38:

Table 38. Resetting the Phone

If you want to	Then
Reset the phone without resetting any assigned values	Press * (asterisk). A confirmation tone sounds and the display prompts "Restart phone? * = no # = yes."
Reset the phone and any previously assigned (programmed) values (Use this option only if your phone has programmed, static values)	Press # (the pound key) The display shows the message “Resetting values” while your IP Telephone resets its programmed values, such as the IP address, to its default values, and re-establishes the connection to the server. The display then prompts “Restart phone? * = no # = yes.”

4. Press # to restart the phone or * to terminate the restart and restore the phone to its previous state.

Note: Any reset/restart of your phone may take a few minutes.

To power cycle the phone

Use the power cycle only if the basic or programmed reset procedure cannot be performed or does not correct the problem.

1. Unplug the phone and plug it back in.
   The phone connection is re-established.

If power-cycling does not correct the problem, a more severe power cycle routine can be performed by unplugging both the phone and the Ethernet cables. However, because this type of power cycle involves reprogramming certain values, it should only be performed by your Telephone System Administrator.

6 Avaya MultiVantage Software-Controlled Maintenance

This chapter addresses G700 Media Gateway subsystems and components that are controlled by Avaya MultiVantage™ Software SAT commands.

G700 Subsystems Maintained by MultiVantage

The MultiVantage subsystems are listable via the ‘list config’ command and, in most cases, have some maintenance activities involved.

Note: ‘list config’ all on the MultiVantage SAT gives you complete information, including whether or not stations have been administered on a port. ‘show mg list_config’ on the G700 MGP gives you information for the installed equipment in that G700.

The G700 subsystems that are applicable to MultiVantage maintenance considerations are identifiable by the presence of ‘angels’. Angels may be either physical or virtual, and both types use the CCMS message. Table 39 lists the applicable subsystems and how they are maintained.

Table 39. G700 Subsystems Maintained by MultiVantage

Subsystem	Angel Maintenance Type
Any Media Module	Physical Angel
Messaging Daughter Board (part of the S8300)	Virtual Angel
Announcement Circuitry (part of the MGP)	Virtual Angel

DEFINITY Server Equivalent Elements

DEFINITY server-experienced users will find that G700 components function, and are maintained, in a similar way as their DEFINITY server counterparts.

SAT Commands on the S8300/S8700 Media Servers

In traditional servers running Avaya MultiVantage™ Software 1.2, ports are identified by the cabinet number, carrier, slot and port (e.g., 01A0704). This naming convention does not make physical sense for the Media Modules. Therefore a new convention was developed that meets the needs of the G700 Media Gateways, yet for portability to traditional administration maintains the 7 character field. Also, in traditional server administration there are many commands that either require port fields as an argument to the command or require a port field value be entered on the form. Therefore these commands will need to understand Media Module port fields and accept them as valid entries. This applies to both the S8300 Media Server and an external communications controller, whether it be an S8700 Media Server or another server. The media gateway format is GGGVMPP, where GGG is the media-gateway number, VM is the module slot number, and PP is the port number. Note that the V is a required character that is part of the module slot number. The letter 'V' was chosen due to the hardware labeling of the media module slots as V1-V4.

The add/change/display/status media gateway [x , next] command

Figure 4. Media-Gateway Administration Screen

```
add media-gateway x                                    Page 1 of 1

                            MEDIA-GATEWAY
        Number: ___
          Name: _____________________ Identifier: ____________________
    IP Address: _________________     MAC Address: ___________________
Network Region: ___                      Location: __
     Site Data: _____________________  Registered? _
                _____________________

                  Slot  Module Type
                  V1:  # _________
                  V2:    _________
                  V3:    _________
                  V4:    _________



                  V8:    messaging-analog
                  V9:    gateway-announcements

                      '#' indicates module type conflict
```

The G700 Media Gateway Primary Server administers the G700 Media Gateways by the command **add media-gateway x** or **add media-gateway next**, where **x** is valid between the range of 1 to the capacity for a given primary server, and **next** is the next available number to be administered.

The commands **change media-gateway x**, **display media-gateway x** , and **remove media-gateway x** are supported in the same manner as the **add media-gateway x** command.

The Media Gateway form has five administrable fields for identification:

- Name -- A twenty (20) character open field for customer naming of the gateway. The default is a blank field.
- Identifier -- A twenty (20) character field for the controller to identify the gateway. The default is a blank field.
- Network Region -- A two or three character field for use by the primary server to allocate resources from the nearest Media Gateway. The of characters is dependent upon the type of primary server. The default is a blank field.
- Location -- A two character field, which refers to a time-zone offset, day-light savings rule, and number plan area code. The default is one (1).
- Site Data -- Two lines of 20 characters for general site information. The default is a blank field.

The 'Registered?' field is one (1) character long for indicating whether a G700 Media Gateway is currently registered with the primary server or not. The 'Registered?' field is a display only field. The valid value that the 'Registered?' field can have is y(es) or n(o).

The Media Gateway form has two additional fields for display purposes only: IP Address and MAC Address.

The IP Address field is a 15 character display only field containing the IP Address of the media gateway. The data in this field is of the form: XXX.XXX.XXX.XXX (where XXX is a decimal value between 000 and 255). The IP address field returns a blank field until the Media Gateway registers for the first time. Once the G700 has registered, that IP address will always be displayed, even if the G700 becomes unregistered, until a G700 with a different IP address is validly registered with the same administered identifier. The populated IP address is persistent over reboots.

The MAC Address field is a 17 character display only field containing the MAC Address of the media gateway. The data in this field is of the form: XX:XX:XX:XX:XX:XX (where XX is a hexadecimal value between 00 and FF). The MAC Address field returns a blank field until the G700 registers for the first time. Once the G700 has registered, that MAC Address will always be displayed, even if the G700 becomes unregistered, until a G700 with a different MAC Address is validly registered with the same administered identifier.

The G700 Media Gateway Media Modules are listed by Slot V1-V4, followed by the input field for 'Module Type'. The Media Modules shall be one of six types: analog, bri, dcp, icc, voip, or ds1 (also referred to as E1/T1). The default for the Module Type field is a blank field.

Note: The S8300 Media Server and LSP are both processor-type Media Modules. From a SAT administration view-point, there is no difference between the S8300 Media Server and LSP; therefore, the designation for both is via icc in the Module Type field.

If an administered Media Module is in conflict with the inserted Media Module, then a pound sign (#) shall be displayed to the left of the 'Module Type' field on the Media Gateway form and the following footnote displayed "'#' indicates module type conflict".

For the listing of 'virtual' media modules, the Slots V8-V9 are listed after Slots V1-V4. The Module Type field associated with slot V8 is an administrable field that only accepts a value of 'messaging-analog'. The Module Type field associated with slot V9 is an administrable field that only accepts a value of 'gateway-announcements'. The default for both is a blank field**.**

The enable/disable announcement-board command.

The command **enable announcement-board X**, where **X** is the module/board location, adds the specified announcement board to the list of usable announcement boards, as defined in the software, provided there is availability based on the allowable number of announcement boards.

The command **disable announcement-board X** removes the specified announcement board, whether administered gateway-announcement boards or inserted physical boards, from the list of usable announcement boards, as defined in the software.

The status mg-announcements command.

The **status mg-announcements** command displays the status of the Media Gateway announcements that have been administered. The status indicates whether or not a Media Gateway announcement board is on the list of usable announcement boards as defined in the software.

Figure 5. Status MG-Announcements Screen

```
status mg-announcements                                    Page 1 of x

                        MEDIA GATEWAY ANNOUNCEMENT STATUS

                    Gateway Number    Announcements Active?

                          1                    y
                          2                    y
                          3                    n
                          4                    y
                          5                    y
                          6                    n
                          7                    y
                          8                    y
                          9                    n
                         11                    y
                         17                    y
                         23                    n
                         38                    y
                         74                    y
```

The list media-gateway command.

From the **primary server**, a command that shows all G700 Media Gateways currently administered is: **list media-gateway**. Five fields are displayed: number, name, identifier, ip address and registration status:

- Number -- the assigned number to the G700 by the primary server administration
- Name -- the name given to the G700 by the user
- Identifier -- the way by which the primary server knows the G700 (i.e., serial number)
- IP address -- the IP address of the G700.
- 'Registered?' -- indicates whether a G700 is currently registered with the primary server or not.

Figure 6. List Media-Gateway Screen

```
list media-gateway                                              page 1 of x

                              MEDIA-GATEWAY REPORT

Number         Name                 Identifier          IP Address    Registered?
001    xxxxxxxxxxxxxxxxxxx   xxxxxxxxxxxxxxxxxxx   xxx.xxx.xxx.xxx       y
002    xxxxxxxxxxxxxxxxxxx   xxxxxxxxxxxxxxxxxxx   xxx.xxx.xxx.xxx       y
003    xxxxxxxxxxxxxxxxxxx   xxxxxxxxxxxxxxxxxxx   xxx.xxx.xxx.xxx       y
004    xxxxxxxxxxxxxxxxxxx   xxxxxxxxxxxxxxxxxxx   xxx.xxx.xxx.xxx       y
005    xxxxxxxxxxxxxxxxxxx   xxxxxxxxxxxxxxxxxxx   xxx.xxx.xxx.xxx       n
006    xxxxxxxxxxxxxxxxxxx   xxxxxxxxxxxxxxxxxxx   xxx.xxx.xxx.xxx       y
007    xxxxxxxxxxxxxxxxxxx   xxxxxxxxxxxxxxxxxxx   xxx.xxx.xxx.xxx       y
008    xxxxxxxxxxxxxxxxxxx   xxxxxxxxxxxxxxxxxxx   xxx.xxx.xxx.xxx       n
```

The IP address field returns a blank field until the G700 registers for the first time. Once the G700 has registered, that IP address will always be displayed, even if the G700 becomes unregistered, until a G700 with a different IP address is validly registered with the same administered identifier. The populated IP address is persistent over reboots.

The list configuration media-gateway command:

Figure 7. List Configuration Media-Gateway Screen

```
list configuration media-gateway x

                              SYSTEM CONFIGURATION

Board                                                    Assigned Ports
Number  Board Type          Code     Vintage    u=unassigned t=tti p=psa

001V1   MG ICC              DMM7     HW00 FW000
001V2   DCP MM              DMM3     HW00 FW000 u  u  u  u  u  u  u  u
001V3   BRI MM              DMM2     HW00 FW000 u  u  u  u  u  u  u  u
001V4   DS1 MM              DMM5     HW00 FW000 u  u  u  u  u  u  u  u
                                                u  u  u  u  u  u  u  u
                                                u  u  u  u  u  u  u  u
                                                u  u  u  u  u  u  u  u
001V8   MSG VMM                                 u  u  u  u  u  u  u  u
                                                u  u  u  u  u  u  u  u
001V9   ANN VMM                                 u  u  u  u  u  u  u  u
                                                u  u  u  u  u  u  u  u
```

Figure 8. List Configuration Media-Gateway Screen (Continued)

```
list configuration media-gateway x

                              SYSTEM CONFIGURATION

Module                                                   Assigned Ports
Number  Module Type          Code     Vintage    u=unassigned t=tti p=psa

002V1   ANA MM              DMM4     HW00 FW000 u  u  u  u  u  u  u  u
002V2   DS1 MM              DMM5     HW00 FW000 u  u  u  u  u  u  u  u
                                                u  u  u  u  u  u  u  u
                                                u  u  u  u  u  u  u  u
002V3   VOIP MM             DMM6     HW00 FW000
002V4   VOIP MM             DMM6     HW00 FW000
002V9   ANN VMM                                 u  u  u  u  u  u  u  u
                                                u  u  u  u  u  u  u  u
```

The command **list configuration media-gateway x** lists all the assigned ports on the Media Modules for the specified Media Gateway. The output from the **list configuration media-gateway x** command displays a fixed number of assigned ports for each Media Module type: analog(8), dcp(8), bri(8), ds1(32), voip(none) and icc(none).

Note: Those with none as the number of assigned ports display blanks.

The virtual Slot V8, assigned to Analog Messaging, and the virtual Slot V9, assigned to Announcements, display sixteen (16) ports.

Each of the assigned Media Gateway ports are labeled as ‘u’ for unassigned, ‘t’ for tti, ‘p’ for psa or a value between 01 and the max number of assigned ports for each Media Module type when that port is assigned.

Module Number displays in the format of GGGVM, where GGG is the G700 number and VM is the module number (V1-V4) or the virtual slots V8 or V9.

Module Types display as *‘ANA MM’, ‘ANN VMM’, ‘BRI MM’, ‘DCP MM’, ‘DS1 MM’, ‘MG ICC’, ‘MSG VMM’ or ‘VOIP MM’.*

Code displays as *‘DMM2’ (for BRI), ‘DMM3’ (for DCP), ‘DMM4’ (for Analog), ‘DMM5’ (for E1/T1), ‘DMM6’ (for VoIP), or ‘DMM7’ (for ICC).*

Note: No code is listed for the virtual media modules in slots V8 and V9.

Module Vintage are displayed for both the hardware and firmware.

Note: No vintage is listed for the virtual media modules in slots V8 and V9.

The status media-gateway command

The **status media-gateway** command displays the alarm status for the administered G700 Media Gateways. This command lists alarms, busyout summary, and H.248 link status for the media gateways. The alarms displayed here are only associated with board type alarms on the Media Modules. Status for VoIP and MGP alarms are provided via the Media Gateway Processor CLI.

Figure 9. Status Media-Gateways Screen

```
status media-gateways                                          page 1 of 2

  ALARM SUMMARY    BUSY-OUT SUMMARY    H.248 LINK SUMMARY
    Major:    0       Trunks:  0         Links Down:   0      # Logins: 1
    Minor:    0     Stations:  0           Links Up:   0
  Warning:    0

                                GATEWAY STATUS

     Alarms           Alarms           Alarms           Alarms           Alarms
 MG Mj Mn Wn Lk   MG Mj Mn Wn Lk   MG Mj Mn Wn Lk   MG Mj Mn Wn Lk   MG Mj Mn Wn Lk
  1  0| 0| 0|up    9  0| 0| 0|up   17  0| 0| 0|up   25  0| 0| 0|up   33  0| 0| 0|up
  2  0| 0| 0|up   10  0| 0| 0|up   18  0| 0| 0|up   26  0| 0| 0|up   34  0| 0| 0|up
  3  0| 0| 0|up   11  0| 0| 0|up   19  0| 0| 0|up   27  0| 0| 0|up   35  0| 0| 0|up
  4  0| 0| 0|up   12  0| 0| 0|up   20  0| 0| 0|up   28  0| 0| 0|up   36  0| 0| 0|up
  5  0| 0| 0|up   13  0| 0| 0|up   21  0| 0| 0|up   29  0| 0| 0|up   37  0| 0| 0|up
  6  0| 0| 0|up   14  0| 0| 0|up   22  0| 0| 0|up   30  0| 0| 0|up   38  0| 0| 0|up
  7  0| 0| 0|up   15  0| 0| 0|up   23  0| 0| 0|up   31  0| 0| 0|up   39  0| 0| 0|up
  8  0| 0| 0|up   16  0| 0| 0|up   24  0| 0| 0|up   32  0| 0| 0|up   40  0| 0| 0|up
```

Figure 10. Status Media-Gateways Screen (Page 2)

```
status media-gateways                                          page 2 of 2

                                GATEWAY STATUS (continued)

     Alarms           Alarms           Alarms           Alarms           Alarms
MG Mj Mn Wn Lk   MG Mj Mn Wn Lk   MG Mj Mn Wn Lk   MG Mj Mn Wn Lk   MG Mj Mn Wn Lk
41  0| 0| 0|up   49  0| 0| 0|up   57  0| 0| 0|up   65  0| 0| 0|up   73  0| 0| 0|dn
42  0| 0| 0|up   50  0| 0| 0|up   58  0| 0| 0|up   66  0| 0| 0|up   74  0| 0| 0|dn
43  0| 0| 0|up   51  0| 0| 0|up   59  0| 0| 0|up   67  0| 0| 0|up   75  0| 0| 0|dn
44  0| 0| 0|up   52  0| 0| 0|up   60  0| 0| 0|up   68  0| 0| 0|up   76  0| 0| 0|dn
45  0| 0| 0|up   53  0| 0| 0|up   61  0| 0| 0|up   69  0| 0| 0|up   77  0| 0| 0|dn
46  0| 0| 0|up   54  0| 0| 0|up   62  0| 0| 0|up   70  0| 0| 0|up   78  0| 0| 0|dn
47  0| 0| 0|up   55  0| 0| 0|up   63  0| 0| 0|up   71  0| 0| 0|up   79  0| 0| 0|dn
48  0| 0| 0|up   56  0| 0| 0|up   64  0| 0| 0|up   72  0| 0| 0|up   80  0| 0| 0|dn
```

Table 40 explains the display associated with each section of the **status media-gateway** screens.

Table 40. The status media-gateway Command Display

Section	Display
ALARM SUMMARY	Current number of alarms (Major/Minor/Warning) for the total number of G700s administered
BUSY-OUT SUMMARY	Current number of trunks/stations that are in a busy-out state for the total number of G700s administered
H.248 LINK SUMMARY	Current number of H.248 links that are down and up for the total number of G700s administered
GATEWAY STATUS	Number of major alarms, minor alarms, and warnings that exist on each of the G700s administered
GATEWAY STATUS	Status of the H.248 link, either up or down (dn) on each of the G700s administered

Hidden MultiVantage SAT Commands

There are certain Avaya MultiVantage™ Software 1.2 SAT commands that have no practical use or are not supported. These commands are removed from the S8300 Media Server/LSP software to prevent any misunderstanding or confusion as to what functions are supported. The S8300 Media Server/LSP has a subset of the MultiVantage software code.

Table 41 through Table 43 can be read by using the column heading followed by the row element (e.g. add atm). Row elements with items in '()' are a third required part of the command (e.g. list configuration atm). The columns of these table are independent of each other. These commands may or may not require an argument. Press help for further instructions about the expected argument type.

Table 41. Disabled SAT Commands

add	change	display	remove	list
atm	atm	atm	atm	atm
cabinet	cabinet	cabinet	cabinet	cabinet
data-module	circuit-packs	circuit-packs	data-module	configuration (atm)
fiber-link	data-module	data-module	fiber-link	configuration (carrier)
ipserver-interface	fiber-link	fiber-link	ipserver-interface	configuration (port-network)
modem-pool	ipserver-interface	ipserver-interface	modem-pool	configuration (control)
pgate	modem-pool	modem-pool	pgate	data-module
	paging (loudspeaker)	paging (loudspeaker)		fiber-link
	pgate	pgate		ipserver-interface
	synchronization	synchronization		isdnpri-testcall
	system-parameters (ipserver-interface)	system-parameters (ipserver-interface)		measurement (atm)
				measurement (clan)
				measurement (modem-pool)
				modem-pool
				pgate

Table 42. Disabled SAT Commands

status	set	reset	busyout/release	test
atm	ipserver-interface	disk	atm	card-mem
cabinet	pnc	fiber-link	data-module	customer-alarm
card-mem	switch-node-clock	host-adapter	disk	data-module
clan-ip	synchronization	interface	ds1-facility	disk
clan-port	tdm	ipserver-interface	fiber-link	environment
data-module	tone-clock	maintenance	host-adapter	fiber-link
interface		packet-interface	ipserver-interface	hardware-group (cabinet)
isdnpri-testcall		pnc	modem-pool	hardware-group (carrier)
packet-interface		port_network	pnc-standby	hardware-group (pnc)
pgate-port		tone-clock	tdm	host-adapter
pnc			tone-clock	interface
port-network				isdnpri-testcall
switch-node				led (switch-node)
synchronization				maintenance
system				mass-storage
				modem-pool
				network-control
				packet-interface
				pkt
				synchronization
				tdm
				tone-clock

Table 43. Additional Disabled SAT Commands

backup	clear	duplicate	enable/disable	format	monitor	recycle
disk	interface	data-mod-ule	synchroniza-tion -switch	card-mem	system (conn)	carrier
	isdnpri-testcall			disk		
	pgate-port					

Maintenance Commands

Categories of maintenance commands

- Avaya MultiVantage™ Software 1.2 SAT commands
- Avaya™ G700 Media Gateway Processor CLI commands

Since the Media Module have many of the same Maintenance Objects as the DEFINITY server circuit packs, many of the same operations apply, as follows:

- The ‘test mo logical xxx physical xxx’ command works with the physical address of a Media Module Maintenance Object.
- The ‘enable/disable MO logical xxx physical xxx’ commands work with the physical address of a Media Module Maintenance Object.
- All Media Modules and their associated ports can be busied out and released from the busyout state on demand from the SAT.

Note: A MultiVantage warning alarm and associated hardware error with error code 18 is generated when a Media Module is busied out.

- All Media Modules can be reset on demand from the SAT by use of the ‘reset board’ command.

CAUTION:
This is a destructive test so the Media Module must be busied out before a demand reset can be done.

- If an invalid G700 number is entered with the test command for a Media Module board or port, the following message is displayed: “xxxx” port/board is not valid.
- Tests that are called for but that cannot run on a Media Module abort with the abort code 1412.
- A request for a demand test, a reset, or busy out of the module (board) location for the S8300 Media Server aborts.

System Resets

There is no change in how the MultiVantage system functions for system resets in Avaya S8300 Media Server with G700 Media Gateway. Although translations may be present for a G700, the MultiVantage software waits for a link to be established before attempting to access the G700. Upon notification that registration has occurred, maintenance waits for the Media Module Manager to indicate that a Media Module is present before attempting to determine which Media Modules are present.

In the event of a G700 power failure or loss of signaling, the MultiVantage Media Server detects that the G700 is no longer registered and begins removing Media Modules.

For Media Server resets (as opposed to G700 resets) the G700 attempts to re-register with the same server and if not successful attempts to find another Media Server. When a Media Server is found, the Media Module discovery process ensues.

Audits

The MultiVantage audit that verifies board presence runs in order to detect missing Media Modules after a system initialization. As a result, the G700 is audited to verify that all boards that were originally present are still present after a reboot.

Maintenance Objects

The maintenance subsystem is partitioned into separate entities called Maintenance Objects (MOs). A maintenance object can be:

- An individual Media Module
- A hardware component that is part of a Media Module
- An entire subsystem
- A set of monitors
- A process (or set of processes)
- A combination of processes and hardware

“Maintenance names” are recorded in the Error and Alarm logs. Individual copies of an MO are assigned an address that defines the MO’s physical location in the system when applicable. These locations display as the **port** field in the Alarm and Error logs and as output of various commands such as **test board.**

G700 Media Gateway MOs

The following list shows new, G700 specific maintenance objects. Other maintenance objects have been modified slightly for G700.

- *MG-ANA*
- *MG-ANN*
- *MG-DCP*
- *MG-DS1*
- *MG-ICC*
- *MG-LSP*
- *MG-MSG*
- MG-VOIP

MO Groupings by MM Type

Table 44 shows MO groupings by Media Module type.

Table 44. Media Module Tests

Media Module	Maintenance Object
Analog Media Module (MM711)	Board (MG-ANA)
	Analog Line (AN-LN-PT)
	Analog Co Trunk (CO-TRK)
	Analog DID Trunk (DID-TRK)
	DIOD Trunk (DIOD-TRK)
	Alarm Port (ALARM-PT)
DCP Media Module (MM712)	Board (DCP-MM)
	Digital Line (DIG-LINE)
E1/T1 Media Module (MM710)	Board (MG-DS1)
	DS1 CO Trunk (CO-DS1)
	DS1 DID Trunk (DID-DS1)
	DS1 Tie Trunk (TIE-DS1)
	DS1 ISDN Trunk (ISDN-TRK)
	ISDN-PRI Signaling Link Port (ISDN-LNK)
	ISDN-PRI Signaling Group (ISDN-SGRP)
	Wideband Access Endpoint Port (WAE-PORT)
Voice Announcements (MultiVantage)	Board (MG-ANN)
	Announcement Ports (VAL-PT)

MO Test Commands

Each command is arranged according to a standard command syntax. For G700 systems: Where GGG is the G700 Number, the character V indicates that this system is a G700, S is the slot number from 1 to 4, and PP is the port number from 1 to 32.

Full test commands can be either short or long as indicated, and can be repeated several times. For example, in:

test port GGGVSpp sh r 1

sh = short

r = repeat

1 = the number of times the test should be repeated.

Similarly, in:

test port GGGVSpp l r 2

l = long

r = repeat

2 = the number of times the test should be repeated.

Abort Code 1412

Tests that do not run on the G700 will abort with Abort Code 1412. Tests that abort are listed under each MO, but are not described.

ALARM-PT (ALARM PORT)

Table 45. ALARM-PT (ALARM PORT)

MO Name (in Alarm Log)	Alarm Level	Initial Command to Run	Full Name of MO
ALARM-PT	MIN	test port GGGVSPP l	Alarm-Port
ALARM-PT	WRN	test port GGGVSPP sh	Alarm-Port
Note: You must consult local records for the location and designation of the equipment rack where the G700 is mounted.			

The Alarm Port MO provides on-board maintenance for an analog line port that is administered as an external device alarm port. Test are provided to verify the analog line ports ability to detect an external device alarm. The external device alarm (EXT-DEV) MO is used for the off-board external device alarm.

Error Log Entries and Test to Clear Values

Table 46. 8-Port Analog Line Error Log Entries

Error Type	Aux Data	Associated Test	Alarm Level	On/Off Board	Test to Clear Value
0*	0	Any	Any	Any	test port GGGVSpp sh r 1
15 (a)	Any	Audits and Updates Test (#36)			
18	0	busy-out station *extension*	WARNING	OFF	release station *extension*
130 (b)		None	WARNING	ON	test port GGGVSpp sh
769		Battery Feed Test (#35)	MINOR	ON	test port GGGVSpp sh r 2
*Run the Short Test Sequence first. If all tests pass, run the Long Test Sequence. Refer to the appropriate test description and follow the recommended procedures					
Notes: (a) This is a software audit error that does not indicate any hardware malfunction. Run Short Test SeSquence and investigate errors. (b) Indicates that the Media Module has been removed or has been insane for more than 11-minutes. To clear the error, reseat or replace the Media Module.					

System Technician-Demanded Tests: Descriptions and Error Codes

CAUTION: Always investigate tests in the order presented in the table below. By clearing error codes associated with the *Battery Feed Test*, for example, you may also clear errors generated from other tests in the testing sequence.

Table 47. System Technician-Demanded Tests

Order of Investigation	Short Test Sequence	Long Test Sequence	D/ND*
Battery Feed Test (#35)	X	X	ND
Station Status and Translation Audits and Updates Test (#36)	X	X	ND
*D = Destructive; ND = Nondestructive			

Battery Feed Test (also called Port Diagnostic Test) (#35)

The battery feed chip provides power to the telephone equipment, signaling, rotary dial pulsing, transmission, and balance. This test checks the signaling and switchhook capabilities of the battery feed chip by terminating the port, applying battery, and trying to detect a current.

Table 48. TEST #35 Battery Feed Test

Error Code	Test Result	Description/Recommendation
	ABORT	Could not allocate the necessary system resources to run this test. Retry the command at 1-minute intervals for a maximum of 5 times.
1000	ABORT	System resources required to run this test are not available. The port may be reporting an external device alarm. Enter **test external-device-alarm port GGGVSpp** to determine if the port is reporting an EXT-DEV failure before retesting. When the port has no EXT-DEV failure, retry the command at 1-minute intervals for a maximum of 5 times.
1004	ABORT	The port received an EXT-DEV failure during the test. The test has been aborted. Enter **test external-device-alarm port GGGVSpp** to determine if the port is reporting an EXT-DEV failure before retesting. If the port has no EXT-DEV failure, retry the command at 1-minute intervals for a maximum of 5 times.

Table 48. TEST #35 Battery Feed Test *Continued*

Error Code	Test Result	Description/Recommendation
2000	ABORT	Response to the test request was not received within the allowable time period.
2100	ABORT	Could not allocate the necessary system resources to run this test. Retry the command at 1-minute intervals for a maximum of 5 times.
	FAIL	The port's battery feed chip is unable to supply sufficient power to sense the external device alarm. This may occur when the test is performed at the same time that the external device contact closure occurred. Enter **test external-device-alarm port GGGVSpp** to determine if the port is reporting an EXT-DEV failure before retesting. Wait until the port has no EXT-DEV failure before retesting. Retry the command at 1-minute intervals for a maximum of 5 times.
	PASS	The port's battery feed chip is able to provide power to the external device alarm to detect contact closure.

Station Status and Translation Audits and Updates Test (#36)

For an analog line port that is administered as an external alarm, this test is limited to updating the software with the switchhook state.

Table 49. TEST #36 Station Status and Translation Audits and Updates

Error Code	Test Result	Description/Recommendation
	ABORT	Could not allocate the necessary system resources to run this test. Retry the command at 1-minute intervals for a maximum of 5 times.
1004	ABORT	The port received an EXT-DEV failure during the test. The test has been aborted. Enter **test external-device-alarm port GGGVSpp** to determine if the port is reporting an EXT-DEV failure before retesting. If the port has no EXT-DEV failure, retry the command at 1-minute intervals for a maximum of 5 times.
1006	ABORT	This port has been busied out by command. Check Error Log for Error Type 18 (port busied out). If present, release the port with the **release port** command and run the test again.
2000	ABORT	Response to the test request was not received within the allowable time period.

Table 49. TEST #36 Station Status and Translation Audits and Updates *Continued*

Error Code	Test Result	Description/Recommendation
2100	ABORT	Could not allocate the necessary system resources to run this test. Retry the command at 1-minute intervals for a maximum of 5 times.
1	FAIL	This failure does not indicate a hardware problem. The switchhook audit failed, this condition may occur when the audit is performed at the same time that the terminal equipment goes off-hook. Enter test external-device-alarm port GGGVSpp to determine if the port is reporting an EXT-DEV failure before retesting. Wait until the port has no EXT-DEV failure before retesting If the port has no EXT-DEV failure, retry the command at 1-minute intervals for a maximum of 5 times.
7	FAIL	The translation update failed. This does not indicate a hardware problem but may be an internal software error.
	PASS	The software and the port processor have the same status.

AN-LN-PT (Analog Line Port)

Table 50. AN_LN_PT (Analog Line Port)

MO Name (in Alarm Log)	Alarm Level	Initial Command to Run*	Full Name of MO
AN-LN-PT	MIN	test port GGGVSPP	Analog Line Port
AN-LN-PT	WRN	test port GGGVSPP	Analog Line Port
Note: You must consult local records for the location and designation of the equipment rack where the G700 is mounted.			

The MM711 Analog Trunk and Line Media Module provides 8 ports, each of which may be administered in any of several ways, as described in maintenance object MG-ANA.

Ringing Caused by Maintenance Testing

Test #48 may cause some terminal equipment to ring briefly during daily maintenance. If this ringing disturbs the customer or the terminal equipment, disable it in the `Tests` field of the **change station *extension*** form. Be aware that this action also disables Tests #6, 7, and 35 on some software releases.

Error Log Entries and Test to Clear Values

Table 51. Analog Line Error Log Entries

Error Type	Aux Data	Associated Test	Alarm Level	On/Off Board	Test to Clear Value
0*	0	Any	Any	Any	test port GGGVSpp sh r 1
1(a)	40960 40975 40977	none			
15(b)	Any	Audits and Updates Test (#36)			
18	0	busy station *extension*	WRN	ON	release station *extension*
130(c)		None	WRN	ON	test port GGGVSpp sh
257(d)	40973	none			
513(e)		Station Present Test (#48)	WRN	OFF	test port GGGVSpp sh r 2
769		Battery Feed Test (#35)	MIN/ WRN**	ON	test port GGGVSpp sh r 2

*Run the Short Test Sequence first. If all tests pass, run the Long Test Sequence. Refer to the appropriate test description and follow the recommended procedures.

Minor alarms on this MO may be downgraded to Warning alarms based on the values used in the **set options command.

Notes:

- **(a) Error Type 1**: these are in-line errors and can only be resolved over time.
  - Aux Data 40960 indicates that too many simultaneous incoming ringing attempts were made on this board. Only 4 ports on a board may ring simultaneously. A 5th incoming call will cause an inline error from the board.
  - Aux Data 40975 indicates that the terminal equipment was on-hook when ring-tip was detected during ringing. This usually indicates a failure in the terminal equipment or the type of terminal has a low ringer impedance.
    - Call the terminal equipment and verify that the terminal rings.
    - If the terminal does not ring, then replace it.
    - Otherwise, issue the **test port GGGVSpp** command, and follow the procedure for Test #48.
  - 40977 indicates that no terminal equipment was connected when ringing was attempted.
    - Run the short test via the **test port GGGVSpp** command, and follow the procedure for the results of Test #48.

- **(b) Error Type 15**: this is a software audit error that does not indicate any hardware malfunction.
  - Run the Short Test Sequence and investigate any associated errors.
- **(c) Error Type 130**: this error type indicates that the Media Module has been removed or has been insane for more than 11 minutes.
  - To clear the error, reseat or replace the Media Module.
- **(d) Error Type 257**: this is an in-line error and can only be resolved over time. This error indicates that ringing voltage is absent.
  - If not resolved over time, replace the module.
- **(e) Error Type 513**:Test #48 can cause some terminal equipment to ring briefly during daily maintenance.
  - If this disturbs the customer or the terminal equipment, disable it by setting the `Tests` field on the **change station *extension*** form to **n**. This may also disable Test #35.

System Technician-Demanded Tests: Descriptions and Error Codes

CAUTION: Always investigate tests in the order presented in the table below when inspecting errors in the system. By clearing error codes associated with the *Battery Feed Test,* for example, you may also clear errors generated from other tests in the testing sequence.

Table 52. Order of Investigation

Order of Investigation	Short Test Sequence	Long Test Sequence	D/ND*
Battery Feed Test (#35)	X	X	ND
Station Present Test (#48)	X	X	ND
Looparound Test (#161) **Note:** *This test will abort with Error Code 1412.*		X	ND
Conference Test (#7) **Note:** *This test will abort with Error Code 1412.*		X	ND
NPE Crosstalk Test (#6) **Note:** *This test will abort with Error Code 1412.*		X	ND
Station Status and Translation Audits and Updates Test (#36)	X	X	ND
*D = Destructive; ND = Nondestructive			

Battery Feed Test (also called Port Diagnostic Test) (#35)

The battery feed chip provides power to the telephone equipment, signaling, rotary dial pulsing, transmission, and balance. This test checks the signaling and switchhook capabilities of the battery feed chip by terminating the port, applying battery power, and detecting the resulting current.

Table 53. TEST #35 Battery Feed Test

Error Code	Test Result	Description/Recommendation
	ABORT	Necessary system resources could not be allocated to run this test. Retry the command at 1-minute intervals no more than 5 times. If the test continues to abort, escalate the problem.
1000	ABORT	System resources are unavailable. The port may be busy with a valid call. This result is also reported for the system's Music-On-Hold port when it is off-hook, which it usually is. Enter **display port GGGVSpp** to determine the station's extension. Enter **status station *extension*** to determine the service state of the port. If the port is in use, wait until the port is idle. Retry the command at 1-minute intervals no more than 5 times. If the test continues to abort, escalate the problem.
1004	ABORT	A valid call seized the port during the test and aborted the test. Use the **display port GGGVSpp** command to determine the station extension. Use the **status station *extension*** command to determine the service state of the port. If the port is in use, wait until the port is idle before testing. Retry the command at 1-minute intervals no more than 5 times. If the test continues to abort, escalate the problem.
1005	ABORT	This test was aborted due to a configuration problem. The test is not applicable for this type of analog port. This error can be ignored.
1018	ABORT	Administration has disabled the test. The default for the `Test?` field on the station form is **y**. Determine why this field has been set to **n** on this station (this may be due to the ringing application Test #48, which can be disturbing to customer or terminal equipment). To enable the test for a particular station being tested, enter **change station *extension***. Change the `Test?` field on the station form to **y**.

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Table 53. TEST #35 Battery Feed Test *Continued*

Error Code	Test Result	Description/Recommendation
1392	ABORT	This port is currently a TTI port and the test does not execute on it. Verify that the port is a TTI port: Enter the **display port GGGVSpp** command (the display shows that the port is a TTI port). Enter the **list configuration** command (the display shows a **t** for the port). If both commands indicate that the port is a TTI port, the abort is correct for the test, and no action is necessary. If either command indicates that the port is *not* a TTI port, escalate the problem.
2000	ABORT	Response to the test request was not received within the allowable time period.
2100	ABORT	System resources required to run this test are not available. Retry the command at 1-minute intervals no more than 5 times. If the test continues to abort, escalate the problem.
	FAIL	The port's battery feed chip is unable to supply sufficient power to the terminal equipment. This test result might be marginal, and the terminal equipment may be operating satisfactorily. Retry the command at 1-minute intervals no more than 5 times. If the test continues to fail, determine whether the customer is experiencing problems on this line. Replace the Media Module only if the customer is experiencing problems.
	PASS	The port's battery feed chip is able to provide sufficient power to the station equipment to detect on-/off-hook, but may not be able to supply power for touch-tones. If touch-tones are inoperative on this station, replace the Media Module because this port is inoperative. Investigate user-reported troubles on this port by running other port tests, by examining station wiring, or by inspecting the station.

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Table 53. TEST #35 Battery Feed Test *Continued*

Error Code	Test Result	Description/Recommendation
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This result could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Check to make sure that the board translations are correct. Use the **list configuration** command, and resolve any problems. If the board is correctly inserted, issue the **busy board GGGVS** command. Issue the **reset board GGGVS** command. Issue the **release board GGGVS** command. Issue the **test board GGGVS long** command. This re-establishes the link between the internal ID and the port. If this is not the case, check to make sure that a valid board is inserted.

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Station Status and Translation Audits and Updates Test (#36)

This test updates the analog port's message lamp state (if it has one) and translations with information in the software.

Table 54. TEST #36 Station Status and Translation Audits and Updates

Error Code	Test Result	Description/ Recommendation
	ABORT	Necessary system resources could not be allocated to run this test. Retry the command at 1-minute intervals no more than 5 times. If the test continues to abort, escalate the problem.
1004	ABORT	A valid call seized the port during the test and aborted the test. Use the **display board GGGVSpp** command to determine the station extension. Use the **status station *extension*** command to determine the service state of the port. If the port is in use, wait until the port is idle before testing. Retry the command at 1-minute intervals no more than 5 times. If the test continues to abort, escalate the problem.

1 of 3

Table 54. TEST #36 Station Status and Translation Audits and Updates *Continued*

Error Code	Test Result	Description/ Recommendation
1005	ABORT	This test was aborted due to a configuration problem. The test is not applicable for this type of analog port. This error can be ignored.
1006	ABORT	The port is out-of-service. The **busy station *extension*** command has been given to this port. Look for error type 18 (port busied out) for this port. If this error is present, release the port (**release station *extension***), and run the test again. Make sure that the terminal is connected and in service, and then retest.
2000	ABORT	Response to the test request was not received within the allowable time period.
2100	ABORT	System resources required to run this test are not available. Retry the command at 1-minute intervals no more than 5 times. If the test continues to abort, escalate the problem.
1	FAIL	The switchhook audit failed. This result does not indicate a hardware problem. The other updates were not performed because of this failure. This may occur if the audit is performed at the same time the terminal equipment goes off-hook. Use the **status station *extension*** command to determine when the port is available. Retry the command at 1-minute intervals no more than 5 times. If the test continues to fail, escalate the problem.
5	FAIL	The message waiting lamp update failed. This may be an internal software error. The translation and ringer updates were not performed because of this failure.
7	FAIL	The translation update failed. There may be an internal software error. The ringer update was not performed because of this failure.
8	FAIL	The ringer update failed. There may be an internal software error. Retry the command at 1-minute intervals no more than 5 times. If the test continues to fail, escalate the problem.
	PASS	The software and the port processor have the same status. Investigate user-reported troubles on this port by running other port tests, by examining station wiring, or by inspecting the station.

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Table 54. TEST #36 Station Status and Translation Audits and Updates *Continued*

Error Code	Test Result	Description/ Recommendation
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This result could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Check to make sure that the board translations are correct. Use the **list configuration** command, and resolve any problems. If the board is correctly inserted, issue the **busy board GGGVS** command. Issue the **reset board GGGVS** command. Issue the **release board GGGVS** command. Issue the **test board GGGVS long** command. This re-establishes the link between the internal ID and the port. If this is not the case, check to make sure that a valid board is inserted.

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Station Present Test (also called Ringing Application Test) (#48)

This test applies momentary ringing voltage to the terminal equipment and monitors resulting current flow to determine whether terminal equipment is connected to the port. This test may cause some terminal equipment to ring briefly during daily maintenance. If this ringing disturbs the customer or the terminal equipment, you can disable it via the `Tests` field on the **change station *extension*** form. However, on some software releases, Tests #6, 7, and 35 also are disabled.

Table 55. TEST #48 Station Present Test

Error Code	Test Result	Description/Recommendation
	ABORT	Necessary system resources could not be allocated to run this test. Retry the command at 1-minute intervals no more than 5 times. If the test continues to abort, escalate the problem.

1 of 3

Table 55. TEST #48 Station Present Test *Continued*

Error Code	Test Result	Description/Recommendation
1000	ABORT	System resources are unavailable. The port may be busy with a valid call. This result is also reported for the system's Music-On-Hold port when it is off-hook, which it usually is. Enter **display port GGGVSpp** to determine the station's extension. Enter **status station *extension*** to determine the service state of the port. If the port is in use, wait until the port is idle. Retry the command at 1-minute intervals no more than 5 times. If the test continues to abort, escalate the problem.
1004	ABORT	A valid call seized the port during the test and aborted the test. Use the **display port GGGVSpp** command to determine the station extension. Use the **status station *extension*** command to determine the service state of the port. If the port is in use, wait until the port is idle before testing. Retry the command at 1-minute intervals no more than 5 times. If the test continues to abort, escalate the problem.
1005	ABORT	This test was aborted due to a configuration problem. The test is not applicable for this type of analog port. This error can be ignored.
1008	ABORT	A ringing circuit could not be allocated. Retry the command at 1-minute intervals no more than 5 times. Check for Error Type 257 in the hardware error log. Resolve, if present.
1018	ABORT	Administration has disabled the test. The default for the `Test?` field on the station form is **y**. Determine why this field has been set to **n** on this station (this may be due to the ringing application Test 48, which can be disturbing to customer or terminal equipment). To enable the test for a particular station being tested, enter **change station *extension***. Change the `Test?` field on the station form to **y**.
2000	ABORT	Response to the test request was not received within the allowable time period.
2100	ABORT	System resources required to run this test are not available. Retry the command at 1-minute intervals no more than 5 times. If the test continues to abort, escalate the problem.

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Table 55. TEST #48 Station Present Test *Continued*

Error Code	Test Result	Description/Recommendation
	FAIL	The terminal equipment is not connected to the Media Module. Some terminal equipment, such as modems, may fail even when connected properly. Remotely test the terminal equipment. If the test fails again, resolve any RING-GEN errors in the error log, if present. Check all of the wiring between the station equipment and the switch. Then, run the test again. Some terminal equipment might fail even when it is connected properly. If this is the case, disable the test using the **change station *extension*** command (enter **n** into the `Test` field). **Note** that this action also disables Test #35 on this port. If the test still fails, the terminal equipment may be defective. Check and replace it, if necessary.
	PASS	The station is connected properly to the switch. Investigate user-reported troubles on this port by running other port tests, by examining station wiring, or by inspecting the station. This test may also pass if no terminal equipment is connected and the terminal is located very far from the switch.
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This result could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Check to make sure that the board translations are correct. Use the **list configuration** command, and resolve any problems. If the board is correctly inserted, issue the **busy board GGGVS** command. Issue the **reset board GGGVS** command. Issue the **release board GGGVS** command. Issue the **test board GGGVS long** command. This re-establishes the link between the internal ID and the port. If this is not the case, check to make sure that a valid board is inserted.

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CO-DS1 (DS1 CO Trunk)

Table 56. CO-DS1 (DS1 CO Trunk)

MO Name (in Alarm Log)	Alarm Level	Initial Command to Run*	Full Name of MO
CO-DS1	MAJOR**	test trunk *group# member#* l	DS1 CO Trunk
CO-DS1	MINOR	test trunk *group# member#* l	DS1 CO Trunk
CO-DS1	WARNING	test trunk *group# member#*	DS1 CO Trunk
Note: For Avaya G700 systems you must consult local records for the location and designation of the equipment rack where the G700 is mounted.			
A Major alarm on a trunk indicates that alarms on these trunks are not downgraded by the **set options command and that at least 75 percent of the trunks in this trunk group are alarmed.			

The MM710 supports E1/T1, and delivers the same functionality as the DEFINITY TN464 circuit pack.

Many trunk problems are caused by incorrect settings of parameters on the trunk group administration form. Settings must be compatible with the local environment and with parameter settings on the far-end. Refer to *"Chapter 12, Managing Trunks, in the Administrator's Guide for Avaya MultiVantage™ Software, 555-233-506"* for information on how to administer trunks. The Application Notes section of that book shows the correct settings for administrable timers and other parameters on a country-by-country basis.

A DS1 CO (central office) trunk provides a link for digitized voice or data communications between the system and a central office switch. There are two types of DS1 interfaces:

- 24 DS0 channels on a 1.544 Mbps link
- 31 DS0 channels + 1 framing channel on a 2.048 Mbps link
- 32-channel mode is supported on TN464 Media Modules and on MM710 Media Modules.

The CO-DS1 maintenance object monitors and maintains a CO trunk port on a MM710 Interface Media Module. See MG-DS1 in this chapter for more information about this Media Module. The DS1 Media Module supports low level CO trunk signaling interfaces for both ground-start and loop-start trunks. This maintenance strategy covers the in-line errors log, initialization tests, periodic tests, scheduled tests, demand tests, and alarm resolution.

Three trunk service states are specified by DS1 CO trunk maintenance:

Table 57. Trunk Service States

out-of-service	The trunk is in a deactivated state and cannot be used for either incoming or outgoing calls.
in-service	The trunk is in an activated state and can be used for both incoming and outgoing calls.
disconnect (ready-for-service)	The trunk is in an activated state but can only be used for an incoming call.

Error Log Entries and Test to Clear Values

Table 58. CO-DS1 Trunk Error Log Entries

Error Type	Aux Data	Associated Test	Alarm Level	On/Off Board	Test to Clear Value
0*	0	Any	Any	Any	test trunk <grp>/<mbr>
1(a)	57408				
1(a)	57487				
15(b)	Any	Port Audit and Update Test (#36)			
18(c)	0	busyout trunk <grp>/<mbr>	WARNING	OFF	release trunk <grp>/<mbr>
130(d)		None	WARNING	ON	test trunk <grp>/<mbr>
769(g)	57484				
1793(h)					test board GGGVSpp l
2562(i))	16665				
2817(j)	52992				
3840(k)		Port Audit and Update Test (#36)			
*Run the Short Test Sequence first. If all tests pass, run the Long Test Sequence. Refer to the appropriate test description and follow the recommended procedures.					
**Major alarms MO may be downgraded to Warning alarms based on the value used in the set options command.					

Notes:

- (a) Error Type 1—Aux Data 57408—No tip ground is detected on an outgoing call.
  - Aux Data 57487—PBX could not get “loop close” signal.
- (b) Error Type 15—This is a software audit error that does not indicate any hardware malfunction. Run Short Test Sequence and investigate associated errors (if any).
- (c) Error Type 18—System Technician has busied out the trunk to the out-of-service state. No calls can be made on this trunk except the Facility Access Test Call.
- (d) Error Type 130—This error type indicates that the Media Module has been removed or has been insane for more than 11-minutes. To clear the error, reinsert or replace the Media Module.
- (g) Error Type 769—The DS1 Interface Media Module detects a hardware fault. The Aux Data field contains the following error type:—57484, fault is detected on tip/ring.
- (h) Error Type 1793—DS1 Interface Media Module is out-of-service. Look for MG-DS1 errors in the Hardware Error Log. Refer to the DS1 Trunk Media Module or MG-DS1 Media Module Maintenance documentation for details.

- (i) Error Type 2562—Retry Failure error. This error is logged only. It is not a hardware failure and hence does not start any testing or generate any alarms. This error comes from call processing and is generated when a second attempt (retry) to seize an outgoing trunk fails.
- (j) Error Type 2817—Glare error. This error is logged only. It is not a hardware failure and hence does not start any testing or generate any alarms. This error is the result of a simultaneous seizure of a two-way trunk from both the near-end and the far-end. Attempt to place the call again. If the error persists, escalate.
- (k) Error Type 3840—Port Audit and Update Test (#36) failed due to an internal system error. Enter the **status trunk** command to verify the status of the trunk. If the trunk is out-of-service, then enter the **release trunk** command to put it back into in-service. Retry the test command.

System Technician-Demanded Tests: Descriptions and Error Codes

CAUTION: Always investigate tests in the order they are presented in the table below when inspecting errors in the system. By clearing error codes associated with the NPE *Crosstalk Test,* for example, you may also clear errors generated from other tests in the testing sequence.

Table 59. Order of Investigation

Order of Investigation	Short Test Sequence	Long Test Sequence	D/ND*
NPE Crosstalk Test (#6) **Note:** This Test ABORTS		X	ND
Conference Circuit Test (#7) **Note:** This Test ABORTS		X	ND
DS1 CO Trunk Seizure Test (#314) **Note:** This Test ABORTS	X	X	ND
Port Audit and Update Test (#36)	X	X	ND
*D = Destructive; ND = Nondestructive			

Port Audit and Update Test (#36)

This test sends port level translation data from switch processor to the DS1 Interface Media Module to assure that the trunk's translation is correct. Translation updates include the following data: trunk type (in/out), dial type, timing parameters, and signaling bits enabled. The port audit operation verifies the consistency of the current state of trunk.

Table 60. TEST #36 Port Audit and Update Test

Error Code	Test Result	Description/ Recommendation
	ABORT	Internal system error Retry the command at 1-minute intervals for a maximum of 5 times.
1000	ABORT	System resources required to run this test were not available. The port may be busy with a valid call. Issue **display port GGGVSPP** to determine the trunk group/member number of the port. Use the **status trunk** command to determine the service state of the port. If the port is in use, wait until the port is idle before testing. If the port status is active but the port is not in use (no calls), check the error log for error type 1025. The port may be locked up. If the port status is idle, retry the command at 1-minute intervals for a maximum of 5 times.
1006	ABORT	The DS1 CO trunk is out of service. Use **status trunk** to verify that the trunk is out of service. If the trunk is out of service, determine why. If it is OK to put the trunk back in service, issue the **release trunk** command to put the trunk back in service, and then retry the test.
2000	ABORT	Response to the test was not received within the allowable time period.
2100	ABORT	Could not allocate the necessary system resources to run this test. Retry the command at 1-minute intervals for a maximum of 5 times.
	FAIL	Test failed due to internal system error. Retry the command at 1-minute intervals for a maximum of 5 times.
	PASS	Trunk translation has been updated successfully. The current trunk states kept in the DS1 Interface Media Module and switch software are consistent. If the trunk is busied out, the test will not run but will return PASS. To verify that the trunk is in-service: Enter **status trunk** to verify that the trunk is in-service. If the trunk is in-service, no further action is necessary. If the trunk is out-of-service. Enter **release trunk** to put the trunk back into in-service. Retry the test command.

