Installing and Upgrading the Avaya G350 Media Gateway

03-300394
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About this book

Overview

Installing and Upgrading the Avaya G350 Media Gateway describes how to:

- Physically install the Avaya G350 Media Gateway
- Establish remote connectivity to the G350 via a modem
- Perform a basic initial configuration of the G350
- Upgrade G350 hardware and firmware
- Upgrade software for an Avaya S8300 Media Server installed in a G350
- Upgrade IP telephone configuration

Audience

This book is intended for the following audiences:

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

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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.

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.

ELECTROSTATIC ALERT:

An ESD warning calls attention to situations that can result in ESD damage to electronic components.

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 for the Avaya G250 and Avaya G350 Media Gateways	03-300435
Quick Start for Hardware Installation: The Avaya G350 Media Gateway	03-300148
Administration for the Avaya G250 and Avaya G350 Media Gateways	03-300436
Avaya G250 and Avaya G350 CLI Reference	03-300437
Maintenance for the Avaya G250 and Avaya G350 Media Gateways	03-300438

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For help with:

- Feature administration and system applications, call the Avaya Technical Consulting Support System at 1-800-225-7585
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- Toll fraud, call Avaya Toll Fraud Intervention at 1-800-643-2353

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Ensure that you mention the name and number of this book, *Installing and Upgrading the Avaya G350 Media Gateway, 03-300394*.

Chapter 1: Introduction

This guide explains how to install and upgrade the Avaya G350 Media Gateway and contains the following chapters:

- Chapter 2: Before you install. Describes how to prepare for an installation of the G350.
- Chapter 3: Installing the Avaya G350 Media Gateway. Describes how to install the G350 chassis and media modules, install ground conductors, and connect power to the G350.
- Chapter 4: Connecting devices. Describes how to connect data and voice devices to the G350.
- Chapter 5: Connecting and enabling a modem for remote access. Describes how to connect a modem to the G350 to enable remote access.
- Chapter 6: Configuring the G350. Describes how to configure the G350.
- Chapter 7: After installation. Describes how to test an installation of the G350.
- Chapter 8: Upgrading media modules and devices. Describes how to add media modules and devices to a G350 that is already installed.
- Chapter 9: Upgrading the Avaya Communication Manager software. Describes how to upgrade the Avaya Communication Manager software that runs on the S8300 media server.
- Chapter 10: Upgrading the G350 firmware. Describes how to upgrade the G350 firmware.
- Chapter 11: Upgrading IP phone configuration and firmware files. Describes how to upgrade software and firmware on IP phones.
- Chapter 12: Troubleshooting. Provides basic troubleshooting information.
- Appendix A: Front panel description. Describes the G350 chassis front panel.
- Appendix B: Technical specifications. Provides the technical specifications of the G350.
- Appendix C: Running the Avaya Installation Wizard (Avaya IW). Describes the Avaya Installation Wizard, which configures a G350 with an S8300.
- Appendix D: Running the Gateway Installation Wizard (GIW). Describes the Gateway Installation Wizard, which configures a G350 without an S8300.

Chapter 2: Before you install

Read this chapter carefully before you begin the installation. If you are installing the G350 at a customer site, read this chapter before going to the customer site.

This chapter includes:

Before going to the site

Before going to the site, work through the following sections to prepare required information and equipment.

Read the planning documentation

Before you begin the installation, read the planning documentation.

The planning documentation provides you with information about:

- Whether an S8300 Media Server module is included in the installation. The process of installing the G350 is different depending on whether or not an S8300 is included.
- 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.

Prepare 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, if needed, for verbal communication during remote configuration

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

- A crosspoint screwdriver if rack mounting or wall mounting the G350
- If you will mount the G350 on a flat wall: screws to fasten the G350 to the wall
- If you will mount the G350 on a non-flat wall:
  - A 415 x 465 mm plywood board (US: 3/4 inch plywood), 20 mm (0.79 in) thick
  - Wood screws to fasten the G350 to the 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 only supported USB modem is the Multitech MultiModemUSB MT5634ZBA-USB-V92.
- One USB CD-ROM drive.
- A laptop computer with MS Internet Explorer.

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 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 G350 supports the Multitech MultiModemZBA MT5634ZBA-V-V92 serial modem and the Multitech MultiModemUSB MT5634ZBA-USB-V92 USB modem.

Obtain the G350 serial number

You will need the serial number for the G350 to create the customer’s license file. To get this number, look for the serial number sticker on the back of the G350 chassis. If the unit is delivered directly to the customer and you will not have phone or LAN line access from the customer site to access the rfa.avaya.com web site, this task will require a preliminary trip to the customer site.

Obtain RFA access

Obtain a personal Single Sign-On (SSO) for Remote Feature Activation (RFA) web site authentication login before going to the site for installation. You must complete the authentication process before you can be assigned an SSO authentication login.

As a first-time user:

- Business Partners should point their browsers to the Business Partner portal option sales_market, services-voice, training tools and procedures to select RFA (or go directly to: http://rfa.avaya.com).
- Associates should point their browsers to the Avaya Associate portal (or go directly to http://rfa.avaya.com).
- Contractors should point their browsers to Avaya.com (or go directly to http://rfa.avaya.com).

From that point, log into SSO and complete the process to obtain your personal login.

Check license file and Avaya Communication Manager versions for a Local Survivable Processor (LSP)

If you are installing an S8300 as a Local Survivable Processor (LSP), the license file for the S8300 must have a feature set that is equal to or greater than that of the media server that acts as primary controller (an S8300, S8400, S8710, S8720, S8500, or S8700). This is necessary so that if control passes to the LSP, it can allow the same level of call processing as that of the primary controller.

Additionally, the LSP must have a version of Avaya Communication Manager (CM) that is identical to that of the primary controller.

The license file requirements of the LSP should be identified in your planning documentation.

Check license file for VPN

If you are installing VPN, obtain a VPN license file from RFA.

Download license and authentication files to your laptop

To download the customer's license and authentication files to your laptop:

1. Use Windows File Explorer or another file management program to create a directory on your laptop for storing license and authentication files (for example, C:\licenses).
2. Access the Internet from your laptop and go to rfa.avaya.com.
3. Use the System ID or the SAP ID of the customer to locate the license and authentication files for the customer.
4. Check that the license and authentication files are complete.
5. If the files are not complete, complete them. You might need to add the serial number of the customer's G350. See Obtain the G350 serial number on page 20. If any other information is missing, contact your project manager.
6. Use the download or e-mail capabilities of the RFA web site to download the license and authentication files to your laptop.

Run the Automatic Registration Tool (ART) for the RAS IP address

Note:

ART is available only to Avaya associates. Business Partners call 800-295-0099.

The ART tool is a software tool that generates a remote access (RAS) IP address and password, for accessing a product attached to a customer's modem. This IP address is required for configuring remote access to a modem on the S8300 or G350. If you need to configure remote access to both the G350 and the S8300, follow this procedure twice, once for the G350 and once for the S8300.

Note:

You must generate a license and authentication file before you use the ART tool. In addition, the ART process is available *only* to Avaya personnel. You need an ART user name and password, which you can set up at the ART web site. Non-Avaya personnel must contact their service support or customer care center for INADS addresses, if required.

To obtain the RAS IP address and password:

1. Access the ART web site on your laptop at http://art.dr.avaya.com.
2. From the User menu, select **Administer an S8x00, G350, CCS, CVLAN, or ASG Guard II**. The Enter Network Password dialog box appears.
3. Enter your ART user name and password.

4. Click **OK**. The **Start of Installation script & IP Addr Admin** screen appears.
5. In the FL Number field, enter the customer's FL number.
6. In the Session Type field, select **Installation Script Administration**.
7. In the Product Type field, select **G350 MEDIA GATEWAY** if you want to configure remote access for the G350, or **S8300 MEDIA SERVER** if you want to configure remote access for the S8300.
8. In the INADS field, enter the number of the telephone line to which you will connect the modem.
9. Click **Start Installation script & IP Addr Admin**. ART validates your input and the Customer Validation screen appears.
10. Read the customer information displayed, to check that it is correct.
11. In the Customer Type field, select **Other**.
12. Click **Continue Installation Script Administration**. A product list appears.
13. Click the number of the product for which you are configuring remote access. The G350 MEDIA GATEWAY Installation Script Administration Data screen appears.
14. In the Product Name field, enter the product name.
15. In the INADS Number field, make sure the correct customer provided dial-in number for the G350 Media Gateway appears.
16. Click **Continue Installation Script Administration**. ART generates the RAS IP address and password (CHAP secret key) and generates an installation script for the product. Keep the RAS IP address and password to configure your modem later.
17. Click **Download Installation Script File** to download the installation script to your laptop, or **Email Installation Script File** to have the script emailed to you.

    A script file is created and downloaded or emailed to you.

You can use the installation script to automatically set up an IP address and other alarming parameters.

If the G350 will be configured using Gateway Installation Wizard (GIW) or Avaya Installation Wizard (AIW), and you have an Electronic Planning Worksheet (EPW), enter the ART information contained in the installation script into the EPW (see Obtain the Electronic Preinstallation Worksheet (EPW) on page 24). When you run GIW, you will have the opportunity to import the EPW. The ART information will be imported along with all the other information in the EPW. Alternatively, if the G350 will be configured using the CLI, keep the installation script to run as a CLI command at the configuration stage.

Download recent firmware

Download any recently updated firmware for the G350 and media modules to your laptop. Visit the Avaya support web site to check the latest firmware image file versions against the factory installed versions in the hardware you are installing. Download any firmware image file upgrades you need from the Avaya Support Web site.

Obtain the Electronic Preinstallation Worksheet (EPW)

For greatest efficiency, obtain the Electronic Preinstallation Worksheet (EPW), which is filled in by the customer and Avaya project manager. This worksheet is an Excel spreadsheet from which Avaya configuration wizards automatically pull data to configure and install the S8300 Media Server and the G350 Media Gateway.

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 project manager 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 3: 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 B: 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 B: 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 40).

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

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 project manager. When you have verified that the site is ready for a safe installation, proceed with the installation.

Unpacking

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

- One Avaya G350 Media Gateway chassis, with the required media modules installed.
- 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 B: 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 3/8" flat head screws.
  - One 5/16" crosspoint screw.
  - One washer.
  - Four rubber feet.
- Documentation CD.
- Auto-run CD.
- Release notes.

The Avaya Partner Contact Closure adjunct box, if ordered, is packaged separately.

Before you begin the installation:

1. Unpack the G350 and accessories.

   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.

2. Check the contents of the packaging against the customer order.
3. 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.
4. Verify that all necessary elements have been received and are in good condition. If there are missing or damaged elements, contact your project manager. The planning documentation will list contact information for key personnel.

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

Chapter 3: Installing the Avaya G350 Media Gateway

This chapter describes the physical installation of the G350. Perform the following steps in the order in which they are listed:

- Step 1: Mount the G350 chassis on page 29
- Step 2: Install the media modules on page 34

  Note:

  The required media modules are usually pre-installed in the G350 chassis. If this is the case, skip this step. Read this section only if the media modules are not pre-installed, or if you want to replace modules or add new media modules.
- Step 3: Attach ground conductors on page 40
- Step 4: Connect power to the G350 on page 44

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 ways:

- 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.

Note:

Avaya has developed special hardware platforms for customers with harsh environmental conditions. These platforms have been tested to meet stringent physical and environmental requirements (i.e., shock, vibration, EMI, etc.) imposed by the United States Navy for use on their ships. The platforms make use of specialized racks and reinforcements. If you wish to obtain information about the design and implementation of such a ruggedized solution, contact the Avaya Navy Shipboard Services organization.

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 in either of the following positions:

- To each side of the front of the G350 for fastening the unit to the rack at the front
- To the middle of each side panel of the G350 for fastening the chassis to the rack at the middle

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

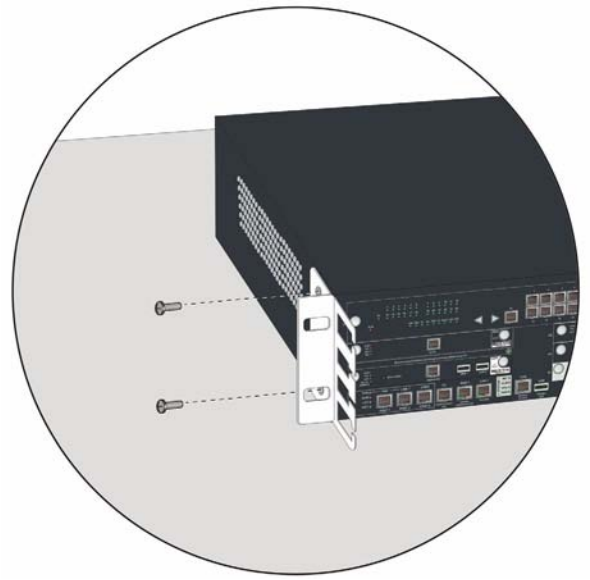
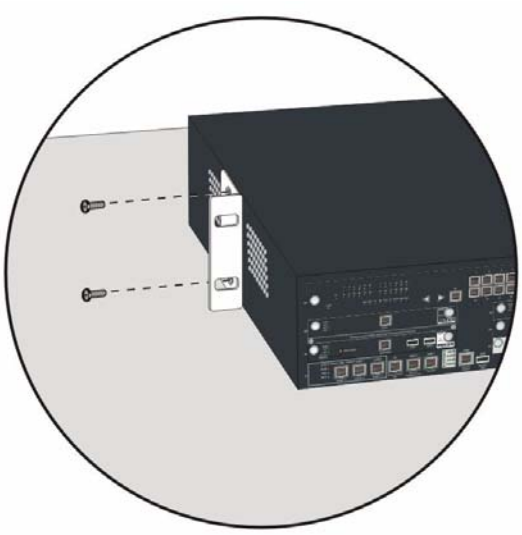


Figure 2: Attaching a mounting bracket to the middle of the G350

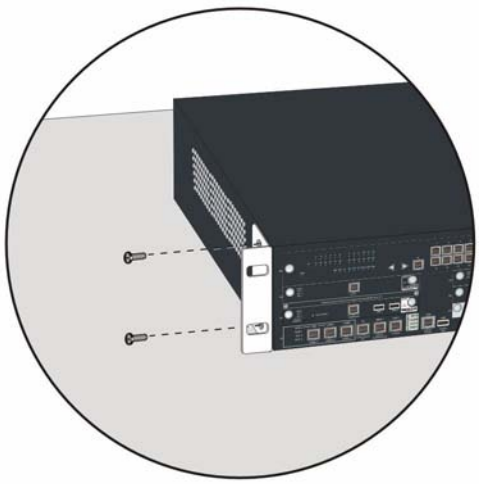


The mounting bracket with cable guides is useful for cable management. You can attach the mounting bracket with cable guides to the front of the G350 at one side, as shown in the following figure. If you are fastening the chassis to the rack at the front, use the mounting bracket with cable guides as 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.

Note:

If you are installing an MM717 or MM716 media module, attach the mounting bracket with cable guides to the right side of the rack, to support the weight of the amphenol cable you will connect to the MM717 media module. See Connecting a DCP telephone on page 52.

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 a 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.

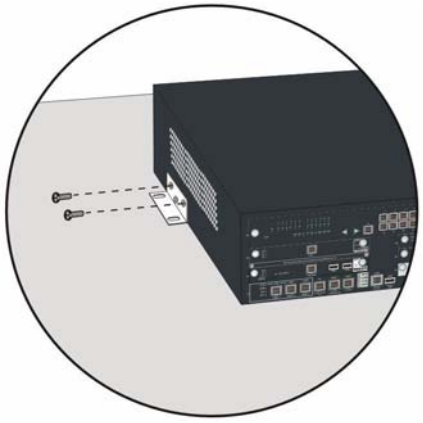
At this point, you have mounted the G350 chassis in the rack and are ready to insert media modules as required in the planning documentation.

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 attach brackets to the G350 for wall mounting:

1. Attach 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 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

Note:

The required media modules are usually pre-installed in the G350 chassis. If this is the case, skip this step. Read this section only if the media modules are not pre-installed, or if you want to replace modules or add new 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 Combination limitations.
- To allocate a permissible slot to each media module. See Allocating slots on page 35.

To install an S8300 media module, see Inserting the S8300 Media Server module on page 37.

To install each of the other media modules, see Inserting media modules on page 39.

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 limitations apply to combining media modules in the G350:

- Up to 2 MM710 E1/T1 modules
- The MM760 is not supported

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, V3, V4, V5, and V6 on the G350 front panel, shown in Figure 4 below.

Figure 4: The G350 front panel ports and slots

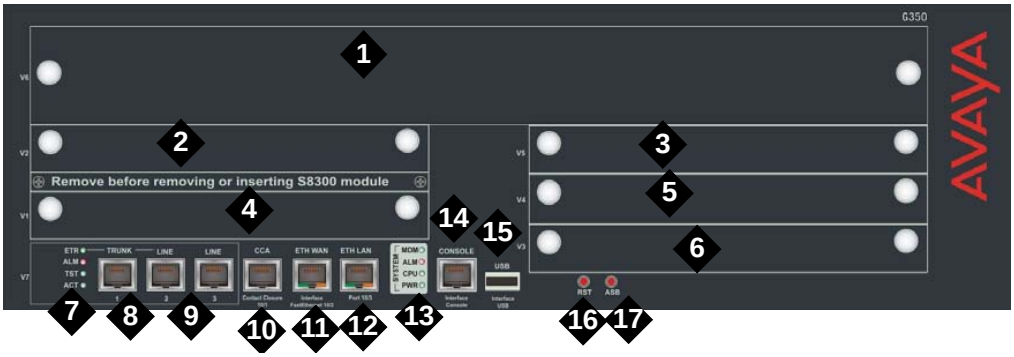


Figure notes:

1. **V6 — high-density media module slot**
2. **V2 — standard media module slot**
3. **V5 — standard media module slot**
4. **V1 — slot for standard media module or S8300 media server**
5. **V4 — standard media module slot**
6. **V3 — standard media module slot**
7. **Analog port LEDs**
8. **Analog trunk**
9. **Analog line ports**
10. **CCA (Contact Closure) port**
11. **ETH WAN port**
12. **ETH LAN port**
13. **System LEDs**
14. **Console port**
15. **USB port**
16. **RST button**
17. **ASB button**

Table 1 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 copper 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).
MM316	V6	Provides one copper Gigabit Ethernet port and 40 10/100 Ethernet ports for connecting data devices. The 40 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.
MM716	V1, V2, V3, V4, V5	Provides one amphenol connector that connects to a punch down block to provide 24 analog line ports.
MM717	V1, V2, V3, V4, V5	Provides one amphenol connector that connects to a punch down block to provide 24 ports for connecting DCP telephones.
MM720	V1, V2, V3, V4, V5	Provides eight ports for connecting up to eight ISDN trunks or 16 ISDN BRI stations.
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.

