Installation of the Avaya G350 Media Gateway

555-245-104
Issue 1.1
December 2003

Notice

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

Warranty

Avaya Inc. provides a limited warranty on this product. Refer to your sales agreement to establish the terms of the limited warranty. In addition, Avaya's standard warranty language as well as information regarding support for this product, while under warranty, is available through the following Web site: http://www.avaya.com/support.

Preventing Toll Fraud

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

Avaya Fraud Intervention

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

How to Get Help

For additional support telephone numbers, go to the Avaya support Web site: http://www.avaya.com/support. If you are:

- Within the United States, click the *Escalation Management* link. Then click the appropriate link for the type of support you need.
- Outside the United States, click the *Escalation Management* link. Then click the *International Services* link that includes telephone numbers for the international Centers of Excellence.

Providing Telecommunications Security

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

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

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

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

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

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

Responsibility for Your Company's Telecommunications Security

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

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

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

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

TCP/IP Facilities

Customers may experience differences in product performance, reliability and security depending upon network configurations/design and topologies, even when the product performs as warranted.

Standards Compliance

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

Product Safety Standards

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

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

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

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

The equipment described in this document may contain Class 1 LASER Device(s). These devices comply with the following standards:

- EN 60825-1, Edition 1.1, 1998-01
- 21 CFR 1040.10 and CFR 1040.11.

The LASER devices operate within the following parameters:

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

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

Electromagnetic Compatibility (EMC) Standards

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

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

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

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

Federal Communications Commission Statement

Part 15:

Note: This equipment has been tested and found to comply with the limits for a Class 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.

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 Europeénne*) 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). This equipment has been certified to meet CTR3 Basic Rate Interface (BRI) and CTR4 Primary Rate Interface (PRI) and subsets thereof in CTR12 and CTR13, as applicable.

Copies of these Declarations of Conformity (DoCs) can be obtained by contacting your local sales representative and are available on the following Web site: http://www.avaya.com/support.

To order copies of this and other documents:

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 *Avaya G350 Media Gateway Installation Guide* describes how to:

- Physically install the Avaya G350 Media Gateway.
- Establish connectivity to a remote installation technician, if necessary.
- Prepare for configurations performed by installation technicians.

Audience

This book is for the following audiences:

- Trained field installation personnel.
- Technical support personnel.
- Network engineers and technicians.
- Authorized business partners.

Downloading this book and updates from the Web

You can download the latest version of *Avaya G350 Media Gateway Installation Guide 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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To download the latest version of this book:

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 555-245-104 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. A warning can also indicate the presence of a hazard that could cause personal injury if the hazard is not avoided by following the instructions provided.

WARNING:
Use an ESD warning to call attention to situations that can result in ESD damage to electronic components.

DANGER:
A danger statement indicates the presence of a hazard that can result in severe personal injury or death if the hazard is not avoided by following the instructions provided.

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
Overview of the Avaya G350 Media Gateway	555-245-201
Upgrade and Service Guide for the Avaya G350 Media Gateway	555-245-106
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 Technical Consulting Support System 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.

Trademarks

Sending us comments

Avaya welcomes your comments about this book. To reach us by:

- Mail, send your comments to:

  Avaya Inc.

  Product Documentation Group

  Room B3-H13

  1300 W. 120 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, *Avaya G350 Media Installation Guide, 555-245-104*.

1 Before you start

Read this chapter carefully before you begin the installation.

This chapter includes:

Installation workflows

You can use this guide to help perform any of the following:

- a full installation — in which the G350 is shipped to the customer site with no media modules installed and not configured.
- a staging — in which you install media modules and have a supporting technician configure the G350 before shipping it to the customer site.
- an installation of a staged G350 — in which you receive the G350 after staging. The G350 has the media modules already installed and is already configured.

Full installation

If you are performing the entire installation at the customer site, work through the guide from beginning to end. The workflow is as follows:

- Mount the G350, install the required media modules in the G350, install ground conductors, and connect power to the G350 (Chapter 2, “Installing the Avaya G350 Media Gateway”).
- Prepare the G350 to be configured by a supporting technician (Chapter 3, “Preparing for configuration”).
- Connect endpoint devices, such as telephones, LAN and WAN computers, to the G350 and collaborate with a supporting technician who configures the G350 (Chapter 4, “Connecting devices”).
- Test the installation and remove the installation equipment (Chapter 5, “After installation”).

Staging

If you are using this guide to take you through staging the G350, work through the guide as follows:

1. Read Step 2: Install the media modules on page 23, and install the media modules in the G350 chassis.
2. Read Step 4: Connect power to the G350 on page 31, and apply power to the G350.
3. Have the G350 configured and tested by a supporting technician. Do not connect a modem for the configuration. Read Assisting an off-site configuration (staging) on page 41.
4. Disconnect from the G350 any external equipment used in the configuration and testing process.
5. Disconnect power from the G350 and pack it up with the media modules installed.

Installation of a staged G350

If you receive the G350 after staging, pre-configured with the media modules already installed, work through the guide as follows:

1. Read Step 1: Mount the G350 chassis on page 19, and mount the G350 with the media modules already installed.
2. Read Step 4: Connect power to the G350 on page 31, and apply power to the G350.
3. Read Chapter 4, “Connecting devices” and connect devices to the G350.
4. Read Chapter 5, “After installation” and test the installation.

Gathering information

Before you begin the installation, read the planning documentation.

The planning documentation provides you with information about:

- What media modules you will be installing. Take note of whether or not you are installing an S8300 Media Server module. The installation process is different depending on whether or not you are installing an S8300.
- Which voice devices and data devices need to be connected to the G350.
- Whom to contact on site about delivery, system questions, or network concerns.
- Whom to contact at your home office in case of questions.
- Whether you need a special pass or an escort.
- How to gain entrance to the installation location if it is locked.
- Where to install equipment.
- Where to find a telephone near the installation location.

Unpacking

The G350 chassis and accessories are shipped in a box. The package should contain the following items:

- One empty Avaya G350 Media Gateway chassis, with blanking plates over empty module slots.
- One accessories box, containing:
  - One power cord. If the power cord provided does not have the correct plug configuration needed in a particular country, see the power cord specifications in Appendix A, "Technical specifications".
  - One flat RJ-45 to RJ-45 cable.
  - One RJ-45 to DB-9 cable adapter.
  - One RJ-45 to DB-25 cable adapter.
  - Two standard mounting brackets.
  - One mounting bracket with cable guides.
  - One Supplementary Ground Conductor
  - Nine 6-32 x 3/8 screws.
  - One 8-32 x 5/16 screw.
  - One washer.
  - Four rubber feet.
- Documentation CD.
- Release notes.

Media modules for connecting voice and data devices and outside lines are packaged and shipped in separate boxes. The Avaya Partner Contact Closure adjunct box, if ordered, is also packaged separately.

Before you begin the installation:

1. Unpack the G350 and accessories.
2. Unpack each media module.

   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.

3. Check the contents of the packaging against the customer order.
4. Cross-check the customer order with the planning documentation you have been given. Media modules, telephones and other equipment are listed on your planning and shipping documentation. Placement for the media modules and other equipment are also indicated.
5. Verify that all necessary elements have been received and are in good condition. If there are missing or damaged elements, contact the supporting technician for instructions. The planning documentation will list contact information for the supporting technician and other key personnel.

If you have any questions about the equipment order, or if the equipment has been damaged, contact your supporting technician.

Site requirements

Inspect the site before you begin the installation. Verify that the site requirements have been met for adequate environmental conditions, power and grounding availability, safety, and security conditions. If you find discrepancies between the specifications necessary for proper installation of equipment and the conditions on site, contact your supporting technician before proceeding with the installation.

The G350 may be installed in a 19” rack, mounted on a wall, or placed on a sturdy table. Installation instructions are provided in Chapter 2, “Installing the Avaya G350 Media Gateway”. The surrounding temperature should be in the range 0-40 C. The humidity should not be higher than 95%.

Environmental Verification

Verify that temperatures and clearances are within the recommended technical parameters. Consult the table of Technical Specifications in Appendix A, “Technical specifications”.

WARNING:
Verify that temperature and clearance ranges are within tolerable limits. The thermal sensors may shut down equipment if it is subjected to conditions beyond the recommended limits. Equipment can be damaged if these restrictions are not respected.

Power Verification

Check that an adequate number of power outlets are available.Verify that the G350 Media Gateway and the other equipment in the rack do not present a possible overcurrent or overload to the customer's branch circuit and/or power distribution strip. Power requirements are listed in Appendix A, “Technical specifications”.

WARNING:
Do not overload the power circuit.

Grounding Verification

Ensure that the installation site has access to approved grounds and that either a trained technician or a licensed electrician will be verifying all grounds and installing the Supplementary Ground Conductor (consult Step 3: Attach ground conductors on page 27).

WARNING:
Installation in a Restricted Access Location and secure access are required in Finland and Norway.