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Table 60. TEST #36 Port Audit and Update Test *Continued*

Error Code	Test Result	Description/ Recommendation
Any	NO BOARD	The test could not relate the internal ID to the port. This result could be due to incorrect translations, no board inserted, an incorrect board inserted, an insane board inserted, or the board is hyperactive. Check to ensure that the board translations are correct. Use the **list config** command, and resolve any problems that are found. Issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port. If not, to check that there is a valid board inserted. Hyperactivity causes some special problems with the sequence suggested above. If the ports are translated after issuing the **list config** command but the 'Vintage' field reports that there is no board (when there really is a board), then the **busyout board** and the **release busy board** commands do not work (even though the **reset board** command does work). The software puts the hyperactive board back in service after the hyperactivity clears.

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CO-TRK (Analog CO Trunk)

Table 61. CO-TRK (Analog CO Trunk)

MO Name (in Alarm Log)	Alarm Level	Initial Command to Run*	Full Name of MO
CO-TRK	MAJOR**	test port GGGVSpp l	Analog CO Trunk
CO-TRK	MINOR	test port GGGVSpp l	Analog CO Trunk
CO-TRK	WARNING	test port GGGVSpp l	Analog CO Trunk
Note: For Avaya G700 systems you must consult local records for the location and designation of the equipment rack where the G700 is mounted.			
A MAJOR alarm on a trunk indicates that alarms on these trunks are not downgraded by the **set options command and that at least 75% of the trunks in this trunk group are alarmed.			

Analog CO trunks are 2-wire analog lines to the CO which support both incoming and outgoing calls. CO trunk Media Modules have eight ports.

The following sequences show the interactions between the switch and the CO during call setup for both loop-start and ground-start trunks.

Loop Start Operation

Idle State:

Tip = ground, Ring = CO Battery

Outgoing Call:

1. PBX Off-Hook (Seize Message): Closes the Tip-Ring Loop
2. CO Response: DC loop current + Dial tone
3. PBX On-Hook (Drop Message): Open Tip-Ring loop, no loop current
4. CO Response: CO goes to idle state (see Note)

Incoming Call:

1. CO Applies Ringing Voltage
   a. PBX Response: Detect ringing current
2. PBX Off-Hook (Answer Message): Close Loop
   a. CO Response: Trip ringing, provide loop current
3. PBX On-Hook (Drop Message): Open Tip-Ring Loop, no Loop Current
   a. CO Response: CO goes to idle state (see Note)

Note: CO does not normally provide an On-Hook (Disconnect) signal. Exceptions to this rule include Netherlands loop start and UK loop-calling guarded-clearing.

Ground Start Operation

Idle state:

Tip = open, Ring = CO Battery

Outgoing Call:

1. PBX Off-Hook (Seize Message): Places ground on Ring
   a. CO Response: Places ground on Tip
   b. PBX Response: Close the loop
   c. CO Response: Provide loop current
   d. PBX response: Dial out digits
2. PBX On-Hook first (Drop Message): Open the Tip-Ring Loop, no loop current
   a. CO Response: Open circuit on Tip
3. CO On-Hook first (Disconnect): Open circuit on Tip, no loop current
   a. PBX Response: Open Tip-Ring loop

Incoming Call:

1. CO Off-Hook (Seizure): CO applies ground on Tip and applies ringing voltage
   a. PBX Response: Make trunk busy for outgoing calls
2. CO Ringing: CO applies ringing voltage
   a. PBX Response: Detect ringing, ring destination
3. PBX Off-Hook (Answer Message): Close loop
   a. CO Response: Trip ringing, provide loop current
4. PBX On-Hook first (Drop Message): Open the Tip-Ring Loop, no loop current
   a. CO Response: Open circuit on Tip
5. CO On-Hook first (Disconnect): Open circuit on Tip, no loop current

Error Log Entries and Test to Clear Values

Table 62. CO Trunk Error Log Entries

Error Type	Aux Data	Associated Test	Alarm Level	On/Off Board	Test to Clear Value
0*	0	Any	Any	Any	test port *GGGVSpp* sh r 1
1 (a)	57347	None			
15 (b)	any	Port Audit Update Test (#36)			
18	0	busyout trunk	WARNING	OFF	release trunk *grp#/mbr#*
130(c)		None	WARNING	ON	test port *GGGVSpp* sh r 2
257 (a)	50176	None			
513 (a)	57364	None	MAJ/MIN/ WRN**	ON	
769 (a)	57392	None	MAJ/MIN/ WRN**	OFF	
1025 (e)	Any	Demand Diagnostic Test (#3)	MAJ/MIN/ WRN**	OFF	test port *GGGVSpp* sh r 2
1281 (e)	Any	Demand Diagnostic Test (#3)	MAJ/MIN/ WRN**	ON	test port *GGGVSpp* sh r 3
1537		Dial Tone Test (#0)	MAJ/MIN/ WRN**	OFF	test port *GGGVSpp* l r 2
2561 (d)	57345	None			
2817 (a)	57360	None			
2817 (a)	57393	None			
2817 (d)	57484	Dial Tone Test(#0)	MAJ/MIN/ WRN	OFF	test port *GGGVSpp* l r 1
3073 (d)	57376	None			
3329 (d)	57408	None			
3329 (d)	57484	Dial Tone Test(#0)	MAJ/MIN/ WRN	OFF	test port *GGGVSpp* l r 1
3585 (d)	57424	None			

*Run the Short Test Sequence first. If all tests pass, run the Long Test Sequence. Refer to the appropriate test description and follow the recommended procedures.

**Major alarms may be downgraded to Warning alarms based on the value used in the set options command.

Notes:

- (a) These are in-line errors that have no specific test associated with them. Refer to the following table for an explanation and appropriate action.
- (b) This is a software audit error that does not indicate any hardware malfunction. Run Short Test Sequence and investigate associated errors.
- (c) This error type indicates that the Media Module has been removed or has been insane for at least 11-minutes. To clear the error, reinsert or replace the Media Module.
- (d) Aux data 57345 - Single polarity ringing current

  Aux data 57376 - No loop current on incoming call

  Aux data 57408 - No tip ground detected on outgoing call

  Aux data 57424 - No loop current on outgoing call

  Aux data 57484 - No dial tone on outgoing call

  These errors cause the Dial Tone Test (#0) to run and are only considered a problem if the Dial Tone Test fails (in which case Error Type 1537 will also show up). In this case, the trunk may be put in Ready-For-Service state (shown as disconnected by status command), which allows only incoming calls. Run the Dial Tone Test (#0) and follow its outlined procedures.

  If error count associated with this error type is very high (i.e., 225) and if Alarm Status on the Hardware Error Report is n (not alarmed), then the existence of this error type indicates that, despite the fact that many in-line error messages have been received, all Call Seizure Tests have passed. Problems at the CO may cause this condition rather than problems with the PBX.
- (e) If test fails after two repetitions, replace Media Module.

  Check for the use of MFT/Range extenders. If there are extenders present, and there are no other complaints or maintenance errors against this trunk, then there is a good chance that Test #3 failed due to excessive loop current and may be ignored.

Table 63. CO Trunk Errors with No Tests

Error Type	Aux Data	Error Description and Repair Action
1	57347	Port error. Ringing without ground. This error is detected on an incoming call on a ground-start CO trunk. The CO trunk Media Module has not detected a Tip ground before ringing current is detected. This may indicate that the ground detector is not working. However, the call will be accepted. Busyout the affected port, and run a long test. Observe the test results. If any tests fail, refer to the description of the tests and the associated error codes. Release the port. If users continue to report troubles, check for other errors and make test calls to determine whether the problem should be referred to the CO.

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Table 63. CO Trunk Errors with No Tests *Continued*

Error Type	Aux Data	Error Description and Repair Action
257	50176	Battery reversal detected. This is usually caused by the CO (often seen with step-by-step and cross-bar offices in connection with outgoing calls). This is detected if the direction of the loop current changes from normal to reverse for at least 40 msec. Could occur if the trunk was just installed and for some reason the Tip and Ring wires were reversed at the PBX. If battery reversals occur during dialing, wrong numbers may result. Refer problem to CO. Ask them to remove the battery reversal option.
513	57364	Ground detector stuck active. After several occurrences, an on-board minor alarm is generated. Run the short test sequence. If test aborts with Error Code 1000, disconnect Tip and Ring and repeat short test. If test still aborts, replace Media Module. If test passes, refer problem to CO. If any other error code is received, pursue that problem.
769	57392	CO not releasing after call is dropped from PBX end, or the loop is not open after a disconnect. After several occurrences, an off-board warning alarm is generated. Refer problem to CO.
2561	57345	Single polarity ringing current. This error results from abnormal ringing current, but does not prevent the incoming call from being accepted. One cause could be that the reverse current detector associated with the port is failing. (Will not be detected by any tests.) Another cause could be that normal current is not detected. In this case, neither incoming nor outgoing calls can be completed, and the dial tone test will also fail. The last cause could be that certain types of noise are present on the CO line during the silent period of ringing. First check for other errors. If the count for this error is very high (255), and all tests pass, then either the reverse current detector is defective or the CO line is noisy. If the CO line is suspect, make Tip and Ring observations. If the line is determined to be noisy, refer the problem to the CO. If the reverse current detector is defective, ignore this error.
2817	57360	Ground but no ringing. This error occurs on an incoming call on a ground-start trunk. If ringing is not detected within 5 seconds of the Tip being grounded, the call is still accepted. If the CO is of the No. 5ESS. switch type, ringing delays of more than 5 seconds during heavy traffic are fairly common. Check for other errors.
2817	57393	The loop is opening too slowly after a disconnect. This error indicates an on-board problem, although the trunk may be functional. Check for other errors.
3073	57376	No loop current on incoming call. The incoming destination has already answered and no loop current has been detected. If this is a hard fault, the dial tone test and all outgoing calls should also fail. Check for other errors.

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Table 63. CO Trunk Errors with No Tests *Continued*

Error Type	Aux Data	Error Description and Repair Action
3329	57408	Trunk error. No Tip ground detected on outgoing call. This error occurs when an attempt is made to seize a ground-start CO trunk for an outgoing call and Tip ground is not detected or the caller hangs up before Tip ground is detected. Busyout the affected port, and run a long test. Observe the test results. If any tests fail, refer to the description of the tests and the associated error codes. Release the port. If users continue to report troubles, check for other errors and make test calls to determine whether the problem should be referred to the CO. Busyout the affected port, and run a long test. If Dial Tone Test #0 passes, ignore this error. Release the port.
3585	57424	No loop current on outgoing call. This error occurs on attempt to seize a loop or ground-start trunk for an outgoing call. An error occurs if loop current is not detected or the caller hangs up before it is detected. Busyout the affected port, and run a long test. If CO Demand Diagnostic Test #3 passes and this error keeps occurring, refer problems to CO. Release the port.

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System Technician-Demanded Tests: Descriptions and Error Codes

Always investigate tests in the order they are presented in the table below when inspecting errors in the system. By clearing error codes associated with the NPE *Crosstalk Test*, for example, you may also clear errors generated from other tests in the testing sequence.

Table 64. Order of Investigation

Order of Investigation	Short Test Sequence	Long Test Sequence	D/ND*
NPE Crosstalk Test (#6) **Note:** *This Test will abort with Error Code 1412*		X	ND
Dial Tone Test (#0)		X	ND
CO Demand Diagnostic Test (#3)	X	X	ND
Looparound and Conference Test (#33) **Note:** *This Test will abort with Error Code 1412.*		X	ND
Audit Update Test (#36)	X	X	ND
Transmission Test - ATMS (#844-848) **Note:** *This Test will abort with Error Code 1412*			ND
*D = Destructive; ND = Nondestructive			

If errors logged by test #3 are the only complaints against this trunk, then the system technician should check if MFT/Range Extenders are being used. If extenders are present, then there is a good chance that there is excessive loop current, which will cause Test #3 to log errors.

However, all else being normal, these errors should not affect the customer.

Dial Tone Test (#0)

This test attempts to seize a port and checks for the return of a dial tone.

Table 65. Test #0 Dial Tone Test

Error Code	Test Result	Description/ Recommendation
	ABORT	Could not allocate system resources to run this test. 1. Retry the command at 1-minute intervals for a maximum of 5 times.
1000	ABORT	System resources required to run this test are not available. The port may be busy with a valid call. 1. Use the command **display port UUCSSpp** to determine the trunk group/member number of the port. Use the **status trunk** command to determine the service state of the port. If the service state indicates that the port is in use, then the port is unavailable for certain tests. You must wait until the port is idle before retesting. 2. Retry the command at 1-minute intervals for a maximum of 5 times.
1001	ABORT	System resources required to run this test were not available. This could be due to a failure to seize the port. 1. Retry the command at 1-minute intervals for a maximum of 5 times.
1002	ABORT	The system could not allocate time slots for the test. The system may be under heavy traffic conditions or it may have time slots out-of-service due to TDM-BUS errors. 1. If the system has no TDM-BUS errors and is not handling heavy traffic, retry the command at 1-minute intervals for a maximum of 5 times.
1004	ABORT	The port was seized by a user for a valid call. 1. Use the **display port UUCSSpp** command to determine the trunk group/member number of the port. Use the **status trunk** command to determine the service state of the port. If the service state indicates that the port is in use, then the port is unavailable for certain tests. You must wait until the port is idle before retesting. 2. If the port status is idle, retry the command at 1-minute intervals for a maximum of 5 times.
1005	ABORT	Trunk has been administered as incoming-only; dial tone can only be obtained on outgoing trunks. This is a normal condition.

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Table 65. Test #0 Dial Tone Test

Error Code	Test Result	Description/ Recommendation
1018	ABORT	Test has been disabled via administration. 1. Verify that the "Maintenance Tests?" field on the Trunk Group Form is set to "n." To enable the test, issue the **change trunk-group x** command where "x" equals the number of the trunk group to be tested. Then change the entry in the "Maintenance Tests?" field on the form to "y."
2000	ABORT	Response to the test was not received within the allowable time period. 1. Retry the command at 1-minute intervals for a maximum of 5 times.
	FAIL	Trunk was seized, but dial tone could not be detected. 1. Test all administered outgoing ports on the board. Failure of 1 indicates a problem toward the CO. 2. If all fail, see note below. 3. Check for errors on the TONE-BD or TONE-PT. Clear any errors found, and repeat the test. 4. If the error has still not cleared, refer the problem to the CO. 5. If no service problems exist on the port, continue to use the port until the circuit pack can be replaced (as a last resort). Perform a trunk test call to see if the trunk is operable. If the dial tone test fails for all ports on a circuit pack, a -5 volt power problem is indicated. To investigate problems with a power unit, refer to “CARR-POW”.
2002	FAIL	Seizure portion of test failed due to hardware problem. Fault is usually caused by a disconnected trunk. 1. If the CO Demand Diagnostic Test (#3) also failed, display the Hardware Error Log. If the CO Demand Diagnostic Test failed because it could not detect ground (indicated by Error Type 1281 in the Hardware Error Log) AND Error Type 3329 or 3585 appears in the Hardware Error Log (with the same last occurred time as Error Type 1281 and 1537), replace the circuit pack. 2. Check trunk wiring to ensure good connection; repeat test if wiring correction made. 3. Locate another identical CO trunk and swap its wiring with one under test. Repeat test on both trunks and determine if problem follows trunk or remains at original port. If problem follows trunk, refer problem to CO. If problem remains at port, replace circuit pack and repeat test.
1009	PASS	Detected tone was not pure dial tone. No action required.

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Table 65. Test #0 Dial Tone Test

Error Code	Test Result	Description/ Recommendation
	PASS	Trunk was seized, and dial tone was detected. User-reported troubles on this port should be investigated by using other port tests and by examining trunk or external wiring.
0	NO BOARD	The test could not relate the internal ID to the port. 1. Check to ensure that the board translations are correct. Translate the board, if necessary. 2. Issue the **busyout board** command. 3. Issue the **reset board** command. 4. Issue the **release busy board** command. 5. Issue the **test board** command. This should re-establish the linkage between the internal ID and the port.

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CO Demand Diagnostic Test (#3)

For ground start trunks, port Media Module relays are operated and checks are made to see if the port can detect and apply ground on the Tip lead. This test also verifies that there is no external ground on the Ring lead. In the absence of other failures, the Media Module should be replaced only if this test fails with the CO line disconnected.

This test also checks the on-board programmable transmission circuits that allow the Media Module to support transmission characteristics of several different countries.

Table 6. TEST #3 CO Demand Diagnostic Test

Error Code	Test Result	Description/ Recommendation
	ABORT	Could not allocate system resources to run this test. Retry the command at 1-minute intervals for a maximum of 5 times.
1000	ABORT	System resources required to run this test are not available. The port may be busy with a valid call. Use the **display port GGGVSpp** command to determine the trunk group/member number of the port. Use the **status trunk** command to determine the service state of the port. If the service state indicates that the port is in use, then the port is unavailable for certain tests. You must wait until the port is idle before retesting. If the port status is idle, retry the command at 1-minute intervals for a maximum of 5 times.

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Table 6. TEST #3 CO Demand Diagnostic Test *Continued*

Error Code	Test Result	Description/ Recommendation
1004	ABORT	The port was seized by a user for a valid call. Use the **display port GGGVSpp** command to determine the trunk group/member number of the port. Use the **status trunk** command to determine the service state of the port. If the service state indicates that the port is in use, then the port is unavailable for certain tests. You must wait until the port is idle before retesting. If the port status is idle, retry the command at 1-minute intervals for a maximum of 5 times.
1005	ABORT	Test inapplicable to present configuration. This is a normal condition.
1018	ABORT	Test has been disabled via administration. For this test to run, the `Maintenance Tests?` field on the trunk group form must be set to n. The form is accessed with the change trunk-group grp# command.
2000	ABORT	Response to the test was not received within the allowable time period. Retry the command at 1-minute intervals for a maximum of 5 times.
	FAIL	Failure to detect ground or faulty ground detected on Ring lead. Display the hardware errors for this trunk, to determine if the fault was on- or-off board. Look for Error Type 1025 or 1281 (if both appear in the Hardware Error Log, pick the most recent error). Error Type 1025 indicates a faulty ground detected on Ring lead (an off-board fault) and Error Type 1281 indicates failure to detect (internally generated) ground (an on-board fault). Faulty ground detected on Ring lead (Error Type 1025): Repeat test. If test passes, ignore the original failure. If test aborts, follow the recommended procedures. Repeat test with CO line removed. If test fails, replace the Media Module. If test passes, refer problem to CO. Failure to detect ground (Error Type 1281): Run the long test sequence. If the CO Demand Diagnostic Test fails, the Dial Tone Test (#0) fails with Error Code 2002, AND Error Type 3329 or 3585 appears in the Hardware Error Log (with the same last occurred time as Error Type 1281 and 1537), replace the Media Module. Repeat test with CO line removed. If test fails, replace the Media Module. If test passes, the CO may be drawing too much current. Refer problem to CO.

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Table 6. TEST #3 CO Demand Diagnostic Test *Continued*

Error Code	Test Result	Description/ Recommendation
	PASS	This test verifies that the port is able to apply ground for outgoing calls and detect ground for incoming calls; however, it does not provide information on whether a CO line is actually connected. User-reported troubles on this port should be investigated by using other port tests and by examining trunk or external wiring.
Any	NO BOARD	The test could not relate the internal ID to the port (no board). Check to ensure that the board translations are correct. Translate the board, if necessary. Issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board** command. This should re-establish the linkage between the internal ID and the port.

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Port Audit Update Test (#36)

This test will send updates of the CO port translation for all ports on the Media Module which have been translated. The update is non-disruptive and guards against possible corruption of translation data contained on the Media Module. No response message is expected from the Media Module once it receives translation updates. The port translation data includes: ground or loop start trunk, tone or rotary dialing trunk, rotary dialing inter-digit timing, network balance R/RC, and disconnect timing.

Table 7. TEST #36 Port Audit Update Test

Error Code	Test Result	Description/ Recommendation
	ABORT	Could not allocate the necessary system resources to run this test. Retry the command at 1-minute intervals for a maximum of 5 times.
1006	ABORT	The port has been placed out of service, perhaps by craft busyout. Use the **display port GGGVSpp** command to determine the trunk group/member number of the port. Use the **status trunk** command to determine the service state of the port. If the service state indicates that the port is in use, wait until the port is idle before testing. If the port status is idle, retry the command at 1-minute intervals for a maximum of 5 times.
2100	ABORT	System resources required to run this test were not available. If the port status is idle, retry the command at 1-minute intervals for a maximum of 5 times.

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Table 7. TEST #36 Port Audit Update Test *Continued*

Error Code	Test Result	Description/ Recommendation
	FAIL	Internal system error Retry the command at 1-minute intervals for a maximum of 5 times.
	PASS	This test passed. Translation information was successfully updated on the Media Module. User-reported troubles on this port should be investigated by using other port tests and by examining trunk or external wiring. If the trunk is busied out, the test will not run, but will return PASS. To verify that the trunk is in-service: Enter **status trunk** to verify that the trunk is in-service. If the trunk is in-service, no further action is necessary. If the trunk is out-of-service, continue to Step 2. Enter **release trunk** command to put trunk back into in-service. Retry the test command.
Any	NO BOARD	The test could not relate the internal ID to the port (no board). Check to ensure that the board translations are correct. Translate the board, if necessary. Issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board** command. This should re-establish the linkage between the internal ID and the port.

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DID-DS1 (Direct Inward Dial Trunk)

Table 8. DID-DS1 (Direct Inward Dial Trunk)

MO Name (in Alarm Log)	Alarm Level	Initial Command to Run	Full Name of MO
DID-DS1	MAJOR*	test trunk *grp*/*mbr* l	Direct Inward Dial Trunk
DID-DS1	MINOR	test trunk *grp*/*mbr* l	Direct Inward Dial Trunk
DID-DS1	WARNING	test trunk *grp*/*mbr*	Direct Inward Dial Trunk
*A Major alarm on a trunk indicates that alarms on these trunks are not downgraded by the **set options** command and that at least 75 percent of the trunks in this trunk group are alarmed. For more information on the **set options** command			

The DID-DS1 trunk provides a digital Direct Inward Dial (DID) trunk from a CO switch to the system through a DS1 link. A 24-channel DS1 link can support up to 24 DID-DS1 trunk calls simultaneously. A 32-channel link can support up to 30. A DID-DS1 trunk can be used for digitized voice and data communications with appropriate DS1 signaling mode (for example, common channel signaling). The MM710 series Media Modules support wink-start and immediate-start trunks and call processing signaling. See MG-DS1 for more information. Throughout this section, the term DS1 applies to MM710 Media Modules.

Information included in this section covers the in-line errors log, initialization tests, periodic tests, scheduled tests, system technician demand tests, and alarms escalation and elimination. Two trunk service states are specified in the DID-DS1 trunk maintenance:

`out-of-service`	The trunk is in a deactivated state and cannot be used for incoming calls.
`in-service`	The trunk is in an activated state and can be used for incoming calls.

If the DS1 Media Module is out-of-service, then all trunks on the DS1 Interface Media Module are put into the out-of-service state and a Warning alarm is raised.

Error Log Entries and Test to Clear Values

Table 9. DID-DS1 Trunk Error Log Entries

Error Type	Aux Data	Associated Test	Alarm Level	On/Off Board	Test to Clear Value
0*	0	Any	Any	Any	test trunk *grp#/mbr#*
1(a)	Any				
15(b)	Any	Port Audit and Update Test (#36)			
18(c)			WARNING	OFF	release trunk *grp#/mbr#*
130(d)		None	WARNING	ON	test trunk *grp#/mbr#*
257(e)	57474 57473				
513(f)	57392		MIN/MAJ**		
769(g)	57393		MIN/MAJ**		
1793(h)					test board *GGGVSpp*
2305(i)	50944	None	MIN/MAJ**	OFF	
3840(j)		Port Audit and Update Test (#36)			
*Run the Short Test Sequence first. If all tests pass, run the Long Test Sequence. Refer to the appropriate test description and follow the recommended procedures.					
**This alarm will only be raised when the System-Parameter Country form has the Base Tone Generator field set to 4 (Italy). This alarm will be a MINOR alarm unless 75% or more trunks in this trunk group are out of service, then the alarm will be upgraded to a MAJOR alarm.					
***Major alarms may be downgraded to Warning alarms based on the value used in the set options command.					

Notes:

- (a) Error Type 1—DS1 Interface Media Module detects a hardware error on the DS1 DID trunk. The Aux Data field indicates the following:

57476	On-hook before wink
57477	On-hook before ready to receive digits
57485	Wink too short for valid signal

Maintenance does not start any testing or generate any alarms in response to these errors.

- (b) Error Type 15—This is a software audit error that does not indicate any hardware malfunction. Run Short Test Sequence and investigate errors (if any).
- (c) Error Type 18—The trunk has been taken out of service by a demand busyout. No calls can be made on this trunk.

- (d) Error Type 130—This error type indicates that the Media Module has been removed or has been insane for more than 11 minutes. To clear the error, reinsert or replace the Media Module.
- (e) Error Type 257—DS1 Interface Media Module detects a hardware error on the DS1 DID trunk. The Aux Data field indicate the source of the error:

  57474 Rotary dial rate above 12 pulses per second
  57473 Rotary dial rate below 8 pulses per second

- (f) Error Type 513—DS1 Interface Media Module detects a hardware error on the DS1 DID trunk. Aux Data 57392 indicates no external release on PBX disconnect.
- (g) Error Type 769—DS1 Interface Media Module detects a hardware error on the DS1 DID trunk. Aux Data 57393 indicates belated external release on PBX disconnect.
- (h) Error Type 1793—DS1 Interface Media Module is out-of-service. Look for DS1-MM errors in Hardware Error Log. Refer to the appropriate "DS1-MM" information for details.
- (i) Error Type 2305—This error indicates that a signaling change was detected by the PBX trunk Media Module which is inconsistent with the present state of the trunk.
- (j) Error Type 3840—Port Audit and Update Test (#36) failed due to an internal system error. Enter **status trunk** command to verify the status of the trunk. If the trunk is out-of-service, then enter the **release trunk** command to put it back to in-service. Retry the test command.

System Technician-Demanded Tests: Descriptions and Error Codes

CAUTION: Always investigate tests in the order they are presented in the table below. By clearing error codes associated with the NPE *Crosstalk Test,* for example, you may also clear errors generated from other tests in the testing sequence.

Table 10. Order of Investigation

Order of Investigation	Short Test Sequence	Long Test Sequence	D/ND*
NPE Crosstalk Test (#6) **Note:** *This test will abort with Error Code 1412*		X	ND
Conference Circuit Test (#7) **Note:** *This test will abort with Error Code 1412*		X	ND
Port Audit and Update Test (#36)	X	X	ND
*D = Destructive; ND = Nondestructive			

Port Audit and Update Test (#36)

This test sends port level translation data from the switch processor to the DS1 Interface Media Module to assure that the trunk's translation is correct. The port audit operation verifies the consistency of the current state of the trunk as kept in the DS1 Interface Media Module and in the switch software.

Table 11. TEST #36 Port Audit and Update Test

Error Code	Test Result	Description/ Recommendation
	ABORT	Internal system error Retry the command at 1-minute intervals a maximum of 5 times.
1000	ABORT	The port may be busy with a valid call. Issue **display port GGGVSpp** to determine the trunk group/member number of the port. Use the **status trunk** command to determine the service state of the port. If the port is in use, wait until the port is idle before testing. If the port status is active but the port is not in use (no calls), check the error log for error type 1025. The port may be locked up. If the port status is idle, retry the command at 1-minute intervals a maximum of 5 times.
1006	ABORT	The test was aborted because the trunk is out of service. Use **status trunk** to verify that the trunk is out of service. If the trunk is out of service, determine why. To put the trunk back in service, issue the **release trunk** command. Retry the test.
2000	ABORT	Response to the test was not received in the allowable time period.
2100	ABORT	Could not allocate resources to run this test. Retry the command at 1-minute intervals a maximum of 5 times.
	FAIL	Test failed due to internal system error. Retry the command at 1-minute intervals a maximum of 5 times.
	PASS	Trunk translation has been updated successfully. The current trunk states kept in the DS1 Interface Media Module and switch software are consistent. If the trunk is busied out, the test will not run but will return PASS. To verify that the trunk is in-service: Enter **status trunk** to verify that the trunk is in-service. If the trunk is in-service, no further action is necessary. If the trunk is out-of-service. Enter **release trunk** to put the trunk back into in-service. Retry the test command.

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Table 11. TEST #36 Port Audit and Update Test *Continued*

Error Code	Test Result	Description/ Recommendation
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Check to ensure that the board translations are correct. Use the **list config** command, and resolve any problems that are found. If the board was found to be correctly inserted in step 1, issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port. If this is not the case, check to see that there is a valid board inserted.

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DID-TRK (Direct Inward Dial Trunk)

Table 12. DID-TRK (Direct Inward Dial Trunk)

MO Name (in Alarm Log)	Alarm Level	Initial Command to Run*	Full Name of MO
DID-TRK	MAJOR**	test port GGGVSpp l	DID Trunk
DID-TRK	MINOR	test port GGGVSpp l	DID Trunk
DID-TRK	WARNING	None	DID Trunk
Note: You must consult local records for the location and designation of the equipment rack where the G700 is mounted.			
A MAJOR alarm on a trunk indicates that alarms on these trunks are not downgraded by the **set options command and that at least 75 percent of the trunks in this trunk group are alarmed.			

Many trunk problems are caused by incorrect settings of parameters on the trunk group administration form. Settings must be compatible with the local environment and with parameter settings on the far-end. Refer to *Administrator's Guide for Avaya MultiVantage™ Software, 555-233-506,* for information on how to administer trunks. The Application Notes section of that book shows the correct settings for administrable timers and other parameters on a country-by-country basis.

Direct Inward Dial trunks connect the switch to the CO, and allow outside parties to call directly to an extension in the system. MM711 supports eight incoming-only ports.

DID Trunk Operation

The DID port receives three to five digits from the CO that are used to directly connect an outside caller to the called station without assistance from an attendant. For each call, the CO switch signals the system by opening and closing individual DID loops (one of the eight ports), causing the starting or stopping of loop current.

DID Trunk Testing

The system uses technician-invoked tests to diagnose the health of the trunk. These tests are described in the following sections. Additionally, in-line testing which can generate errors, is performed while a call is in progress. See the Error Log Table 13 for a description of these errors. These errors may be reproduced by placing a call on the trunk and checking the Hardware Error Log.

Problems detected during signaling may be caused by off-board faults in the CO switch or connections for which a Warning alarm is raised.

Before a maintenance test can be run on a port, the port must be idle. If an incoming call seizes a port that is being tested, the test will abort and the incoming call will proceed.

For transmission and signaling standard specification, refer to *Digital PBX Standards*, RS4648.

Ports Out-of-Service without Errors or Alarms

A common trouble on DID trunks that produces no errors or alarms occurs when the CO busies out (disconnects) the port. This situation occurs when the CO thinks there are problems with the DID port. In this case, no incoming calls will be possible through this port. This may result in complaints from outside callers trying unsuccessfully to call in. This problem can be diagnosed by listing measurements on lightly used trunks. If a particular port is detected as not in use, a call to the CO will be necessary to get the connection back in service.

Error Log Entries and Test to Clear Values

Table 13. DID Trunk Error Log Entries

Error Type	Aux Data	Associated Test	Alarm Level	On/Off Board	Test to Clear Value
0*	0	Any	Any	Any	test port *GGGVSpp* sh r 1
1(a)	Any	None	WRN	OFF	
1(b)	57476	None	WRN	OFF	
1(c)	57477	None	WRN	OFF	
1(d)	57483	None	WRN	OFF	
15(e)	Any	Port Audit Update (#36)			
18	0	busyout trunk *grp/mbr*	WRN	OFF	release trunk *grp/mbr*
130(f)		None	WRN	ON	test trunk *grp/mbr*
257(g)	57472	None	WRN	OFF	
257(h)	57473	None	WRN	OFF	
257(i)	57474	None	WRN	OFF	
257(j)	57475	None	WRN	OFF	
513(k)	57392	None	MIN/ WRN**	OFF	
513(l)	57393	None			
769	Any	Port Diagnostic (#35)	MIN/ WRN**	ON	test port *GGGVSpp* r 3
1537	Any	Port Diagnostic (#35)	MAJ/ MIN/ WRN**	OFF	test port *GGGVSpp* r 3
*Run the Short Test Sequence first. If all tests pass, run the Long Test Sequence. Refer to the appropriate test description and follow the recommended procedures.					
**Major alarms may be downgraded to Warning alarms based on the value used in the set options command.					

Notes:

See also the preceding section on trunk problems without errors or alarms.

- (a) This condition occurs when the tone detector times out waiting for digits. Change wink/immediate-start parameter to wink/immediate-start and rotary/tone-dial parameters.
    1) Verify trunk administered wink/immediate-start parameter.
    2) Test trunk using BUTT set.
    3) Refer problem to CO.

- (b) Rotary dial before wink — This condition occurs when the CO starts dialing before the PBX sends wink on a wink-start trunk.
    1) Verify trunk administered wink/immediate-start parameter.
    2) Refer problem to CO.
- (c) Rotary dial too early — This condition occurs when the CO starts dialing too soon after seizure on an immediate-start trunk.
    1) Verify trunk administered wink/immediate-start parameter.
    2) Refer problem to CO.
- (d) Rotary dial pulse during wink — This condition occurs when the CO sends rotary dial digits too soon after seizure on a wink-start trunk.
    1) Verify trunk administered wink/immediate-start parameter.
    2) Refer problem to CO.
- (e) This is a software audit error that does not indicate any hardware malfunction. Run Short Test Sequence and investigate associated errors (if any).
- (f) This error type indicates that the Media Module has been removed or has been insane for more than 11 minutes. To clear the error, reinsert or replace the Media Module.
- (g) Rotary dial pulse on-hook longer than 105 msec — Break between rotary pulses is too long.
    1) Test trunk by performing an incoming test call.
    2) Refer problem to CO.
- (h) Rotary dial rate below 8 pulses/sec — More than 135 msec between two successive breaks.
    1) Verify trunk administered interdigit-timing parameters.
    2) Refer problem to CO.
- (i) Rotary dial rate above 12 pulses/sec — Less than 75 msec between two successive breaks.
    1) Verify trunk administered interdigit-timing parameters.
    2) Refer problem to CO.
- (j) Digit detection — CO is starting new rotary dial digit within 150 msec of previous digit.
    1) Verify trunk administered interdigit timing parameters.
    2) Refer problem to CO.
- (k) Loop current active — CO not releasing trunk after PBX disconnect. Occurs when the PBX end drops first and the CO does not release the trunk within 4 minutes.
    1) Verify the interface to the network with a hand telephone set. If calls are placed correctly, then refer problem to the CO.
    2) If unable to place calls or this equipment is not available, check the status on port using the **status trunk** command. If active but not connected, disconnect bridging clips at the network interface. Check status on the trunk. If trunk went idle, then replace clips. If trunk is still active but unable to place calls, refer problem to the CO.

- (l) Late CO trunk release — This event only occurs after the occurrence of Error Type 513. The CO released the trunk 4 minutes after the PBX dropped the call. This event decrements the severity (error count) of Error Type 513, or may mean the problem related to Error Type 513 has been fixed.

  1) Verify that Error Type 513 does not occur again. Refer to Error 513.

System Technician-Demanded Tests: Descriptions and Error Codes

CAUTION: Always investigate tests in the order presented in the table below. By clearing error codes associated with the NPE *Crosstalk Test* for example, you may also clear errors generated from subsequent tests in the testing sequence.

Table 14. Order of Investigation

Order of Investigation	Short Test Sequence	Long Test Sequence	D/ND*
NPE Crosstalk Test (#6) **Note:** *This test will abort with Error Code 1412*		X	ND
Port Diagnostic Test (#35)	X	X	ND
Looparound and Conference Circuit Test (#33) **Note:** *This test will abort with Error Code 1412*		X	ND
Port Audit Update Test (#36)	X	X	ND
*D = Destructive; ND = Nondestructive			

Port Diagnostic Test (#35)

This test checks a port's battery feed circuitry for on-/off-hook detection, battery shutdown, and battery reversal (wink) capabilities.

Table 15. TEST #35 Port Diagnostic Test

Error Code	Test Result	Description/ Recommendation
	ABORT	System resources required to run this test were not available. Retry the command at 1-minute intervals a maximum of 5 times.
1000	ABORT	System resources required to run this test were not available. The port may be busy with a valid call. Enter **display port GGGVSpp** command to determine the trunk group/member number of the port. Use the **status trunk** command to determine the service state of the port. If the port is in use, wait until the port is idle before testing. If the port status is active but the port is not in use (no calls), check the error log for Error Type 513. The port may be locked up. If the port status is idle, busyout and release the trunk, and retry the command at 1-minute intervals a maximum of 5 times. If the test continues to abort, check for wiring errors toward the CO which may cause the trunk to lock up. If the wiring is good and the test continues to abort, replace the circuit pack.
1004	ABORT	The port was seized by a valid call during the test. Enter **display port GGGVSpp** to determine the station extension, attendant number, or trunk group/member number of the port. Use the **status station**, **status attendant**, or **status trunk** command to determine the service state of the port. If the port is in use, wait until the port is idle before testing. Attendants are always in use (off-hook) if the handset is plugged in and the port is not busied out. Retry the command at 1-minute intervals a maximum of 5 times.
1018	ABORT	Test disabled via administration. Verify that the `Maintenance Tests?` field on the Trunk Group Form is set to `n`. To enable the test, issue the **change trunk-group x** command (x is the trunk group number). Then change the entry in the `Maintenance Tests?` field to **y**.
2000	ABORT	Response to the test was not received within the allowable time period.
2100	ABORT	Could not allocate the necessary system resources to run this test. Retry the command at 1-minute intervals a maximum of 5 times.

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Table 15. TEST #35 Port Diagnostic Test *Continued*

Error Code	Test Result	Description/ Recommendation
61446	FAIL	Battery feed test failed. A loop current fault was detected. This is most probably an incoming CO-line problem. This failure code is only reported by the TN2139 Italian DID Media Module. Check the incoming CO-line for loop current. If none is detected refer the problem to the CO. If the CO-line checks out OK, the failure must be on the DID port. Replace the Media Module.
61456	FAIL	Battery feed test failed. An on-board problem was detected. This port is out-of-service. Replace Media Module.
61472	FAIL	Battery feed test failed. A problem with the incoming CO-line was detected. Check the incoming CO-line for proper operation. If warranted, refer the problem to the CO. If the CO-line is not at fault, the failure must be on the DID port. Replace the Media Module.
	PASS	Current flow was detected for this port. User-reported troubles on this port should be investigated using other port tests and by examining connections. Refer problem to the CO.
Any	NO BOARD	The test could not relate the internal ID to the port (no board). Check to ensure that the board translations are correct. Translate the board, if necessary. Issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board** command. This should re-establish the linkage between the internal ID and the port. If the problem persists, replace the circuit pack.

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Port Audit Update Test (#36)

This test sends updates of the DID port translation for all ports on the Media Module that have been translated. The update is non-disruptive and guards against possible corruption of translation data contained on the Media Module. No response message is expected from the Media Module once it receives translation updates. The port translation data includes:

- Wink or immediate start trunk
- Dial tone or rotary dialing trunk
- Rotary dialing inter-digit timing
- Network balance R/RC
- Disconnect timing

Table 16. TEST #36 Port Audit Update Test

Error Code	Test Result	Description/ Recommendation
	ABORT	Could not allocate the necessary system resources to run this test. Retry the command at 1-minute intervals a maximum of 5 times.
1006	ABORT	The port is out of service, perhaps busied out. Use **display port GGGVSpp** to determine the trunk group/member number of the port. Use **status trunk** to determine the service state of the port. If the port is out of service, wait until the port is in service and idle before testing. If the port status is in service and idle, then retry the command at 1-minute intervals a maximum of 5 times.
2100	ABORT	Could not allocate the necessary system resources to run the test. Retry the command at 1-minute intervals a maximum of 5 times.
	FAIL	Internal system error Retry the command at 1-minute intervals a maximum of 5 times.
	PASS	This test passed. Translation information was successfully updated on the Media Module. If signaling troubles are reported (Error Types 1, 257, or 513), verify translation for this port. Refer problem to the CO.

Table 16. TEST #36 Port Audit Update Test

Error Code	Test Result	Description/ Recommendation
Any	NO BOARD	The test could not relate the internal ID to the port. Check to ensure that the board translations are correct. Translate the board, if necessary. Issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board** command. This should re-establish the linkage between the internal ID and the port. If the problem persists, replace the circuit pack.

DIG-LINE (Digital Line)

Table 17. DIG-LINE (Digital Line)

MO Name (in Alarm Log)	Alarm Level	Initial Command to Run*	Full Name of MO
DIG-LINE	MINOR	test port *GGGVSpp l*	Digital Line
DIG-LINE	WARNING	test port *GGGVSpp* sh	Digital Line
Note: You must consult local records for the location and designation of the equipment rack where the G700 is mounted.			

DIG-LINE maintenance monitors and tests ports on digital line Media Modules and the hardware connected to those ports for lines administered as a digital station. These include stations with just a digital voice terminal and stations with a digital voice terminal and a linked data module. Media Gateway-level maintenance is covered by “MG-DCP” whose strategy is described in the “XXX-BD (Common Port Media Module)” section.

Digital line maintenance interacts with digital line Media Module (MG-DCP) maintenance, and results of DIG-LINE testing can be affected by the health of the digital line Media Module. Keep this in mind when investigating digital line problems. There are instances where the service state of a

station is mentioned. It is helpful to understand what is meant by the different service states that may exist. The different service states which apply to digital line station are explained as follows:

Out-of-Service	The port, and thus the station, have been removed from service. Busyout puts the port in the out-of-service state.
Ready-for-Service	The port on the Media Module has been put into service, but the voice terminal has not yet established signaling communications with the port.
In-Service	The voice terminal has established signaling communications with the port, and the system is ready to process calls to and from that station. A terminal in the ready-for-service state will progress to the in-service state if it is functioning normally. It can also be forced into the in-service state by going off-hook.

Programmable Terminals

The following information is presented to help you understand how maintenance software interacts with terminal parameter downloading.

Note: **MM711 supports 8410D and 8434D terminals**
MM711 (2-wire, 8-port, A-law/mu-law selectable)

Downloadable Terminal Parameters

The following parameters are downloaded to programmable terminals:

Table 18. Parameters Downloadable to Programmable Terminals

Parameter	Scope	Terminal
International Flags (A-law/mu-law, Display Mode, DLI Voltage level)	System level	84xx, 603x, 302B1
Primary Levels (Transmission & Sidetone)	System level	84xx, 603x, 302B1
Adjunct Levels (Transmission & Sidetone)	System level	84xx
Handset Expander Option	System level	84xx
Administrable Options (Speakerphone & Mute Button)	Per-terminal	84xx
Administrable Softkeys	Per-terminal, System level	8410D, 8434D

Nonvolatile Memory

Nonvolatile memory stores downloadable parameters in programmable terminals. Once the terminal is downloaded, it is not be necessary to download it again, even if power is removed from the terminal. If nonvolatile memory fails with power still present, the terminal reverts to its default factory settings except for its A-law/mu-law companding settings which are stored in RAM. If power is removed after the nonvolatile memory fails, the terminal reverts to its factory default settings.

Note: The mu-law companding mode is assigned as a default setting at the factory. For the United States, a programmable terminal can place calls even though it has not been downloaded from the system.

Download Actions

There are several different scenarios that cause a terminal to be downloaded. These can occur as part of background maintenance activity or on demand from the System Access Terminal or from a station.

For the background actions described below, the terminal downloads automatically if a download retry flag for the terminal is set in software. This flag is set at the time translation is loaded at boot time, when translation which affects the parameters of a terminal is changed as part of system administration actions, and when a port is inserted in software as a result of board insertion or translation change.

Automatic Download Actions

1. System Reboot/Restart

   A global download action is started when periodic maintenance tests start after a system reboot/restart regardless of whether the parameters have been downloaded previously.

2. Periodic Tests

   If the download flag is still set when periodic tests are run on a terminal, a download action will occur. This operation is required in case a terminal could not be downloaded previously because it was off-hook at the time the system first booted or because the terminal was off-hook at the time translation associated with downloadable parameters was changed.

   Note that it may take more than an hour for periodic tests to reach the terminal that needs to be downloaded.

3. Terminal Administration

   A downloadable terminal is automatically downloaded when translation changes associated with downloadable parameters are made as part of system administration. As shown in the previous Table 18, these changes can be for a specified terminal or may be system-wide. If the change is

for system-level parameter, a background global update request is made to download all programmable terminals.

This global update may take more than an hour for a system with several thousand programmable terminals.

4. Port Insertion

   Whenever maintenance software initiates a request to place a port into service, a terminal download action is started on that terminal if that terminal is programmable. This port insertion action occurs under the following circumstances:

   a. A digital line Media Module that is physically inserted into the system has ports currently administered for programmable terminals.

      If more than 20 port insertion requests are received within a few seconds, a global download request is started up as a background task. This action updates all programmable terminals instead of just those being inserted. This is done to avoid system overload for situations where there is massive board insertion. This could occur when connectivity to an EPN is reestablished after that EPN was down.

   b. A station port is added to the system by a "**add station**" or "**change station**" command.

   c. A TTI port is activated.

5. Audits

   As part of periodic maintenance, the hardware status audit test queries programmable terminals to determine which levels and/or options are being used. If the reported values are not equal to the administered values, the system will initiate a terminal download action. This audit does NOT check the parameters used for softkeys.

6. Activation of TTI

   A terminal is downloaded automatically when it is activated using the Terminal Translation Initialization feature. Therefore, no special user actions are required for TTI.

   Plugging the station cord into a terminal does not automatically cause the terminal to be downloaded. If this terminal has factory defaults or if the terminal has been previously downloaded with parameters different than those desired, use one of the demand download actions described below to download the terminal.

Demand Download Actions

1. Busyout/Release Command

   A maintenance demand busyout/release request for a station will cause the terminal to be downloaded regardless of its previous download status.

2. Feature Access Code

   A Refresh Terminal Parameters Feature Access Code can be used to request a terminal download action. When this code is followed by a "#", the programmable parameters for the current terminal are downloaded when the terminal goes on hook. When this code is followed by an extension, the programmable parameters for the specified station are downloaded.

This Refresh Terminal Parameters Feature Access Code is assigned on the second page of the "feature-access-codes" screen.

A confirmation is returned if the download request is accepted. A busy tone is returned if the request is made from a different station when the target station is off-hook.

The first three green call appearance LEDs on the 84xx 603x terminal will be turned on for three seconds if the station was successfully downloaded as a result of an entry of a Refresh Terminal Parameters Facility Access Code. This is not true for the 302B1 terminal.

There is no visible display on a station for the other background or demand download actions. As described below, the "status station" and "status attendant" screens can be used to check the download status of a specified terminal.

Status of Parameter Downloads

The "status station" and "status attendant" screens display the current download status of individual 84xx terminals in the Download Status field. The possible download states are:

Table 19. Download States

Status	Explanation
Complete	Terminal successfully downloaded sometime in the past.
Pending	System waiting to download the terminal. This may require the execution of a background periodic test which could take more than an hour. A demand download as described above may also be used to initiate an immediate download.
Not Applicable	Not a programmable terminal.

Possible reasons for terminal being not downloaded include:

- Terminal is off-hook.
- Terminal detected a bad checksum.
- Terminal detected a bad or missing EEPROM (refer to hardware error log).
- Terminal is busy programming data from a previous PROGRAM message.
- Terminal is in the Programming Disabled state.
- Terminal is in the Local Program Options Mode.
- Terminal is disconnected or out of service (use **status station** command).

Error Log Entries and Test to Clear Values

Table 20. Digital Line Error Log Entries

Error Type	Aux Data	Associated Test	Alarm Level	On/Off Board	Test to Clear Value
0*	0	Any	Any	Any	test port *GGGVSpp* sh r 1
1 (a)	40987	None	WARNING	OFF	
1 (b)	1 to 20	None	WARNING	OFF	
18 (c)	0	busyout port *GGGVSpp*	WARNING	OFF	rel port *GGGVSpp*
130 (d)		None	WARNING	ON	test port *GGGVSpp* sh
257 (e)	40971	None			
513	0	Station (Digital) Audits Test (#17)	WARNING (o)	OFF	test port *GGGVSpp* sh r 6
767 (f)	40964	None	WARNING	OFF	
769 (g)	40963 40988	None	WARNING	OFF	
1026(o)		NONE	WARNING	OFF	
1281	Any	Station (Digital) Audits Test (#17)	WARNING	OFF	test port *GGGVSpp* sh r 4
1537 (h)	40968	None	WARNING	OFF	
2304 (n)		None			
2305 (i)	32770	None			
2305 (h)	40967	None			
2817(j)	Any	None		OFF	
3840 (k)	40965	None			
3840 (l)	40989	None			
3841 (m)	41029	None			

*Run the Short Test Sequence first. If all tests pass, run the Long Test Sequence. Refer to the appropriate test description and follow the recommended procedures.

**Major alarms may be downgraded to Warning alarms based on the value used in the set options command.

Notes:

- (a) Could experience a noisy port or link. This is an off-board problem detected by the port circuit. Check for defective wiring, a defective voice terminal, or move voice terminal closer to the switch (in terms of feet of wire from the jack to the switch). If the problem still exists, replace the Media Module. Once the problem has been resolved, the alarm will be retired after a predetermined amount of time.
- (b) This Error Type and Aux Data will occur when at least 15 off-board problems have been detected with the link to the terminal. When an error with the link is detected, an on-board counter is incremented.

