Upgrade and Service Guide for the

Avaya G350 Media Gateway

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 used in Avaya equipment typically operate within the following parameters:

Typical Center Wavelength	Maximum Output Power
830 nm - 860 nm	-1.5 dBm
1270 nm - 1360 nm	-3.0 dBm
1540 nm - 1570 nm	5.0 dBm

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

Power Line Emissions, IEC 61000-3-2: Electromagnetic compatibility (EMC) – Part 3-2: Limits – Limits for harmonic current emissions.

Power Line Emissions, IEC 61000-3-3: Electromagnetic compatibility (EMC) – Part 3-3: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems.

Federal Communications Commission Statement

Part 15:

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. 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. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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.

REN Number

For MCC1, SCC1, CMC1, G600, and G650 Media Gateways:

This equipment complies with Part 68 of the FCC rules. On either the rear or inside the front cover of this equipment is a label that contains, among other information, the FCC registration number, and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

For G350 and G700 Media Gateways:

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 the ringer equivalence number (REN) without a decimal point (for example, 03 is a REN of 0.3). If requested, this number must be provided to the telephone company.

For all media gateways:

The REN is used to determine the quantity of devices that 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 tables.

For MCC1, SCC1, CMC1, G600, and G650 Media Gateways:

Manufacturer's Port Identifier	FIC Code	SOC/REN/ A.S. Code	Network Jacks
Off premises station	OL13C	9.0F	RJ2GX, RJ21X, RJ11C
DID trunk	02RV2-T	0.0B	RJ2GX, RJ21X
CO trunk	02GS2	0.3A	RJ21X
	02LS2	0.3A	RJ21X
Tie trunk	TL31M	9.0F	RJ2GX
Basic Rate Interface	02IS5	6.0F, 6.0Y	RJ49C
1.544 digital interface	04DU9-BN	6.0F	RJ48C, RJ48M
	04DU9-IKN	6.0F	RJ48C, RJ48M
	04DU9-ISN	6.0F	RJ48C, RJ48M
120A4 channel service unit	04DU9-DN	6.0Y	RJ48C

For G350 and G700 Media Gateways:

Manufacturer's Port Identifier	FIC Code	SOC/REN/ A.S. Code	Network Jacks
Ground Start CO trunk	02GS2	1.0A	RJ11C
DID trunk	02RV2-T	AS.0	RJ11C
Loop Start CO trunk	02LS2	0.5A	RJ11C
1.544 digital interface	04DU9-BN	6.0Y	RJ48C
	04DU9-DN	6.0Y	RJ48C
	04DU9-IKN	6.0Y	RJ48C
	04DU9-ISN	6.0Y	RJ48C
Basic Rate Interface	02IS5	6.0F	RJ49C

For all media gateways:

If the terminal equipment (for example, the media server or media gateway) 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 A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A 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.

Installation and Repairs

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect 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.

All Avaya media servers and media gateways 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 Européenne*) mark conforms to the European Union Radio and Telecommunications Terminal Equipment Directive (1999/5/EC), including the Electromagnetic Compatibility Directive (89/336/EEC) and Low Voltage Directive (73/23/EEC).

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.

Japan

This is a Class A 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.

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

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Call: Avaya Publications Center
Voice 1.800.457.1235 or 1.207.866.6701
FAX 1.800.457.1764 or 1.207.626.7269

Write: Globalware Solutions
200 Ward Hill Avenue
Haverhill, MA 01835 USA
Attention: Avaya Account Management

E-mail: totalware@gwsmail.com

For the most current versions of documentation, go to the Avaya support Web site: http://www.avaya.com/support.

Contents

About this Book

Overview

The *Upgrade and Service Guide for the Avaya G350 Media Gateway* describes how an on-site technician without specialized expertise in the Avaya G350 Media Gateway can assist a trained technician working either on-site or from a remote location to perform system maintenance tasks, including:

- adding new telephones and fax machines
- adding new trunks
- adding data devices, such as computers
- adding media modules
- upgrading firmware and software
- assisting troubleshooting

This book describes the tasks the on-site technician must perform, such as:

- preparing hardware
- physically installing and connecting hardware
- providing connectivity
- testing configuration
- identifying faults
- responding to common problems

This book also describes the front panel of the Avaya G350 Media Gateway, including the optional media modules.

For installation instructions, refer to *Installation of the Avaya G350 Media Gateway*, 555-245-104 or *Quick Start for Hardware Installation*, 03-300148.

Audience

The information in this book is intended for use by Tier 1 service technicians, IT managers, and users.

Downloading this book and updates from the Web

You can download the latest version of *Upgrade and Service Guide for the Avaya G350 Media Gateway* from the Avaya Web site. You must have access to the Internet, and a copy of Acrobat Reader must be installed on your personal computer.

Avaya makes every effort to ensure that the information in this book is complete and accurate. However, information can change after we publish this book. Therefore, the Avaya Web site might also contain new product information and updates to the information in this book. You can also download these updates from the Avaya Web site.

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1. Access the Avaya web site at http://www.avaya.com/support.

2. On the left side of the page, click **Product Documentation**.

    The system displays the Welcome to Product Documentation page.

3. On the right side of the page, type **555-245-106,** and then click **Search**.

    The system displays the Product Documentation Search Results page.

4. Scroll down to find the latest issue number, and then click the book title that is to the right of the latest issue number.

5. On the next page, scroll down and click one of the following options:

    — **PDF Format** to download the book in regular PDF format

    — **ZIP Format** to download the book as a zipped PDF file

Safety labels and security alert labels

Observe all caution, warning, and danger statements to help prevent loss of service, equipment damage, personal injury, and security problems. This book uses the following safety labels and security alert labels:

🔻 **CAUTION:**
A caution statement calls attention to a situation that can result in harm to software, loss of data, or an interruption in service.

⚠️ **WARNING:**
A warning statement calls attention to a situation that can result in harm to hardware or equipment.

⚠️ **WARNING:**
An ESD warning calls attention to situations that can result in ESD damage to electronic components.

> ⚠️ **DANGER:**
> **A danger statement calls attention to a situation that can result in harm to personnel.**

> ⚠️ **SECURITY ALERT:**
> A security alert calls attention to a situation that can increase the potential for unauthorized use of a telecommunications system.

Related resources

For more information on the Avaya G350 Media Gateway and related features, see the following books:

Title	Number
Quick Start for Hardware Installation	03-300148
Overview of the Avaya G350 Media Gateway	555-245-201
Installation of the Avaya G350 Media Gateway	555-245-104
Avaya G350 Media Gateway Glossary	555-245-301

Technical assistance

Avaya provides the following resources for technical assistance.

Within the US

For help with:

- Feature administration and system applications, call the Avaya DEFINITY Helpline at 1-800-225-7585

- Maintenance and repair, call the Avaya National Customer Care Support Line at 1-800-242-2121

- Toll fraud, call Avaya Toll Fraud Intervention at 1-800-643-2353

International

For all international resources, contact your local Avaya authorized dealer.

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  1300 W. 120th Ave.

  Westminster, CO 80234 USA

- E-mail, send your comments to:

  document@avaya.com

- Fax, send your comments to:

  1-303-538-1741

Ensure that you mention the name and number of this book, *Upgrade and Service Guide for the Avaya G350 Media Gateway*, 555-245-106.

1   Introduction

The Avaya G350 Media Gateway is a converged networking device that provides the following voice and data networking services:

- Voice over IP Media Gateway
- WAN (data) connectivity and routing
- LAN Switching

The G350 is designed to meet the needs of a small branch office of a large enterprise, providing all network infrastructure needs in one box. The G350 is optimized for use in a 16-24 user environment.

The G350's internal router enables you to connect directly to an outside WAN, without additional routing equipment.

The G350 provides telephone services through a media gateway controller, or call controller, called a media server. The media server controls the routing of voice traffic through the G350. The media server can be either internal (a media module) or external (a device elsewhere on the network). The media server is managed by the Avaya Communication Manager.

Plugable media modules provide interfaces for many types of telephones and trunks. This allows you to incorporate legacy end point devices such as analog and digital telephones.

The G350 can be managed through the Avaya G350 Command Line Interface (CLI), the G350 Device Manager graphic user interface, or the centralized Avaya Integrated Management application. Some installation and upgrade configuration tasks can be performed through the Avaya Installation Wizard (Avaya IW) or the Gateway Installation Wizard (GIW), as well as the CLI.

Features

The G350 features:

- VoIP Media Gateway services
- Survivability features for continuous voice services
- LAN connectivity
- WAN connectivity
- LAN routing
- WAN routing
- Power-over-Ethernet LAN Switching

Applications

The G350 is a modular device with multiple configuration possibilities to meet specific individual needs. Six slots in the G350 chassis can house a customized selection of media modules, which connect to different types of circuit switched phones, trunks, and data devices. One of the slots can house an internal media server. A major configuration choice is which type of media server to deploy. The media server may be a media module or a standalone device.

The G350 can be deployed in one of two basic working modes:

- **Distributed Avaya Enterprise Connect**. In this mode, the G350 is controlled by an external media server. This may be a standalone media server, such as the S8500 or the S8700, or a separate media gateway in a standalone configuration. The G350 may also house an S8300 Media Server module to function as a Local Survivable Processor (LSP), which can take over control of the G350 if the external media server stops serving the G350.

- **Standalone**. In this mode, the G350 is controlled by an internally housed S8300 Media Server module (ICC).

Multiple G350s may be deployed in many remote branches of a large organization. Large branches or main offices may deploy an Avaya G700 Media Gateway, which provides similar functionality to the G350 for a larger number of users. Up to 250 G350 and G700 Media Gateways may be controlled by a single external S8700 Media Server.

2   Preparing for configuration

Most Avaya G350 Media Gateway upgrade and support tasks require both hardware and software configuration. Software configuration is performed by specially trained technicians, and is beyond the scope of this manual. However, there are certain tasks that you can or must perform to enable the technician to perform software configuration.

This chapter includes the following sections:

- Configuration overview — explains how software configuration is performed
- Connecting a modem — explains how to connect a modem to the Avaya G350 Media Gateway so as to enable remote configuration and downloading of software and firmware upgrade files
- Enabling the modem — explains how to enable the port to which the modem is connected for modem use

Configuration overview

When software configuration is necessary, a specially trained technician performs the configuration in one of the following ways:

- Remote configuration — the technician performs the configuration via a modem connection from a remote location
- Local configuration — the technician performs the configuration at the local site, using a network connection or laptop computer connected to the G350
- Combined remote/local configuration — in some cases, a local technician performs some configuration tasks at the local site using a laptop computer while a remote technician performs other configuration tasks via a modem connection

Connecting a modem

Before a technician configures a new hardware device on the Avaya G350 Media Gateway, you must connect a modem to the G350. You must also connect a modem to prepare for a software or firmware upgrade. You must connect the modem whether the technician performs the configuration or upgrade via local or remote configuration, or a combination of both.

Before connecting the modem, you may be required to enable the G350 or the S8300 Media Server for modem use. To determine whether or not you need to enable modem use, check with the project manager. See Enabling the modem on page 18.

To connect a modem:

1 Connect the modem to a working telephone line. Note the telephone number of the line to which you connect the modem, so that you can provide the number to the technician that is performing or supervising the configuration.

2 Connect the modem to the Avaya G350 Media Gateway, as follows:

> **NOTE:**
> If you are required to enable the port to which the modem is connected, enable the port first then connect the modem. See Enabling the modem on page 18.

— You can connect a USB modem to the USB port on the front panel of the Avaya G350 Media Gateway. Use a USB cable to connect the modem. It is recommended to use a Multitech MultiModem USB, MT5634ZBA-USB-V92.

— If you have an Avaya S8300 Media Server installed in your Avaya G350 Media Gateway, you can connect a USB modem to either of the two USB ports in the Avaya S8300 Media Server. It is recommended to use a Multitech MultiModem USB, MT5634ZBA-USB-V92.

— You can connect a serial modem to the front panel of the Avaya G350 Media Gateway. Attach a DB-25 adaptor to the modem, and connect an Avaya RJ-45 serial cable to the DB-25 adaptor and the CONSOLE port on the front panel of the G350. It is recommended to use a Multitech MultiModemZBA MT5634ZBA.

Enabling the modem

You may be asked to enable the modem. The process for enabling the modem depends on the type of modem and on whether the modem is connected to the Avaya S8300 Media Server or the Avaya G350 Media Gateway chassis.

- Enabling a USB modem connected to the G350 chassis — If the USB modem is connected to the Avaya G350 Media Gateway chassis, you can enable the USB port for modem use via the Gateway Installation Wizard (GIW).

- Enabling a serial modem connected to the G350 chassis — If the serial modem is connected to the Avaya G350 Media Gateway chassis, you can enable the CONSOLE port for modem use via the GIW.

- Enabling a USB modem connected to the Avaya S8300 Media Server — If the modem is connected to the Avaya S8300 Media Server, you can enable the modem via the Avaya Maintenance Web Interface.

Enabling a USB modem connected to the G350 chassis

To enable a USB modem:

1 Prepare a PC with a CD-ROM drive and a TFTP server on the network. This may be needed for installing software and firmware upgrades.

> **NOTE:**
> When uploading firmware from the S8300 using TFTP, you may need to enable TFTP service in the Set LAN Security parameters of your web server.

> **NOTE:**
> Firmware upgrades for the G350 and media modules can either be installed from CD or downloaded from the Web.

2 Download GIW (Gateway Installation Wizard) from the Avaya website (support.avaya.com/avaygiw) to the laptop computer. The laptop should be running Windows 2000 or Windows XP to support GIW.

3 Plug one end of a flat RJ-45 to RJ-45 cable into a DB-9 adapter.

4 Plug the RJ-45 connector at the other end of the cable into the CONSOLE port of the G350.

5 Plug the DB-9 end of the flat cable into the COM port of the laptop computer.

6 From your laptop computer, double-click the GIW icon to run GIW. The Overview screen appears:

Figure 1: GIW Overview screen
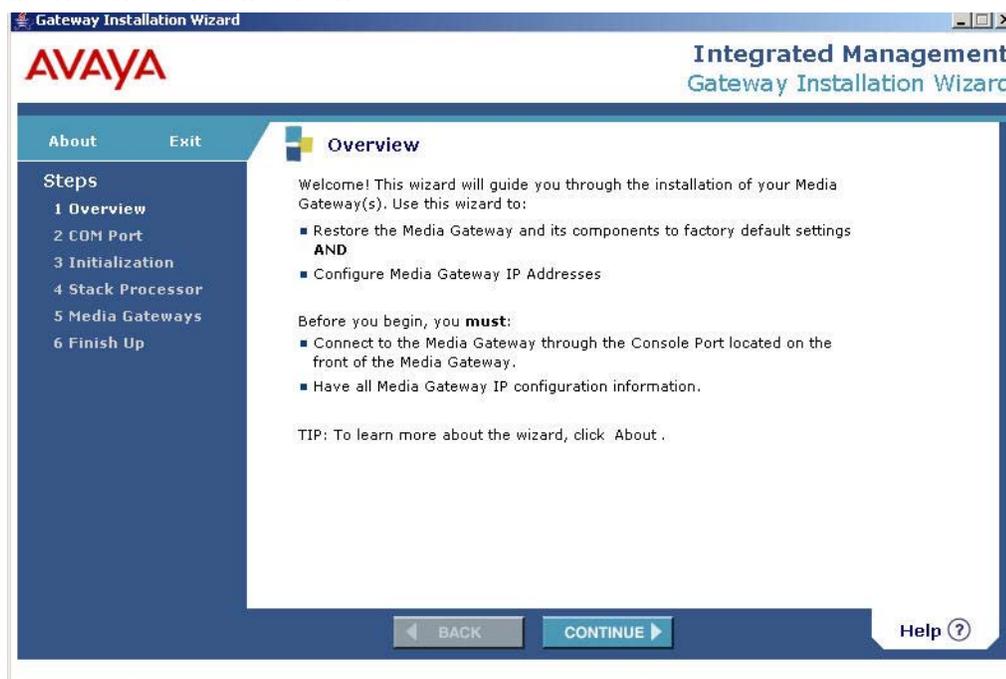
7 Click **Continue**. The COM Port Selection screen appears:

Figure 2: GIW COM Port Selection screen
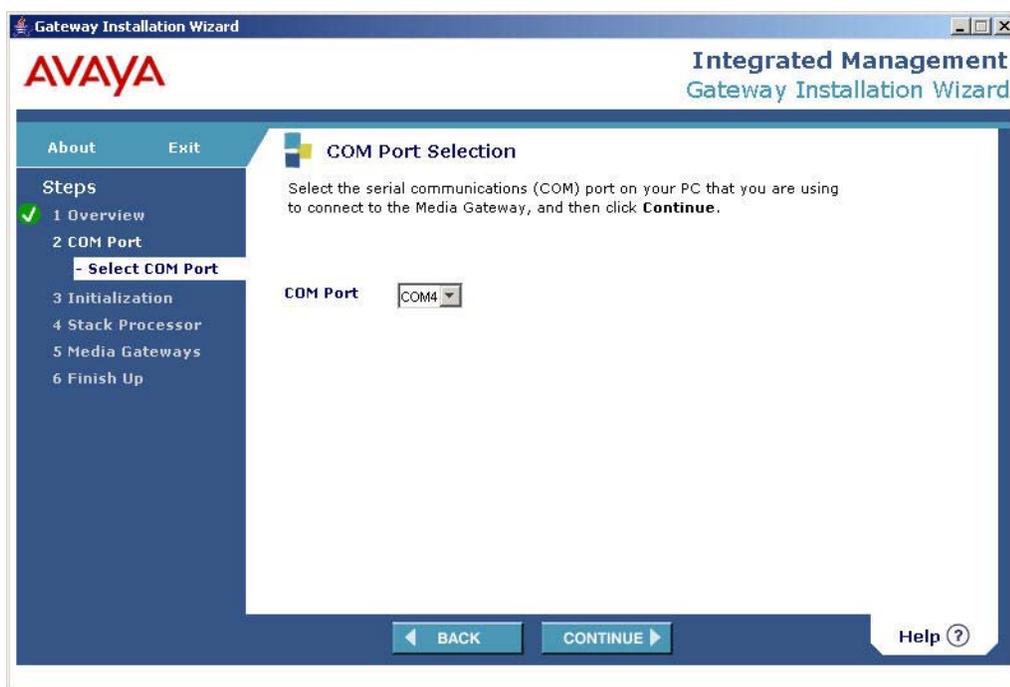
8 Select the COM port on the laptop that you are using the connect to the G350.