The G350 Media Gateway relies on two ground connections (mains plug with an earth contact and a permanent Supplementary Ground Conductor). Because of unreliable earthing concerns in Finland, Norway, and Sweden, the G350 Media Gateway must be installed in a Restricted Access Location (RAL). An RAL is defined as an access that can be gained only by trained service personnel or customers who have been instructed about the reasons for the restricted access and any safety precautions that must be taken. In these cases, access to the G350 Media Gateway is gained by the use of a tool (such as a lock and key) or other means of security.

If you have any questions about the safety conditions, contact your supporting technician. When you have verified that the site is ready for a safe installation, proceed with the installation.

Required equipment

You need the following equipment to assist you in the installation:

- One loop start analog trunk for connecting a modem.
- A separate telephone line for speaking to the service technician.

You may also need some of the following equipment for mounting the G350:

- A Phillips screwdriver if rack mounting or wall mounting the G350.
- If you will mount the G350 to a flat wall: screws to fasten the G350 to the wall.
- If you will mount the G350 to a non-flat wall:
    - A 415 x 465 mm plywood board, 20 mm (0.79 in) thick.
    - Wood screws to fasten the G350 to plywood.
    - Screws to fasten the plywood board to the wall.

If you are installing an S8300 media server in the G350, you also need:

- One USB modem. The recommended USB modem is Multitech MultiModemUSB MT5634ZBA-USB-V92.
- One USB CD-ROM drive.
- A laptop computer with internet browser.

If you are not installing an S8300 media server in the G350, you also need:

- A PC on the local network with a CD-ROM drive.
- A laptop computer running Windows XP or Windows 2000 and with a serial port recognized by the operating system on the laptop. If the port is recognized, it is listed by the Device Manager.
- A modem to connect to the G350 to enable dial-in configuration. The recommended modem is the Multitech MultiModemZBA MT5634ZBA-V-V92.

2 Installing the Avaya G350 Media Gateway

This chapter describes the physical installation. Perform the following steps in order:

1. Step 1: Mount the G350 chassis
2. Step 2: Install the media modules
3. Step 3: Attach ground conductors
4. Step 4: Connect power to the G350

The steps are described in the sections below.

When you have installed the chassis and media modules and connected the power, you can move on to Chapter 4, “Connecting devices”, and connect external devices to the G350.

Step 1: Mount the G350 chassis

Mount the G350 in one of the following scenarios:

- In a rack
- On a wall
- On a table

CAUTION:
When handling any components of an S8300 Media Server or G350 Media Gateway, wear an anti-static wrist ground strap. Connect the strap to an approved ground such as an unpainted metal surface.

Mounting the G350 in a rack

The G350 mounts in a standard 19-inch rack.

If the G350 is to be mounted in a rack, you can fasten the G350 to the rack either at the front of the G350 or at the middle. In either case, mounting brackets must be attached to the G350.

There are two types of mounting brackets provided with the G350:

- Without cable guides - two mounting brackets without cable guides are provided.
- With cable guides - one mounting bracket with cable guides is provided. This bracket provides guides for electrical cables.

Mounting brackets without cable guides can be attached either to each side of the front of the G350 for fastening the unit to the rack at the front or to the middle of each side panel of the G350 for fastening the chassis to the rack at the middle.

Figure 1: Affixing a mounting bracket to the front of the G350

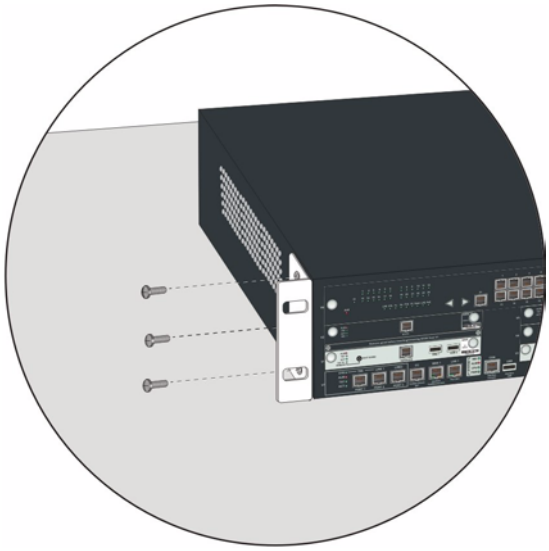
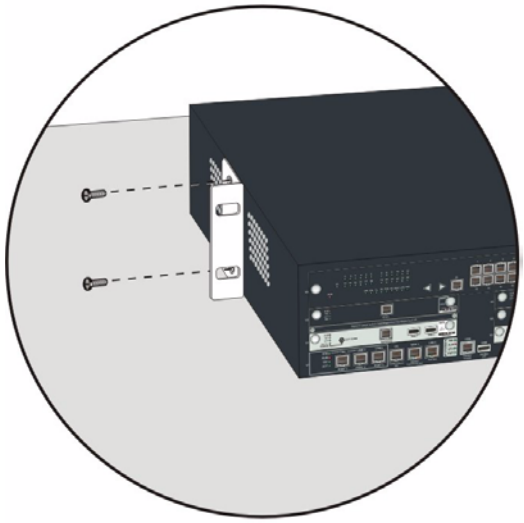
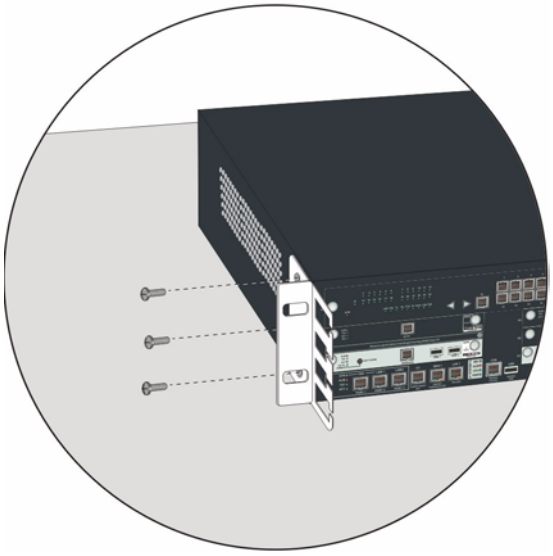


Figure 2: Attaching a mounting bracket to the middle of the G350



The mounting bracket with cable guides is useful for cable management. You can attach the mounting bracket with cable guides to the front of the G350 at one side, as shown in the following figure. If you are fastening the chassis to the rack at the front, use the mounting bracket with cable guides as one of the two front brackets. If you are fastening the chassis to the rack at the middle, use the mounting bracket with cable guides at the front of the chassis, in addition to the two regular mounting brackets on the sides of the chassis. In this case, the mounting bracket with cable guides serves for cable management only — you do not fasten it to the rack.

Figure 3: Attaching a mounting bracket with cable guides



To attach each mounting bracket to the G350:

1. Position a bracket over the desired mounting position.
2. Affix the bracket to the chassis with three of the nine 6-32 x 3/8 screws provided.
3. Tighten with the screwdriver.

The G350 is held in place by mounting screws through the two mounting ears. To avoid balancing problems and cabling complications, the racks should be filled from the bottom; that is, mount units in the lower positions first.

Before mounting the G350, check for the following:

- Ensure that the rack is bolted to the floor and is earthquake-protected, if required. If the rack is not securely fixed in place, do not proceed with the installation.
- If the G350 is being mounted in a rack with other equipment already installed, the G350 must be positioned to avoid imbalance.
- The G350 is shipped with 3 sets of four mounting screws. Choose the set of screws that match the screw holes in the rack being used.
- The G350 weighs 22.5 pounds (10 kg) empty and between 33 and 35 pounds (between 15 and 16 kg) when equipped with media modules. Two people may be needed to mount the G350 Media Gateway in the rack.

To mount the G350 in the rack:

1. Position the G350 in the rack. Ensure that there is adequate ventilation.
2. Verify that the screw holes are aligned with the rack hole positions.
3. Insert two mounting screws on each side.
4. Tighten the mounting screws. Avoid overtightening.
5. Verify that ventilation vents are not obstructed.

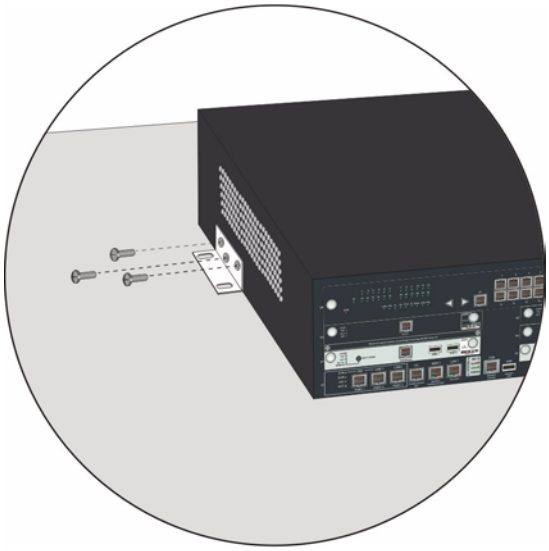
At this point, you have mounted the G350 chassis in the rack and are ready to insert media modules as required in the planning documentation.