  The user could experience a noisy port or link. This is an off-board problem detected by the port circuit. Check for defective wiring, a defective voice terminal, or move voice terminal closer to the switch (in terms of feet of wire from the jack to the switch). If the problem still exists, replace the Media Module. Once the problem has been resolved, the alarm will be retired after a predetermined amount of time.
- (c) This error type is logged when the port in question is busied out by maintenance personnel. Make sure port is released from busyout via the **release port GGGVSpp** command.
- (d) This error type indicates that the Media Module has been removed or has been insane for more than 21 minutes. To clear the error, reinsert or replace the Media Module.
- (e) Problems transmitting to the voice terminal. This problem can be caused by defective wiring. Defective wiring can cause varying degrees of problems on different types of sets. Sets such as the 7410 appear to be more susceptible to wiring problems than other sets. This is usually an on-board problem and can be ignored if no user complaints are received.
- (f) This is an in-line event that produces this error type when a favorable response is received from running the Digital Line Electronic Power Feed Test (#11). No craft action is necessary. This alarm will be resolved with the passing of time.
- (g) With Aux Data 40963, this error type is a result of an overcurrent condition. With 40988, this error type indicates that the EPF circuit has been turned off due to an overcurrent condition.

  Once the problem has been resolved, it may take up to 1 hour for the alarm to clear due to “leaky bucket” strategy. If the problem cannot be resolved by one of the steps above, then replace the Media Module.
- (h) An in-line maintenance error has generated an off-board warning due to some problem with the link to the voice terminal. This can be ignored if no user complaints are received. Otherwise, make sure the voice terminal is connected, check for defective wiring, check for a defective voice terminal, and move voice terminal to a jack that is closer to the switch (in terms of feet of wiring between the jack and the switch). If the problem still exists, replace the Media Module. Once the problem has been resolved, the alarm will be retired after a predetermined amount of time.
- (i) This indicates that the station went off-hook while it was in the ready-for-service state. Use the **status station** command to determine the state of the station. The off-hook should have moved the station to ready-for-service. No craft action is necessary.
- (j) Port Level Hyperactivity—Fifty or more CCMS uplink messages were received from the port within ten seconds. The user is taken out of service for a short interval of time (default 30 seconds).
- (k) No terminal is connected to the Digital Line board. No maintenance action is required.
- (l) An uplink message has been logged indicating that the Electric Power Feed (EPF) is on with no load on it. No action is necessary.

- (m) The Media Module's message buffer is full. This may be caused by having many display phones with heavy traffic connected to the Media Module. No action is necessary.
- (n) Internal system error. No action is necessary.
- (o) There is a problem with the voice terminal EEPROM. When the voice terminal is repaired the alarm will be resolved with the passing of time.

System Technician-Demanded Tests: Descriptions and Error Codes

Always investigate tests in the order presented in the table below. By clearing error codes associated with the *Voice and Control Channel Local Looparound Test,* for example, you may also clear errors generated from other tests in the testing sequence.

Table 21. Order of Investigation

Order of Investigation	Short Test Sequence	Long Test Sequence	D/ND*
Digital Terminal Remote Looparound Test (#1201) **Note:** This Test ABORTS		X	D
Voice and Control Channel Local Looparound Test (#13) **Note:** This Test ABORTS		X	ND
Digital Line NPE Crosstalk Test (#9) **Note:** This Test ABORTS		X	ND
Digital Line Electronic Power Feed Test (#11)		X	ND
DIG-LINE Station Lamp Updates Test (#16)	X	X	ND
Station (Digital) Audits Test (#17)	X	X	ND
*D = Destructive; ND = Nondestructive			

Digital Line Electronic Power Feed Test(#11)

MM711 boards provide power to the terminals. Therefore this will be an EPF restoral test. The test procedure and its response is same as that of EPF. If the over current persists the power will be shut off automatically and an EPF_off_overcurrent message is sent uplink.

Table 22. TEST#11 Digital Line Electronic Power Feed Test

Error Code	Test Result	Description/ Recommendation
	ABORT	Internal system error Retry the command at 1-minute intervals a maximum of 5 times.

Table 22. TEST#11 Digital Line Electronic Power Feed Test *Continued*

Error Code	Test Result	Description/ Recommendation
1000	ABORT	System resources required to run this test are not available. The port may be busy with a valid call. Enter **display port GGGVSpp** to determine the station extension or attendant number of the port. Use **status station** or **status attendant** to determine the service state of the port. If the port is in use, wait until the port is idle before testing. Attendants are always in use (off-hook) if the handset is plugged in and the port is not busied out. If the port status is idle, then retry the command at 1-minute intervals a maximum of 5 times.
	FAIL	Internal system error Retry the command at 1-minute intervals a maximum of 5 times.
	PASS	Electronic Power Feed Test passed. The message to turn on the power to the station was successfully sent to the port. Although this test will never actually return a FAIL result except for the **Internal system error** described above, it will log an error indicating the real results of the test. Check the Error Log for any entries with Error Types 767 or 769 after the test completes. If Error Type 767 appears in the Error Log, this indicates that the test sensed no problems with the power to the station. To verify that the station is powered up correctly, run a self-test on the station and check that all the feature buttons are operating. If Error Type 769 appears in the Error Log, this indicates some problem with the power to the station. Check for a short in the wiring, a damaged jack, a defective voice terminal, or an incorrect type of terminal.
Any	NO BOARD	The test could not relate the internal ID to the port. Check to ensure that the board translations are correct. Translate the board, if necessary. Issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board** command. This should re-establish the linkage between the internal ID and the port. If the problem persists, replace the circuit pack.

DIG-LINE Station Lamp Updates Test (#16)

This test lights all lamps on the terminal as specified. The lamp updates will run only if the station is in-service. The status of the station is checked and the lamp updates are blocked from taking place if

the station is not in the in-service state. This test does not affect the status of the Message Waiting lamp.

Table 23. TEST #16 DIG-LINE Station Lamp Updates Test

Error Code	Test Result	Description/ Recommendation
	ABORT	Internal system error Retry the command at 1-minute intervals a maximum of 5 times.
1	ABORT	This port may have been busied out by system technician. Look in the Error Log for Error Type 18 (port busied out) for this port. If this error type is present, then release the port via the **release station <extension>** command and run the test again. Make sure that the terminal is connected. Retry the command at 1-minute intervals a maximum of 5 times.
3	ABORT	Station may be in ready-for-service or out-of-service state. Use **status station** command to verify state of station. Make sure the terminal is connected. Retry the command at 1-minute intervals a maximum of 5 times.
1000	ABORT	System resources required to run this test are not available. The port may be busy with a valid call. Use **display port GGGVSpp** to determine the station extension or attendant number of the port. Use **status station** or **status attendant** to determine the service state of the port. If the port is in use, wait until the port is idle before testing. Attendants are always in use (off-hook) if the handset is plugged in and the port is not busied out. If the port status is idle, then retry the command at 1-minute intervals a maximum of 5 times.
1392	ABORT	This port is currently a TTI port and the test will not execute on it. Verify that the port is a TTI port using either the **display port** command (the display shows that the port is a TTI port) or the **list config** command (the display shows a "t" for the port). If either **list config** or **display port** indicates that the port is *not* a TTI port, escalate the problem. If both commands indicate that the port is a TTI port, the abort is correct, and no action is necessary.
	FAIL	Internal system error Retry the command at 1-minute intervals a maximum of 5 times.
	PASS	The message to light all of the station lamps was sent successfully to the port. Observe the station lamps being lit when running the test. If all lamps do not light, the other Digital Line test results may indicate related problems that do not allow the lamps to light. Investigate by using other Digital Line port tests, and by examining the station, wiring, and connections.

Table 23. TEST #16 DIG-LINE Station Lamp Updates Test *Continued*

Error Code	Test Result	Description/ Recommendation
Any	NO BOARD	The test could not relate the internal ID to the port. Check to ensure that the board translations are correct. Translate the board, if necessary. Issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board** command. This should re-establish the linkage between the internal ID and the port. If the problem persists, replace the circuit pack.

Digital Station Audits Test (#17)

This is a series of six tests that are classified as audits. Messages are sent to the on-board microprocessor to perform the following tests. These audits run only if the station is in-service.

- Switchhook Inquiry Test — This is an update of the call records according to the Media Module's records. This inquiry is sent all the way to the voice terminal.
- Bad Scan Inquiry Test — A message is sent uplink which contains a count that is generated due to certain events relating to the link conditions. This can be an indication of communications problems between the Processor and Digital Port Media Module.
- For MM712, the status of the EPF is sent uplink. Possible conditions are: EPF-on-ok, EPF-off, and EPF-no-load.
- ID Request Test — A request is made to the station for its status. The station sends its configuration information and health information back. This information is checked and a pass/fail result is provided.
- Ringer Update Test — This updates the digital telephone ringer state according to the processor records.
- DTMF Administration Update Test — This is a message to the digital station to refresh the default value that causes the station to send touch- tones only in the primary information channel. This value is set initially when the station is put in-service and every time the station's state changes from other states to in-service.

Table 24. TEST#17 Station (Digital) Audits Test

Error Code	Test Result	Description/ Recommendation
1	ABORT	Switchhook audit timed out.

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Table 24. TEST#17 Station (Digital) Audits Test *Continued*

Error Code	Test Result	Description/ Recommendation
2	ABORT	ID request fails, health bit returned from voice terminal is bad. Make sure voice terminal is connected and repeat test. If test fails, replace voice terminal and repeat test.
3	ABORT	Look for Error Type 769 logged against DIG-LINE and follow the procedures in the associated footnote. If any additional problems are found, rerun the test.
4	ABORT	Internal system error Resolve any outstanding Media Module maintenance problems. Retry the command at 1-minute intervals a maximum of 5 times.
5	ABORT	Ringer update aborted due to station being in ready-for-service or out-of-service state.
6	ABORT	This port may have been busied out by system technician. Look in the Error Log for Error Type 18 (port busied out) for this port. If this error is present, release the port via **release station** Make sure that the terminal is connected. Retry the command at 1-minute intervals a maximum of 5 times.
1000	ABORT	System resources required for this test are not available.
1392	ABORT	This port is currently a TTI port and the test will not execute on it. Verify that the port is a TTI port using either the **display port** command (the display shows that the port is a TTI port) or the **list config** command (the display shows a "t" for the port). If either **list config** or **display port** indicate that the port is *not* a TTI port, escalate the problem. If both commands indicate that the port is a TTI port, the abort is correct, and no action is necessary.
2000	ABORT	Response to the test was not received in the allowable time period.
	FAIL	Internal system error Retry the command at 1-minute intervals a maximum of 5 times.
	PASS	Station Audits passed. This Digital Port Media Module is functioning properly. If complaints persist, investigate by using other port tests, and by examining the station, wiring, and connections.

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Table 24. TEST#17 Station (Digital) Audits Test *Continued*

Error Code	Test Result	Description/ Recommendation
Any	NO BOARD	The test could not relate the internal ID to the port. Check to ensure that the board translations are correct. Translate the board, if necessary. Issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board** command. This should re-establish the linkage between the internal ID and the port. If the problem persists, replace the circuit pack.

DIOD-TRK (DIOD Trunk)

Table 25. DIOD-TRK (DIOD Trunk)

MO Name (in Alarm Log)	Alarm Level	Initial Command to Run*	Full Name of MO
DIOD-TRK	MAJOR**	test port GGGvSpp l	DIOD Trunk
DIOD-TRK	MINOR	test port GGGvSpp l	DIOD Trunk
DIOD-TRK	WARNING	test port GGGvSpp l	DIOD Trunk
Note: You must consult local records for the location and designation of the equipment rack where the G700 is mounted.			
A MAJOR alarm on a trunk indicates that alarms on these trunks are not downgraded by the **set options command and that at least 75 percent of the trunks in this trunk group are alarmed.			

Many trunk problems are caused by incorrect settings of parameters on the trunk group administration form. Settings must be compatible with the local environment and with parameter settings on the far-end. Refer to the Administration Manual for information on how to administer trunks. The Application Notes section of that book shows the correct settings for administrable timers and other parameters on a country-by-country basis.

Direct inward and outward dial (DIOD) trunks are 2-wire analog lines to the CO which support the following services:

- Both incoming and outgoing CO calls
- DID trunk
- DID trunk and 1-way outgoing DIOD

MM711 trunk Media Modules provide eight ports for loop-start CO trunks.

Loop Start Operation

Idle State: Tip = ground, Ring = CO Battery

Outgoing Call

1. PBX Off-Hook (Seize Message): Closes the Tip-Ring Loop CO Response: DC loop current + Dial tone
2. PBX On-Hook (Drop Message): Open Tip-Ring loop, no loop current CO Response: CO goes to idle state (see Note)

Incoming Call

1. CO Applies Ringing Voltage PBX Response: Detect ringing current
2. PBX Off-Hook (Answer Message): Close loop CO Response: Trip ringing, provide loop current
3. PBX On-Hook (Drop Message): Open Tip-Ring loop, no loop current CO Response: CO goes to idle state (see Note)

Direct Inward Dialing (DID)

1. CO Applies Ringing Voltage
   - PBX Response: Detect ringing current and close loop
   - CO Response: Send DTMF digits
   - PBX Response: Acknowledge of Number dialed and open loop
2. PBX Off-Hook (Answer Message): Close loop CO Response: Trip ringing, provide loop current
3. PBX On-Hook (Drop Message): Open Tip-Ring loop, no loop current CO Response: CO goes to idle state (see Note)

Note: CO does not normally provide an On-Hook (Disconnect) signal.

Error Log Entries and Test to Clear Values

Table 26. DIOD Trunk Error Log Entries

Error Type	Aux Data	Associated Test	Alarm Level	On/Off Board	Test to Clear Value
0*	0	Any	Any	Any	test port sh
15 (b)	any	Port Audit Update Test (#36)			
18	0	Busyout trunk *grp/mbr*	WARNING		release trunk
769 (a)	57392	None	MAJ/MIN/WRN**	ON	
1537 (f)					
2561 (a,d)	57345	None			
2817 (a,e)	57393	None			
3073 (a,c)	57376	None			
3585 (a,c)	57424	None			
*Run the Short Test Sequence first. If all tests pass, run the Long Test Sequence. Refer to the appropriate test description and follow the recommended procedures.					
Major alarms on this MO may be downgraded to Warning alarms based on the value used in the set options command. If the Minor alarm is not downgraded by the **set-options values, the Minor alarm is upgraded to a Major alarm if 75 percent of the trunks in this trunk group are alarmed.					

Notes:

- (a) These are in-line errors that have no specific test associated with them. Refer to the following Table 27 for an explanation and appropriate action.
- (b) This is a software audit error and does not indicate any hardware malfunction. Run the Short Test Sequence and investigate associated errors.
- (c) Aux data 57376—No loop current on incoming call

  Aux data 57424—No loop current on outgoing call

  These errors cause the Dial Tone Test (#0) to run and are only considered a problem if the Dial Tone Test fails (in which case Error Type 1537 also appears). In this case, the trunk may be put in ‘‘Ready-for-Service’’ state (shown as ‘‘disconnected’’ by status command), which allows only incoming calls. Run the Dial Tone Test (#0) and follow its procedures.
- (d) Single polarity ringing current—This error results from abnormal ringing current, but does not prevent the incoming call from being accepted. This error code is logged for information purposes only and does not cause additional testing to occur.
- (e) Late CO Trunk release—This indicates that the CO releases the trunk at least four minutes after the PBX dropped the call. This error code is only logged as an informational event and causes no other testing to occur.
- (f) Dial-Tone Test

Table 27. DIOD Trunk Errors without Associated Tests

Error Type	Aux Data	Description and Recommendation
769	57392	CO not releasing after call is dropped from PBX. After several occurrences, an off-board warning alarm is generated. Refer problem to CO.
2561	57345	Single polarity ringing current. This error results from abnormal ringing current, but does not prevent the incoming call from being accepted. One cause could be that the reverse current detector associated with the port is failing. (Will not be detected by any tests.) The other cause could be that normal current is not detected. In this case, neither incoming nor outgoing calls can be completed, and the dial tone test also fails. Check for other errors.
2817	57393	CO released the trunk at least four minutes after the PBX dropped the call. This error code is log only and causes no other testing to occur. No alarm is generated. Check for other errors.
3073	57376	No loop current on incoming call. The incoming destination has already answered and no loop current has been detected. If this is a hard fault, the dial tone test and all outgoing calls should also fail. Check for other errors.
3585	57424	No loop current on outgoing call. This error occurs on attempt to seize a loop or ground-start trunk for an outgoing call. An error occurs if loop current is not detected or the caller hangs up before it is detected. Busyout the affected port, and run a Long test. If Dial Tone Test #0 passes, ignore this error. Release the port.

System Technician-Demanded Tests: Descriptions and Error Codes

CAUTION: Always investigate tests in the order they are presented in the table below. By clearing error codes associated with the *NPE Crosstalk Test,* for example, you may also clear errors generated from other tests in the testing sequence

Table 28. Order of Investigation

Order of Investigation	Short Test Sequence	Long Test Sequence	D/ND*
NPE Crosstalk Test (#6) **Note:** *This Test will abort with Error Code 1412*		X	ND

Table 28. Order of Investigation

Order of Investigation	Short Test Sequence	Long Test Sequence	D/ND*
Dial Tone Test (#0) **Note:** *This Test will abort with Error Code 1412*		X	ND
Looparound and Conference Test (#33) **Note:** *This Test will abort with Error Code 1412*		X	ND
Audit Update Test (#36)	X	X	ND
*D = Destructive; ND = Nondestructive			

Port Audit Update Test (#36)

This test sends updates of the CO port translation for all ports on the Media Module which have been translated. The update is non-disruptive and guards against possible corruption of translation data contained on the Media Module. No response message is expected from the Media Module once it receives translation updates. The port translation data includes: ground or loop start trunk, tone or rotary dialing trunk, rotary dialing inter-digit timing, network balance R/RC, and disconnect timing.

Table 29. TEST #36 Port Audit Update Test

Error Code	Test Result	Description/ Recommendation
	ABORT	Could not allocate the necessary system resources to run this test. Retry the command at 1-minute intervals a maximum of 5 times.
2100	ABORT	Could not allocate the necessary system resources to run the test.
	FAIL	Internal system error. Retry the command at 1-minute intervals a maximum of 5 times.
	PASS	This test passed. Translation information was successfully updated on the Media Module. User-reported troubles on this port should be investigated by using other port tests and by examining trunk or external wiring. If the trunk is busied out, the test does not run, but returns PASS. To verify that the trunk is in-service: Enter **status-command** to verify that the trunk is in-service. If the trunk is in-service, no further action is necessary. If the trunk is out-of-service, continue to Step 2. Enter **release-trunk** command to put trunk back into in-service. Retry the test command.

ISDN-LNK (ISDN-PRI Signaling Link Port)

Table 30. ISDN-LNK (ISDN-PRI Signaling Link Port)

MO Name (in Alarm Log)	Alarm Level	Initial Command to Run*	Full Name of MO
ISDN-LNK**	MINOR	test port *GGGVSpp* l	ISDN-PRI Signaling Link Port
ISDN-LNK	WARNING	test port *GGGVSpp* sh	ISDN-PRI Signaling Link Port
*pp is *24* for 24-channel interfaces and *16* for 32-channel interfaces.			
Note: You must consult local records for the location and designation of the equipment rack where the G700 is mounted.			
**For additional related information, see USD1-BD and DS1-MM MOs.			

The ISDN-PRI interface uses out-of-band signaling (as opposed to robbed-bit, in-band signaling) to transmit control messages between two endpoints. User information channels carry digitized voice and digital data and are known as bearer channels (B-channels). B-channels are assigned to DS1 ISDN trunks or PRI endpoints. Call control signaling for the B-channels is combined and carried over the separate ISDN-PRI Signaling Link Port D-channel.

The ISDN-PRI Signaling Link Port (ISDN-LNK) is a port on a MM710, which has a direct interface to the packet bus which carries D-channel messages to the processor. The associated B-channels can use ports on the same Media Module or ports on other MM710s.

Two types of DS1 interfaces exist:

- 24 DS0 channels on a 1.544 Mbps link
- 31 DS0 channels + 1 framing channel on a 2.048 Mbps link

On 24-channel interfaces, the B-channels may use any of the first 23 ports. The signaling link is assigned to the 24th port. On 32-channel interfaces, the DS1 ISDN Trunks (B-channels) may use any of ports 1 to 15 and 17 through 31. The signaling link is assigned to the 16th port. The 32nd channel (port 0) is used for framing. In NFAS configurations, the 24th or 16th ports on some of the DS1 Media Modules may be used for B-channels. Refer to ISDN-SGR for further information.

A problem with the ISDN-LNK will have an effect on all of the associated B-channels since without it no call control information can be conveyed to the far-end switch or terminal adapter. Stable calls may remain operational, but no new calls can be made. The ISDN-LNK in turn depends on the MM710 it resides on which provides the link to the processor. If there are problems with the ISDN-LNK, also investigate the MM710 Interface Media Module (MG-DS1).

Hardware Error Log Entries and Test to Clear Values

Table 31. ISDN-PRI Signaling Link Port Error Log Entries

Error Type	Aux Data	Associated Test	Alarm Level	On/Off Board	Test to Clear Value
0*	0	Any	Any	Any	test port *GGGVSpp***
18 (a)	0	busyout port *GGGVSpp***	WARNING	OFF	release port *GGGVSpp***
130 (b)		None	WARNING	ON	test port *GGGVSpp***
1537 (c)	46210		WARNING	OFF	
1793 (d)					test board GGGVS l
3841 (f)	46211				
3842 (g)	46223				
*Run the Short Test Sequence first. If all tests pass, run the Long Test Sequence. Refer to the appropriate test description and follow the recommended procedures.					
**pp is 24 for 24-channel interfaces and 16 for 32-channel interfaces.					

Notes:

- (a) The D-channel is demand busied out. No calls can be made over this D-channel.
- (b) This Error Type indicates that the Media Module has been removed or has been insane for more than 11 minutes. To clear the error, reinsert or replace the Media Module.
- (c) Link error. This error occurs when the port receives an invalid frame over the D-channel. This error normally indicates an off-board problem usually related to transmission errors on the DS1 facility. Execute **list measurements ds1-log** for the MM710 Media Module on which the D-channel resides. If the DS1-MM is reporting some errors, then the DS1 facility has experienced transmission problems which could have caused the ISDN-LNK to report a Link Error.

  If the DS1-MM is not reporting errors, execute the long test sequence for the D-channel. Investigate any errors. If there are none, execute a long test sequence for the MM-DS1 Media Module. Investigate any errors.

  If no errors could be found by testing, the Link Error is probably not affecting service. However, if this Link Error continues to be logged, follow normal escalation procedures.
- (d) DS1-MM Interface Media Module is out-of-service. Look for and resolve DS1-BD errors in the Hardware Error Log.
- (f) Bad DLCI error. This error occurs when a LAPD frame is received across the DS1 facility which contains a DLCI which does not have a valid entry in the on-board translation memory. This error normally indicates an off-board problem usually related to a broken endpoint or a state mismatch between a remote endpoint and the local call processing software. Maintenance will not start any testing or generate any alarms in response to this error.

- (g) Receive FIFO Overflow error. This error occurs when the Media Module detects an overflow of its receive buffers. If it occurs frequently, it may indicate a LAPD parameter mismatch between the two end-points of a packet switched connection. LAPD should be able to recover from this problem, but it may degrade the performance of the LAN Bus. Maintenance will not start any testing or generate any alarms in response to this error.

System Technician-Demanded Tests: Descriptions and Error Codes

The command to test the ISDN-LNK MO is **test port** GGGVSpp where pp is 24 for 24-channel interfaces and 16 for 32-channel interfaces.

Table 32. System Technician-Demanded Tests

Order of Investigation	Short Test Sequence	Long Test Sequence	D/ND*
NPE Crosstalk Test (#6) This test will ABORT with error code 1412,			
Signaling Link Board Check (#643)	X	X	ND
Signalling Port LAN Loopback Test (#939) This test will ABORT with error code 1412.			
*D = Destructive; ND = Nondestructive			

Signaling Link Board Check (#643)

This test checks the health of the MM710 Interface transporting the ISDN-PRI Signaling Link Port

Table 33. Test #643 Signaling Link Board Check

Error Code	Test Result	Description/ Recommendation
	ABORT	Internal System Error Retry the command at 1-minute intervals for a maximum of 5 times. If the test continues to abort, escalate the problem.
1700	ABORT	Rollabout video abort. The PRI terminal adapter associated with this D-channel port is detached from the Media Module. This is normal when the rollabout video feature is enabled. To complete a test on this port, do one of the following: Re-attach the disconnected PRI terminal adapter Disable the rollabout video feature on this board by entering **change ds1 GGGVSpp** and set the field labeled “Alarm when PRI Endpoint Detached?” to “y.”

Table 33. Test #643 Signaling Link Board Check *Continued*

Error Code	Test Result	Description/ Recommendation
8	FAIL	The MM710 is not in-service. Check the Hardware Error Log for entries logged against DS1 MM and consult the DS1 Interface Media Module Maintenance documentation for repair procedures.
	PASS	The MM-DS1 Interface Media Module transporting the ISDN-PRI Signaling Link Port is in-service.
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Ensure that the board translations are correct. Execute the **add ds1 GGGVS** command to administer the DS1-MM interface if it is not already administered. If the board was already administered correctly, check the error log to determine whether the board is hyperactive. If this is the case, the board is shut down. Reseating the board will re-initialize the board. If the board was found to be correctly inserted in step 1, then issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port.

ISDN-SGR (ISDN-PRI Signaling Group)

Table 34. ISDN-SGR (ISDN-PRI Signaling Group)

MO Name (in Alarm Log)	Alarm Level	Initial Command to Run*	Full Name of MO
ISDN-SGR	MINOR	test sig-group *grp#*	ISDN-PRI Signaling Group
ISDN-SGR	WARNING	test sig-group *grp#*	ISDN-PRI Signaling Group
**grp#* is the signaling group number (1-166); the test sequence can be either short or long.			

An ISDN-PRI Signaling Group is a collection of B-channels for which a given ISDN-PRI Signaling Channel Port (D-channel) carries signaling information. B-channels carry voice or data and can be assigned to DS1 ISDN trunks (ISDN-TRK) or PRI endpoint ports (PE-BCHL).

Note: Throughout this discussion the term B-channels refers to ISDN-TRKs or PE-BCHLs, depending on the application under investigation.

The MM710 Interface Media Module, which has a direct interface to the packet bus, is required for D-channel signaling. There are two types of DS1 interfaces:

- 24 DS0 channels on a 1.544 Mbps link
- 31 DS0 channels + 1 framing channel on a 2.048 Mbps link

The following discussion describes 24-channel interface signaling groups. The 32-channel interface works the same way, except that only port number 16 is used for signaling instead of port number 24. Ports 1 through 15 and 17 through 31 are used for B-channels. The 32nd channel (port 0) is always used for framing.

ISDN-PRI D-channel signaling can be combined with a group of B-channels in three basic ways:

- Facility-associated signaling (FAS)
- Nonfacility-associated (NFAS) simplex signaling
- NFAS duplex signaling

In a FAS signaling group, the 24th port of the DS1 MM Interface Media Module carries D-channel signaling for up to 23 B-channel ports on the same Media Module.

In an NFAS signaling group, the 24th port of one DS1 MM Interface can carry D-channel signaling for B-channels on several other DS1 Media Module as well, including TN767s and TN464Bs. The 24th port on the other Media Modules can be used for B-channels. A D-channel in an NFAS group can signal for B-channels on a total of 20 DS1 Media Modules.

NFAS duplex signaling provides increased reliability, which is highly desirable since NFAS permits the D-channel to signal for many more B-channels. NFAS Duplex allows the administration of a backup D-channel which remains in a standby state until the active D-channel goes down. If the active D-Channel does go down, the backup D-Channel takes over and provides signaling for all the B-channels in the signaling group.

The operation of the entire ISDN-PRI signaling group depends on several other entities: the ISDN-PRI signaling channel ports, the DS1-MM Interface Media Module on which the D-channels reside and the system link that is carried over the packet bus to the processor. When there are problems with the ISDN-PRI signaling group, also investigate ISDN-LNK, DS1-MM, and SYS-LINK.

Error Log Entries and Test to Clear Values

Table 35. ISDN-PRI Signaling Group Error Log Entries

Error Type	Aux Data	Associated Test	Alarm Level	On/Off Board	Test to Clear Value
0*	0	Any	Any		test sig-group *grp#*
1 (a)	Any	None			

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Table 35. ISDN-PRI Signaling Group Error Log Entries *Continued*

Error Type	Aux Data	Associated Test	Alarm Level	On/Off Board	Test to Clear Value
257 (b)	Any	None			test sig-group *grp#*
513 (c)	Any	None			test sig-group *grp#*
769	Any	Primary Signaling Link Hardware Check (#636)			test sig-group *grp#*
1025	Any	Secondary Signaling Link Hardware Check (#639)			test sig-group *grp#*
1793 (d)	Any	Layer 2 Status (Test #647)	WARNING	OFF	test sig-group *grp#*
2049 (e)	Any	Layer 2 Status (Test #647)	WARNING	OFF	test sig-group *grp#*
2305 (f)	Any	Remote Layer 3 Query (Test #637)	MINOR	OFF	test sig-group *grp#*
3585 (g)	Port number	None			
3842 to 3942(h)	Port number	None			

*Run the Short Test Sequence first. If all tests pass, run the Long Test Sequence. Refer to the appropriate test description and follow the recommended procedures.

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Notes:

- (a) This switch sent a message to the far-end switch or terminal adapter, and the far-end did not respond in the allotted time. Possible causes include link failure and congestion or outage at the far-end. The Aux Data field contains Layer 3 protocol information used by internal counters.

  If no other symptoms are present, no action is required. If Layer 3 communication is down, there should be indications in the form of alarms and errors for link components. Check out other errors against ISDN-SGR, ISDN-TRK, and other hardware components on the link.

  There is no test to clear these errors. The error counter is decremented by 1 every 15 minutes.

- (b) This error indicates that the primary signaling channel connection has been lost for more than 90 seconds. If a secondary signaling channel does not exist or is not in-service, the associated B-channels will be placed in the ISDN Maintenance/Far-End state. The B-channels will not be usable for outgoing calls, although incoming calls will still be accepted. The switch will automatically attempt to recover the signaling link. Pay particular attention to the results of Test #636 (Primary Signaling Link Hardware Check) in the test sequence. When the link does recover, the B-channels will be negotiated back to the In-Service state and their alarms will be retired.

When this error occurs, the state of the Signaling Group is changed to out-of-service (verify using the **status sig-group** command).

- (c) This error indicates that the secondary signaling channel connection has been lost for more than 90 seconds. If the primary signaling channel is not in-service, B-channels will be placed in the ISDN Maintenance/Far-End state. The B-channels will not be usable for outgoing calls, although incoming calls will still be accepted. The switch will automatically attempt to recover the signaling link. Pay particular attention to the results of Test #639 (Secondary Signaling Link Hardware Check) in the test sequence. When the link does recover, the B-channels will be negotiated back to the In-Service state and their alarms will be retired.

  When this error occurs, the state of the Signaling Group is changed to out-of-service (verify using the **status sig-group** command).

- (d) This error indicates a failure of the Layer 2 Query Test for the primary signaling channel
- (e) This error indicates a failure of the Layer 2 Query Test for the secondary signaling channel.
- (f) This error indicates a failure of Test #637, the Remote Layer 3 Query. A specific message was sent to the far-end switch, and it did not respond within the allotted time. Investigate elements of the ISDN PRI D-channel(s) (ISDN-LNK) for both this switch and the Far-end switch. If Test #637 fails twice in a row, the B-channels will be alarmed and made unavailable for outgoing calls (although incoming calls will still be accepted). When Test #637 succeeds and the Far-end switch starts responding properly, the DS1 ISDN Trunk (B-channels) will be placed back into normal operation and their alarms will be retired.
- (g) A SERV or SERV ACK ISDN D-channel message has been received by a non-US-type interface (country option other than `1` on the DS1 administration form). However, these messages are used only for duplex NFAS signaling which is supported only by country protocol 1.

  Thus, there may be a mismatch in administration between the local and far-end switches. Consult with the customer's network provider to determine whether the D-channel is set up correctly on the far-end switch.

- (h) These Error Types are used to report certain error messages received by the ISDN-PRI Signaling Group for one of its associated B-channels. The aux data field shows for which B-channel (port number) the message was received.

  The error code generated equals 3840+*x*, where *x* is a Cause Value defined by the ISDN PRI Specification. Note that there is no Test to Clear Value for these Error Types; selected ISDN cause values are placed in the log when they are received, but no direct action or alarming is performed solely in response to receiving them. They provide added data that may prove useful when tracking down obscure networking and routing problems. The following table provides more information:

Table 36. Descriptions and Recommendations for Error Types 3842-3942

Error Code	Description	Recommendation
3842	A request has been made to use a transit network or common carrier that cannot be accessed.	From the Media Module and port number (in the Aux Data field), determine the trunk group against which the error was reported. Check all routing patterns containing this trunk group for validity of interexchange carriers requested (IXC field).
3843	No route to destination. Request received to route call through a transit network that is recognized but not allowed to carry the call or not able to serve the destination.	
3846	The far-end switch has indicated that the B-channel (trunk) is not acceptable for use in the call for which it was requested.	This could indicate an administration problem (for example, the local switch and the far-end switch have different B-channels administered), or could reflect the occurrence of a normal race condition (for example, the local switch has requested use of a B-channel which the far-end switch had just reserved for use on another call). From the Media Module and port number (in the Aux Data field), determine the trunk group against which the error was reported. Issue the **status trunk** command for the indicated trunk. Refer to the "DS1 ISDN Trunk Service States" and "ISDN-PRI Trunk Service States" sections of ISDN-TRK for recovery suggestions.
3858	Similar to Error Type 1. The switch sent an ISDN message to the far-end switch or terminal adapter which did not respond in the allotted time.	Follow same recommendations as for Error Type 1.

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Table 36. Descriptions and Recommendations for Error Types 3842-3942 *Continued*

Error Code	Description	Recommendation
3878	The far-end switch has indicated that the network is not functioning correctly and that the condition may last a relatively long period of time (for example, immediately re-attempting the call may not be successful).	From the Media Module and port number (in the Aux Data field, determine the trunk group against which the error was reported. Consult with the network provider to determine the nature and expected duration of the out of service condition. Consider modifying all routing patterns containing this trunk group, to route calls around the network which is out of service.
3890	A request to use a network service (e.g., SDN) has been denied. Administration somewhere on the network has indicated that the requested service has not been subscribed to or purchased for this trunk.	This could be a local administration problem only, or a mismatch between the local administration and that of the network provider. From the Media Module and port number (in the Aux Data field), determine the trunk group against which the error was reported. Display the trunk group form: If the trunk group is Call-by-Call (Service Type is “cbc”), check all routing pattern forms containing this trunk group to see if the Service/Feature fields contain the correct network services purchased for this trunk. If the trunk group is not Call-by-Call, check that the Service Type field contains the single network service purchased for this trunk. If local administration appears correct, consult with the customer and/or the network provider to determine the services that the customer has subscribed to for this trunk group.
3892	Protocol detail; may offer a clue if customer is having ISDN calls denied with an unexpected intercept tone.	If customer is complaining of unexpected intercept tones when accessing ISDN trunks or PRI endpoints and no other cause can be found, escalate the problem and provide the next tier with this Error Log information.
3894	Protocol detail; may offer a clue if customer is having ISDN calls denied with an unexpected intercept tone.	First, eliminate any transitory state mismatch problems by issuing the **test port GGGVSpp** command for the trunk port shown in the aux data field. Test #256 (Service State Audit) is the important test in the sequence. If this passes satisfactorily, yet the customer continues to complain of unexpected intercept tones when accessing ISDN trunks or PRI endpoints and no other cause can be found, escalate the problem and provide the next tier with this Error Log information.

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Table 36. Descriptions and Recommendations for Error Types 3842-3942 *Continued*

Error Code	Description	Recommendation
3902	FRANCE ONLY: Service not authorized.	
3903	Service or option not available, unspecified. This cause is used to report a service or option not available event only when no other cause in the service or option not available class applies.	
3905	Protocol detail; may offer a clue if customer is having ISDN calls denied with an unexpected intercept tone.	If customer is complaining of unexpected intercept tones when accessing ISDN trunks or PRI endpoints and no other cause can be found, escalate the problem and provide the next tier with this Error Log information.
3906	Protocol detail; may offer a clue if customer is having ISDN calls denied with an unexpected intercept tone.	If customer is complaining of unexpected intercept tones when accessing ISDN trunks or PRI endpoints and no other cause can be found, escalate to the problem and provide the next tier with this Error Log information.
3909	A request to use a network service has been made, but the network has rejected the request because the requested service is not implemented.	Follow the recommendations listed above for Error Type 3890.
3910	Only restricted digital BC available.	
3919	Service or option not implemented, unspecified. Used when no other cause in this class applies.	
3928	A call was denied because of a basic incompatibility between the type of call and either the facilities selected by the routing pattern or the called user itself.	This error might be helpful as a clue if the customer complains of receiving unexpected intercept tone after accessing ISDN trunks or PRI endpoints. Determine the trunk group from the Media Module and port number (in the aux data field) and then check the BCC fields of the pertinent routing patterns. Also, investigate whether or not the calling and called endpoints are compatible (for example, some ISDN switches may not allow a voice station to call a data extension).

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Table 36. Descriptions and Recommendations for Error Types 3842-3942 *Continued*

Error Code	Description	Recommendation
3942	Timer expiry: T310 time-out, no answer to CALL PROCEEDING.	

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System Technician-Demanded Tests: Descriptions and Error Codes

Always investigate tests in the order presented in the table below when inspecting errors in the system. By clearing error codes associated with the *Primary Signaling Link Hardware Check*, for example, you may also clear errors generated from other tests in the testing sequence.

Table 37. Order of Investigation

Order of Investigation	Short Test Sequence	Long Test Sequence	D/ND*
Primary Signaling Link Hardware Check (#636)	X	X	ND
Secondary Signaling Link Hardware Check (#639)	X	X	ND
Layer 2 Status Test (#647)	X	X	ND
Remote Layer 3 Query Test (#637)	X	X	ND
*D = Destructive; ND = Nondestructive			

Primary Signaling Link Hardware Check (#636)

The ISDN-PRI Signaling Group D-Channel port depends on the health of the Media Module on which it resides. This test will fail if there are problems with either the ISDN-PRI Primary D-channel port or the MM-DS1 Media Module. If there are problems with the ISDN-PRI Primary Signaling Channel port (ISDN-LNK), also investigate the Media Module.

Table 38. Primary Signaling Link Hardware Check (#636)

Error Code	Test Result	Description/ Recommendation
	ABORT	Internal system error Retry the command at 1-minute intervals a maximum of 5 times.

Table 38. Primary Signaling Link Hardware Check (#636) *Continued*

Error Code	Test Result	Description/ Recommendation
1700	ABORT	Rollabout video abort. The PRI terminal adapter associated with the primary D-channel port is detached from the Media Module. This is a normal abort when the rollabout video feature is enabled. To complete test on this port, either: Re-attach the disconnected PRI terminal adapter, or Disable the rollabout video feature on this board by entering **change ds1 GGGVSpp** and set field "Alarm when PRI Endpoint Detached?" to "y."
8	FAIL	There is a problem with the MM710 or the ISDN-PRI Signaling Channel (D-Channel). No ISDN trunk or PRI endpoint calls can be made until the problem is resolved. Consult the procedures for the MM710 and the ISDN-PRI Signaling Channel (ISDN-LNK).
	PASS	The basic physical connectivity of the primary D-channel is intact and functional. One might try this test repeatedly to ensure the link is up and to uncover any transitory problems.
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Ensure that the board translations are correct. Execute the **add ds1 GGGVS** command to administer the DS1-MM interface if it is not already administered. If the board was already administered correctly, check the error log to determine whether the board is hyperactive. If this is the case, the board is shut down. Reseating the board will re-initialize the board. If the board was found to be correctly inserted in step 1, then issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port.

Remote Layer 3 Query (#637)

This test will query the far-end switch or terminal adapter to determine if the signaling connection is functioning properly at Layer 3. It will select a B-channel in the in-service or maintenance service state and send an ISDN Layer 3 SERVice message, which requires a response from the far end (similar to performing Test #256 on an ISDN trunk. The test will not be performed if there are no B-

channels in an appropriate ISDN service state (as when none are administered or they are all out of service).

Note: The service state can be displayed by using the **status trunk <trunk group/trunk member>** or **status pri-endpoint** command.

As is the case with Test #256 for an ISDN trunk, a PASS only indicates that a message was composed and sent to the far-end switch or terminal adapter. The ISDN PRI Specification allows up to 2 minutes for a response. Check the Error Log for ISDN-SGR (ISDN-PRI Signaling Group) errors of type 2305 for evidence of a Remote Layer 3 Query failure.

Tests #639 and #636 check the health of the D-channels and DS1 Interface Media Modules. This test goes one step further by checking the communication path from the processor, and on to the far-end switch or terminal adapter. A special ISDN message is sent to the far-end switch or terminal adapter, which must respond within a specified amount of time. This test is designed to ensure that the communication path between the switch and the far-end is up and operational, and that the two endpoints can properly exchange ISDN control messages.

Table 39. TEST #637 Remote Layer 3 Query

Error Code	Test Result	Description/ Recommendation
1006	ABORT	There are no associated B-channels in an ISDN “in-service” or “maintenance” service state. This is a NORMAL ABORT. Administer or release an ISDN trunk or PRI endpoint before retrying the test. For an ISDN trunk, use the **status trunk** group#/member# command to verify the ISDN trunk state. For a PRI endpoint use **status pri-endpoint** extension. Then, retry this test when at least one B-channel is in the “in-service” or “maintenance” states.
1113	ABORT	The signaling channel is down. Therefore, no messages can be sent to the far-end switch or terminal adapter. Examine the results of Tests #636 and #639 and follow recommendations provided there.
2100	ABORT	Could not allocate the necessary system resources to run this test. Retry the command at 1-minute intervals a maximum of 5 times.
2500 or none	ABORT	Internal system error OR Administration Problem Determine if any B-channels are administered. If there are none, then this is a normal ABORT, since this test cannot run unless at least one B-channel is administered. If at least one B-channels is administered, there is an internal system error. Retry the command at 1-minute intervals a maximum of 5 times.
	FAIL	Internal system error. See description of ABORT with error code 2500.

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Table 39. TEST #637 Remote Layer 3 Query *Continued*

Error Code	Test Result	Description/ Recommendation
	PASS	A message was composed and sent to the far-end switch or terminal adapter. The ISDN PRI specification allows up to 2 minutes for a reply. Check the Error Log for ISDN-SGR (ISDN-PRI Signaling Group) for errors of type 2305 for evidence of a Remote Layer 3 Query failure. If no new errors were logged since this test was run, then this switch and the far-end switch or terminal adapter can exchange call control messages. If there is still a problem with a particular ISDN trunk or PRI endpoint, busyout the trunk and run the long test sequence, paying particular attention to the results of Test #258 (ISDN Test Call).
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Ensure that the board translations are correct. Execute the **add ds1 GGGVS** command to administer the DS1-MM interface if it is not already administered. If the board was already administered correctly, check the error log to determine whether the board is hyperactive. If this is the case, the board is shut down. Reseating the board will re-initialize the board. If the board was found to be correctly inserted in step 1, then issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port.

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Secondary Signaling Link Hardware Check (#639)

The ISDN-PRI Signaling Group D-Channel port depends on the health of the MM710 on which it resides. This test will fail if there are problems with either the ISDN-PRI Secondary D-channel port or the MM-DS1 Media Module. This test will abort if a Secondary D-channel is not administered for the signaling group. If there are problems with the ISDN-PRI Secondary Signaling Channel port (ISDN-LNK), also investigate the MM710.

Table 40. TEST #639 Secondary Signaling Link Hardware Check

Error Code	Test Result	Description/ Recommendation
	ABORT	Internal system error Retry the command at 1-minute intervals a maximum of 5 times.
1132	ABORT	The Secondary D-Channel is not administered for this Signaling Group. This is a NORMAL ABORT. Only a Primary D-Channel must be administered for a Signaling Group.
8	FAIL	There is a problem with the MM710 or the ISDN-PRI Secondary Signaling Channel (D-Channel). No ISDN trunk or PRI endpoint calls can be made until the problem is resolved. Consult the procedures for the MM710 and the ISDN-PRI Signaling Channel (ISDN-LNK).
	PASS	The basic physical connectivity of the Signaling Group's Secondary D-channel is intact and functional. Try this test repeatedly to ensure the link is up and to uncover any transitory problems.
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Ensure that the board translations are correct. Execute the **add ds1 GGGVS** command to administer the DS1-MM interface if it is not already administered. If the board was already administered correctly, check the error log to determine whether the board is hyperactive. If this is the case, the board is shut down. Reseating the board will re-initialize the board. If the board was found to be correctly inserted in step 1, then issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port.

Layer 2 Status Test (#647)

The Layer 2 Status Test checks the layer 2 status of the ISDN-PRI Signaling Channel (D-channel). This test will fail if there is a hardware failure or a facility problem, or if the primary and secondary ISDN-PRI D-channels are not administered correctly.

The Primary and Secondary Signaling Link Hardware tests (test 637 and 639) and the Remote Layer 3 Query test (test 637) will detect most problems caused by hardware failures or incorrect

administration. However, the Layer 3 test (test 637) cannot detect end-to-end transmission problems with the Standby D-channel since Layer 3 messages are not sent on the standby channel.

The SYS-LINK Maintenance Object reports Layer 2 ISDN-PRI D-channel problems. The Layer 2 Query test is provided to detect D-Channel Layer 2 failures and generate an associated Warning alarm independent of the hardware configuration used for the D-channels.

Table 41. TEST #647 Layer 2 Status Query Test

Error Code	Test Result	Description/ Recommendation
1132	ABORT	Internal system error: The port location for the primary ISDN-PRI D-channel is not known. This condition should not be possible since an administered DS1 Media Module must be specified when a Signaling Group is administered: Retry the command at one minute intervals a maximum of five times.
1134	ABORT	Internal system error: The associated DS1 Media Module is not administered. This condition should not be possible since an administered DS1 Media Module must be specified when a Signaling Group is administered. Retry the command at one minute intervals a maximum of three times.
2500	ABORT	Internal system error: Retry the command at one minute intervals a maximum of five times.
1	FAIL	Layer 2 of the primary signaling channel is down: Examine the results of the Primary Signaling Test (#636) and follow recommendations provided there. If test #636 passes, the Layer 2 Query test may still fail if the Signaling Channel at the far end has not been administered correctly or if the Signaling Channel has been busied out. Verify that the Primary Signaling Channel (D-channel) at the far end has been administered correctly. Verify that the DS1 port used for the Primary D-channel has not been busied out at the far end.
2	FAIL	Layer 2 of the secondary signaling channel is down. Examine the results of Secondary Signaling Link Hardware Test (#639) and follow recommendations provided there. If tests #639 passes, the Layer 2 Query test may still fail if the Signaling Channel at the far end has not been administered correctly or if the Signaling Channel has been busied out. Verify that the Secondary Signaling Channel (D-channel) at the far end has been administered correctly. Verify that the DS1 port used for the Secondary D-channel has not been busied out at the far end.

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Table 41. TEST #647 Layer 2 Status Query Test *Continued*

Error Code	Test Result	Description/ Recommendation
3	FAIL	Both the primary and secondary are down. Examine the results of the Primary and Secondary Signaling Link Hardware Tests (#636 and #639) and follow recommendations provided there. If tests #636 and #639 pass, the Layer 2 Query test may still fail if the Signaling Channel at the far end has not been administered correctly or if the Signaling Channel has been busied out. Verify that the Primary and Secondary Signaling Channel (D-channel) at the far end has been administered correctly. Verify that the DS1 port used for the Primary and Secondary D-channels has not been busied out at the far end.
	PASS	The Primary Signaling Channel is up and, if administered the Secondary Channel is up.
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Ensure that the board translations are correct. Execute the **add ds1 GGGVS** command to administer the DS1-MM interface if it is not already administered. If the board was already administered correctly, check the error log to determine whether the board is hyperactive. If this is the case, the board is shut down. Reseating the board will re-initialize the board. If the board was found to be correctly inserted in step 1, then issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port.

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ISDN-TRK (DS1 ISDN Trunk)

Table 42. ISDN-TRK (DS1 ISDN Trunk)

MO Name (in Alarm Log)	Alarm Level	Initial Command to Run*	Full Name of MO
ISDN-TRK**	MAJOR*	test port GGGVSpp l	DS1 ISDN Trunk
ISDN-TRK	MINOR	test port GGGVSpp l	DS1 ISDN Trunk
ISDN-TRK	WARNING	test port GGGVSpp l	DS1 ISDN Trunk
Note: For Avaya G700 Media Gateway systems you must consult local records for the location and designation of the equipment rack where the G700 is mounted.			
*For additional repair information, see also DS1-BD for TN767 ports and MM710.			
A MAJOR alarm on a trunk indicates that alarms on these trunks are not downgraded by the **set options command.			

Note: Many trunk problems are caused by incorrect settings of parameters on the trunk group administration form. Settings must be compatible with the local environment and with parameter settings on the far-end. See *Administrator's Guide for Avaya MultiVantage™ Software, 555-233-506*, for the correct settings for administrable timers and other parameters on a country-by-country basis.

Note: Throughout this section, the term DS1 refers to the MM710 Media Module.

A DS1 ISDN trunk is a 64 Kbps bearer channel used to transmit digitized voice or data traffic. These trunks, or B-channels, use a separate channel, the D-channel for call-control signaling. This mode of operation is known as out-of-band signaling, as opposed to in-band robbed-bit signaling, in which signaling is carried in the same channel as the voice or data traffic. One D-channel, or ISDN signaling link (ISDN-LNK), carries signaling messages for several B-channels, forming an ISDN signaling group (ISDN-SGR).

A B-channel may be a port on a MM710 series DS1 Media Module.

Two types of DS1 interfaces exist:

- 24 DS0 channels on a 1.544 Mbps link
- 31 DS0 channels + 1 framing channel on a 2.048 Mbps link

On 24-channel interfaces, any of the first 23 ports on the DS1 Media Modules can be a B-channel. On the MM710, the 24th port may be used as a B-channel or as a D-channel depending on the type of ISDN-PRI signaling group (FAS or NFAS) implemented on the Media Module. For more details, refer to ISDN -SGR. The signaling for these B-channels is done over a D-channel located on a MM710.

On 32 channel interfaces, any of ports 1-15 and 17-31 on the DS1 interface Media Module can be a B-channel. The 16th port may be used as a B-channel or as a D-channel depending on the type of

ISDN-PRI signaling group (FAS or NFAS) to which it belongs. For more details, refer to ISDN-SGR and "DS1-MM (DS1 Interface Media Module)" in this chapter.