9   Click **Continue**. The G350 Wizard Usage Options screen appears:

Figure 3: GIW G350 Wizard Usage Options screen
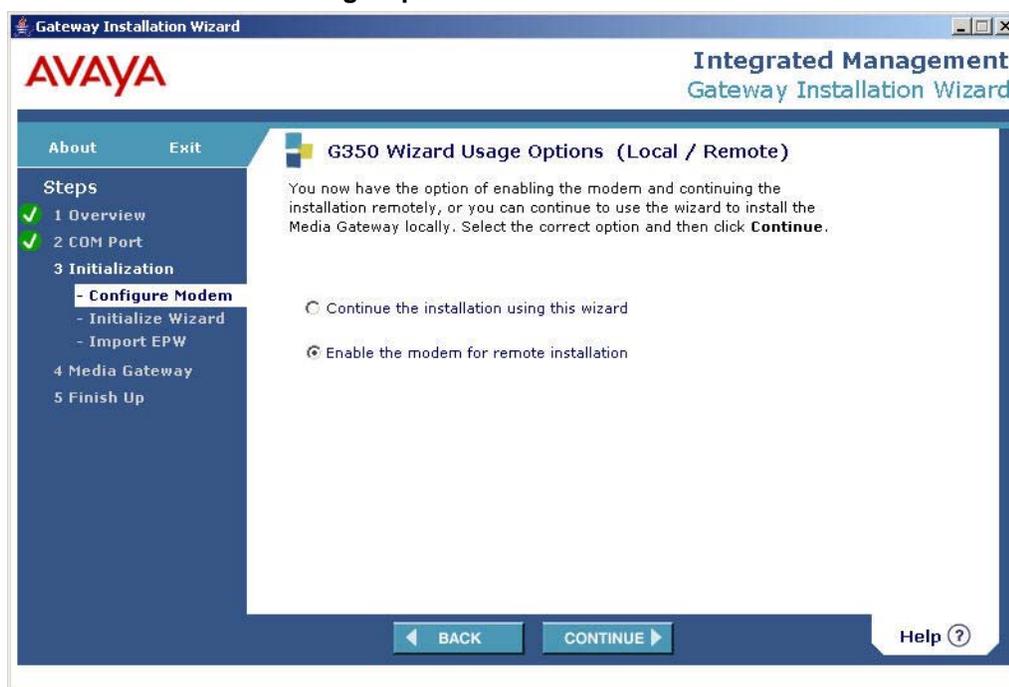
10   Select **Enable the modem for remote installation**.

11   Click **Continue**. The G350 Modem Type Selection screen appears:

Figure 4: GIW G350 Modem Type Selection screen
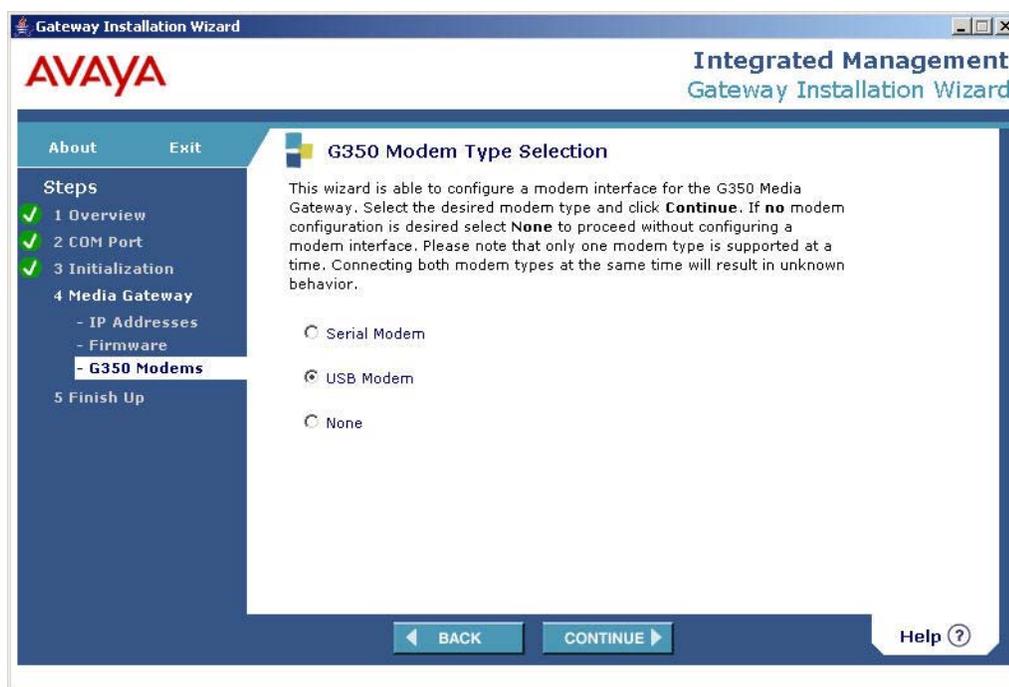
12   Select **USB Modem**.

13   Click **Continue**. The G350 USB Modem Configuration screen appears:

Figure 5: GIW G350 USB Modem Configuration screen
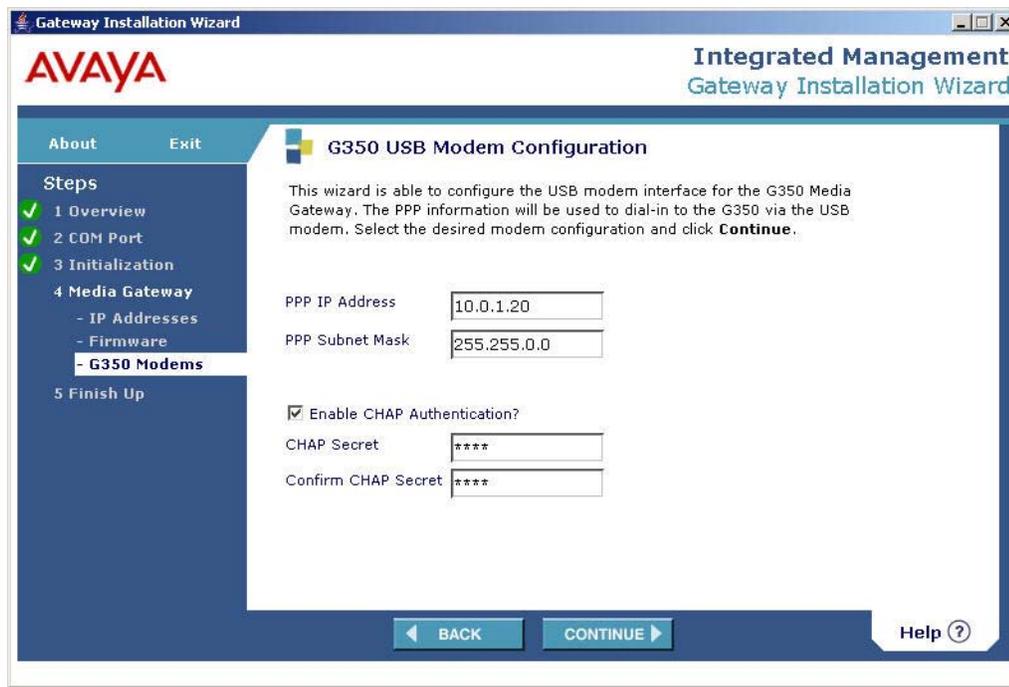
14   Fill in the fields in the G350 USB Modem Configuration screen using the values you get from the project manager.

> **NOTE:**
> To obtain the CHAP Secret password, you must use the Automatic Registration Tool (ART). For instructions on using the ART tool, see *Installation of the Avaya G350 Media Gateway*, 555-245-104.

15   Click **Continue**. The Connect Modem screen appears:

Figure 6: GIW Connect Modem screen
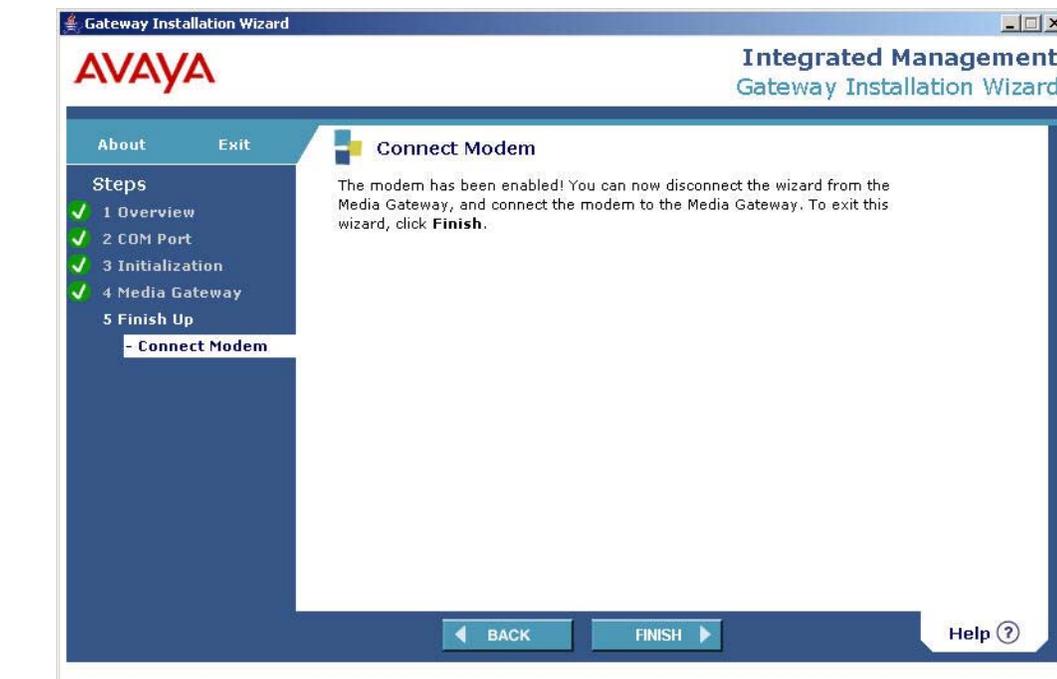
16   Click **Finish**.

17   Connect a USB modem to a working telephone line.

18   Connect one end of a USB cable to the modem.

19   Connect the other end of the USB cable to the USB port on the G350 front panel.

20   To ensure that the modem is enabled correctly, set up a dialup connection on a remote PC with the following settings:

- Automatically detect settings
- No Username, Password, or Domain
- Security > Show Terminal Window

21   Dial in to the modem from the remote PC.

22   When prompted, provide the access login and password in the Terminal Window.

23   Close the Terminal Window to complete the connection.

Enabling a serial modem connected to the G350 chassis

If you plan to connect the modem to the CONSOLE port of the G350 chassis, you can enable the CONSOLE port for modem use via the Gateway Installation Wizard (GIW). To enable the CONSOLE port using GIW, you need a CD containing the GIW and a laptop computer running Windows 2000 or Windows XP. You must enable the CONSOLE port before attaching the modem.

To enable the CONSOLE port:

1 Prepare a PC with a CD-ROM drive and a TFTP server on the network. This may be needed for installing software and firmware upgrades.

> **NOTE:**
> When uploading firmware from the S8300 using TFTP, you may need to enable TFTP service in the Set LAN Security parameters of your web server.

> **NOTE:**
> Firmware upgrades for the G350 and media modules can either be installed from CD or downloaded from the Web.

2 Download GIW (Gateway Installation Wizard) from the Avaya website (support.avaya.com/avaygiw) to the laptop computer. The laptop should be running Windows 2000 or Windows XP to support GIW.

3 Plug one end of a flat RJ-45 to RJ-45 cable into a DB-9 adapter.

4 Plug the RJ-45 connector at the other end of the cable into the CONSOLE port of the G350.

5 Plug the DB-9 end of the flat cable into the COM port of the laptop computer.

6 From your laptop computer, double-click the GIW icon to run GIW. The Overview screen appears:

Figure 7: GIW Overview screen
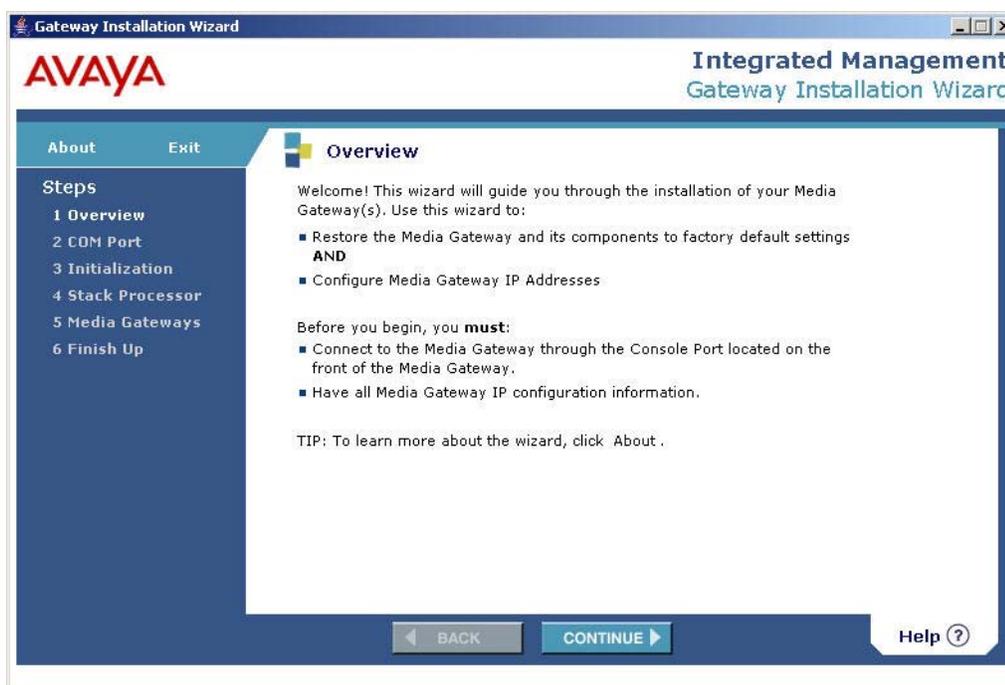
7   Click **Continue**. The COM Port Selection screen appears:

Figure 8: GIW COM Port Selection screen
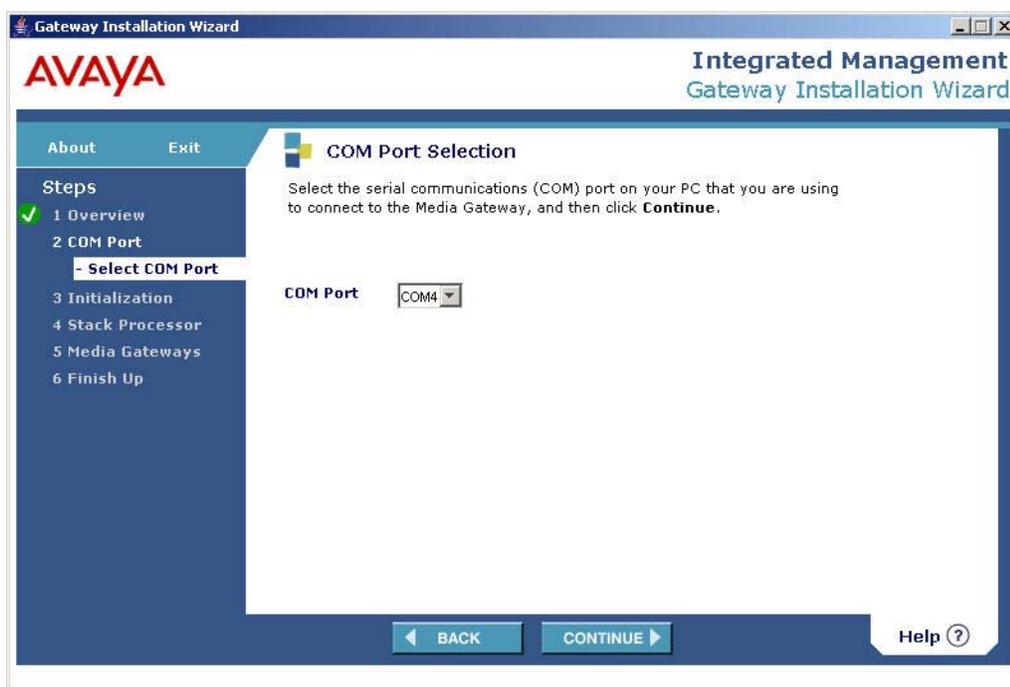
8   Select the COM port on the laptop that you are using the connect to the G350.