Mounting the G350 on a wall

To mount the G350 on a wall, use the two mounting brackets without cable guides. If the wall is flat, you can screw the G350 directly to the wall. If the wall is not flat, screw a plywood board (415 x 465 mm, 20 mm thick) to the wall with wood screws, and fasten the G350 to the board.

To affix brackets to the G350 for wall mounting:

1. Affix a bracket to each side of the G350, as shown in the figure below.



Placing the G350 on a table

If you will be installing the G350 as a tabletop unit, you need to affix the provided four rubber feet to the underside of the G350.

To affix the feet:

1. Remove the four feet from their packaging.
2. Turn the G350 upside down.
3. Position each foot into one of the mounting sites, near each corner of the chassis.
4. Press the plastic rivet into the foot with a stylus until it is firmly seated on the chassis.

Step 2: Install the media modules

When the G350 chassis is installed, you can insert the media modules. Each module is shipped with two thumb screws for securing the position of the module in the G350 chassis.

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

- not to install an unsupported combination of media modules. See Inserting the S8300 Media Server module on page 25
- to allocate a permissible slot to each media module. See Combination limitations on page 23.

To install an S8300 media module, see Inserting the S8300 Media Server module on page 25.

To install each of the other media modules, see Inserting media modules on page 26.

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

Combination limitations

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

- More than one MM710 media module.
- More than two of the following voice media modules in any combination: MM711, MM720, MM714, or MM722.
- More than two of the following WAN media modules in any combination: MM340 or MM342.
- An MM712 media module with an MM312 media module.

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 4 below.

Figure 4: The G350 front panel ports and slots

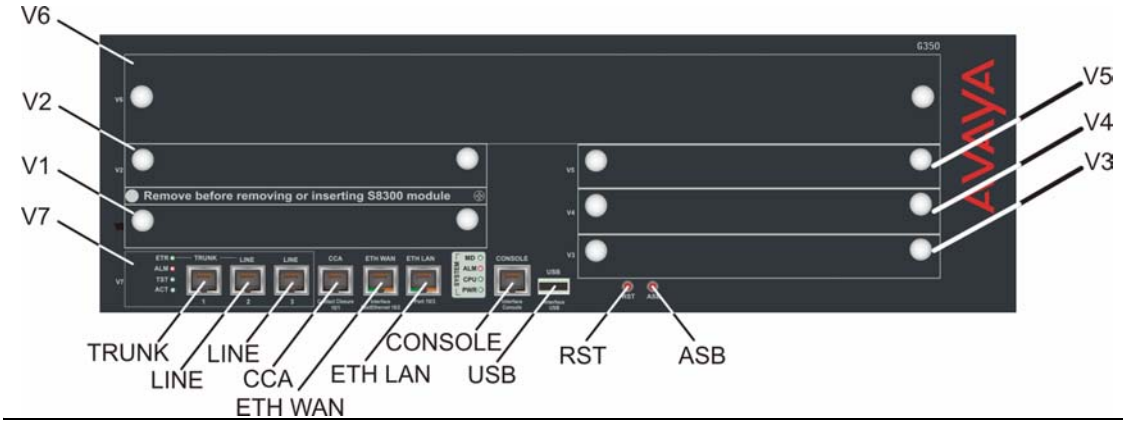


Table 1, Permitted slots for media modules, on page 24 describes which media modules can be inserted into which slots:

Table 1: Permitted slots for media modules

Media module	Permitted slots	Description
MM312	V6	Provides 24 ports for connecting DCP telephones.
MM314	V6	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	V2, V3, V4, V5	Provides one E1/T1 WAN port for connecting to a WAN endpoint device.
MM342	V2, V3, V4, V5	Provides one USP WAN port for connecting to a WAN endpoint device.
MM710	V1, V2, V3, V4, V5	Provides one E1/T1 trunk port for connecting an E1/T1 telephone trunk.
MM711	V1, V2, V3, V4, V5	Provides eight universal analog ports for connecting analog telephones or trunks.
MM712	V1, V2, V3, V4, V5	Provides eight ports for connecting DCP telephones.
MM714	V1, V2, V3, V4, V5	Provides four analog ports for analog telephones and four analog ports for analog trunks.
MM720	V1, V2, V3, V4, V5	Provides eight ports for connecting ISDN trunks.
MM722	V1, V2, V3, V4, V5	Provides two ports for connecting ISDN trunks.
S8300	V1	Media Server

Allocate a slot for the media module. Make sure your slot allocations allow a permissible slot for every media module.

Inserting the S8300 Media Server module

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.

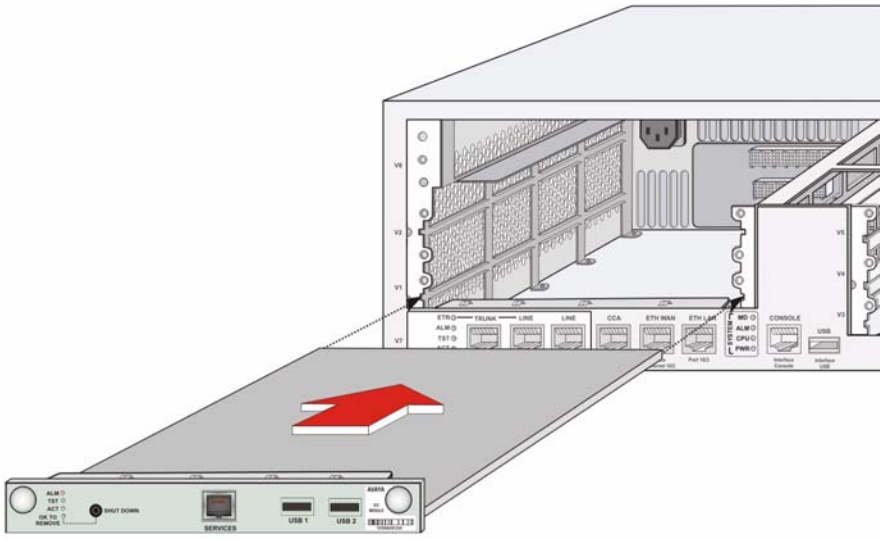
CAUTION:
Separate ESD paths to the chassis ground connect to the media modules at the spring-loaded captive screws. Use a screw driver to ensure the captive screws are securely tightened to prevent damage to the equipment.

The S8300 can only be inserted in slot V1 on the left side of the G350 Media Gateway.

To insert the S8300 Media Server module

1. Remove the plate between slots V1 and V2, labelled “Remove before removing or inserting S8300 module.”
2. Remove the blank plate from slot V1.
3. Position the media module squarely before the V1 bay opening and engage both sides of the module in the interior guides.
4. Slide the S8300 module slowly into the chassis, maintaining an even pressure to assure that the module does not become twisted or disengaged from the guides.

Figure 5: Inserting the S8300 media server module.



5 Apply firm pressure to engage the connectors.

The connector has different length pins. The long pins will engage first to provide grounding. Medium length and short pins will provide power and signal.

6 Lock the S8300 Media Server module into the chassis by tightening the spring-loaded captive screws on the front of the module.

7 Replace the plate labelled “Remove before removing or inserting S8300 module” between slots V1 and V2, and tighten the screws on the front of the plate.

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

Inserting media modules

After you have inserted the S8300 Media Server module, if applicable, insert the rest of the media modules. Make sure to insert each module in a permissible slot. For information about which slots to allocate to which modules, see Allocating slots on page 23.

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.

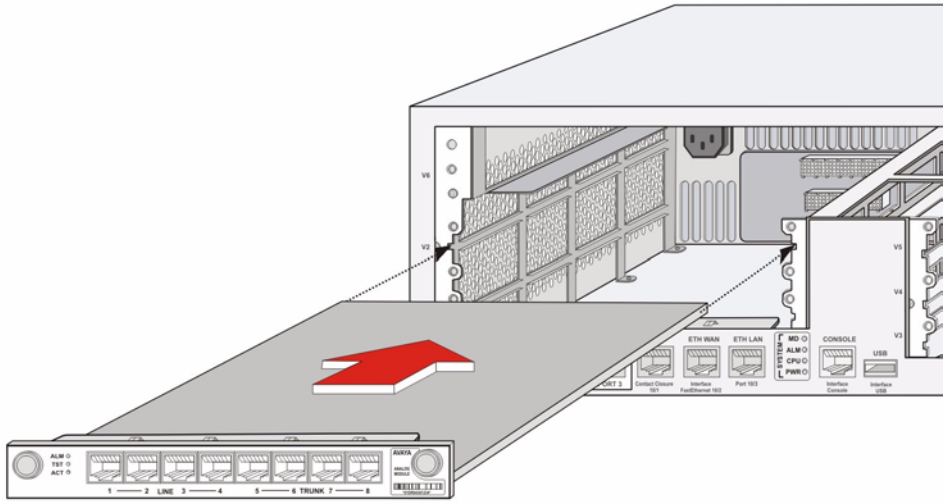
To insert a media module:

1 Remove the blank plate from the empty bay.

2 Position the media module squarely before the selected bay 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 6: Inserting a media module



4 Apply firm pressure to engage the connectors.

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

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 Step 4: Install circuit protection on page 49).