For interfaces using country protocol 1 on the DS1 Media Module administration form (including US), the signaling protocol used for the maintenance of the B-channel is defined by the ISDN-PRI specification. For interfaces using country protocols other than 1, the signaling protocol used for the maintenance of the B-channel is defined by the CCITT ISDN-PRI Specification.

There are five possible service states for a B-channel. the service state is negotiated with the far-end switch, changes over time, and may have a far-end and near-end components. The service state is initialized to out-of-service/Far-End and an attempt is made to negotiate it to in-service.

The ISDN-PRI Specification defines the possible SERVICE STATES for a B-channel. The service state is negotiated with the far-end switch, changes over time, and may have a far-end or near-end component. The service state is initialized to the Out-Of-Service/Far-End state and an attempt is made to negotiate it to In-Service.

Note: The service state of a particular DS1 ISDN Trunk B-channel can be displayed by issuing the **status trunk** *trunk group/trunk member* system technician command.

When a call is present, the specification defines the permissible call states as well. There are tests in the short and long test sequences for DS1 ISDN Trunk designed to audit these states and ensure agreement between both ends of the PRI connection.

Alarming Based on Service States

A warning alarm is logged against a DS1 ISDN B-channel trunk when it is placed in the Maintenance/Far-End or Out-Of-Service/Far-End states, during which the trunk is unusable for outgoing calls. When a warning alarm is present, use **status trunk** group#/member# command to determine the exact state. Other alarms can be diagnosed by using the short and/or long test sequences. Note that an ISDN B-channel trunk can be placed in a Far-End service state by either action taken by the far-end switch or by failure of the far-end switch to respond. For example, if the far-end does not respond to a Remote Layer 3 Query (Test #637 for ISDN-SGR), the associated DS1 ISDN trunk B-channels will be placed in the Maintenance/Far-End service state.

As a port on a DS1 Media Module (DS1-MM), and as part of a signaling group dependent on a D-channel (ISDN-LNK) for signaling, operation of the ISDN-TRK is dependent on the health of these other maintenance objects.

DS1 ISDN Trunk Service States

The **status trunk** command displays the following possible service states for ISDN trunks. Table 43 gives recommended procedures for each state.

- In-Service (INS)

  The B-channel is in its normal operating state.

- Out-of-Service/Far-End (OOS/FE)

  A B-Channel is initialized to this state when administered. The switch sends messages to the far-end to negotiate the B-channel into service. If the far-end does not respond to the messages within a certain time period, then the service state remains out-of-service and maintenance will periodically resend the messages. The trunk is unusable for incoming and outgoing calls.

- Out-of-Service/Near-End (OOS/NE)

  This is the state of the trunk when the NPE Crosstalk Test fails or when the trunk is busied out by system technician. In this state, the trunk is unusable for incoming or outgoing calls. No messages are sent to the far-end until the signaling link comes back into service or the trunk is released by system technician.

- Maintenance/Far-End (MTC/FE)

  This state is reached when the far-end does not respond to messages sent over the signaling link for a particular trunk after a certain amount of time. This state is different from OOS/FE since the signaling link must have initially been up and the B-Channels in-service. The switch will periodically send messages to the far-end to try to negotiate the trunk (B-channel) into service. The trunk is unusable for outgoing calls but will service incoming call requests from the far-end. Note that transitions into MTC/FE do not drop stable calls. Therefore, if the service state changes from in-service to MTC/FE, then stable calls are unaffected.

- Maintenance/Near-End (MTC/NE)

  The trunk (B-channel) is in this state if the signaling channel (ISDN-LNK) is busied out by system technician. The trunk (B-channel) is also temporarily in this state if system technician has issued a **test trunk** *trunk group/trunk member long* command. This command will execute the ISDN-PRI test call. This test will change the state of the trunk member to MTC/NE for the duration of the test unless a call request comes in from the far-end. In that case, the test would abort. Note that transitions into MTC/NE do not drop stable calls. In this state, the B-Channel is not usable for new incoming or outgoing calls.

- Pending States

  In addition to one of the above components, the service state may have a *pending* component, indicating that the switch is waiting for a reply from the far-end. These service states remain in effect until either a response is received or the allotted waiting time expires.

  - Pending-in-Service

    The near-end is waiting for a response from the far-end to a B-channel maintenance message requesting that the B-channel be transitioned to in-service.

  - Pending-Maintenance

    This state is supported only by systems using country protocol 1 (including US). The near-end is waiting for a response from the far-end to a maintenance message requesting that the B-channel be transitioned to the maintenance service state.

- Call Activity States

  The in-service service state also has a call activity component.

  - Active

    A call is connected over the B-channel (for example, *in-service/active*).

- Idle

  There is no call currently on the B-channel (for example, *in-service/idle*).

Table 43. Service States

Service State	Alarm*	Possible Cause	Possible Solution
out-of-service/NE	Warning	Trunk is demand busied out.	Enter **release trunk** grp#/mbr#.
	None	DS1 or MM-DS1 Media Module lost its signal.	Is the Media Module or cable removed? Is the far-end switch restarting? Check Media Module using procedures in DS1-MM.
out-of-service/FE	Warning	Unadministered far-end	Administer corresponding trunk on far-end switch.
	Warning	The far-end trunk is busied out.	Check the status of the far-end switch.
pending-in-service, pending-maint	None	Maintenance message was sent and the switch is waiting up to 2 min. for a reply from the far-end.	Wait 2 minutes and check service state after the pending state has cleared.
maint-NE	None	ISDN test call in progress (**test trunk long** and **test isdn-testcall** commands)	Wait several minutes for test to finish and check status again.
	None	System link has been busied out by command.	Check link status. Release link with **release link** link#.
maint-FE	Warning	Signaling channel has been down for over 90 sec.	Consult ISDN-SGRP and/or ISDN-LNK. Far-end signaling channel may be busied out, or the far-end switch may currently be restarting.
	Warning	Repeated failure of far end to respond to messages.	Maintenance software will periodically try to resend messages. You can speed the process with **test trunk** grp#/mbr# and/or **test signaling-gr** #.
	Warning	The far-end trunk is being tested.	Check status of the far-end switch. Wait for testing to finish.
in-service	None	Normal operating state	

*ISDN-TRK alarms; alarms against other objects may also be present.

Error Log Entries and Test to Clear Values

Table 44. DS1 ISDN Trunk Error Log Entries

Error Type	Aux Data	Associated Test	Alarm Level	On/Off Board	Test to Clear Value
0*	0	Any	Any	Any	test port *GGGVSpp*
1(a)	Any	None			test port *GGGVSpp*
15(b)	Any	Audit and Update Test (#36)			
18	0	busyout trunk *grp/mbr*			release trunk *grp/mbr*
19(c)	0	None			
129(d)		None	WARNING	OFF	test port *GGGVSpp*
130(e)		None	WARNING	ON	test port *GGGVSpp*
257(f)	Any	None			test port *GGGVSpp*
513(g)	Any	None	WARNING	OFF	test port *GGGVSpp*
769(h)	Any	None			test port *GGGVSpp*
1025	0	None			
1793(i)	Any	None			test port *GGGVSpp*
3073(j)	Any	Service State Audit (#256)			test port *GGGVSpp*
3585(k)	Any	None			none
3841(l)	Any	None	WARNING	OFF	None

* Run the Short Test Sequence first. If all tests pass, run the Long Test Sequence. Refer to the appropriate test description and follow the recommended procedures.

** Major or minor alarms may be downgraded to Warning alarms based on the value used in the set options command.

Notes:

- (a) These Error Types indicate a disagreement between this switch and the switch at the other end of the trunk connection with regard to the ISDN call state of the DS1 ISDN Trunk. This switch will automatically try to recover by clearing the call, (that is, call will be torn down). You can use the **status trunk** group#/member# command to determine the state of the trunk.

  When running the Short Test Sequence of tests, pay close attention to the results of the Call State Audit Test (#257).

- (b) Software audit error and does not indicate a hardware malfunction. Run the Short Test Sequence and investigate associated errors.

- (c) Possible protocol mismatch or far-end may be out-of-service.

  Many truck problems are caused by incorrect settings of parameters on the trunk group administration form. Settings must be compatible with the local environment and with parameter

settings on the far-end. A DS1 ISDN trunk is a 64 Kbps bearer channel used to transmit digitized voice or data traffic. These trunks, or B-channels, use a separate channel, the D-channel for call-control signaling. This mode of operation is known as out-of-band signaling, as opposed to in-band, robbed-bit signaling, in which signaling is carried in the same channel as the voice or data traffic. One D-channel, or ISDN signaling link (ISDN-LNK), carries signaling messages for several B-channels, forming an ISDN signaling group (ISDN-GRP). A B-channel may be a port on DS1 MM. Two types of DS1 interfaces exist: (1) 24 DS0 channels on a 1.544 Mbps link or (2) 31 DS0 channels + 1 framing channel on a 2.048 Mbps link. For additional maintenance information, see also DS1-MM.

- (d) The far-end switch changed its ISDN service state to either *out-of-service* or *maintenance*. This may be a temporary condition due to testing of that trunk by the far-end, or a hardware problem with the trunk. Outgoing calls will not be allowed over the trunk. To investigate the status of the trunk, issue the **status trunk** group#/member# command.
- (e) This Error Type indicates that the Media Module has been removed or has been insane for more than 11 minutes. To clear the error, reinsert or replace the Media Module.
- (f) These Error Types indicate a disagreement between this switch and the switch at the other end of the trunk connection with regard to the ISDN service state of the DS1 ISDN Trunk. This switch will automatically try to recover by performing a service state audit. You can use the **status trunk** group#/member# command to determine the state of the trunk.

  When running the Short Test Sequence, pay close attention to the results of the Service State Audit Test (#256).
- (g) This trunk is not recognized by the far-end switch. Investigate the trunk administration for both switches and make changes as necessary.
- (h) An unexpected SERVICE or SERVICE ACK was received. Possibilities include:
  - Translations conflict
  - Protocol differences
  - ESS may be using NI3 protocol which is not currently implemented in MultiVantage
  - B-channel negotiation problem (glare)
- (i) This error indicates a failure of the DS1/MM-DS1 Interface Media Module. When running the Short Test Sequence, the results of the Signaling Link State Check Test (#255) are important.
- (j) Service State Audit attempt failed (see Test #256). The trunks will not be usable for any outgoing calls (although incoming calls will be accepted) until the test passes and the trunk state is changed to in-service (use **status trunk** group#/member# to investigate trunk status).
- (k) Error Type 3585 appears when the switch receives an ISDN RESTART message for an ISDN trunk. Calls are cleared with the RESTART message. Therefore, this Error Type may be associated with a dropped call report from a user.

  The following Aux Data values for Error Type 3585 represent the trunk's ISDN call state at the time the unexpected request to restart the channel was received from the remote switch. This information can be useful if dropped calls (cutoffs) are reported by users of the ISDN-PRI trunks.

  The meanings of Aux Data values are shown below; ignore any others.

Table 45. Aux Data Values

Aux Data	Cause
0	A idle trunk received a restart.
10	A call in a stable, talking state was cleared unexpectedly by the far-end with an ISDN RESTART message. This state is called the “active” state.
4 7 8 260 263	A call that has not reached the active state, but has at least reached a ringing state, was cleared unexpectedly by the far-end with an ISDN RESTART message.
1 3 6 9 265	A call that has not yet reached a ringing state was cleared unexpectedly by the far-end with an ISDN RESTART message.
11 12 19 531 267 268	A call that was in the process of clearing anyway has been cleared by the far-end with an ISDN RESTART message. If this condition occurs frequently, it may mean that the far-end is attempting to clear trunks that it thinks are in a “hung” state. The RESTART message brings the trunk to an idle condition.

- (l) An ISDN trunk selected by the near-end has been rejected 10 times by the far-end without a successful call. This may indicate a service state mismatch between the near-end and far-end for this trunk that is effecting the end user (that is, customer receives unexpected intercept tones when accessing ISDN trunks). This may indicate that the ISDN trunk is not administered on the far-end.

  The Aux field contains the physical name of the ISDN trunk in decimal. Then, verify that the far-end has this trunk administered.

  The Warning alarm will be retired automatically whenever an outgoing or incoming call that uses this trunk is answered by the called endpoint. If problems persist, then busy-out the ISDN trunk to take it out of the hunt group.

System Technician-Demanded Tests: Descriptions and Error Codes

Always investigate tests in the order presented in the table below when inspecting errors in the system. By clearing error codes associated with the *NPE Crosstalk Test*, for example, you may also clear errors generated from other tests in the testing sequence.

Table 46. System Technician-Demanded Tests: DS1-MM

Order of Investigation	Short Test Sequence	Long Test Sequence	D/ND*
NPE Crosstalk Test (#6) **Note:** This Test ABORTS when run on a Avaya G700 Media Gateway system.		X	ND
Conference Circuit Test (#7) **Note:** This Test ABORTS when run on a Avaya G700 Media Gateway system.		X	ND
Audit and Update Test (#36)	X	X	ND
Signaling Link State Check Test (#255)	X	X	ND
Service State Audit Test (#256)	X	X	ND
Call State Audit Test (#257)	X	X	ND
ISDN Test Call Test (#258) **Note:** This Test ABORTS when run on a Avaya G700 Media Gateway system.		X	ND
*D = Destructive, ND = Non-destructive			

Audit and Update Test (#36)

This test sends port level translation data from switch processor to the DS1 interface Media Module to assure that the trunk's translation is correct. The port audit operation verifies the consistency of the current state of trunk kept in the DS1 interface Media Module and in the switch software.

Table 47. TEST #36 Audit and Update Test

Error Code	Test Result	Description/ Recommendation
1018	ABORT	Maintenance is disabled on this trunk. Enable maintenance by entering "y" in the "Maintenance Tests?" field on page 2 of the **change trunk-group** form.
	ABORT	Internal system error
2000	ABORT	Response to the test request was not received within the allowable time period.
2100	ABORT	Could not allocate the necessary system resources to run this test.
	FAIL	Test failed due to internal system error. Retry the command at 1-minute intervals for a maximum of 5 times.

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Table 47. TEST #36 Audit and Update Test *Continued*

Error Code	Test Result	Description/ Recommendation
	PASS	Trunk translation has been updated successfully. The current trunk states kept in the DS1 interface Media Module and switch software are consistent.
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Ensure that the board translations are correct. Execute the **add ds1 GGGVS** command to administer the DS1-MM interface if it is not already administered. If the board was already administered correctly, check the error log to determine whether the board is hyperactive. If this is the case, the board is shut down. Reseating the board will re-initialize the board. If the board was found to be correctly inserted in step 1, then issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port.

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Signaling Link State Check Test (#255)

The DS1 ISDN Trunk depends on the health of the appropriate MM710 Interface Media Module. It also depends on the ISDN-PRI D-channel (ISDN-LNK) trunk. This test checks the status of those critical elements.

Table 48. TEST #255 Signaling Link State Check Test

Error Code	Test Result	Description/ Recommendation
None	ABORT	Internal system error
0	ABORT	
1114	ABORT	The signaling link is in a transitional state. Retry the command at 1-minute intervals for a maximum of 5 times.
1018	ABORT	Maintenance is disable on this trunk. Enable maintenance by entering “y” in the “Maintenance Tests?” field on page 2 of the **change trunk-group** form.

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Table 48. TEST #255 Signaling Link State Check Test

Error Code	Test Result	Description/ Recommendation
4	FAIL	There is a problem with the signaling channel. Consult the procedures for the ISDN-PRI Signaling Group (ISDN-SGRP). Further information may also be obtained by consulting the procedures for the ISDN-PRI Signaling Channel (ISDN-LNK).
8	FAIL	There is a problem with the DS1 interface Media Module. Consult the procedures for the appropriate DS1 interface Media Module (DS1-MM).
	PASS	The signaling link hardware is OK.
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Ensure that the board translations are correct. Execute the **add ds1 GGGVS** command to administer the DS1-MM interface if it is not already administered. If the board was already administered correctly, check the error log to determine whether the board is hyperactive. If this is the case, the board is shut down. Reseating the board will re-initialize the board. If the board was found to be correctly inserted in step 1, then issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port.

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Service State Audit (#256)

As noted in the general description for DS1 ISDN Trunk, these trunks may be in one of several service states. This test performs a Service State Audit with the far-end switch.

For interfaces using country protocol 1 (including the US) the Service State Audit executes in all trunk service states. A message is sent to the far-end switch to ensure that both sides agree on the service state. A PASS for this test simply means that the message has been successfully sent. Two minutes are allowed for a reply. If no reply is received within that 2 minute window, the message is sent out again. If that attempt fails, an Error Type 3073 will be logged and the switch will attempt another Service State Audit every 15 minutes. If the trunk was initially in-service, it is placed in the maintenance/far-end state. No outgoing calls will be placed over this trunk, but incoming calls will be accepted. If an incoming call is presented with the trunk in such a state, a Service State Audit is immediately be attempted (the switch does not wait for the 15-minute cycle, but tries to recover immediately).

For interfaces not using country protocol 1, the Service State Audit executes only if the trunk is in the out-of-service/far-end state. A message is sent to the far-end switch to attempt to bring the trunk back into the in-service state. A PASS for this test simply means that the message has been successfully sent. Two minutes are allowed for a reply. If no reply is received within that two minute window, the message is sent out again. If again no response is received within two minutes, the trunk remains in the out-of-service/far-end state. The switch will attempt another Service State Audit after an hour has passed.

To investigate the service state of the DS1 ISDN Trunk, issue the **status trunk** group#/member# command.

Table 49. TEST #256 Service State Audit Test

Error Code	Test Result	Description/ Recommendation
1000	ABORT	Resources required to run this test were not available. The port may be on a valid call or initializing. Use **status station** or **status trunk** to determine when the trunk is available for testing. Check the results of Test #255.
1018	ABORT	Maintenance is disabled on this trunk. Enable maintenance by entering “y” in the “Maintenance Tests?” field on page 2 of the **change trunk-group** form.
1113	ABORT	The signaling link has failed, so the system cannot send any messages on behalf of this trunk. Check the results of Test #255 and consult procedures for ISDN-SGR (ISDN-PRI Signaling Group) in this chapter.
1114	ABORT	The signaling link is in a transitional state. Retry the command at 1-minute intervals for a maximum of 5 times.
1116	ABORT	The trunk is not in the out-of-service/far-end state, which is required to run this test on systems using a country protocol other than 1.
1117	ABORT	A service state audit message is outstanding. Wait 2 minutes and then try again.
2100	ABORT	Could not allocate the necessary system resources to run this test. Retry the command at 1-minute intervals for a maximum of 5 times.
1113	FAIL	The signaling link has failed; the system cannot send any messages on behalf of this trunk. Consult procedures for ISDN-SGR (ISDN-PRI Signaling Group) and ISDN-LNK (ISDN Signaling Link Port).
	FAIL	Internal system error Retry the command at 1-minute intervals for a maximum of 5 times.

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Table 49. TEST #256 Service State Audit Test *Continued*

Error Code	Test Result	Description/ Recommendation
	PASS	Wait 4 minutes and then check the Error Log for any new errors of type 3073. If there are none, then both sides of the ISDN connection agree on the service state; the negotiation succeeded. If there is a new 3073 error, then the negotiation failed (the far-end switch twice failed to respond within 2 minutes). The switch will automatically retry every 15 minutes. If the trunk was initially in-service, it is now placed in the maintenance/far-end state. Incoming calls will be accepted, but no outgoing calls can be originated. If an incoming call is presented, another Service State Audit will be immediately performed in an attempt to put the DS1 ISDN Trunk in the proper state.
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Ensure that the board translations are correct. Execute the **add ds1 GGGVS** command to administer the DS1-MM interface if it is not already administered. If the board was already administered correctly, check the error log to determine whether the board is hyperactive. If this is the case, the board is shut down. Reseating the board will re-initialize the board. If the board was found to be correctly inserted in step 1, then issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port.

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Call State Audit Test (#257)

If a call is active on the trunk, the switches on both sides of the connection should agree on the ISDN state of the call, as defined in the ISDN Protocol Specification. This test audits internal call state data by querying the far-end switch as to the ISDN state of the call. It can be helpful when trying to clear a hung call. If the internal call state data on the near-end switch is different than that of the far-end switch, then *the call will be torn down*.

As with Test #256 (Service State Audit), a PASS simply means that an appropriate message was composed and sent to the far-end switch. The ISDN Specification allows up to 2 minutes for a reply. If a reply is not received within the 2 minute window, a protocol time-out violation will be recorded in the error log against the associated signaling channel (ISDN-LNK, Error Type 1).

Table 50. TEST #257 Call State Audit Test

Error Code	Test Result	Description/ Recommendation
1018	ABORT	Maintenance is disable on this trunk. Enable maintenance by entering “y” in the “Maintenance Tests?” field on page 2 of the **change trunk-group** form.
1019	ABORT	An audit is already in progress. Wait 2 minutes and try again.
1113	ABORT	The signaling link has failed, so the system cannot send any messages on behalf of this trunk. Check the results of Test #255 (Signaling Link State Check).
1114	ABORT	The signaling link is in a transitional state. Retry the command at 1-minute intervals for a maximum of 5 times.
1116	ABORT	The trunk is in an out-of-service ISDN service state. A call cannot be present if the trunk is in an ISDN out-of-service state, so a call state audit would be inappropriate. No action necessary. (Use the **status trunk** group#/member# command to investigate the ISDN state of the trunk).
2100	ABORT	Could not allocate the necessary system resources to run this test. Retry the command at 1-minute intervals for a maximum of 5 times.
	FAIL	Internal system error Retry the command at 1-minute intervals for a maximum of 5 times.
	PASS	This switch sent a call state auditing message to the far-end switch to verify the state of the call active on this trunk. If a call state mismatch is found, then the call will be torn down within two minutes. If no call was active, then no message was sent.
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Ensure that the board translations are correct. Execute the **add ds1 GGGVS** command to administer the DS1-MM interface if it is not already administered. If the board was already administered correctly, check the error log to determine whether the board is hyperactive. If this is the case, the board is shut down. Reseating the board will re-initialize the board. If the board was found to be correctly inserted in step 1, then issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port.

MED-GTWY (MEDIA GATEWAY)

Table 51. MED-GTWY (Media Gateway)

MO Name (in Alarm Log)	Alarm Level	Initial Command to Run*	Full Name of MO
MED-GTWY	MAJOR	test board GGGVS	MEDIA GATEWAY
Note: You must consult local records for the location and designation of the equipment rack where the G700 is mounted.			

This maintenance object monitors the H.248 link to the Avaya G700 Media Gateway. It logs errors when the Keep Alive messages that are exchanged between the server and G700 fail. These messages indicate the status of the H.248 link between the two. If the keep alive messages are active all is well, if not an error is logged.

Error log entries and test to clear values

Table 52. MED-GTWY error log entries

Error Type	Aux Data	Associated Test	Alarm Level	On/Off Board	Test to Clear Value
1(a)		None	MAJOR	OFF	
257(b)		None	MAJOR	OFF	
513 (c)		None	MAJOR	ON	

Notes:

- **(a) Error Type 1**: this error type indicates a failure of the H.248 link keep alive messages between the server and G700. This is an indication that the LAN or the platform is down.
- **(b) Error Type 257**: this error type is logged on an LSP and indicates that the primary server is down and is experiencing hardware/software problem/s. Error Type 257 will be logged against this LSP.
- **(c) Error Type 513**: this error type indicates that there is a problem on the G700. Log on to that G700 and check the error log for problems.

System Technician-Demanded Tests: Descriptions and Error Codes

There are no System Technician-Demanded Tests associated with this MO.

MG-ANA (ANALOG MM711)

Note: For more information, refer to the MO XXX-BD section of this document. In addition, refer to the AN-LN-PT MO and to the CO-TRK MO.

Table 53. MG-ANA (ANALOG MM711)

MO Name (in Alarm Log)	For Location	Full Name of MO
MG-ANA	GGGVSPP	ANALOG MEDIA MODULE
Note: You must consult local records for the location and designation of the equipment rack where the G700 is mounted.		

The MM711 Analog Trunk and Line Media Module provides 8 ports, any of which may be administered as one of the following:

Table 54. MM711 Analog Trunk and Line Media Module – port administration

Function	Group Type	Trunk Type	LED MWI
Central Office trunk (CO)	co fx wats	loop start ground start	
CAMA/E911 trunk	cama	loop start	
Direct Inward Dialing (DID) trunk	did	wink start immed start	
Analog Line on-or-off premises	n/a	n/a	with/ without MWI

The MM 711 Analog Media Module supports eight analog interfaces allowing the connectivity of Loop Start, Ground Start, Analog DID trunks, and 2-wire analog Outgoing CAMA E911 trunks. As well, the MM711 Analog Media Module allows connectivity of analog, tip/ring devices such as single line telephones, modems, or group 3 fax machines. Each port may be configured as either a trunk interface or a station interface.

Also included is support for caller ID signaling, ring voltage generation for a variety of international frequencies and cadences and administrable line termination styles.

The MM711 Analog Trunk and Line Media Module does not support Neon Lamp Message Waiting Indication (MWI). No maintenance of the terminal connected to the Neon Analog Line Media Module is performed.

System Technician-Demanded Tests: Descriptions and Error Codes

CAUTION: Always investigate tests in the order they are presented in the table below when inspecting errors in the system. By clearing error codes associated with the NPE *Crosstalk Test,* for example, you may also clear errors generated from other tests in the testing sequence.

Table 55. Order of Investigation

Order of Investigation	Short Test Sequence	Long Test Sequence	Reset Board Sequence	D/ND*
NPE Audit Test (#50) **Note:** *This test will abort with Error Code 1412.*		X		ND
Ringing Application Test (#51) Aborts with code 1412				
Control Channel Looparound Test (#52)	X	X		ND
SAKI Sanity Test (#53)		X	D	
NEON Test (#220) Aborts with code 1412				
*D = Destructive; ND = Nondestructive				

For hardware error log entries and for more information on the tests listed in the table above refer to "MO XXX-BD (common port Media Module)" maintenance object documentation.

MG-ANN (Voice Announcements)

Voice Announcements over the LAN

The ANN-VMM (Voice Announcements) maintenance object provides per board announcement storage time of up to 20 minutes, (15 playback ports and 1 recording port that can also be used as a playback port) and allows for announcement file portability via LAN connectivity. ANN-VMM also allows for LAN backup and restore of announcement files and the use of customer provided waveform (.WAV) files.

The ANN-VMM hardware is located on the G700 mother board. MultiVantage maintenance software supports the ANN-VMM by using a virtual board concept to allow for board insertion and maintenance testing. The virtual slot location is V9.

System Technician-Demanded Tests: Descriptions and Error Codes

There are no System Technician-Demanded Tests for this MO.

MG-BRI (BRI Trunk Media Module MM720)

Table 56. MG-BRI (BRI Trunk Media Module MM720

MO Name (in Alarm Log)	Alarm Level	Initial Command to Run*	Full Name of MO
MG-BRI	MINOR	test board *GGGVM**	MO_MG_BRI

* Where *GGG* is the administered Media Gateway number, *VM* is the Media Module slot number (V1, if no S8300, through V4), and, if required in a port command, *pp* is a two-digit port number (01 - 08).

The MM720 BRI Media Module contains eight, 4-wire ports that interface to the network at the ISDN S/T reference point over two 64 Kb/s channels (B1 and B2) and over a 16Kb/s signaling (D) channel.

LEDs

The three LEDs on the Media Module faceplate indicate board status. When illuminated, the red LED indicates a board failure or a major or minor on-board alarm, the green LED indicates that testing is in progress, and the amber LED indicates that the board is in use.

ISDN Interface Reference Points

Figure 11 shows, for a generic integrated trunk-side BRI, the ISDN Interface Reference Points. Table 57 gives definitions for the generic ISDN Interface Reference Points.

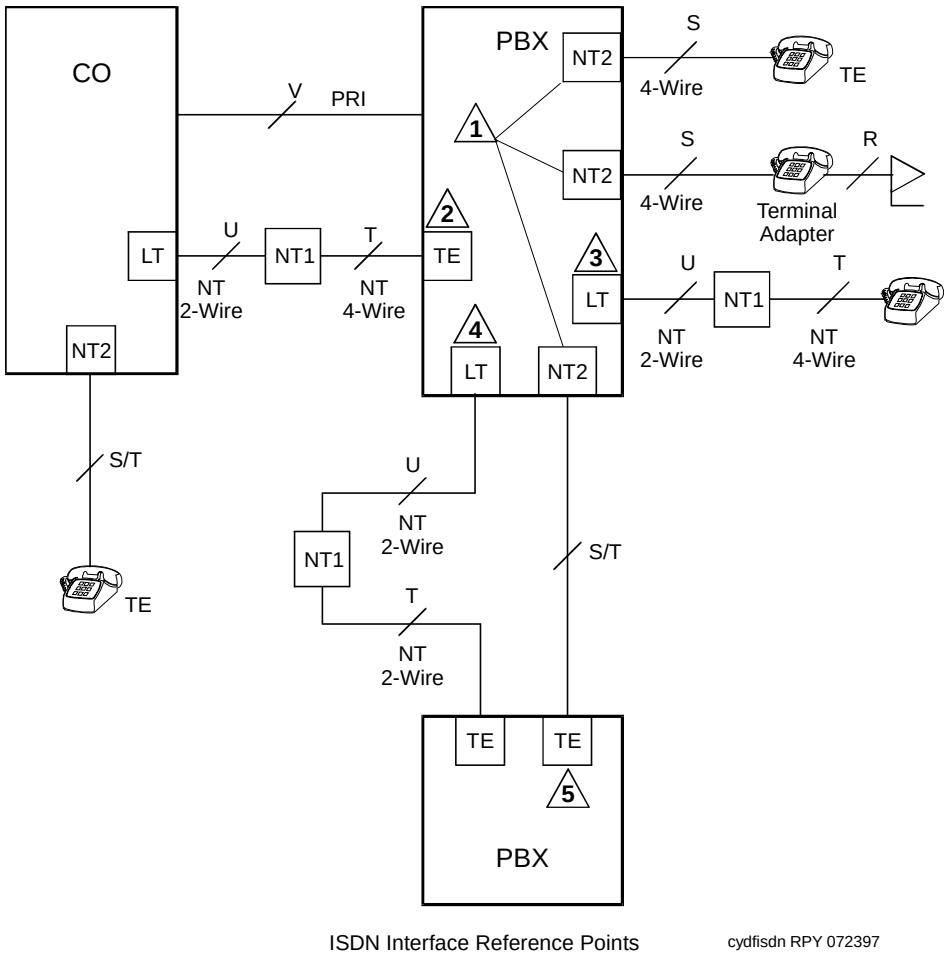

Figure 11. Integrated Trunk-Side BRI, ISDN Interface Reference Points

Table 57. ISDN Interface Reference Point definitions

LT	Logical Terminal
V	Primary Rate user/network (asymmetrical) trunk interface. The ECS is capable of acting as the user or as the network side of this 1.544 - or 2.048-Mbps interface.
R	Interface between Terminal Equipment and Network Termination
S	Basic Rate network-side 4-wire line interface
S/T	4-wire Basic Rate connection to a Network Termination*.
T	4-wire Basic Rate interface to a Network Termination.†
TE	Terminal Equipment
U	Basic Rate network-side 2-wire line interface.
1	TN556B ISDN-BRI 4-Wire S/T-NT Line (A-law)
2	TN 2185 ISDN-BRI 4-Wire S Interface (Trunk Side)

Table 57. ISDN Interface Reference Point definitions

3	TN2198 ISDN-BRI 2-Wire U Interface
4	TN2198 ISDN-BRI 2-Wire U Interface
5	TN 2185 ISDN-BRI 4-Wire S Interface (Trunk Side)

* Network Termination 2 (NT2), that terminates Layer 1 and higher layers. PBXs, LANs, and terminal controllers typically provide NT2 functionality including protocol handling and multiplexing for Layers 2 and 3.

† Network Termination 1 (NT1), that terminates Layer 1 and monitors maintenance, performance, timing, power transfer, multiplexing, and multi-drop termination with contention resolution.

Error Log Entries and Test to Clear Values

Table 58. Error Log Entries and Test to Clear Values

Error Type	Aux Data	Associated Test	Alarm Level	On/Off Board	Test to Clear Value
0*	0	Any	Any	Any	test board GGGVM sh r 1
1 (a)	Any	None	MINOR	ON	
257 (b)	65535	Control Channel Loop Test (#52)	MINOR	ON	test board GGGVM r 20
513 (c)	4352 to 4357		None	ON	
769 (d)	4358				
1025 (e)		NPE/NCE Audit Test (#50)	None	ON	
1291 (f)	4359	Clear Error Counters (#270)	MINOR	ON	
3586 (g)			MINOR	OFF	
3840(h)	4096 to 4101				
3842 (i)	46095				
3843 (j)	46097				

* Run the Short Test Sequence first. If all tests pass, run the Long Test Sequence. Refer to the appropriate test description and follow the recommended procedures.

Notes:

- (a) Error Type 1 – The circuit pack stopped functioning or is physically removed from the system.

This alarm logs approximately 11 minutes after removing the circuit pack and/or the SAKI Sanity Test (#53) fails.

If the circuit pack is not in the system, insert a circuit pack in the same slot as the error indicates. See note (g).

- (b) Error Type 257 – Transient communication problems between the switch and this circuit pack. Execute the **test board GGGVM** command and refer to the repair procedures for the Control Channel Loop Around Test (#52).
- (c) Error Type 513 – On-board hardware failure. Aux data values correspond to the following detected errors:

Aux Value	Detected Error
4352	External RAM error
4353	Internal RAM error
4355	ROM Checksum error
4357	Instruction set error

Reset the circuit pack with the **busyout board GGGVM** and **reset board GGGVM** commands. When reset, the circuit pack executes a set of tests to detect the presence of any of the faults listed above. Detection of one of these errors during initialization causes the circuit pack to lock-up and appear insane to the system. See the repair procedure in Note ().

- (d) Error Type 769 – The circuit pack detects a program logic error. While no action is required, this error can lead to other errors against this circuit pack.
- (e) Error Type 1025 – The circuit pack cannot update and read back NPE/NCE memory. This error can be ignored, but may lead to other errors against this circuit pack.
- (f) Error Type 1291 – The MM720 BRI Media Module notifies maintenance software that it has detected a parity error while accessing its dynamic RAM (that stores the board's translation information and downloadable application firmware). Maintenance software resets the circuit pack.
- (g) Error Type 3586 – The SPE software detects an excessive number of up-link messages from the TN2185 board within a certain time period. To prevent the faulty board from flooding the switch with data, the switch software takes the board out of service and alarms it. The switch software also tells the Archangel to ignore up-link messages from the board.

  When the board is alarmed due to this error, the switch software periodically puts the board back in service and tells the Archangel to process up-link messages from the board. If the problem still exists, the software takes the circuit pack out of service again. If the circuit pack does not exhibit the problem for a certain time period, then maintenance software resolves the alarm and the circuit pack is left in service.
- (h) Error Type 3840 – The circuit pack received an inconsistent down-link message (a bad header, port number, data, subqualifier, or logical link) over the Control Channel.

- (i) Error Type 3842 – The board is receiving data from the bus faster than it can distribute the data to its endpoints, causing the FIFO RAM buffer to overflow. This error can occur occasionally due to the statistical sizing of the buffers. If it occurs frequently, it may indicate a LAPD parameter mismatch. LAPD should recover from this problem, but it may degrade the performance of the LAN bus.

  When this error is reported, maintenance reads and clears the board counter and logs the problem in the maintenance error log.

- (j) Error Type 3843 – Bad translation RAM detected, but the call continues by using another translation location. The circuit pack reports this error when it cannot update NPE/NCE memory and read it back. This error is not service-affecting and can be ignored, but can lead to other types of errors against this circuit pack.

System Technician-Demanded Tests: Descriptions and Error Codes

When inspecting errors in the system, always investigate tests in the order listed below. By clearing error codes associated with the *Control Channel Loop Around Test*, for example, you may also clear errors generated from other tests in the testing sequence.

Order of Investigation	Short Test Sequence	Long Test Sequence	D/ND*
Control Channel Loop-Around Test (#52)	X	X	ND
NPE/NCE Audit Test (#50) Aborts with Error Code 1412		X	ND
LAN Receive Parity Error Counter Test (#595) Aborts with Error Code 1412		X	ND
SAKI Sanity Test (#53)		X	D

* D = Destructive; ND = Nondestructive

Control Channel Loop Around Test (#52)

Refer to the repair procedure described in the "XXX-BD (Common Port Circuit Pack)" section.

NPE /NCE Audit Test (#50)

This test will abort with ABORT CODE 1412. This test is an audit that sends network update messages to various ports on a board. Since the Media Server does not handle network connections for the Media Gateway, this test is not intended to be run.

SAKI Sanity Test (#53)

CAUTION:
This test is destructive.

Refer to the repair procedure described in the "XXX-BD (Common Port Circuit Pack)" section. This test is only run as a part of a reset board procedure.

LAN Receive Parity Error Counter Test (#595)

This test aborts with Error Code 1412. The test reads and clears a circuit pack's LAN Receive Parity Error Counter.

MG-DCP (Digital Line Media Module)

DIG-LINE maintenance monitors and tests ports on digital line Media Modules and the hardware connected to those ports for lines administered as a digital station. Media Gateway-level maintenance is covered by "MG-DCP" whose strategy is described in the "XXX-BD (Common Port Media Module)" section.

Table 59. MG-DCP (MM712 Digital Line Media Module)

MO Name (in Alarm Log)	Alarm Level	Initial Command to Run*	Full Name of MO
MG-DCP	MIN	test board GGGVS sh	Digital Line Media Module
MG-DCP	WRN	test board GGGVS sh	Digital Line Media Module
Note: You must consult local records for the location and designation of the equipment rack where the G700 is mounted.			

Note: Refer to XXX-BD (Common Port Media Module) for Media Module level errors. See also "DIG-LINE" for related line information.

MG-DS1 (DS1 Interface Media Module)

Table 60. MG-DS1 (DS1 Interface Media Module)

MO Name (in Alarm Log)	Alarm Level	Initial Command to Run*	Full Name of MO
MG-DS1	MAJOR	test board GGGVS sh	DS1 Interface Media Module
MG-DS1	MINOR	test board GGGVS l	DS1 Interface Media Module
MG-DS1	WARNING	test board GGGVS sh	DS1 Interface Media Module
NOTE: You must consult local records for the location and designation of the equipment rack where the G700 is mounted.			

MM710 MM-DS1 Media Module With Echo Cancellation

The MM710 Media Module features an integrated echo canceller. Echo cancellation supports channels carrying voice and is not intended for channels that support data. The MM710 has the capability to detect modem tone and turn off echo cancellation accordingly for the duration of a data call. Echo cancellation on the MM710 will be administrable per channel. The echo cancellation circuitry on a given MM710 is driven by administrable parameters.

The MM710 Media Modules are intended for use with ATM, IP, wideband, or other complex services which are likely to have problems with echo.

The echo cancellation circuitry on a given MM710 is a right-to-use feature activated on the System-Parameters Customer-Options form. Also on this form is a field `Maximum Number of DS1 Boards with Echo Cancellation` that indicates the number of DS1 boards on which echo cancellation is activated for a specific customer.

The DS1 MEDIA MODULE form for the MM710 Media Module has fields to support echo cancellation: `Echo Cancellation?`, `EC Direction`, and `EC Configuration`. The `Echo Cancellation?` field displays only if the Echo Cancellation feature has been activated on the **System-Parameters Customer Options** form by entering a `y` in the `DS1 Echo Cancellation?` field. The `EC Direction` and `EC Configuration` fields do not display unless the user has entered `y` in the `DS1 Echo Cancellation?` field.

- EC Direction determines the direction from which echo will be eliminated, ether inward or outward.
- EC Configuration is the set of parameters that will be used when cancelling echo. This information is stored in firmware on the DS1-MM Media Module.

Echo cancellation is turned on or off on a trunk group basis using the **change trunk-group** command. If the TRUNK GROUP field, `DS1 Echo Cancellation?` is set to `y`, echo cancellation will be applied to every MM710 trunk member in that trunk group. The echo cancellation parameters used for a given trunk member are determined by the Echo Cancellation Configuration Number administered on the **DS1 Media Module** form for that specific trunk's board.

Echo cancellation on the MM710 is selectable per channel, even though it is administrable on a trunk group basis. For example, if all but two ports on a MM710 need to have echo cancellation applied, those two ports must be put in a trunk group where the `DS1 Echo Cancellation` field is set to `n`. The remaining ports will be in a trunk group(s) where the `DS1 Echo Cancellation` field is set to `y`. A user will have the ability to cancel echo coming from the network (far-end echo) or coming from the switch (near-end echo).

The MM710 DS1 Media Module

The MM710 Universal DS1 Interface Media Module provide an interface to the DS1 facility, and are designed to support 24 DS0 channels on a 1.544 Mbps DS1 link, or 32 DS0 channels on a 2.048 Mbps link. The DS0 channels can be administered as trunks to other switches, lines to off-premises stations, ports to line-side PRI terminating devices, or ports to other line-side non-PRI terminating devices. (DS0 channels on the DS1-MM can only be administered as trunks to other switches.) For more information on how MM710 ports can be used, see the maintenance objects (MOs): ISDN-SGR, ISDN-TRK, ISDN-LNK, TIE-DS1, CO-DS1, DID-DS1, and WAE-PT.

Note: The MM710 provides Echo Cancellation, and in addition, the MM710 firmware may be updated using the firmware download feature.

The DS1-MM maintenance strategy includes logging in-line errors reported by the DS1-MM Media Module, running tests for error diagnosis and recovery, and raising or clearing maintenance alarms.

MM710 Media Modules support the following:

- Digital Tie, CO, and DID trunks
- DS1 off-premises (OPS) lines
- Narrowband and wideband access endpoint ports
- ISDN-PRI trunks and accompanying signaling channel
- PRI endpoint ports (PE-BCHL) and accompanying signaling channel

Each trunk, line, or endpoint has its own maintenance strategy, but all depend on the health of the DS1-MM Interface Media Module. Refer to the following MOs for details: TIE-DS1, CO-DS1, DID-DS1, OPS-LINE, ISDN-TRK, ISDN-LNK, ISDN-SGR, WAE-PT and PE-BCHL.

Media Module Administration and Options

The DS1 configuration for each Media Module is administered on the **DS1 Media Module** form. `Bit Rate` is set to 1.544 Mbps for 24-channel systems, and 2.048 Mbps for 32-channel systems. `Country Protocol` is used to drive layer 3 protocol decisions based on PRI specifications specific to a given country (not those related to specific features). This Country Protocol is independent of the `Country` parameter administered on the **country-options system-parameters** form. Different DS1-MM Media Modules may be administered with different Country

Protocols, allowing the switch to act as a gateway between two incompatible ISDN-PRI implementations (for example, between two different countries). US systems use country protocol 1.

Error Log Entries and Test to Clear Values

Table 61. DS1 Interface Media Module Maintenance Error Log Entries

Error Type	Aux Data	Associated Test	Alarm Level	On/Off Board	Test to Clear Value
0*	0	Any	Any	Any	test board GGGVS
1(a)	0	Media Gateway removed or SAKI Test (#53)	MIN/WRN**	ON	
18(b)	0	busyout board GGGVSpp	WARNING	OFF	release board GGGVS
23(c)	0		WARNING	OFF	add ds1 GGGVS
125(d)	none 3	None	MIN/WRN**	ON	
257	65535	Control Channel Loop Test (#52)	MINOR	ON	test board GGGVS l r 20
257(e)	Any	None			
513(f)	Any		MIN/WRN**	ON	
514(g)	46086		MIN/WRN**	ON	
769(h)	46085		MIN/WRN**	ON	
770(i)	46096		MIN/WRN**	ON	
1281	Any	Loss of Signal Alarm Inquiry Test (#138)	MIN/WRN**	OFF	test board GGGVS
1320	Any	Loss of Signal Alarm Inquiry Test (#138)	MIN/WRN**	OFF	test board GGGVS
1321	Any	Loss of Signal Alarm Inquiry Test (#138)	MIN/WRN**	OFF	test board GGGVS
1322	Any	Loss of Signal Alarm Inquiry Test (#138)	MINOR	ON	test board GGGVS
1323	Any	Loss of Signal Alarm Inquiry Test (#138)	MIN/WRN**	OFF	test board GGGVS

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Table 61. DS1 Interface Media Module Maintenance Error Log Entries *Continued*

Error Type	Aux Data	Associated Test	Alarm Level	On/Off Board	Test to Clear Value
1324	Any	Loss of Signal Alarm Inquiry Test (#138)	WARNING	OFF	test board GGGVS
1400, 1401(j)	Any	Loss of Signal Alarm Inquiry Test (#138) and Echo Cancellation Test (#1420)	MINOR	ON	test board GGGVS
1537(k)	46082		MIN/WRN**	ON	
1538(l)	Any		MIN/WRN**	ON	
1793	Any	Blue Alarm Inquiry Test (#139)	MAJ/MIN /WRN ***	OFF	test board GGGVS
1794	Any	Blue Alarm Inquiry Test (#139)	MAJ/MIN /WRN***	OFF	test board GGGVS
1795	Any	Blue Alarm Inquiry Test (#139)	MAJ/MIN /WNG***	OFF	test board GGGVS
2049	Any	Red Alarm Inquiry Test (#140)	MIN/WRN**	OFF	test board GGGVS
2305	Any	Yellow Alarm Inquiry Test (#141)	MIN/WRN**	OFF	test board GGGVS
2306	Any	Yellow Alarm Inquiry Test (#141)	MIN/WRN**	OFF	test Board GGGVS
2561	Any	Major Alarm Inquiry Test (#142)	MIN/WRN**	OFF	test board GGGVS
2817		Minor Alarm Inquiry Test (#143)	MIN/WRN**	OFF	test board GGGVS
3073 to 3160 (m)	Any	Slip Alarm Inquiry Test (#144)	MIN/WRN**	OFF	test board GGGVS r 6
3585 to 3601 (o)	Any	Misframe Alarm Inquiry Test (#145)	MIN/WRN**	OFF	test board GGGVS r 6
3840(p)	Any	None			
3841(q)	4358				
3842(r)	46097				
3999(t)	Any	None			

*Run the Short Test Sequence first. If all tests pass, run the Long Test Sequence. Refer to the appropriate test description and follow the recommended procedures.

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Table 61. DS1 Interface Media Module Maintenance Error Log Entries *Continued*

Error Type	Aux Data	Associated Test	Alarm Level	On/Off Board	Test to Clear Value
**If ports are assigned to the Media Module, then a minor alarm is raised. If no ports are assigned to the Media Module, then a warning alarm is raised. The alarm is raised after the Media Module has been missing for a period of 15 minutes. Warning alarms are also raised against any ports administered on the Media Module.					
***Minor alarms on this MO may be downgraded to warning alarms based on values set in the **set options** command.					
Major alarms on this MO may be downgraded to minor or warning alarms based on values set in the **set options** command.					
					3 of 3

Notes:

- **(a) Error Type 1**

  Indicates that the Media Module has totally stopped functioning or is not fully administered. The alarm is logged about 15 minutes after the Media Module has been removed or 11-minutes after the SAKI Test (#53) fails.

  To be fully administered, a DS1-MM must meet all three of the following conditions:

  - Have an entry in the circuit plan using the **change media module** command
  - Be administered using the **add ds1 GGGVS** command
  - Be physically inserted into the correct slot

  If the Media Module has an entry in the circuit plan and either of the other two conditions are *not* met, a MINOR alarm is logged. To resolve the error either:

  - Make sure that all conditions for administration are met and that a functioning DS1-MM is inserted in the correct slot, or
  - Completely remove the DS1-MM from the system using the following steps:

1. Remove any administered DS1 trunks, access endpoints or PRI endpoints associated with the Media Module from their trunk groups.
2. Execute the **remove ds1 GGGVS** and **change media module GGGVS** commands.

- **(b) Error Type 18** — The MG-DS1 Interface Media Module has been busied out by a **busyout board GGGVS** command.
- **(c) Error Type 23** — The MG-DS1 Media Module is not completely administered. To be fully administered, the MG-DS1 Media Module must:

  - Have an entry in the circuit plan using the **change media module** command,
  - Be administered using the **add ds1 GGGVS** command, and

  Be physically inserted into the correct slot.

  A DS1 (DS1-MM, DS1-BD) differs from most Media Modules in that inserting the Media Module into the switch is not enough to make the board usable. It must also be administered with the **add ds1** command.

- **(d) Error Type 125: No Aux Data**

  An incorrect Media Module is inserted in the slot where the DS1-MM Media Module is logically administered. To resolve this problem, either remove the incorrect Media Module and insert the logically administered Media Module, OR use the **change circuit-pack** command to re-administer this slot to match the Media Module inserted.

- **(e) Error Type 257**

  This error is associated with the Common Port Media Module Maintenance Test. Refer to XXX-BD (Common Port Media Module) Maintenance documentation for details.

- **(f) Error Type 513**

  The DS1-MM (MM710) has detected a transient hardware problem. The value in the Aux Data field indicates the type of hardware problem:

Aux Data	Problem
4352	External RAM failure
4353	Internal RAM failure
4355	Internal ROM failure

  If the board detects only one of these hardware problems, then the error will disappear when none of these faults are detected for 10 minutes. If the same Aux Data value is logged more than once in a 24 hour period, the Media Module should be replaced.

- **(g) Error Type 514**

  LAN External RAM Error. This error occurs when there is a hardware fault in the PPE external RAM. The RAM is used for message buffering to and from the Packet Bus. This error should not occur frequently. If it does (10 times within 30 minutes), the Media Module should be replaced.

- **(h) Error Type 769**

  Transmit FIFO Underflow Error. This error occurs when the Media Module cannot find the end of frame bit when transmitting a frame to the Packet Bus. An alarm is raised if this error occurs three times within 10 minutes. Clear the alarm using the following commands: **busyout board GGGVS**, **reset board GGGVS**, **test board GGGVS long**, **release board GGGVS**. If the error recurs within 10 minutes, replace the Media Module.

- **(i) Error Type 770**

  Unable to Write LAN Translation RAM Error. This error occurs when a call is aborted because there are no available translation RAM locations for the call connection attempt. An alarm is raised if this error occurs two times within 10 minutes. Clear the alarm using the following commands: **busyout board GGGVS**, **reset board GGGVS**, **test board GGGVS long**, **release board GGGVS**. If the error recurs within 10 minutes, replace the Media Module.

- **(j) Error Types 1400, 1401**

  Echo Cancellation errors are logged when:

  - Error 1400 - Echo canceller function failed. The Echo Canceller Function Test, which is executed by firmware, failed.
  - Error 1401 - Echo canceller memory failed. The Echo Canceller Memory Test, which is executed by firmware, failed.