9 Click **Continue**. The G350 Wizard Usage Options screen appears:

Figure 9: GIW G350 Wizard Usage Options screen
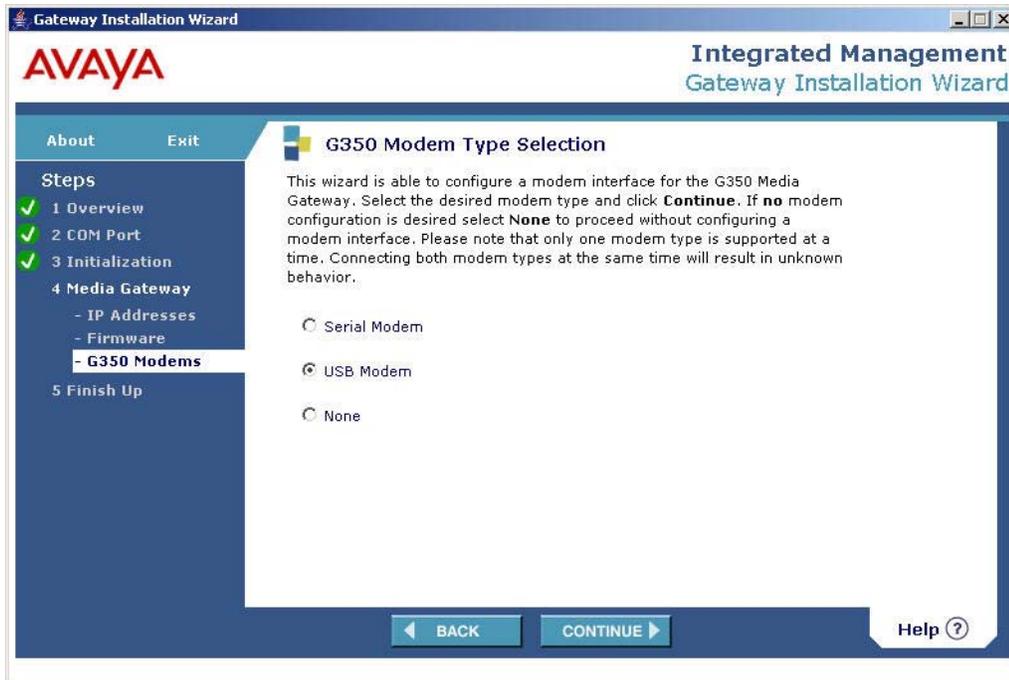
10 Select **Enable the modem for remote installation**.

11 Click **Continue**. The G350 Modem Type Selection screen appears:

Figure 10: GIW G350 Modem Type Selection screen
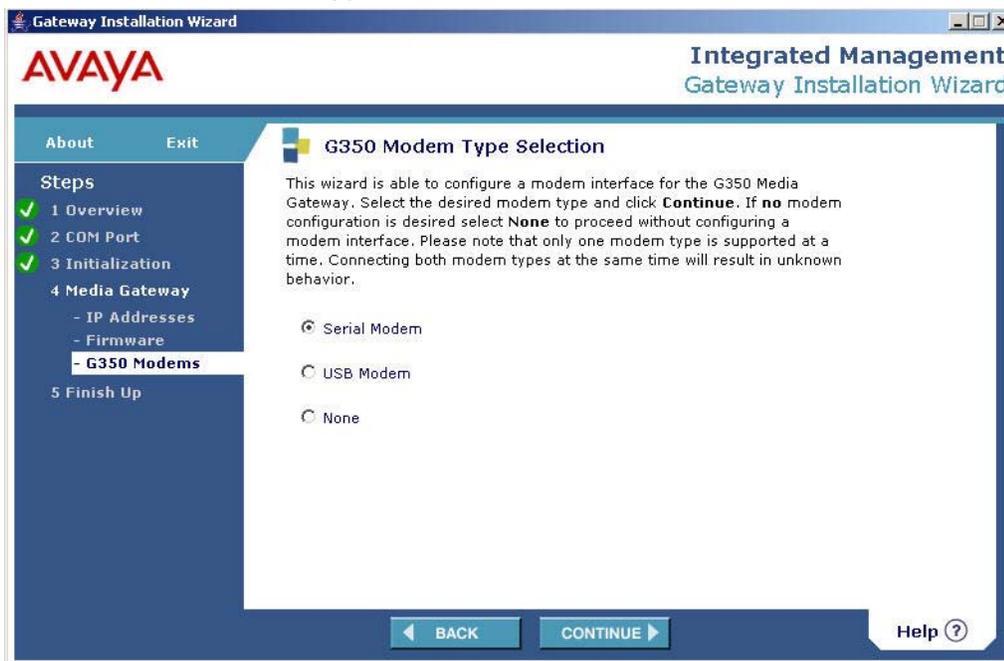
12   Select **Serial Modem**. The G350 Serial Modem Configuration screen appears:

Figure 11: GIW G350 Serial Modem Configuration screen
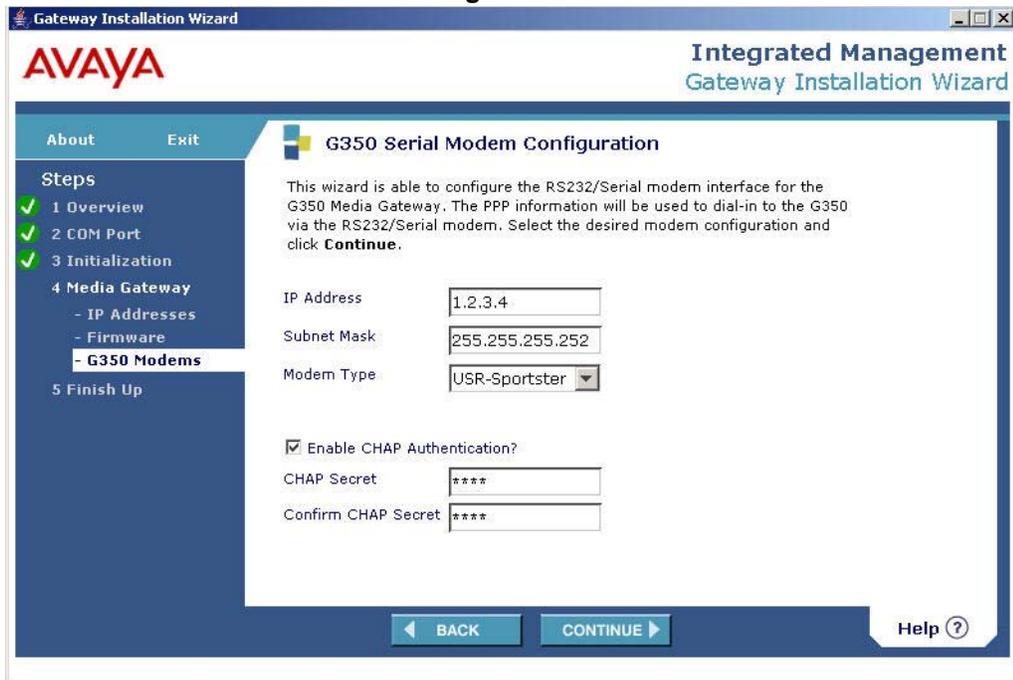
13   Fill in the fields in the G350 Serial Modem Configuration screen using the values you get from the project manager.

> **NOTE:**
> To obtain the CHAP Secret password, you must use the Automatic Registration Tool (ART). For instructions on using the ART tool, see *Installation of the Avaya G350 Media Gateway*, 555-245-104.

14   Click **Continue**. The Connect Modem screen appears:

Figure 12: GIW Connect Modem screen
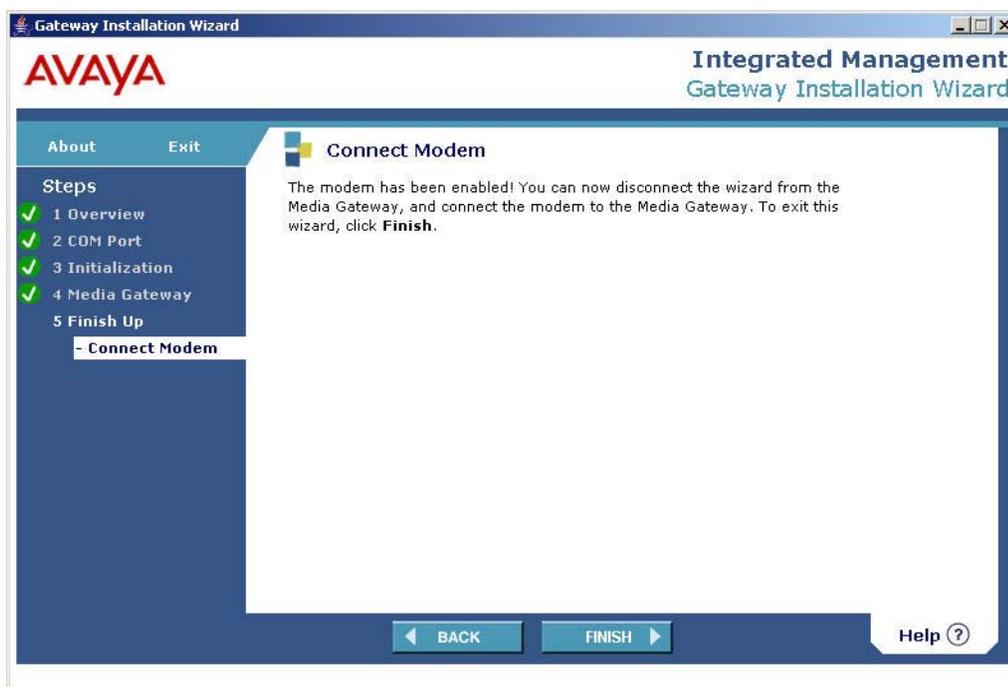
15   Click **Finish**.

16   Connect a serial modem to a working telephone line.

17   Connect a DB-25 adapter to the modem.

18   Disconnect the flat cable from the COM port of the laptop computer.

19   Connect the flat cable to the DB-25 connector on the modem.

20   To ensure that the modem is enabled correctly, set up a dialup connection on a remote PC with the following settings:

- Automatically detect settings
- No Username, Password, or Domain
- Security > Show Terminal Window

21   Dial in to the modem from the remote PC.

22   When prompted, provide the access login and password in the Terminal Window.

23   Close the Terminal Window to complete the connection.

Enabling a USB modem connected to the Avaya S8300 Media Server

If you plan to connect the modem to one of the USB ports on the front panel of the S8300 Media Server, you can enable the port and the modem via the Avaya Maintenance Web Pages.

To connect and enable the modem:

1   Connect the USB modem to a working telephone line.

2   Connect the USB modem to one of the USB ports on the S8300 module.

3   Connect the laptop computer to the Services port on the S8300 module. Use a standard Ethernet crossover cable.

4   Configure the network settings on the laptop, according to the following tables:

Table 1: TCP/IP Settings

Setting	Value
IP Address	192.11.13.5
Subnet Mask	255.255.255.252
DNS	disable
WINS Servers	do not use (clear out any values)

Table 2: Internet Browser Settings

Setting	Value
Proxy Server	disable

The names of the dialog boxes and buttons vary on different operating systems and browser releases. Use your computer's help system if needed to locate the correct place to enter this information.

5 Open Internet Explorer and browse to 192.11.13.6. The welcome screen for Avaya Integrated Management appears.

Figure 13: Avaya Integrated Management Welcome screen
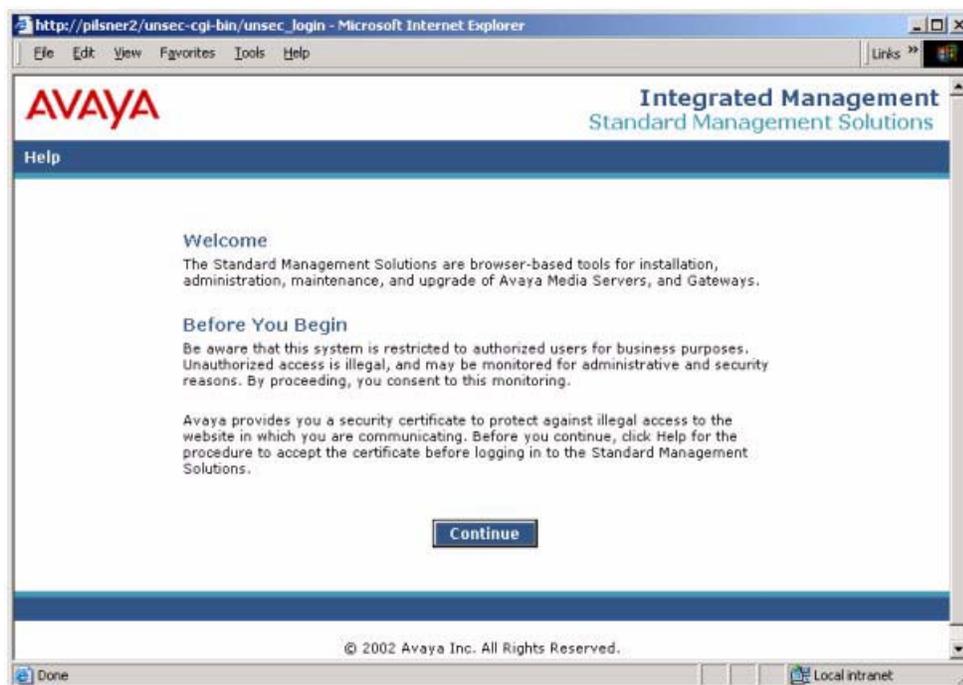
6 Click **Continue**. The Logon screen for Avaya IM appears.

Figure 14: Avaya Integrated Management Logon screen
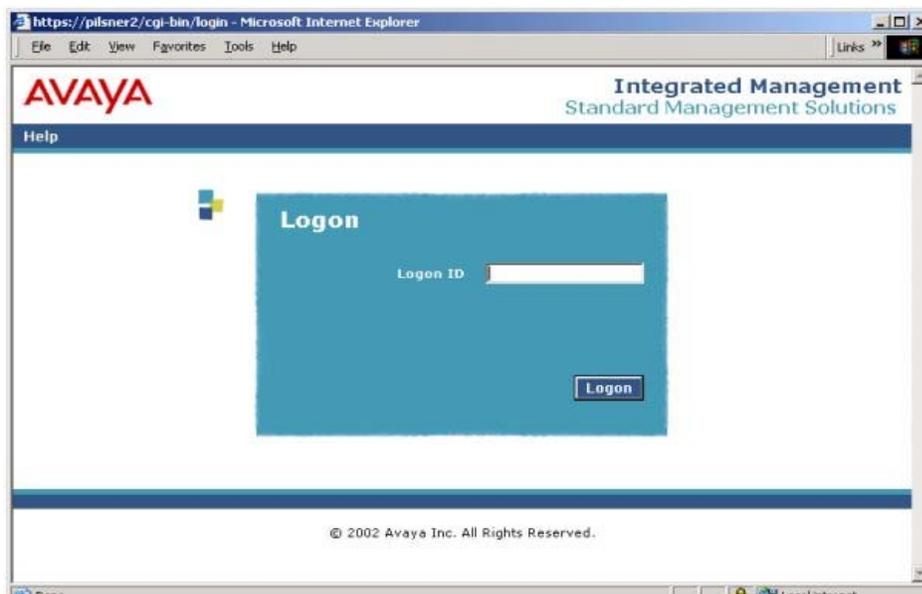
7 Enter your S8300 initial entry username in the Logon ID box.