Note:

If you install an S8300 media server that has a CWY1 module in slot V1, slot V2 cannot be used.

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 an anti-static 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:

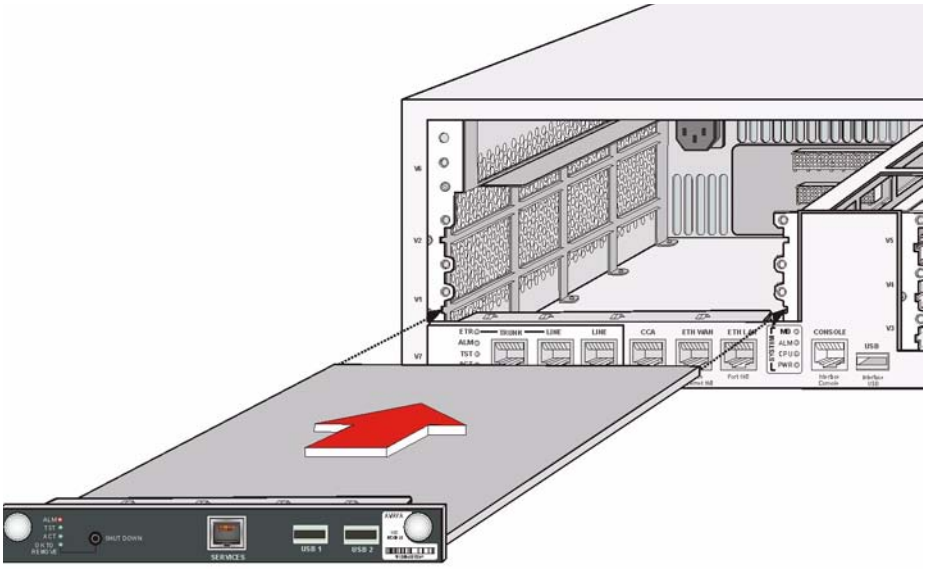
Separate ESD paths to the chassis ground connect to the media modules at the spring-loaded captive screws. Use a screwdriver to ensure the captive screws are securely tightened to prevent damage to the equipment.

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 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 35.

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.

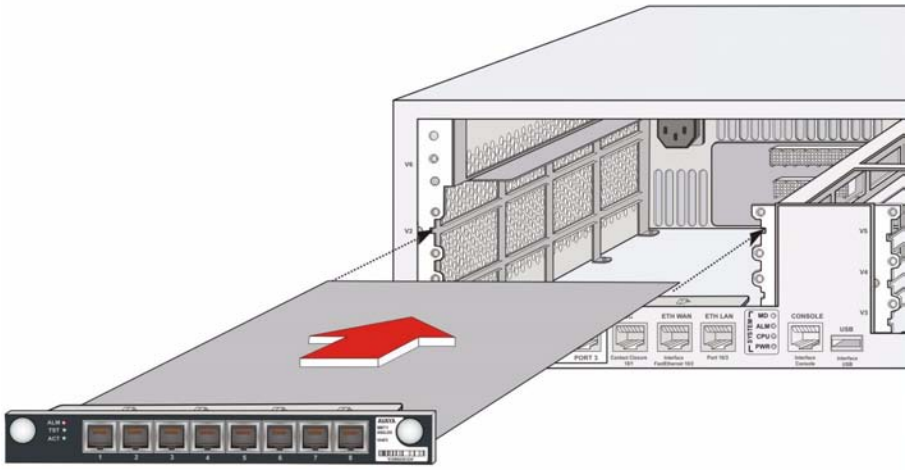
CAUTION:

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 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 2: Install circuit protection on page 56).

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, 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 on 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:

1. 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.
2. 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.
3. Cut this ground wire to the length needed to reach the approved ground. Do not coil this wire.

Note:

The ground block is provided for use with more than one G350 in the rack. It is usually mounted by the customer electrician.

If the ground block is not being used:

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, except the S8300, lights up initially and then goes off after about 20 seconds.

Chapter 4: Connecting devices

This chapter describes how to connect external endpoint devices to the G350, and install the coupled bonding conductor.

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 and all media modules should be inserted.

This chapter describes various possible ways of connecting different devices. See your planning documentation for any topology requirements to connect specific devices to specific ports. As you connect devices, keep a record of the slots and ports into which specific devices are connected. You will need this information when configuring the G350.

Perform the following steps in order:

- Step 1: Connecting data and voice devices
- Step 2: Install circuit protection on page 56
- Step 3: Connect to the Wide Area Network (WAN) on page 56
- Step 4: Install the Coupled Bonding Conductor on page 58
- Step 5: Install the Avaya Partner Contact Closure Adjunct on page 59

The steps are described in the sections below.

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: Connecting data and voice devices

The following sections describe how to connect various data and voice devices to the G350:

- Connecting a switch or a network data port on page 46
- Connecting a computer on page 47
- Connecting a server on page 48
- Connecting an IP telephone on page 49
- Connecting an ISDN BRI station on page 49

- Connecting an analog telephone on page 50
- Connecting an E1/T1 trunk on page 54
- Connecting an ISDN BRI trunk on page 54

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 copper Gigabit Ethernet port on an MM314 media module
- The copper Gigabit Ethernet port on an MM316 media module
- One of the 24 10/100 Ethernet ports on an MM314 media module
- One of the 40 10/100 Ethernet ports on an MM316 media module

Therefore, if you do not have an MM314 or MM316 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 or MM316 media module installed, note that:

- The 10/100 Ethernet ports on the MM314 or MM316 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 10/100 Ethernet ports on an MM314 or MM316 media module.

Therefore, when connecting a LAN switch:

- Prefer the ETH LAN port on the chassis front panel and the copper Gigabit Ethernet port on an MM314 or MM316 media module over the 10/100 Ethernet ports on the MM314 or MM316 media module. Reserve 10/100 Ethernet ports for devices, such as IP phones, that need to be powered through the G350.

Figure 7: The MM314 media module

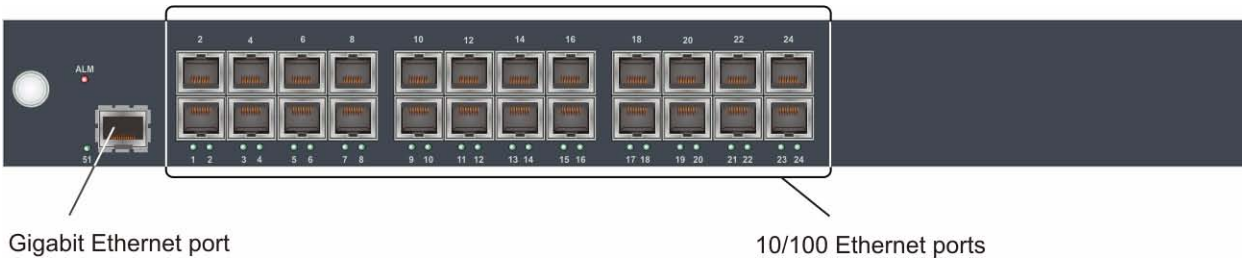
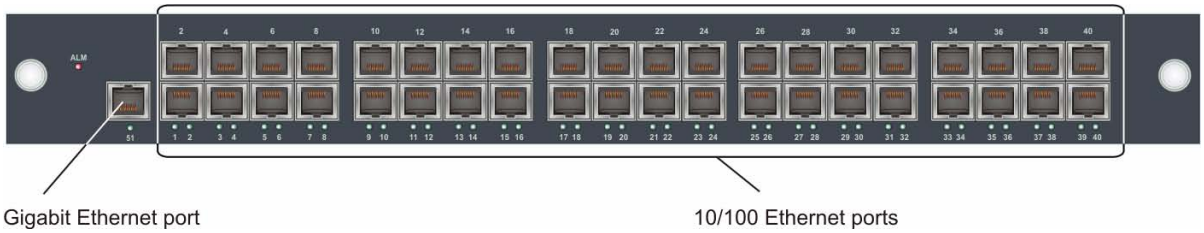


Figure 8: The MM316 media module



Connecting a computer

You can connect a computer to any of the following:

- A switch connected to the G350
- The data port of an IP telephone connected to a PoE port on the G350
- One of the following data ports on the MM314 media module, if installed:
  - 24 Ethernet 10/100 Base-T Ethernet access ports with inline Power over Ethernet (PoE)
  - The copper Gigabit port, labelled 51
- One of the following data ports on the MM316 media module, if installed:
  - 40 Ethernet 10/100 Base-T Ethernet access ports with inline Power over Ethernet (PoE)
  - The copper Gigabit port, labelled 51
- One of the following ports on the front panel of the Avaya G350 Media Gateway chassis:
  - The ETH LAN port
  - The ETH WAN port

To connect the computer to the ETH LAN, ETH WAN, MM314 ports, or MM316 ports, use a straight network cable with an RJ-45 connector or a crossover cable with an RJ-45 connector.

Connecting a server

You can connect a server to any of the following:

- A switch connected to the Avaya G350 Media Gateway
- One of the following ports on the MM314 media module, if installed:
  - 24 Ethernet 10/100 Base-T Ethernet access ports with inline Power over Ethernet (PoE)
  - The copper Gigabit port, labelled 6/51
- One of the following ports on the MM316 media module, if installed:
  - 40 Ethernet 10/100 Base-T Ethernet access ports with inline Power over Ethernet (PoE)
  - The copper Gigabit port, labelled 51
- One of the following ports on the front panel of the Avaya G350 Media Gateway chassis:
  - The ETH LAN port
  - The ETH WAN port

To connect the server to the ETH LAN, ETH WAN, MM314, or MM316 ports, use a straight network cable with an RJ-45 connector or a crossover cable with an RJ-45 connector.

Connecting an IP telephone

This section describes how to connect an IP telephone 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 or MM316 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 and check that the IP telephone is powered up.

If the IP telephone will be powered through the G350, you must use a telephone that supports PoE, and the telephone will power up if and when PoE is configured on the port to which the telephone is connected. For information about configuring PoE, see Chapter 10, *Configuring PoE*, in *Administration for the Avaya G250 and Avaya G350 Media Gateways*, 03-300436.

Note:

First generation IP phones do not support PoE.

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 an ISDN BRI station

Each ISDN port on the MM720 Media Module supports up to two ISDN BRI stations.

Note:

The MM720 BRI Media Module cannot be administered to support both BRI trunks and BRI stations at the same time. Also, the MM720 BRI Media Module does *not* support combining both B-channels together to form a 128-kbps channel. Finally, if the MM720 BRI Media Module is administered to support BRI stations, it cannot be used as a clock synchronization source.

To connect one ISDN BRI station to one ISDN port:

1. Connect the station via a standard 8-pin BRI cable to one of the ISDN ports on an MM720 Media Module.

To connect two ISDN BRI stations to one ISDN port:

1. Connect each station to an RJ-45 splitter that provides two RJ-45 4-pair jacks, and one RJ-45 male connector. See Figure 9 for the correct wiring for the splitter.
2. Connect the male connector of the splitter to one of the ISDN ports on an MM720 Media Module.

Figure 9: RJ-45 splitter wiring for connecting two ISDN BRI stations to one ISDN port

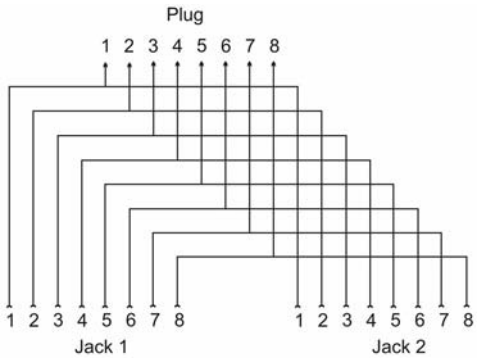
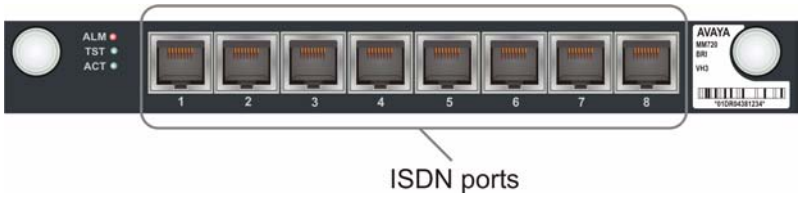


Figure 10: The MM720 media module



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:
   - A universal analog port on an MM711 media module
   - Any analog line port on a punch down block connected to an MM716 media module. To connect the MM716 media module to a punch down block to enable telephone connection, see Connecting devices to the MM717 and MM716 media modules on page 55.
   - A LINE port on an 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. See Figure 4. 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 this LINE port is usually installed for this emergency purpose. Regular analog telephones on the network are usually connected to other analog ports.

Figure 11: The MM711 media module

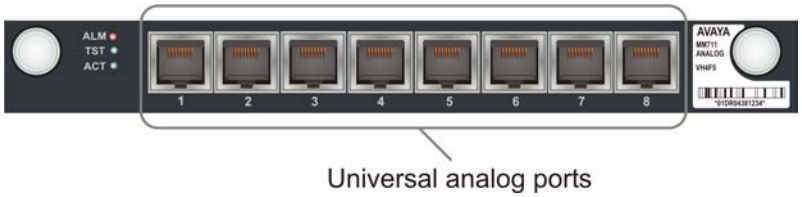


Figure 12: The MM714 media module

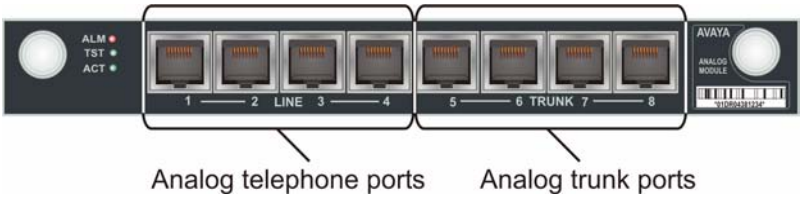
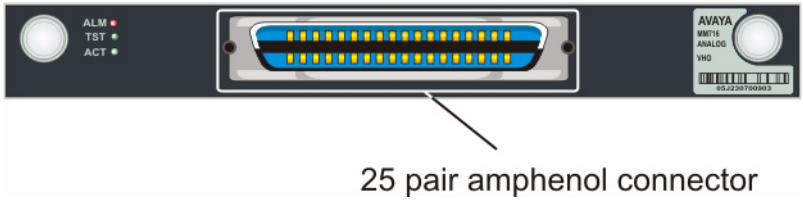


Figure 13: The MM716 media module



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 to an MM312 or MM712 media module:

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
   - MM717. 24 DCP ports, provided via a single 25-pair amphenol socket on the front panel. To connect the MM717 media module to a punch down block to enable telephone connection, see Connecting devices to the MM717 and MM716 media modules on page 55.

Figure 14: The MM312 media module

Figure 15: The MM712 media module

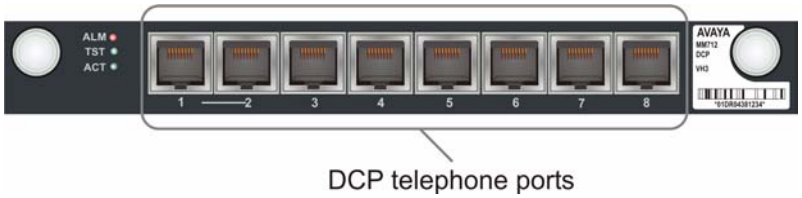
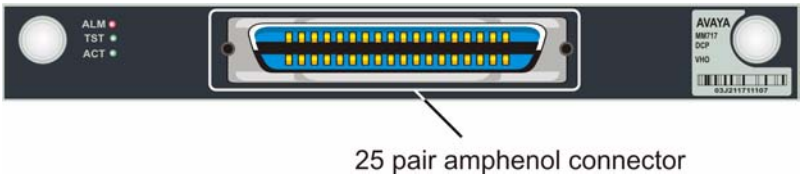


Figure 16: The MM717 media module



2. Plug the DCP telephone into the telephone port.

Connecting an analog trunk

To connect an analog trunk:

1. Connect the trunk to one of the following ports:
   - Any universal analog port on an MM711 media module
   - Any analog line port on a punch down block connected to an MM716 media module. To connect the MM716 media module to a punch down block to enable trunk connection, see Connecting devices to the MM717 and MM716 media modules on page 55.
   - One of the ports marked TRUNK on an MM714 media module

   Note:

   For an analog DID trunk, you can *not* use a TRUNK port on an MM714 media module. Instead, you must connect the trunk to one of the ports marked LINE.

   - The TRUNK port on the G350 front panel.

   Note:

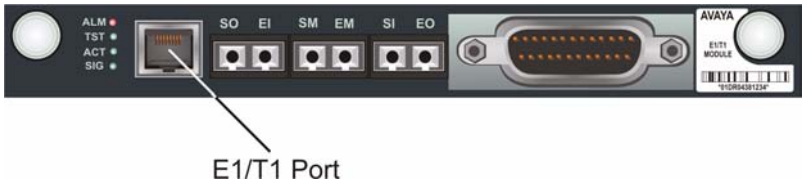
   The TRUNK analog telephone port on the G350 front panel forms a mechanical analog relay with the LINE port next to it. See Figure 4. This relay can be configured to provide emergency transferred telephone service in the case of a power outage or disconnection from an external media server. During an emergency situation, all incoming calls on the trunk are directed to the telephone plugged into the LINE port. Conversely, the telephone plugged into the LINE port can use the trunk during an emergency situation to make outgoing calls.