Echo Cancellation is no longer being supplied by the board. Clear the alarm using the following commands: **busyout board GGGVS**, **test board GGGVS long**, **release board GGGVS**. If Test #1420 (Echo Canceler Test) fails, replace the Media Module.

- **(k) Error type 1537**

  LAN Bus Timeout Error. This error occurs when the Media Module transmits too many bytes on the LAN bus for a single frame. This condition may be caused by an on-board fault or by faulty data received on one of the Media Module's external ports. If any of the ports on this Media Module are alarmed, refer to the repair procedures for those maintenance objects.

  If the error occurs three times within 10 minutes, the board is isolated from the Packet Bus and the board alarmed. To clear the alarm and restore the board to the Packet Bus, use the commands **busyout board GGGVS**, **reset board GGGVS**, **test board GGGVS long**, **release board GGGVS**.

  If the problem persists, and there are no PKT-BUS alarms or port alarms, then replace the Media Module.

- **(l) Error Type 1538**

  The hyperactive Media Module is out-of-service and may exhibit one or more of the following symptoms:

  - The common Media Module level tests such as Test #50 abort with error code 2000
  - The tests run on the ports of this Media Module return a NO-BOARD result
  - A busyout/release of the Media Module has no affect on test results
  - A **list configuration** command shows that the Media Module and ports are properly installed

  The Media Module is isolated from the system and all trunks or ports on this Media Module are placed into the out-of-service state. The system will try to restore the Media Module within 20-30 minutes. When no faults are detected for 20-30 minutes, the DS1-MM is restored to normal operation. All trunks or ports of the DS1-MM are then returned to the in-service state.

  If the board is not restored to normal operation, or the error recurs after the board was restored to normal operation, escalate the problem.

- **(m) Error Types 3073 to 3160**

  Error Type 3073 shows that this board is receiving slips and the AUX Data 'minus 3072' shows the last slip count reported.

- **(o) Error Types 3585 to 3601**

  Error Type 3585 shows that this board is receiving misframes, and the AUX Data 'minus 3584' shows the last misframe count reported.

- **(p) Error Type 3840**

This error type is not service-affecting. No action is required. These errors are reported by the Media Module when it receives a bad control channel message from the switch. The auxiliary data identifies the following error events:

Aux Data	Event
4096	Bad major heading
4097	Bad port number
4098	Bad data
4099	Bad sub-qualifier
4100	State inconsistency
4101	Bad logical link

- **(q) Error Type 3841**

  The DS1-MM (MM710) has detected a transient hardware logic error (for example, program logic inconsistency). This error will disappear when no faults are detected for 100 minutes.

- **(r) Error Type 3842**

  Bad Translation RAM Location Found Error. This error is not service-affecting. No action is required. A Bad Translation RAM is detected, but the call continues by using another translation location.

- **(t) Error Type 3999**

  indicates that the Media Module sent a large number of control channel messages to the switch within a short period of time. If Error Type 1538 is also present, then the Media Module was taken out-of-service due to hyperactivity. If Error Type 1538 is not present, then the Media Module has not been taken out-of-service, but it has generated 50% of the messages necessary to be considered hyperactive. This may be completely normal during heavy traffic periods. However, if this error type is logged when the Media Module is being lightly used, it may indicate a problem with the Media Module or the equipment attached to it.

System Technician-Demanded Tests: Descriptions and Error Codes

Investigate tests in the order they are presented in Table 62. By clearing error codes associated with the Echo Cancellation Test, for example, you may also clear errors generated from other tests in the testing sequence.

Table 62. Technician-Demanded Tests

Order of Investigation	Short Test Sequence	Long Test Sequence	Reset Board Sequence	test ds1-loop	D/ND*
Echo Cancellation Test (#1420)		X			D

Table 62. Technician-Demanded Tests *Continued*

Order of Investigation	Short Test Sequence	Long Test Sequence	Reset Board Sequence	test ds1-loop	D/ND*
Control Channel Loop Test (#52)		X			ND
NPE Connection Audit Test (#50) **NOTE:** This test will ABORT with Error Code 1412					
Loss of Signal Alarm Inquiry Test (#138)	X	X			ND
Blue Alarm Inquiry Test (#139)	X	X			ND
Red Alarm Inquiry Test (#140)	X	X			ND
Yellow Alarm Inquiry Test (#141)	X	X			ND
Major Alarm Inquiry Test (#142)	X	X			ND
Minor Alarm Inquiry Test (#143)	X	X			ND
Slip Alarm Inquiry Test (#144)	X	X			ND
Misframe Alarm Inquiry Test (#145)	X	X			ND
Translation Update Test (#146)	X	X			ND
SAKI Sanity Test (#53)			X		D
Internal Looparound Test (#135) **Note:** This test will ABORT with Error Code 1412			X		D
*D = Destructive; ND = Nondestructive					

Control Channel Looparound Test (#52)

This test queries the Media Module for its Media Module code and vintage and verifies its records.

Table 63. Test #52 Control Channel Looparound Test

Error Code	Test Result	Description/ Recommendation
None 2100	ABORT	System resources required for this test are not available. Retry the command at 1-minute intervals a maximum of 5 times.
	FAIL	The Media Module failed to return the Media Module code or vintage. Retry the command a maximum of 5 times. If the problem continues, replace the Media Module. Retry the command a few times a maximum of 5 times.
	PASS	Communication with this Media Module is successful.
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Ensure that the board translations are correct. Execute the **add ds1 GGGVS** command to administer the DS1-MM if it is not already administered. If the board was already administered correctly, check the error log to determine whether the board is hyperactive. If this is the case, the board is shut down. Reseating the board will re-initialize the board. If the board was found to be correctly inserted in step 1, then issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port.

SAKI Sanity Test (#53)

CAUTION: This test resets the Media Module. The test is highly destructive and can only be initiated by a system technician-demanded **reset board GGGVS** command.

Table 64. Test #53 SAKI Sanity Test

Error Code	Test Result	Description/ Recommendation
None	ABORT	System resources required for this test are not available. Retry the **reset board** command at 1-minute intervals a maximum of 5 times.
1005	ABORT	Wrong Media Module configuration to run this test. This error applies only to DS1 Interface Media Modules. It means the DS1 Interface Media Module is providing timing for the system, and therefore, it cannot be reset without major system disruptions. If the Media Module needs to be reset, then set synchronization to another DS1 Interface Media Module or to the Tone-Clock Media Module and try again.
1015	ABORT	Port is not out-of-service. Busyout the Media Module. Execute the **reset board** command again.
2100	ABORT	System resources required for this test are not available. Retry the **reset board** command at 1-minute intervals a maximum of 5 times.
1	FAIL	The Media Module failed to reset.
2	FAIL	The Media Module failed to restart. Execute the **reset board** command again. If the problem persists, replace the Media Module.
	PASS	The Media Module initializes correctly. Run the Short Test Sequence.

Table 64. Test #53 SAKI Sanity Test *Continued*

Error Code	Test Result	Description/ Recommendation
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Ensure that the board translations are correct. Execute the **add ds1 GGGVS** command to administer the DS1-MM interface if it is not already administered. If the board was already administered correctly, check the error log to determine whether the board is hyperactive. If this is the case, the board is shut down. Reseating the board will re-initialize the board. If the board was found to be correctly inserted in step 1, then issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port.

Loss of Signal Alarm Inquiry Test (#138)

This test verifies the synchronization status, echo cancellation, and continuity of the DS1 link. The Loss of Signal alarm indicates that the MM710 Interface Media Module is unable to derive the synchronization clock from the DS1 facility. When the MM710 Interface Media Module detects a Loss of Signal alarm, it stops providing the synchronization clock for the system, if it is administered as a timing source, and transmits a Yellow alarm to the remote DS1 endpoint.

Note: Synchronization is not administered from the SAT. It is administered via a CLI session with the G700 Media Gateway Processor.

When the Loss of Signal alarm is confirmed, maintenance software places all trunks or ports of the MM710 Interface Media Module into the out-of-service state. The inquiry test will run every 10 minutes until the loss of signal has been restored.

The MM710 Interface Media Module raises a Loss of Signal alarm after the signal has been lost for about 1 second. It will not retire the alarm until the signal has returned for about 10 seconds.

Echo Cancellation

If the MM710 firmware detects a serious echo canceller hardware error, it notifies maintenance software. When the maintenance subsystem receives notification of the echo cancellation error, it executes this *Loss Of Signal Alarm Inquiry* test.

This test, in addition to querying for a loss of signal condition and CSU errors, also queries MM710 to confirm the echo canceller error. A minor alarm is raised if the error is confirmed. The trunks of the board remain in-service since the board is still functional except for the echo cancellation capability.

If a loss of signal condition co-exists with CSU and/or echo canceller errors, the loss of signal condition takes priority, and the board and all trunks on the board are put in the out-of-service state. Errors are logged, however, for each error type.

When the maintenance subsystem receives notification that the echo canceller hardware error condition no longer exists, the maintenance subsystem restores the board and all trunks to their previous service state, if the alarm can be cleared (no other CSU errors or loss of signal conditions exist).

Note: The DSU functionality is not available in this release of AVAYA G700 systems software.

Table 65. TEST #138 Loss of Signal Alarm Inquiry Test

Error Code	Test Result	Description/ Recommendation
	ABORT	Internal system error Retry the command at 1-minute intervals for a maximum of 5 times.
2000	ABORT	Response to the test was not received within the allowable time period. This may be due to hyperactivity. Error Type 1538 in the error log indicates hyperactivity. The hyperactive Media Module is out of service and one or more of the following symptoms may be exhibited. The DS1-MM tests (such as Test #138 and Test #139) are aborting with error code 2000. The tests run on the ports of this Media Module are returning a no board result. A **busyout** or a **release** command has no affect on the test results. A **list config** command shows that the Media Module and the ports are properly installed. When hyperactivity occurs, the Media Module is isolated from the system, and all of the trunks for this Media Module are placed into the out of service state. The system will try to restore the Media Module within 15 minutes. When no faults are detected for 15 minutes, the DS1-MM (MM710) interface Media Module is restored to normal operation. All of the trunks for the Media Module are then returned to the in service state. Hyperactivity is often caused by the associated facility. In such a case, faults (such as slips, misframes, or blue alarms) would be entered in the error log. In addition, many hardware errors would be logged against the associated trunk circuits. If the facility is OK and the error occurs again after 15 minutes, replace the Media Module.
2100	ABORT	Could not allocate the necessary system resources to run this test. Retry the command at 1-minute intervals for a maximum of 5 times.

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Table 65. TEST #138 Loss of Signal Alarm Inquiry Test *Continued*

Error Code	Test Result	Description/ Recommendation
	FAIL	DS1-MM detects a Loss of Signal alarm. The physical link is broken or the remote DS1 endpoint is down. All trunks or ports of this MM710 are out-of-service. If the DS1-MM connects to a T1 network facility: If the MM710 connects to a T1 facility, call the vendor of the T1 carrier to diagnose the remote DS1 endpoint. If the MM710 Interface Media Module connects directly to a switch, call the system technician of the remote switch to diagnose the DS1 endpoint. If the DS1-MM connects to a line-side terminating device such as a PRI terminal adapter: Contact the vendor of the line-side terminating device to diagnose the equipment. Check the physical connection of the MM710 Interface Media Module and the cable. Check the physical connection of the MM710 Interface Media Module to the terminating device. Check premise distribution system (or intra-premise wiring) for physical connection failures.
1400	FAIL	Echo Canceller Function failed, this could be a hardware problem on the MM710: Issue the **busyout board** command. Issue the **test board long** command. Issue the **release board** command. If Test 1420 still fails, replace the board.
1401	FAIL	Echo Canceller Function failed, this could be a hardware problem on the MM710: Issue the **busyout board** command. Issue the **reset board** command. Issue the **test board long** command. Issue the **release busy board** command. If the test still fails replace the board.
	PASS	DS1 signal is present and the physical link is healthy.

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Table 65. TEST #138 Loss of Signal Alarm Inquiry Test *Continued*

Error Code	Test Result	Description/ Recommendation
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Ensure that the board translations are correct. Execute the **add ds1 GGGVS** command to administer the DS1-MM interface if it is not already administered. If the board was already administered correctly, check the error log to determine whether the board is hyperactive. If this is the case, the board is shut down. Reseating the board will re-initialize the board. If the board was found to be correctly inserted in step 1, then issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port.

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Blue Alarm Inquiry Test (#139)

The Blue Alarm is a signal sent by the remote DS1 endpoint when it is out-of-service. The Blue Alarm Inquiry Test checks the blue alarm status of the remote DS1 endpoint.

When the DS1-MM Interface Media Module detects a Blue Alarm signal from the remote DS1 endpoint, the Media Module transmits a Yellow alarm to the remote DS1 endpoint and sends a BLUE ALARM message to the maintenance software. When the Blue alarm is confirmed, the maintenance software places all trunks or ports of the DS1-MM Interface Media Module into the out-of-service state. The inquiry test runs every 10 minutes until the Blue alarm is cleared.

The DS1-MM Interface Media Module takes one second to recognize and report a Blue alarm and 16 seconds to recognize and report the resolution of a Blue alarm. When the Blue alarm is cleared, the DS1-MM Interface Media Module stops transmitting the Yellow alarm and places the trunks or ports back into the service state before the Blue alarm occurs.

Line Loopback Alarm

The Line Loopback (LLB) is used by the remote DS1 endpoint to put the DS1 board into a loopback mode. When the DS1 board is in the LLB mode, the arriving bit pattern is regenerated and sent back. The Line Loopback (LLB) Alarm activates when the in-band activate LLB bit pattern arrives continuously for 5 seconds on the DS1 line. The LLB deactivates when the in-band deactivate LLB bit pattern arrives continuously for 5 seconds on the DS1 line.

Since LLB is a maintenance condition rendering all DS0 channels unavailable for signaling or bearer traffic, maintenance software treats this the same as a Blue Alarm.

Payload Loopback Alarm

The Payload Loopback (PLB) is used by the remote DS1 endpoint to put the switch DS1 into a loopback mode. The PLB Alarm activates when a network protocol activate bit pattern arrives over the 4Kbps ESF data link on the DS1 line. The PLB deactivates when a network protocol deactivate bit pattern arrives over the 4Kbps ESF data link on the DS1 line.

Since PLB is a maintenance condition rendering all DS0 channels unavailable for signaling or bearer traffic, maintenance software treats this the same as a Blue Alarm

Table 66. TEST #139 Blue Alarm Inquiry Test

Error Code	Test Result	Description/ Recommendation
	ABORT	Internal system error Retry the command at 1-minute intervals for a maximum of 5 times.
2000	ABORT	Response to the test was not received within the allowable time period. This may be due to hyperactivity. Error Type 1538 in the error log indicates hyperactivity. The hyperactive Media Module is out of service and one or more of the following symptoms may be exhibited. The DS1-MM tests (such as Test #138 and Test #139) are aborting with error code 2000. The tests run on the ports of this Media Module are returning a no board result. A **busyout** or a **release** command has no affect on the test results. A **list config** command shows that the Media Module and the ports are properly installed. When hyperactivity occurs, the Media Module is isolated from the system, and all of the trunks for this Media Module are placed into the out of service state. The system will try to restore the Media Module within 15 minutes. When no faults are detected for 15 minutes, the DS1-MM interface Media Module is restored to normal operation. All of the trunks for the DS1-MM interface Media Module are then returned to the in service state. Hyperactivity is often caused by the associated facility. In such a case, faults (such as slips, misframes, or blue alarms) would be entered in the error log. In addition, many hardware errors would be logged against the associated trunk circuits. If the facility is OK and the error occurs again after 15 minutes, replace the Media Module.
2100	ABORT	Could not allocate the necessary system resources to run this test. Retry the command at 1-minute intervals for a maximum of 5 times.

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Table 66. TEST #139 Blue Alarm Inquiry Test *Continued*

Error Code	Test Result	Description/ Recommendation
	FAIL	The remote DS1 endpoint is out-of-service.
1 1794	FAIL	The DS1-MM Interface Media Module detects a Line Loopback Alarm (LLB). If the DS1-M interface Media Module connects to a T1 facility, call the vendor of the T1 carrier to diagnose the remote DS1 endpoint. If the DS1-mm interface Media Module connects directly to a switch, call the system technician of the remote switch to diagnose the DS1 endpoint. If theDS1-MM interface Media Module connects directly to a line-side terminating device (for example, a PRI terminal adapter), call the vendor of the terminating device to diagnose the equipment.
1795	FAIL	The DS1-MM Interface Media Module detects a Payload Loopback Alarm (PLB). If the DS1-MM Interface Media Module connects to a leased T1 facility, call the vendor of the T1 carrier to diagnose the remote DS1 endpoint. If the DS1-MM Interface Media Module connects directly to another DS1 board, call the system technician of the remote switch to diagnose the DS1 endpoint. If the DS1-MM Interface Media Module connects directly to a line-side terminating device such as a PRI terminal adapter contact the vendor of the terminating device to diagnose the equipment.
	PASS	Remote DS1 endpoint is in-service. Neither a Blue alarm nor a Line Loopback alarm nor a Payload Loopback Alarm is detected by the DS1-MM Interface Media Module.
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Ensure that the board translations are correct. Execute the **add ds1 GGGVS** command to administer the MM-DS1 interface if it is not already administered. If the board was already administered correctly, check the error log to determine whether the board is hyperactive. If this is the case, the board is shut down. Reseating the board will re-initialize the board. If the board was found to be correctly inserted in step 1, then issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port.

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Red Alarm Inquiry Test (#140)

A DS1-MM Interface Media Module raises a Red alarm when the framing pattern of the incoming DS1 bit stream has been lost. The Red Alarm Inquiry Test checks the framing status of a DS1-MM Interface Media Module. A DS1-MM Interface Media Module takes 3 seconds to recognize and report a Red alarm and 10 seconds to recognize and report the resolution of a Red alarm.

When the DS1-MM Interface Media Module detects a Red alarm, the Media Module transmits a Yellow alarm to the remote DS1 endpoint and sends a RED ALARM message to the maintenance software. After the Red alarm is confirmed, the maintenance software places all trunks or ports of the Media Module into the out-of-service state. The inquiry test runs every 10 minutes until the Red alarm is cleared.

When the Red alarm is cleared, the DS1-MM Interface Media Module stops transmitting the Yellow alarm to the remote DS1 endpoint. The maintenance software restores all trunks or ports of the DS1-MM Interface Media Module to the service state it was in before the Red alarm occurred.

Loss of Multiframe Alarm

If the DS1-MM Interface Media Module is administered using DMI-BOS signaling, the DS1-MM Interface Media Module raises a Loss of Multiframe Alarm (LMA) when it cannot interpret the incoming signaling bits to synchronize to the multiframe pattern received in the 24th channel. Once the DS1-MM Interface Media Module detects an LMA, the Media Module transmits a Remote Multiframe Alarm (RMA) to the remote DS1 endpoint. Maintenance software handles both Red alarm and LMA alarm(s) using the same mechanism.

Table 67. TEST #140 Red Alarm Inquiry Test

Error Code	Test Result	Description/ Recommendation
	ABORT	Internal system error Retry the command at 1-minute intervals a maximum of 5 times.

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Table 67. TEST #140 Red Alarm Inquiry Test *Continued*

Error Code	Test Result	Description/ Recommendation
2000	ABORT	Response to the test was not received within the allowable time period. This may be due to hyperactivity. Error Type 1538 in the error log indicates hyperactivity. The hyperactive Media Module is out of service and one or more of the following symptoms may be exhibited. The DS1-MM tests (such as Test #138 and Test #139) are aborting with error code 2000. The tests run on the ports of this Media Module are returning a no board result. A **busyout** or a **release** command has no affect on the test results. A **list config** command shows that the Media Module and the ports are properly installed. When hyperactivity occurs, the Media Module is isolated from the system, and all of the trunks for this Media Module are placed into the out of service state. The system will try to restore the Media Module within 15 minutes. When no faults are detected for 15 minutes, the DS1-MM interface Media Module is restored to normal operation. All of the trunks for the DS1-MM interface Media Module are then returned to the in service state. Hyperactivity is often caused by the associated facility. In such a case, faults (such as slips, misframes, or blue alarms) would be entered in the error log. In addition, many hardware errors would be logged against the associated trunk circuits. If the facility is OK and the error occurs again after 15 minutes, replace the Media Module.

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Table 67. TEST #140 Red Alarm Inquiry Test *Continued*

Error Code	Test Result	Description/ Recommendation
	FAIL	The DS1-MM interface Media Module detected a red alarm. An out of frame condition occurred on the DS1-MM interface Media Module. The DS1-MM interface Media Module will transmit a yellow alarm to the remote DS1-MM endpoint until the red alarm is retired. If the DS1-MM connects to a T1 network facility or to another switch, do the following. Verify that both endpoints of the DS1 link are administered using the same signaling mode, framing mode, and line coding. Contact T1 Network Service or a technician at the far-end switch to diagnose the remote DS1 endpoint. Check the physical connectivity of the DS1-MM packs and of the cable. Replace the local DS1-MM interface Media Module, and repeat the test. If the DS1-MM connects to a line-side terminating device (for example, a PRI terminal adapter), do the following. Verify that the switch DS1 and the line-side terminating device are administered using the same signaling mode, framing mode, and line coding. Investigate the maintenance status of the line-side terminating device. Refer to the 'Line-Side Terminating Device Operating Manual' for information. Contact the vendor of the line-side terminating device to diagnose the equipment. Check the physical connection of the DS1-MM interface Media Module to the terminating device, and check the premise distribution system (or the intra-premise wiring) for physical connection failures. Replace the local DS1-MM interface Media Module and repeat the test.

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Table 67. TEST #140 Red Alarm Inquiry Test *Continued*

Error Code	Test Result	Description/ Recommendation
1	FAIL	The test failed. The DS1-MM interface Media Module detected a loss of multiframe alarm (LMA). An out of frame condition occurred on the DS1-MM interface Media Module. The DS1-MM interface Media Module will transmit a remote multiframe alarm (RMA) to the remote DS1-MM endpoint until the LMA is retired. If the DS1-MM connects to a T1 network facility or to another switch, do the following: Verify that both endpoints of the DS1 link are administered using the same signaling mode, framing mode, and line coding. Contact T1 Network Service or a technician at the far-end switch to diagnose the remote DS1 endpoint. Check the physical connectivity of the DS1-MM packs and of the cable. Replace the local DS1-MM interface Media Module, and repeat the test. If the DS1-MM connects to a line-side terminating device (for example, a PRI terminal adapter), do the following. Verify that the switch DS1 and the line-side terminating device are administered using the same signaling mode, framing mode, and line coding. Investigate the maintenance status of the line-side terminating device. Refer to the 'Line-Side Terminating Device Operating Manual' for information. Contact the vendor of the line-side terminating device to diagnose the equipment. Check the physical connection of the DS1-MM interface Media Module to the terminating device, and check the premise distribution system (or the intra-premise wiring) for physical connection failures. Replace the local DS1-MM interface Media Module and repeat the test.
	PASS	No Red alarm is detected on the DS1-MM Interface Media Module.

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Table 67. TEST #140 Red Alarm Inquiry Test *Continued*

Error Code	Test Result	Description/ Recommendation
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Ensure that the board translations are correct. Execute the **add ds1 GGGVS** command to administer the DS1-MM interface if it is not already administered. If the board was already administered correctly, check the error log to determine whether the board is hyperactive. If this is the case, the board is shut down. Reseating the board will re-initialize the board. If the board was found to be correctly inserted in step 1, then issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port.

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Yellow Alarm Inquiry Test (#141)

Receiving a Yellow alarm from a remote DS1 endpoint indicates that the remote DS1 endpoint has an out-of-frame condition. The Yellow Alarm Inquiry Test is used to determine whether the remote DS1 endpoint is transmitting a Yellow alarm. The DS1-MM Interface Media Module takes 500 msec to recognize and report a Yellow alarm and 500 msec to recognize and report that a Yellow alarm condition is cleared.

When the MM-DS1 Interface Media Module detects a Yellow alarm from the remote DS1 endpoint, it sends a YELLOW-ALARM uplink message to the maintenance software. After the maintenance software receives the YELLOW-ALARM message, the Yellow Alarm Inquiry Test is run to confirm the Yellow alarm. Once the Yellow alarm is confirmed, the maintenance software places all trunks or ports on the Media Module into the out-of-service state. The Inquiry Test runs every 10 minutes until the Yellow alarm is cleared.

When the Yellow alarm is cleared, the maintenance software restores all trunks or ports on the DS1-MM Interface Media Module back to their previous service state before the Yellow alarm was raised.

This Yellow alarm corresponds to the yellow F2 state documented in CCITT Recommendation I.431.

Remote Multiframe Alarm

Remote Multiframe Alarm (RMA) indicates that the remote DS1 endpoint is in a Loss of Multiframe Alarm condition while the DS1-MM Interface Media Module is administered using the DMI-BOS common channel signaling. The RMA is handled as a Yellow alarm.

Yellow F5 Fault Alarm

For 32-channel E1 operation with CRC4 on, the F5 fault state is defined as a fault in the user-network interface, specifically in the direction from the user (PBX) to the network. Refer to CCITT recommendation I.431.

Table 68. TEST #141 Yellow Alarm Inquiry Test

Error Code	Test Result	Description/ Recommendation
	ABORT	Internal system error Retry the command at 1-minute intervals a maximum of 5 times.
2000	ABORT	Response to the test was not received within the allowable time period. This may be due to hyperactivity. Error Type 1538 in the error log indicates hyperactivity. The hyperactive Media Module is out of service and one or more of the following symptoms may be exhibited. The DS1-MM tests (such as Test #138 and Test #139) are aborting with error code 2000. The tests run on the ports of this Media Module are returning a no board result. A **busyout** or a **release** command has no affect on the test results. A **list config** command shows that the Media Module and the ports are properly installed. When hyperactivity occurs, the Media Module is isolated from the system, and all of the trunks for this Media Module are placed into the out of service state. The system will try to restore the Media Module within 15 minutes. When no faults are detected for 15 minutes, the DS1-MM interface Media Module is restored to normal operation. All of the trunks for the DS1-MM interface Media Module are then returned to the in service state. Hyperactivity is often caused by the associated facility. In such a case, faults (such as slips, misframes, or blue alarms) would be entered in the error log. In addition, many hardware errors would be logged against the associated trunk circuits. If the facility is OK and the error occurs again after 15 minutes, replace the Media Module.

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Table 68. TEST #141 Yellow Alarm Inquiry Test *Continued*

Error Code	Test Result	Description/ Recommendation
	FAIL	The DS1-MM interface Media Module detected a yellow alarm sent by the remote DS1 endpoint. An out of frame condition occurred at the DS1 endpoint. If the MM-DS1 connects to a T1 network facility or to another switch, do the following: Verify that both endpoints of the DS1 link are administered using the same signaling mode, framing mode, and line coding. Contact T1 Network Service or a technician at the far-end switch to diagnose the remote DS1 endpoint. Check the physical connectivity of the DS1-MM packs and of the cable. Replace the local DS1-MM interface Media Module, and repeat the test. If the DS1-MM connects to a line-side terminating device (for example, a PRI terminal adapter), do the following: Verify that the switch DS1 and the line-side terminating device are administered using the same signaling mode, framing mode, and line coding. Investigate the maintenance status of the line-side terminating device. Refer to the 'Line-Side Terminating Device Operating Manual' for information. Contact the vendor of the line-side terminating device to diagnose the equipment. Check the physical connection of the DS1-MM interface Media Module to the terminating device, and check the premise distribution system (or the intra-premise wiring) for physical connection failures. Replace the local DS1-MM interface Media Module and repeat the test.

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Table 68. TEST #141 Yellow Alarm Inquiry Test *Continued*

Error Code	Test Result	Description/ Recommendation
1	FAIL	The DS1-MM interface Media Module detected a remote multiframe alarm (RMA) sent by the remote DS1 endpoint. An out of frame condition occurred at the DS1 endpoint. If the DS1-MM connects to a T1 network facility or to another switch, do the following: Verify that both endpoints of the DS1 link are administered using the same signaling mode, framing mode, and line coding. Contact T1 Network Service or a technician at the far-end switch to diagnose the remote DS1 endpoint. Check the physical connectivity of the DS1-MM packs and of the cable. Replace the local DS1-MM interface Media Module, and repeat the test. If the DS1-MM connects to a line-side terminating device (for example, a PRI terminal adapter), do the following: Verify that the switch DS1 and the line-side terminating device are administered using the same signaling mode, framing mode, and line coding. Investigate the maintenance status of the line-side terminating device. Refer to the 'Line-Side Terminating Device Operating Manual' for information. Contact the vendor of the line-side terminating device to diagnose the equipment. Check the physical connection of the DS1-MM interface Media Module to the terminating device, and check the premise distribution system (or the intra-premise wiring) for physical connection failures. Replace the local DS1-MM interface Media Module and repeat the test.

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Table 68. TEST #141 Yellow Alarm Inquiry Test *Continued*

Error Code	Test Result	Description/ Recommendation
2	FAIL	The DS1-MM interface Media Module is reporting a Yellow F5 fault alarm. There is a fault in the User-Network interface from the user (PBX) to the network. An out-of-frame condition occurs on the remote DS1 endpoint. If the DS1-MM connects to a T1 network facility: Verify that both endpoints of the DS1 link are administered using the same signaling mode, framing mode, and line coding. Contact T1 Network Service to diagnose the remote DS1 endpoint. Check the physical connectivity of the DS1 Interface Media Modules and cable. Replace the local DS1-MM Interface Media Module and repeat the test. If the DS1-MM connects to a line-side terminating device such as a PRI terminal adapter: Verify that the switch DS1 and the line-side terminating device are administered using the same signaling mode, framing mode, and line coding. Investigate the maintenance status of the line-side terminating device. Refer to the 'Line-Side Terminating Device Operating Manual' for information. Contact the vendor of the line-side terminating device to diagnose the equipment. Check the physical connection of the DS1-MM Interface Media Module to the terminating device. Check premise distribution system (or intra-premise wiring) for physical connection failures. Replace the local DS1-MM Interface Media Module and repeat the test.
	PASS	Neither a Yellow alarm nor a Remote Multiframe Alarm nor a F5 state alarm is being received from the remote DS1 endpoint.

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Table 68. TEST #141 Yellow Alarm Inquiry Test *Continued*

Error Code	Test Result	Description/ Recommendation
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Ensure that the board translations are correct. Execute the **add ds1 GGGVS** command to administer the DS1-MM interface if it is not already administered. If the board was already administered correctly, check the error log to determine whether the board is hyperactive. If this is the case, the board is shut down. Reseating the board will re-initialize the board. If the board was found to be correctly inserted in step 1, then issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port.

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Major Alarm Inquiry Test (#142)

The Major alarm raised by a DS1-MM Interface Media Module indicates that the average bit error rate on the DS1 facility is greater than 1/1000. The Major Alarm Inquiry Test is used to determine that the received DS1 bit error rate is greater than 1/1000. The MG-DS1 Interface Media Module takes 10 seconds to recognize and report a Major alarm and 10 seconds to recognize and report that a Major alarm condition is cleared.

When the DS1-MM Interface Media Module detects a Major alarm, it sends a MAJOR-ALARM message to the maintenance software. (32-channel interfaces send a YELLOW alarm to the far end). After the maintenance software receives a MAJOR-ALARM message, the Major Alarm Inquiry Test is initiated to confirm the Major alarm on the DS1-MM Interface Media Module. The Inquiry Test runs every 10 minutes until the Major alarm is cleared. The maintenance software places all trunks or ports on the Media Module in the out-of-service state if the Major alarm persists for more than 20 minutes.

When the Major alarm is cleared, the maintenance software restores all trunks or ports on the Media Module to their previous service state before a Major alarm occurs.

Table 69. TEST #142 Major Alarm Inquiry Test

Error Code	Test Result	Description/ Recommendation
	ABORT	Internal system error Retry the command at 1-minute intervals a maximum of 5 times.
2000	ABORT	Response to the test was not received within the allowable time period. This may be due to hyperactivity. Error Type 1538 in the error log indicates hyperactivity. The hyperactive Media Module is out of service and one or more of the following symptoms may be exhibited. The DS1-MM tests (such as Test #138 and Test #139) are aborting with error code 2000. The tests run on the ports of this Media Module are returning a no board result. A **busyout** or a **release** command has no affect on the test results. A **list config** command shows that the Media Module and the ports are properly installed. When hyperactivity occurs, the Media Module is isolated from the system, and all of the trunks for this Media Module are placed into the out of service state. The system will try to restore the Media Module within 15 minutes. When no faults are detected for 15 minutes, the DS1-MM interface Media Module is restored to normal operation. All of the trunks for the DS1-MM interface Media Module are then returned to the in service state. Hyperactivity is often caused by the associated facility. In such a case, faults (such as slips, misframes, or blue alarms) would be entered in the error log. In addition, many hardware errors would be logged against the associated trunk circuits. If the facility is OK and the error occurs again after 15 minutes, replace the Media Module.
2100	ABORT	Could not allocate the necessary system resources to run this test. Retry the command at 1-minute intervals for a maximum of 5 times.
	FAIL	If the DS1-MM connects to a T1 network facility or to another switch, do the following: The performance of the DS1 link between the DS1-MM interface Media Module and the remote DS1 endpoint is very poor. Enter the **list measurement ds1-log GGGVS** command to read the error seconds measurement. Verify that both endpoints of the DS1 link are administered using the same signaling mode, framing mode, and line coding. Contact T1 Network Service or the technician at the remote switch to diagnose the equipment. Check the physical connectivity of the DS1-MM interface Media Modules and the cable. Replace the local DS1-MM interface Media Module, and repeat the test.

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Table 69. TEST #142 Major Alarm Inquiry Test *Continued*

Error Code	Test Result	Description/ Recommendation
	FAIL *(cont'd.)*	If the DS1-MM connects to a line-side terminating device (for example, a PRI terminal adapter), do the following: The performance of the DS1 link between the DS1-MM interface Media Module and the line-side terminating device is very poor. Enter the **list measurement ds1-log GGGVS** command to read the error seconds measurement. Verify that the switch DS1 and the line-side terminating device are administered using the same signaling mode, framing mode, and line coding. Investigate the maintenance status of the line-side terminating device. Refer to the 'Line-Side Terminating Device Operating Manual' for information. Contact the vendor of the line-side terminating device to diagnose the equipment. Check the physical connection of the DS1-MM1 interface Media Module to the terminating device, and check the premise distribution system (or the intra-premise wiring) for physical connection failures. Replace the local DS1-MM interface Media Module and repeat the test.
	PASS	No Major alarm is detected in the DS1-MM Interface Media Module.
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Ensure that the board translations are correct. Execute the **add ds1 GGGVS** command to administer the MM-DS1 interface if it is not already administered. If the board was already administered correctly, check the error log to determine whether the board is hyperactive. If this is the case, the board is shut down. Reseating the board will re-initialize the board. If the board was found to be correctly inserted in step 1, then issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port.

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Minor Alarm Inquiry Test (#143)

The Minor alarm raised by a DS1-MM Interface Media Module indicates that the average bit error rate on the DS1 facility is greater than 1/1,000,000, but less than 1/1000. The Minor Alarm Inquiry Test is used to determine that the received DS1 bit error rate is greater than 1/1,000,000 and less than 1/1000. When D4 framing mode is selected, the DS1-MM Interface Media Module takes 41-minutes to recognize and report a Minor alarm and 41-minutes to recognize and report that a Minor alarm condition has cleared. If ESF framing mode is selected, the DS1-MM Interface Media Module takes 10 minutes to recognize and report a Minor alarm and 10 minutes to recognize and report that a Minor alarm condition has cleared.

When the DS1-MM Interface Media Module detects a Minor alarm condition, it sends a MINOR-ALARM message to the maintenance software. After the maintenance software receives a MINOR-ALARM message, the Minor Alarm Inquiry Test is initiated to confirm the Minor alarm. All trunks or ports on the Media Module are kept in the in-service state after the Minor alarm is confirmed. The Minor Alarm Inquiry Test runs every 10 minutes until the Minor alarm is cleared.

Table 70. TEST #143 Minor Alarm Inquiry Test

Error Code	Test Result	Description/ Recommendation
	ABORT	Internal system error Retry the command at 1-minute intervals a maximum of 5 times.
2000	ABORT	Response to the test was not received within the allowable time period. This may be due to hyperactivity. Error Type 1538 in the error log indicates hyperactivity. The hyperactive Media Module is out of service and one or more of the following symptoms may be exhibited. The DS1-MM tests (such as Test #138 and Test #139) are aborting with error code 2000. The tests run on the ports of this Media Module are returning a no board result. A **busyout** or a **release** command has no affect on the test results. A **list config** command shows that the Media Module and the ports are properly installed. When hyperactivity occurs, the Media Module is isolated from the system, and all of the trunks for this Media Module are placed into the out of service state. The system will try to restore the Media Module within 15 minutes. When no faults are detected for 15 minutes, the DS1-MM interface Media Module is restored to normal operation. All of the trunks for the DS1-MM interface Media Module are then returned to the in service state. Hyperactivity is often caused by the associated facility. In such a case, faults (such as slips, misframes, or blue alarms) would be entered in the error log. In addition, many hardware errors would be logged against the associated trunk circuits. If the facility is OK and the error occurs again after 15 minutes, replace the Media Module.

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Table 70. TEST #143 Minor Alarm Inquiry Test *Continued*

Error Code	Test Result	Description/ Recommendation
2100	ABORT	Could not allocate the necessary system resources to run this test. Retry the command at 1-minute intervals for a maximum of 5 times.
	FAIL	Minor alarms are often accompanied by slip and misframe alarms against the board. Trunk alarms and hardware error logs may occur on the associated trunks. If the DS1-MM connects to a T1 network facility or to another switch, do the following: The performance of the DS1 link between the DS1-MM interface Media Module and the remote DS1 endpoint is poor. Enter the **list measurement ds1-log GGGVS** command to read the error seconds measurement. Verify that both endpoints of the DS1 link are administered using the same signaling mode, framing mode, and line coding. Contact T1 Network Service or the technician at the remote switch to diagnose the equipment. Check the physical connectivity of the DS1-MM interface Media Modules and the cable. Replace the local DS1-MM interface Media Module, and repeat the test.
	FAIL *(cont'd.)*	If the DS1-MM connects to a line-side terminating device (for example, a PRI terminal adapter), do the following: The performance of the DS1 link between the DS1-MM interface Media Module and the line-side terminating device is very poor. Enter the **list measurement ds1-log GGGVS** command to read the error seconds measurement. Verify that the switch DS1 and the line-side terminating device are administered using the same signaling mode, framing mode, and line coding. Investigate the maintenance status of the line-side terminating device. Obtain the error seconds measurement on the terminating device (if possible). Refer to the 'Line-Side Terminating Device Operating Manual' for information. Contact the vendor of the line-side terminating device to diagnose the equipment. Check the physical connection of the DS1-MM interface Media Module to the terminating device, and check the premise distribution system (or the intra-premise wiring) for physical connection failures. Replace the local DS1-MM interface Media Module and repeat the test.
	PASS	No Minor alarm is detected in the DS1-MM Interface Media Module.

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Table 70. TEST #143 Minor Alarm Inquiry Test *Continued*

Error Code	Test Result	Description/ Recommendation
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Ensure that the board translations are correct. Execute the **add ds1 GGGVS** command to administer the DS1-MM interface if it is not already administered. If the board was already administered correctly, check the error log to determine whether the board is hyperactive. If this is the case, the board is shut down. Reseating the board will re-initialize the board. If the board was found to be correctly inserted in step 1, then issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port.

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Slip Alarm Inquiry Test (#144)

Slips occur when transmitter and receiver are not running at precisely the same clock rate. The DS1-MM Interface Media Module can detect both positive and negative slips on the DS1 facility. The Slip Alarm Inquiry Test is used to acquire the total number of slips that have occurred on a DS1 link.

When the DS1-MM Interface Media Module detects a slip condition, the Media Module increments the on-board slip counter by one. A SLIP-COUNT message is spontaneously sent to the system software after the counter reaches a threshold (for example, 88). When the maintenance software receives the SLIP-COUNT message, the Slip Alarm Inquiry Test is initiated to query the slip counters on a DS1-MM Interface Media Module and total the slip counts in the maintenance software.

If the count of slips is over the threshold, a Minor alarm is raised against the DS1-MM Interface Media Module. All trunks or ports of the DS1-MM Interface Media Module remain in the in-service state.

Table 71. TEST #144 Slip Alarm Inquiry Test

Error Code	Test Result	Description/ Recommendation
	ABORT	Internal system error Retry the command at 1-minute intervals a maximum of 5 times.
2000	ABORT	Response to the test was not received within the allowable time period. This may be due to hyperactivity. Error Type 1538 in the error log indicates hyperactivity. The hyperactive Media Module is out of service and one or more of the following symptoms may be exhibited. The DS1-MM tests (such as Test #138 and Test #139) are aborting with error code 2000. The tests run on the ports of this Media Module are returning a no board result. A **busyout** or a **release** command has no affect on the test results. A **list config** command shows that the Media Module and the ports are properly installed. When hyperactivity occurs, the Media Module is isolated from the system, and all of the trunks for this Media Module are placed into the out of service state. The system will try to restore the Media Module within 15 minutes. When no faults are detected for 15 minutes, the DS1-MM interface Media Module is restored to normal operation. All of the trunks for the DS1-MM interface Media Module are then returned to the in service state. Hyperactivity is often caused by the associated facility. In such a case, faults (such as slips, misframes, or blue alarms) would be entered in the error log. In addition, many hardware errors would be logged against the associated trunk circuits. If the facility is OK and the error occurs again after 15 minutes, replace the Media Module.
2100	ABORT	Could not allocate the necessary system resources to run this test. Retry the command at 1-minute intervals for a maximum of 5 times.

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Table 71. TEST #144 Slip Alarm Inquiry Test *Continued*

Error Code	Test Result	Description/ Recommendation
1 to 88	FAIL	The test failed because the DS1-MM interface Media Module and the remote DS1 endpoint are not synchronized to the same clock rate. The DS1-MM interface Media Module detected a slip alarm. The error code equals the number of slips detected by the DS1-MM interface Media Module since the last slip alarm inquiry test. If the DS1-MM connects to a T1 network facility or to another switch, do the following: Retry the command at 1-minute intervals for a maximum of 5 times. For a DS1 interface Media Module, enter the **list measurement ds1-log GGGVS** command to read the error seconds measurement. Verify that both endpoints of the DS1 link are administered using the same signaling mode, framing mode, and line coding. Contact T1 Network Service or the technician at the remote switch to diagnose the remote DS1 endpoint. Check the physical connectivity of the DS1-MM interface Media Modules and the cable. Replace the local DS1-MM interface Media Module, and repeat the test.
1 to 88 *(cont.)*	FAIL *(cont'd.)*	If the DS1-MM connects to a line-side terminating device (for example, a PRI terminal adapter), do the following: Retry the command at 1-minute intervals for a maximum of 5 times. Enter the **list measurement ds1-log GGGVS** command to read the error seconds measurement. Verify that the switch DS1 and the line-side terminating device are administered using the same signaling mode, framing mode, and line coding. Investigate the maintenance status of the line-side terminating device. Refer to the 'Line-Side Terminating Device Operating Manual' for information. Contact the vendor of the line-side terminating device to diagnose the equipment. Check the physical connection of the DS1-MM interface Media Module to the terminating device, and check the premise distribution system (or the intra-premise wiring) for physical connection failures. Replace the local DS1-MM interface Media Module and repeat the test.
	PASS	No Slip alarm is detected on the DS1-MM Interface Media Module.

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Table 71. TEST #144 Slip Alarm Inquiry Test *Continued*

Error Code	Test Result	Description/ Recommendation
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Ensure that the board translations are correct. Execute the **add ds1 GGGVS** command to administer the DS1-MM interface if it is not already administered. If the board was already administered correctly, check the error log to determine whether the board is hyperactive. If this is the case, the board is shut down. Reseating the board will re-initialize the board. If the board was found to be correctly inserted in step 1, then issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port.

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Misframe Alarm Inquiry Test (#145)

Misframe Alarm indicates that framing bits observed on a DS1-MM Interface Media Module are in error. The Misframe Alarm Inquiry Test queries the total number of misframes that have occurred on a DS1 Interface Media Module since the last inquiry.

When the DS1 Interface Media Module detects a misframe error, it increments its misframe counter by one. If the counter reaches a specified threshold (i.e., 17), a MISFRAME-COUNT message is automatically sent to the switch maintenance software. After the maintenance software receives the MISFRAME-COUNT message, the Misframe Alarm Inquiry Test is initiated to collect the misframe counts from the DS1-MM Interface Media Module.

A Minor alarm against the DS1-MM Interface Media Module is raised, but all trunks or ports of the DS1-MM Interface Media Module remain in the in-service state.

Table 72. TEST #145 Misframe Alarm Inquiry Test

Error Code	Test Result	Description/ Recommendation
	ABORT	Internal system error Retry the command at 1-minute intervals a maximum of 5 times.
2000	ABORT	Response to the test was not received within the allowable time period. This may be due to hyperactivity. Error Type 1538 in the error log indicates hyperactivity. The hyperactive Media Module is out of service and one or more of the following symptoms may be exhibited. The DS1-MM tests (such as Test #138 and Test #139) are aborting with error code 2000. The tests run on the ports of this Media Module are returning a no board result. A **busyout** or a **release** command has no affect on the test results. A **list config** command shows that the Media Module and the ports are properly installed. When hyperactivity occurs, the Media Module is isolated from the system, and all of the trunks for this Media Module are placed into the out of service state. The system will try to restore the Media Module within 15 minutes. When no faults are detected for 15 minutes, the DS1-MM interface Media Module is restored to normal operation. All of the trunks for the DS1-MM interface Media Module are then returned to the in service state. Hyperactivity is often caused by the associated facility. In such a case, faults (such as slips, misframes, or blue alarms) would be entered in the error log. In addition, many hardware errors would be logged against the associated trunk circuits. If the facility is OK and the error occurs again after 15 minutes, replace the Media Module.
2100	ABORT	Could not allocate the necessary system resources to run this test. Retry the command at 1-minute intervals for a maximum of 5 times.

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Table 72. TEST #145 Misframe Alarm Inquiry Test *Continued*

Error Code	Test Result	Description/ Recommendation
1 to 17	FAIL	The test failed because the MM-DS1 interface Media Module detected errors in the received framing bits pattern. The error code equals the number of misframes detected by the DS1-MM interface Media Module since the last misframe alarm inquiry test. Major bit and minor bit error rate (error types 2561 and 2817) error logs often accompany misframe alarms. Clearing the cause of these error logs may clear the misframes which are occurring. If the DS1-MM connects to a T1 network facility or to another switch, do the following: Retry the command at 1-minute intervals for a maximum of 5 times. If the DS1 interface Media Module is a MM710, enter the **list measurement ds1-log GGGVS** command to read the error seconds measurement. Verify that both endpoints of the DS1 link are administered using the same signaling mode, framing mode, and line coding. Contact T1 Network Service or the technician at the remote switch to diagnose the remote DS1 endpoint. Check the physical connectivity of the DS1-MM interface Media Modules and the cable. Replace the local DS1-MM interface Media Module, and repeat the test.
1 to 17 *(cont.)*	FAIL *(cont'd.)*	If the MM-DS1 connects to a line-side terminating device such as a PRI terminal adapter: Retry the command at 1-minute intervals for a maximum of 5 times. Enter the **list measurement ds1-log GGGVS** command to read the error seconds measurement. Verify that the switch DS1 and the line-side terminating device are administered using the same signaling mode, framing mode, and line coding. Investigate the maintenance status of the line-side terminating device. Refer to the 'Line-Side Terminating Device Operating Manual' for information. Contact the vendor of the line-side terminating device to diagnose the equipment. Check the physical connection of the DS1-MM interface Media Module to the terminating device, and check the premise distribution system (or the intra-premise wiring) for physical connection failures. Replace the local DS1-MM interface Media Module and repeat the test.

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Table 72. TEST #145 Misframe Alarm Inquiry Test *Continued*

Error Code	Test Result	Description/ Recommendation
	PASS	No Misframe alarm is detected on the MM-DS1 Interface Media Module.
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Ensure that the board translations are correct. Execute the **add ds1 GGGVS** command to administer the MM-DS1 interface if it is not already administered. If the board was already administered correctly, check the error log to determine whether the board is hyperactive. If this is the case, the board is shut down. Reseating the board will re-initialize the board. If the board was found to be correctly inserted in step 1, then issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port.
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Translation Update Test (#146)

The Translation Update Test sends the circuit-pack-level information specified by System Administration to the DS1-MM Interface Media Module. Translation includes the following data administered for a DS1-MM Interface Media Module (see output of **display ds1 GGGVS** command): DS1 Link Length between two DS1 endpoints, Synchronization Source Control, All Zero Suppression, Framing Mode, Signaling Mode, Time Slot Number of 697-Hz Tone, Time Slot Number of 700-Hz Tone, etc.

Table 73. TEST #146 Translation Update Test

Error Code	Test Result	Description/ Recommendation
	ABORT	Internal system error Retry the command at 1-minute interval s a maximum of 5 times.
	FAIL	Internal system software error. Enter the **display ds1 GGGVS** command to verify the DS!-MM Interface Media Module translation.
	PASS	Translation data has been downloaded to the DS1-M Interface Media Module successfully.

Table 73. TEST #146 Translation Update Test *Continued*

Error Code	Test Result	Description/ Recommendation
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Ensure that the board translations are correct. Execute the **add ds1 GGGVS** command to administer the DS1-MM interface if it is not already administered. If the board was already administered correctly, check the error log to determine whether the board is hyperactive. If this is the case, the board is shut down. Reseating the board will re-initialize the board. If the board was found to be correctly inserted in step 1, then issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port.

Echo Canceller Test (#1420)

CAUTION: This test is executed only for MM710 Media Modules that have been administered on the DS1 Media Module form to provide echo cancellation. The MM710 must be busied out before this demand test is run.

This test is for the MM710 Media Module. The test originates from a manually initiated **test board long** demand test of a TMM710 Media Module. The test instructs firmware to test the echo cancellation circuity. The MM710 firmware tests echo cancellation on a subset of channels. If any channel fails twice, or if any two channels fail once, the test fails, and echo cancellation is bypassed on all channels of the board. Otherwise the test passes, and echo cancellation is configured to the administered parameters.