8   Click **Logon**. A Password box appears.

9   Enter your password in the password box.

10   Click **Logon**. The main menu for Avaya Integrated Management appears.

Figure 15: Avaya Integrated Management main menu
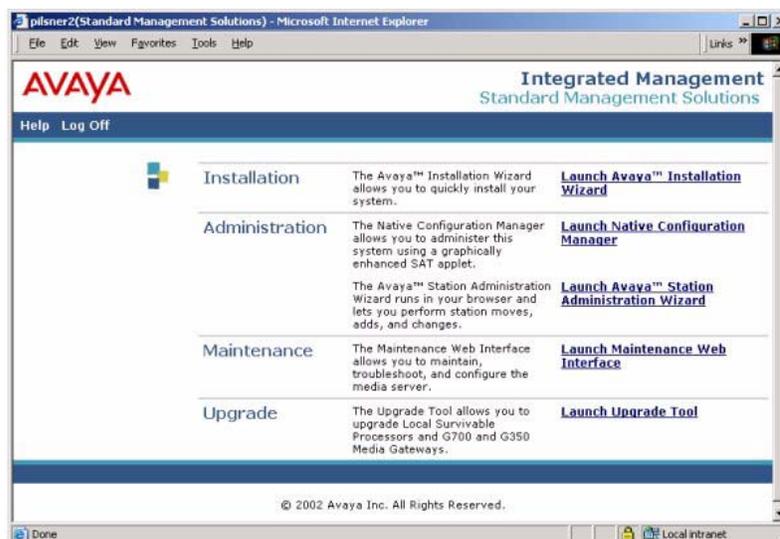
11   Select **Launch Maintenance Web Interface**. The Maintenance Web Pages Notice Page appears, with the menu in the left panel:

Figure 16: Maintenance Web Pages Notice screen
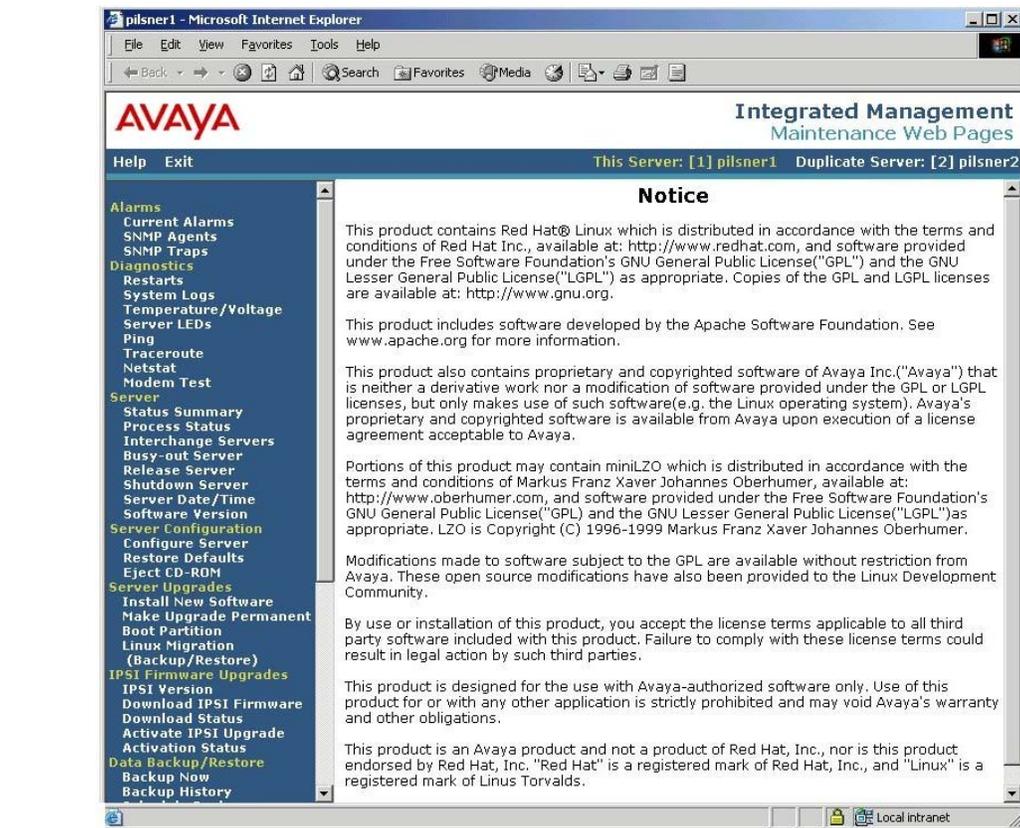
12 Under the Security heading in the left panel, select **Enable/Disable Modem**. The Modem screen appears:

Figure 17: Maintenance Web Pages Modem screen
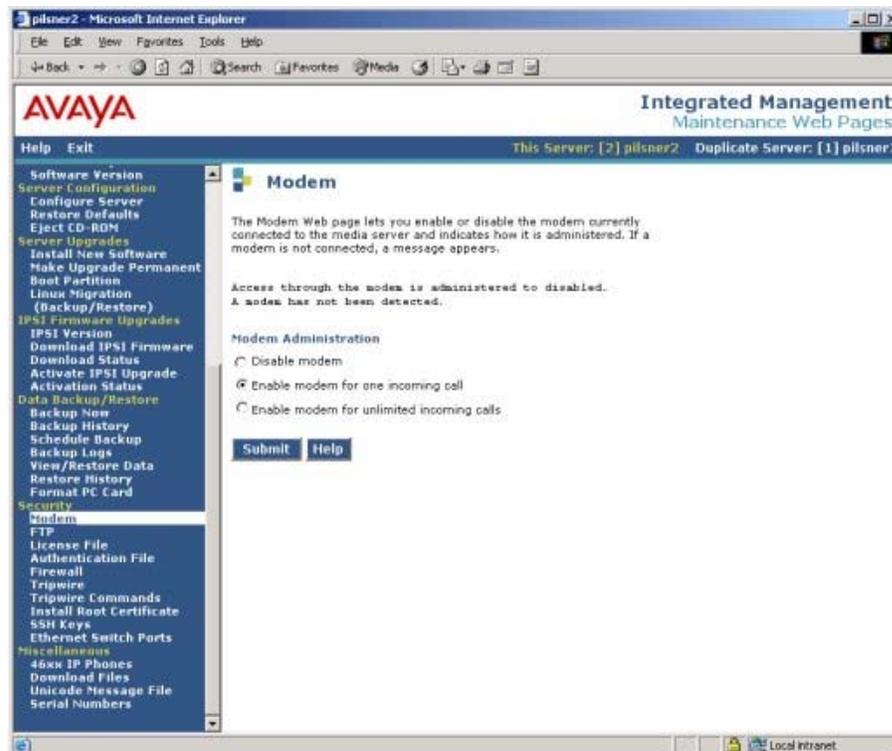
13 Select **Enable modem for one incoming call**.

14 Click **Submit**. The modem is now enabled.

15 To ensure that the modem is enabled correctly, set up a dialup connection on a remote PC with the following settings:

- Automatically detect settings
- No Username, Password, or Domain
- Security > Show Terminal Window

16 Dial in to the modem from the remote PC.

17 When prompted, provide the access login and password in the Terminal Window.

18 Close the Terminal Window to complete the connection.

3 **Adding telephones**

This chapter tells you how to connect a new telephone and assist the technician to configure the telephone. Adding a telephone requires you to perform the following tasks:

- Connecting the telephone

- Connecting a modem — see Connecting a modem on page 17

- Preparing for configuration

- Testing

The following sections explain how to perform these tasks for each type of telephone that you can add to the Avaya G350 Media Gateway.

> ⚠ **WARNING:**
> To reduce the risk of fire, use only 26 AWG or larger telecommunication line cords when installing telephones or adjuncts.

> ⚠ **WARNING:**
> Attention: Pour réduire les risques d'incendie, utiliser uniquement des conducteurs de télécommmunications 26 AWG ou de section supérieure.

Connecting the telephone

This section explains how to connect a telephone to the Avaya G350 Media Gateway. There are some differences in how to connect a telephone, depending on the type of telephone you are connecting. This section provides separate instructions for connecting various types of telephones, as follows:

- Connecting an IP telephone

- Connecting a DCP telephone

- Connecting an analog telephone or fax machine

Connecting an IP telephone

This section explains how to connect an IP telephone. The main difference between an IP and non-IP telephone is that IP telephones store their extension numbers in the telephone itself, similar to a computer. Thus, you can plug an IP telephone into any data port with no change to the telephone's extension.

To connect an IP telephone:

1 Wire a telephone port to a LAN port on the G350. If the IP telephone will be powered through the G350, make sure you use a 10/100 Ethernet port on an MM314 Media Module installed in slot V6 of the G350. In this case, you do not need to plug the IP telephone into a power supply.

2 Plug the telephone into the telephone jack or the station wire.

3 If the IP telephone will be powered independently, plug the IP telephone into a power supply.

4 Check that the IP phone is powered up.

Figure 18: The MM314 media module

Gigabit Ethernet port

10/100 Ethernet ports
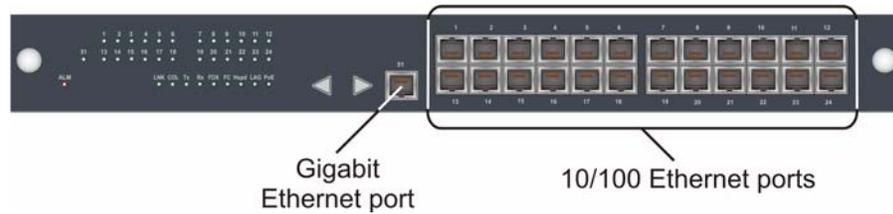
Alternatively, you can connect the telephone to an external Avaya Ethernet switch, including a P333T, P333PWR, P130, or P130PWR. This switch must be connected to the LAN port on the Avaya G350 Media Gateway. This port is labeled 10/3.

If the telephone is not an Avaya IP telephone, you can connect it to any port on the network switch. Note the slot and port number on the Avaya G350 Media Gateway to which you connect the telephone.

Connecting a DCP telephone

This section explains how to add a DCP telephone. With a DCP telephone, the physical port to which you connect the telephone determines the telephone's extension number.

> ⚠️ **WARNING:**
> The ports on the DCP media modules are intended for in-building use only. Phone lines connected to these ports are not to be routed out-of-building.   Failure to comply with this could cause harm to personnel and equipment.

To connect the new DCP telephone, plug the telephone into a network jack in the wall. The jack must be wired to a DCP telephone port on the Avaya G350 Media Gateway.

- If the project manager gave you a preassigned port, connect the telephone to the preassigned port.
- If you do not have a preassigned port, note the extension and port number of the port to which you connect the telephone.

If the network jack is not yet wired to the Avaya G350 Media Gateway, you must connect it. The following media modules contain DCP telephone ports:

- Avaya MM312 — 24 DCP ports
- Avaya MM712 — 8 DCP ports
- Avaya MM717 — 24 DCP ports

The front panel of the MM717 contains a single 25 pair amphenol connector, rather than individual DCP ports. To connect a DCP telephone to an MM717 media module:

1   Connect one end of a CAT5 cable with a 25-pin amphenol connector at each end to the 25-pin socket on the MM717 front panel, so that the cable extends to the right of the G350. (The cable you use must be such that the connector you plug into the MM717 media module is 90° to the cable.) Refer to Figure 19, Connecting a DCP telephone to an MM717 media module, on page 37.

Figure 19: Connecting a DCP telephone to an MM717 media module
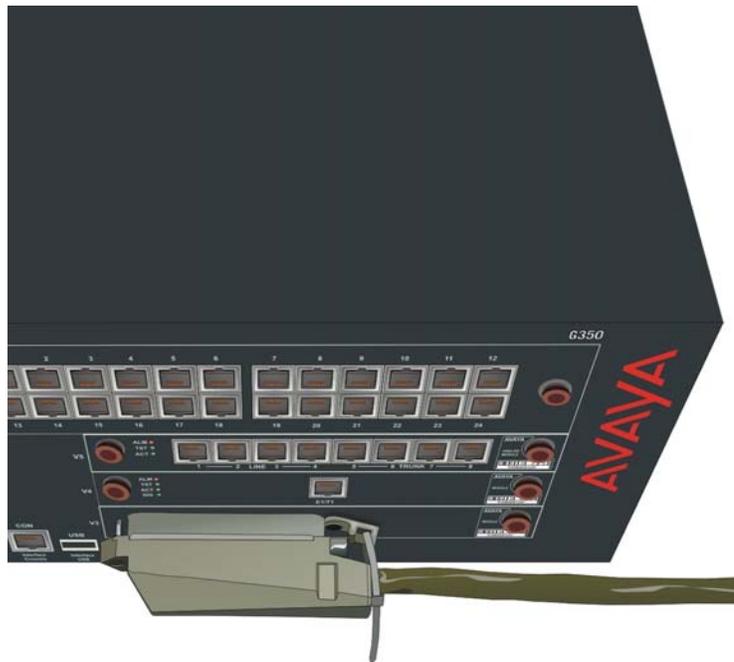
2 Tighten the end screw of the amphenol connector to securely fasten the connector to the left side of the MM717 socket.

3 Thread a tie wrap through the small bracket to the right of the MM717 socket.

4 Fasten the tie wrap around the cable to secure the cable to the right side of the MM717 socket.

5 Connect the other end of the amphenol cable to a punch down block that converts the single amphenol connector to 24 RJ-11 jacks.

6 Plug the DCP telephone into an RJ-11 port on the punch down block, or into a telephone jack or station wire connected to the RJ-11 port.

Figure 20: The MM312 media module

DCP telephone ports

Figure 21: The MM712 media module

DCP telephone ports
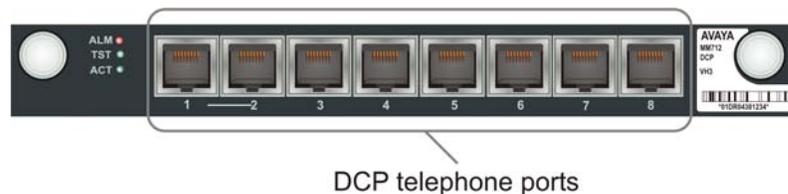
Figure 22: The MM717 media module

25 pair amphenol connector
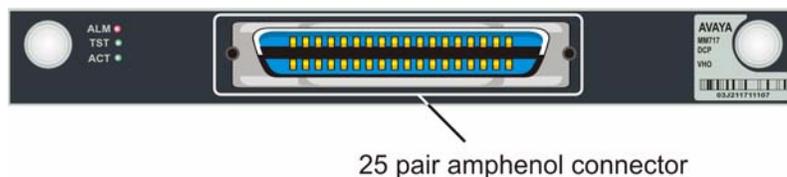
If you do not have any of these modules, you must install at least one of them in order to add a DCP telephone. See Adding a media module on page 51.

Connecting an analog telephone or fax machine

This section explains how to connect an analog telephone or fax machine. With an analog telephone, the physical port to which you connect the telephone determines the telephone's extension number.

To connect the new analog telephone or fax machine, plug the telephone or fax machine into a network jack or station wire that is wired to an analog port on the Avaya G350 Media Gateway.

- If the project manager gave you a preassigned port, connect the telephone or fax machine to the preassigned port.

- If you do not have a preassigned port, note the extension and port number of the port to which you connect the telephone or fax machine.

If the network jack is not yet wired to the Avaya G350 Media Gateway, you must connect it. The Avaya G350 Media Gateway front panel contains two analog line ports. These ports are marked LINE above each port, and 2 and 3 beneath each port, respectively.

> **NOTE:**
> The leftmost LINE analog telephone port on the G350 front panel forms a mechanical analog relay with the TRK port next to it. This relay can be configured to provide emergency transferred telephone service in the case of a power outage or disconnection from an external media server. Therefore, the analog telephone connected to LINE is usually installed for this emergency purpose. Regular analog telephones on the network are usually connected to other analog ports.

In addition, the following Avaya media modules contain analog ports:

- Avaya MM711 — contains eight analog ports that you can use for either telephone and fax lines or trunk lines

- Avaya MM714 — contains four analog line ports and four analog trunk ports

Figure 23: The MM711 media module

Universal analog ports
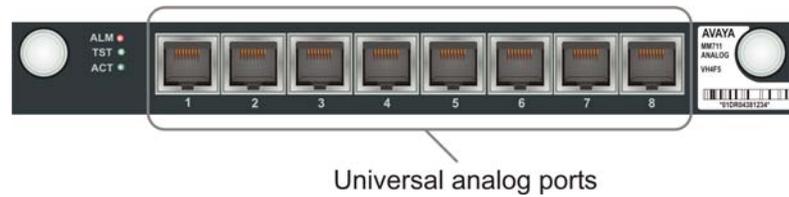
Figure 24: The MM714 media module
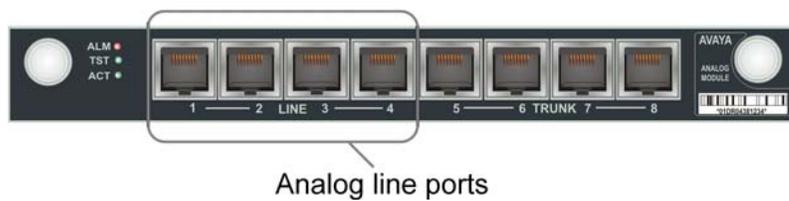
Analog line ports

If you do not have either of these modules, and you do not have a free analog line port on the front panel of the Avaya G350 Media Gateway, you must install at least one of these modules in order to add an analog telephone or fax machine. See

Preparing for configuration

Before the software configuration for the new telephone takes place, gather the following information:

- name and location of the owner of the telephone
- model number of the telephone
- extension of the telephone
- slot and port number on the Avaya G350 Media Gateway to which the telephone connects

In addition, you may need to connect a modem or a laptop computer to the Avaya G350 Media Gateway. See

Be ready to assist the technician during the configuration.

Testing

After installation and configuration of the telephone is complete, test the telephone. To test the telephone, perform the following two steps:

1 Make outgoing calls from the telephone. Make sure you hear a dial tone when you pick up the receiver. Make sure you can make both an internal (within the local network) and an external (outside of the local network) call.