Step 3: Attach ground conductors

To assure safe installation and operation, carefully read all requirements, recommendations and instructions. Pay special attention to all CAUTION, WARNING, and DANGER statements.

WARNING:

System grounding must comply with the general rules for grounding provided in Article 250 of the National Electrical Code (NEC), National Fire Protection Agency (NFPA) 70, or the applicable electrical code in the country of installation.

General grounding requirements

Two safety grounds are required to ensure safe operation of the G350 Media Gateway: the ground conductor that is part of the AC power cord and the field-installed green/yellow conductor referred to as the Supplementary Ground Conductor. Both safety grounds must be connected to an approved ground. If a power cord accompanies the G350, use that cord whenever possible.

The customer must select a location for the G350 Media Gateway installation that is no more than 50 feet (15 m) from an approved ground. If this location requirement is not met, the customer must contact a licensed electrician to install a Supplementary Ground Conductor per Article 250 of the National Electrical Code (NEC).

WARNING:

If the installation location is greater than 50 feet (15 m) from an approved ground, do not install the Avaya G350 Media Gateway until a licensed electrician is present to install a Supplementary Ground Conductor.

A 55-foot (16-m) Supplementary Ground Conductor is provided with the equipment, and is constructed of 10 AWG (4.0 mm^2) wire, with an insulated ring terminal crimped to one end that is suitable for the #8 (M4) stud/screw on the rear of the G350 chassis.

The customer will need to provide a means of connecting this Supplementary Ground Conductor to an approved ground according to Article 250 of the National Electrical Code (NEC).

A ground block is available for use when multiple G350 Media Gateways are being installed. The ground block, intended for rack mounting, has ten terminals available for terminating Supplementary Ground Conductors. Up to ten G350 Media Gateways can be grounded at the block installed close to the equipment (on a rack) and then a single ground conductor can be routed from the same block to an approved ground. If the ground block is to be used, it must be ordered separately.

DANGER:

Failure to install both grounds will void the Product Safety certifications (UL and the CE Mark) on the product, as well as allow a hazard to be present that could result in death or severe personal injury.

In Finland and Norway, the G350 Media Gateway must be installed in a restricted access location, due to unreliable earthing concerns. A restricted access location is defined as access that can be gained by only Service Personnel or Customers who have been instructed about the reasons for the restricted access and any safety precautions that must be taken. In these cases, access to the G350 is gained by the use of a tool (such as a lock and key) or other means of security.

WARNING:

For installations in Finland and Norway, the Avaya G350 Media Gateway relies on two ground connections (mains plug with an earth contact, and a Supplementary Ground Conductor).

Approved grounds

An approved ground is the closest acceptable medium for grounding the building entrance protector, entrance cable shield, or a single-point ground of electronic telephony equipment. If more than one type of approved ground is available on the premises, the grounds must be bonded together as required in Section 250-81 of the NEC for the US or per the local electrical code regulations in the country of installation.

- Grounded Building Steel: The metal frame of the building where it is effectively grounded by one of the following grounds: acceptable metallic water pipe, concrete encased ground, or a ground ring.
- Acceptable Water Pipe: A metal underground water pipe, at least 1/2-in. (1.3 cm) in diameter, in direct contact with the earth for at least 10 ft. (3m). The pipe must be electrically continuous (or made electrically continuous by bonding around insulated joints, plastic pipe, or plastic water meters) to the point where the protector ground wire connects. A metallic underground water pipe must be supplemented by the metal frame of the building, a concrete-encased ground, or a ground ring. If these grounds are not available, the water pipe ground can be supplemented by one of the following types of grounds:
  - Other local metal underground systems or structures - Local underground structures such as tanks and piping systems.
  - Rod and pipe electrodes - A 5/8-in. (1.6 cm) solid rod or 3/4-in. (2 cm) conduit or pipe electrode driven to a minimum depth of 8 ft. (2.4 m).
  - Plate electrodes - Must have a minimum of 2 sq. ft. (0.185 sq. m) of metallic surface exposed to the exterior soil.
- Concrete Encased Ground: An electrode encased by at least 2 in. (5.1 cm) of concrete and located within and near the bottom of a concrete foundation or footing in direct contact with the earth. The electrode must be at least 20 ft. (6.1 m) of one or more steel reinforcing bars or rods, 1/2-in. (1.3 cm) in diameter, or at least 20 ft. (6.1 m) of bare solid copper, 4 AWG (26 mm^2) wire.
- Ground Ring: A buried ground that encircles a building or structure at a depth of at least 2.5 ft (0.76 m) below the earth's surface. The ground ring must be at least 20 ft. (6.1 m) of 2 AWG (35 mm^2), bare copper wire.
- Approved Floor Grounds: Floor grounds are those grounds on each floor of a high-rise building that are suitable for connection to the ground terminal in the riser closet and to the cabinet single-point ground terminal. Approved floor grounds may include the following:
  - Building steel
  - The grounding conductor for the secondary side of the power transformer feeding the floor
  - Metallic water pipes.
  - Power-feed metallic conduit supplying panel boards on the floor.
  - A grounding point specifically provided in the building for that purpose.

WARNING:

If the approved ground or approved floor ground can only be accessed inside a dedicated power equipment room, then connections to this ground must be made by a licensed electrician.

Connect the safety ground

Proper grounding of the G350 Media Gateway installation safeguards the system, users and service personnel by providing protection from lightning, power surges, AC mains faults, power crosses on central office trunks, and electrostatic discharge (ESD).

Local electrical installation codes must be followed when installing the G350.

DANGER:
Connection of both grounds (through the AC Power Cord and the Supplementary Ground Conductor) is required for safe operation of the G350 Media Gateway.

WARNING:
An improper ground can cause electrical shock as well as equipment failures and service outages.

To attach the ground wires:

1. Remove the ground screw on the rear of the chassis adjacent to the ground symbol.
2. Place the ring terminal of the 10 AWG (4.0 mm^2) Supplementary Ground Conductor on the screw.
3. Replace the ground screw to the chassis and securely tighten the screw such that it cannot be loosened without the use of a tool.

   If the ground block has been purchased: The ground block is provided for use with more than one G350 in the rack. It is usually mounted by the customer electrician.
4. Cut the Supplementary Ground Conductor (which has one end attached to the grounding screw on the chassis) to the length needed to terminate it into one of the terminals of the ground block. Do not coil the Supplementary Ground Conductor.
5. Attach one end of the remaining 10 AWG (4 mm^2) ground wire to one of the terminals in the ground block and the other end to an approved ground.
6. Cut this ground wire to the length needed to reach the approved ground. Do not coil this wire.

   If the ground block is not being used, simply:

1. Attach the Supplementary Ground Conductor to an approved ground.
2. Connect the AC power cable to the inlet receptacle on the rear of the chassis.

You have now mounted the fully equipped G350 Media Gateway and connected to electrical ground conductors. You are now ready to connect power.

Step 4: Connect power to the G350

After you have mounted the G350, installed the media modules, and attached grounding conductors, you can connect power to the G350.

To connect power to the G350:

1. Connect the power cable to the power connector on the G350 back panel.
2. Plug the power cable into a mains socket. The G350 is now powered. The PWR LED on the front panel lights. The CPU LED lights up if the firmware is running. At least one LED on each media module lights up initially and then goes off after about 20 seconds.

3 Preparing for configuration

The configuration of the G350 will be performed by one or more supporting technicians either remotely or on-site. This chapter explains what preparations to make so that the supporting technicians can configure the G350.

> **NOTE:**
> If you received the G350 with the media modules pre-installed, the G350 is already configured, and you should skip this chapter.

When you have mounted the G350 and inserted the media modules, you are ready to connect endpoint devices to the front panel ports. Before you connect devices, make the preparations described in this chapter to enable the supporting technician to access the G350 for configuration. The supporting technician can start to configure the G350 while you connect devices.

> **NOTE:**
> If you are staging the G350 before taking it to the customer site, do not connect endpoint devices unless the supporting technician requests you to do so to assist the configuration. The supporting technician will need to connect some devices to test endpoints.

When you have completed the preparations described in this chapter, contact the supporting technician to help establish configuration access. Be prepared to assist the supporting technician throughout the configuration. For information about how you might need to assist in the configuration, see Step 2: Assist the configuration on page 40. While the supporting technician is configuring the G350, you can connect endpoint devices to the G350. For information about connecting devices to the front panel ports of the G350, see Chapter 4, “Connecting devices”. The supporting technician will need you to connect the endpoint devices so that he can test the configuration.