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 17: 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 18: The MM720 media module

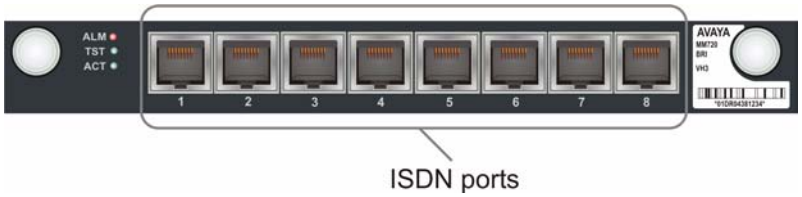
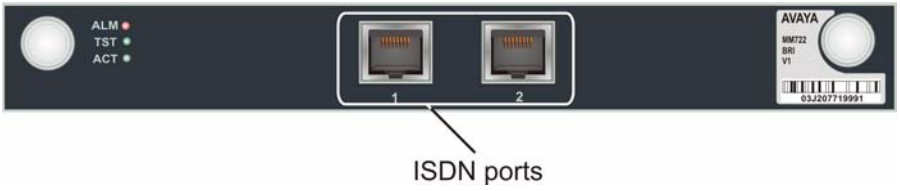


Figure 19: The MM722 media module



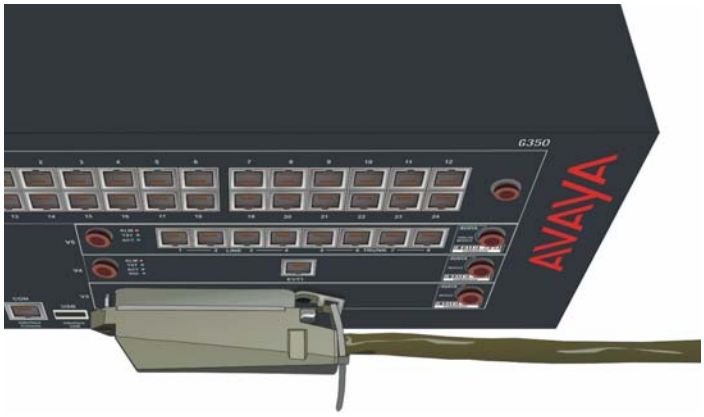
Connecting devices to the MM717 and MM716 media modules

The MM716 and MM717 media modules do not support direct connection of telephones or other endpoint devices. The MM716 and MM717 media modules each have a single 25-pair amphenol socket on the front panel, intended for use with a punch-down block. The following procedure connects the front panel connector to a punch-down block. You can terminate up to 24 endpoint devices on the connected punch-down block.

To connect the MM716 or MM717 front panel connector to a punch down block:

1. Connect one end of a CAT5 cable with a 25-pair amphenol connector at each end to the 25-pair socket on the MM716 or 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 media module is 90° to the cable.)
2. Tighten the end screw of the amphenol connector to securely fasten the connector to the left side of the front panel socket.
3. Thread a tie wrap through the small bracket to the right of the front panel socket.
4. Fasten the tie wrap around the cable to secure the cable to the right side of the front panel socket.

Figure 20: Attaching and securing the amphenol cable to the MM716 or MM717 25-pair socket



5. Connect the other end of the amphenol cable to a punch down block that converts the single amphenol connector to 24 RJ-45 or RJ-11 jacks, as needed. You can now connect endpoint devices to the RJ-45 or RJ-11 jacks. For the pin-out of the 25-pair connector, see Table 15: 25-pair amphenol connector pinout on page 139.

Step 2: Install circuit protection

Over-voltage and sneak-current 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 each of the media modules from over-voltages and sneak current protection:

- For the Avaya MM710 or MM340 T1/E1. Over-voltage and sneak protection for the Avaya MM710 T1/E1 Media Module is provided on the Media Module itself.
- For the Avaya MM711, G350 TRUNK PORT 1 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.

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.

Step 3: 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 a WAN to the G350

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:

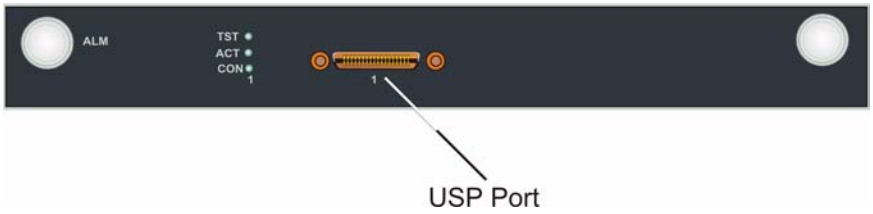
- Connecting a USP WAN link
- Connecting an E1/T1 WAN link
- Connecting an Ethernet WAN link

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

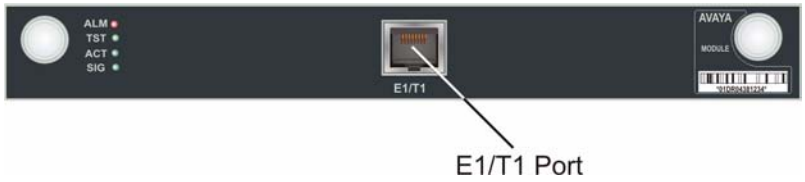
Figure 21: The MM342 media module



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 22: The MM340 media module



Connecting an Ethernet WAN link

You must connect the Ethernet WAN line (DSL, firewall, etc.) to the Ethernet WAN port on the front panel of the Avaya G350 Media Gateway chassis. This port is marked ETH WAN. See Figure 4. Use a CAT5 Ethernet cable to connect the WAN line to the port.

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 copper Gigabit Ethernet port on an MM314 media module
- The copper Gigabit Ethernet port on an MM316 media module
- One of the 24 10/100 Ethernet ports on an MM314 media module
- One of the 40 10/100 Ethernet ports on an MM316 media module

Step 4: 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 5: 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 this information for 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 four wire RJ-11 connector.

Chapter 5: Connecting and enabling a modem for remote access

This chapter describes how to connect and enable a USB or serial modem on the G350. You can connect a modem to the G350 to enable configuration from a remote location. A serial modem connected to the G350 can also be used for the modem dial backup feature, which provides a redundant connectivity with a remote primary media server. Modem dial backup allows for superior survivability than switching to a secondary media server, since more features are preserved.

If an S8300 is installed in the G350, leave a modem connected permanently to enable reporting of alarms to remote locations.

Select one of the following sections, depending on your hardware configuration:

- Connecting and enabling a modem (G350 without S8300) on page 61
- Connecting and enabling a modem (G350 with S8300) on page 73

Note:

If you choose to configure the G350 by running an installation wizard, you can enable a modem with the wizard as part of the configuration. Instructions for connecting the modem are included in Appendix C: Running the Avaya Installation Wizard (Avaya IW) on page 147 and in Appendix D: Running the Gateway Installation Wizard (GIW) on page 195. You do not need to read this chapter.

Connecting and enabling a modem (G350 without S8300)

You can either connect a serial modem to the CON port on the G350 front panel or you can connect a USB modem to the USB port on the G350 front panel. For instructions on enabling and connecting the modem, see the relevant section:

- Enabling and connecting a serial modem on page 62
- Enabling and connecting a USB modem on page 67

When you have enabled and connected the modem, test the modem connection. See Test the modem connection on page 72.

Enabling and connecting a serial modem

To enable and connect a serial 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:

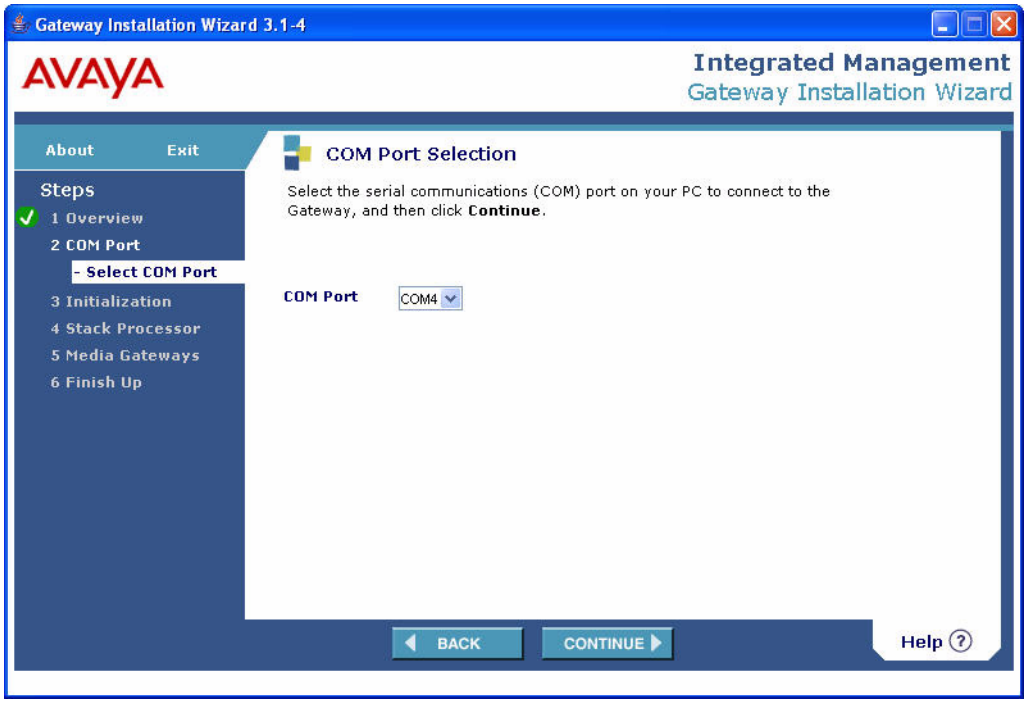
   When uploading firmware from the S8300 using TFTP, you may need to enable TFTP service in the Set LAN Security parameters of your web server.

   Note:

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

2. Download Gateway Installation Wizard (GIW) from the Avaya web site (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 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 Overview screen appears.
7. Click **Continue**. The COM Port Selection screen appears.

Figure 23: COM Port Selection screen

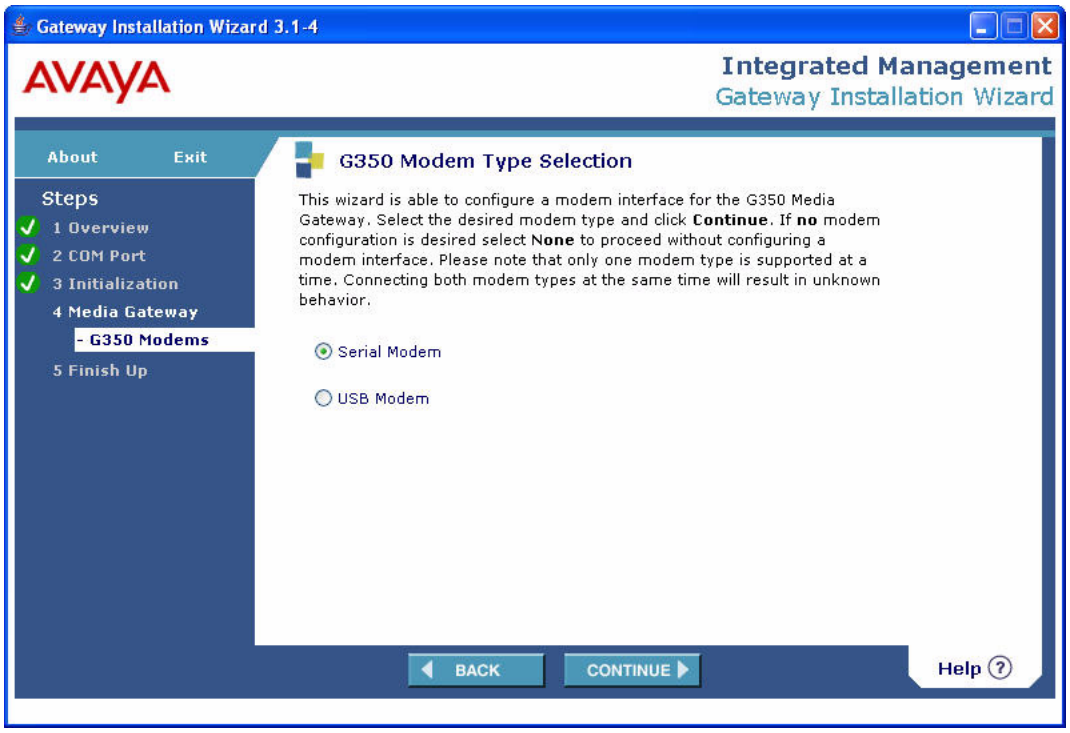


8. Select the COM port on the laptop that you are using to connect to the G350.
9. Click **Continue**. The G350 Wizard Usage Options screen appears.

Figure 24: G350 Wizard Usage Options screen

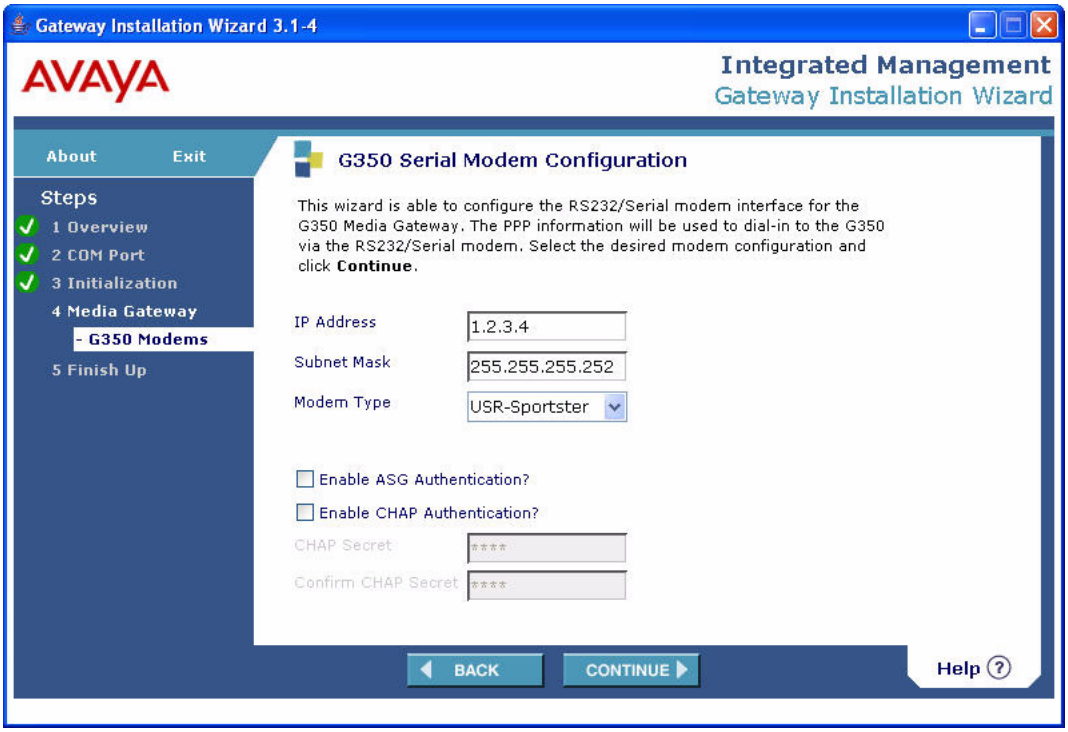
10. Select **Enable the modem for remote installation**.
11. Click **Continue**. The G350 Modem Type Selection screen appears.

Figure 25: G350 Modem Type Selection screen



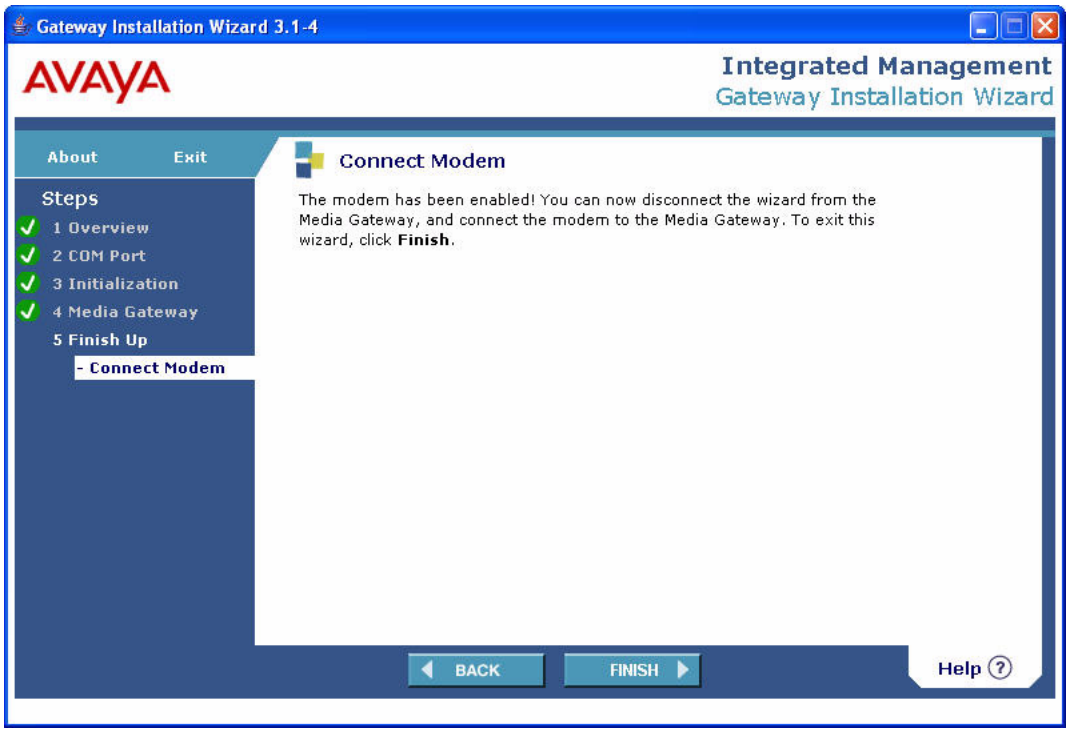
12. Select **Serial Modem**.
13. Click **Continue**. The G350 Serial Modem Configuration screen appears.

Figure 26: G350 Serial Modem Configuration screen



14. In the IP Address field, enter the RAS IP address of the modem obtained using the ART tool. See Run the Automatic Registration Tool (ART) for the RAS IP address on page 22.
15. Fill in the remaining modem information fields.
16. Check **Enable CHAP Authentication**.
17. In the CHAP Secret field, enter the CHAP secret key obtained using the ART tool. See Run the Automatic Registration Tool (ART) for the RAS IP address on page 22.
18. In the Confirm CHAP Secret field, reenter the CHAP secret key.
19. Click **Continue**. The Connect Modem screen appears.

Figure 27: Connect Modem screen



20. Click **Finish**.
21. Connect the serial modem to a working telephone line.
22. Connect the provided DB-25 adapter to the modem.
23. Disconnect the flat cable from the COM port of the laptop computer.
24. Connect the flat cable to the DB-25 connector on the modem.

Enabling and connecting a USB modem

You can enable a MultiTech MT5634ZBA-USB USB modem on the USB port on the G350 front panel.