2 Make a call to the telephone from both within the network and outside of the network.

4   Adding trunks

This chapter tells you how to connect a trunk and assist the technician to configure the trunk. Adding a trunk requires you to perform the following tasks:

- Ordering the trunk

- Connecting the trunk

- Connecting a modem — see Connecting a modem on page 17

- Preparing for configuration

- Testing

Ordering the trunk

When you order the trunk:

- Make sure to install the trunk near the physical location of the Avaya G350 Media Gateway.

- Make sure that the telephone service provider installs the trunk and verifies that the trunk is working properly before you contact the technician that is performing or supervising the configuration.

- Note the telephone number of the trunk.

Special considerations when ordering an analog trunk

When you order an analog trunk, there are several recommendations depending on your system's particular needs:

- For optimal functioning of the Emergency Transfer Relay feature, it is recommended to use a loop-start trunk.

- For voice mail systems in the United States, it is recommended to use a ground start trunk to ensure that calls are properly disconnected when the outside caller disconnects.

- When using a ground start trunk, you must make sure to install a ground start button in order to produce a dial tone when the system is in power fail mode.

Connecting the trunk

This section explains how to connect a trunk to the Avaya G350 Media Gateway. There are some differences in how to connect a trunk, depending on the type of trunk you are connecting. This section provides separate instructions for connecting various types of trunks, as follows:

- Connecting an analog trunk
- Connecting an ISDN BRI trunk
- Connecting an E1/T1 trunk

Connecting an analog trunk

To connect an analog trunk, plug the trunk line into an analog trunk port on the Avaya G350 Media Gateway. The Avaya G350 Media Gateway front panel contains an analog trunk port. This port is marked TRUNK. Use an RJ-11 cable to connect the trunk to the port.

> **NOTE:**
> The TRUNK analog telephone port on the G350 front panel forms a mechanical analog relay with the LINE port next to it. This relay can be configured to provide emergency transferred telephone service in case of a power outage or disconnection from an external media server. The TRUNK port is usually used in this emergency scenario to channel all incoming calls to LINE and to send all outgoing calls from LINE to an outside line.

In addition, the following Avaya media modules contain analog trunk ports:

- Avaya MM711 — contains eight analog ports that you can use for either telephone and fax lines or trunk lines.
- Avaya MM714 — contains four analog line ports and four analog trunk ports.

If you do not have either of these modules, and the analog trunk port on the front panel of the Avaya G350 Media Gateway is already in use, you must install at least one of these modules in order to add an analog trunk. See Adding a media module on page 51.

Connecting an ISDN BRI trunk

To connect an ISDN BRI trunk, plug the trunk line into an ISDN BRI port on the Avaya G350 Media Gateway. Use an RJ-11 cable to connect the trunk to the port.

The following Avaya media modules contain ISDN BRI ports:

- Avaya MM720 — contains eight ISDN BRI ports.
- Avaya MM722 — contains two ISDN BRI ports.

> **NOTE:**
> In the US, you need to connect a separately purchased NT1 device to each ISDN port you use to connect an ISDN BRI trunk.

Figure 25: The MM720 media module

ISDN ports
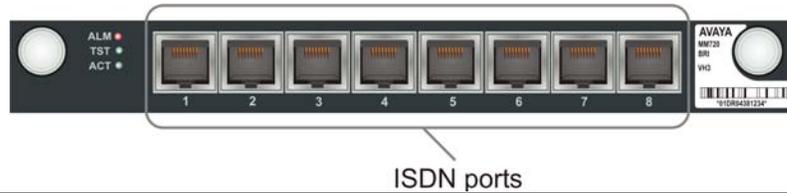
Figure 26: The MM722 media module

ISDN ports
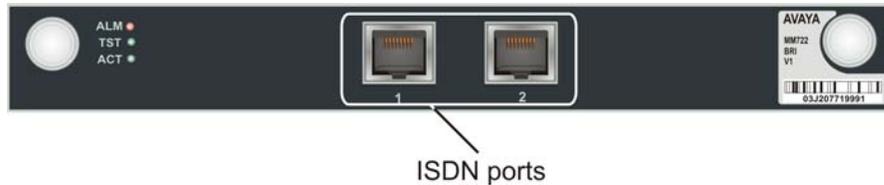
If you do not have either of these modules, you must install at least one of these modules in order to add an ISDN BRI trunk. See Adding a media module on page 51.

Connecting an E1/T1 trunk

To connect an E1/T1 trunk, plug the trunk line into the E1/T1 port in the Avaya MM710 media module. Make sure the SIG LED lights.

Figure 27: The MM710 media module

E1/T1 Port
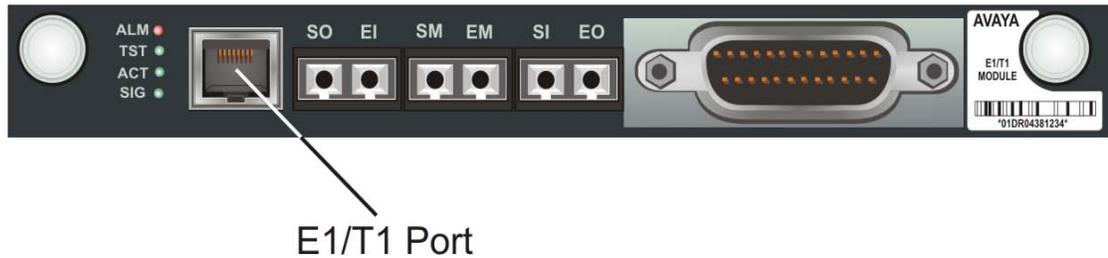
If you do not have an Avaya MM710 media module, you must install it. See Adding a media module on page 51.

Preparing for configuration

Before the software configuration for the new trunk takes place, gather the following information:

- slot and port number on the Avaya G350 Media Gateway to which the trunk connects
- telephone number of the trunk

In addition, you may need to connect a modem or a laptop computer to the Avaya G350 Media Gateway. See

Be ready to assist the technician that is performing or supervising the configuration during the configuration.

Testing

After installation and configuration of the trunk is complete, test the trunk. To test the trunk:

1   Make outgoing calls from the trunk. Ask the technician that is performing or supervising the configuration for instructions how to access the trunk. Make sure you can make both an internal (within the local network) and an external (outside of the local network) call.

2   Use a cellular telephone to make a call into the G350 trunk line.

5   Adding a WAN link

This chapter tells you how to connect a WAN link and assist the technician that is performing or supervising the configuration to configure the interface. There are three types of WAN interfaces you can add to the Avaya G350 Media Gateway:

- USP WAN interface
- E1/T1 WAN interface
- Ethernet WAN interface

Each of these types of WAN interface connects to a different Avaya G350 Media Gateway media module.

Adding a WAN link requires you to perform the following tasks:

- Ordering the line
- Connecting the WAN
- Connecting a modem — see Connecting a modem on page 17
- Preparing for configuration
- Testing

The following sections explain how to perform these tasks for each type of WAN line that you can add to the Avaya G350 Media Gateway.

Ordering the line

If you need to order the WAN line, make sure that the service provider installs the line near the physical location of the G350 and verifies that the line is working properly before you contact the technician that is performing or supervising the configuration.

Connecting the WAN

This section explains how to connect a WAN to the Avaya G350 Media Gateway. There are some differences in how to connect the WAN, depending on the type of WAN link you are connecting. This section provides separate instructions for connecting various types of WAN links, as follows:

- Connecting a USP WAN link
- Connecting an E1/T1 WAN link
- Connecting an Ethernet WAN link

Connecting a USP WAN link

You must connect the USP WAN link to a device connected to the Avaya MM342 media module. To connect the WAN link, plug the WAN line into the USP port on the MM342 media module. This port is marked USP. To connect the WAN line to the port, use one of the following cable types, depending on the service provider's equipment:

- Avaya Serial Cable DTE V.35
- Avaya Serial Cable DTE X.21

Figure 28: The MM342 media module

If your Avaya G350 Media Gateway does not include an MM342 media module, you must add it. See

Connecting an E1/T1 WAN link

You must connect the E1 or T1 WAN line to the Avaya MM340 media module. To connect the WAN line, plug the WAN line into the E1/T1 port on the MM340 media module. This port is marked E1/T1. Use an unshielded twisted pair cable, straight or crossover, depending on the WAN equipment.

Figure 29: The MM340 media module

If your Avaya G350 Media Gateway does not include an MM340 media module, you must add it. See

Connecting an Ethernet WAN link

You must connect the Ethernet WAN line (BSL, firewall, etc.) to the Ethernet WAN port on the front panel of the Avaya G350 Media Gateway chassis. This port is marked ETH WAN. Use a CAT5 Ethernet cable to connect the WAN line to the port.

Preparing for configuration

Before the software configuration for the new WAN line takes place, note the slot and port number on the Avaya G350 Media Gateway to which the WAN line connects. In addition, you may need to connect a modem or a laptop computer to the Avaya G350 Media Gateway. See Preparing for configuration on page 17.

Be ready to assist the technician that is performing or supervising the configuration during the configuration.

Testing

After installation of the WAN line is complete, test the link by verifying that the SIG LED for the port to which the link connects is lit. It is also recommended that you request the technician who performed the configuration to ping the IP address of a device using the WAN line and to perform a trace route test in order to test connectivity with the network and outside the network.

6 Adding an Avaya Partner Contact Closure Adjunct

The Contact Closure feature is a controllable relay providing dry contacts for various applications. To implement the contact closure feature, you connect an Avaya Partner Contact Closure Adjunct box to the CC port on the G350 chassis. The adjunct box provides two contact closures that can be operated in either a "normally closed" or "normally open" state. The contact closures can control auxiliary devices such as devices that automatically lock or unlock doors or voice recording units. The CC port can be configured so that the connected devices can be controlled by an end device, such as a telephone. For example, a user can unlock a door by keying a sequence into a telephone keypad.

To install the contact closure:

1   Follow the installation instructions in the *Avaya Partner Contact Closure Adjunct Installation Instructions* leaflet to install the Contact Closure and connect the auxiliary devices that will be activated and deactivated by the Contact Closure relays.

2   Note which device is connected to each relay. You will need to give this information to the supporting technician for the configuration.

3   Connect the Avaya Partner Contact Closure adjunct box to the CC port on the G350 front panel. Use a 24 gauge minimum telephone wire, no longer than 200 ft, with a standard RJ-11 connector.

7 Adding a media module

This chapter provides instructions how to add media modules to the Avaya G350 Media Gateway and includes the following topics:

- General instructions and precautions — describes impermissible combinations of media modules and slot allocations for each type of media module

- Module types — describes voice and data media modules, and which are hot-swappable and hot-insertable

- Inserting media modules — instructions for inserting media modules in the G350 chassis

General instructions and precautions

Before inserting media modules into the G350 chassis, make sure:

- not to install an unsupported combination of media modules. See Combination limitations on page 51.

- to allocate a permissible slot to each media module. See Allocating slots on page 52.

> ⚠️ **WARNING:**
> The Avaya G350 Media Gateway must not be operated with any slots open. Failure to cover empty slots with the supplied blank plates can cause overheating due to inadequate air distribution.

> ⚠️ **CAUTION:**
> Wear an anti-static wrist ground strap whenever handling components of an Avaya G350 Media Gateway. Connect the strap to an approved ground, such as an unpainted metal surface.

Combination limitations

The following combinations of media modules are *not* supported by the G350:

- More than three of the following voice media modules:.MM711, MM712, MM714, MM717, MM720, and MM722.

- More than one MM710 media module.

- More than one MM712 or MM717 media module.

- More than two MM711 and/or MM714 media modules.

- More than two MM720 or MM722 media modules.

- More than two MM340 and/or MM342 media modules.

> ⚠️ **CAUTION:**
> Do not install an unsupported combination of media modules in the G350. Installation of an unsupported media module combination could result in malfunction.

Allocating slots

You insert media modules into the slots marked V1, V2, ..., V5, and V6 on the G350 front panel, shown in Figure 30 below.

Figure 30: The G350 front panel ports and slots
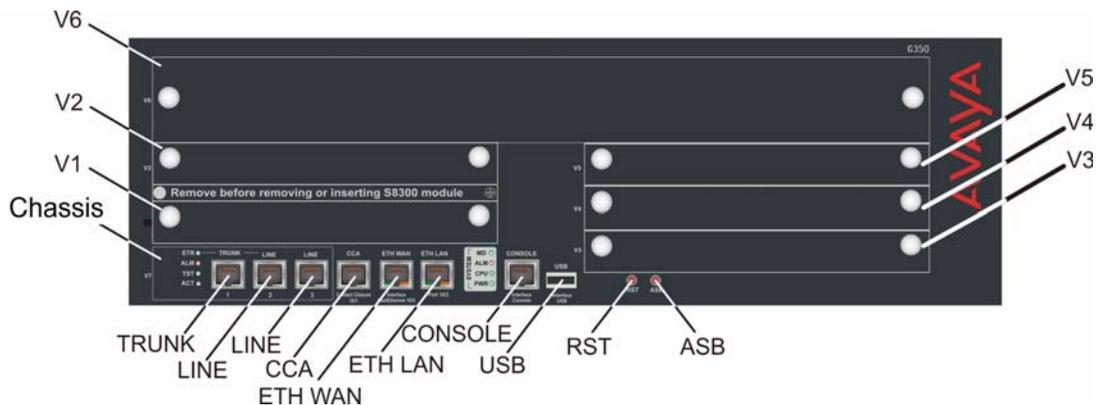
The following table describes which media modules can be inserted into which slots:

Table 3: Permitted slots for media modules

Media module	Permitted slots
MM312	V6
MM314	V6
MM340	V2, V3, V4, V5
MM342	V2, V3, V4, V5
MM710	V1, V2, V3, V4, V5
MM711	V1, V2, V3, V4, V5
MM712	V1, V2, V3, V4, V5
MM714	V1, V2, V3, V4, V5
MM717	V1, V2, V3, V4, V5
MM720	V1, V2, V3, V4, V5
MM722	V1, V2, V3, V4, V5
S8300	V1

Module types

There are two basic types of Avaya media modules:

- Voice modules — support telephones, fax machines, and PSTN WAN lines
- Data modules — support WAN lines, PoE IP telephones, and data devices

In addition, some Avaya G350 Media Gateway configurations include an S8300 Media Gateway. Adding the S8300 Media Server is beyond the scope of this manual. Only a trained technician should add or remove an S8300. For more information on the S8300 Media Server, see The front panel of the Avaya S8300 Media Server on page 78.

Voice modules

You can hot-swap voice modules. This means you can add a voice module to the Avaya G350 Media Gateway while the system is running, without any disruption to your network. Configuration of the G350 is not necessary when you add a voice module. Configuration is only necessary when you add telephones, fax machines, and trunks to the new module. See Adding telephones on page 35 and Adding trunks on page 41.

Some configuration of the Avaya Communication Manager is necessary when you install an MM710, MM720, or MM722 media module. This configuration is performed by a specially trained technician, either remotely or on-site.

The G350 supports the following Avaya voice media modules:

Table 4: Supported voice media modules

Media module	Description
MM312	Provides 24 ports for connecting DCP telephones.
MM710	Provides one E1/T1 trunk port for connecting an E1/T1 telephone trunk.
MM711	Provides eight universal analog ports for connecting analog telephones or trunks.
MM712	Provides eight ports for connecting DCP telephones.
MM714	Provides four analog ports for analog telephones and four analog ports for analog trunks.
MM717	Provides one amphenol connector that connects to a breakout box or punch down block to provide 24 ports for connecting DCP telephones.
MM720	Provides eight ports for connecting ISDN trunks.
MM722	Provides two ports for connecting ISDN trunks.
S8300	Media Server

Data modules

There is no configuration necessary when you add a data module. Configuration is only necessary when you add telephones, WAN lines, and data devices to the new module. See Adding telephones on page 35, Adding a WAN link on page 45, and Adding data devices on page 57.

> ⚠ **CAUTION:**
> You can hot-insert data modules. This means you can add a data module to the Avaya G350 Media Gateway while the system is running, but the G350 resets when you add the module. However, hot insertion is not recommended in most cases. Because hot insertion resets the G350, any translation and other data that is in the running configuration but has not been saved to the startup configuration will be lost.

The G350 supports the following Avaya data media modules:

Table 5: Supported media modules

Media module	Description
MM314	Provides one Gigabit Ethernet port and 24 10/100 Ethernet ports for connecting data devices. The 24 10/100 Ethernet ports can provide power to connected devices using Power over Ethernet (PoE).
MM340	Provides one E1/T1 WAN port for connecting to a WAN endpoint device.
MM342	Provides one USP WAN port for connecting to a WAN endpoint device.

Inserting media modules

The following instructions explain how to insert media modules other than the S8300 Media Server. Make sure to insert media modules in a permissible slot for the type of module you are installing. For information about which slots to allocate to which modules, see Allocating slots on page 52.

Some media modules might require additional components. For example, the MM314 media modules requires a Gigabit Interface Connector (GBIC) to connect to the Gigabit Ethernet port.

> ⚠ **CAUTION:**
> Hold media modules only by the edges to avoid damage from static electricity. Do not touch the top or bottom of the circuit board. If possible, wear a wrist-strap and use an anti-static bag.

> ⚠ **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. Use a screw driver to ensure the captive screws are securely tightened to prevent damage to the equipment.