Step 1: Prepare configuration equipment

If the configuration will be done on-site, no preparations are necessary. You will need to assist the supporting technician throughout the configuration (see Assisting an on-site configuration on page 40).

If you are having the G350 staged, skip to Assisting an off-site configuration (staging) on page 41.

If the configuration will be done either remotely, or partly remotely and partly on-site, you need to prepare certain equipment for use in the configuration process.

> **NOTE:**
> If a supporting technician who will be performing part of the configuration is coming to do so on-site, that technician might do these preparations.

The preparations are different depending on whether or not you installed an S8300 in the G350. See one of the following sections below:

- Preparing a G350 without an S8300 for configuration
- Preparing a G350 with an S8300 for configuration

Preparing a G350 without an S8300 for configuration

If some of the configuration will be done on-site and some remotely, the supporting technician will perform the local configuration and set up the G350 for the remote configuration. You will need to assist the technician (see Assisting a combined remote and on-site configuration on page 40).

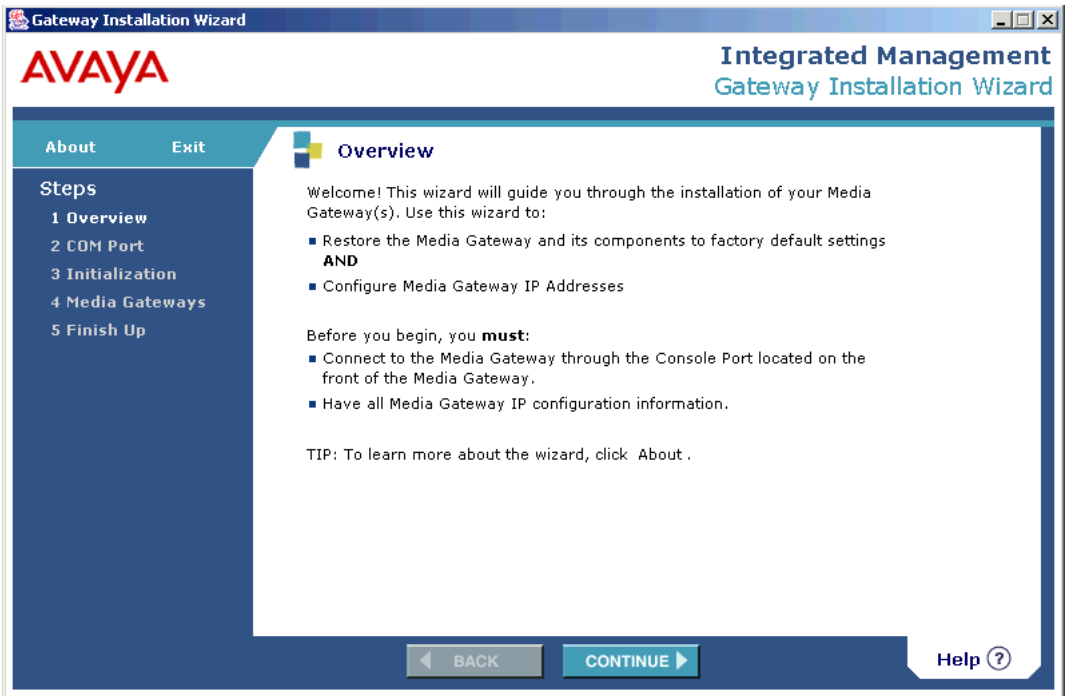
If all the configuration will be done remotely (see Step 2: Assist the configuration on page 40), you need to enable a modem on the CON port of the G350 and connect the modem, as follows:

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.

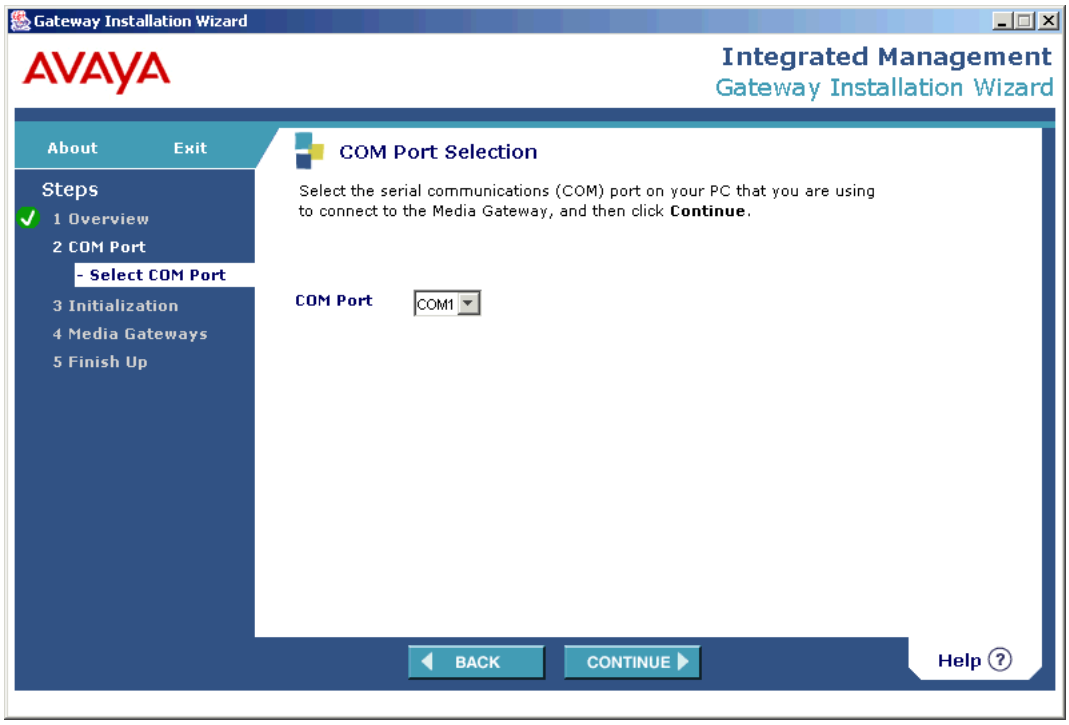
   NOTE:
   When uploading firmware from the S8300 using TFTP, you may need to enable TFTP service in the Set LAN Security parameters of your web server.

   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/avayaiw) to the laptop computer. The laptop should be running Windows 2000 or Windows XP to support GIW.
3. Plug one end of the provided flat RJ-45 to RJ-45 cable into the provided DB-9 adapter.
4. Plug the RJ-45 connector at the other end of the cable into the CON 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 opening screen appears:

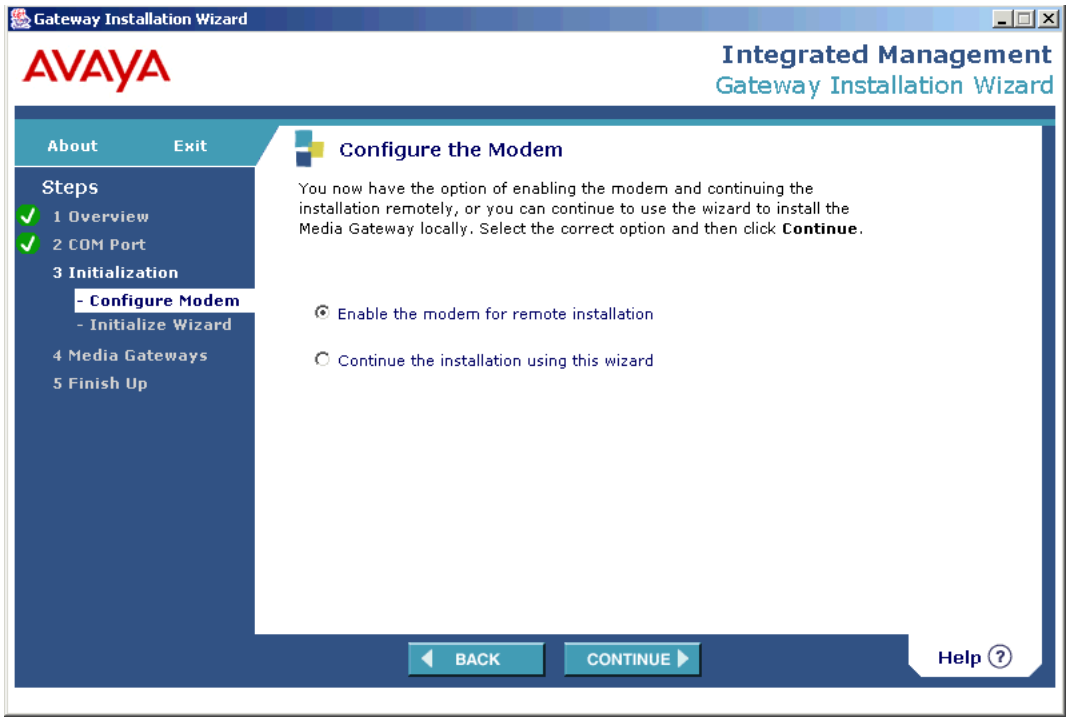


7 Click Continue. The COM Port Selection screen appears:

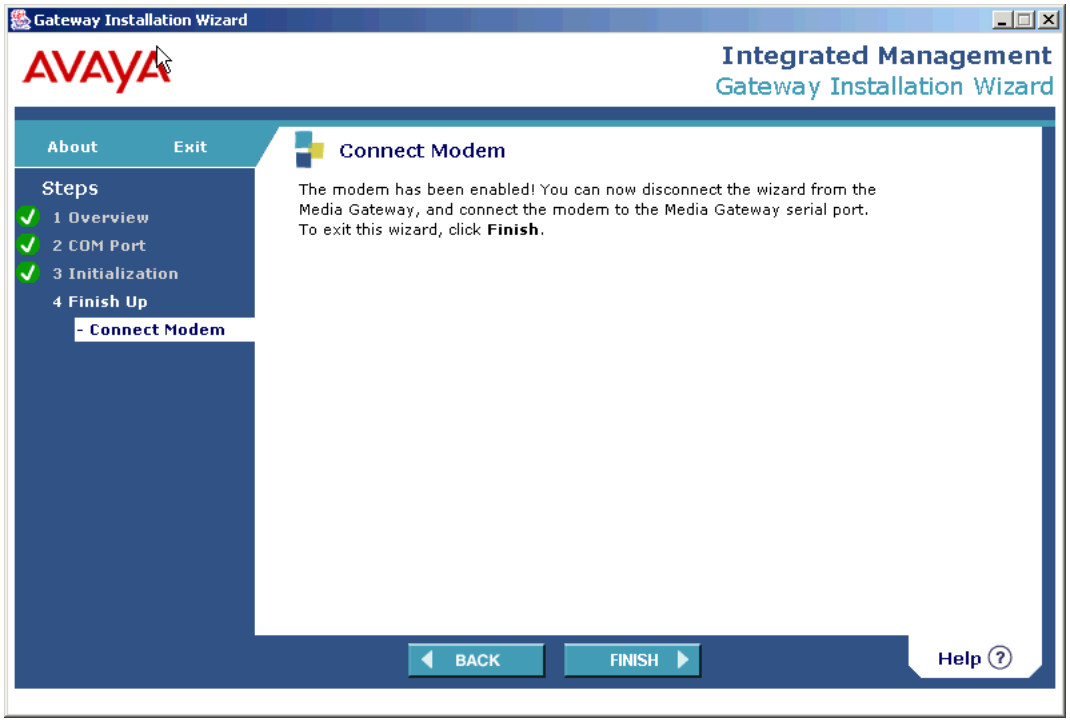


8 Select the COM port on the laptop that you are using to connect to the G350.

9 Click Continue. The Configure the Modem screen appears:



10 Select Enable the modem and continue the installation remotely. The Connect Modem screen appears:



11 Click Finish.

12 Connect a serial modem to a working telephone line.

13 Connect the provided DB-25 adapter to the modem.

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

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

The G350 is now prepared for remote configuration via the modem. See Step 2: Assist the configuration on page 40) for information about how you will need to assist the supporting technician to configure the G350 from a remote location.

Preparing a G350 with an S8300 for configuration

If you installed an S8300 in the G350 and all the configuration will be done on-site, the G350 is ready for the supporting technician to set up the G350 for configuration and perform the configuration. You will need to assist the technician (see Assisting an on-site configuration on page 40).

If you installed an S8300 in the G350, and some or all of the configuration will be done remotely (see Step 2: Assist the configuration on page 40) prepare for configuration as follows:

1 Connect and enable the USB modem. See Connecting the USB modem on page 37.

2 If the supporting technician requires a USB CD-ROM drive to download software upgrades, connect the USB CD-ROM drive to the remaining available USB port on the S8300 module.

The G350 is now prepared for remote configuration via the USB modem. See Step 2: Assist the configuration on page 40 for information about how you will need to assist the supporting technician to configure the G350 from a remote location.

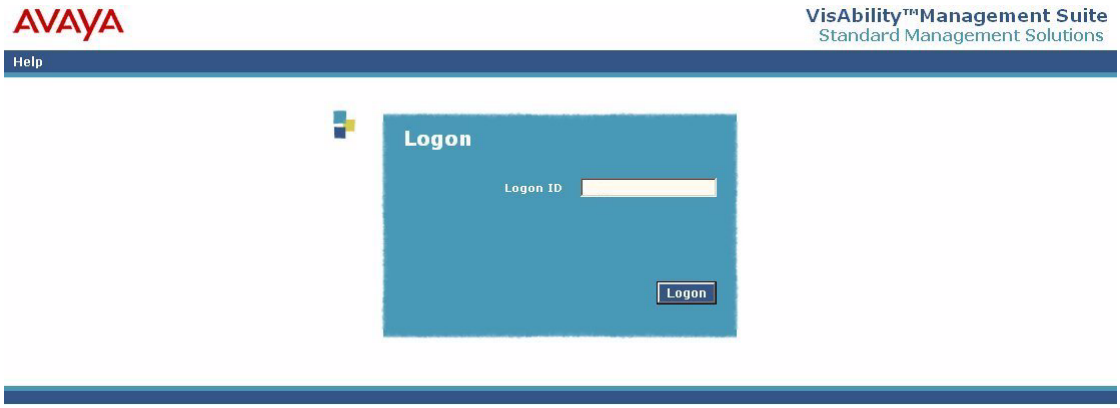
Connecting the USB modem

If your installation includes an S8300 Media Server module, you need to connect the USB modem to the S8300. After the G350 is configured, you can leave the modem permanently connected to enable the S8300 to report alarms to remote locations.

To connect and enable the modem:

1. Connect the USB modem to a working telephone line.
2. Connect the modem to one of the USB ports on the S8300 module.
3. Connect the laptop computer to the Services port on the S8300 module.
4. Configure the network settings on the laptop to the following settings:
   - *TCP/IP properties.* Set the laptop's TCP/IP properties as follows:
     - IP address: **192.11.13.5**
     - Subnet mask: **255.255.255.252**
     - DNS Configuration: **Disable DNS**
   - *Browser settings.* Configure the browser for a direct connection to the Internet. Do *not* use proxies.

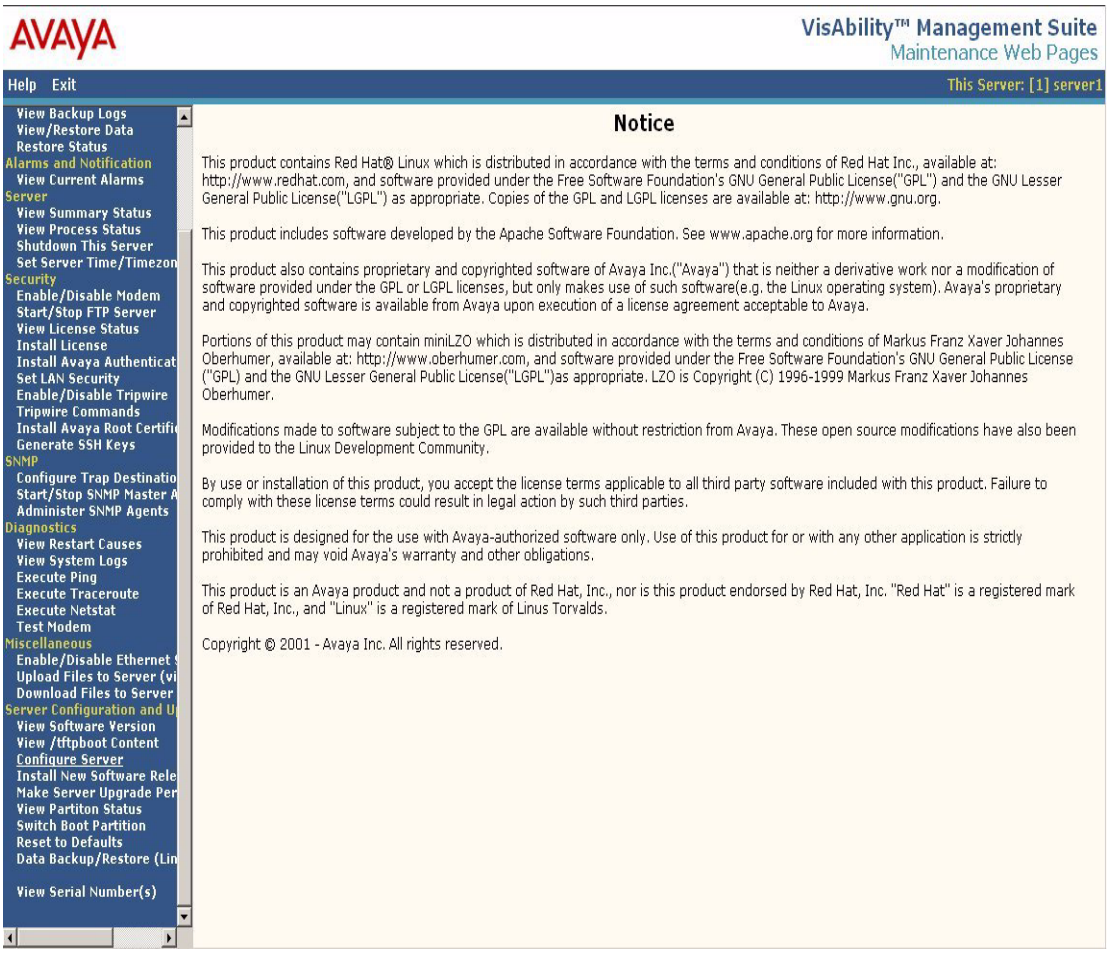
   The names of the dialog boxes and buttons vary on different operating systems and browser releases. Use your computer's help system if needed to locate the correct place to enter this information.
5. Enable the modem as follows:
   a. Open the browser on the laptop.
   b. Browse to 192.11.13.6. The Avaya web pages logon screen appears.