Note:

The MultiTech model MT5634ZBA-USB USB modem is the only USB modem supported by the G350.

To enable and connect 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:

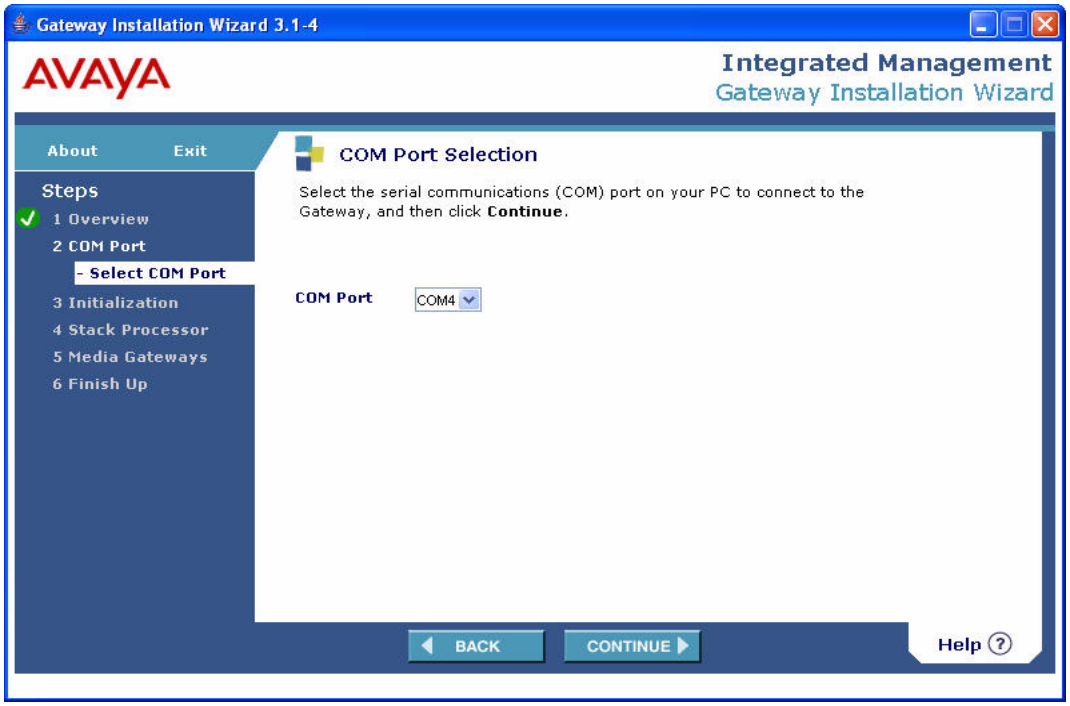
   When uploading firmware from the S8300 using TFTP, you may need to enable TFTP service in the Set LAN Security parameters of your web server.

   Note:

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

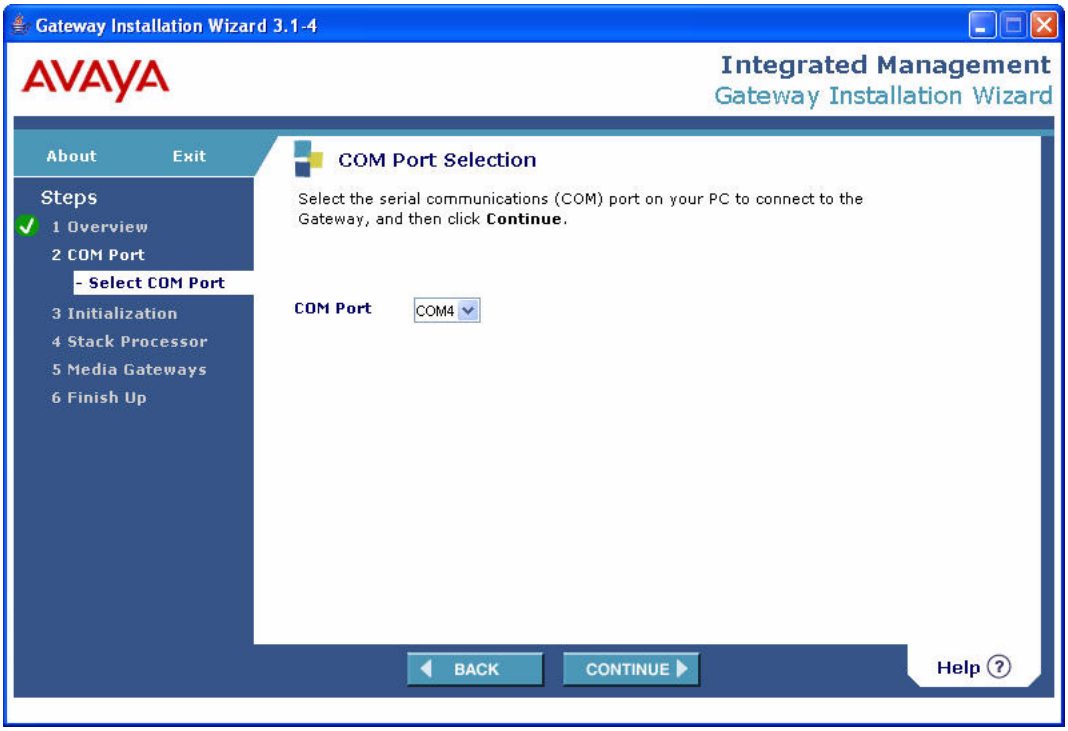
2. Download GIW (Gateway Installation Wizard) from the Avaya web site (support.avaya.com/avaygiw) to the laptop computer. The laptop should be running Windows 2000 or Windows XP to support GIW.
3. Plug one end of the provided flat RJ-45 to RJ-45 cable into the provided DB-9 adapter.
4. Plug the RJ-45 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 Overview screen appears.
7. Click **Continue**. The COM Port Selection screen appears.

Figure 28: COM Port Selection screen



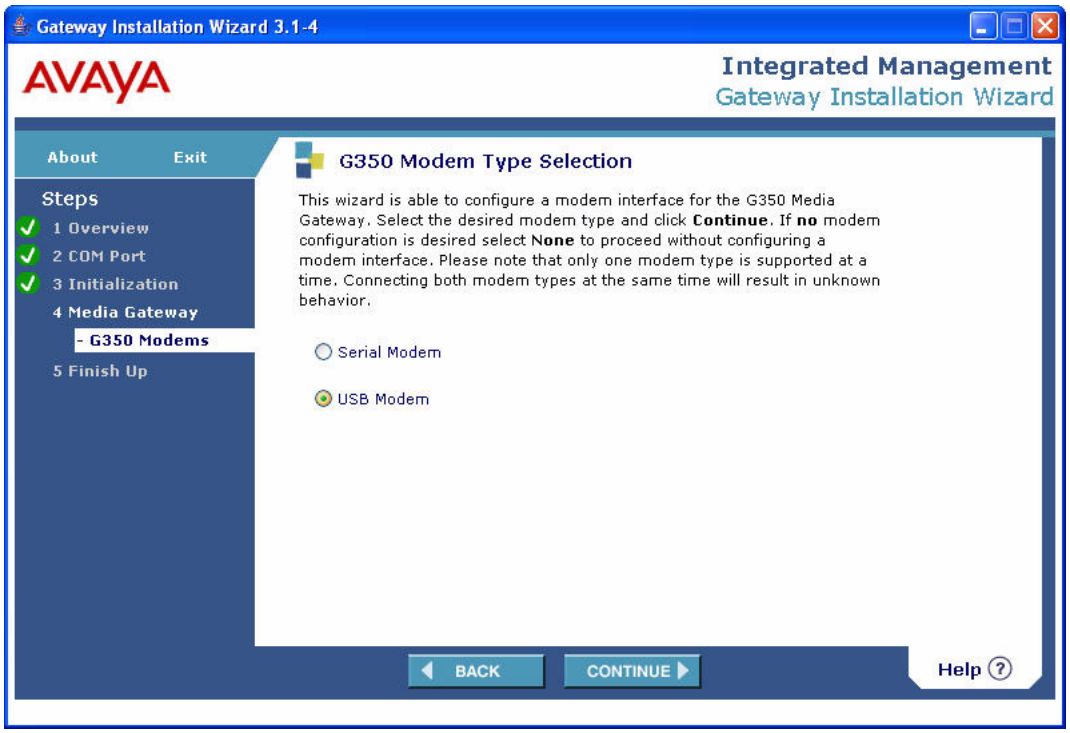
8. Select the COM port on the laptop that you are using to connect to the G350.
9. Click **Continue**. The G350 Wizard Usage Options screen appears.

Figure 29: G350 Wizard Usage Options screen



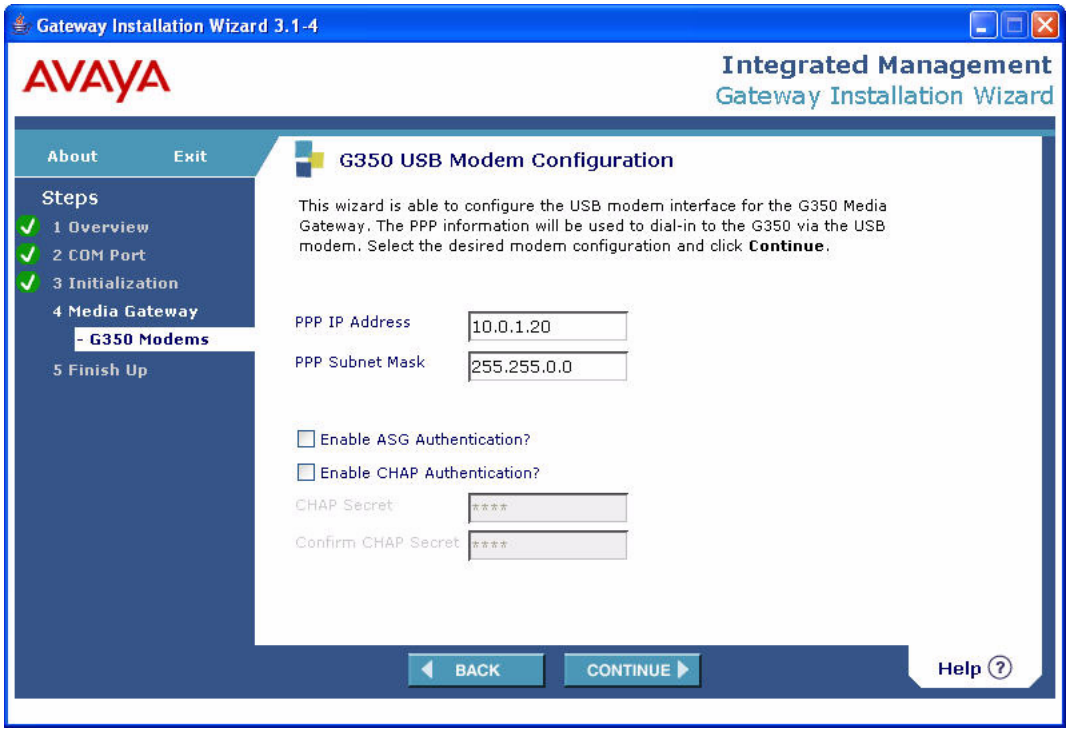
10. Select **Enable the modem for remote installation**.
11. Click **Continue**. The G350 Modem Type Selection screen appears.

Figure 30: G350 Modem Type Selection screen



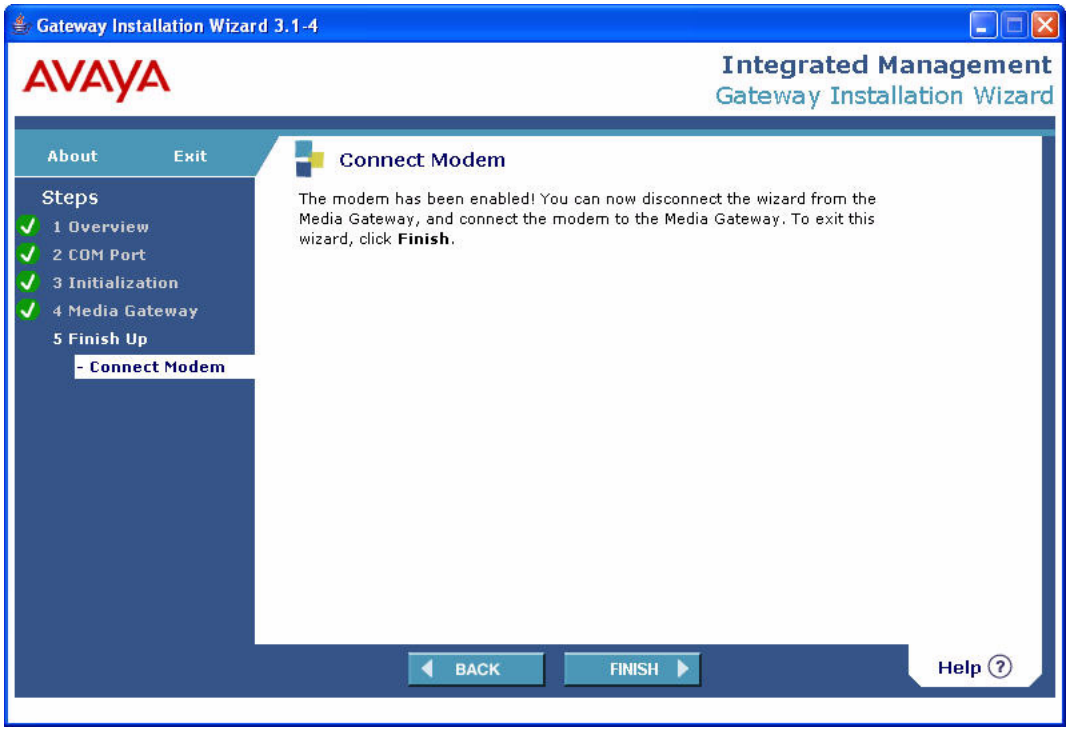
12. Select **USB Modem**.
13. Click **Continue**. The G350 USB Modem Configuration screen appears.

Figure 31: G350 USB Modem Configuration screen



14. In the PPP IP Address field, enter the RAS IP address of the modem obtained using the ART tool. See Run the Automatic Registration Tool (ART) for the RAS IP address on page 22.
15. Enter the PPP Subnet Mask.
16. Check **Enable CHAP Authentication**.
17. In the CHAP Secret field, enter the CHAP secret key obtained using the ART tool. See Run the Automatic Registration Tool (ART) for the RAS IP address on page 22.
18. In the Confirm CHAP Secret field, reenter the CHAP secret key.
19. Click **Continue**. The Connect Modem screen appears.

Figure 32: Connect Modem screen



20. Click **Finish**.
21. Connect a USB modem to a working telephone line.
22. Connect one end of a USB cable to the modem.
23. Connect the other end of the USB cable to the USB port on the G350 front panel.

Test the modem connection

Dial into the modem to verify that you can authenticate to the modem.

The G350 is now prepared for remote configuration via the modem.

Connecting and enabling a modem (G350 with S8300)

To connect and enable a modem:

1. Access the Maintenance web pages.
2. Change the modem settings on the Configure Server Maintenance web pages.
3. Connect and enable the USB modem.
4. Test the modem connection.
5. If you require 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 using Avaya Installation Wizard (AIW) via the USB modem.

Access the Maintenance web pages

Most of the preparations you are making require you to access the Maintenance web pages part of Avaya Integrated Management (AIM) from your laptop. Use this procedure to access the Maintenance web pages and leave the Maintenance web pages open until you have completed all the preparations.

To access the Maintenance web pages:

1. Connect the laptop you prepared to the Services port on the S8300. Use a standard Ethernet crossover cable.
2. Configure the network settings on the laptop, according to the following tables:

Table 2: TCP/IP settings

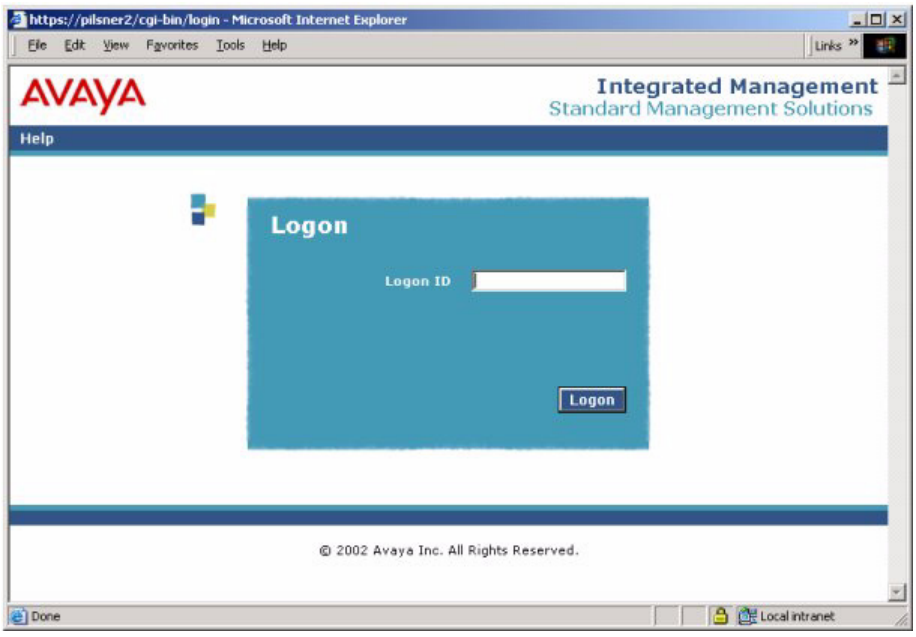
Setting	Value
IP Address	192.11.13.5
Subnet Mask	255.255.255.252
DNS	disable
WINS Servers	do not use (clear out any values)

Table 3: Internet Browser Settings

Setting	Value
Proxy Server	disable

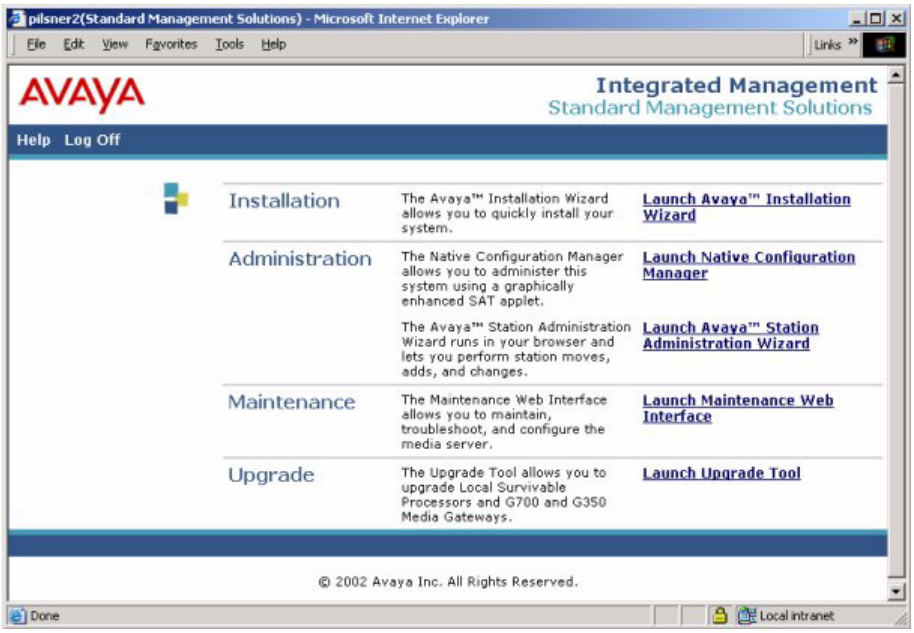
3. Open Internet Explorer, and browse to 192.11.13.6. The welcome screen for Avaya Integrated Management appears.
4. Click **Continue**. The Logon screen for Avaya Integrated Management appears.