To insert a media module:

1 Remove the blank plate from the empty slot.

2 Position the media module squarely before the selected slot on the front of the G350 chassis and engage both sides of the module in the interior guides.

3 Slide the module slowly into the chassis, maintaining an even pressure to assure that the module does not become twisted or disengaged from the guides.

Figure 31: Inserting a media module
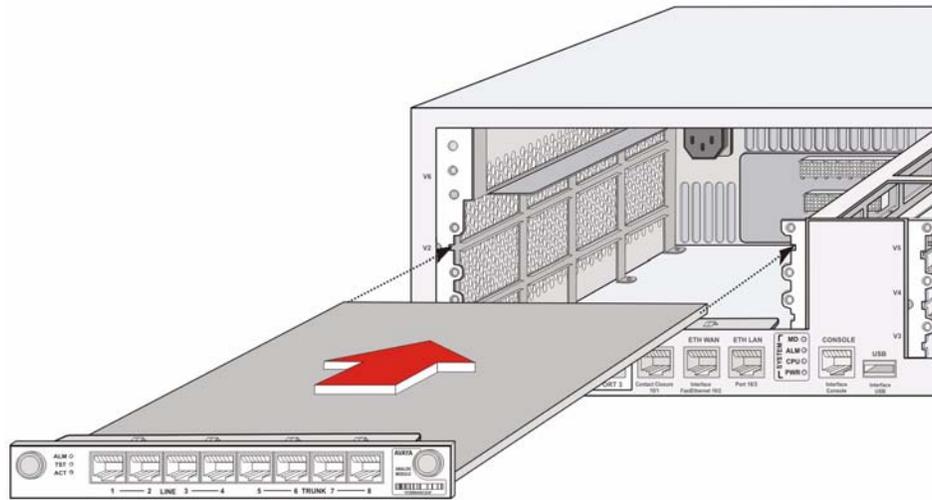
4 Apply firm pressure to engage the connectors.

NOTE:
The media module connector has different length pins. The long pins engage first to provide grounding. Medium length and short pins provide power and signal.

5 Lock the media module into the chassis by tightening the spring-loaded captive screws on the front of the module.

⚠ **DANGER:**
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.

⚠ **WARNING:**
After you have connected telephones to the various media modules, be sure to add circuit protection to the lines. See Over-Voltage and Sneak-Current Protection on page 56.

Over-Voltage and Sneak-Current Protection

Out-of-building installations of telephones or other standard (tip/ring) devices or terminals that connect to the G350 media modules require over-voltage and sneak current protection at both building entry points. Sneak current protectors must have a maximum of 350 mA and a minimum voltage rating of 600V.

> ⚠️ **WARNING:**
> The ports on the DCP media modules are intended for in-building use only. Phone lines connected to these ports are not to be routed out-of-building.   Failure to comply with this could cause harm to personnel and equipment.

The following devices have been evaluated or tested and approved to protect the media modules from over-voltages and sneak current protection:

- Avaya MM712 DCP: either 146E IROB (In-Range Out-of-Building) or 4C3S-75 solid state protectors for surge and sneak current.

- Avaya MM710 T1/E1: over-voltage and sneak protection for the Avaya MM710 T1/E1 media module is provided on the Media Module itself.

- Avaya MM711 Analog: analog trunks use the 507B or 110-SCP-9 sneak current protectors. Over-voltage protection is normally provided by the local telephone company. Analog voice terminals use one of the following types of combined over-voltage and sneak current protection:

    — Gas tube with heat coil: 4B1E-W

    — Solid state with heat coil: 4C1S

    — IROB: 146C (4-lines) or 146F (25-lines)

> ⚠️ **WARNING:**
> Only service-trained personnel should install these circuit protection devices.

8   Adding data devices

This chapter tells you how to connect a data device and assist the technician that is performing or supervising the configuration to configure the device. This chapter includes instructions for adding the following types of data devices:

- Switches
- Computers
- Servers

Adding a data device requires you to perform the following tasks:

- Connecting the data device
- Connecting a modem for remote configuration — see Connecting a modem on page 17
- Preparing for configuration
- Testing

The following sections explain how to perform these tasks for each type of data device that you can add to the Avaya G350 Media Gateway.

Connecting the data device

This section explains how to connect a data device to the G350. There are some differences in how to connect a data device, depending on the type of data device you are connecting. This section provides instructions for connecting various types of data devices, as follows:

- Preparing for configuration
- Connecting a switch or a network data port
- Connecting a server

Connecting a switch or a network data port

The G350 can provide network switching and also supports the connection of switches. Therefore, depending on the number of devices on your network, you may need to connect any of the following devices:

- One or more LAN switches
- The network data ports in the office

You can connect either a LAN switch or a network data port, via a network cable, to any of the following:

- The ETH LAN port on the G350 front panel
- The Gigabit Ethernet port on an MM314 media module
- One of the 24 10/100 Ethernet ports on an MM314 media module

Therefore, if you do not have an MM314 media module installed:

1 Connect a LAN switch to ETH LAN.

2 Connect all your data devices to the LAN switch.

If you have an MM314 media module installed, note that:

- The 10/100 Ethernet ports on the MM314 media module can be configured to provide Power over Ethernet (PoE) to data devices. Any data device that you want to be powered through the G350 must be connected to a network data port that is directly connected to one of the 24 10/100 Ethernet ports on the MM314 media module.

Therefore, when connecting a LAN switch:

- Prefer the ETH LAN port on the chassis front panel and the Gigabit Ethernet port on the MM314 media module over the 10/100 Ethernet ports on the MM314 media module. Reserve 10/100 Ethernet ports to devices, such as IP phones, that need to be powered through the G350.

Figure 32: The MM314 media module
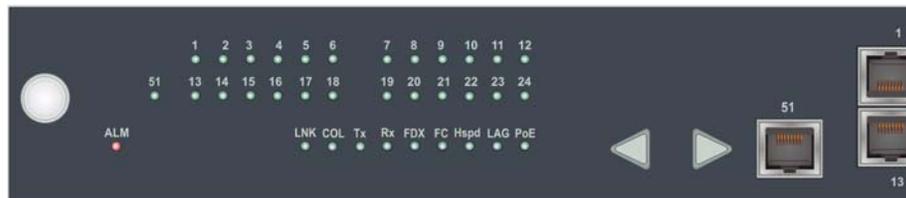
Connecting a computer

There are several possible ways to connect a computer to the G350. You can connect a new computer directly to the G350, to a switch connected to the G350, or to the data port of an IP telephone connected to a PoE port on the G350. The connection is determined by your network topology. Follow instructions from your project manager, who determines where you should connect the computer.

The following are the most typical options for connecting your computer to the G350.

Direct Connection to a port on the MM314 media module

If your Avaya G350 Media Gateway includes an MM314 media module, you might be asked to connect the computer to one of several data ports in this module. These are:

- 24 Ethernet 10/100 Base-T Ethernet access ports with inline Power over Ethernet (PoE)
- the Gigabit port, labelled 6/51

You can also connect the computer to the following ports on the front panel of the Avaya G350 Media Gateway chassis:

- the LAN port, labelled 10/3
- the Fast Ethernet port, labelled 10/2

To connect the computer to any of these ports except the WAN port, you can use a straight network cable with an RJ-45 connector, or a crossover cable with an RJ-45 connector. To connect the server to the WAN port, use a straight network cable with an RJ-45 connector.

Connection to any switch

You can connect the computer to any switch that is connected to the Avaya G350 Media Gateway. Ask the project manager where the switch is located.

Connection to an IP telephone

Your network may include IP telephones. If so, you may be asked to connect the computer to the data port in the IP telephone.

Connecting a server

There are several possible ways to connect a server to the Avaya G350 Media Gateway. You can connect a server directly to the Avaya G350 Media Gateway or to a switch connected to the Avaya G350 Media Gateway. The connection is determined by your network topology. Follow instructions from the project manager, who determines where you should connect the server.

The following are the most typical options for connecting a server to the Avaya G350 Media Gateway.

Direct Connection to a port on the MM314 media module

If your Avaya G350 Media Gateway includes an MM314 media module, you might be asked to connect the server to one of several data ports in this module. These are:

- 24 Ethernet 10/100 Base-T Ethernet access ports with inline Power over Ethernet (PoE)
- the Gigabit port, labelled 6/51

You can also connect the computer to the following ports on the front panel of the Avaya G350 Media Gateway chassis:

- the LAN port, labelled 10/3
- the Fast Ethernet port, labelled 10/2

To connect the server to any of these ports except the WAN port, you can use a straight network cable with an RJ-45 connector, or a crossover cable with an RJ-45 connector. To connect the server to the WAN port, use a straight network cable with an RJ-45 connector.

Connection to any switch

You can connect the computer to any switch that is connected to the Avaya G350 Media Gateway. Ask the project manager where the switch is located.

Preparing for configuration

Before software configuration for the new data device takes place, gather the following information:

- the name and location of the owner of or person responsible for the data device
- the slot and port number on the Avaya G350 Media Gateway to which the data device connects. If the data device is connected to an IP telephone, be ready to provide the extension of the telephone to which the data device connects, and the slot and port number on the G350 to which the telephone connects.

In addition, you may need to connect a modem or a laptop computer to the G350. See Preparing for configuration on page 17.

Be ready to assist the technician that is performing or supervising the configuration with the configuration.

Testing

After installation and configuration of the data device is complete, request the technician who performed the configuration to ping the IP address of the device to test the device's connectivity within the network and outside the network.

9 Upgrading the Avaya Communication Manager software

If your Avaya G350 Media Gateway includes an Avaya S8300 Media Server, it might be necessary to upgrade the Avaya Communication Manager software. Upgrading the software can be performed by a specially trained technician in one of the following several ways:

- Remote configuration via Telnet — a remote technician upgrades the software via Telnet. In this scenario, a modem is required at the local site. You should have a laptop computer available to provide on-site assistance if the remote technician requires assistance.

- Remote configuration via network — a remote technician upgrades the software via a network connection. In this scenario, the entire configuration can generally be performed by the remote technician.

- Local configuration with S8300 Media Gateway — a specially trained technician upgrades the software at the local site, using a laptop computer and a CD-ROM drive connected to the S8300 Media Gateway.

> **NOTE:**
> You must have an S8300B in order to upgrade to Communication Manager 2.1 If you have an S8300, you must replace it with an S8300B board before beginning the upgrade.

This chapter explains how you can assist the technician that is performing or supervising the configuration to upgrade the software either with or without an Avaya S8300 Media Server.

Upgrading the software using a CD-ROM drive

For both a local and a remote upgrade, the upgrade software is usually installed from a CD-ROM drive connected to the S8300. If the upgrade is performed locally, you might need to provide a laptop and a USB CD-ROM drive. If the upgrade is performed from a remote location, you must connect a USB CD-ROM drive to the S8300 and insert the upgrade CD-ROM in the CD-ROM drive. You also might need to connect a modem. This depends on the exact method by which the technician performs the upgrade.

For a software upgrade on an Avaya G350 Media Gateway with an S8300 Media Server, use a USB modem. It is recommended to use a Multitech MultiModem USB, MT5634ZBA-USB-V92. To prepare for the upgrade, perform the following steps:

1 Connect the modem to a working telephone line. Note the telephone number of the line to which you connect the modem, so that you can provide the number to the technician that is performing or supervising the configuration.

2 Connect the USB modem to either of the two USB ports in the Avaya S8300 Media Server.

> **NOTE:**
> You may be required to enable the modem and port. For instructions on enabling the modem, see Enabling a serial modem connected to the G350 chassis on page 24.

3 Connect a USB CD-ROM drive to the free USB port on the Avaya S8300 Media Server. Then, insert the CD-ROM provided by Avaya into the CD-ROM drive.

Be prepared to assist the technician that is performing the configuration by providing information, such as the IP address of the Avaya G350 Media Gateway.

Upgrading the software without a CD-ROM drive

You can upgrade the Avaya Communication Manager software without a CD-ROM drive by downloading the upgrade software or installing it from a laptop computer. If the upgrade is performed locally, you might need to provide a laptop. If the upgrade is performed from a remote location, you might need to connect a modem. This depends on the exact method by which the technician performs the upgrade.

Be prepared to assist the technician that is performing or supervising the configuration by providing information, such as the IP address of the Avaya G350 Media Gateway.

Performing the upgrade

You can upgrade the S8300 software using the Avaya IW or the Upgrade Tool. The process for upgrading S8300 software on an S8300 that resides on a G350 is similar to the process of upgrading S8300 software on an S8300 that resides on an Avaya G700 Media Gateway. For details, refer to *Upgrading an Existing G700 with an S8300A to R2.1* or *Upgrading an Existing G700 with an S8300B to R.2.1.x*, in *Installation and Upgrades for the Avaya G700 Media Gateway with the Avaya S8300 Media Server*, 555-234-100.

For instructions on upgrading firmware along with the software of an S8300 Media Server attached to the G350 and functioning as the G350's primary controller (ICC mode) or LSP, see *Job Aid: Avaya Installation Wizard*, 555-245-754.

10 Upgrading the G350 firmware

Firmware is the software that runs the Avaya G350 Media Gateway and the media modules installed in the G350. Upgrading the firmware can be performed in one of the following ways:

- Local upgrade of a G350 without an S8300 Media Server
- Local upgrade of a G350 with an S8300 Media Server
- Remote upgrade of a G350 with an S8300 Media Server
- Remote upgrade of a G350 without an S8300 Media Server

This chapter deals primarily with performing a local upgrade without an S8300 Media Server, and provides brief overviews of the other upgrade scenarios.

For instructions on upgrading firmware along with the software of a remote media server functioning as the G350's primary controller, see one of the following documents:

- *Job Aid: Upgrade Tool and Worksheets*, 555-245-757
- *Installation and Upgrades for the Avaya G700 Media Gateway and Avaya S8300 Media Server*, Issue 4, 555-234-100
- *Upgrading Software and Firmware — Avaya S8500 Media Server*, Issue 2, 555-245-111
- *Upgrading Software and Firmware — Avaya S8700 Media Server*, Issue 2, 555-245-115

For instructions on upgrading firmware along with the software of an S8300 Media Server attached to the G350 and functioning as the G350's primary controller (ICC mode) or LSP, see *Job Aid: Avaya Installation Wizard*, 555-245-754.

> **NOTE:**
> Firmware for the MM314, MM340, and MM342 media modules is not upgraded separately. These modules use the G350's firmware.

Local upgrade of a G350 without an S8300 Media Server

This section assumes that you are using the Avaya Gateway Installation Wizard (GIW) to upgrade firmware for a local G350. If the G350 Media Gateway has an S8300 Media Server, you can use the Avaya IW (for a local installation) or the Upgrade Tool (for a remote installation) instead.

Perform the following steps to upgrade firmware on a local G350 without an S8300 Media Server. These steps are explained in detail in the following sections.

- Get planning forms from the project manager
- Download the GIW
- Set up a TFTP server
- Download G350 firmware files to a local TFTP server
- Prepare to install the firmware on the G350
- Run the GIW

Get planning forms from the project manager

The project manager should provide you with planning forms that contain all the information needed to prepare for the upgrade. The project manager's planning forms may include, or consist entirely of, the Firmware Installation Worksheet (see *Job Aid: Avaya Gateway Installation Wizard*, 555-245-756). Alternatively, you can use the worksheet provided at the end of this chapter to list the target software and firmware versions. See Software and firmware upgrade files for upgrade on page 71. The worksheets also indicate what TFTP servers the tool must use, along with their IP addresses, logins and passwords, if any. Alternatively, you can use the TFTP Server Values worksheet provided at the end of this chapter to list the necessary TFTP servers. See TFTP server values on page 71.

The project manager may also provide you with names of the people to contact, the type of system, and the equipment you need to perform the upgrade. Verify that the information provided by the project manager includes all the information needed for the upgrade.

Download the GIW

For instructions on downloading and using the GIW, see Enabling a USB modem connected to the G350 chassis on page 19.

Set up a TFTP server

To load individual firmware files on an Avaya G350 Media Gateway, you must place the files on a PC connected to the customer's LAN or on an S8300 Media Server in the customer's network. Later, you will log onto the G350 and use its TFTP capability to download the new firmware. If you can use an S8300 Media Server to stage the firmware, see Installing firmware from the TFTP server on the S8300 Media Server on page 67. If not, a TFTP server must be set up on the LAN.

> **NOTE:**
> A Linux or Unix TFTP server should be used only if a Linux or Unix TFTP server already exists on the local network. In this case, download the tar.gz file to your laptop and give it to the customer for proper placement and execution.

To set up a TFTP on the LAN:

1. On the hard drive of the local PC, create a directory into which you will load the G350 firmware. It is recommended that you call the directory C:\tftp.