   c. Enter your S8300 initial entry username in the Logon ID box.
   d. Press OK. A Password box appears.
   e. Enter your password in the password box.

f Press Logon. The following menu appears:

g Select Launch Maintenance Web Interface. The following screen appears, with the menu in the left panel:



h Under the Security heading in the left panel, select Enable/Disable Modem. The Enable/Disable Modem

i Select Enable modem for unlimited incoming calls.

The modem is now connected and enabled.

Step 2: Assist the configuration

The configuration may be done in any of the following ways:

- **Remotely**: both your telephone and data services are configured by a remote technician.
- **On-site**: a technician comes to your site and configures both your telephone and data services on-site.
- **Combined**: a technician comes to your site to configure your telephone services. A remote technician configures your data services.
- **Off-site**: a technician configures the G350 before you bring it to the customer site.

The sections below describe how you will need to assist in each type of configuration.

Assisting a remote configuration

Connect the endpoint devices to the G350 while the supporting technicians perform the configurations. Keep in contact with the supporting technician to tell the supporting technician which devices you connect to which ports. The supporting technician will need the devices connected in order to test all the endpoints.

The remote supporting technician will use your modem connection to access the G350 and perform all configuration tasks. Note the number of the telephone line to which you connect the modem, so that you can provide the number to the technician.

Certain software upgrades may need to be done by you on-site using your CD-ROM drive. In the event of a network disconnection, the supporting technician could ask you to use your laptop to restore the connection.

Assisting an on-site configuration

Connect the endpoint devices to the G350 while the supporting technician performs the configuration. As you connect devices to the G350, tell the supporting technician which devices are connected to which ports. The supporting technician will need the devices connected in order to test all the endpoints.

The on-site supporting technician may use your laptop computer to configure your telephone services.

Assisting a combined remote and on-site configuration

Connect the endpoint devices to the G350 while the supporting technicians perform the configurations. As you connect devices to the G350, tell the supporting technicians which devices are connected to which ports. The supporting technicians will need the devices connected in order to test all the endpoints.

The remote supporting technician will use your modem connection to access the G350 and configure your data services. Note the telephone number of the line to which you connect the modem, so that you can provide the number to the technician.

The on-site supporting technician may use your laptop computer to configure your telephone services.

Assisting an off-site configuration (staging)

The supporting technician will need to connect some devices to test endpoints. Do not connect endpoint devices unless the supporting technician requests you to do so.

4 Connecting devices

This chapter describes how to connect all external endpoint devices to the G350. Devices can be connected to the ports on the front panels of the installed media modules and to the fixed front panel ports.

Before you connect endpoint devices, the G350 should be mounted, all media modules should be inserted.

Perform the following steps in order, skipping any devices that you are not installing:

- Step 1: Connect the network
- Step 2: Connect IP telephones
- Step 3: Connect non-IP telephones and trunks
- Step 4: Install circuit protection
- Step 5: Connect to the Wide Area Network (WAN)
- Step 6: Install the Coupled Bonding Conductor
- Step 7: Install the Avaya Partner Contact Closure Adjunct

The steps are described in the sections below.

As you connect devices, keep a record of the slots and ports into which specific devices are connected. You will need to provide this information to the technician who configures the G350. If your planning documentation specifies which devices should be connected to which ports, follow those instructions.

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 conductors de télécommmunications 26 AWG ou de section supérieure.

Step 1: Connect the network

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.

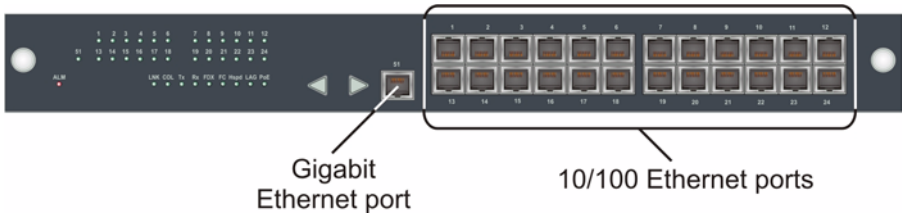
If you have an MM314 media module installed, note that:

- 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 7: The MM314 media module



Step 2: Connect IP telephones

This section describes how to connect IP telephones to the G350.

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 port.
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.

Step 3: Connect non-IP telephones and trunks

This section describes how to connect analog and DCP telephones and analog and T1/E1 trunks to the G350.

Connecting an analog telephone

This section explains how to connect an analog telephone.

To connect an analog telephone:

1. Wire a telephone port to one of the following analog ports:
   - An analog telephone port on an MM711 or MM714 media module.
   - One of the two fixed LINE ports on the G350 front panel.
2. Plug the analog telephone into the telephone port.

NOTE:
The leftmost LINE analog telephone port on the G350 front panel forms a mechanical analog relay with the TRUNK 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.

Figure 8: The MM711 media module

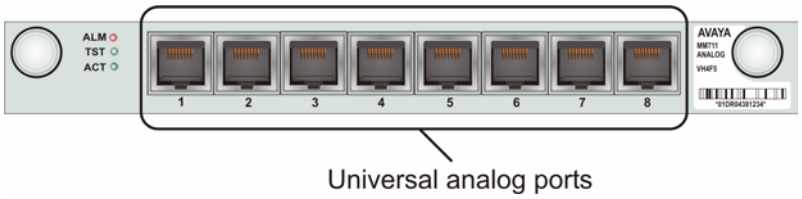
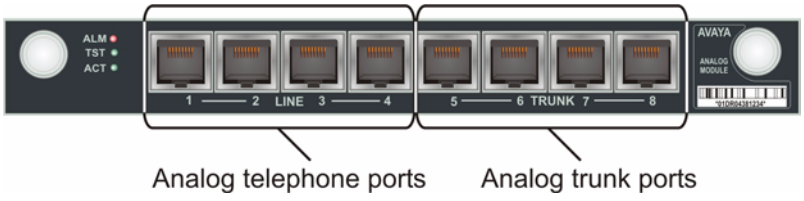


Figure 9: The MM714 media module



Connecting a DCP telephone

This section explains how to connect a DCP telephone.

WARNING:

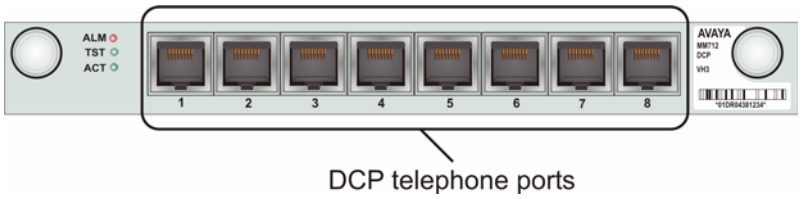
The ports on the DCP media modules are intended for in-building use only. Phone lines connected to these ports are not to be routed out-of-building. Failure to comply with this could cause harm to personnel and equipment.

To connect a DCP telephone:

1. Wire a telephone port to a DCP port on the G350. The following media modules provide DCP telephone ports:
   - MM312 — 24 DCP ports.
   - MM712 — 8 DCP ports.
2. Plug the DCP telephone into the telephone port.

Figure 10: The MM312 media module

Figure 11: The MM712 media module



Connecting an analog trunk

To connect an analog trunk:

1 Connect the trunk to one of the following ports:

— An analog trunk port on an MM711 or MM714 media module.

— The TRUNK port on the G350 front panel.