Table 74. Test #1420 Echo Canceller Test

Error Code	Test Result	Description/ Recommendation
1015	ABORT	The board is not busied out. This test will abort if the DS1-MM Media Module under test is in service.
2000	ABORT	Response to the test was not received within the allowable time period. This may be due to hyperactivity. Error Type 1538 in the error log indicates hyperactivity. The hyperactive Media Module is out of service and one or more of the following symptoms may be exhibited. The DS1-MM tests (such as Test #138 and Test #139) are aborting with error code 2000. The tests run on the ports of this Media Module are returning a no board result. A **busyout** or a **release** command has no affect on the test results. A **list config** command shows that the Media Module and the ports are properly installed. When hyperactivity occurs, the Media Module is isolated from the system, and all of the trunks for this Media Module are placed into the out of service state. The system will try to restore the Media Module within 15 minutes. When no faults are detected for 15 minutes, the DS1-MM interface Media Module is restored to normal operation. All of the trunks for the DS1-MM interface Media Module are then returned to the in service state. Hyperactivity is often caused by the associated facility. In such a case, faults (such as slips, misframes, or blue alarms) would be entered in the error log. In addition, many hardware errors would be logged against the associated trunk circuits. If the facility is OK and the error occurs again after 15 minutes, replace the Media Module.
2012	ABORT	Internal system error. Retry the command at 1-minute intervals for a maximum of 5 times.
2100	ABORT	Could not allocate the necessary system resources to run this test. Retry the command at 1-minute intervals for a maximum of 5 times.
2500	ABORT	Internal system error. Retry the command at 1-minute intervals for a maximum of 5 times.

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Table 74. Test #1420 Echo Canceller Test *Continued*

Error Code	Test Result	Description/ Recommendation
1400, 1401	FAIL	The Echo Cancellation Test has failed: Error 1400 - Echo canceller function failed. The Echo Canceller Function Test, which is executed by firmware, failed. Error 1401 - Echo canceller memory failed. The Echo Canceller Memory Test, which is executed by firmware, failed. Echo Cancellation is no longer being supplied by the board. Clear the alarm using the following commands: **busyout board GGGVS**, **test board GGVS long**, **release board GGVS**. If the test still fails, replace the Media Module. When this test fails, echo cancellation will be bypassed on all channels on the board. The Media Module can still be used for a E1/T1 line interface without echo cancellation. This capability provides limited service for the customer until the Media Module can be changed out.
	PASS	The Echo Cancellation feature is functioning properly.
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Ensure that the board translations are correct. Execute the **add ds1 GGGVS** command to administer the MM-DS1 interface if it is not already administered. If the board was already administered correctly, check the error log to determine whether the board is hyperactive. If this is the case, the board is shut down. Reseating the board will re-initialize the board. If the board was found to be correctly inserted in step 1, then issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port.

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MG-VOIP (MM760 MED PRO DSP PORT)

Table 75. VOIP-MM (MM760 MED PRO DSP PORT)

MO Name (in Alarm Log)	Alarm Level	Initial Command to Run*	Full Name of MO
MG-VOIP	MINOR/WARNING	test port GGGVS [short/long] [repeat#] | [clear]	Voice Over IP
Note: You must consult local records for the location and designation of the equipment rack where the G700 is mounted.			

The MM760 Media Module provides the audio bearer channels for voice over IP calls, and is under control of the G700. One MM760 Media Module has one VOIP-MM media processing resource. Based on system administration of audio codecs, a VOIP-MM can handle either 64 or 32 simultaneous channels of H.323 audio processing. If the **ip-parameters** form specifies only G.711 mu-law or G.711 a-law as the audio codecs, the VOIP-MM can service 64 channels. If any other codec type (G.723-5.3K, G.723-6.3K, or G.729) is administered, the VOIP-MM can only service 32 channels.

Error Log Entries and Test to Clear Values

Table 76. VOIP-MM Error Log Entries

Error Type	Aux Data	Associated Test	Alarm Level	On/Off Board	Test to Clear Value
0*	0	Any	Any	Any	test board GGGVSpp
257(a)	65535	Control Channel Loop Test (#52)	MINOR	ON	test board GGGVSpp l r 2
*Run the Short Test Sequence first. If all tests pass, run the Long Test Sequence. Refer to the appropriate test description and follow the recommended procedures.					

Note:

- **Error Type 257** - is associated with the Control Channel Loop Test (#52).

System Technician-Demanded Tests: Descriptions and Error Codes

Investigate tests in the order they are presented in the following table. By clearing error codes associated with the *Control Channel Loop Test*, for example, you may also clear errors generated from the other test in the testing sequence.

Table 77. System Technician-Demanded Tests

Order of Investigation	Short Test Sequence	Long Test Sequence	D/ND*
Control Channel Loop Test (#52)		X	ND
*D = Destructive; ND = Nondestructive			

Control Channel Looparound Test (#52)

This test queries the Media Module for its vintage to verify communication with the board.

Table 78. TEST #52 Control Channel Looparound Test

Error Code	Test Result	Description/ Recommendation
None 2100	ABORT	System resources required for this test are not available. Retry the command at 1-minute intervals a maximum of 5 times.
	FAIL	The Media Module failed to return the Media Module code or vintage. Retry the command a maximum of 5 times. If the problem continues, replace the Media Module. Retry the command.
	PASS	Communication with this Media Module is successful.
0	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. If the board was found to be correctly inserted in step 1, then issue the **busyout board GGGVS** command. Issue the **reset board GGGVS** command. Issue the **release board GGGVS** command. Issue the **test board GGGVS long** command. This should re-establish the linkage between the internal ID and the port.

PLAT-ALM (Platform Alarms)

The PLAT_ALM is a virtual MO used by Avaya MultiVantage™ software to keep track of Media Server alarms. A MAJOR, MINOR, or WARNING alarm can be logged against this MO to indicate the presence of one or more Media Server alarms.

A technician who is using the SAT and finds an alarm against the PLAT-ALM MO must:

1. Log into the Media Server's Web interface.
2. To see the Media Server's current list of alarms, select the **Display Alarms** option.
3. To troubleshoot and clear the problems, follow the procedures for the appropriate MOs listed in the display.

Note: After repairing the Media Server, clear every Media Server alarm. This action will also clear any alarms associated with the PLAT-ALM MO.

System Technician-Demanded Tests: Descriptions and Error Codes

There are no System Technician-Demanded Tests associated with this MO.

TIE-DS1 (DS1 Tie Trunk)

Table 79. TIE-DS1 (DS1 TIE TRUNK)

MO Name (in Alarm Log)	Alarm Level	Initial Command to Run	Full Name of MO
TIE-DS1*	MAJOR**	test trunk *grp/mbr* l	DS1 Tie Trunk
TIE-DS1	MINOR	test trunk *grp/mbr* l	DS1 Tie Trunk
TIE-DS1	WARNING	test trunk *grp/mbr*	DS1 Tie Trunk
*See DS1-MM documentation if the tie trunk is on a MM710 Media Module Media Module.			
A MAJOR alarm on a trunk indicates that alarms on these trunks are not downgraded by the **set options command and that at least 75% of the trunks in this trunk group are alarmed.			

Many trunk problems are caused by incorrect settings of parameters on the trunk group administration form. Settings must be compatible with the local environment and with parameter settings on the far-end. Refer to *Administration Manual*, for information on how to administer trunks. The Application **Notes** section of that book shows the correct settings for administrable timers and other parameters on a country-by-country basis.

The DS1 tie trunk provides both voice and data communications between two PBX switches. There are two types of DS1 interfaces:

- 24 DS0 channels on a 1.544 Mbps link
- 31 DS0 channels + 1 framing channel on a 2.048 Mbps link

DS1 Tie Trunks are used widely in the Distributed Communications System (DCS) and Central Attendant Service (CAS) system features.

A DS1 tie trunk can also be used as an access endpoint which is a non-signaling channel with bandwidth for voice-grade data, 56 Kbps data or 64 Kbps data.

DS1 tie trunk maintenance provides a strategy to maintain a DS1 tie trunk via a port on the MM710 Interface Media Modules.

The DS1 tie trunk maintenance strategy covers logging DS1 tie trunk hardware errors, running tests for trunk initialization, periodic and scheduled maintenance, system technician-demanded tests, and alarm escalation and resolution. Three different trunk service states are specified in DS1 tie trunk maintenance:

Out-of-service	The trunk is deactivated and cannot be used for incoming or outgoing calls.
In-service	The trunk is activated and can be used for both incoming and outgoing calls.
Disconnect (ready-for-service)	The trunk is in an activated state but can only be used for an incoming call.

If the DS1 Interface Media Module is out of service, then all trunks on the DS1 Interface Media Module are also placed into the out-of-service state and a Warning alarm is raised.

Hardware Error Log Entries and Test to Clear Values

Table 80. DS1 Tie Trunk Maintenance Error Log Entries

Error Type	Aux Data	Associated Test	Alarm Level	On/Off Board	Test to Clear Value
0*	0	Any	Any	Any	test trunk *grp*/*mbr*
1(a)	57476 57477 57485 57487				
15(b)	Any	Port Audit and Update Test (#36)			
18(c)	0	busyout trunk *grp*/*mbr*	WARNING	OFF	release trunk *grp*/*mbr**
19(d)	0	None			
130(e)		None	WARNING	ON	test trunk *grp*/*mbr*
257(f)	57473 57474				
513(g)	57392	DS1 Tie Trunk Seizure Test (#136)	MIN/MAJ		

Table 80. DS1 Tie Trunk Maintenance Error Log Entries *Continued*

Error Type	Aux Data	Associated Test	Alarm Level	On/Off Board	Test to Clear Value
769(h)	57393	DS1 Tie Trunk Seizure Test (#136)	MIN/MAJ		
1025		DS1 Tie Trunk Seizure (Test #136)	MIN/ WRN***	OFF	test trunk *grp*/*mbr* r 2
1793(i)					test board GGGVSpp long
2305(j)	50944	DS1 Tie Trunk Seizure Test (#136)	MIN/MAJ	OFF	
2562(k)	16665				
2817(l)	52992				
3840(m)	Any	Port Audit and Update (Test #36)			
*Run the Short Test Sequence first. If all tests pass, run the Long Test Sequence. Refer to the appropriate test description and follow the recommended procedures.					
***This alarm will only be raised when the System-Parameter Country form has the Base Tone Generator field set to 4 (Italy). This alarm will be a MINOR alarm unless 75% or more trunks in this trunk group are out of service, then the alarm will be upgraded to a MAJOR alarm.					
****Major or Minor alarms on this MO may be downgraded to Warning alarms based on the values used in the **set options** command.					

Notes:

- (a) Error Type 1—The DS1 Interface Media Module detects a hardware error on the DS1 tie trunk. This error can be caused by incompatible translations. Make sure the parameters administered on the DS1 Media Module form match those administered on the far-end switch. See *Administrator's Guide for Avaya MultiVantage™ Software, 555-233-506,* for details.

  The Aux Data field indicates the following hardware error types:

57476	On-hook before wink
57477	On-hook before ready to receive digits
57485	Wink too short for valid signal
57487	The timer expired while waiting for an off-hook signal from the far end as a response at end of digits dialing. Check the far-end switch for related problems.

  If all administration errors between the switch and the far-end match, and these errors continue to recur, follow normal escalation procedures.

- (b) Error Type 15—This is a software audit error that does not indicate any hardware malfunction. Run Short Test Sequence and investigate associated errors (if any).

- (c) Error Type 18—The DS1 tie trunk has been busied out by a **busyout trunk** grp/mbr command. No calls can be made on this trunk except for the Facility Access Test Call. Facility Access Test Calls are described in Chapter 6 and in *Administrator's Guide for Avaya MultiVantage™ Software, 555-233-506.*
- (d) Error Type 19—This error type indicates that the far-end may be out-of-service, or the Electronic Tandem Network may be busied out.
- (e) Error Type 130—This error type indicates that the Media Module has been removed or has been insane for more than 11-minutes. To clear the error, reinsert or replace the Media Module.
- (f) Error Type 257—The DS1 Interface Media Module detects a hardware error on the DS1 tie trunk. The trunk cannot

  communicate with the far end because it is unable to interpret digits sent from the far-end switch. The Aux Data field indicates the following:

57473	The rotary dial rate is below 8 pulses per second.
57474	The rotary dial rate is above 12 pulses per second.

  Check with the far-end switch or operating company for proper trunk connection.
- (g) Error Type 513—DS1 Interface Media Module detects a hardware error on the DS1 tie trunk. The trunk is in-service/active and waiting for an "on-hook" from the far-end switch. No calls can be routed over the trunk while it is in this state. Aux Data 57392 indicates no external release on PBX disconnect. Check with the far-end switch or operating company for proper trunk connection.
- (h) Error Type 769—The DS1 Interface Media Module detects a hardware error on the DS1 tie trunk. This error usually occurs after an occurrence of error type 513. The trunk has received the belated "on-hook" that it has been waiting for from the far-end switch. The trunk is restored to in-service/idle and can be used for calls. Aux Data 57393 indicates delayed external release on PBX disconnect. This error can be ignored.
- (i) Error Type 1793—The DS1 Interface Media Module is out-of-service. See MG-DS1 Maintenance documentation for details.
- (j) Error Type 2305—Reorder message. The trunk could not be seized. This error causes the Trunk Seizure Test (#136) to run and is only a problem if the Seizure Test fails (in which case Error Type 1025 also appears). In this case, the trunk may be put in ''Ready-for-Service'' state (shown as ''disconnected'' by the status command), which allows only incoming calls. Run the Trunk Seizure Test (#136) and follow its procedures.
- (k) Error Type 2562—Retry Failure error. This error is logged only. It is not a hardware failure and hence does not start any testing or generate any alarms. This error comes from call processing and is generated when a second attempt (retry) to seize an outgoing trunk fails.
- (l) Error Type 2817—Glare error. This error is logged only. It is not a hardware failure and hence does not start any testing or generate any alarms. This error is the result of a simultaneous seizure of a two-way trunk from both the near-end and the far-end. Attempt to place the call again. If the error persists, execute the DS1 Tie Trunk Seizure Test (#136) and follow its outlined procedures.
- (m) Error Type 3840—Port Audit and Update Test (#36) failed due to an internal system error. Enter **status trunk** command and verify the status of the trunk. If the trunk is out-of-service, then enter **release trunk** command to put it back to in-service. Retry the test command.

System Technician-Demanded Tests: Descriptions and Error Codes

Always investigate tests in the order presented in the table below when inspecting errors in the system. By clearing error codes associated with the *NPE Crosstalk Test*, for example, you may also clear errors generated from other tests in the testing sequence.

Table 81. System Technician-Demanded Tests

Order of Investigation	Short Test Sequence	Long Test Sequence	D/ND*
NPE Crosstalk Test (#6) **Note:** *This Test will abort with Error Code 1412*		X	ND
Conference Circuit Test (#7) **Note:** *This Test will abort with Error Code 1412*		X	ND
DS1 Tie Trunk Seizure Test (#136)	X	X	ND
Port Audit and Update Test (#36)	X	X	ND
*D = Destructive; ND = Nondestructive			

Port Audit and Update Test (#36)

This test sends port level translation data from switch processor to the DS1 Interface Media Module to ensure that the trunk's translation is correct. Translation updates include the following data: trunk type (in/out), dial type, timing parameters, and signaling bits enabled. The port audit operation verifies the consistency of the current state of the trunk kept by the DS1 Interface Media Module and the switch software.

Table 82. TEST #36 Audit and Update Test

Error Code	Test Result	Description/ Recommendation
	ABORT	Internal system error Retry the command at 1-minute intervals a maximum of 5 times.

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Table 82. TEST #36 Audit and Update Test *Continued*

Error Code	Test Result	Description/ Recommendation
1000	ABORT	System resources required to run this test were not available. The port may be busy with a valid call. Use the **display port GGGVSpp** command to determine the trunk group/member number of the port. Use the **status trunk** command to determine the service state of the port. If the service state indicates that the port is in use, then the port is unavailable for certain tests. You must wait until the port is idle before retesting. If the port status is active but the port is not in use (no calls), check the error log for error type 1025 (see the error log table for a description of this error and required actions). The port may be locked up. If the port status is idle, retry the command at 1-minute intervals for a maximum of 5 times.
1006	ABORT	The test was aborted because the trunk is out of service. Use the **status trunk** command to verify that the trunk is out of service. If the trunk is out of service, determine why. If it is OK to put the trunk back in service, issue the **release trunk** command to put the trunk back in service, and then retry the test.
2000	ABORT	Response to the test request was not received within the allowable time period.
2100	ABORT	Could not allocate the necessary system resources to run this test. Retry the command at 1-minute intervals a maximum of 5 times.
	FAIL	Internal system error. Retry the command at 1-minute intervals a maximum of 5 times.
	PASS	Trunk translation has been updated successfully. The current trunk states kept in the DS1 Interface Media Module and switch software are consistent. If the trunk is busied out, the test will not run but will return PASS. To verify that the trunk is in-service: Enter the **status trunk** command to verify that the trunk is in-service. If the trunk is in-service, no further action is necessary. If the trunk is out-of-service, continue to step 2. Enter the **release trunk** command to put the trunk back into in-service. Retry the test command.

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Table 82. TEST #36 Audit and Update Test *Continued*

Error Code	Test Result	Description/ Recommendation
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Check to ensure that the board translations are correct. Use the **list config** command, and resolve any problems that are found. If the board was found to be correctly inserted in step 1, issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port. If this is not the case, check to see that there is a valid board inserted.

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DS1 Tie Trunk Seizure Test (#136)

The DS1 Tie Trunk Seizure Test is run to verify the trunk's signaling capability. The test is composed of two parts. The first part queries the Media Module for the following errors: Loss of Signal, Red Alarm, Blue Alarm, Yellow Alarm, and Hyperactivity Alarm. The second part of the test is performed by sending a seizure message to the DS1 Interface Media Module and expecting an active reply by the DS1 Interface Media Module. If maintenance software does not receive any reply and the timer expires, the test fails. Once the active message is received, a dial pause message is sent to the DS1 Interface Media Module. If the DS1 Interface Media Module replies with a dial pulse tone message when the far end responds to the seizure, then the DS1 tie trunk Seizure Test passes. If the far end does not respond to the seizure and the timer expires, and the DS1 Interface Media Module sends a reorder message back to the maintenance software, then the test fails.

This second part of this test *cannot* be run on a trunk if one of the following cases is true:

- The trunk direction is administered as an incoming only trunk.
- The trunk is the 24th port on a DS1 Interface Media Module which is administered using 24th Common Channel Signaling.
- The trunk has been seized by a normal trunk call.
- The trunk is administered with maintenance test disabled.
- The outgoing signal type of the trunk is either automatic or immediate-start.
- This test always passes if the associated board is the TN802 IP trunk Media Module.

Table 83. TEST #136 DS1 Tie Trunk Seizure Test

Error Code	Test Result	Description/ Recommendation
	ABORT	Internal system error Retry the command at 1-minute intervals a maximum of 5 times.
1000	ABORT	System resources required to run this test were not available. The port may be busy with a valid call. Use the **display port GGGVSpp** command to determine the trunk group/member number of the port. Use the **status trunk** command to determine the service state of the port. If the port is in use, wait until the port is idle before testing. If the port status is active but the port is not in use (no calls), check the error log for error type 1025 (see the error log table for a description of this error and required actions). The port may be locked up. If the port status is idle, retry the command at 1-minute intervals for a maximum of 5 times.
1004	ABORT	Far end is seizing the trunk while the test is ongoing. A glare situation is detected. Current test is designed to be aborted. Use the **display port GGGVSpp** command to determine the trunk group/member number of the port. Use the **status trunk** command to determine the service state of the port. If the port is in use, wait until the port is idle before testing. If the port status is idle, retry the command at 1-minute intervals for a maximum of 5 times.
1005	ABORT	Test failed due to incompatible configuration administered in trunk group form. Verify the following fields on the trunk group administration screen: Is trunk direction incoming only? Is trunk outgoing type either automatic or immediate-start? Is trunk the 24th port of the DS1 Interface Media Module while common control channel signaling is specified? If the trunk has been administered using the above information, then this test should abort.
1018	ABORT	The test was disabled via translation. You may want to determine why the test has been disabled before you enable it. Verify that the 'Maintenance Test' field on the 'Trunk Administration' screen is set to 'n.' To enable the test, change the trunk administration and enter 'y' into the 'Maintenance Test' field. Repeat the test.

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Table 83. TEST #136 DS1 Tie Trunk Seizure Test *Continued*

Error Code	Test Result	Description/ Recommendation
1020	ABORT	The test did not run due to an already existing error on the specific port or due to a more general Media Module error. Examine the error log for existing errors against this port or the Media Module and attempt to diagnose the already existing error. Retry the test.
1040	ABORT	The test is invalid for this trunk port because it is administered as an access endpoint. Use **display port** to verify that this port is administered as an access endpoint. In this case the test should abort.
2000	ABORT	Response to the test request was not received within the allowable time period. Retry the command at 1-minute intervals for a maximum of 5 times.
2053	ABORT/ FAIL*	At least one of the following errors is found on the DS1 Media Module: 1281: Loss of Signal 1793: Blue Alarm 2049: Red Alarm 2305: Yellow Alarm 1537: Hyperactivity Look for the above error types in the Hardware Error Log and follow the procedures given in the appropriate DS1-BD/MM-DS1-BD Maintenance documentation for the listed error types.
2100	ABORT	Could not allocate the necessary system resources to run this test. Retry the command at 1-minute intervals for a maximum of 5 times.
	FAIL	The far-end trunk did not respond to the seizure of the near-end trunk within the allowable time period. This test could have associated in-line errors in the error log. Enter the **list configuration board GGGVS** command. Eventually, the board and all of its ports will be taken out of service and extraneous on-board alarms will be generated. Replace the Media Module with a TN767C V3 or later. Verify that the 'Trunk Type' field on the 'Trunk Administration' screen matches the trunk type administered on far-end switch. Look for DS1-BD or MM-DS1 errors in the hardware error log. If present, refer to the DS1-BD (DS1 trunk Media Module) Maintenance documentation or to the MM-DS1 (MM-DS1 trunk Media Module) Maintenance documentation. Retry the test at 1-minute intervals for a maximum of 5 times.

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Table 83. TEST #136 DS1 Tie Trunk Seizure Test *Continued*

Error Code	Test Result	Description/ Recommendation
2000	FAIL	Response to the seizure message was not received within the allowable time period. Enter the **list configuration board GGGVS** command. Eventually, the board and all of its ports will be taken out of service and extraneous on-board alarms will be generated. Replace the Media Module. Verify that the 'Trunk Type' field on the 'Trunk Administration' screen matches the trunk type administered on far-end switch. Look for DS1-MM errors in the hardware error log. If present, refer to the DS1-MM Maintenance documentation. Retry the test at 1-minute intervals for a maximum of 5 times.
	PASS	The trunk can be seized for an outgoing call.
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Check to ensure that the board translations are correct. Use the **list config** command, and resolve any problems that are found. If the board was found to be correctly inserted in step 1, issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port. If this is not the case, check to see that there is a valid board inserted.
*Earlier G1 Software Versions reported Error Code 2053 as a FAIL		

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VAL-PT (Voice Announcements Over LAN Packet/Port)

Table 84. VAL-PT (Voice Announcements Over LAN Packet/Port)

MO Name (in Alarm Log)	Alarm Level	Initial Command to Run*	Full Name of MO
VAL-PT	MAJOR	**test port GGGVSpp long**	VAL Port Maintenance
VAL-PT	MINOR	**test port GGGVSpp long**	VAL Port Maintenance
VAL-PT	WARNING	**test port GGGVSpp**	VAL Port Maintenance

Table 84. VAL-PT (Voice Announcements Over LAN Packet/Port)

MO Name (in Alarm Log)	Alarm Level	Initial Command to Run*	Full Name of MO
Note: You must consult local records for the location and designation of the equipment rack where the G700 is mounted.			

VAL Using The G700

This maintenance object supports Voice Announcements over the LAN for AVAYA G700 Media Gateway systems.

The ANN-VMM (Voice Announcements) MO working with this maintenance object provides per board announcement storage time of up to 20 minutes, (15 playback ports and 1 recording port that can also be used as a playback port) and allows for announcement file portability via LAN connectivity. ANN-VMM also allows for LAN backup and restore of announcement files and the use of customer provided waveform (.WAV) files.

The ANN-VMM hardware is located on the G700 mother board. MultiVantage maintenance software supports the ANN-VMM by using a virtual board concept to allow for board insertion and maintenance testing. The virtual slot location is V9.

System Technician-Demanded Tests: Descriptions and Error Codes

Investigate errors in the order they appear in the table below.

Table 85. System Technician-Demanded Tests: VAL-PT

Order of Investigation	Short Test Sequence	Long Test Sequence	D/ND*
Port Error Counter Test #1280 **Note:** This test will ABORT with Error Code 1412 when run on a Avaya G700 Media Gateway system.			
TDM Looparound Test (#1285) **Note:** This test will ABORT with Error Code 1412 when run on a Avaya G700 Media Gateway system.		X	D
SCOTCH Synchronous Looparound Test (#1275) **Note:** This test will ABORT with Error Code 1412 when run on a Avaya G700 Media Gateway system.		X	D

Table 85. System Technician-Demanded Tests: VAL-PT

Order of Investigation	Short Test Sequence	Long Test Sequence	D/ND*
*D = Destructive; ND = Non-destructive			

WAE-PORT (Wideband Access Endpoint Port)

Table 86. WAE-PORT (Wideband Access Endpoint Port)

MO Name (in Alarm Log)	Alarm Level	Initial Command to Run*	Full Name of MO
WAE-PORT	MINOR	test access-endpoint *extension* l	Wideband Access
WAE-PORT	WARNING	test access-endpoint *extension*	Endpoint Port
*For additional repair information, see also DS1-BD (DS1 Interface Media Module).			

Wideband Switching supports end-to-end connectivity between customer endpoints at data rates from 128 to 1536 kbps over T1 facilities and to 1984 kbps over E1 facilities. MultiVantage switching capabilities are extended to support wideband calls comprised of multiple DS0s that are switched end-to-end as a single entity.

Wideband Switching extends the Administered Connections feature to include non-signaling wideband access endpoints. Endpoint application equipment with direct T1 or E1 interfaces may connect directly to the switch's line-side facilities; application equipment without T1 or E1 interfaces requires a terminal adapter such as a DSU/CSU. The terminal adapter or endpoint application equipment is connected to the MM710.

These endpoints are administered as wideband access endpoints and have no signaling interface to switch; they simply transmit and receive data. (Some applications detect and respond to the presence or absence of data). Calls are initiated from these endpoints using the Administered Connections feature.

Multiple access endpoints on one line-side MM-DS1 Media Module facility are separate and distinct within the facility. Endpoint application equipment must be administered to send and receive the correct data rate over the correct DS0s. All Administered Connections originating from wideband access endpoints use the entire bandwidth administered for the endpoint. An incoming call of a different data rate then that administered of the endpoint cannot be routed to the endpoint.

Although Wideband Access Endpoints are used primarily for line-side facilities, these endpoints can also be administered on network DS1 facilities to connect MultiVantage to non-switched network services, such as the Lucent fractional T-1 service. An example of this is the Lucent Static Integrated Network Access, where a trunk group to AT&T 4ESS Switched Services shares an access T-1 facility with a Wideband Access Endpoint. In this case, the Wideband Access Endpoint is connected to the AT&T fractional T-1 service, and it does not terminate on local endpoint equipment but is connected to a far-end CPE (for example, DEFINITY PBX) via the dedicated fractional T-1. All Wideband

Access Endpoint functionality and operation is identical on both line-side and network facilities. However, because maintenance capabilities are limited to the Wideband Access Endpoint interface, and because faults can occur end-to-end, troubleshooting procedures based on an end-to-end view of the network is required.

Wideband access endpoint port maintenance provides a strategy to maintain a wideband access endpoint port via a port on the DS1 interface Media Module hardware. The maintenance strategy covers logging wideband access endpoint port hardware errors, running tests for port initialization, periodic and scheduled maintenance, demand tests, and alarm escalation and resolution. Two different port service states are specified in the wideband access endpoint port maintenance:

- *out-of-service*: the port is in a deactivated state and cannot be used for calls
- *in-service*: the port is in an activated state and can be used for calls

  If the DS1 Interface Media Module is out of service, all ports on it are taken out of service and a Warning alarm is raised.

Error Log Entries and Test to Clear Values

Table 87. Wideband Access Endpoint Maintenance Error Log Entries

Error Type	Aux Data	Associated Test	Alarm Level	On/Off Board	Test to Clear Value
0*	0	Any	Any	Any	test access-endpoint *extension* sh r 1
18(a)	0	busyout access-endpoint	WARNING	OFF	release access-endpoint *extension*
130(b)		None	WARNING	ON	test access-endpoint *extension*
1793(e)		None			test board *GGGVSpp* long
3840(f)	Any	Port Audit and Update (Test #36)			
*Run the Short Test Sequence first. If all tests pass, run the Long Test Sequence. Refer to the appropriate test description and follow the recommended procedures.					

Notes:

- (a) The wideband access endpoint has been busied out by a **busyout access-endpoint** extension command. No calls can be made to this extension.
- (b) The Media Module has been removed or has been insane for more than 11-minutes. To clear the error, reinsert or replace the Media Module.
- (e) The Interface Media Module has failed. See DS1-MM.

- (f) The Port Audit and Update Test (#36) failed due to an internal system error. Enter **status access-endpoint** extension and verify the status of the port. If the wideband access endpoint port is out of service, enter **release access-endpoint** extension to put it back into service. Retry the test command.

Technician-Demand Tests: Descriptions and Error Codes

Always investigate tests in the order presented in the table below when inspecting errors in the system. By clearing error codes associated with the *NPE Crosstalk Test*, for example, you may also clear errors generated from other tests in the testing sequence.

Table 88. Technician-Demand Tests

Order of Investigation	Short Test Sequence	Long Test Sequence	D/ND*
NPE Crosstalk Test (#6) **Note:** This Test ABORTS with code 1412 when run on a Avaya G700 Media Gateway system.		X	ND
Conference Circuit Test (#7) **Note:** This Test ABORTS with code 1412 when run on a Avaya G700 Media Gateway system.		X	ND
Port Audit and Update Test (#36)	X	X	ND
*D = Destructive; ND = Nondestructive			

Port Audit and Update Test (#36)

This test sends port level translation data from switch processor to the DS1-MM Interface Media Module to ensure that the wideband access endpoint port's translation is correct.

Table 89. TEST #36 Audit and Update Test

Error Code	Test Result	Description/ Recommendation
	ABORT	Internal system error Retry the command at 1-minute intervals a maximum of 5 times.

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Table 89. TEST #36 Audit and Update Test *Continued*

Error Code	Test Result	Description/ Recommendation
1006	ABORT	The port is out-of-service. If the port is busied out: Issue **release access-endpoint <extension>** command to put the port back into in-service. Retry the test command. If the port is not busied out: Check the error and alarm logs for WAE-PORT and MM-DS1 errors and alarms and follow the recommended repair procedures.
2000	ABORT	Response to the test request was not received within the allowable time period. Retry the command at 1-minute intervals a maximum of 5 times.
2100	ABORT	Could not allocate the necessary system resources to run this test. Retry the command at 1-minute intervals a maximum of 5 times.
	FAIL	Internal system error Retry the command at 1-minute intervals a maximum of 5 times.
	PASS	Port translation has been updated successfully.
Any	NO BOARD	The test could not relate the internal ID to the port (no board). This could be due to incorrect translations, no board is inserted, an incorrect board is inserted, or an insane board is inserted. Ensure that the board translations are correct. Execute the **add ds1 GGGVS** command to administer the DS1-MM interface if it is not already administered. If the board was already administered correctly, check the error log to determine whether the board is hyperactive. If this is the case, the board is shut down. Reseating the board will re-initialize the board. If the board was found to be correctly inserted in step 1, then issue the **busyout board** command. Issue the **reset board** command. Issue the **release busy board** command. Issue the **test board long** command. This should re-establish the linkage between the internal ID and the port.

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XXX-BD (Common Port Media Module)

Table 90. XXX-BD (Common Port Media Module)

MO Name (in Alarm Log)	Alarm Level	Initial Command to Run *	Full Name of MO
XXX-BD**	MAJOR	test board GGGVS	Common Port Media Module Maintenance
XXX-BD**	MINOR	test board GGGVS	Common Port Media Module Maintenance
XXX-BD**	WARNING	test board GGGVS	Common Port Media Module Maintenance
Note: You must consult local records for the location and designation of the equipment rack where the G700 is mounted.			
**Refer to the appropriate Media Module documentation for the correct MO name displayed in this field. It usually ends with BD.			

Common Port Media Module Maintenance is a set of common tests used by all the Media Modules listed in the tables below. The XXX-BD designation is also used on SAT displays when **reset board** is entered with an empty Media Module slot, or with a Media Module type that is in conflict with the actual board type administered for that slot. All Media Module suffixes (B,C, D, and so forth) are supported by "XXX-BD."

When any of the Common Port Media Modules are physically removed from the backplane, no alarm will be logged for approximately 11-minutes. (In the case of the MM712 Digital Line, MM720, and Intuity AUDIX, approximately 21-minutes will elapse before an alarm is logged.) When a Media Module that has been removed is alarmed, the alarm type is minor and is classified as an on-board alarm. The time delay permits maintenance activity to be performed without triggering an additional alarm.

Alarms are logged against only those common port Media Modules on which ports have been administered. In a heavily loaded system, the interval between the removal of a Common Port Media Module and the logging of the alarm may be several minutes longer. Suffixes are not shown; for a list of all Media Modules supported, see the table in Chapter 2. Those that appear in **bold** type are documented separately under their own maintenance object name.

XXX-BD Common Media Modules

The following list of Media Modules are listed by apparatus code.

Table 91. XXX-BD Common Media Module

Apparatus Code	Name	Type
MM710	DS1/E1 Interface - T1, 24 Channel - E1, 32 Channel	Port
MM711	Analog Trunk and Line	Port
MM712	Digital Line, 24-Port, 2-Wire DCP	Port

Error Log Entries and Test to Clear Values

Table 92. Common Port Media Module Maintenance Error Log Entries

Error Type	Aux Data	Associated Test	Alarm Level	On/Off Board	Test to Clear Value
0*	0	Any	Any	Any	test board GGGVS sh r 1
1(a)	0	Media Gateway removed or SAKI Sanity Test (#53)	MINOR	ON	
18(b)	0	busy-out board GGGVS	WARNING	OFF	release board GGGVS
23(c)	0	None	WARNING	OFF	
125 (e)		None	MINOR	ON	
257	65535	Control Channel Test (#52)	MINOR	ON	test board GGGVS sh r 20
257 (g)	Any	None			
267	0	None	WARNING	ON	
513 (h)	Any	None	MINOR	ON	test board GGGVS sh
769 (i)	4358	None			
1281 (k)		Ringing Application Test (#51)	MINOR	ON	test board GGGVS r 2
1538 (l)	Any	None	WARNING/ MINOR	ON	
3840 (n)	Any	None			
3999 (o)	Any	None			

Table 92. Common Port Media Module Maintenance Error Log Entries *Continued*

Error Type	Aux Data	Associated Test	Alarm Level	On/Off Board	Test to Clear Value
*Run the Short Test Sequence first. If all tests pass, run the Long Test Sequence. Refer to the appropriate test description and follow the recommended procedures.					

Notes:

- (a) Error type 1 indicates the Media Module has stopped functioning or has been physically removed from the system. The alarm is logged approximately 11 minutes after removal of the Media Module or failure of the SAKI Sanity Test (#53).

  Check for the physical presence of the Media Module in the slot indicated by the alarm. If the Media Module is not present, insert one of the proper type. If the Media Module is present and its red LED is lit.

- (b) This error indicates the Media Module has been busied out. Release the Media Module via **release board GGGVS**.

- (c) The Media Module has been logically administered but not physically installed. The alarm should clear when the circuit pact is installed.

  If the Media Module is already installed:

1. Run **test board GGGVS long** and look at any test failures or error codes generated.
2. If the test does not clear error 23, then execute **reset board GGGVS** and run the long test again.
3. If the reset/test does not clear error 23, replace the Media Module.

- (e) The Media Module physically installed in the slot does not match the type that is administered for that slot. Do one of the following:
  - Remove the incorrect Media Module and replace it with one of the type that is administered for that slot.
  - Use **change media module** to re-administer the slot so that it matches the board that is installed, and follow with **reset board**.
- (g) This error indicates transient communication problems with this Media Module. This error is not service-affecting and no action is required.
- (h) This error, when reported with Aux data in the range of 4352 to 4358, indicates that the Media Module has reported an on-board hardware failure. The Media Module will continuously test the hardware and report the results approximately every 10 minutes. If the hardware problem is resolved, the “leaky bucket” strategy should clear the alarm in approximately 30 minutes. However, if the alarm does NOT clear in 30 minutes, then the Media Module should be replaced.
- (i) This error can be ignored, but look for other errors on this Media Module.
- (k) This error indicates that no ringing current is detected. Run Test #51, Ringing Application Test, and follow the procedures for Test #51. This error is only applicable to Analog Line Media Modules.
- (l) The hyperactive Media Module is out-of-service and may exhibit one or more of the following symptoms:

1. The common Media Module level tests such as Test #51 are aborting with error code 2000.
2. The tests run on the ports of this Media Module are returning with a NO-BOARD.
3. A busy-out/release of the Media Module has no affect on test results.
4. A **list configuration** command shows that the Media Module and ports are properly installed.

   If this error happens again within 15 minutes, then replace the Media Module. If the XXX-BD is a Digital Line Media Module, then check the alarm level. If the alarm level is a WARNING, this indicates that users are probably causing the hyperactivity by playing with their digital stations. If the Media Module is really hyperactive then this alarm will be upgrade to a MINOR alarm within 1 hour. If the alarm level is a MINOR alarm, then replace the Media Module.

- (n) This error is not service-affecting and no action is required.
- (o) Error type 3999 indicates that the Media Module sent a large number of control channel messages to the switch within a short period of time. If error type 1538 is also present, then the Media Module was taken out-of-service due to hyperactivity. If error type 1538 is not present, then the Media Module has not been taken out-of-service, but it has generated 50% of the messages necessary to be considered hyperactive. This may be completely normal during heavy traffic periods. However, if this error type is logged when the Media Module is being lightly used, it may indicate a problem with the Media Module or the equipment attached to it.

Technician-Demand Tests: Descriptions and Error Codes

Always investigate tests in the order presented in the table below when inspecting errors in the system. By clearing error codes associated with the *NPE Audit*, for example, you may also clear errors generated from other tests in the testing sequence.

Table 93. Technician-Demand Tests

Order of Investigation	Short Test Sequence	Long Test Sequence	Reset Board Sequence	D/ND*
NPE Audit Test (#50) **Note**: This Test will ABORT with code 1412				
Ringing Application Test (#51) (a) **Note**: This Test will ABORT with code 1412				
Control Channel Looparound Test (#52)	X	X		ND
SAKI Sanity Test (#53) (b)		X	D	

Table 93. Technician-Demand Tests *Continued*

Order of Investigation	Short Test Sequence	Long Test Sequence	Reset Board Sequence	D/ND*
Neon Test (#220) (c) **Note:** This Test will ABORT with code 1412	X	X		ND
*D = Destructive; ND = Nondestructive				

Notes:

- (a) Only applicable to Analog Line Media Modules.
- (b) The SAKI Sanity Test is run on other Media Modules only when they are reset via the **reset board** command.
- (c) Only applicable to MM711 Analog Line Media Modules.

Control Channel Looparound Test (#52)

This test queries the Media Module vintage and verifies its records.

Table 94. TEST #52 Control Channel Looparound Test

Error Code	Test Result	Description/ Recommendation
None 2100	ABORT	System resources required for this test are not available. Retry the command at 1-minute intervals a maximum of 5 times.
	FAIL	The test failed because the Media Module failed to return the Media Module code or vintage. Retry the command for a maximum of 5 times. If the test still fails, issue the **busyout board**, **reset board**, and **release busy board** commands, and then retest. If the problem continues, replace the Media Module. Run the test again.
	PASS	Communication with this Media Module is successful.
Any	NO BOARD	This is normal if the test is being done when (a) the board is not physically in the system or (b) the system is booting up. Otherwise, there is some inconsistency between the physical configuration and the data kept in the system. Verify that the board is physically in the system. Verify that the system is not in a stage of booting up. Retry the command at 1-minute intervals for a maximum of 5 times.

SAKI Sanity Test (#53)

CAUTION: This test resets the Media Module. It is executed as part of the long test sequence only for the Tone-Clock Media Module and DS1 interface Media Modules. Other common Media Modules can be reset with the **reset board GGGVSpp** command which also executes this test.

Table 95. TEST #53 SAKI Sanity Test

Error Code	Test Result	Description/ Recommendation
None	ABORT	System resources required for this test are not available. Retry the command at 1-minute intervals a maximum of 5 times.
1005	ABORT	If the Media Module needs to be reset, and if this is an Avaya G700 Media Gateway system, and the DS1 interface Media Module under test is providing timing for the platform, it cannot be reset without major platform disruptions (Note: For this type of system the sync timing source is local to the G700). Set the synchronization timing source to another DS1 interface Media Module located in the same G700 and retest. See "Setting G700 Synchronization" on page 80. If the Media Module needs to be reset, then set synchronization to another DS1 interface Media Module or the Tone-Clock Media Module and try again. Refer to SYNC (Synchronization) Maintenance documentation.
1015	ABORT	Port is not out-of-service. Busy out the Media Module. Execute command again.
2100	ABORT	System resources required for this test are not available. Retry the command at 1-minute intervals a maximum of 5 times.
1	FAIL	The Media Module failed to reset.
2	FAIL	The Media Module failed to restart. Execute command again. If the problem persists, replace the Media Module.
	PASS	The Media Module initializes correctly. Run the short test sequence.

1 of 2

Table 95. TEST #53 SAKI Sanity Test *Continued*

Error Code	Test Result	Description/ Recommendation
Any	NO BOARD	This is normal if the test is being done when (a) the board is not physically in the system or (b) the system is booting up. Otherwise, there is some inconsistency between the physical configuration and the data kept in the system. Verify that the board is physically in the system. Verify that the system is not in a stage of booting up. Retry the command at 1-minute intervals for a maximum of 5 times.

2 of 2

7 License Files

This chapter describes license files as they are related to Media Modules for the Avaya™ S8300 Media Server with an Avaya™ G700 Media Gateway.

For general information on License Files, refer to *"Avaya MultiVantage™ Solutions Hardware Guide, 555-233-200"*.

License Files for Different Configurations

License files are assigned differently depending on the S8300 Media Server and G700 Media Gateway configuration.

S8300 Media Server

When the system configuration is a G700 with an S8300, the S8300 is a Linux-based processor running the Avaya MultiVantage call processing software. The serial number of the G700 in which the S8300 is inserted is used in the license file for identification.

External Media Server (S8700)

When the Avaya MultiVantage software is running on an External Media Server, such as an S8700, that platform's hardware is used for license file authentication. In this configuration, a G700 does not require a separate license file and is thought of as an extension of the server's platform. Licensing is handled by the server.

Survivable Configuration

In a survivable configuration, the S8300 processor — referred to as the S8300 Media Server configured as an LSP (Local Survivable Processor) — is present on the G700, but the Avaya MultiVantage call processing software is not active and runs in a special survivable mode. The LSP provides service to a subset of users in the event that the G700 cannot be served by its primary Media Server.

Each S8300 configured as an LSP has its own license file that contains the serial number of the G700 into which the LSP is physically inserted. As soon as the LSP becomes active and begins providing service as the Media Server, it invokes License-Error mode. The LSP can remain in License-Error

mode for a maximum of 6 days. If the LSP is still acting as the active server after that time, it enters No-License mode.

License File Modes

license files for the Avaya™ S8300 Media Server with an Avaya™ G700 Media Gateway function in the following three modes:

License-Normal Mode

This is the desired mode of operation for a stable switch. During this mode, a license is properly installed, the license contains a serial number that matches the G700's, the license is not expired, and the feature usage does not exceed limits set in the license.

License-Error Mode

This is a warning mode. During this mode, call processing is supported, a major alarm is declared, and a ten-day timer begins. If this timer expires, No-License Mode is invoked.

Clear License-Error Mode by correcting the error that caused entry into License-Error Mode, or by installing a valid license that is consistent with the configuration of the switch.

This is caused when:

- A survivable processor beginning to provide service, which causes a major alarm
- The serial number in the license file does not match the serial number of the G700 into which the S8300 is physically inserted

To resolve this problem:

- Check your networking
- Check your serial numbers

Access the following sections of the Web Interface:

- Security -- View License Status
- Server Configurations and Upgrades -- View Serial Number

No-License Mode

In this state, all new call originations (except alarm calls and calls to an administered emergency number) and incoming calls (except to an administered no-license call number) are denied.

Clear No-License Mode by correcting the error that caused entry into No-License Mode, or by installing a valid license that is consistent with the configuration of the switch.

To resolve this problem:

- Check your networking
- Check your serial numbers

Access the following sections of the Web Interface:

- Security -- View License Status
- Server Configurations and Upgrades -- View Serial Number

License and Options Forms Interactions

The software license contains a set of information known as a feature mask. The content of the feature mask controls what features are enabled or may be enabled on the product. There are two types of entries in the feature mask:

- Type I Entry
- Type II Entry

Type I entries relate to those types of features that have a simple on/off state. An example is “DCS Call Coverage.” It is either enabled or not. Each Type I entry has two variables associated with it:

- A value
- A lock

Variables are always locked either On of Off by the License File. Four combinations are possible with meanings as shown in Table 96.

Table 96. Type I Feature License Behavior

License Content		Consequence	
Value	**Lock**	**Feature Status**	**Options* Screen**
On	Unlocked	Set by translation via login. If no translation, feature is enabled.	init and dadmin may administer this feature.
On	Locked	Translation is always ignored. Feature is enabled any time translations are loaded.	init and dadmin may turn this feature off and then back on, but when the switch is rebooted or translation loaded, the feature will be on. i.e. login affects current value in memory only.
Off	Unlocked	Set by translation via login. If no translation, feature is disabled.	init and dadmin may administer this feature.
Off	Locked	Translation is always ignored. Feature is disabled any time translations are loaded.	The entry for this feature is display only on the options form. It may not be turned on via any login.
*offer-options, customer-options, and special applications forms			

Type II entries relate to those types of features that have a numeric value. An example is “Logged-in ACD Agents.” Each type II entry has two values associated with it, a lower limit value (V1), and an upper limit value (V2). V1 is never greater than V2. The following conditions are possible as shown in Table 97.

Table 97. Type II and Type III Feature License Behavior

License Content	Consequence	
V1 and V2	**Feature Status**	**Options* Screens**
V1 less than V2	If no translations are present or if translation value is less than V1 or greater than V2, feature has value V1. If translations are present and have a value from V1 to V2, then feature has value from translation.	init and dadmin can administer this feature to any value from V1 to V2.
V1equal to V2	Feature has value V1.	The entry for this feature is displayed only on the options form. It may not be set via any login.
V1 greater than V2	This is not a valid state. The license tools should prohibit this condition. License is invalid.	License is invalid. If this condition reaches the switch, the effective value is zero.
*offer-options, customer-options, and special applications forms		

Type III entries relate to those types of features that have a product ID, a release number, and a numeric value. An example is “IP_Agent.” Just as for Type II features, the numeric value for each type III entry has two values associated with it, a lower limit value (V1), and an upper limit value (V2). V1 is never greater than V2. See Table 97.

LSP Feature Functionality

A new display-only field has been added to the ‘OPTIONAL FEATURES’ section of the ‘system-parameters customer-options’ form. This field is used to indicate that the switch is an S8300 functioning in Local Survivable Processor mode. This field is modified ONLY via the license file and is “display only” on the ‘system-parameters customer-options’ form. A new display-only field name is included called Local Survivable Processor.

8 S8300 Media Server Web Interface

The Web Interface for the Avaya™ S8300 Media Server provides the user with the capability to perform maintenance and administrative tasks related to the S8300. The following sections describe the content and functionality of and the maintenance areas related to the Web pages.

For detailed information on the Web Interface, including accessing information, refer to the *G700/S8300 Online Help* on the Avaya website.

Introduction

This browser-based web administration interface is used to administer the S8300 Media Server with the G700 Media Gateway on the corporate local area network (LAN).

The administration interface via the Web is an efficient way to configure your S8300 Media Server with G700 Media Gateway. In addition to initial administration, it allows you to check server status, perform software and firmware upgrades, and back up and restore data files. The administration interface via the Web complements the other server-administration tools, such as the System Access Terminal (SAT) emulation program and the Avaya Site Administration telephony application. The browser-based web administration interface focuses on the setup and maintenance of your S8300 Media Server with the G700 Media Gateway.

Accessing the S8300 Web Interface

For detailed information in the S8300 Web interface, see *G700/S8300 Online Help* on the Avaya website.

Avaya Services personnel can access the S8300 Web Interface:

- Via a point-to-point protocol connection through the USB modem
- Through Ethernet access over the customer's LAN

For detailed accessing procedures, refer to *"Access Procedures"* in the *"Welcome to Avaya™ S8300 Media Server and Avaya™ G700 Media Gateway."*

It is assumed that the Web Interface is being accessed through a PC capable of running Avaya Site Administration, TELNET/SSH, FTP, and a Web browser. In cases where the user is administering the network with Avaya™ MultiService Network Manager and Avaya Site Administration, the Avaya Site Administration requires a Windows-based platform.

Using the S8300 Web Interface

The following sections (located on the left side of the Web Interface Introductory screen) contain associated screens that you can use to complete maintenance and diagnostics tasks. For example, you might go to the Alarms and Notification section and choose the "View Current Alarms" screen, or go to the Diagnostics section and choose the "Execute Ping" or "Test Modem" screens.

- Telephony Administration
- Utility Software
- Data Backup/Restore
- Alarms and Notification
- Server
- Security
- SNMP
- Diagnostics
- Miscellaneous
- Installation and Upgrades

Additional detail is included in the following sections for areas most commonly used to execute maintenance-related processes.

Telephony Administration

Using the Web Interface, the user has the ability to download and start Avaya Site Administration to perform telephony administration.

Backup and Restore Web Interface

Using the Backup and Restore Web Interface, the user can:

- Perform an immediate backup
- Schedule a backup
- View the backup log
- Perform a data restore. With multiple backups available, this includes previewing the backup set type, time of backup, and location.

Note: This assumes that the disk is operational, and that the Web Server is active.

Alarming and Notification Web Interface

Using the Alarming and Notification Web Interface, the user is able to display important system alarms.

SNMP Web Administration

The user is able to perform the following tasks:

- Configure SNMP trap destination from the Web Interface

Note: This is for non-INADS alarms only. INADS administration is via command line only per services.