2. Connect to the LAN using a browser on the local PC and access http://www.avaya.com/support on the Internet.

3 At the Avaya support site, select the following sequence of menu options:

> **Software & Firmware Downloads**

> **Telephones and End User Devices**

> **4600 Series IP Telephones**

> **Software Downloads**
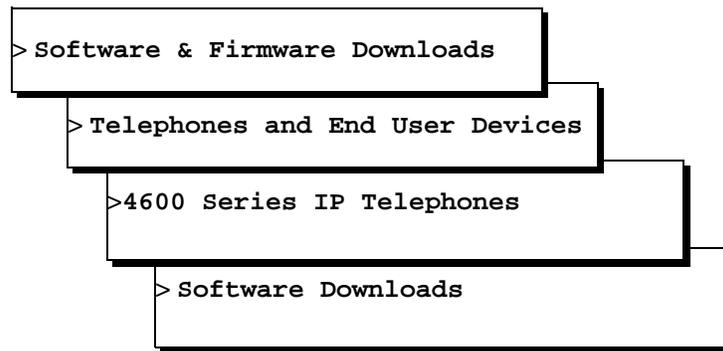
4 Double-click one of the links listed with *TFTP Server*. For example:
4630 IP Telephone R 1.73 and TFTP Server.

5 Scroll to the bottom of the page to find the TFTP Server Application file, *iptel_avaya_tftp.exe*.

6 Double-click the file and download it to the local PC that will serve as the TFTP server. Record the directory location of the file.

> **NOTE:**
> You may also wish to download and view or print the file *iptel.pdf*, which provides instructions on installing *iptel_avaya_tftp.exe* for Windows servers.

7 After downloading the *iptel_avaya_tftp.exe* file to the PC, double-click the file and follow instructions to install it. By default, the installation program creates the directory *C:\Program Files\Walusoft\TFTPSuite* containing the application files.

8 When the file has been installed, go to the directory where the software was installed and double-click the file *tftpserver32.exe* to open the program. The TFTP Server window appears and displays the IP address of the PC in the upper border, plus port 69.

9 Enable the TFTP server as follows:

— From the **System** menu, select **Setup**. The server option window appears.

— Select the **Outbound** tab, and enter the directory location of the TFTP server for the outbound file path.

— Select the **Options** tab, and enter **69** in the **Use Port** field (default).

— Select **No Incoming** (default). However, if you wish to copy files as a backup prior to performing a software upgrade, leave this field unselected.

— Select the **Inbound** tab, and enter the directory path of the TFTP server for the inbound file path.

— Click **OK**.

Download G350 firmware files to a local TFTP server

Download the individual firmware files to a TFTP server on the local network with the G350. The GIW reads the new firmware files from the TFTP server.

> **NOTE:**
> If you are performing the upgrade using the G350's Command Line Interface (CLI) or the Upgrade Tool, you can place the upgrade files on an FTP server. However, the GIW requires that the files be placed on a TFTP server.

To download firmware files from the Avaya Web site to a TFTP directory:

> **NOTE:**
> The sequence of links on the Web site may be somewhat different than described here.

1   Access the www.avaya.com/support Web site.

2   At the Avaya support site, click **Software & Firmware Downloads** and then navigate the following sequence:

> **Media Gateways & Media Servers**

> **G700 Media Gateway & S8300 Media Server** or **G350 Media Gateway**

> **Firmware Downloads**

> **G350 and G700 Firmware Downloads.**

A list of firmware files appears.

3   Locate the file names that match the files listed in your planning documentation. See Table 6, Sample Software and Firmware Filenames, on page 67 for sample firmware file names.

4   Double-click the file name of the file you want to download. A File Download window appears.

5   Select **Save this file to disk**.

6   Save the file to directory on the TFTP server on the local LAN that was created for this purpose. See Set up a TFTP server on page 64.

> **NOTE:**
> Use WinZip or another zip file tool to unzip the file, if necessary, *before* you copy the file to the TFTP server.

You must enter the firmware filenames in the appropriate fields in the GIW screen. The correct filenames should first be entered on the Gateway Installation Wizard Worksheet. The firmware filenames have a different format for each type of device. For an example of filenames for each type of device, see Table 6, Sample Software and Firmware Filenames, on page 67.

Table 6: Sample Software and Firmware Filenames

Component	Filename Example
G350 Processors	
G350 Processor	g350_sw_21_11_0.bin
G350 Device Manager	g350_emweb_1_0_7.bin
Media Modules	
MM710 E1/T1 Media Module	mm710v3.fdl
MM711 Analog Port/Trunk Media Module (version 6 or earlier)	mm711v16.fdl
MM711 Analog Port/Trunk Media Module (version 7)	mm711h7v21.fdl
MM711 Analog Port/Trunk Media Module (version 20or later)	mm711h20v54.fdl
MM712 DCP Media Module	mm712v14.fdl
MM714 Analog Media Module	mm714v5.fdl
MM717 DCP Media Module	Mm717v3.fdl
MM720 BRI Media Module	mm720v1.fdl
MM722 BRI Media Module	mm722v3.fdl
MM312 DCP Media Module	mm312v6.fdl
MMANALOG Media Module (Integrated Analog)	mmanalogv3.fdl

Installing firmware from the TFTP server on the S8300 Media Server

Instead of using a separately configured TFTP server on the LAN, you can use the TFTP server capability of an S8300 Media Server to stage the firmware for upgrading the G350. To do this, you must copy the individual firmware files to the */var/home/ftp/pub directory* on the S8300 Media Server using the Download Files Web page on the S8300 Media Server. You must then copy the files to the */tftpboot* directory of the S8300 Media Server (see

After copying the files to the */tftpboot* directory, you can use the GIW or the Upgrade Tool to install the files to the G350 or its media modules by specifying the S8300 Media Server's IP address as the TFTP server containing the new firmware files.

To copy firmware files to the */tftpboot* directory of an S8300 Media Server:

1   Use Telnet, Avaya Site Administration, or another tool to access the S8300 Media Server command line.

2   Log in as *craft*.

3   At the Linux prompt, type **cd /var/home/ftp/pub** and press **<Enter>**. The Linux prompt reappears. The current directory has changed to */var/home/ftp/pub*.

4 At the Linux prompt, type **cp** <*firmware_filename*> **/tftpboot**, and press **<Enter>** to copy the firmware file to the */tftpboot* directory. To copy multiple firmware files (most firmware files have an .fdl suffix), use the command **cp *.dfl /tftpboot**. The Linux prompt reappears. The firmware file has been copied to the */tftpboot* directory.

5 Repeat step 4, if necessary, for each firmware file you want to install.

6 At the Linux prompt, type **cd /tftpboot**. The Linux prompt reappears. The current directory has changed to */tftpboot*.

7 At the Linux prompt, type **ls**, and press **<Enter>**. A list of files in the directory appears.

8 Check the directory to make sure the firmware files you want to install are listed.

Prepare to install the firmware on the G350

Before installing the firmware on the G350:

1 Verify the contents of the tftp directory.

2 Determine which firmware to install.

Run the GIW

1 For instructions on downloading and running the GIW, see Enabling a USB modem connected to the G350 chassis on page 19.

2 In the Import Electronic Preinstallation Worksheet screen, do *not* select **Import EPW**.

3 Use the GIW Help button for additional information.

Overview of GIW tasks for the G350

The following checklist shows the tasks you must perform with the GIW during a firmware upgrade of a G350. You can skip the screens for tasks not listed below and move to the next screen of the GIW.

1 View gateway type and gateway firmware version.

2 Upgrade the firmware for all media gateway components.

3 Save the installation log file.

Local upgrade of a G350 with an S8300 Media Server

You may need to upgrade firmware on a local G350 Media Gateway that contains an S8300 Media Server, either as the primary controller or as an LSP. The software and firmware for upgrading these devices may be contained in a .tar file on a CD-ROM. You would normally only use this .tar file when you are upgrading the S8300 Media Server software at the same time as the G350 firmware.

To upgrade the S8300 Media Server software and G350 firmware from a .tar file, insert the CD-ROM containing the .tar file into a CD-ROM drive connected to a laptop. Alternatively, you can upload the .tar file to the hard drive of the laptop. For more details, see *Job Aid: Avaya Installation Wizard*, 555-245-754.

> **NOTE:**
> The .tar file may not contain the latest firmware. Therefore, you should check the Avaya Support Web site for the latest firmware versions and match these against the versions in the .tar file. If the .tar file does not contain the latest versions, you should download the latest versions from the Support Web site to the laptop. You can then use the Avaya IW to upgrade the firmware.

Remote upgrade of a G350 with an S8300 Media Server

You may need to upgrade firmware on a remote G350 Media Gateway that contains an S8300 Media Server as an LSP. The software and firmware for upgrading these devices may be contained in a .tar file on a CD-ROM. You would normally only use this .tar file when you are upgrading the LSP software along with the G350 firmware.

To upgrade an LSP and G350 from a remote location, copy the .tar file to the */var/home/ftp/pub* directory of the S8300 Media Server using a laptop connected directly to the S8300 Media Server. This means that, while the upgrade can be configured and run remotely, someone must still load the .tar file locally with a laptop connected to the services port of the S8300 Media Server. The commands to run the actual upgrade can then be done remotely. See *Job Aid: Upgrade Tool and Worksheets*, 555-245-757.

> **NOTE:**
> The .tar file may not contain the latest firmware. Therefore, you should check the Avaya Support Web site for the latest firmware versions and match these against the versions in the .tar file. If the .tar file does not contain the latest versions, you should download the latest versions from the Support Web site to the laptop. You can then use the Avaya IW to upgrade the firmware.

Remote upgrade of a G350 without an S8300 Media Server

You may need to download firmware from the Avaya Support Web site, rather than upgrading the firmware from a .tar file. To do this:

1   Create a TFTP or FTP server, if necessary, on the LAN connected to the G350. For details, see Set up a TFTP server on page 64.

> **NOTE:**
> The FTP server can be the */var/home/ftp/pub* directory on the primary controller.

2   Download the most recent firmware from the Avaya Support Web site to the TFTP or FTP server.

> **NOTE:**
> See Installing firmware from the TFTP server on the S8300 Media Server on page 67 for instructions on how to use the TFTP server capability of the S8300 Media Server.

3   Use the Upgrade Tool from the primary controller to perform the upgrade.

See *Job Aid: Upgrade Tool and Worksheets*, 555-245-757.

> **NOTE:**
> An alternative method for upgrading firmware remotely would be to connect to the G350 through a USB or serial modem. In this scenario, firmware files must be loaded on an FTP or TFTP server on the LAN connected to the G350 and the upgrade performed using G350 CLI commands. For instructions, see *Administration of the G350 Media Gateway*, 555-245-106.
>
> If you are using the TFTP server on the S8300 Media Server for firmware file installations, and you are using the CLI commands on the G350 to perform the installation, then use the **copy tftp** CLI command to copy the files from the */tftpboot* directory of the S8300 Media Server. For example, to copy the G350 Media Gateway processor firmware, you would type:
>
> > **copy tftp SW_imageA** <*firmware-file-name*> <*TFTP-server-IP-address*>
>
> where <*TFTP-server-IP-address*> is the address of the S8300 Media Server.

Software and firmware upgrade files for upgrade

Table 7: Software and firmware upgrade file names

Items for Upgrading	New file name for target
.tar file for LSP and primary controller (not used with Gateway Installation Wizard or for individual files)	
G350 Processor	
G350 Device Manager	
MM312 24-port DCP Media Module	
MMANALOG (Integrated Analog)	
MM710 E1/T1 Media Module	
MM711 Analog Port/Trunk Media Module	
MM712 DCP Media Module	
MM714 Global Analog Media Module	
MM717 24-port DCP Media Module	
M720 BRI Media Module	
MM722 BRI Trunk Media Module	

TFTP server values

Enter the TFTP server information in the following table:

Table 8: Global Settings for TFTP Server

TFTP Server IP Address	TFTP Server Directory

11 Front panel description

You can use the front panel of the Avaya G350 Media Gateway to:

- Connect devices
- Add media modules
- View LEDs
- Reset the device
- Reset and recover from the alternate bank

The first section in this chapter describes the front panel of the Avaya G350 Media Gateway chassis, without any media modules. The subsequent sections describe the front panels of the modules that you can insert in the Avaya G350 Media Gateway.

The front panel of the Avaya G350 Media Gateway chassis

The chassis of the Avaya G350 Media Gateway consists of:

- One high-density media module slot (V6)
- Five standard media module slots (V1 through V5)
- Integrated analog telephone ports and LEDs (chassis)
- Contact closure port (CCA)
- Router port (ETH WAN)
- Switch port (ETH LAN)
- System LEDs
- Console port (CON)
- USB port
- Reset (RST) and Alternate Software Bank (ASB) buttons

The G350 chassis

The following figure shows the G350 chassis:

Figure 33: G350 chassis
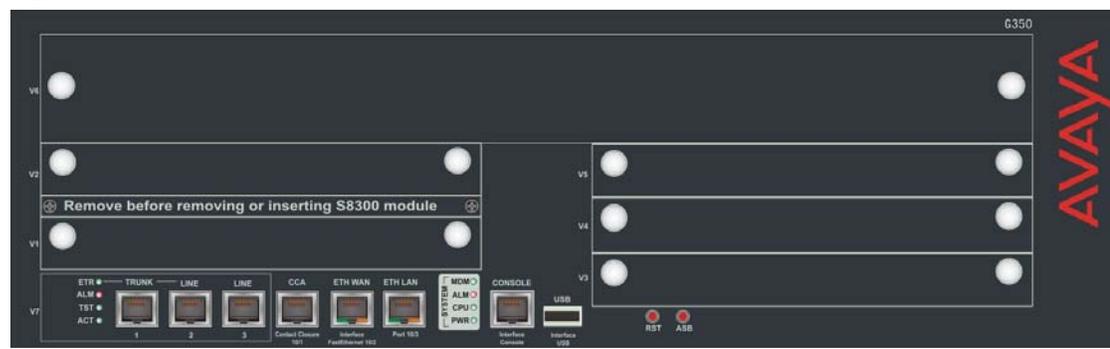
Fixed ports and buttons on the chassis front panel

The following tables describe the functions of the fixed ports and buttons on the G350 front panel.

Table 9: Fixed ports on the G350 front panel

Port	Description
TRUNK	An analog trunk port. Part of an integrated analog media module.
LINE	Two analog telephone ports of the integrated analog media module. An analog relay between TRUNK and the first LINE port provides the Emergency Transfer Relay (ETR) feature. This feature provides an emergency link between the telephone connected to LINE (port 2) and the trunk connected to the TRUNK port if power is disconnected from the G350 or if the G350 becomes unregistered from its Media Gateway Controller (MGC).
CCA	RJ-45 port for partner contact closure adjunct box.
ETH WAN	RJ-45 10/100 Base TX Ethernet port, connected to the G350's internal router.
ETH LAN	RJ-45 Ethernet LAN switch port.
CON	Console port for direct connection of CLI console or modem. RJ-45s connector with P330/P460 pin assignment.
USB	USB port for connection of USB modem.

Table 10: Buttons on the G350 front panel

Button	Description
RST	Reset button. Resets chassis configuration.
ASB	Alternate Software Bank button. Reboots the G350 with a software image in the opposite bank.

High-density media module slot (V6)

V6 is a slot for a high-density media module. If your G350 includes an MM312 or MM314 media module, this module goes in slot V6.

Media module slots (V1 through V5)

V1 through V5 are slots for standard media modules. You can insert any standard media module into any of slots V1 through V5, with the following exceptions:

- Insert the Avaya S8300 Media Server only into slot V1.
- Insert WAN media modules (MM340 and MM342) into any slot except slot V1.

For more information about adding media modules, see

System LEDs

The system LEDs show the status of the Avaya G350 Media Gateway. The following table shows the meaning of the system LEDs when they are lit:

Table 11: System LEDs

LED	Name	Color	Meaning
MDM	Modem Detected	Green	A modem is connected to the CONSOLE or USB port
ALM	Alarm	Red	An alarm is present in the system
CPU	CPU	Green	OFF — A test is in progress ON — Normal operation
PWR	Power	Green	OFF — No power BLINKING — Problem with power ON — Normal operation

Analog telephone ports and LEDs

The analog telephone ports are standard RJ-11 telephone network ports.

- TRUNK is a trunk port.

- The two LINE ports (ports 2 and 3) are analog telephone ports.

The analog telephone port LEDs show the status of the analog telephone ports.

The following table shows the meaning of the analog telephone LEDs when they are lit:

Table 12: Analog telephone port LEDs

LED	Name	Color	Meaning
ETR	Emergency Transfer	Green	The Emergency Transfer Relay (ETR) feature has been activated. This feature provides an emergency link between the telephone connected to the first LINE port (port 2) and the trunk connected to the TRUNK port if power is disconnected from the G350 or if the G350 becomes unregistered from its Media Gateway Controller (MGC).
ALM	Alarm	Red	An alarm is present on the board
TST	Test	Green	A test is in progress
ACT	Activity	Yellow	A call is in progress

Contact closure port (CCA)

The contact closure port (CCA) is wired as an RJ-14 port, but uses an RJ-45 network jack. This port is used to support the G350's Contact Closure feature. The Contact Closure feature is a controllable relay providing dry contacts for various applications. To implement the Contact Closure feature, connect an Avaya Partner System Contact Closure Adjunct™ box to the CCA port. The adjunct box provides two contact closures that can be operated in either a normally closed or normally open state. The contact closures can control devices such as devices that automatically lock or unlock doors or voice recording units. The CCA port can be configured so that the connected devices can be controlled by an end device, such as a telephone. For example, a user can unlock a door by keying a sequence into a telephone keypad. For more information on Contact Closure, see *Installation of the Avaya G350 Media Gateway*, 555-245-104.