Figure 33: Integrated Management Logon screen



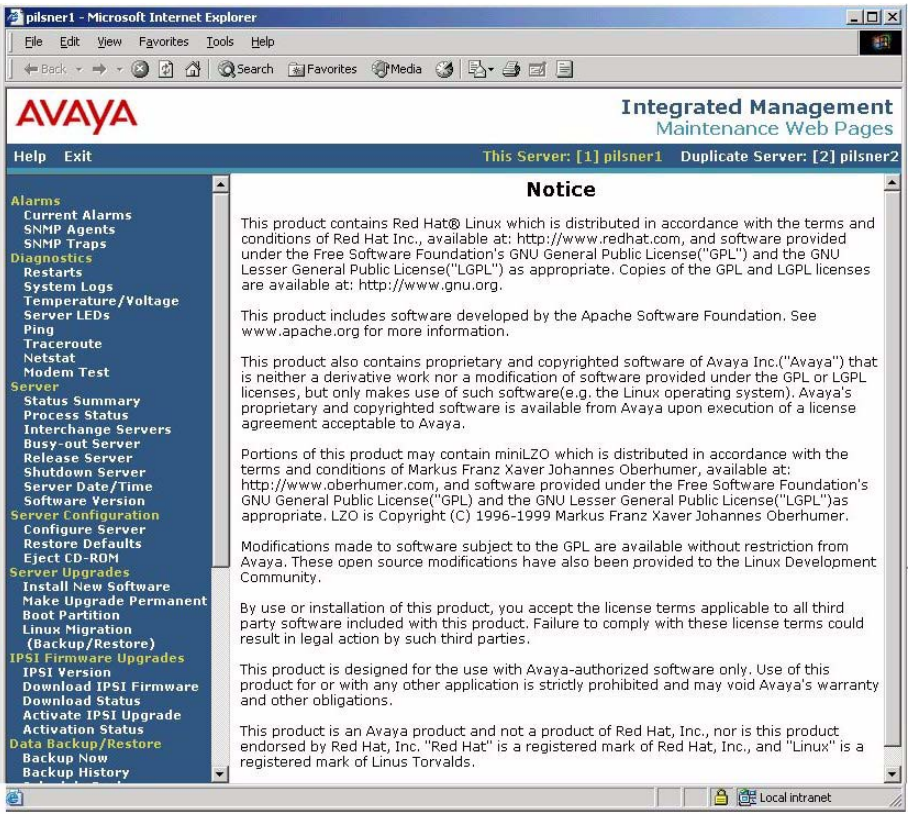
5. Enter your S8300 initial entry username in the Logon ID box.
6. Click **Logon**. The password field appears.
7. Enter your password in the password field, and click **Logon**. The main menu for Avaya Integrated Management appears.

Figure 34: Integrated Management Main Menu



8. From the Integrated Management main menu, select Launch Maintenance Web Interface. The Maintenance Web Pages Notice page appears, with a navigation menu at the left.

Figure 35: Maintenance Web Pages Notice page



9. Leave the Maintenance Web Pages open to perform the tasks described in the coming sections.

Change the modem settings on the Configure Server Maintenance web pages

If you have an Avaya Maintenance contract, change the modem settings on the Configure Server Maintenance Web Pages.

To change the modem settings:

1. Select **Configure Server** from the left-hand menu on the Maintenance web page. The Back Up Data page appears.
2. Follow the on-screen instructions to back up the current data.
3. Click **Continue**.
4. Select **Configure individual services**.
5. Click **Continue**.

6. From the left navigation menu, click **Set Modem Interface**. The Set Modem Interface page appears.
7. Enter the RAS IP address you obtained using the ART tool. See Run the Automatic Registration Tool (ART) for the RAS IP address on page 22.
8. Click **Change modem settings**.
9. Click **Continue**.
10. Click **Close Window**.

Connect and enable 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. From the navigation menu of the Maintenance Web Pages, select **Security > Modem**. The Modem screen appears.

Figure 36: Modem web page

4. Select **Enable modem for unlimited incoming calls**.
5. Click **Submit**.

The modem is now connected and enabled.

Test the modem connection

To ensure that the modem is enabled correctly:

1. Setup a dialup connection on a remote PC with the following settings:
   - Automatically detect settings.
   - No Username, Password, or Domain.
   - Security > Show Terminal Window.
2. Dial in to the modem from the remote PC.
3. When prompted, provide the rasaccess login and password in the Terminal Window.
4. Close the Terminal Window to complete the connection.

Chapter 6: Configuring the G350

The G350 requires software configuration. The G350 can be configured using:

- The Avaya Installation Wizard (Avaya IW). Avaya IW is a wizard that prompts you for all configurations required to complete the installation of the G350. Avaya IW is used only to configure a G350 with an S8300. Refer to Appendix C: Running the Avaya Installation Wizard (Avaya IW) on page 147.
- The Gateway Installation Wizard (GIW). The GIW is a wizard that prompts you for all configurations required to complete the installation of the G350. You can run GIW to configure a G350 without an S8300. Refer to Appendix D: Running the Gateway Installation Wizard (GIW) on page 195.
- The Avaya G350 Command Line Interface (CLI). The CLI is a comprehensive tool for configuring the gateway and includes all supported configuration tasks. For information about configuration using the CLI, see *Administration for the Avaya G250 and Avaya G350 Media Gateways*, 03-300436. For detailed information on CLI commands, refer to the *Avaya G250 and Avaya G350 CLI Reference*, 03-300437.

The G350 can be configured at the customer site via a laptop connected to the CON port of the G350 or from a remote location via a modem. For information about connecting and enabling a modem, refer to Chapter 5: Connecting and enabling a modem for remote access on page 61.

Chapter 7: After installation

After initial configuration, perform the following steps:

- Step 1: Test the installation on page 81
- Step 2: Remove the installation equipment on page 84

Step 1: Test the installation

When the installation is complete, simple tests must be performed to test telephone and data connectivity.

Test data connectivity by pinging the IP address of each device to test the device's connectivity within the network and outside the network.

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

Test telephone connectivity as follows:

- Test each telephone.
- Test each trunk.
- Perform a 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 the local network) call.
2. Make a call to the telephone from both within the network and outside of the network.

Testing trunks

Use the facility test call feature to verify that each trunk is functioning properly. For information about how to use the facility test call feature, see *Maintenance for the Avaya G250 and Avaya G350 Media Gateways*, 03-300438.

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 primary media server.

To perform the LSP failover test:

1. Verify that valid translations are file synchronized to the LSP by logging into Avaya Communication Manager from the LSP and listing either stations or trunks (refer to *Administrator's Guide for Avaya Communication Manager*, 555-233-506). Verify that the list of stations or trunks is valid. If the files are not synchronized, verify that you have correctly configured the required IP address(es) for the primary controller (media server). If you are using Avaya IW to configure the G350, the following are key actions that must be done in the wizard to ensure correct IP address configuration:

   a. In the Usage options screen, select **Install this media server as an LSP**. The Primary Controller IP Address screen appears later in the wizard, and calls for the required primary controller IP addresses for your primary controller type. The following IP addresses need to be configured for each primary controller type:

Primary media gateway controller	IP addresses to configure
S8300	The IP address of the primary S8300
S8400	The IP address of the S8400's C-LAN or the IP address of an Ethernet port on the S8400 configured for processor Ethernet connections
S8500	The IP address of the S8500's C-LAN or the IP address of an Ethernet port on the S8500 configured for processor Ethernet connections
S8700	The IP address of the S8700's C-LAN and the IP address of alternate C-LAN boards connected to the S8700 (Server A LAN, Server B LAN)

1 of 2

Primary media gateway controller	IP addresses to configure
S8710	The IP address of the S8710's C-LAN and the IP address of alternate C-LAN boards connected to the S8710
S8720	The IP address of the S8720's C-LAN and the IP address of alternate C-LAN boards connected to the S8720
	2 of 2

b. In the Primary Controller IP address screen, enter all the required IP addresses for the primary controller type.

   There may be a delay after running AIW until the LSP is registered with the primary MGC and the translations are file synchronized.

2. If valid translations are not file synchronized to the LSP, do the following:

   a. From a SAT session run from the primary controller, verify that the LSP node-name and IP address are correctly entered.

   b. Use the **`save translation lsp`** command to start the file synchronization process.

   c. Log in again to Avaya Communication Manager from the LSP and list either stations or trunks.

   d. Verify that the list of stations or trunks is valid.

3. Disconnect the G350 from the primary controller, ensuring that all telephones are still connected to the G350.

4. Verify that calls can be made between local telephones and to outside telephones.

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.

Chapter 8: Upgrading media modules and devices

This chapter describes how to add new media modules and endpoint devices to a G350 that is already installed. When adding new devices to the G350, consult your project manager for topology requirements for specific ports to be connected to specific devices.

See one of the following sections:

Adding a media module

Before adding a new media module to the G350, see one of the following sections:

- Adding voice modules on page 86. Describes important information when adding a new voice module to the G350.
- Adding WAN and LAN modules on page 86. Describes important information when adding a WAN or LAN module to the G350.

To install a new module, follow the instructions in Step 2: Install the media modules on page 34. Consult with your project manager to find out if the network topology necessitates installing media modules in specific slots.

Adding 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 a telephone on page 88 and Adding a trunk on page 89.

Some configuration of the Avaya Communication Manager is necessary when you install an MM710, MM720, or MM722 media module. See *Administrator's Guide for Avaya Communication Manager*, 555-233-506. Also, for an MM710 or MM722, it is usually advisable to set the media module as the synchronization source of the G350. For information about setting the synchronization source of the G350, see *Maintenance for the Avaya G250 and Avaya G350 Media Gateways*, 03-300438.

Adding WAN and LAN modules

You can hot-insert WAN and LAN modules. This means you can add a WAN or LAN 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.

There is no configuration necessary when you add a WAN or LAN module. Configuration is only necessary when you add telephones, WAN lines, and LAN devices to the new module. See Adding a LAN device on page 87, Adding a telephone on page 88, Adding a WAN line on page 90.

Adding a LAN device

Adding a LAN device requires you to do the following tasks:

- Connect the LAN device
- Configure the LAN device on the G350
- Test the LAN device

Connect the LAN device

To add a new LAN device, see one of the following sections:

- Connecting a switch or a network data port on page 46
- Connecting a computer on page 47
- Connecting a server on page 48

Configure the LAN device on the G350

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

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

Configuration may be performed on site by connecting a laptop computer connected to the CON port of the G350, or remotely via a modem connected to the G350 or S8300. For information about preparing a modem, see Chapter 5: Connecting and enabling a modem for remote access on page 61. For information about configuration, see Chapter 6: Configuring the G350 on page 79.

Test the LAN device

After installation and configuration of the LAN device is complete, ping the IP address of the device to test the device's connectivity within the network and outside the network.

Adding a telephone

Adding a telephone requires you to do the following:

- Connect the telephone
- Configure the telephone on the G350
- Test the telephone

Connect the telephone

To connect a new telephone, see one of the following sections:

- Connecting an IP telephone on page 49
- Connecting an analog telephone on page 50
- Connecting a DCP telephone on page 52

Configure the telephone on the G350

When you add a new telephone, note the following information for software configuration:

- 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

Configuration may be performed on site by connecting a laptop computer connected to the CON port of the G350, or remotely via a modem connected to the G350 or S8300. For information about preparing a modem, see Chapter 5: Connecting and enabling a modem for remote access on page 61. For information about configuration, see Chapter 6: Configuring the G350 on page 79.

Test the telephone

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.

Adding a trunk

Adding a trunk requires you to do the following:

- Order the trunk
- Connect the trunk
- Configure the trunk on the G350
- Test the trunk

Order 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.
- For access to 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. Ground start trunks may be provided via the MM711 media module.

  Note:

  Ground start signaling trunks are not supported on the integrated analog media module.

- Request conditioned lines to ensure satisfactory voice quality and trunking interactions.

Connect the trunk

To connect a new trunk, see one of the following sections:

- Connecting an analog trunk on page 53
- Connecting an E1/T1 trunk on page 54
- Connecting an ISDN BRI trunk on page 54

Configure the trunk on the G350

When you add a new trunk, note the following information for software configuration:

- Slot and port number on the Avaya G350 Media Gateway to which the trunk connects
- Telephone number of the trunk

Configuration may be performed on site by connecting a laptop computer connected to the CON port of the G350, or remotely via a modem connected to the G350 or S8300. For information about preparing a modem, see Chapter 5: Connecting and enabling a modem for remote access on page 61. For information about configuration, see Chapter 6: Configuring the G350 on page 79.

Test the trunk

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. Make a call into the G350 trunk.

Adding a WAN line

Adding a telephone requires you to do the following:

- Order the WAN line
- Connect the WAN line
- Configure the WAN line on the G350
- Test the WAN link

Order the WAN 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 before you configure the WAN on the G350.

Connect the WAN line

To connect a WAN line, see Step 3: Connect to the Wide Area Network (WAN) on page 56.

Configure the WAN line on the G350

When you add a new WAN line, note the following information for software configuration:

- slot and port number on the Avaya G350 Media Gateway to which the WAN line connects

Configuration may be performed on site by connecting a laptop computer to the CON port of the G350, or remotely via a modem connected to the G350 or S8300. For information about preparing a modem, see Chapter 5: Connecting and enabling a modem for remote access on page 61. For information about configuration, see Chapter 6: Configuring the G350 on page 79.

Test the WAN link

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 ping the IP address of a device using the WAN line and perform a trace route test in order to test connectivity with the network and outside the network.

Adding an Avaya Partner Contact Closure Adjunct

To install an Avaya Partner Contact Closure Adjunct, follow the instructions in Step 5: Install the Avaya Partner Contact Closure Adjunct on page 59.

Chapter 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 in one of the following several ways:

- Remote configuration via Telnet — upgrade the software remotely via Telnet. In this scenario, a modem is required at the local site. See Chapter 5: Connecting and enabling a modem for remote access on page 61.
- Remote configuration via network — upgrade the software remotely via a network connection.
- Local configuration with S8300 Media Gateway — upgrade the software at the 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 3.0. If you have an S8300, you must replace it with an S8300B board before beginning the upgrade.

Upgrading the software using a CD-ROM drive

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 method used to perform the upgrade.

For a software upgrade on an Avaya G350 Media Gateway with an S8300 Media Server, use a USB modem. The only supported USB modem is the 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 Chapter 5: Connecting and enabling a modem for remote access on page 61.
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.

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 from a remote location, you might need to connect a modem. This depends on the method used to perform the upgrade.

Performing the upgrade

You can upgrade the S8300 software using Avaya IW or the Upgrade Tool. To upgrade S8300 software using Avaya IW, see Appendix C: Running the Avaya Installation Wizard (Avaya IW) on page 147. For information about upgrading S8300 software using the upgrade tool, see Chapter 10: Upgrading the G350 firmware on page 95.

Chapter 10: Upgrading the G350 firmware

You can upgrade software on the Avaya G350 Media Gateway. Software used to control the Avaya G350 Media Gateway itself and media modules installed on the G350 is called firmware.

Note:

The G350 firmware also includes the firmware for the MM314, MM340, and MM342 media modules.

You can upgrade the firmware on the Avaya G350 Media Gateway and media modules using various different tools, each suitable for specific types of installation. See one of the following sections:

- Upgrading G350 firmware using Avaya Software Update Manager. Describes how to upgrade firmware on a single or multiple G350 within your network from one management station. This ensures that all G350 gateways in your network are running the same firmware.
- Upgrading G350 firmware from the primary controller. Describes how to upgrade firmware from the primary controller using the Upgrade Tool. You can use this procedure to upgrade a G350 that does not contain an S8300 or for a G350 that contains an S8300 as an LSP.
- Upgrading G350 firmware using Gateway Installation Wizard (GIW). Describes how to use GIW to upgrade firmware on a G350 that does not contain an S8300. This upgrade must be done locally.
- Upgrading G350 firmware and Avaya Communication Manager software using Avaya Installation Wizard (IW). Describes how to upgrade firmware and software on a G350 that contains an S8300, using Avaya IW. The upgrade configuration may be performed locally or remotely, but the software must be loaded locally.
- Upgrading G350 firmware using the CLI. Describes how to use the CLI to upgrade G350 firmware locally or remotely.

Upgrading G350 firmware using Avaya Software Update Manager

You can use Avaya Software Update Manager to view your network inventory and the firmware vintages of devices on your network. Avaya Software Update Manager can also check the software versions currently in use against the latest versions available from Avaya and recommend updates when a newer version is available. Based on this information, you can download new firmware to multiple network devices simultaneously from a single management station, ensuring all devices are updated.

You can use Avaya Software Update Manager to take a new release from Avaya's Web site and store it on your hard disk for subsequent downloading to the appropriate devices.

Avaya Software Update Manager is a server application hosted on the Avaya Network Management server. The server stores all the software retrieved from the Web and can download the software to appropriate devices. You may also copy files containing embedded software to the server. You can reach the server locally or via remote access, so you can update the software on your devices from anywhere in the world.

Avaya Software Update Manager is part of the Integrated Management Enterprise Package which is an entitlement for all Avaya Communication Manager non-introductory offers.