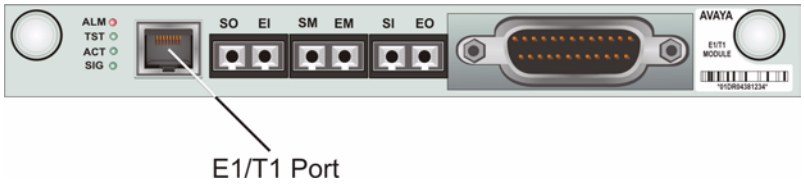
NOTE:
The TRUNK analog telephone port on the G350 front panel forms a mechanical analog relay with the LINE port next to it. This relay can be configured to provide emergency transferred telephone service in the case of a power outage or disconnection from an external media server. The TRUNK port is 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.

Connecting an E1/T1 trunk

To connect an E1/T1 trunk:

1 Connect the trunk cable to the E1/T1 port on an MM710 media module. The SIG LED lights.

Figure 12: The MM710 media module



Connecting an ISDN BRI trunk

To connect an ISDN BRI trunk:

1 Connect the trunk to any ISDN port on an MM720 or MM722 media module.

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 13: The MM720 media module

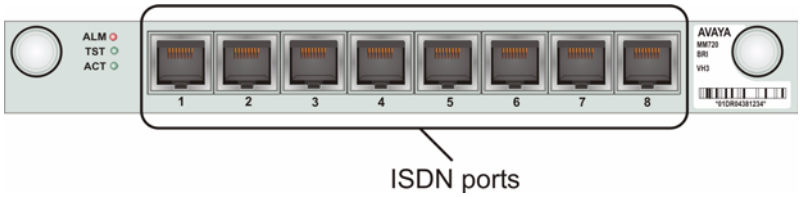
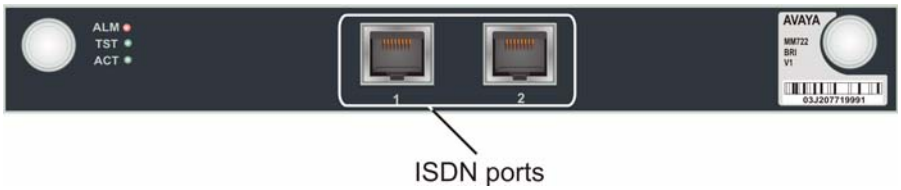


Figure 14: The MM722 media module



Step 4: Install circuit protection

Over-voltage and sneak fuse protection measures are necessary for the safe operation of the G350 Media Gateway system.

Over-Voltage and Sneak-Current Protection

Out-of-building installations of telephones or other standard (tip/ring) devices/terminals that connect to the Avaya G350 Media Gateway 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. 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 are to install these circuit protection devices.

Step 5: Connect to the Wide Area Network (WAN)

Since the G350 contains an internal router, you can connect the G350 directly to a WAN endpoint device. You can also connect a WAN endpoint device to the G350 via an external router.

Connecting the G350 to the WAN

To connect the WAN to the G350:

1 Connect the WAN endpoint device to one of the following WAN ports on the G350:

— The ETH WAN port on the G350 front panel.

Use a CAT5 Ethernet cable for this connnection.

— The USP port on an MM342 media module.

Use one of the following cables for this connection, depending on the protocol being used:

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

— The E1/T1 port on an MM340 media module.

Use an unshielded twisted pair cable, straight or crossover, depending on what equipment you are connecting to.

Check that the green LED lights on the ETH WAN port or that the CON LED lights on the MM342 or MM340 module.

2 If you are using an MM340 or MM342 module, tell the supporting technician that the module is now ready to configure.

NOTE:
To connect a VPN or DSL modem, use the ETH WAN port on the G350 front panel.

Figure 15: The MM340 media module

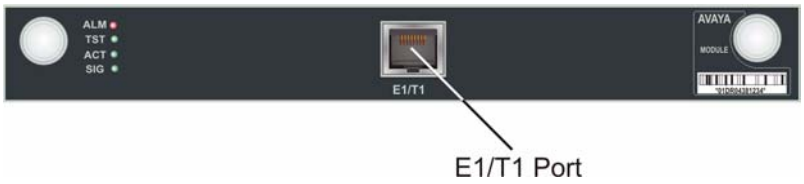
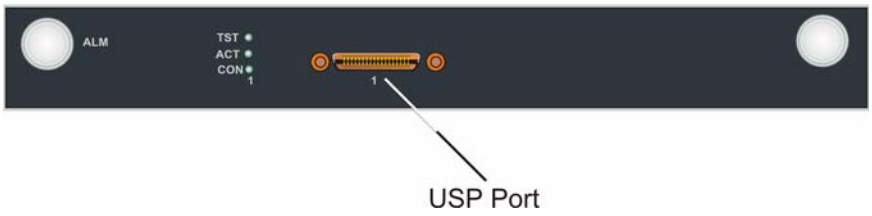


Figure 16: The MM342 media module



Connecting an external router to the G350

You can connect a router to any of the following ports on the G350:

- the ETH WAN port on the G350 front panel.
- 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.

Step 6: Install the Coupled Bonding Conductor

The Coupled Bonding Conductor (CBC) provides mutual inductance coupling between the CBC and the telephone cables that are exposed to lightning. The conductor can be a 10 AWG (4 mm^2) wire tie wrapped to the exposed cables, a metal cable shield around the exposed cables, or six spare pairs from the exposed cable. In a high-rise building, connect the CBC to an approved building ground on each floor.

Before you begin, be sure the telephone lines are cross-connected to the appropriate media module(s).

To install the CBC

1. Connect one end of the conductor to a telephone cable building entrance protector ground that is connected to an approved ground.
2. Route the rest of the conductor next to the exposed telephone cables being protected until they reach the cross-connect nearest to the telephone system.
3. Terminate the other end to the single-point ground block provided for the telephone system.

NOTE:
Position the non-exposed telephone cables at least 12 in. (30.5 cm) away from exposed telephone cables whenever possible.

Step 7: Install the 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.

5 After installation

When the supporting technician has finished the remote configuration, perform the following steps:

- Step 1: Test the installation
- Step 2: Remove the installation equipment

These steps are described below.

Step 1: Test the installation

When the installation is complete, simple tests must be performed to test telephone and data connectivity. The supporting technician will test your remote data connectivity for you.

Test local data connectivity on-site by checking that you can send an email between two PCs that are connected to the G350.

You should test telephone connectivity from the site yourself. To test telephone connectivity, perform the following tests:

- Test each telephone
- Test each trunk
- Perform Local Survivable Processor (LSP) Failover test if you have an S8300 installed as an LSP.

Testing telephones

To test a telephone:

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.

Testing trunks

To test a trunk:

1. Make outgoing calls from the trunk. Ask the service center technician 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. Make a call to the trunk.

LSP failover testing

If you have an S8300 media server module installed in the G350 and configured as an LSP, you need to perform a test to make sure that the LSP takes over control of the G350 if the G350 becomes disconnected from the remote media server. Work with the supporting technician to perform this test. The test involves disconnecting from the remote media server and testing the telephones connected to the G350.

Step 2: Remove the installation equipment

Remove all equipment that you used to assist you in the installation process. This may include:

- The CD-ROM drive.
- The software upgrade CDs.
- The laptop computer.
- The modem (for installations without an S8300 module only).

> **NOTE:**
> If you have an S8300 media server module installed in the G350, leave the modem connected to enable reporting of alarms to remote locations.

The installation is now complete.

A Technical specifications

This appendix provides technical specifications for the G350 and for compatible power cords.

G350 Media Gateway specifications

The table of technical specifications provides detailed information on the physical dimensions and tolerances of the G350 Media Gateway.

Table 2: G350 Media Gateway specifications

Description	Value
Height	5.25 in. (133.3 mm)
Width	19 in. (482.6 mm)
Depth	15.75 in. (400 mm)
Weight of empty chassis	9-10 kg
Ambient working temperature	0-40°C
Operation altitude	up to 2000 m
Front Clearance	12 in. (30 cm)
Rear Clearance	18 in. (45 cm)
Humidity	20-60% relative humidity

Power Cord Specifications

Following are specifications for power cords suitable for use with the G350:

For North America: The cordset must be UL Listed/CSA Certified, 16 AWG, 3-conductor (3rd wire ground), type SJT. One end is to be terminated to an IEC 60320, sheet C13 type connector rated 10A, 250V. The other end is to be terminated to either a NEMA 5-15P attachment plug for nominal 125V applications or a NEMA 6-15P attachment plug for nominal 250V applications.

For Outside North America: The cord must be VDE Certified or Harmonized (HAR), rated 250V, 3-conductor (3rd wire ground), 1.0 mm2 minimum conductor size. The cord is to be terminated at one end to a VDE Certified/CE Marked IEC 60320, sheet C13 type connector rated 10A, 250V and the other end to a 3-conductor grounding type attachment plug rated at a minimum of 10A, 250V and a configuration specific for the region/country in which it will be used. The attachment plug must bear the safety agency certifications mark(s) for the region/country of installation.

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