Router port (ETH WAN)

ETH WAN is a standard RJ-45 network port. Use ETH WAN to connect a data device to the internal router through a 10/100 mbps Ethernet port. The G350 serves as a router for the WAN.

Switch port (ETH LAN)

ETH LAN is a standard RJ-45 network port. Use ETH LAN to connect a data device to the switch through a 10/100 mbps Ethernet port. You can connect an external LAN to ETH LAN.

Console port (CON)

CON is a standard RJ-11 network port. Use the CONSOLE port to connect a console device or modem to the G350.

USB port

USB is a standard USB port. Use the USB port to connect a USB modem to the G350.

Reset (RST) and Alternate Software Bank (ASB) buttons

RST is the reset button. ASB is the Alternate Software Bank button.

The Avaya G350 Media Gateway has two firmware banks:

- Bank A
- Bank B

Each firmware bank contains a version of the G350 firmware. These may be different versions. The purpose of this feature is to provide software redundancy. If one of the versions becomes corrupted, you can reset the G350 using the other version. This is particularly important when uploading new versions.

By default, when you turn on or reset the G350, the G350 loads firmware from Bank B. This default setting can be changed by the system administrator.

You can use the ASB button on the front panel to load firmware from the bank other than the default bank during startup:

1   Press and hold the reset button.
2   Press and hold the ASB button.
3   Release the reset button.
4   Release the ASB button.

For example, if the G350 is configured to load firmware from Bank B, use the steps listed above to reset the G350 to load the firmware from Bank A instead.

The front panel of the Avaya S8300 Media Server

The S8300 Media Server is a Pentium-based processor that runs on a Linux operating system. The S8300 runs Avaya Communication Manager (ACM) to provide call control services to the G350 and other Avaya gateway devices.

The front panel of the S8300 includes:

- 10/100BaseT Fast Ethernet port (SERVICES)
- Two USB ports for modem connections or the USB CD-ROM drive (USB 1 and USB 2)

Figure 34: The S8300 Media Server

Ports

The S8300's 10/100BaseT Fast Ethernet port is labeled SERVICES, and is located in the center of the front panel. The S8300's two USB ports are labeled USB 1 and USB 2. They are located towards the right of the front panel.

Port LEDs

The following table shows the meaning of the S8300's LEDs when they are lit:

LED	Name	Color	Meaning
ALM	Alarm	Red	An alarm is present
TST	Test	Green	A test is in progress
ACT	Activity	Yellow	This LED is lit whenever a G350, a G700, an IP telephone, or an IP console is registered with the S8300. It is off when none of these IP endpoints are registered with the S8300.

In addition, the front panel of the S8300 has a LED labeled OK TO REMOVE, which is connected to a button labeled SHUT DOWN. This LED indicates that the S8300 has been shut down, and can be removed from the G350 chassis. Do not attempt to remove the S8300 without instructions from a specially trained technician.

The front panel of the Avaya MM312 media module

The MM312 DCP media module front panel has 24 Digital Communications Protocol (DCP) ports with RJ-45 network ports. The MM312 supports simultaneous operation of all 24 ports. Each port can be connected to a two-wire DCP telephone. The MM312 does not support four-wire DCP telephones.

Figure 35: The MM312 media module front panel

Ports

The MM312's 24 DCP ports are labeled 1 through 24.

LEDs

The following table shows the meaning of the MM312's LEDs when they are lit:

LED	Name	Color	Meaning
ALM	Alarm	Red	The module type is not the type configured in the media server for the slot
TST	Test	Green	Either a test is being performed on the module via the media server, or the module is performing a self-test upon initial insertion
ACT	Activity	Yellow	A device connected to the module is in use. This can include a telephone that is off the hook.

The front panel of the Avaya MM314 media module

The MM314 media module is a LAN media module that provides:

* 24 10/100 Base-T Ethernet access ports with inline Power over Ethernet (PoE)
* One Gigabit Ethernet 1000 uplink/access port

Figure 36: The MM314 media module front panel

Ports

The MM314's 24 10/100 Base-T Ethernet ports are located on the right side of the front panel and are labeled 1 through 24. The MM314's Gigabit Ethernet port is located in the center of the front panel and is labeled 51. You can connect to these ports using a straight network cable with an RJ-45 connector, or a crossover cable with an RJ-45 connector.

Alarm LED

The MM314's alarm (ALM) LED is located on the lower left corner of the front panel. The ALM LED indicates that an alarm is present in the module.

Port LEDs

On the left side of the MM314's front panel are numbered LEDs that correspond to each of the MM314's network ports. Underneath these LEDs is a row of LEDs that indicate particular functions. The function LED that is lit indicates which function the network port LEDs are reporting. For example, if the LNK LED is lit, the port LEDs indicate whether the network links for the specific ports are functioning properly.

To the right of the function LEDs are two push buttons. Use these buttons to select the function you want the port LEDs to report. For example, if the COL LED is lit, all the port LEDs are reporting the Collision status of their respective port. The following table shows each of these functions:

LED	Name	Meaning
LNK	Link	If the port LED is lit, the port is enabled and the link is working properly.
COL	Collision	If the port LED is off, there has been no collision on line. If this LED is flashing, there are collisions occurring.
Tx	Transmit to line	If the port LED is lit, data is being transmitted.
Rx	Receive from line	If the port LED is lit, data is being received from the line.
FDX	Half/Full Duplex	If the port LED is lit, the line is operating in Full Duplex mode. If the port LED is off, the line is operating in Half Duplex mode.

LED	Name	Meaning
FC	Symmetric Flow Control	If the port LED is lit, the port is operating in Full Duplex and Flow Control mode. If the port LED is off, the port's Flow Control mode is disabled, or the port is operating in Half Duplex mode.
Hspd	High Speed	If the LED is lit, the port is operating at the higher of its possible speeds.
LAG	Link Aggregation Trunking	If the LED is lit, the port belongs to a LAG.
PoE	Power over Ethernet	If the LED is lit, the port is operating in PoE mode.

The front panel of the Avaya MM340 media module

The MM340 media module provides one WAN access port for the connection of an E1 or T1 WAN line. The following figure shows the MM340 media module front panel.

Figure 37: The MM340 media module front panel

Ports

The MM340's E1/T1 WAN access port is marked E1/T1. This port is located in the center of the front panel.

LEDs

The following table shows the meaning of the MM340's LEDs when they are lit:

LED	Name	Color	Meaning
ALM	Alarm	Red	The module type is not the type configured in the MSG for the slot
TST	Test	Green	A port is being initialized or a loopback is present
ACT	Activity	Yellow	At least one PPP/Frame Relay session is active
SIG	Signal	Green	The physical connection is up

The front panel of the Avaya MM342 media module

The MM342 media module provides one USP WAN access port and supports the following WAN interface types:

- EIA530

- V.35/ RS449

- X.21

The following figure shows the MM342 media module front panel.

Figure 38: The MM342 media module front panel

Ports

The MM342 contains one WAN SCSI access port.

LEDs

The following table shows the meaning of the MM342's LEDs when they are lit:

LED	Name	Color	Meaning
ALM	Alarm	Red	The module type is not the type configured in the MSG for the slot
TST	Test	Green	A port is being initialized or a loopback is present
ACT	Activity	Yellow	At least one PPP/Frame Relay session is active
CON	Connection	Green	The physical connection is up

The front panel of the Avaya MM710 media module

The MM710 T1/E1 media module terminates a T1 or E1 trunk. The MM710 has a built-in Channel Service Unit (CSU), so an external CSU is not necessary. The CSU is only used for the T1 circuit.

The following figure shows the MM710 media module front panel.

Figure 39: The MM710 media module front panel

> **NOTE:**
> The six ports in the middle of the front panel are used for testing.

Ports

The MM710 contains an E1/T1 port.

LEDs

The following table shows the meaning of the MM710's LEDs when they are lit:

LED	Name	Color	Meaning
ALM	Alarm	Red	The module type is not the type configured in the MSG for the slot
TST	Test	Green	Either a test is being performed on the module via the media server, or the module is performing a self-test upon initial insertion
ACT	Activity	Yellow	A device connected to the module is in use. This can include a telephone that is off the hook.
SIG	Signal	Green	The physical connection is up

The front panel of the Avaya MM711 media module

The MM711 media module provides analog line, trunk and telephone features and functionality. The MM711 front panel includes eight universal analog ports. These ports can be used for analog telephone or fax machines, or for analog trunks.

The following figure shows the MM711 front panel.

Figure 40: The MM711 media module front panel

Ports

The MM711's eight universal analog ports are labeled 1 through 8.

LEDs

The following table shows the meaning of the MM711's LEDs when they are lit:

LED	Name	Color	Meaning
ALM	Alarm	Red	The module type is not the type configured in the MSG for the slot
TST	Test	Green	Either a test is being performed on the module via the media server, or the module is performing a self-test upon initial insertion
ACT	Activity	Yellow	A device connected to the module is in use. This can include a telephone that is off the hook.

The front panel of the Avaya MM712 media module

The MM712 DCP media module includes eight DCP telephone ports. The ports support two-wire DCP telephones.

The following figure shows the MM712 front panel.

Figure 41: The MM712 media module front panel

Ports

The MM712's eight DCP telephone ports are labeled 1 through 8.

LEDs

The following table shows the meaning of the MM712's LEDs when they are lit:

LED	Name	Color	Meaning
ALM	Alarm	Red	The module type is not the type configured in the MSG for the slot
TST	Test	Green	Either a test is being performed on the module via the media server, or the module is performing a self-test upon initial insertion
ACT	Activity	Yellow	A device connected to the module is in use. This can include a telephone that is off the hook.

The front panel of the Avaya MM714 media module

The MM714 analog media module includes four analog telephone ports and four analog trunk ports.

The following figure shows the MM714 front panel.

Figure 42: The MM714 media module front panel

Ports

The MM714's four analog telephone ports are labeled 1 through 4. These ports can also be used for DID trunks.

The MM714's four analog trunk ports are labeled 5 through 8.

LEDs

The following table shows the meaning of the MM714's LEDs when they are lit:

LED	Name	Color	Meaning
ALM	Alarm	Red	The module type is not the type configured in the MSG for the slot
TST	Test	Green	Either a test is being performed on the module via the media server, or the module is performing a self-test upon initial insertion
ACT	Activity	Yellow	A device connected to the module is in use. This can include a telephone that is off the hook.

The front panel of the Avaya MM717 media module

The MM717 high density DCP media module front panel has a 25 pair amphenol connector supporting 24 Digital Communications Protocol (DCP) ports. To use the MM717 media module, connect an amphenol cable to the port and to either a breakout box or a punch down block containing RJ-45 jacks. You can attach up to 24 two-wire DCP telephones to these jacks. The MM717 does not support four-wire DCP telephones.

Figure 43: The MM717 media module front panel
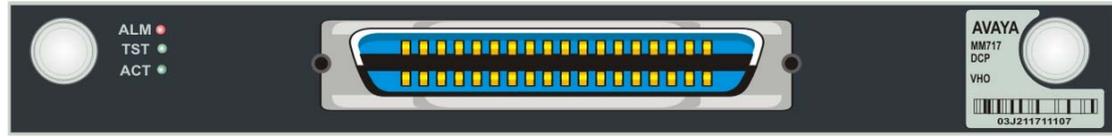
Ports

The MM717 contains a single 25 pair amphenol connector, which can be connected by an amphenol cable to a breakout box or punch down block containing RJ-45 jacks.

LEDs

The following table shows the meaning of the MM714's LEDs when they are lit:

LED	Name	Color	Meaning
ALM	Alarm	Red	The module type is not the type configured in the MSG for the slot
TST	Test	Green	Either a test is being performed on the module via the media server, or the module is performing a self-test upon initial insertion
ACT	Activity	Yellow	A device connected to the module is in use. This can include a telephone that is off the hook.

The front panel of the Avaya MM720 media module

The MM720 ISDN BRI media module contains eight ISDN BRI ports. These ports interface to the central office at the ISDN T reference point.

The following figure shows the MM720 front panel.

Figure 44: The MM720 media module front panel

Ports

The MM720's eight ISDN BRI ports are labeled 1 through 8.

LEDs

The following table shows the meaning of the MM720's LEDs when they are lit:

LED	Name	Color	Meaning
ALM	Alarm	Red	The module type is not the type configured in the MSG for the slot
TST	Test	Green	Either a test is being performed on the module via the media server, or the module is performing a self-test upon initial insertion
ACT	Activity	Yellow	A device connected to the module is in use. This can include a telephone that is off the hook.

The front panel of the Avaya MM722 media module

The MM722 ISDN BRI media module provides two 4 wire S/T ISDN BRI (Basic Rate Interface) 2B+D access ports with RJ-45 jacks.

Figure 45: The MM722 media module front panel

Ports

The MM722 contains two ISDN BRI ports.

LEDs

The following table shows the meaning of the MM722's LEDs when they are lit:

LED	Name	Color	Meaning
ALM	Alarm	Red	The module type is not the type configured in the MSG for the slot
TST	Test	Green	Either a test is being performed on the module via the media server, or the module is performing a self-test upon initial insertion
ACT	Activity	Yellow	A device connected to the module is in use. This can include a telephone that is off the hook.

Front panel description
The front panel of the Avaya MM722 media module

12 **Troubleshooting**

This chapter provides basic troubleshooting information. The purpose of this chapter is to give Tier 1 technicians enough information to identify and fix simple problems and to provide their project managers with enough information so that they can identify and fix more complex problems.

One telephone stops working

If one telephone in the network stops working, but the other telephones and data devices continue to work normally, the problem is probably with the telephone itself. There could also be a problem with the telephone's connection to the Avaya G350 Media Gateway. Take the following steps to identify the problem:

1 Replace the telephone. If the new telephone works, the problem is with the telephone itself. If the new telephone does not work, go on to the next step.

2 Connect the telephone to a different power supply. If the telephone works, the problem is with the original power supply. If the telephone still does not work, go on to the next step.

3 Connect the telephone to a different network port. If the telephone works, the problem is with the original network port. If the telephone still does not work, go on to the next step.

4 Check the module on the Avaya G350 Media Gateway to which the telephone is connected. Check whether the physical connection is loose, and tighten the connection if necessary. If the telephone still does not work, go on to the next step.

5 Check the LEDs on the module to which the telephone connects. Make sure the LED for the port to which the telephone is connected is lit. If it is not lit, the problem may be with the port or the module. If the ALM LED is lit, this is also an indication that there is a problem with the port or the module. Note the port and module and contact your project manager. For information on the various modules and their LEDs, see Front panel description on page 73.

Several telephones stop working

If some telephones in the network stop working, but others continue to work, the problem is probably with a trunk or one of the modules in the Avaya G350 Media Gateway. Take the following steps to identify the problem:

1 Determine whether all the telephones that are affected connect to the same switch or port. If they do, the problem is probably with that switch or port. If they do not, go on to the next step.

2 Determine whether all the telephones that are affected connected to the same module. If they do, check the LEDs on that module. If the ALM LED is lit, there may be a problem with the module. Contact your project manager. If not, go on to the next step. For information on the various modules and their LEDs, see Front panel description on page 73.

3 Check the ALM LED on the Avaya G350 Media Gateway chassis. If it is lit, there may be a system wide problem. Contact your project manager. For information on the chassis, see The front panel of the Avaya G350 Media Gateway chassis on page 73.

No power on the G350

If there is no power at all on the Avaya G350 Media Gateway, take the following steps to identify the problem:

1   Check the AC power source with a voltmeter.

2   Connect the Avaya G350 Media Gateway to a different AC power source. If the G350 has power, the problem is with the original power source. If the network still does not work, go on to the next step.

3   Check the ALM LED on the Avaya G350 Media Gateway chassis. If it is lit, there may be a system wide problem. Contact your project manager. See The front panel of the Avaya G350 Media Gateway chassis on page 73.

A trunk stops working

If a trunk stops working, take the following steps to identify the problem:

1   Check the connection between the trunk and the Avaya G350 Media Gateway. If the physical connection is loose, tighten the connection. If the trunk still does not work, go on to the next step.

2   Check the ALM LED on the module to which the trunk connects. If it is lit, there may be a problem with the module. Contact your project manager. If not, go on to the next step. For information on the various modules and their LEDs, see Front panel description on page 73.

3   Check the ALM LED on the Avaya G350 Media Gateway chassis. If it is lit, there may be a system wide problem. Contact your project manager. See The front panel of the Avaya G350 Media Gateway chassis on page 73.

A WAN line stops working

If a WAN line stops working, take the following steps to identify the problem:

1   Check the connection between the WAN line and the Avaya G350 Media Gateway. If the physical connection is loose, tighten the connection. If the line still does not work, go on to the next step.

2   Check the ALM LED on the module to which the WAN line connects. If it is lit, there may be a problem with the module. Contact your project manager. If not, go on to the next step. For information on the various modules and their LEDs, see Front panel description on page 73.

3   Check the ALM LED on the Avaya G350 Media Gateway chassis. If it is lit, there may be a system wide problem. Contact your project manager. See The front panel of the Avaya G350 Media Gateway chassis on page 73.

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