- Start and stop the master agent

Diagnostics Web Interface

Note: The user is NOT able to test the LEDs on the G700 Media Gateway from the Web Interface.

Using the Diagnostics Web Interface, the user is able to perform the following tasks:

Note: The main LED testing functionality is done from the G700 CLI.

- Make the "restart causes" MultiVantage history available via the Web Interface.
- View the system logs, including Avaya MultiVantage logs and CHIA logs
- Search and filter the logs displayed via the Web Interface

Note: The Linux CLI provides log-filtering utilities. The sorting feature organizes the table fields (i.e. name, type, and timestamp) for the specific page.

- Display the current temperature and voltage
- Access the ping utility
- Access the traceroute utility
- Access the netstat utility
- Test the modem

Installation and Upgrade

The user is able to perform the following maintenance-related installation and upgrade tasks via the Web Interface:

- Display the software version of Linux, Avaya MultiVantage™, and IA 770 Intuity AUDIX
- Perform software upgrades. This includes Avaya MultiVantage, IA 770 Intuity AUDIX, and Linux OS software upgrades.
- Use a "Commit Upgrades" link to perform a reboot onto the partition with the new software.
- Use a "Reset to Defaults" link to reset the configurable parameters to their original values.
- Install a new license.

9 G700 and Media Module LEDs

This chapter describes the locations of LEDs on the Avaya™ G700 Media Gateway and on the Media Modules and the meanings associated with LED colors.

LEDs appear on:

- The G700 LED panel
- Each Media Module

LEDs are important status indicators for technicians during onsite installation, maintenance, troubleshooting, and repair. They encompass three major areas: Alarms, Testing, and Usage Activity. Some LEDs are specialized to support specific procedures (such as removing the S8300 Media Server). When alarms or problems occur, LEDs are present to indicate that attention by a technician is needed.

The G700 LEDs used are the same as those on the Cajun P330, with the following exceptions:

- Slight modifications to two of the LEDs (OPR and SYS)
- The addition of the Alarm LED to the LED Panel to prominently display any error condition

See *"Table 2-1: Avaya P33T LED Description, in the Avaya™ P333T User's Guide"* for a complete listing of led's.

The three traditional LEDs are used on Media Modules so that voice technicians do not have any problems with their current troubleshooting and diagnostic methods when using both software and hardware to obtain status information. While some Media Modules have additional LEDs, each Media Module has three standard LEDs:

- Red for alarm
- Green for test (to indicate that the board is under test or ports are "busied out")
- Yellow for in use or activity (voice traffic is going across the ports of this board)

Note: The four multi-color specialized status LEDs that have appeared on various DEFINITY server TN boards like the E1/T1/DS1 board (TN464F) do not appear on the Media Modules.

Note: There are LEDs on the physical G700, as discussed here, and also LEDs that can be viewed via PCView, the Device Manager.

Operational Definition of Traditional LEDs

Table 98 indicates the meanings associated with traditional DEFINITY server LEDs. Although in some cases these LEDs have been augmented or modified for the S8300 Media Server and G700 Media Gateway, it is important to be aware of their traditional meanings when viewing the system.

Table 98. LED Interpretation

Red	Upon power-up or module insanity, this LED is turned on. Upon passing diagnostics, this LED is turned off.
Green	During power-up self testing and maintenance testing, this LED is turned on.
Yellow	This LED indicates that the module is in service.

LED Panel Location on the G700

As shown in Figure 12, the LED panel is located on the top left corner of the G700. Directly below the LED panel is Media Module slot V1, which can be occupied by any type of Media Module. However, the S8300 Media Server can reside only in this particular slot because of height restrictions (for a specific discussion of the S8300 LEDs, please see “S8300 Media Server LEDs” on page 287.

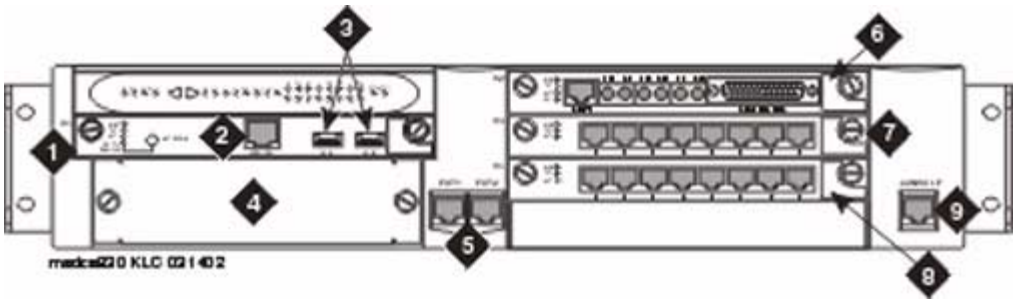

Figure 12. G700 Callouts

1. Media Gateway Slot #1 (V1)
2. S8300 Services Port (Used with cross-over ethernet cable)
3. S8300 USB-Series Modem connection
4. G700 Chassis
5. 10/100 Base-T Ethernet Ports (Ext1, Ext2)
6. Media Gateway Slot #2 (V2)
7. Media Gateway Slot #3 (V3)
8. Media Gateway Slot #4 (V4)
9. Console Interface

Figure 13 shows an expanded view of the G700 LED panel.

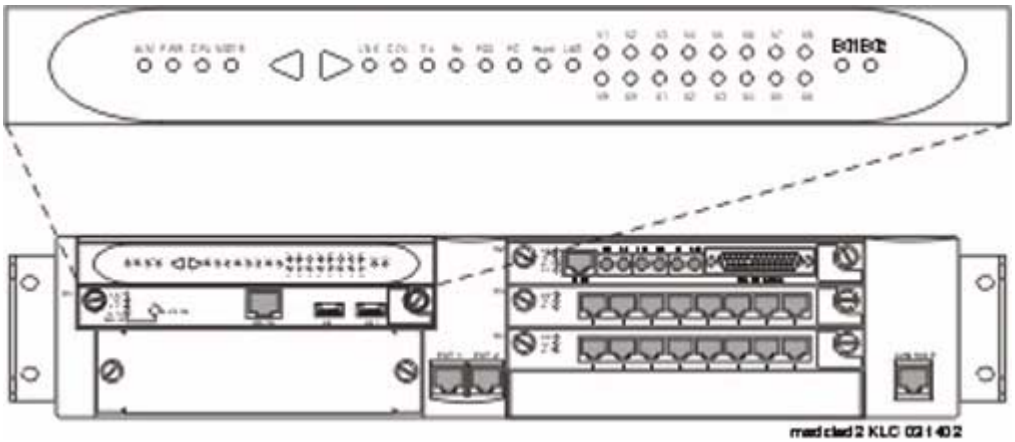

Figure 13. G700 LED Panel

LED Locations on the Media Modules

All Media Modules have the three standard LEDs on the faceplate as shown in Figure 14. In addition, the following E1/T1 Media Module has additional LEDs as shown in Figure 15.

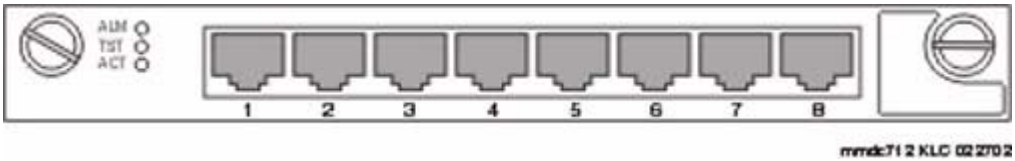

Figure 14. Three Standard Faceplate LEDs

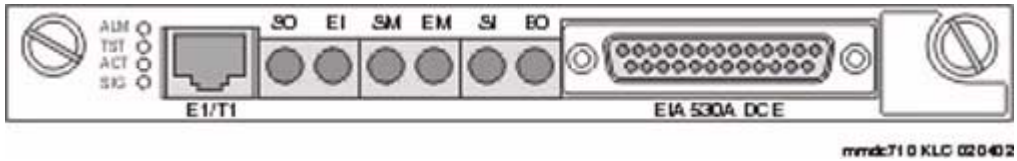

Figure 15. E1/T1 Media Module with Fourth LED

LED Support of Service Technician Tasks

The following sections outline some of the potential user scenarios for LEDs. Examples illustrate how LEDs on Media Modules and the LED Panel support service technician tasks.

Note: This section does not exhaustively cover all tasks.

Alarming Situations and Locating the Problem

LEDs are meant to support installation and maintenance tasks. The most important task is the determination of an alarm situation for a particular Media Module and/or G700.

A RED Alarm LED located on each Media Module and on the LED Panel helps technicians isolate the alarm to a specific piece of equipment. When the RED Alarm LED is lighted on the LED panel, the technician should understand that there is an alarm associated only with the motherboard or chassis.

Note: The RED Alarm LED on the LED Panel does not indicate any alarms on the Media Module.

In an alarm situation, you may need to remove a Media Module or G700 or take it out of service. The GREEN Test LED and YELLOW active/in-use LED help you determine when the equipment can be removed without interrupting calls.

Special Circumstances when Removing the S8300

When removing the S8300, initiate a shutdown process by first depressing the button (for 2 seconds) located next to the fourth GREEN “Ok-to-Remove” LED (specific to the S8300). This LED will first blink; then go steady. Once steady, this GREEN LED indicates that the disk drive has been parked properly and is ready to be removed.

▲ CAUTION:
If you remove the S8300 before the disk is parked, you may corrupt important data.

LED Panel for the G700

Typically, there are 27 LEDs that appear on the LED Panel for the G700; see *“Avaya™ P330 Manager User Guide”*. The following three LEDs have been added to the LED Panel for the G700:

- RED ALM or Alarm LED
- EXT 1 LED
- EXT 2 LED

The G700 MSTR LEDs have the following difference from Cajun LEDs:

- The bottom G700 in a stack of 10 G700s with the same version firmware is always elected master (therefore, its MSTR light is lit). But, if the firmware versions are not the same, the G700 with the latest firmware version is elected master and its MSTR light is lit. If there is only one G700 in a stack, its MSTR light is always lit.

Navigating using the LEDs

Navigation using the front panel LEDs on the G700 is that same as with the Cajun P330 series. *"Table 2-2: Avaya P330 <--> Select buttons, in the Avaya™ P333T User's Guide"*. For example, a technician can use the arrows to move left and right between the LEDs, and check the following:

- LNK (link)
- Col (collision)
- Tx (send)
- Rx (receive)

In addition, a technician can query the status of the ports using 51-66 in the LED panel.

Also, the G700 has the following system-wide LEDs on the left of the panel:

- ALM
- PWR
- CPU
- MSTR (identical to SYS in Cajun)

Front Panel LEDs

The front panel includes the following LEDs Figure 16:

- 4 LEDs in Voice/Data Module zone (ALM, PWR, CPU/OPR, MSTR/SYS)
- 16 LEDs representing the Data Ports associated with the Personality Module or Data Expansion Ports
- 8 LEDs in Data Function zone (LNK, COL, Tx, Rx, FDX, FC, Hspd, LAG)
- 2 LEDs (EXT 1 and EXT 2) for two 10/100 Mb data ports on the chassis

Note: The four LEDs (ALM, PWR, CPU/OPR, MSTR/SYS) are positioned as close as possible to the top left corner of the LED Panel so that important motherboard-related information can be quickly located by the service technician.

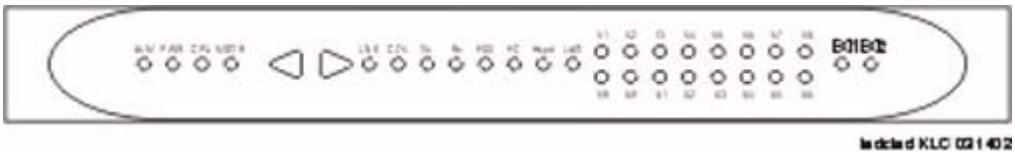

Figure 16. G700 Front Panel LEDs

Using G700 LED Panel Push-Buttons

Use the push buttons (on the right and left of data mode LEDs) for selecting the function to be reported simultaneously by all 16 of the Port data expansion LEDs. The function you are selecting is indicated by a lightened LED in that Function zone. Each time you press on the right (or on the left) push-button, the function currently lighted moves by one to the right (or to the left) accordingly.

For example, if the COL LED is lit, all 16 Ports associated with the data expansion module LEDs are reporting the Collision status of their respective port. If you want to select the LAG function, press 6 times on the right push-button. Afterwards, if you want to select the Rx function, press 4 times on the left push-button.

For the G700, the LEDs display the information of ports 2 External 10/100Base-T Ethernet links and data expansion ports 51-66. At power up the LEDs indicate the Link status of ports 51-66 and ext 1 & ext 2. Push the right button once to move the indication to Collision status of ports 51-66 and ext 1 & ext 2. Push the left button to move the indication backwards.

Note: Eight pushes in one direction complete a full cycle of display.

If you press the right and the left pushbuttons simultaneously for:

- 1.5sec, the module resets the Layer 2 Switching Processor but not the Media Gateway Processor
- 4 sec, the whole stack resets (performing slot renumbering)
- 18sec, the module enters the debug mode – module disabled for data traffic

Note: Currently, there is no physical button or sequence of button presses defined to reset the Media Gateway Processor or G700. Complete software resets by using the Command Line Interface (CLI) for the Device Manager of the G700.

RED ALM or Alarm LED

The presence of this RED Alarm LED is primarily for onsite service technicians or dispatches. It alerts technicians of major failures that require a physical replacement or removal of equipment. Most major G700 components controlled or monitored by the motherboard are a cause of illumination. This includes the VoIP Media Module, but not other Media Modules.

Note: The RED ALM LED lights for motherboard problems only. Scan for a RED ALM LED for problematic G700s and also scan all of the Media Module LEDs for any Media Module specific RED ALM LEDs.

Note: If the RED ALM LED is lit on a non-VoIP Media Module, check the G700 alarm screens and the MultiVantage alarm screens to determine where the fault lies.

The RED ALM or Alarm LED is on the top-left most corner of the LED Panel next to other important system LEDs (PWR, CPU, MSTR) as specified in Figure 16. The Alarm LED indicates the health of the G700 by lighting under two distinct circumstances:

- G700 hardware failure
  - There are impaired functions of the Layer 2 Switching Processor, Media Gateway Processor, or VoIP engine
  - The power supply voltage is out of bounds
  - The unit is overheating
- When the G700 cannot communicate to any server

For example:

- The RED ALARM LED is lighted when two or more fans have failed to indicate catastrophic fan failure. Various warnings, alarms, and a graceful shutdown are performed based on the fan and thermal sensor conditions.
- The RED ALM LED is lit from the time power is applied until diagnostics pass.

The RED ALARM LED on the LED Panel is turned “OFF” under two distinct circumstances:

- When physical conditions such as temperature are rectified and return to normal or acceptable operating ranges
- In situations where the alarm is cleared manually

EXT 1 LED

EXT 1 LED appears on the LED Panel, which reports the status of the first 10/100 MB/sec port (these LEDs report the 8 different functional statuses dictated by the left and right arrow buttons).

EXT 2 LED

EXT 2 LED appears on the LED Panel, which reports the status of the second 10/100 MB/sec port (these LEDs report the 8 different functional statuses dictated by the left and right arrow buttons).

LED Label Changes

The following P330 LED labels have been changed for the G700, although the functionality remains the same:

- The LED labeled OPR on the P330 is relabeled as CPU on the G700
- The LED labeled SYS on the P330 is relabeled as MSTR on the G700

Definitions of LEDs

Table 99 illustrates the LED definitions.

Table 99. LED Definitions

No.		LED Name	Description	LED States
1		ALM	Alarm Status Color is RED	OFF - No alarms exist
				ON (RED) - Alarm exists on the chassis itself
2		PWR	Alarm Status Color is GREEN	OFF - Power is down
				ON - Power is up
				Blinking - every 1.2 seconds (400ms on, 800ms off) when 5 volts power is not available to the riser board and the Media Modules
3		CPU	CPU Operation Color is GREEN	OFF - CPU is in boot operation or is running BIST
				ON - CPU boot operation and BIST completed
4		MSTR	Master/Slave Status Color is GREEN	OFF - Slave box of the stack
				ON - Master of the stack and redundant cable is not present or not active
				1 Blink every 1.5 sec - Master of the stack and active redundant cable
5	a	LNK port 51-66, Ext 1-2	Port Status Color is GREEN	OFF - Port disabled or not existent. At phase 1, or link fail of Giga ports.
				ON - Port is enabled and link is OK.
				1 Blink every 1.5 sec - Link test fail (of 10/100M ports only at phase 1)
				2 Blinks every 1.5 sec - Partition
	b	COL Port 51-66, Ext 1-2	Collision (GREEN)	OFF - No collision or FDX port
				ON - Collision occurred on line
	c	Tx Port 51-66, Ext 1-2	Transmit to line (GREEN)	OFF - No transmit activity
				ON - Data transmitted on line
	d	Rx Port 55-66, Ext 1-2	Receive from line (GREEN)	OFF - To receive activity
				ON - Data received from the line

1 of 2

Table 99. LED Definitions *Continued*

No.		LED Name	Description	LED States
	e	FDX Port 51-66, Ext 1-2	Half/Full Duplex (GREEN)	OFF - Half Duplex mode of operation
				ON - Full Duplex mode of operation, or for 10/100Base-T ports when link test fail with auto-negotiation enabled
	f	FC* Port 51-66, Ext 1-2	Symmetric Flow Control (GREEN)	OFF - Port is in an Asymmetric Flow control mode, or in Flow Control mode disabled, or it is in half duplex
				ON - Port is in full duplex and in a symmetric Flow Control mode
	g	HSpd Port 51-66, Ext 1-2	High Speed (GREEN)	OFF - 10Base-T or for an expansion port that does not exist
				ON - 100Base-T, 100Base-F, 1000Base-X, and OC-12, or for 10/100Base-T ports when link test fail with auto-negotiation enabled
	h	LAG Port 51-66, Ext 1-2	Link Aggregation "Trunking" (GREEN)	OFF - No LAG defined with this port
				ON - Port belongs to a LAG
6		Data	16 data expansion ports 51-66 (GREEN)	OFF - see notes on No. 5 a-h
				ON - see notes on No. 5 a-h
7		EXT 1	RJ 45 to Non-Avaya equipment (GREEN)	OFF - see notes on No. 5 a-h
				ON - see notes on No. 5 a-h
8		EXT 2	RJ 45 to Non-Avaya equipment (GREEN)	OFF - see notes on No. 5 a-h
				ON - see notes on No. 5 a-h

* For Giga ports, when auto-negotiation is enabled and the link is down, FC LED reflects the last mode

If the user resets the module/stack, then all of the module's/stack's LEDs light on (test lamp) for 150ms. The COL, Tx, and Rx LED signals must be at least 150ms.

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Alarm-Related LEDs

Table 100 shows how certain LEDs reflect specific alarm situations.

Table 100. Alarm-Related LEDs

LED	Alarm-Related Cause
ALARM LED	The system alarm causes the attendant console ALARM LED to light.
ACK LED	The ACK LED on the Attendant console reflects the state of the acknowledgement of the alarm report from INADS. However, this is only possible for S8700s.
RED ALM or ALARM LED	The RED ALM or ALARM LED appears on the LED panel and indicates the "health" of the G700 by lighting when there are impaired functions of the Layer 2 Switching Processor, Media Gateway Processor, VoIP engine, when the power supply voltage is out of bounds, if the G700 cannot locate any controllers. or when the unit is overheating.

Media Module LEDs

Media Gateway physical LEDs provide the technician with information regarding the ability to troubleshoot the Media Module as a whole.

Note: The physical LEDs provide board level status information, while the SAT provides port level status information.

Voice Media Modules

This section describes the LEDs on the 8-port analog and DCP Media Modules (Figure 17).

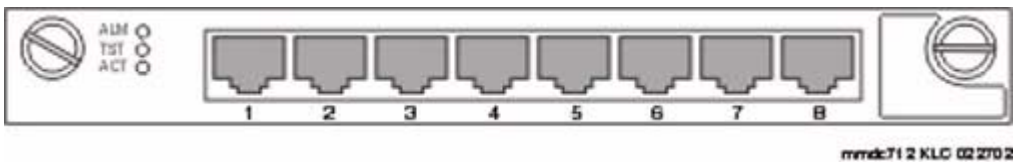

Figure 17. Faceplate of Analog and DCP Media Modules with 8 Ports

As general rule, all Media Modules have three traditional LEDs (Red, Green, Yellow) in the top left corner. On the VoIP, BRI, DCP, and Analog Media Modules, these are the only LEDs present.

They are positioned vertically as follows:

Table 101. Voice Media Module LEDs

Location	Color	Label
Top	Red	ALM
Middle	Green	TST
Bottom	Yellow	ACT

These LEDs are right-justified with the labels appearing to the left of the LEDs.

S8300 Media Server LEDs

The S8300 Media Server has a total of 6 LEDs on the faceplate. There are three traditional LEDs as shown in Table 101, and three additional LEDs:

- A fourth LED labeled “OK-to-Remove” indicates when the S8300’s disk is properly “parked” and ready to shutdown
- Fifth and sixth LEDs located on the lower left and right sides, respectively, of the Services port indicate whether or not data is being sent over the RJ45 jack, and the data rate.

GREEN “OK-to-Remove” LED

When removing the S8300, initiate a shutdown process by first depressing the button (for 2 seconds) located next to the fourth GREEN “Ok-to-Remove” LED (specific to the S8300). The GREEN LED will first blink; then go steady. Once steady, the GREEN LED indicates that the disk drive has been parked properly and is ready to be removed. Follow standard Media Module removal procedures after the GREEN LED indicates that the disk drive has been properly parked.

The S8300 has a hard drive that must be shut down prior to removal. There are three different ways that you can properly shut down this module before it is removed:

- Press the A-button on the faceplace (must be held for 4 seconds) to initiate shutdown of the on-board hard drive.

You can also initiate shutdown via software with a computer connected either:

- Remotely
- Locally, connected directly to the S8300 via an RJ45 jack located on the faceplate of the S8300

GREEN or YELLOW Services Port LEDs

One LED is located on the lower left side of the Services port. It indicates the data rate of the connection.

When GREEN, this LED indicates a 10MB connection.

When YELLOW, this LED indicates a 100MB connection.

A second LED is located on the lower right side of the Services port. It indicates whether or not data is being sent over the RJ45 jack. This LED serves as a Visual Status of the Services' Ethernet

interface (TX/RX). It is separate from the LED panel on the G700, and is provided in the event that the G700 is otherwise non-functional.

S8300 LED Differences from other MMs

Some specific behaviors of the traditional S8300 LEDs differ from the Media Modules because the S8300 processes calls.

- Situations like “insanity” and IP concepts of “registered” via H.248 do not necessarily apply to other Media Modules.
- The RED LED provides a major alarm indication. Software turns off the RED LED during system startup. After startup, software turns on the RED LED whenever a major alarm is present, and turns off the RED LED whenever a major alarm clears.
  Since the S8300 will see a major alarm whenever a Media Gateway becomes unregistered, this means the RED LED will turn on. If the Media Gateway subsequently becomes registered, the major alarm clears, and the RED LED turns off.

Note: For a G700 configured as an LSP, the converse is true. If a Media Gateway registers with an LSP, a major alarm is generated, and the RED LED turns on. When the Media Gateway unregisters, the RED LED turns off.

  The RED LED can also be turned on by software to report an application or other error. The RED LED can also be turned on by a hardware watchdog that has not been cleared for at least 10ms, when the processing complex has ceased to function (dead or hung).

- The GREEN LED provides self-testing and maintenance indication.
- The YELLOW LED provides active “in use” indication. For an S8300, the software turns on the YELLOW LED during system startup, and turns off the LED during shutdown. In between startup and shutdown, the YELLOW LED remains ON independent of H.248 registration. By definition, the S8300 is always "in use".

Table 102 through Table 106 illustrate the states of S8300 LEDs.

Table 102. Major Alarm

Major Alarm	
Color	Red
Power On Reset	On
BIOS Boot	On
OS and SW Boot	On
System Up	Off - SW
H.248 Registered	Off - SW
Shutdown in Progress	On
Shutdown Complete	On

Table 103. Test – To Be Defined

Test – To Be Defined	
Color	Green
Power On Reset	Off
BIOS Boot	Off
OS and SW Boot	On-SW
System Up	Off - SW
H.248 Registered	Off - SW
Shutdown in Progress	Off - SW
Shutdown Complete	Off

Table 104. Active – In Use

Active – In Use	
Color	Yellow
Power On Reset	Off
BIOS Boot	Off
OS and SW Boot	Off
System Up	SW
H.248 Registered	On-SW
Shutdown in Progress	Off-SW
Shutdown Complete	Off

Table 105. OK to Remove

OK to Remove	
Color	Green
Power On Reset	Off
BIOS Boot	Off
OS and SW Boot	Off
System Up	Off
H.248 Registered	Off
Shutdown in Progress	1 Hz flash
Shutdown Complete	On

Table 106. ENET Link/Activity

ENET Link/Activity	
Color	Green
Power On Reset	Off
BIOS Boot	N/A
OS and SW Boot	N/A
System Up	Link Status
H.248 Registered	Link Status
Shutdown in Progress	Unknown
Shutdown Complete	Off

S8300 LED Lighting Sequence

In general, S8300 LEDs light in order from top to bottom, then from left to right on the S8300 faceplate.

The following order applies during restart or boot of the S8300:

LED Lighting Sequence

1. ALM - RED: lights up first then turns off
2. TST - GREEN: lights up second then turns off
3. ACT - YELLOW: lights up third then turns off
4. OK To REMOVE - GREEN: lights up fourth then turns off
5. LEFT LED in SERVICES jack - GREEN (100 MB link speed): lights up fifth then turns off
6. LEFT LED in SERVICES jack - YELLOW (10 MB link speed): lights up sixth then turns off
7. RIGHT LED in SERVICES jack - GREEN: lights up seventh then turns off

E1/T1 Media Module

The E1/T1 Media Module has a total of four LEDs. The E1/T1 Media Module has three LEDs on its faceplate, which are under software control. Table 107 shows their color and faceplate positions.

Table 107. Software-Controlled E1/T1 LEDs

Color	Location	Description
RED	Top	Upon power-up, this LED is turned on. Upon passing diagnostics this LED is turned off. During normal circuit pack operation this LED is not turned on except for certain alarm states.
GREEN	Middle	During power-up self-testing and maintenance testing requested by the SPE, this LED is turned on.
YELLOW	Bottom	This LED indicates that the clock is synchronized with a source (usually the Central Office). The LED is blinking 2700 ms ON and 300 ms OFF. This is the most common condition. The opposite blinking of the YELLOW LED is 300 ms ON and 2700 ms OFF. This is an error condition, and indicates that the MM710 E1/T1 Media Module is not synchronized with a clock. An infrequent occurrence is a steady YELLOW LED. This indicates in-use activity, only when clock synchronization is set to local.

The E1/T1 Media Module has a fourth GREEN SIG LED that indicates whether the link to the Central Office (CO) is up (equivalent to the TN464F circuit pack Status 3 GREEN LED). See Figure 18.

Note: Power-up and alarm states are the only conditions where hardware sets the state of the LEDs independent of ANGEL firmware control.

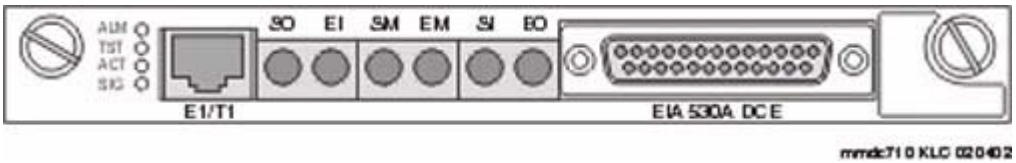

Figure 18. E1/T1 Media Module LEDs

The supported portion of the LED Control message allows software to change the status of the three standard LEDs on the E1/T1 Media Module faceplate. The exceptions to letting software turn off the LEDs are:

- The board is in reset (Red LED remains on)
- A call is up (Yellow LED remains on while the E1 line is in-frame and at least one voice/data call is up)
- During board reset initialization testing (Green LED remains on until initialization testing is complete).

Note: For ISDN operation, the Yellow LED will be turned on if ANY port has an active TDM connection (including the D-channel).

Synchronization

Clock synchronization is set via the Media Gateway Processor (MGP) command line interface (CLI). The command (in 'configure' mode) **set sync interface {primary | secondary} {<mmID> |**

[<portID>]} defines a potential stratum clock source (E1/T1 Media Module, ISDN-BRI).,

where <mmID> is the Media Module ID of a MM stratum clock source of the form "vn", where "n is the MM slot number, and
For the MM720 BRI Media Module, <portID> is formed by combining the mmID of the MM to the 2-digit port number of the BRI port.

By setting the clock source to primary, normal failover will occur. Setting the source to secondary overrides normal failover, generates a trap, and asserts a fault. The identity of the current sync source in use is not stored in peristent storage. Persistent storage is used to preserve the parameters set by this command.
Control of which reference source is the "Active" source is accomplished by issuing the command **set sync interface {primary | secondary}**. If 'secondary' is chosen, then the secondary source becomes "Active", and the primary becomes "standby", and, in addition, fallback to the primary source will not occur if or when it becomes available.
If neither primary nor secondary sources are identified, then the local clock becomes "Active".

When a MM710 Media Module is driving a clock sync source line to the G700 main clock, the Yellow LED does not indicate port activity, but instead indicates that the MM710 is the sync source as follows:

- If the incoming signal is good, the YELLOW LED is driven on for three seconds and off for 200 milliseconds.
- If the incoming signal is lost and the sync line cannot be driven, the YELLOW LED is alternately off for three seconds and on for 200 milliseconds.
- If the YELLOW LED is on for 2.7 seconds and off for.3 seconds, the toneclock synchronizer is in "active" mode and an external synchronization source is being used as a synchronization reference.
- If the YELLOW LED is on 0.3 seconds and off 2.7 seconds, the toneclock synchronizer is in "active" mode and the internal (onboard) high accuracy clock is being used as a synchronization reference.
- If the UDS1 receives a downlink CCMS message to stop driving the clock sync lines, the YELLOW LED reverts back to indicating port activity.

Note: Unless otherwise indicated, the following commands issue from the G700 MGP CLI.

Table 108. mgp-001-1(configure)# show sync timing

SOURCE	MM	STATUS	FAILURE
Primary		Not Configured	
Secondary		Not Configured	
Local	v0	Active	None
Comment: No failures, SIG GREEN on and ACT on when trunk is seized			

Table 109. mgp-001-1(configure)# set sync interface primary v4 mgp-001-1(configure)# show sync timing

SOURCE	MM	STATUS	FAILURE
Primary	V4	Locked OUt	None
Secondary		Not Configured	
Local	V0	Active	None
Comment: No failures, Sig is green and ACT On 2.7s off 0.3s Note that the MM710 in slot 4 has been declared to be the primary sync source but it is not active until the next command is issued			

Table 110. mgp-001-1(configure)# set syn source primary mgp-001-1(configure)# show sync timing

SOURCE	MM	STATUS	FAILURE
Primary	V4	Active	None
Secondary		Not Configured	
Local	V0	Standby	None
Comment: The ACT LED does not change its behavior.			

To test for slippage, from the SAT issue the command:

test mo logical 4255 physical 1v4 test 144

The results from the above command are given in Table 111:

Table 111. TEST RESULTS

Port	Maintenance Name	Alt. Name	Test No. Result	Error Code
001V4	MG-DS1	144	PASS	
Command successfully completed				

If a secondary is similarly provisioned:

Table 112. mgp-001-1(configure)# set syn int sec v3 mgp-001-1(configure)# sho syn tim

SOURCE	MM	STATUS	FAILURE
Primary	V4	Active	None
Secondary	V3	Standby	None
Local	V0	Standby	None

To activate the secondary, the following is similarly done:

Table 113. mgp-001-1(configure)# set syn source sec
mgp-001-1(configure)# sho syn tim

SOURCE	MM	STATUS	FAILURE
Primary	V4	Locked Out	None
Secondary	V3	Active	None
Local	V0	Standby	None
Note: The system uses one clock at a time only: therefore only the secondary is active and the primary is locked out.			

To activate local the following is done:

Table 114. mgp-001-1(configure)# set syn sou local
mgp-001-1(configure)# sho syn tim

SOURCE	MM	STATUS	FAILURE
Primary	V4	Locked Out	None
Secondary	V3	Locked Out	None
Local	V0	Active	None

To reactivate the primary, the following is done:

Table 115. mgp-001-1(configure)# set syn sou pri
mgp-001-1(configure)# sho syn tim

SOURCE	MM	STATUS	FAILURE
Primary	V4	Active	None
Secondary	V3	Standby	None
Local	V0	Standby	None
Note that secondary and local are standby because they are provisioned as fail overs.			

If the T1 physical connection were removed, then the secondary becomes active and the primary reports a failure.

Table 116. mgp-001-1(configure)# sho syn tim

SOURCE	MM	STATUS	FAILURE
Primary	V4	Standby	Out of Lock
Secondary	V3	Active	None
Local	V0	Standby	None
Note that secondary and local are standby because they are provisioned as fail overs.			

Initialization

The E1/T1 Media Module LEDs behave in the following manner during initialization:

- The Angel provides a visual indication of the board's status through the three board LEDs.
- During initialization the YELLOW LED is held off, while the RED and GREEN LEDs are on during the entire initialization sequence.
- Upon power up or reset, if only the RED LED comes on, the Angel processor is dead or the board is being held permanently in reset.
- Upon completion of the diagnostics and initialization, the GREEN LED turns off.
- If the initialization tests fail, the RED LED remains on.
- If the tests all pass, then all LEDs are extinguished until switch software starts using the board.

After a successful initialization sequence, the LEDs are controlled as follows:

- The Angel lights the YELLOW LED when there is at least one non-idle trunk. If switch software sent a message to drive the clock sync signals, the YELLOW LED indicates this instead of the port busy/idle status.
- The SPE may independently light and extinguish the three LEDs through downlink LED Control messages, subject to the constraint that it may not turn off a YELLOW LED turned on by the Angel as a result of port activity.
- If the NCE+ resets the board for any reason and does not release the board from reset, the RED LED lights and the YELLOW and GREEN LEDs are held off.

A DEFINITY Server-Controlled Maintenance

DEFINITY Equivalent Elements

Many of the Media Modules and G700 subsystems are based on existing DEFINITY circuit packs or systems as indicated by the following table. DEFINITY server-experienced users will find that components function and are maintained equivalently to their DEFINITY counterparts as outlined in Table 117.

Note: This information is included for environments where the G700 Media Gateway with an S8300 Media Server is integrated into larger Avaya MultiVantage configurations.

Table 117. DEFINITY Equivalent Elements

G700 Component	DEFINITY Equivalent
E1/T1 Media Module	Partially the TN464GP DS
Analog Line/Trunk Media Module	TN797 Combination Port Board
DCP Media Module	TN2224 2-Wire Digital Line Board
Voice Announcement	TN2501 Announcement Board
S8300	S8700 or other DEFINITY ECS
Tone Generator	TN2182 Tone Generator/Clock
Tone Detectors	DSPs
VoIP DSPs	TN2302AP DSP Farm

Capacity Constraints and Feature Limitations

Although Media Modules and other G700 components have functionality similar to DEFINITY server components, there are some differences. For example, the DCP MM supports 8 ports, while the TN2224 supports 24 ports. In addition, the hardware associated with some of the components can differ significantly from the DEFINITY server version.

See Table 118 for a complete list of the allowable and invalid tests for the G700 Media Modules. As shown in this table, the board and port tests are based on existing tests that run on the equivalent DEFINITY server port boards and the associated ports. Some tests abort with abort code 1412 to indicate that these tests cannot be run on a Media Module Maintenance Object by maintenance software on DEFINITY servers.

Note: No alarms are generated for failures detected by tests that are specified to abort for Media Modules.

Table 118. Media Module Tests

Media Module	Maintenance Object	Test	Executed for Media Module
Analog Media Module (DEFINITY server TN797)	Board (ANA-MM) (DEF TR-LN-BD)	NPE Audit Test (#50)	Abort
		Ringing Application Test (#51)	Yes
		Control Channel Looparound Test (#52)	Yes
		SAKI Sanity Test (#53)	Yes
	Analog Line (ANL-LN-PT)	NPE Crosstalk Test (#6)	Abort
		Conference Test (#7)	Abort
		Battery Feed Test (#35)	Yes
		Station Status and Translation Audits and Updates Test (#36)	Yes
		Station Present Test (#48)	Yes
		Looparound Test (#161)	Abort
	Analog Co Trunk (CO-TRK)	Dial Tone Test (#0)	Abort
		CO Demand Diagnostic Test (#3)	Yes
		NPE Crosstalk Test (#6)	Abort
		Looparound and Conference Test (#33)	Abort
		Audit Update Test (#36)	Yes
		Transmission Test - ATMS (#844-848)	Abort
	Analog DID Trunk (DID-TRK)	NPE Crosstalk Test (#6)	Abort
		Looparound and Conference Test (#33)	Abort
		Port Diagnostic Test (#35)	Yes
		Port Audit Update Test (#36)	Yes
	DIOD Trunk (DIOD-TRK)	Dial Tone Test (#0)	Abort
		NPE Crosstalk Test (#6)	Abort
		Looparound and Conference Test (#33)	Abort
		Audit Update Test (#36)	Yes
	Alarm Port (ALARM-PT)	Battery Feed Test (#35)	Yes
		Station Status and Translation Audits and Updates Test (#36)	Yes

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Table 118. Media Module Tests *Continued*

Media Module	Maintenance Object	Test	Executed for Media Module
DCP Media Module (DEFINITY server TN2224)	Board (DCP-MM) (DEF DIG-BD)	NPE Audit Test (#50)	Abort
		Control Channel Loop Test (#52)	Yes
		SAKI Sanity Test (#53)	Yes
	Digital Line (DIG-LINE)	Digital Line NPE Crosstalk Test (#9)	Abort
		Digital Line Electronic Power Feed Test (#11)	Yes
		Voice and Control Channel Local Looparound Test (#13)	Abort
		DIG-LINE Station Lamp Updates (#16)	Yes
		Station Audits Test (#17)	Yes
		Digital Terminal Remote Loop Around Test (#1201)	Abort
	Data Module (PDMODULE/TDMODULE)	Digital Port Board NPE Crosstalk Test (#9)	Abort
		Port Circuit Information Channel and Control Channel Loop Around Test (#13)	Abort
		Data Module Audits Test (#17)	Yes
		Data Module Internal Loop Around Test (#175)	No

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Table 118. Media Module Tests *Continued*

Media Module	Maintenance Object	Test	Executed for Media Module
E1/T1 Media Module (DEFINITY server TN464F)	Board (DS1-MM0 (DEF UDS1-BD)	NPE Correction Audit Test	Abort
		Control Channel Loop Test (#52)	Yes
		Loss of Signal Alarm Inquiry Test (#138)	Yes
		Blue Alarm Inquiry Test (#139)	Yes
		Red Alarm Inquiry Test (#140)	Yes
		Yellow Alarm Inquiry Test (#141)	Yes
		Major Alarm Inquiry Test (#142)	Yes
		Minor Alarm Inquiry Test (#143)	Yes
		Slip Alarm Inquiry Test (#144)	Yes
		Misframe Alarm Inquiry Test (#145)	Yes
		Translation Update Test (#146)	Yes
		ICSU Status LEDs Test (#1227)	No
		Echo Cancellation Test (#1420)	Yes
		SAKI Sanity Test (#53)	Yes
		Internal Loop Around Test (#135)	Abort
	DS1 CO Trunk (CO-DS1)	NPE Crosstalk Test (#6)	Abort
		Conference Test (#7)	Abort
		Port Audit and Update Test (#36)	Yes
		DS1 CO Trunk Seizure Test (#314)	Abort
	DS1 DID Trunk (DID-DS1)	NPE Crosstalk Test (#6)	Abort
		Conference Test (#7)	Abort
		Port Audit and Update Test (#36)	Yes
	DS1 Tie Trunk (TIE-DS1)	NPE Crosstalk Test (#6)	Abort
		Conference Test (#7)	Abort
		Port Audit and Update Test (#36)	Yes
		DS1 Tie Trunk Seizure test (#136)	Yes

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Table 118. Media Module Tests *Continued*

Media Module	Maintenance Object	Test	Executed for Media Module
	DS1 ISDN Trunk (ISDN-TRK)	NPE Crosstalk Test (#6)	Abort
		Conference Test (#7)	Abort
		Port Audit and Update Test (#36)	Yes
		Signaling Line State Check Test (#255)	Yes
		Service State Audit Test (#256)	Yes
		Call State Audit Test (#257)	Yes
		ISDN Test Call Test (#258)	Abort
	ISDN-PRI Signaling Link Port (ISDN-LNK)	NPE Crosstalk Test (#6)	Abort
		PRI Port Test (#643)	Yes
	ISDN-PRI Signaling Group (ISDN-SGRP)	Primary Signaling Link Hardware Check (#636)	Yes
		Secondary Signaling Link Hardware Check (#639)	Yes
		Layer 2 Status Test (#647)	Yes
	Wideband Access Endpoint Port (WAE-PORT)	Remote Layer 3 Query Test (#637)	Yes
		Looparound and Conference Test (#33)	Abort
		Port Audit and Update Test (#36)	Yes

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Table 118. Media Module Tests *Continued*

Media Module	Maintenance Object	Test	Executed for Media Module
Voice Announcements (DEFINITY server TN2501AP)	Board (ANN-VMM)	Control Channel Loop Test (#52)	Yes
		Invalid LAPD Frame Error Counter Test (#597)	NA
		PPE/LANBIC Receive Parity error Counter Test (#595)	NA
		Receive FIFO Overflow Error Counter Test (#596)	NA
		Packet Interface test (#598)	NA
		Congestion Query Test (#600)	NA
		Link Status test (#601)	NA
	Announcement Ports	Synchronous Loop Around Test (#1275)	Yes
		Port Error Counter Test (#1280)	Yes
		TDM Loop Around Test (#1285)	Abort
	Ethernet Port (ETH-PT)	Link Integrity Inquiry (#1282)	NA
		Ethernet Local Loop Around Test (#1278)	NA
		TCP/IP Ping Test (#1281)	NA
		Session Status Test (#1286)	NA

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Testing

Subsystems that are under the control of MultiVantage have a limited degree of functionality. Due to the different system architectures, the full range of tests is not available.

Tests Not Executed on the G700

Table 119 indicates why some tests are not executed on the G700:

Table 119. Tests Not Executed on the G700 Platform

Test	Notes
NPE_AUDIT	This test is really an audit that sends network update messages to various ports on a board. Since the DEFINITY server does not handle network connections for the MG, this test is not run.
DS1_DTONE_TS	DS1 CO trunk dial tone seizure test
NEON_TEST	This is run only for those boards that support the neon message lamp. Therefore, it is not needed for R1.
CLK_HEALTH	Reads the LMM loss-of-clock status bits for the specified tone clock board
TDM_NPE_XTALK	Checks if the NPE chip is transmitting on more than one timeslot. Since timeslots are not under the DEFINITY server's control, this test will not be run.
CONF_TEST	Tests the conference circuit in the NPE. Needs the use of Timeslots; therefore, this test is not run.
MOD16_LOOP	A 1004Hz reflective analog loop around on an analog port. This test requires the use of a tone detector and all TDs are under control of the MG.
GPP_LP	GPP internal loopback tests is sent through both the I and S channels for a port. A tone detector is needed to detect and report the test pattern.
GPP_NPE	The GPP NPE xtalk test. The DEFINITY server does not handle network connections, so this test is not run.
FT_GPP_LOOP	Factory external loop around test for the GPP board.
FT_LOOP	Factory external loop around test for almost all boards.
ICSU_LEDS	Checks the Integrated Channel Service Unit LEDs, which do not exist on the DS1 Media Module.
DIAL_TONE_TS	Detects dial tone.
TRK_AUTO_GRD	This test is for the Australian version of the CO board, TN438.
TRK_PPM_TEST	Factory only test for certain CO trunks; requires a pulse generator.
TRK_HYB_TS	Tests the loop around capabilities of a port's codec and hybrid circuits.
ONS_HYB_TS	Tests the loop around capability on the codec circuit.
BRI_EPF	Electronic power feed test; not valid for TN2185.
L1_INQ	This function actually encompasses several tests.
SSP_TDMLOOP	This is for the messaging angel, but the DEFINITY server is unaware of the TDM bus.

Table 119. Tests Not Executed on the G700 Platform *Continued*

Test	Notes
PRI_TSTCALL	Requires the use of either a data channel or a maintenance test board, neither of which are present.
TDMLP_BRI	The DEFINITY server can't use the TDM bus.
PPP_TDMLOOP	The DEFINITY server can't use the TDM bus.

Tone Detector Tests not Executed on the G700 Platform

Table 120 lists the tone detector tests not executed on the G700.

Table 120. Tone Detector Tests not Executed on the G700

Test	Notes
TD_DET_TS	The DEFINITY server is unaware of the tone detectors, therefore this test does not run.
TD_UPD_AUDIT	The DEFINITY server is unaware of the tone detectors, therefore this test does not run.

Tone Generator Tests not Executed on the G700

Table 121 lists the tone generator tests not executed on the G700.

Table 121. Tone Generator Tests not Executed on the G700

Test	Notes
TG_XTALK_TS	The DEFINITY server is unaware of the tone generator.
TG_XMISSION_TS	The DEFINITY server is unaware of the tone generator.
TG_UPD_AUDIT	The DEFINITY server is unaware of the tone generator.

TDM Bus Tests not Executed on the G700

Table 122 lists the TDM bus tests not executed on the G700.

Table 122. TDM Bus Tests not Executed on the G700

Test	Notes
TDM_CST_QRY	The DEFINITY server is unaware of the TDM bus.
TDM_SLP_QRY	The DEFINITY server is unaware of the TDM bus.
TDM_PPM_QRY	The DEFINITY server is unaware of the TDM bus.
TDM_CPRUP	The DEFINITY server is unaware of the TDM bus.
TDM_BD_CH	The DEFINITY server is unaware of the TDM bus.
TDM_ANLY	The DEFINITY server is unaware of the TDM bus.
TDM_IDLE_TS	The DEFINITY server is unaware of the TDM bus.
TDM_BD_IR	The DEFINITY server is unaware of the TDM bus.
TDM_CC_UPD	The DEFINITY server is unaware of the TDM bus.

Maintenance Features for Avaya G700 with S8300 Media Server

Table 123 specifies maintenance features as they apply to Avaya G700 with S8300 Media Server.

Table 123. Maintenance Features for Avaya G700 with S8300 Media Server

Supported Feature	Controller	Notes
	S8700/ S8300	
Attendant Console alarm LED and alarm report acknowledgement LED	Yes	Status of G700 alarms is not available on the Attendant Console with a legacy controller.
Automatic Trunk Measurement System (ATMS)	No	Not available for analog trunks terminating on a Media Module.
DS0 Looparound connection	No	
DS1 CPE Loopback	Yes	Test is controlled by the DS1 Media Module.
DS1 Synchronization		Timing sync is local to the G700 so DS1 sync is controlled by the G700.
Enable/Disable Media Module tests	Yes	

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Table 123. Maintenance Features for Avaya G700 with S8300 Media Server *Continued*

Supported Feature	Controller S8700/ S8300	Notes
Enable/Suspend alarm origination	No	Not supported by S8700 platform.
Environment tests and alarms for S8300		Not available for S8300 in R1.
ISDN loop around connection	Yes	
ISDN test call	No	Not available for ISDN trunks terminating on a DS1 Media Module.
LED tests	Partial	Works with Media Module LEDs but not with the G700 alarm LED.
System Configuration Maintenance Object	No	Not needed for Media Module board insertion. Indicates that a board is present but that the board does not respond to a query for board type.
System Link test for PRI control link for ISDN DS1 Media Module	No	Layer 2 of a PRI link is terminated in the G700, so this does not apply to Avaya G700 with S8300 Media Server. A new MO is added for the status and alarming of H.248 links.
System tone test call for G700	No	Requires changes to the call processing software in the S8300 and the G700
Terminating trunk transmission test lines	No	
Test MO command	Yes	Support syntax of Media Module location
Test S8300 hardware	Limited	
Test of G700 resources: Archangel Network Control Element Packet Interface TDM clock Tone generator Tone detectors	No	Provided by G700 software in a future release. G700 architecture specifies these resources as G700 resources, not S8300 resources.
Tests of Media Modules	Partial	Limited by the tests available in R1.

2 of 3

Table 123. Maintenance Features for Avaya G700 with S8300 Media Server *Continued*

Supported Feature	Controller S8700/ S8300	Notes
Touch Tone Receiver facility test call	No	
Touch Tone Receiver level	No	
Trunk facility test call	Yes	
Write Physical Angel command	No	
System synchronization	No	

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B CLI Reference for the G700 Media Gateway Processor

Introduction

This is the Command Line Interface reference document for the Avaya G700 Media Gateway Processor.

Click on the command name in blue to go to the reference page for the selected command.

At the top of each command reference page is a navigation bar. Click on the category name to return to the respective category table at the beginning of the document.

Media Gateway - Administration CLI Set

Administration Commands

The following commands are used for general administration on the G700 Media Gateway Processor. The commands are listed alphabetically for ease of reference:

clear screen	Clears the screen and homes the cursor
clear sync interface	Disassociates an interface as a sync source
configure	Permits the use of set commands
dir	Shows list of downloadable files
exit	Exit the session or current mode
hostname	Places ‘hostname’in the command prompt
help	Shows mode-specific command help
nvram initialize	Clear NVRAM and reload factory defaults
reset	Resets a specified system resource
retstatus	Shows pass/fail status of last command
sat	Sets up session with the SAT
set hostname	Places ‘hostname’ in the command prompt
set logout	Sets idle time for auto-logout
set sync interface	A mode that permits change to the sync configuration
set sync source	Specifies the stratum clock source
set system contact	Sets the site contact name

set system location	Sets the name of the site location
set system name	Sets the system name
show hostname	Shows the current prompt string
show mg list_config	Shows installed MG equipment
show mm	Shows MG Media Module info
show post	Shows Power On Self Test results
show sync timing	Shows state of clocking sources
show system	Shows system ID information
show timeout	Shows the auto-logout time
tech	Changes to a mode for access to tech level commands
terminal length	Sets the number of terminal lines
terminal width	Sets or displays the number of characters per line
tree	Shows available commands

Media Gateway - Processor CLI Commands

Processor

The following set of commands is used when working on the G700 Media Gateway processor.

set mgp bootimage	Specifies boot image source
set mgp icc monitoring	Enables/Disables heartbeat monitoring of an ICC/LSP
set mgp reset times	Sets the MGP recovery process timers
show restart log	Retrieves raw restart log entries
show mgp icc-monitoring	Displays the current state of the ICC monitoring watchdog.
show mgp recovery	Shows the MGP monitoring and recovery setup
show mgp bootimage	Identifies memory bank used for mgp boot

Media Gateway - Call Controller (CC) CLI Commands

CC

These commands are used to set/display/change the ip address list of the Media Gateway Call Controller. The show mgp command can be used to display the active MG controller state and setup.

clear mgc list	Removes one or all entries within the MGC list.
set mgc list	Adds one or more entries to the MGC list.
show mgc	Shows the active MGC state and setup
show mgc list	Displays the list of available MGC's

Media Gateway - Quality of Service (QoS) CLI Commands

QOS

These commands are used to set/change/display the parameters associated with the bearer related QOS for the MGP and VoIP engines.

set qos bearer	Sets QOS bearer configuration.
set qos control	Defines source of QOS parameters.
set qos rsvp	Establishes RSVP parameter settings.
set qos rtcp	Sets RTCP operation mode and parameters.
set qos signal	Sets the DSCP or 802.1Q priority value.
set qos rtcp	Shows QOS parameters.
show voip-parameters	Shows a VoIP engine's setup and state.