For information about using Avaya Software Update Manager, see the *Avaya Software Update Manager 3.6 User Guide, 14-300168.*

Upgrading G350 firmware from the primary controller

For a G350 without an S8300 or for a G350 with an S8300 installed as an LSP, you can upgrade G350 firmware and from the remotely located primary controller using the Upgrade Tool. The primary controller may be an S8300, S8500 or S8700 Media Server. If the G350 includes an LSP, you can also use the Upgrade Tool to upgrade the S8300 software on the LSP. For information about using the Upgrade Tool, see *Job Aid: Upgrade Tool and Worksheets*, 555-245-757.

You can also refer to the guide for the primary controller for information about upgrading firmware from the primary controller:

- *Upgrading, Migrating, and Converting Media Servers and Gateways*, 03-300412

Upgrading G350 firmware using Gateway Installation Wizard (GIW)

Perform the following steps to upgrade firmware on a local G350 using GIW:

1. Prepare installation worksheets. See Preparing installation worksheets on page 100.
2. Download GIW from the Avaya web site (support.avaya.com/avayagiw) to the laptop computer. The laptop should be running Windows 2000 or Windows XP to support GIW.
3. Set up a TFTP server on the G350 network. See Setting up a TFTP server on page 102. The GIW runs the CLI commands on the G350 so the G350 can obtain the files from the TFTP server.
4. Download the G350 firmware files to the TFTP server. See Downloading G350 firmware files to a local TFTP server on page 103.
5. Run GIW to perform the upgrade. For instructions on performing the upgrade, see Run the Gateway Installation Wizard (GIW) on page 195.

Upgrading G350 firmware and Avaya Communication Manager software using Avaya Installation Wizard (IW)

For a G350 with an S8300B installed, you can use Avaya IW to upgrade G350 firmware and Avaya CM software. You can run Avaya IW from a remote location if the software is loaded locally. You can point your browser to the ip address of the S8300B if you are in the customer network or via the modem ppp connection. Perform the following steps:

1. Prepare installation worksheets. See Preparing installation worksheets on page 100.
2. Place the upgrade software and firmware files on a laptop. These files are on the Avaya Communication Manager CD-ROM. To upgrade the S8300 Media Server software and G350 firmware, insert the Communication Manager CD-ROM into a CD-ROM drive connected to a laptop. Alternatively, you can upload the individual files to the hard drive of the laptop. For more details, see *Job Aid: Avaya Installation Wizard*, 555-245-754.
3. Upgrade the S8300 Media Server using the Avaya Installation Wizard (For more details, see *Job Aid: Avaya Installation Wizard*, 555-245-754). This procedure also copies the G350 firmware as an RMP (Red Hat Package Manager) file from the Communication Manager CD-ROM into the /tftproot directory on the S8300.

Note:

The CD-ROM 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 directory. If the CD-ROM does not contain the latest versions, you should download the latest versions from the Support Web site to the laptop.

4. Connect the laptop to the services port of the S8300 media server.
5. Access Avaya IW. See Accessing Avaya IW on page 147.
6. Run Avaya IW to perform the required upgrades:
   - See Upgrading an existing MGC on page 155 for instructions for upgrading ACM software.
   - See Firmware configuration on page 168 for instructions for upgrading G350 firmware.

Upgrading G350 firmware using the CLI

You can upgrade firmware using the CLI. You can perform the upgrade remotely via a modem connection, but the upgrade files must first be downloaded to an FTP or TFTP server on the LAN connected to the G350.

To upgrade G350 firmware using the CLI:

1. Prepare installation worksheets. See Preparing installation worksheets on page 100.
2. Set up an FTP or TFTP server on the LAN connected to the G350. For information about setting up a TFTP server, see Setting up a TFTP server on page 102.

   Note:

   If you use an FTP server, the G350 prompts you for a username and password when you enter a command to transfer a file. Also, when opening an FTP connection to the S8300, all anonymous FTP file transfers are restricted to the /var/home/ftp/pub directory. Permission for anonymous FTP users to create files in other directories is denied.
3. Download the firmware files to the FTP or TFTP server. See Downloading G350 firmware files to a local TFTP server on page 103 or Installing firmware from the TFTP server on the S8300 Media Server on page 104.
4. Connect to the G350 via modem or via the CON port on the front panel. For information about connecting and enabling a modem for remote access, see Chapter 5: Connecting and enabling a modem for remote access on page 61.
5. Run CLI commands. See CLI Commands for upgrading G350 firmware on page 99.

CLI Commands for upgrading G350 firmware

You can use one of the following commands to upload an upgrade file to the G350. For each of these commands, include the full path of the file and the IP address of the FTP or TFTP host as parameters. When you enter the command, the CLI prompts you for a username and password.

- Use the **copy ftp EW_archive** command to upgrade the Java applet for Avaya G350 Manager software from an FTP server.
- Use the **copy ftp module** command, followed by the module number of the module you want to upgrade, to upgrade the firmware on a media module from an FTP server.
- Use the **copy ftp SW_imageA** command to upgrade the G350 firmware into Bank A from an FTP server.
- Use the **copy ftp SW_imageB** command to upgrade the G350 firmware into Bank B from an FTP server.
- Use the **copy tftp EW_archive** command to upgrade the Java applet for Avaya G350 Manager software from a TFTP server.
- Use the **copy tftp module** command, followed by the module number of the module you want to upgrade, to upgrade the firmware on a media module from a TFTP server.
- Use the **copy tftp SW_imageA** command to upgrade the G350 firmware into Bank A from a TFTP server.
- Use the **copy tftp SW_imageB** command to upgrade the G350 firmware into Bank B from a TFTP server.
- Use the **copy ftp EW_archive** command to upgrade the Java applet for Avaya G350 Manager software from an FTP server.
- Use the **copy ftp module** command, followed by the module number of the module you want to upgrade, to upgrade the firmware on a media module from an FTP server.
- Use the **copy ftp SW_imageA** command to upgrade the G350 firmware into Bank A from an FTP server.
- Use the **copy ftp SW_imageB** command to upgrade the G350 firmware into Bank B from an FTP server.
- Use the **copy tftp EW_archive** command to upgrade the Java applet for Avaya G350 Manager software from a TFTP server.
- Use the **copy tftp module** command, followed by the module number of the module you want to upgrade, to upgrade the firmware on a media module from a TFTP server.
- Use the **copy tftp SW_imageA** command to upgrade the G350 firmware into Bank A from a TFTP server.
- Use the **copy tftp SW_imageB** command to upgrade the G350 firmware into Bank B from a TFTP server.

When using FTP or TFTP commands, you must use the specific path to the file on the FTP or TFTP server according to the home directory of the service (FTP or TFTP) that you are using. For example, to upgrade the firmware of an MM312 media module in slot 3 from a TFTP server with the IP address 192.1.1.10, where the home directory is c:\home\ftp\ and the upgrade file is located in the directory c:\home\ftp\version, use the following command:

```
copy tftp module \version\mm312v51.fdl 192.1.1.10 3
```

Note:

When uploading firmware from the S8300, use only the file name, without the directory path, in the command line. Otherwise, the procedure will fail. For instance, in the example above, you must use the following command:

```
copy tftp module mm312v51.fdl 192.1.1.10 3
```

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.

The following example uploads a firmware version with the path and file name C:\g350.net from an FTP server with the IP address 149.49.134.153 to Bank A of the G350:

```
copy ftp SW_imageA C:\g350.net 149.49.134.153
```

Preparing installation worksheets

Before you perform the upgrade, enter the names of the target software and firmware versions that you need to install in the software and firmware upgrade worksheet. See Software and firmware upgrade files for upgrade on page 101.

If you will need to set up a TFTP server, you also need to plan the TFTP server IP address, login and password. Enter these values in the TFTP Server Values worksheet. See TFTP server values on page 101.

Software and firmware upgrade files for upgrade

Enter software and firmware upgrade file names in the following table:

Table 4: Software and firmware upgrade file names

Items for Upgrading	New file name for target
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 Analog Port/Trunk Media Module	
MM716 Analog Port/Trunk 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 5: Global Settings for TFTP Server

TFTP Server IP Address	TFTP Server Directory

Setting 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 104. 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 appropriate files 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 Microsoft Internet Explorer on the local PC and access http://www.avaya.com/support on the Internet.
3. Search for software downloads for 4600 series IP telephones.
4. Double-click one of the links listed with *TFTP Server*. The TFTP Server is on the Communication Manager CD-ROM. 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**.

Downloading G350 firmware files to a local TFTP server

This section describes how to download the individual firmware files from the Avaya web site to a TFTP server on the local network with the G350.

If you are upgrading

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:

1. Access the www.avaya.com/support Web site.
2. Navigate to G350 Media Gateway downloads.
3. Locate the file names that match the files listed in your installation worksheet. See Table 6: Sample Software and Firmware Filenames on page 104 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 Setting up a TFTP server on page 102.

Note:

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

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 20 or later)	mm711h20v54.fdl
MM712 DCP Media Module	mm712v14.fdl
MM714 Analog Port/Trunk Media Module	mm714v5.fdl
MM716 Analog Port/Trunk Media Module	mm716v80.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

Note:

You only have to do this if you have not upgraded the S8300 first or if you did upgrade it first and found that the gateway files on the communication manager CD were out of date. Otherwise, when you upgrade the S8300, the files appear in the /tftpboot directory automatically.

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.

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 **`mv`** <***`firmware_filename`***> **`/tftpboot`**, and press **<Enter>** to move the firmware file to the */tftpboot* directory. To move multiple firmware files (most firmware files have an .fdl suffix), use the command **`mv *.dfl /tftpboot`**. The Linux prompt reappears. The firmware file has been moved to the */tftpboot* directory. If you copy the firmware using the cp command, remove the files from the */var/home/ftp/pub* directory after you have copied them.
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.

Chapter 11: Upgrading IP phone configuration and firmware files

This chapter describes how to upgrade the firmware and configuration files for IP phones using the G350 TFTP server and includes the following sections:

- Overview. An overview of upgrading the configuration and firmware files for IP phones
- Administering the Upgrade. Step-by-step instructions for upgrading IP phones
- TFTP IP telephone upgrade example. A complete example of performing upgrades for three types of IP phones
- Upgrading Considerations. Additional information for performing an upgrade

Note:

If you have an S8300 installed in the G350, you can alternatively upgrade IP phones using the CM web pages.

Note:

You can also upgrade IP phones using Avaya IW or GIW, as described in Appendix C: Running the Avaya Installation Wizard (Avaya IW) on page 147 and Appendix D: Running the Gateway Installation Wizard (GIW) on page 195.

Overview

The Avaya G350 Media Gateway supports Trivial File Transfer Protocol (TFTP) downloading of configuration files and firmware files for IP phones. TFTP can be used to download image files, upgrade scripts, and settings files to IP phones. The TFTP server stores the files and supports requests to read files from the TFTP Server outgoing directory for phone images and scripts.

This document describes CLI procedures for downloading the files for IP phone upgrade from the G350 TFTP server.

Note:

An alternative tool, the Avaya Software Update Manager (4.0 or higher), is a GUI application that greatly simplifies the IP phone upgrade process, avoiding the need to know the file names of the necessary upgrade files for each IP phone type. For further information, see *Avaya Software Update Manager User Guide*, 14-300168.

Note:

The IP address of the TFTP server is the PMI.

The TFTP Server feature supports the following IP telephones:

- 4601
- 4602
- 4602SW
- 4606
- 4610SW
- 4612/24
- 4620
- 4620SW
- 4690
- SIP phone: 4602 SIP

The TFTP Server feature does not support the following IP telephones:

- 4630
- 4630SW

Administering the Upgrade

When using supported IP phones with the G350, the IP phones require the downloading of the settings file and the upgrade scripts. These files are stored in the script banks in NVRAM and are preserved in the event of a reset or power failure. There are two script banks.

In addition, each phone can have a booter application and a phone application. There are four banks that can store up to two phone images (booter and phone application files) at any given time. Since the image files are stored in RAM, a reset or power failure *erases* these files. The image files are used only for upgrading the IP phone, so there is no need to store them permanently. However, the scripts are used by the IP phones when they are reset, and are therefore stored in NVRAM. You can upgrade up to two types of phones and then release the banks for use with another IP phone type.

There are cases where the image files are the same for different IP phone types. In these cases, you can download the image files once for the IP phones that use the same image. The scripts are global to all the supported IP phone images.

You can download and then upload setting script files in order to update their content. It is not recommended to change the upgrade script.

By default, the RAM allocation for TFTP server is 10 MB. You can increase the RAM allocation for TFTP server to up to 11.264 MB at the expense of the Sniffer cache application. The maximum RAM for both applications is 12 MB.

There are four image banks, supporting two IP phone images in RAM, provided the combined file sizes do not exceed the RAM allocation for TFTP server. The maximum size for a booter application or phone application file is 4.5 MB. Thus, it is possible that in some cases, the allocation may only suffice for one complete IP phone image and not two.

CAUTION:

To activate a change in RAM allocation to the TFTP server, reset is required. Upon reset, any phone image files stored in RAM are erased.

Note:

Previous releases of TFTP server required the configuration of the DHCP server option 43/176 with the named value pair TFTPDIR=/phonedir/ in order to allow the IP phone to access the files in this directory. This configuration is still supported but is no longer required.

To upgrade IP telephones:

1. Check the available memory size for the image files using the **`show application-memory`** command. If the memory size needs to be changed, proceed to step 2, otherwise proceed to step 5.
2. Set the memory size for the image files using the **`ip tftp-server file-system size`** command.
3. Copy the running configuration to the start-up configuration using the **`copy running-config startup-config`** command.
4. Reset the G350 using the **`reset`** command.
5. Copy the script files for the IP phone family using one of the following commands:
   - **`copy scp phone-script`**.
   - **`copy ftp phone-script`**.
   - **`copy tftp phone-script`**.

   Note:

   The G350 use the SSH protocol to support the use of SCP for secure file transfer. When using SCP, the G350 is the SCP client, and an SCP server must be configured on the management station. For more information about establishing an SCP session, see *Administration for the Avaya G250 and Avaya G350 Media Gateways*, 03-300436.
6. Copy the boot image files for up to two IP phone types, using either the **`copy ftp phone-image`** command or the **`copy tftp phone-image`** command for each IP phone type.

   Note:

   The use of the **`copy scp phone-script`** command is limited to copying files of 1 MB or less. Therefore, an SCP server can be used for copying the script files, which do not exceed 128 KB, but cannot be used for copying image files.

7. Copy the phone application image files for up to two IP phone types using either the **copy ftp phone-image** command or the **copy tftp phone-image** command for each IP phone type.
8. Reset the phones and wait for the installation to be completed.

   Note:

   Once the upgrade procedure is complete, you can delete the files using the **erase phone-image** command.

TFTP IP telephone upgrade example

In the following example, 4602SW and 4602D phones, which use the same image files, are upgraded first. Later, 4620 phones are upgraded. The script files are not copied for the second upgrade, since they are already stored in NVRAM.

To upgrade the 4602SW and 4602D phones:

1. Check the available memory size for the image files using the **show application-memory** command. If the memory size is smaller than the combined sizes of the image files for the phones, proceed to step 2, otherwise proceed to step 5.
2. Set the memory size for the image files using the **ip tftp-server file-system size** command.

```
G350-001(super)# ip tftp-server file-system-size 18128
To change ip tftp-server file system size, copy the running configuration
to the start-up configuration file, and reset the device
G350-001(super)
```

3. Copy the running configuration to the start-up configuration using the **copy running-config startup-config** command.

```
G350-001(super)# copy running-config startup-config
Beginning copy operation ..................... Done!
```

4. Reset the G350 using the **reset** command.

```
G350-001(super)# reset
This command will reset the device
*** Reset the device *** - do you want to continue (Y/N)? y

Resetting the device...
```

5. Copy the script files for the 46xx IP phone family using the **copy scp phone-script** command:

```
G350-001(super)# copy scp phone-scriptA 46xxupgrade.txt 192.168.49.10
Confirmation - do you want to continue (Y/N)? y

Username: root
Password:
Beginning download operation ...

This operation may take up to 20 seconds.
Please refrain from any other operation during this time.
For more information , use 'show download phone-script-file status'
command
G350-001(super)#
G350-001(super)# copy scp phone-scriptB 46xxupgrade.txt 192.168.49.10
Confirmation - do you want to continue (Y/N)? y

Username: root
Password:
Beginning download operation ...

This operation may take up to 20 seconds.
Please refrain from any other operation during this time.
For more information , use 'show download phone-script-file status'
command
G350-001(super)#
```

6. Copy the boot image files for the Avaya 4602 IP Telephone using the **copy ftp phone-image** command.

```
G350-001(super)# copy ftp phone-imageA pub\4602dbte1_8.bin 192.168.49.10

Username: root
Password:
Beginning download operation ...
This operation may take up to 20 seconds.
Please refrain from any other operation during this time.
For more information , use 'show download phone-image-file status'
command
G350-001(super)# copy ftp phone-imageB pub\4602sbte1_8.bin 192.168.49.10

Username: root
Password:
Beginning download operation ...
This operation may take up to 20 seconds.
Please refrain from any other operation during this time.
For more information , use 'show download phone-image-file status'
command
```

7. Copy the phone application image files for the 4602 IP phone type DEF4602D using the **copy ftp phone-image** command.

```
G350-001(super)# copy ftp phone-imageC pub\4602dape_8.bin 192.168.49.10

Username: root
Password:
Beginning download operation ...
This operation may take up to 20 seconds.
Please refrain from any other operation during this time.
For more information , use 'show download phone-image-file status'
command
G350-001(super)# copy ftp phone-imageD pub\4602sape_8.bin 192.168.49.10

Username: root
Password:
Beginning download operation ...
This operation may take up to 20 seconds.
Please refrain from any other operation during this time.
For more information , use 'show download phone-image-file status'
command
```

8. Reset the phones and wait for the installation to be completed.

To upgrade 4620 IP phones later, when the script files are already stored in NVRAM:

1. Copy the boot image files for the 4620 IP phone using the **copy ftp phone-image** command.

```
G350-001(super)# copy ftp phone-imageA pub\bbla20_1817.bin 192.168.49.10


Username: root
Password:
Beginning download operation ...
This operation may take up to 20 seconds.
Please refrain from any other operation during this time.
For more information , use 'show download phone-image-file status'
command
```

2. Copy the phone application image files for the 4620 IP phone using the **copy ftp phone-image** command.

```
G350-001(super)# copy ftp phone-imageB pub\def20r1_8_1.bin 192.168.49.10

Username: root
Password:
Beginning download operation ...
This operation may take up to 20 seconds.
Please refrain from any other operation during this time.
For more information , use 'show download phone-image-file status'
command
```

Note:

Once the upgrade procedure is complete, you can delete the files using the **erase phone-image** command.