Media Gateway - Network CLI Commands

Network

These commands are used to set/display /change IP parameters associated with the MGC and VOIP engines. Included is 'ping' command used to test a network path to a specific IP address.

clear arp-cache	Deletes all ARP cache entries
clear ip route	Removes entry(ies) from routing table.
ping	Tests network path to target IP address.
session	Creates a session to the MGC, SAT, or stack.
set interface	Sets up IP for MGP or VoIP engine.
set ip route	Adds a route to routing table.
show interface	Shows defined IP interface.
show ip arp	Shows the ARP cache.
show ip route	Shows IP routing table.
telnet	Initiates a TELNET session
traceroute mgp	Shows route of IP packet from origin to destination

Media Gateway - Maintenance CLI Set

Maintenance

These commands are used to perform maintenance on the MGP. Use these commands to display voltages, faults and temp readings. This family of commands is used set/display/change SNMP parameters for the MGP. Commands are also available to upload and download configuration files and to display and reset ISDN links associated with Media Modules.

busyout | test | release voip-dsp	Provides the ability to busyout/test/release a VoIP engine.
clear isdn link	Removes a specified ISDN link.
clear snmp trap	Removes one or all trap receivers
copy mgp-config tftp	Uploads the MG configuration file.

copy tftp	Downloads all configuration data to RAM.
set snmp trap	Sets up SNMP trap group reporting.
show faults	Shows active faults.
show isdn bri link	Shows the status of all MM BRI links.
show isdn link summary	Displays summary of ISDN links for MG.
show isdn pri link	Displays status of MM ISDN PRI link.
show snmp	Shows all SNMP trap receivers' setup.
show temp	Shows CPU and DSP temperature.
show tftp status	Shows TFTP command status.
show voltages	Shows power supply status.
test led	Tests the MG's LED operation.

Media Gateway - E1/T1 CSU CLI Set

E1/T1 CSU

These commands are used to display CSU status conditions.

show csu loopbacks	Shows CSU loopback status.
show csu status	Shows CSU operational status.

CLI Command Reference Pages

Administration Commands | ***Processor*** | ***CC*** | ***QOS*** | ***Network*** | ***Maintenance*** | ***E1/T1 CSU***

clear screen

Privilege: **All**

Description: **clear screen**
Provides a complete erase of the screen and and displays the welcome message and the firmware version number.

Parameters: None

Sample Display

```
MG-001-3>clear screen

                    Welcome to Media Gateway Processor
                              FW version 100

MG-001-3>
```

Administration Commands **|** ***Processor*** **|** ***CC*** **|** ***QOS*** **|** ***Network*** **|** ***Maintenance*** **|** ***E1/T1 CSU***

clear sync interface

Privilege: **Configure**

Description: **clear sync interface {primary | secondary}**
Disassociates a previously specified interface as the primary or secondary sync source. Note that the primary interface must be disassociated before the secondary interface is disassociated.

Parameters: None

Sample Display

```
MG-001-3(configure)# clear sync interface primary
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

configure

Privilege: **Privileged**

Description: configure

This is a special sub-level within the Privileged/Supervisor model. It permits the user to use any ‘set’ commands. To return to the previous mode, enter the key word ‘exit’. The word “configure” is added to the command prompt string.

Parameters: **None**

Sample Display

```
MG-001-3# configure
MG-001-3(configure)#
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

dir

Privilege: **All**

Description: **dir**

The dir command is used to show the files that have been downloaded to the MG per the G700 MG Download interface and the SNMP MIB.

Parameter: None

Sample Display

```
MG-001-1(super)# dir

NAME        VERSION   TYPE          LOCATION  MODULE  DESCRIPTION
----------- -------- ------------ --------- ------- -------------------------
--
MGP         100      Runtime Img  Bank A    100     Avaya G700 Media Gateway
MGP         100      Runtime Img  Bank B    100     Avaya G700 Media Gateway
VoIP        58       Component    NVRAM     100     VoIP Main Board Engine
MGP         0        Running Cfg  NVRAM     100     Avaya G700 Media Gateway
DCP         56       Runtime Img  NVRAM     2       DCP Telephone Port Board
E1T1        55       Runtime Img  NVRAM     4       T1E1 Media Module
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

exit

Privilege: **All**

Description: exit
Permits the user to exit the session or leave the current mode.

Parameters: **None**

Sample Display

```
MG-003-2> exit
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

hostname

Privilege: **All**

Description: **[no] hostname [<hostname_string>]**
Sets the 'MG' moniker in the command line prompt with the entered string. A hostname of an empty string or NULL will not change the prompt. Entering 'hostname' displays the current hostname. A prefix of 'No" sets prompt to

default string (‘MG’). This command affects all sessions

Parameters: String of 1-20 characters representing the desired hostname to be displayed.

Sample Display

```
MG-001-3> hostname daffyduck
daffyduck-001-3>
daffyduck-001-3> hostname
Session hostname is 'daffyduck'
daffyduck-001-3> no hostname
MG-001-3>
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

help

Privilege: **All**

Description: **help [keyword] or <command> help**

‘help’ displays a mode-specific alphabetical list of available commands along with the terse help string. ‘help’ x where ‘x’ is a key word displays the verbose help message for the key word. Operation, look and feel are per the Cajun P330. On-line help may be obtained at any time by typing a question mark (?), or the word ‘help’ on the command line or by pressing the F1 key. To obtain help for a specific command , type the command followed by a space and a question mark.

Example: P330-N(super)# exit ?

Parameters: [keyword], when included, will provide verbose help on keyword.

Sample Display

```
MG-014-1(super)# help show mgp
show mgp commands:
```

```
------------------------------------------------------------------------------
show mgp bootimage                  Identifies memory bank used for MGP reboot
show mgp icc-monitoring             Shows the state of the ICC monitoring pro-
cess
show mgp recovery                   Shows the MGP monitoring and recovery setup

The following command is equivalent to the previous example:

MG-014-1(super)# show mgp ?
show mgp commands:
------------------------------------------------------------------------------
show mgp bootimage                  Identifies memory bank used for MGP reboot
show mgp icc-monitoring             Shows the state of the ICC monitoring pro-
cess
show mgp recovery                   Shows the MGP monitoring and recovery setup

If the user request a help on a completed/full command the Usage will be dis-
played




MG-014-1(configure)# set ip route help
set ip route command:
------------------------------------------------------------------------------
Usage: set ip route <destination> <mask> <gateway>

<destination> - INET address for route destination
<mask> - Mask for the destination
<gateway> - INET address of the gateway to destination

Example: set ip route 135.8.48.0 255.255.254.0 135.8.48.15

MG-014-1(configure)# help
Commands:
------------------------------------------------------------------------------
System help
busyout                   Use 'busyout help' for more info
clear                     Use 'clear help' for more info
configure                 Enters to configure mode
copy                      Use 'copy help' for more info
dir                       Shows the list of downloadable files
exit                      Close session
help                      System help
hostname                  Display or set the new host name
netstat                   Display all active connections on IP sockets
```

```
no                      Use 'no help' for more info
nvram                   Use 'nvram help' for more info
ping                    Use 'ping help' for more info
release                 Use 'release help' for more info
reset                   Use 'reset help' for more info
retstatus               Shows the return status of the last executed command
sat                     Connects to SAT of the registered controller
send                    Use 'send help' for more info
session                 Use 'session help' for more info
set                     Use 'set help' for more info
show                    Use 'show help' for more info
tech                    Enter tech mode
telnet                  Establish a telnet connection to a host
terminal                Use 'terminal help' for more info
test                    Use 'test help' for more info
traceroute              Use 'traceroute help' for more info
tree                    Display command tree
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

nvram initialize

Privilege: **Configure**

Description: **nvram initialize**
Clears out the NVRAM areas and reloads them with the factory default.

Parameters: None

Sample Display

```
MG-001-1(configure)# nvram initialize

This command will reset the MGP to
Factory Default.
Do you want to continue (Y/N)? n
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

reset

Privilege: **Configure**

Description: **reset { mgp | voip { voipID } | { mm <mmID>} }**

This command resets a specified system resource. It permits a hard reset of the specified entity, returning any selectable parameters to the configuration in place before the reset and setting all hardware and firmware to a known state.

Parameters: Selection of MGP or a specific resource. Range of mmID is v1-v4. mmID of "v0" is NOT allowed as this ID is for the motherboard. The motherboard reset is handled by the 'reset mgp' command. 'voipID' is in the range v0-4 .

Sample Display

```
MG-001-3(configure)# reset mgp
This command will perform a hard reset.
Do you want to continue (Y/N)? y

Connection closed by foreign host.

MG-001-3(configure)# reset voip v0

This command will perform a hard reset.
Do you want to continue (Y/N)? y
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

retstatus

Privilege:**All**

Description: **retstatus**

Shows the pass/fail status of last command. Use this command to show whether or not the last CLI command you performed was successful.

Parameters: None

Sample Display

```
MG-001-2> retstatus
```

```
Succeeded
MG-01 > retstatus
Failed
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

sat

Privilege: **All**

Description: sat

Provides a shortcut method to access the SAT so that Avaya MutiVantage software translation work can be performed. See the description for "session mgc sat" for more information. The Media Server must configure the SAT port to 5023.

Parameters: **None**

Sample Display

```
MG-001-3> sat
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

set hostname

Privilege: **All**

Description: **set hostname [<hostmane_string>]**

Places ‘hostname’ in the command prompt. Sets the 'MG' moniker in the command line prompt with the entered string. A hostname of an empty string or NULL will not change the prompt. Entering 'set hostname' displays the current hostname.

Parameters: hostname_string is 1-20 alphanumeric characters. Must be enclosed in quotes if >= 2 words. Length = 1 - 20 characters.

Sample Display

```
MG-001-3> set hostname Mickey
Mickey-001-3>
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

set logout

Privilege: **Configure**

Description: **set { logout | timeout }[<minutes>]**

Both logout and timeout perform the same. Sets the CLI inactivity time-out value in minutes. A value of "0" implies no timeout. When the timer is set > 0 the user will be automatically logged out if idle time is > than the set value. No argument implies the use of the default value of 15 seconds.

Parameters: The number of elapsed minutes for timing out the CLI connection. Default = 15 minute. Value of '0' results in no time-out. Range is 0-999 minutes.

Sample Display

```
MG-001-3(configure)# set logout 20

Sessions will be automatically logged out after 20 minutes of idle time.

MG-001-3(configure)# set logout 0

Sessions will not be automatically logged out.
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

set sync interface

Privilege: **Configure**

Description: **set sync interface { primary | secondary } {<mmID>|<portID>}**

Defines a potential stratum clock source (E1/T1 MM, ISDN-BRI) Setting source to primary, normal failover will occur. Setting source to secondary overrides normal failover, gen a trap, and assert a fault. Not stored in persistent storage.

Parameters: <mmID> is the Media Module ID of a MM stratum clock source of the form "vn" where "n" is the MM slot number. For BRI MM, a "portID" is depicted by combining the mmID of the MM to the port number of the BRI port

furnishing the source.

Sample Display

```
MG-001-3(configure)# set sync interface primary v2
MG-001-3(configure)# set sync interface secondary v403
```

Administration Commands **|** ***Processor*** **|** ***CC*** **|** ***QOS*** **|** ***Network*** **|** ***Maintenance*** **|** ***E1/T1 CSU***

set sync source

Privilege: **Configure**

Description: **set sync source {primary | secondary | local }**
Defines the stratum clock source (E1/T1 MM, ISDN-BRI) Setting source to primary, normal failover will occur. Setting source to secondary overrides normal failover, gen a trap, and assert a fault. Not stored in persistent storage.

Parameters: None. 'local' is default.

Sample Display

```
MG-001-3(configure)# set sync source primary

MG-001-3(configure)#

If the secondary interface is not configured, the sync source set operation
will fail.
MG-001-3(configure)# set sync source secondary

Operation Failed

Cannot set the secondary clock source
to be the active clock source
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

set system contact

Privilege: **All**

Description: **set system contact [<string>]**

Permits the setting of a contact name for the system. If an empty string is entered, the current system contact name will be erased.

Parameters: "string" defines the name of the site contact. Must be enclosed in quotes if >= 2 words. Length = 1 - 20 characters.

Sample Display

```
MG-01-3(configure)# set system contact “Jon Smith”
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

set system location

Privilege:**All**

Description: **set system location [<string>]**

This command is used to set the name of the site location. If an empty string is entered, the current location name will be erased.

Parameters: "string" defines the site location. Must be enclosed in quotes if >= 2 words. Length = 1 - 20 characters.

Sample Display

```
MG-01-3(configure)# set system location "DisneyLand"
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

set system name

Privilege: **All**

Description: **set system name [<string>]**

Permits the setting of a system name for the system. If an empty string is

entered, the current system name will be erased.

Parameters: "string" defines the name of the system. Must be enclosed in quotes if>= 2 words. Length = 1 - 20 characters.

Sample Display

```
MG-01-3(configure)# set system name “Goofy”
```

Administration Commands | ***Processor*** | ***CC*** | ***QOS*** | ***Network*** | ***Maintenance*** | ***E1/T1 CSU***

show hostname

Privilege: **All**

Description: **show hostname**
Shows the current command line prompt string.

Parameters: None

Sample Description

```
Mickey-001-3> show hostname
Session hostname is 'Mickey'
```

Administration Commands | ***Processor*** | ***CC*** | ***QOS*** | ***Network*** | ***Maintenance*** | ***E1/T1 CSU***

show mg list_config

Privilege: **All**

Description: **show mg list_config**

This command shows the installed MG equipment. It displays the current hardware and firmware configurations of the Media Gateway providing at least the

same level of detail as the server 'list config media-gateway' command.

Parameters: None

Sample Display

```
MG-001-3> show mg list_config

SLOT  TYPE   CODE   SUFFIX  HW VINTAGE  FW VINTAGE  VOIP FW
----  ------ -----  ------  ----------  ----------  -------
v0    G700   DAF1   A       00          100(B)      58
v1    ICC    S8300  A       72          86          N/A
v2    DCP    MM712  A       1           56          N/A
v3     -- Not Installed --
v4    DS1    MM710  A       2           55          N/A
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

show mm

Privilege: **All**

Description: **show mm [<mmID>]**

This command shows the MG Media Module info. It displays the type(s) and serial numbers of Media Modules installed on the Media Gateway. Reflects the SNMP MIB Media Module "cmgModule…" group. The faults field is an interpretation of the MM's fault mask.

Parameters: <mmID> is the Media Module ID using the following convention mmID where <mmID> is the Media Module ID. Absence of specifying a mediaModID displays all Media Modules.

Sample Display

```
MG-001-3> show mm v2

MEDIA MODULE DESCRIPTION: v2
------------------------------------------------
Type          : DS1
Description   : E1T1 Media Module
Serial Number: 01DR10387865
HW Vintage    : 2
HW Suffix     : A
FW Version    : 55
No. of  Ports: 1
Faults        : No Fault Messages

This is an ACP controlled Media Module, check
the ACP for additional status information.
```

Administration Commands **|** ***Processor*** **|** ***CC*** **|** ***QOS*** **|** ***Network*** **|** ***Maintenance*** **|** ***E1/T1 CSU***

show post

Privilege: **All**

Description: **show post**
Displays the results of the Power On Self Test (POST) for the G700 MG Firm-

ware.
Parameters: None

Sample Display

```
MG-001-3> show post

NCE0 DIAGNOSTICS                    NCE1 DIAGNOSTICS
-------------------------           ----------------------
NCE Reset              PASS         NCE Reset          PASS
Internal RAM           PASS         Internal RAM       PASS
FIFO Loop Around       PASS         FIFO Loop Around   PASS
Internal CH Loopback   PASS         Internal CH Lpbk   PASS
TDM Bus Master LB      PASS         TDM Bus Master LB  PASS
External CH Loopback   PASS         External CH Lpbk   PASS

DSP DIAGNOSTICS                     SPITFIRE DIAGNOSTICS
-------------------------           ----------------------
DSP Memory             PASS         FIFOs              PASS
DSP Memory Download    PASS         SPI Loopback       PASS
DSP Checksum           PASS

ENV DIAGNOSTICS                     MISC DIAGNOSTICS
-------------------------           ----------------------
Fan #1                 PASS         Ethernet Local LB  PASS
Fan #2                 PASS         Ethernet Phys LB   PASS
Fan #3                 PASS         HDLC               PASS
Fan #4                 PASS         Port I/O Read      PASS
Main Power Supply      PASS
Aux Power Supply       PASS
ADC                    PASS
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

show sync timing

Privilege:**All**

Description: **show sync timing**
Displays the status of the primary, secondary, and the local clock sources.

Status can be 'Active', 'Standby', or 'Not Configured' in the case where such a source has not been defined. For example, when there are no T1 cards installed.

Parameters: None

Sample Display

```
MG-001-3> show sync timing

SOURCE      MM     STATUS           FAILURE
---------   ----   --------------   ---------------
Primary            Not Configured
Secondary          Not Configured
Local       v0     Active           None
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

show system

Privilege:**All**

Description: **show system**
Displays the uptime, system name, system location, and contact name.

Parameters: None

Sample Display

```
MG-001-3> show system

Uptime(d,h:m:s): 0, 01:03:20

System Name    : mercury
System Location: 1N-202
System Contact : Joe Smith
MAC Address    : 00-04-0D-02-06-68
Serial No      : 01DR11131374
Model No       : G700
HW Vintage     : 00
HW Suffix      : A
FW Vintage     : 100

Media Gateway Power Supplies
                 VOLTAGE(V) ACTUAL(V)  STATUS
                 ---------- ---------- ----------
DSP Complex      3.4        3.380      OK
MGP              5.1        5.059      OK
Fans             12         0.000      OK
Media Modules    -48.0      -48.540    OK
VoIP DSP         1.6        1.580      OK
VoIP 8260        2.5        2.509      OK
Aux              -48.0      0.000      OK
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

show timeout

Privilege:**All**

Description: show { timeout | logout }

This command shows the auto-logout time. Timeout and logout are synonymous to support user preference. It displays the configured value of the terminal inactivity timer.

Parameters: **None**

Sample Display

```
MG-001-3> show timeout
CLI timeout is 15 minutes
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

tech

Privilege: **Privileged**

Description: **tech**

This command provides the ability to change to the ‘tech’ mode where additional tech-related commands are available.

Parameters: None

Sample Display

```
MG-001-3# tech
Password:
MG-001-3(tech)#
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

terminal length

Privilege: **All**

Description: **terminal length[<lines>]**

Provides the means to set the terminal length expressed in the number of lines per screen (default = 24 lines). Shows the current setting if argument is not provided.

Parameters: <lines> represents the terminal length measured in lines per screen; (3-200, 24]), where 3-200 represents the range possible with and 24 is the default.

Sample Display

```
MG-001-3> terminal length 24

MG-001-3> terminal length

terminal length: 24
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

terminal width

Privilege:**All**

Description: **terminal width[<chars>]**

Provides the means to set the terminal width expressed in the number of characters (default = 80 characters). Shows the current setting if argument is not provided.

Parameters: <chars> represents the terminal width measured in characters. (10-200, [80]), where 10-200 represents the range possible and 80 is the default

Sample Display

```
MG-001-3> terminal width 80
```

```
MG-001-3> terminal width

terminal width: 80
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

tree

Privilege:**All**

Description: **tree**

The tree command displays the commands that are available at your current location in the CLI hierarchy. All commands are listed alphabetically.

Parameters: None

Sample Display

```
MG-001-3> tree
clear screen
session
show dhcp
show interface
terminal length
terminal width

--type q to quit or space key to continue--
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

set mgp bootimage

Privilege: **All**

Description: **set mgp bootimage { a | b }**

The MGP can boot from either of 2 boot images on flash memory A and B. This

command is used to designate which of these to use upon bootup.

Parameters: “a” or “b” refer to the flash memory units in the MG.

Sample Display

```
MG-001-3(configure)# set mgp bootimage a
```

Administration Commands **|** ***Processor*** **|** ***CC*** **|** ***QOS*** **|** ***Network*** **|** ***Maintenance*** **|** ***E1/T1 CSU***

set mgp icc monitoring

Privilege: **Configure**

Description: **set mgp icc-monitoring { enable | disable }**
If an S8300/LSP is expected to be present in slot 1 of the MG, the MGPcan send a trap if the S8300/LSP heartbeat is not present. This command sets whether or not the S8300/LSP will be monitored by the MGP.

Parameters: None

Sample Display

```
MG-001-3(configure)# set mgp icc-monitoring enable
```

Administration Commands **|** ***Processor*** **|** ***CC*** **|** ***QOS*** **|** ***Network*** **|** ***Maintenance*** **|** ***E1/T1 CSU***

set mgp reset times

Privilege: **Configure**

Description: **set mgp reset-times { [[total-search | primary-search] <minutes>] | [transition-point <value>] }**
The MGP has a set of 3 timers that are used as part of the recovery process if the MG and MGC loose their connectivity. They are configuration dependant.

Parameters: <value> is in minutes. total-search (1-60, [30]) minutes; primary-search (1-60, [15]) minutes; transition-point(aka, “entry number”) (1-

10, [1]).

Sample Display

```
MG-001-3(configure)# set mgp reset-times total-search 24
```

Administration Commands **|** ***Processor*** **|** ***CC*** **|** ***QOS*** **|** ***Network*** **|** ***Maintenance*** **|** ***E1/T1 CSU***

show restart log

Privilege: **All**

Description: **show restart log**

The MGP creates a log of ‘reasons for restart’ stored in flash mem that is different than the trap log. The trap log might not contain a restart entry if the logging process was trashed during an insanity cycle. This command retrieves “raw” restart data. The actual output is TBD as of this docu-

ment's baselining.
Parameters: None

Sample Display

```
MG-001-3( developer )# show restart-log
RESET ID   MM/DD-hh:mm:ss.hs STR
------ ---------------- ----------------------------------------------------
0000000596 02/02-19:33:38.67 User reboot
0000000595 02/02-19:33:31.67 MSY-TRPCRIN0-00042 REBOOT from Recovery-
EngineUtilty::reboot()
0000000594 02/01-21:35:13.08 MSY-TRPCRIN0-00042 REBOOT from Recovery-
EngineUtilty::reboot()
0000000593 02/01-20:02:20.55 MSY-TRPCRIN0-00042 REBOOT from Recovery-
EngineUtilty::reboot()
0000000592 02/01-19:50:55.88 User reboot
0000000591 02/01-19:50:48.88 MSY-TRPCRIN0-00042 REBOOT from Recovery-
EngineUtilty::reboot()
0000000590 02/01-13:32:16.36 User reboot
0000000589 02/01-13:32:09.36 MSY-TRPCRIN0-00042 REBOOT from Recovery-
EngineUtilty::reboot()
0000000588 01/31-12:53:01.67 User reboot
0000000587 01/31-12:52:54.67 MSY-TRPCRIN0-00042 REBOOT from Recovery-
EngineUtilty::reboot()
0000000586 01/31-08:04:27.94 User reboot
0000000585 01/31-08:04:20.94 MSY-TRPCRIN0-00042 REBOOT from Recovery-
EngineUtilty::reboot()
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

show mgp icc-monitoring

Privilege:**All**

Description: **show mgp icc-monitoring**
Displays the current state of the ICC monitoring watchdog

Parameters: None:

Sample Display

```
MG-001-1> show mgp-icc monitoring

ICC Monitoring Status : Disabled
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

show mgp recovery

Parameter:**All**

Description: **show mgp recovery**

Displays the currently configured values associated with the monitoring actions of and recovery parameters used by the MGP.

Parameters: None

Sample Display

```
MG-001-3> show mgp recovery

MGP RECOVERY TIMES
--------------------------------
Primary Search  : 2
Total Search    : 30
Transition Point: 1
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

show mgp bootimage

Privilege: **All**

Description: **show mgp bootimage**

Displays which flash memory bank the next boot will occur from as defined by the set mgp bootimage { a | b } command. The currently running image source is displayed via the 'show mg list_config' command. In contrast, this command shows which image will become active on the next mgp boot.

Parameters: None

Sample Display

```
MG-001-3> show mgp bootimage

FLASH MEMORY    IMAGE VERSION
```

```
-------------   --------------
Bank A          100
Bank B          100

ACTIVE NOW      ACTIVE AFTER REBOOT
------------    -------------------
Bank B          Bank B
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

clear mgc list

Privilege: **Configure**

Description: **clear mgc list [<ipaddress1>,…]**

Removes one or all entries within the MGC list. Multiple entries can be removed at a time provided each match an entry in the table. Only entries that match the arguments provided will be removed. If no arguments are provided all entries are removed.

Parameters: <ipaddress> is the IP address of the call controller

Sample Display

```
MG-001-3(configure)# clear mgc list 132.236.73.2
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

set mgc list

Privilege: **Configure**

Description: **set mgc list {<ipaddress1>,…}**

Permits the creation of a list of valid MGC(s). The user can configure up to 4 IP addresses separated by commas.

Parameters: <ipaddress> of the call controller.

Sample Display

```
MG-001-3(configure)# set mgc list 132.236.73.2
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

show mgc

Privilege:**All**

Description: **show mgc**

Displays the currently active Media Gateway Controller state and setup parameters.

Parameters: None

Sample Display

```
MG-001-3> show mgc

CALL CONTROLLER STATUS
------------------------------------------
Registered          : YES
Active Controller   : 135.8.48.220
H248 Link Status    : UP
H248 Link Error Code: 0x0
MGC List Management : Static

CONFIGURED MGC HOST
--------------------
135.8.48.220
-- Not Available --
-- Not Available --
-- Not Available --
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

show mgc list

Privilege:**All**

Description: **show mgc list**
Displays the list of available MGC's ; showing their respective IP address.

Parameters: None

Sample Display

```
MG-001-3> show mgc list

CONFIGURED MGC HOST
---------------------
135.8.48.220
-- Not Available --
-- Not Available --
-- Not Available --
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

set qos bearer

Privilege:**Configure**

Description: set qos bearer { bbedscp | efdscp | 802q | rtpmin | rtpmax } <value>
Permits the setting of VoIP QOS- bearer related parameters for the MGP and VoIP engines. Since MGC and VoIP engines share the same setup, they will not be set to entered values unless "set mgp qoscontrol local" has been executed.

Parameters: bbeDSCP (0-63 [43]), efdscp(0-63 [46]), 802p (0-7 [6]), rtp-min(1-65533 [2048], rtpmax(3-65535[65535].

Sample Display

```
MG-001-3(configure)# set qos bearer bbedscp 43
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

set qos control

Privilege:**Configure**

Description: **set qos control { local | remote** }
Defines the source for QOS control parameters; either "local" which implies that the user configures the values via the CLI or "remote" which implies the values are obtained from the Media Gateway Controller.

Parameters: local or remote

Sample Display

```
MG-001-3(configure)# set qos control local
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

set qos rsvp

Privilege:**Configure**

Description: **set qos rsvp { {enable | disable} | refresh <secs> |** failure { retry | noretry} | profile {guaranteed | controlled} }
Sets the current value(s) for the RSVP parameters of the VoIP engines; enabled/disabled, refresh rate (secs), failure retry (y/n), service profile (guaranteed-service or controlled load service). WILL NOT take effect unless QOS source setup is "local".

Parameters: [enable]/disable, refresh rate (1-99 [15]), failure [retry]/no retry, service profile ([guaranteed]/controlled)

Sample Display

```
MG-001-3(configure)# set qos rsvp refresh 15
MG-001-3(configure)# set qos rsvp failure noretry
MG-001-3(configure)# set qos rsvp profile controlled
MG-001-3(configure)# set qos rsvp enable
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

set qos rtcp

Privilege:**Configure**

Description: **set qos rtcp { {enable|disable} | monIP <ipaddress> | reportper <seconds> | listenport <portno> }**
Permits the setup of RTCP parameters; enabling or disabling RTCP reporting capability, setting the IP address of the monitor, setting the reporting period (default= 5 sec.), and defining the listening port number.

Parameters: listen port =(1-65535,[5005]), reportper = (5-30,[5]) seconds

Sample Display

```
MG-001-3(configure)# set qos rtcp monip 132.123.23.12

MG-001-3(configure)# set qos rtcp reportper 10

MG-001-3(configure)# set qos rtcp listenport 5000

MG-001-3(configure)# set qos rtcp enable
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

set qos signal

Privilege:**Configure**

Description: **set qos signal { dscp | 802q } <value>**
Provides the means to set up QOS signaling parameters (DSCP, 802.1Q) for the Media Gateway Processor.

Parameters: dscp (0-63, [34]), 802q (0-7, [7])

Sample Display

```
MG-001-3(configure)# set qos signal dscp 43
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

show qos-rtcp

Privilege: **All**

Description: **show qos-rtcp**
Displays the locally configured and downloaded QOS parameters.

Parameters: None

Sample Display

```
MG-001-3> show qos-rtcp

  PARAMETERS IN EFFECT: -- Downloaded --

  QOS PARAMETERS          LOCALLY SET       DOWNLOADED
  --------------------    ---------------   ---------------
  Signal 802 Priority:    7                 7
  Signal DSCP         :   34                34
  Bearer 802 Priority:    6                 6
  Bearer BBE DSCP     :   43                43
  Bearer EF DSCP      :   46                46
  Minimum RTP Port    :   2048              2048
  Maximum RTP Port    :   65535             65535

  RSVP PARAMETERS         LOCALLY SET       DOWNLOADED
  --------------------    ---------------   ---------------
  State               :   Enabled           Enabled
  Retry on Failure    :   Yes               Yes
  Retry Delay(secs)   :   15                15
  Service Profile     :   Guaranteed        Guaranteed

  RTCP MON  PARAMETERS    LOCALLY SET       DOWNLOADED
  --------------------    ---------------   ---------------
  State               :   Enabled           Enabled
  IP Address          :   0.0.0.0           0.0.0.0
  Listening Port      :   5005              5005
  Report Period(secs):    5                 30
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

show voip-parameters

Privilege: **All**

Description: **show voip-parameters [<mmid>]**

Displays the specified VoIP Engine's MAC address, static/DHCP IP addresses, RTP port, and whether the VoIP Engine setup is controlled via DHCP.

Parameters: <mmID> is the Media Module ID. Absence of a specification implies the motherboard VoIP engine.

Sample Display

```
MG-001-3> show voip-parameters

VOIP ENGINE PARAMETERS
-----------------------------------------
Slot Number          : v0
Current IP Address   : 135.8.48.223
Static IP Address    : 135.8.48.223
DHCP Used            : No
Jitter Buffer Size   : 500
Total Channels       : 64
DSP Firmware Version: 58
MAC Address          : 00-04-0D-02-20-68
Fault Status         : No Fault Messages

CURRENT STATE
-----------------------------------------
Channels in Use: 0
DSPs State     : Idle
Admin State    : Release
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

clear arp-cache

Privilege:**All**

Description: **clear arp-cache**
Removes non-permanent entries from the ARP cache.

Parameters: None

Sample Display

```
MG-001-3> clear arp-cache
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

clear ip route

Privilege: **Privileged**

Description: **clear ip route <ipaddress> [<ipgateway>} |***
Use the clear ip route command to delete IP routing table entries for either the MGP or specified VoIP engine.

Parameters: ipaddress is the IP address, ipgateway is the default gateway. '*' clears all routes from the routing table. '*' implies clear all routes

Sample Display

```
MG-001-3(configure)# clear ip route *
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

ping

Privilege: **All**

Description: **ping { mgp | [voip <mmid>] } <ipaddress> [number]**
Provides a means to determine whether or not a two-way transmission path is

open between the sending equipment and the target host. Utilizes identical command syntax and output as Cajun P330. For the VoIP the ping will return only the statistics.

Parameters: <ipaddress> is the IP address of the target host. [number] is an optional count of the number of packets to transmit. If none is specified then 5 packets will be transmitted. <mmid> is the Media Module ID; if none specified then v0 is assumed.

Sample Display

```
MG-001-3> ping mgp 135.9.65.213 5
PING 149.49.48.1 10: 56 databytes
64 bytes from 149.49.48.1: icmp_seq=0. time=8 ms
64 bytes from 149.49.48.1: icmp_seq=1. time=8 ms
64 bytes from 149.49.48.1: icmp_seq=2. time=8 ms
64 bytes from 149.49.48.1: icmp_seq=3. time=8 ms
64 bytes from 149.49.48.1: icmp_seq=4. time=9 ms
----149.49.48.1 PING Statistics----
5 packets transmitted, 5 packets received, 0% packet loss
round-trip (ms) min/avg/max = 8/8/9

MG-014-1(develop)# ping voip v0 127.1.1.1

----127.1.1.1 PING Statistics----
5 packets transmitted, 0 packets received, 5 packet loss
round-trip(ms) min/avg/max = 0/0/0
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

session

Privilege:**All**

Description: **session { mgc [sat] | icc [sat] | stack }**

Provides the means to establish a session with the active MGC, SAT, or the stack. The destination ’sat’ takes the user to the SAT login. "session mgc" takes the user to the LINUX shell login. A ’session icc" command will be added to the MGP CLI and access the icc via the EMB. When you exit from ’session stack’ you do not return to the MGP CLI.

Note: for ’session mgc sat’, and ’session icc sat’ to access the Media Server SAT terminal, the SAT port must be configured to 5023 on the Media Server. For ’session mgc’ and ’session icc’, the Media Server should allow access to tel-

net port (23).

Parameters: None

Sample Display

```
MG-001-3> session mgc
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

set interface

Privilege:**Configure**

Description: **set interface {mgp <vlan> <ipaddress> <netmask> |**
voip <voipid> <ipaddress> }
Permits the setting of the local static IP addresses for the Media Gateway Processor and VoIP engines. The VoIP Engines will inherit the netmask defined by the ’set interface mgp’ command

Parameters: ’vlan' is the VLAN number(default=0), ‘voipID’ is in the range v0-v4 where v0 represents the VoIP engine on the motherboard 'ipaddress' is the IP address of the interface, and 'netmask' is the IP netmask.

Sample Display

```
MG-001-3(configure)# set interface mgp 2 132.236.73.23 255.255.255.0

MG-001-3(configure)# set interface voip v2 123.23.44.21
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

set ip route

Privilege: **Privileged**

Description: **set ip route <destination> <mask><gateway>**
Use the set ip route command to add IP addresses to the IP routing table. You can configure from one to ten (10) default gateways. (Same as for a Cajun P330 stack.)

Parameters: ipaddress is the IP address, ipgateway is the default gateway.

Sample Display

```
MG-001-3(configure)# set ip route 132.236.73.0 255.255.255.0 132.236.73.1
```

Administration Commands | ***Processor*** | ***CC*** | ***QOS*** | ***Network*** | ***Maintenance*** | ***E1/T1 CSU***

show interface

Privilege: **All**

Description: **show interface [{mgp | [voip <mmID>]}]**
Displays the IP interface configurations.

Parameters: <mmID> is Media Module ID of the VoIP Engine number where v0=motherboard, 1v-4= voip engine on a Media Module. No parameters specified results in the display of all defined interfaces.

Sample Display

```
MG-001-3> show interface

OPERATIONAL STATE: -- Currently in use --

INTERFACE  SRC  VLAN  IP ADDRESS       NETMASK          MAC ADDRESS
---------  ---  ----  ---------------  ---------------  -----------------
mgp        S    1     135.8.48.222     255.255.254.0    00-04-0D-02-06-68
voip-v0    S    1     135.8.48.223     255.255.254.0    00-04-0D-02-20-68


OPERATIONAL STATE: -- Pending reboot --

INTERFACE  SRC  VLAN  IP ADDRESS       NETMASK          MAC ADDRESS
---------  ---- ----- ---------------  ---------------  -----------------
mgp        S    1     135.7.64.234     255.255.255.0    00-04-0D-02-06-68
voip-v0    S    1      135.8.48.223    255.255.255.0     00-04-0D-02-20-68
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

show ip arp

Privilege:**All**

Description:**show ip arp**
Displays a list of ARP resolved MAC/IP addresses.

Parameters:None

Sample Display

```
MG-001-3> show ip arp
LINK LEVEL ARP TABLE
IP Address       MAC Address         flags  Refcnt  Use           Interface
-------------------------------------------------------------------------
127.1.1.31       00:00:50:09:bd:b     405    0       389            motfec0
135.8.48.1       00:30:6d:17:fc:2f    405    1       0              motfec0
135.8.48.220     00:00:50:09:bd:b     405    1       1119           motfec0
-------------------------------------------------------------------------
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

show ip route

Privilege:**All**

Description: **[show ip route mgp { static | voip <mmID> }]**
Display the IP routing table contents.

Parameters: <mmID> is the Media Module identification.

Sample Display

```
MG-001-3> show ip route mgp

DESTINATION      MASK              GATEWAY           INTERFACE    (F/C/U)
---------------  ---------------  ---------------  ----------  -----------
0.0.0.0          0.0.0.0          135.8.48.1        motfec0     (3/2/1894)
135.8.48.0       255.255.254.0    135.8.48.222      motfec0     (101/0/0)

MG-001-3> show ip route voip v0

DESTINATION      MASK               GATEWAY
---------------  ---------------  ---------------
0.0.0.0          0.0.0.0      135.8.48.1

MG-001-3> show ip route static

DESTINATION      MASK              MASK
---------------  ---------------  ----------------
0.0.0.0          0.0.0.0            135.8.48.1
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

telnet

Privilege: **All**

Description: **telnet <ipaddress>[<port-number>]**
Initiates a login session via TELNET to a network host. <hostname> is the IP address/ name of the target host, [<port-number>] is the Telnet port number; [23] is the default.

Parameters: <hostname> the IP address/name of the target host,[<port-number>] is the Telnet port number; [23] is the default.

Sample Display

<hostname> the IP address/ name of the
target host, [<port-number>] is the Telnet port number; [23] is the default.

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

traceroute mgp

Privilege:**All**

Description: **traceroute mgp <ipaddress>**

Parameters: The <ipaddress> is the INET address of the targeted host.

Sample Display

```
MG-014-1(super)# traceroute mgp 135.9.1.76

traceroute to 135.9.1.76 (135.9.1.76): 30 hops max, 16 data bytes
    1   135.8.48.1 (135.8.48.1)  5 ms  0 ms  5 ms
    2   135.8.2.1 (135.8.2.1)  0 ms  0 ms  5 ms
    3   198.152.3.35 (198.152.3.35)  0 ms  5 ms  0 ms
    4   198.152.8.22 (198.152.8.22)  55 ms  50 ms  50 ms
    5   198.152.2.134 (198.152.2.134)  45 ms  45 ms  50 ms
    6   135.9.3.105 (135.9.3.105)  45 ms  45 ms  45 ms
    7   135.9.1.76 (135.9.1.76)  45 ms *  45 ms
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

busyout | test | release voip-dsp

Privilege: **Configure**

Description: **busyout | test | release voip-dsp <voip ID>**

Initiates a Busyout, Test, or Release (BTR) of the specified VoIP engine.Current state and most recent test results is available via the MGP CLI command "show mm <mmID>"or "show voip parameters <voipID>". The test option will run only non-disruptive tests if the VoIP engine is not busied out. Status changes create a SNMP trap. 'Release' option stops any test in progress and restores the engine to operational state. Only VoIP MM is supported in CLI. Not supported on T1/Analog/BRI MM's which are controlled by SAT; error message will display as such if attempted. Message of PASS or FAIL is shown in

output for tests.

Parameters: <voipid> - slot number where the VoIP Engine is installed. Valid values are v0 to v4, where v0 means motherboard

Sample Display

```
MG-001-3(configure)# busyout voip-dsp v1
```

Administration Commands | ***Processor*** | ***CC*** | ***QOS*** | ***Network*** | ***Maintenance*** | ***E1/T1 CSU***

clear isdn link

Privilege:**All**

Description: **clear isdn link {<mmID><portID> | <linkID> }**
Removes the ISDN link that is specified by the <linkID>. A specific link on a specified PRI or BRI Media Module port can also be removed via this command.

Parameters: <linkID> specifies the link ID (in Hex) of the desired port

Sample Display

```
MG-001-3> clear isdn link 0x0080
CAUTION: This will remove the link 0x0080
            Is this what you want to do [n]?
```

Administration Commands | ***Processor*** | ***CC*** | ***QOS*** | ***Network*** | ***Maintenance*** | ***E1/T1 CSU***

clear snmp trap

Privilege: **Configure**

Description: **clear snmp trap { ipaddress | all }**
Removes a trap receiver table entry, or will clear all of them.

Parameters:<ipaddress> is the IP address of a trap receiver.

Sample Display

```
MG-001-3(configure)# clear snmp trap all
MG-001-3(configure)# clear snmp trap 132.236.73.1
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

copy mgp-config tftp

Privilege:**Configure**

Description: **copy mgp-config tftp <filename> <ipaddress>**

Permits the upload of a customer's configuration file from NVRAM to a destination via TFTP.

Parameters: <filename> is the name of the destination file, <ipaddress> is the IP address of the destination.

Sample Display

```
MG-001-3(configure)# copy mgp-config tftp tffs.dat 128.256.98.211
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

copy tftp

Privilege: **Configure**

Description: **copy tftp { mgp-config | [mgp-image { A | B }] | [mm-image <mmID>] } <filename> <ipaddress>**

Permits the download of the MG configuration from a source to NVRAM or download a firmware image from a source to flash for the Media Gateway Processor

or the Media Modules

Parameters: <filename> is the name of the origin file, <ipaddress> is the IP address of the source host.

Sample Display

```
MG-001-3(configure)# copy tftp mgp-config tffs.dat 128.256.98.211

MG-001-3(configure)# copy tftp mgp-image b MgpBuild12.bin 128.256.98.211

TFTP STATUS
-------------------------------------------------------------------------------
Module          : MGP
Source [File    ]: MgpBuild12.bin
Destination File: BANK B
Host            : 128.256.98.211
Running State   : idle
Last Failure    : No Error
Last Warning    : (null)
Progress        : [102/7089]   1%
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

set snmp trap

Privilege:**Configure**

Description: **set snmp trap <IP Address> {enable|disable} [{all|power|temp|app|module|config|voice|operations}]**

Sets the IP address the SNMP trap receiver which will be receiving the traps from this Media Gateway and what group's traps will be sent to the specified receiver. If no keywords follow the IP address entry then 'all' traps will be enabled for the specified receiver. If enable or disable' are used without a trap designation keyword then all traps' is assumed. Up to 10 trap receivers can be configured.

Parameters: The IP address of the trap receiver which will receive the designated trap(s).

Sample Display

```
MG-001-3(configure)# set snmp trap 132.236.73.3 enable
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

show faults

Privilege: **All**

Description: **show faults [all]**

Displays all currently active faults traps identified as such in the SNMP MIB fault masks. The display information is basically a walk-thru of the MIB fault masks. For G700 Release 2, there will be additional key words added so that one can filter the output via the selection of key words.

Parameters: None

Sample Display

```
MG-001-3> show faults
Currently Active Faults
========================
PSU Fan
CPU temperature: Warning
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

show isdn bri link

Privilege: **All**

Description: **show isdn bri link {<mmID>}**
Displays the current status of all BRI links in the specified Media Module.

Parameters: <mmID> is Media Module ID of the desired Media Module.

Sample Display

```
MG-001-3> show isdn bri links {<mmID>}

LOCATION  TYPE    LINK ID    DLCI       SIDE  STATE
--------- ------- ---------- ---------- ----- ------------
v4        BRI_BC  0x2001     0x07f      A     Link Up
          BRI_BC  0x4001     0x1ff      A     Link Up
          BRI_P2P 0x0080     0x0040     A     Recovery
```

show isdn link summary

Privileges: **All**

Description: show isdn link summary
Displays a summary of all established links in the current Media Gateway.

Parameters: None

Sample Display

```
MG-001-3> show isdn link summary

LOCATION      TYPE         NO. OF LINKS UP
---------     --------     ---------------
v2            PRI_P2P      1
v4            PRI_BC       2
              BRI_P2P      1
```

Administration Commands | ***Processor*** | ***CC*** | ***QOS*** | ***Network*** | ***Maintenance*** | ***E1/T1 CSU***

show isdn pri link

Privilege: **All**

Description: **show isdn pri link {<mmID>}**
Displays the current status of all PRI links in the specified Media Module.

Parameters: <mmID> is Media Module ID of the desired Media Module

Sample Display

```
MG-001-3> show isdn pri links v2

LOCATION  TYPE    LINK ID    DLCI       SIDE  STATE
--------- ------- ---------- ---------- ----- ----------
v2        PRI_P2P 0x2001     0x07f        B   Link Up
```

Administration Commands | ***Processor*** | ***CC*** | ***QOS*** | ***Network*** | ***Maintenance*** | ***E1/T1 CSU***

show snmp

Privilege: **All**
Description: **show snmp**
Shows the community strings and trap targets for each configured trap

receiver. One page is displayed at a time per trap receiver.

Parameters: None

Sample Display

```
MG-001-3> show snmp
COMMUNITY ACCESS       COMMUNITY STRING
----------------       ----------------
read-only              public
read-write             public
trap                   public

TRAP RECEIVER     RECEIVER STATUS    TRAP ENABLED
---------------   -----------------  ----------------
11.3.4.5          Enabled            P,T,M,C,O,A
11.3.4.6          Enabled            P,T,M,C,O,A

TRAP CODE/NAMES REFERENCE
---------------------------------
P=Power   T=Temp    A=Application
M=Module  C=Config  O=Operations
V=Voice
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

show temp

Privilege:**All**

Description: **show temp**
Displays the current temperature of the CPU and DSP complex in degrees Cel-

sius and the thresholds for warning and shutdown.

Parameters: None

Sample Display

```
MG-001-3> show temp
CPU                          DSP
-------------------------    -------------------------
Temperature:         22C     Temperature:         21C
Warning    :         52C     Warning    :         52C
Shutdown   :         60C     Shutdown   :         60C
```

Administration Commands | ***Processor*** | ***CC*** | ***QOS*** | ***Network*** | ***Maintenance*** | ***E1/T1 CSU***

show tftp status

Privilege:**All**

Description: **show tftp { download | upload } {software [<mmID>] | config } status**

Used to display the status of the current TFTP file copy process into/from the

device.

Parameters: <mmID> is the Media Module ID.

Sample Display

```
MG-001-3> show tftp download mg013.sft status

TFTP STATUS
-------------------------------------------------------------------------------
Module           : MGP
Source File      :mg01_3.com
Destination File: BANK B
Host             : 0.0.0.0
Running State    : idle
Last Failure     : No Error
Last Warning     : (null)
Progress         : [0/0]   0%
```

Administration Commands | ***Processor*** | ***CC*** | ***QOS*** | ***Network*** | ***Maintenance*** | ***E1/T1 CSU***

show voltages

Privilege: **All**

Description: **show voltages**

Displays the status of power supply voltages by indicating whether or not the

output is within the predefined limits.

Parameters: None

Sample Display

```
MG-001-3> show voltages
Media Gateway Power Supplies
                 VOLTAGE(V) ACTUAL(V)  STATUS
                 ---------- ---------- ----------
DSP Complex      3.4        3.369      OK
MGP              5.1        5.090      OK
Fans             12         0.000      OK
Media Modules    -48.0      -48.169    OK
VoIP DSP         1.6        1.590      OK
VoIP 8260        2.5        2.509      OK
Aux              -48.0      0.000      OK
```

Administration Commands | ***Processor*** | ***CC*** | ***QOS*** | ***Network*** | ***Maintenance*** | ***E1/T1 CSU***

test led

Privilege: All

Description: **test led**

Illuminates the box-level LED on the MG. MultiVantage controls the LEDs on the Media Modules, and the Layer 2 Switching Processor controls the others. LED self extinguishes.

Parameters: None

Sample Display

```
MG-001-3> test led
Box-level LED should be ON for 5 seconds.
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

show csu loopbacks

Privilege:**All**

Description: **show csu loopbacks [<mmID>]**
Displays the state of the server SAT-controlled CSU loopbacks

Parameters: None

Sample Display

```
MG-001-3> show csu loopbacks v4
CSU LOOPBACK STATUS
 -----------------------------------
Towards DTE port-
        Digital Diagnostic: OFF
Towards Network-
        Payload: OFF
        Line:    OFF
```

Administration Commands | *Processor* | *CC* | *QOS* | *Network* | *Maintenance* | *E1/T1 CSU*

show csu status

Privilege:**All**

Description: **show csu status**
For TI:Loss of Signal (LOS), Out-of-Frame (OOF), Excessive Error Rate (EER), Alarm Present (ALRM), Loss of Frame (LOF), Alarm Indication Signal (AIS), Yellow(YEL), Pulse Density Violation (PDV) Note: equates to "BPV", Looped (LOOPD)
For E1: (LMA) = Local Multiframe Alignment,(RMA) = Remote Multiframe Align-

```
ment, (LCM)=Loss of CRC Multiframe
Parameters:  <mmID> is Media Module ID.
```

Sample Display

```
MG-001-3> show csu status v4
T1 version of csu status:

CSU NETWORK INTERFACE STATUS
--------------------------------
LOS: ON         OOF  : OFF
EER: OFF        LOOPD: OFF
AIS: OFF        PDV  : OFF
LOF: OFF        YEL  : ON

E1 version of csu status

CSU NETWORK INTERFACE STATUS
--------------------------------
LOS: ON         OOF  : OFF
EER: OFF        LOOPD: OFF
AIS: OFF        PDV  : OFF
LOF: OFF        LMA  : OFF
RMA: OFF        LCM  : ON
```

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