Failure scenarios and repair actions

Problem	Possible cause	Action
“Free Application Memory is xxx MB. Use **show application-memory** for more details”	You tried to configure more memory than is available in the main bank.	Re-adjust the allocation of memory between the Sniffer cache application and the TFTP server. Be sure the Sniffer allocation is not needed for trouble shooting.
“Application Memory reached its limits. Sniffer and TFTP server application memory sizes restore to defaults”	You tried to download configuration files after configuring the total memory allocations for applications and Sniffer to more than 12 Mb in the startup configuration and performing a reset.	None. The memory allocations are set to the default values.
Cannot download file to Gateway		Refer to the specific error message you receive.
"Not enough memory in RAM"	The remote file is larger than the available RAM.	Free more space in the RAM using the **erase phone-script** or **erase phone-image** command.

Problem	Possible cause	Action
"Not enough memory in NVRAM"	The remote file is larger than the available NVRAM.	Free space in the NVRAM using the **`erase phone-script`** command.
"File already Exists in other Bank"	You tried to download the same file to more than one bank.	None. You cannot load two files with the same filename to more than one bank.
“TFTP - General failure”	File name or path incorrect	Check the file name and path.
“Can't start upload operation. Wrong operation parameters or other operation already in progress, please try again”	You are trying to upload a file from an empty bank.	Upload from a different bank. Download a file to the bank.

Upgrading Considerations

The following are some considerations that affect the user when upgrading IP phone configuration and upgrade files:

- Configuration files, such as upgrade script and setting files, are copied to the phone configuration banks in NVRAM, while phone images are stored in RAM.

  Note:

  Image files are cleared if you reset the gateway.

- Phone image banks are stored in the same TFTP directory. Therefore, you can not copy the same filename to more then one bank. Copying a file to a bank containing a file with the same filename causes the old file to be overwritten by the new one.
- File names for IP phone image files and script files are limited to 32 characters.

Chapter 12: Troubleshooting

This chapter provides basic troubleshooting information.

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, or a power management event, in which the power budget is exceeded and low priority ports are disconnected.

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. If the telephone is connected to a PoE port on an MM314 or MM316 media module and does not have its own power supply, plug in a power supply and see if the telephone works. If it works, the problem is with the PoE configuration or power allocation. Use the **`show powerinline`** CLI command to display the relevant information. PoE may have been disabled on the port to which the telephone is connected, of the telephone may not be receiving power due to the priority level configured on the port, or due to the overall PoE power budget being exceeded. For information about PoE configuration, see *Administration for the Avaya G250 and Avaya G350 Media Gateways*, 03-300436.
6. 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 Appendix A: Front panel description on page 119.

Several telephones stop working

If some telephones in the network stop working, but others continue to work, the problem could be with a trunk or with one of the modules in the G350. If the telephones that do not work are IP telephones connected to an MM314 or MM316 PoE module, the problem could be one of the following:

- PoE is disabled on certain ports.
- Too many or a bad selection of PoE ports are being used.
- The power supply to the MM314 or MM316 is not working.

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 Appendix A: Front panel description on page 119.
3. If the affected telephones are IP telephones connected to an MM314 or MM316 media module, check the following:
   - The PoE configuration and status of the IP telephones. Use the **`show powerinline`** CLI command to display the relevant information. The affected telephones may not be receiving power due to the PoE power status or priority level configured on the port, or due to the overall PoE power budget being exceeded. For information about PoE configuration, see *Administration for the Avaya G250 and Avaya G350 Media Gateways*, 03-300436.
   - The power supply of the MM314 or MM316 media module.
4. 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 Appendix A: Front panel description on page 119.

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 G350 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 Appendix A: Front panel description on page 119.

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, see *Maintenance Alarms for Communication Manager 2.1, Media Gateways and Servers*, 03-300190 for testing procedures.

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 the ALM LED is lit, the problem may be the configuration of the module or a lack of T1 signal. You can try the following:
   - For E1/T1 interfaces, use the **`show controllers`** command to view the status of the interface's controller. Make sure the controller is up, and that all error counters do not increase.
   - For all serial interfaces (E1/T1 and USB), use the **`show interfaces Serial`** command to verify that the interface and line protocol are both up.
   - For USB interfaces only, use the **`show interfaces Serial`** command to verify that all line signals are up.
   - Swap the module with another one.

     CAUTION:

     Hot insertion of a WAN module resets the G350. Therefore, any translation and other data that is in the running configuration but has not been saved to the startup configuration will be lost.
   - Check the CON LED on the module. The CON LED indicates if you have a signal. If the CON LED is lit, check with your provider that you are receiving a signal.

   For information on the various modules and their LEDs, see Appendix A: Front panel description on page 119.
3. Check the ALM LED on the Avaya G350 Media Gateway chassis. If it is lit, there may be a system wide problem.

Appendix A: Front panel description

This appendix describes the front panels of the Avaya G350 Media Gateway chassis and media modules. You can use the front panel of the Avaya G350 Media Gateway to:

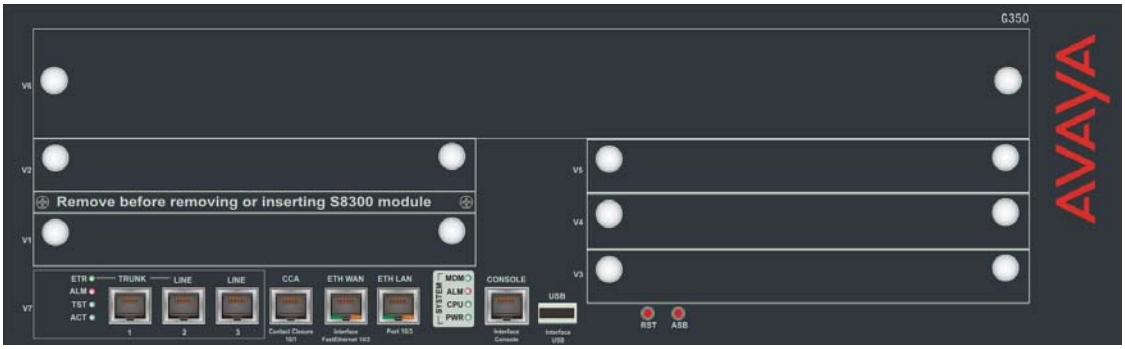
- Connect devices
- Add media modules
- View LEDs
- Reset the device
- Reset and recover from the alternate bank

The first section in this appendix 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 following figure shows the G350 chassis:

Figure 37: G350 chassis



The following front panel features are described:

- Media module slots on page 120
- System LEDs on page 120
- Analog telephone ports and LEDs on page 121
- Contact closure port (CCA) on page 121
- Router port (ETH WAN) on page 122

- Switch port (ETH LAN) on page 122
- Console port (CON) on page 122
- USB port on page 122
- Reset (RST) and Alternate Software Bank (ASB) buttons on page 122

Media module slots

The G350 has the following media module slots:

- One high-density media module slot (V6)
- Five standard media module slots (V1 through V5)

For information about the different media modules that can be housed in the media module slots, see Combination limitations on page 35 and Allocating slots on page 35.

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 7: 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-45 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 8: 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	Avaya Communication Manager is running.
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 Step 5: Install the Avaya Partner Contact Closure Adjunct on page 59.

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)

The Console port 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 38: The S8300 Media Server

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.

S8300 Media Server port LEDs

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

Table 9. S8300 LEDs

LED	Name	Color	Meaning
ALM	Alarm	Red	An alarm is present.
TST	Test	Green	Avaya Communication Manager is running. When an S8300B is installed as an LSP, the green light shows that the server is up and waiting to provide service.
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 39: The MM312 media module front panel

MM312 ports

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

MM312 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 copper Gigabit Ethernet 1000 uplink/access port

Versions of the MM314 media module with Material Code 700384 (C/S:2.0) require Avaya CM version 2.0 and higher, and G350 firmware version 25.0.0 and higher.

Figure 40: The MM314 media module front panel

MM314 ports

The MM314's 24 10/100 Base-T Ethernet ports are located on the front panel and are labeled 1 through 24. The MM314's copper Gigabit Ethernet port is located on the left 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.

MM314 alarm LED

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

Table 10: MM314 System LED

LED	Name	Color	Meaning
ALM	Alarm	Red	• OFF - The software turns this LED off if BIST has passed and 48V PS is active • ON - Module is initializing, or an alarm state exists on an interface, or there is a mismatch between Communication Manager configuration and the Media Module. • BLINK - There is a mismatch between MV configuration and this Media Module.

MM314 port LEDs

Along the bottom of the MM314's front panel are numbered LEDs that correspond to each of the MM314's network ports.

Table 11: MM314 Port LEDs

LED	Name	Color	Meaning
1 to 24	PoE port LEDs	Green	• ON - Link Up, port enabled, no traffic and PoE delivered. • BLINK - Ethernet traffic with PoE being delivered. The rate of blinking is proportional to the rate of traffic.
1 to 24		Yellow	• ON - Link Up, port enabled, no traffic and no PoE delivered. • BLINK - Ethernet traffic without PoE being delivered.
51		Green	• ON - Link Up, port enabled, no traffic. • BLINK - Ethernet traffic.

The front panel of the Avaya MM316 media module

The MM316 media module is a LAN media module that provides:

- 40 10/100 Base-T Ethernet access ports with inline Power over Ethernet (PoE)
- One copper Gigabit Ethernet 10/100/1000 uplink/access port

The MM316 is compatible with Avaya CM version 2.0 and higher, and G350 firmware version 25.0.0 and higher.

Figure 41: The MM316 media module front panel

MM316 ports

The MM316's 40 10/100 Base-T Ethernet ports are located on the front panel and are labeled 1 through 40. The MM316's copper Gigabit Ethernet port is located on the left of the front panel and is labeled 51. These ports support Auto-MDIX, so 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.

MM314 alarm LED

The MM316's alarm (ALM) LED is located on the left of the front panel. The ALM LED indicates that an alarm is present in the module.

Table 12: MM316 System LED

LED	Name	Color	Meaning
ALM	Alarm	Red	• OFF - The software turns this LED off if BIST has passed and 48V PS is active • ON - Module is initializing, or an alarm state exists on an interface, or there is a mismatch between Communication Manager configuration and the Media Module. • BLINK - There is a mismatch between MV configuration and this Media Module.

MM314 port LEDs

Along the bottom of the MM316's front panel are numbered LEDs that correspond to each of the MM316's network ports.

Table 13: MM316 Port LEDs

LED	Name	Color	Meaning
1 to 40	PoE port LEDs	Green	• ON - Link Up, port enabled, no traffic and PoE delivered. • BLINK - Ethernet traffic with PoE being delivered. The rate of blinking is proportional to the rate of traffic.
1 to 40		Yellow	• ON - Link Up, port enabled, no traffic and no PoE delivered. • BLINK - Ethernet traffic without PoE being delivered.
51		Green	• ON - Link Up, port enabled, no traffic. • BLINK - Ethernet traffic.

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 42: The MM340 media module front panel

MM340 ports

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

MM340 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.

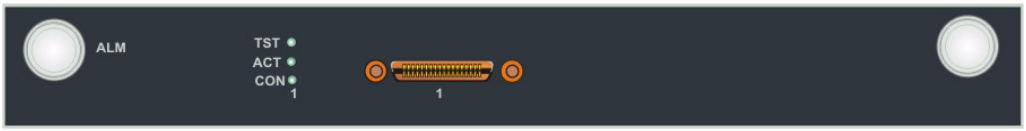
The front panel of the Avaya MM342 media module

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

- V.35/ RS449
- X.21

The following figure shows the MM342 media module front panel.

Figure 43: The MM342 media module front panel



MM342 ports

The MM342 contains one WAN SCSI access port.

MM342 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

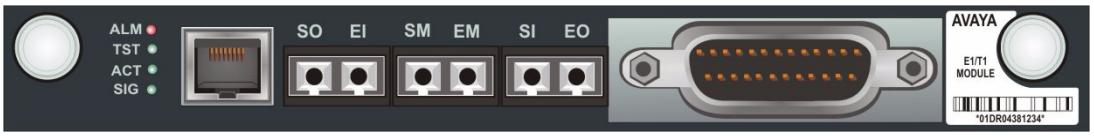
The MM710 T1/E1 media module terminates a T1 or E1 trunk. The MM710 has a built-in Channel Service Unit (CSU), so an external CSU is not necessary. The CSU is only used for the T1 circuit.

Note:

For drop and insert, an external CSU is required.

The following figure shows the MM710 media module front panel.

Figure 44: The MM710 media module front panel



Note:

The six ports in the middle of the front panel are used for testing.

MM710 ports

The MM710 contains an E1/T1 port.

MM710 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.

LED	Name	Color	Meaning
ACT	Activity	Yellow	An E1/T1 trunk device connected to the module is in use. The light is always on if the trunk is an ISDN E1 or T1 PRI trunk, and the MM710 is not configured as the synchronization source of the G350. The light flashes at a rate of 2.8 seconds on and 0.2 seconds off if the MM710 synchronization source is configured to synchronize the G350 and the module is receiving a T1 source signal. The light flashes at a rate of 0.2 seconds on and 2.8 seconds off if the MM710 synchronization source is configured to synchronize the G350 and the T1 source is lost.
SIG	Signal	Green	The physical connection is up.

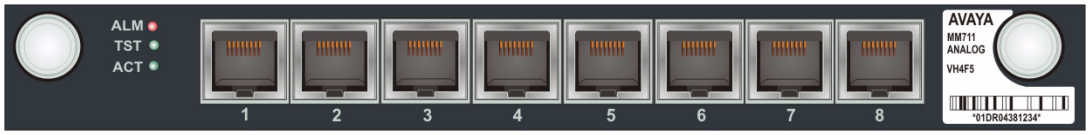
2 of 2

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 45: The MM711 media module front panel



MM711 ports

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

MM711 LEDs

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

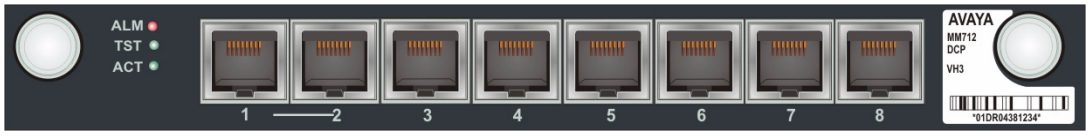
LED	Name	Color	Meaning
ALM	Alarm	Red	The module type is not the type configured in the MSG for the slot.
TST	Test	Green	Either a test is being performed on the module via the media server, or the module is performing a self-test upon initial insertion.
ACT	Activity	Yellow	A device connected to the module 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 46: The MM712 media module front panel



MM712 ports

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

MM712 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.

Note:

The four analog trunk ports can *not* be used for analog DID trunks. Instead, the four analog line ports must be used.

The following figure shows the MM714 front panel.

Figure 47: The MM714 media module front panel

MM714 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.

MM714 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.

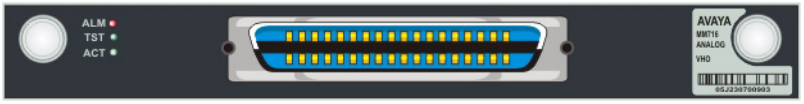
The front panel of the Avaya MM716 media module

The MM716 media module front panel has a 25 pair amphenol connector supporting 24 analog line ports. These ports can be configured as DID trucks with either wink start or immediate start.

The MM716 is compatible with Avaya CM version 2.0 and higher, and G350 firmware version 25.0.0 and higher.

The following figure shows the MM716 front panel.

Figure 48: The MM716 media module front panel



MM716 ports

The MM716 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 or RJ-11 jacks, as needed. You can attach up to 24 devices (analog telephones, trunks, modem or fax machines) to these jacks. Table 14 shows the pinout of the 25-pair connector.

Table 14: 25-pair amphenol connector pinout

Station port	Cable pair	
1	White	Blue
2	White	Orange
3	White	Green
4	White	Brown
5	White	Slate
6	Red	Blue
7	Red	Orange
8	Red	Green
9	Red	Brown
		1 of 2

Table 14: 25-pair amphenol connector pinout (continued)

Station port	Cable pair	
10	Red	Slate
11	Black	Blue
12	Black	Orange
13	Black	Green
14	Black	Brown
15	Black	Slate
16	Yellow	Blue
17	Yellow	Orange
18	Yellow	Green
19	Yellow	Brown
20	Yellow	Slate
21	Violet	Blue
22	Violet	Orange
23	Violet	Green
24	Violet	Brown
OPEN	Violet	Slate
		2 of 2

MM716 LEDs

The following table shows the meaning of the MM716's LEDs when they are lit:

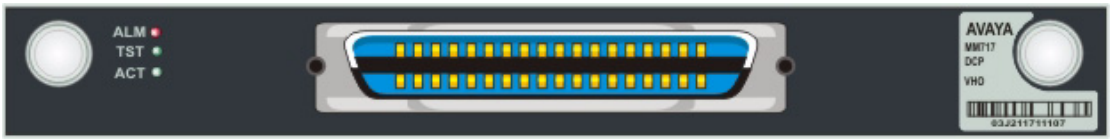
LED	Name	Color	Meaning
ALM	Alarm	Red	The module type is not the type configured in the MSG for the slot.

LED	Name	Color	Meaning
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 or RJ-11 jacks, as needed. You can attach up to 24 two-wire DCP telephones to these jacks. The MM717 does not support four-wire DCP telephones.

Figure 49: The MM717 media module front panel



MM717 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 or RJ-11 jacks, as needed. Table 15 shows the pinout of the 25-pair connector.

Table 15: 25-pair amphenol connector pinout

Station port	Cable pair	
1	White	Blue
2	White	Orange
3	White	Green
		1 of 2

Table 15: 25-pair amphenol connector pinout (continued)

Station port	Cable pair	
4	White	Brown
5	White	Slate
6	Red	Blue
7	Red	Orange
8	Red	Green
9	Red	Brown
10	Red	Slate
11	Black	Blue
12	Black	Orange
13	Black	Green
14	Black	Brown
15	Black	Slate
16	Yellow	Blue
17	Yellow	Orange
18	Yellow	Green
19	Yellow	Brown
20	Yellow	Slate
21	Violet	Blue
22	Violet	Orange
23	Violet	Green
24	Violet	Brown
OPEN	Violet	Slate
		2 of 2

MM717 LEDs

The following table shows the meaning of the MM717's LEDs when they are lit:

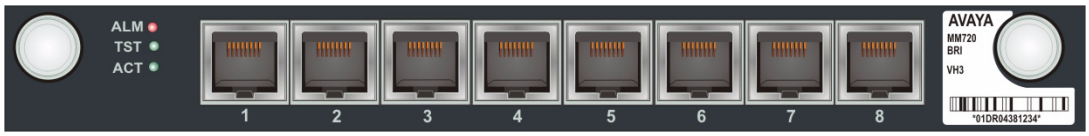
LED	Name	Color	Meaning
ALM	Alarm	Red	The module type is not the type configured in the MSG for the slot.
TST	Test	Green	Either a test is being performed on the module via the media server, or the module is performing a self-test upon initial insertion.
ACT	Activity	Yellow	A device connected to the module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

The front panel of the Avaya MM720 media module

The MM720 ISDN BRI media module contains eight 4 wire S/T 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 50: The MM720 media module front panel



MM720 ports

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

MM720 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 trunk connected to the module is in use. In CM 3.0 or higher, the LED could alternatively indicate that a telephone connected to the module is in use.

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 51: The MM722 media module front panel

MM722 ports

The MM722 contains two ISDN BRI ports.

MM722 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 trunk connected to the module is in use. In CM 3.0 or higher, the LED could alternatively indicate that a telephone connected to the module is in use.

Appendix B: 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 16: 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)
Relative humidity	5-95%, non-condensing

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.

Appendix C: Running the Avaya Installation Wizard (Avaya IW)

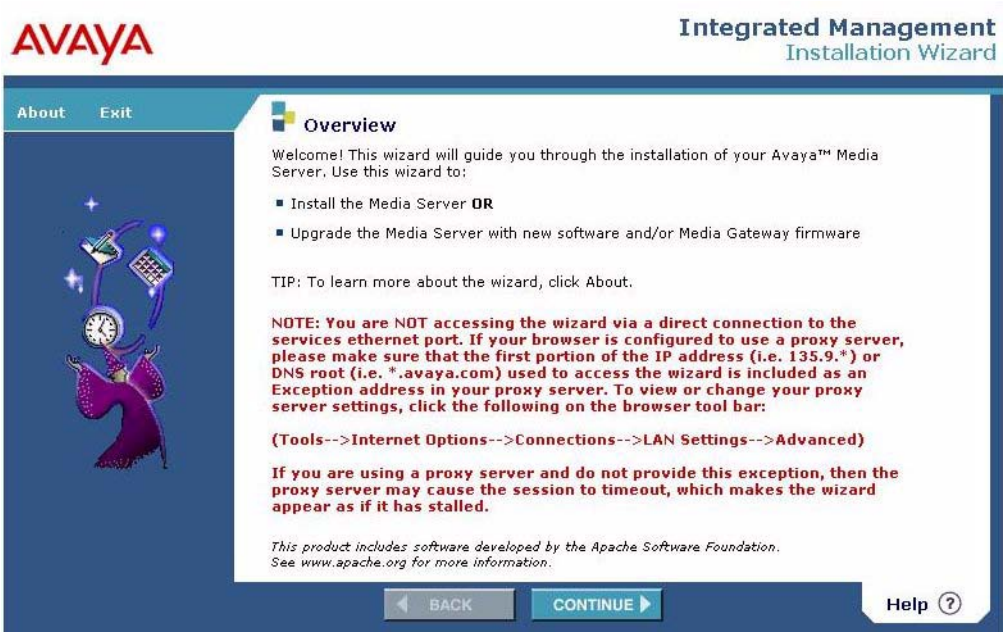
This appendix explains how to run Avaya Installation Wizard (Avaya IW). The Avaya IW is a web-based installation wizard that is used with the Avaya G350 Media Gateway to perform initial configuration tasks and to upgrade software and firmware. The Avaya IW is designed for use with systems that contain an S8300 Media Server, operating in either ICC or LSP mode. You can use Avaya IW to configure the Avaya G350 Media Gateway or to upgrade an installed S8300 with new Avaya Communication Manager (ACM) software and/or G350 firmware. If you have an EPW (see Obtain the Electronic Preinstallation Worksheet (EPW) on page 24), you will be able to upload configuration parameters from the EPW to AIW as part of your AIW session.

Accessing Avaya IW

To access the Avaya IW:

1. Connect a laptop computer to the Services port of the S8300, using a crossover cable.
2. Make sure the laptop is configured as follows:
   - IP Address: 192.11.13.5
   - NetMask: 255.255.255.252
   - Disable DNS
   - Clear the primary WINS and secondary WINS IP Addresses
   - Disable the Proxy Server in the Internet Explorer
3. Launch Internet Explorer on the laptop and type the following URL to access the S8300 Media Server Home Page: http://192.11.13.6
4. Enter the appropriate login name and password.

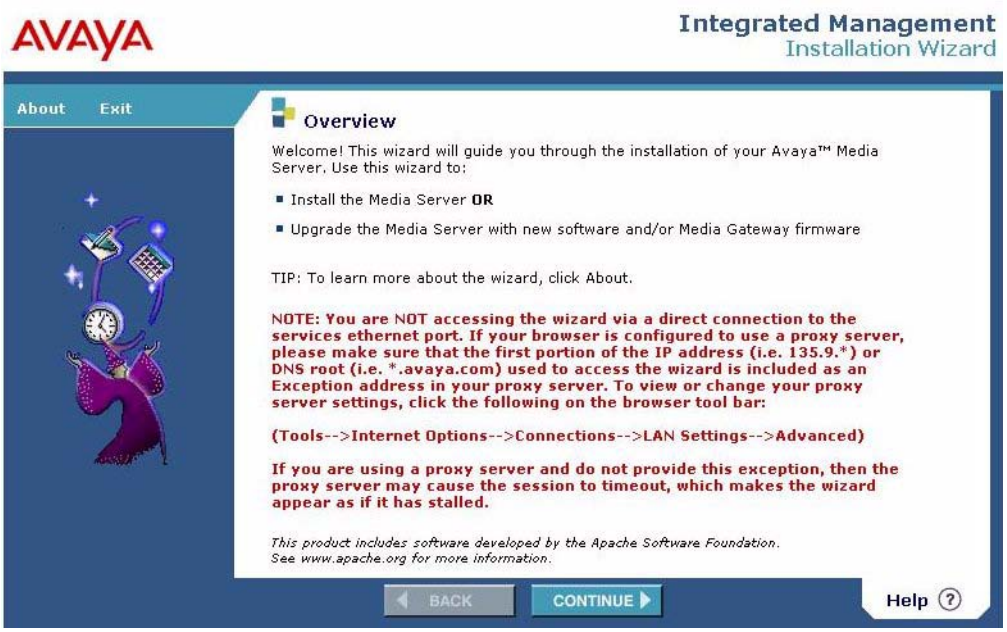
5. Select the Launch Installation Wizard link from the home page. The Overview screen appears:



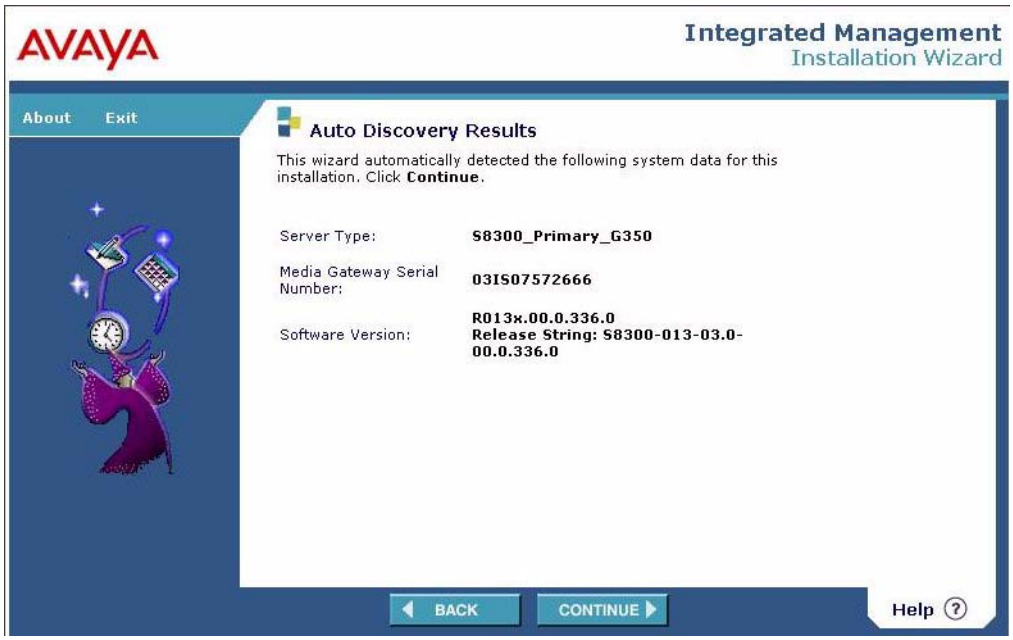
Preliminary screens

View the preliminary screens:

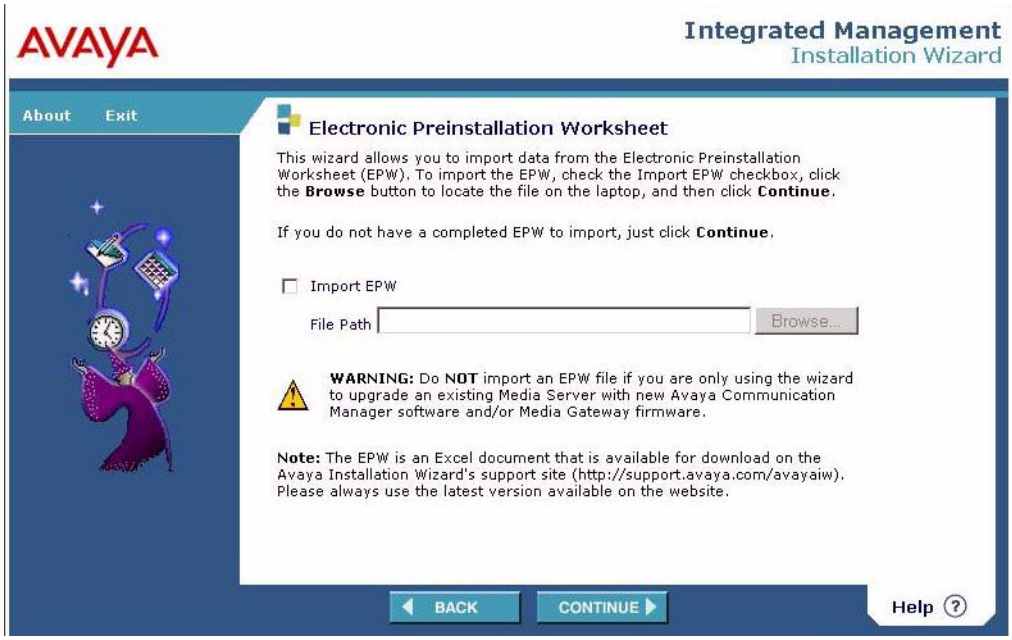
1. When you access the Avaya IW, the first screen that appears is the Overview screen:



2. Click **Continue**. The Avaya IW performs system auto-discovery and displays the results on the following screen:

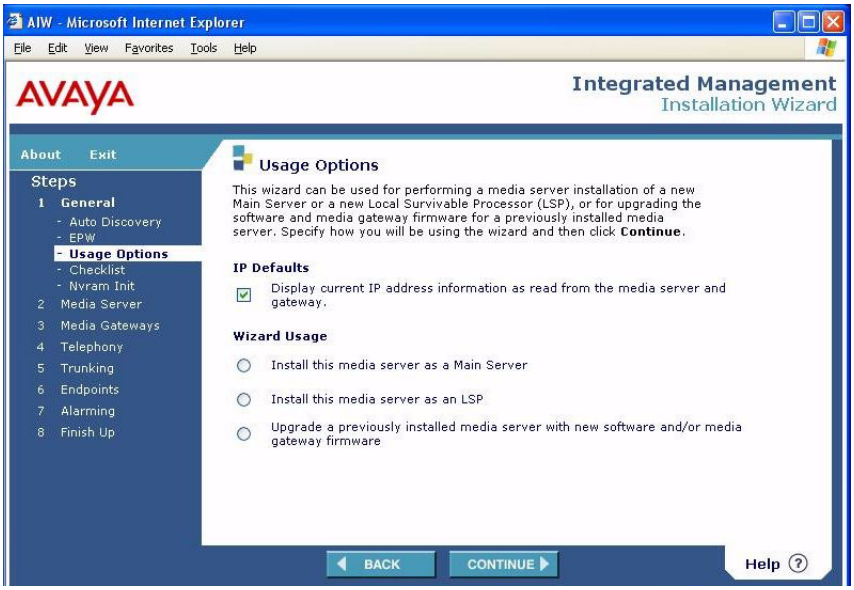


3. Click **Continue**. The Import Electronic PreInstallation Worksheet screen appears. This screen allows you to import system data from the Electronic PreInstallation Worksheet (EPW). If you import and EPW, some of the fields on the subsequent screens will be filled automatically. For information about obtaining the EPW, see Obtain the Electronic Preinstallation Worksheet (EPW) on page 24.



MGC configuration and upgrade

4. Click **Continue**. The Usage Options screen appears.

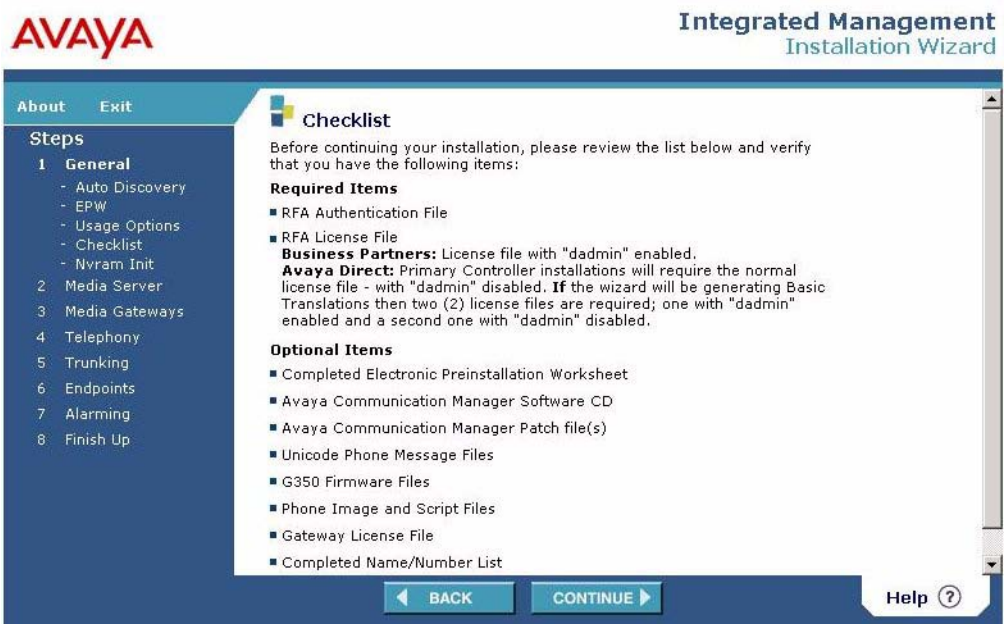


5. Specify which of the following configuration processes you would like to initiate:

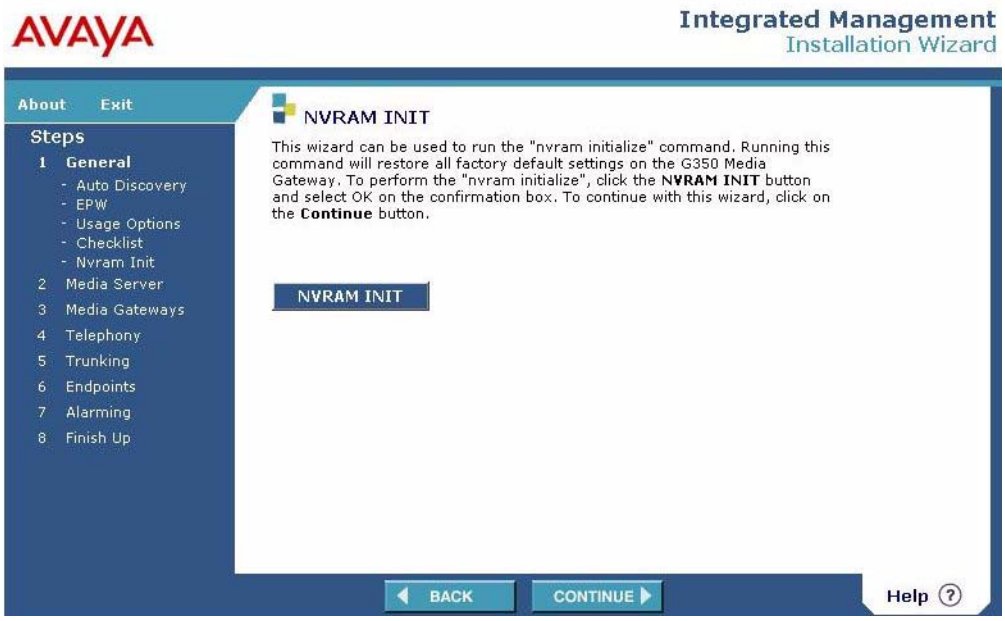
- **Install this media server as a Main Server**. Select this option to configure the installed S8300 media server as the primary Media Gateway Controller (MGC). The primary MGC is the MGC that the G350 searches for first to provide call processing services to the G350.
- **Install this media server as an LSP**. Select this option to configure the installed S8300 media server as a backup MGC (LSP) and to configure an external media server as the primary MGC. In this case, the installed S8300 will provide backup call processing services to the G350 in case of connection failure to the primary MGC.
- **Upgrade a previously installed media server with new software and/or media gateway firmware**. Select this option to upgrade an installed Media Server with new Avaya Communication Manager software and/or Media Gateway firmware.

6. Click **Continue**. If you are configuring a new MGC, the Confirm New Installation screen appears, as shown below. If you are upgrading an existing MGC, the Avaya Communication Manager Software screen appears. See Upgrading an existing MGC on page 155.

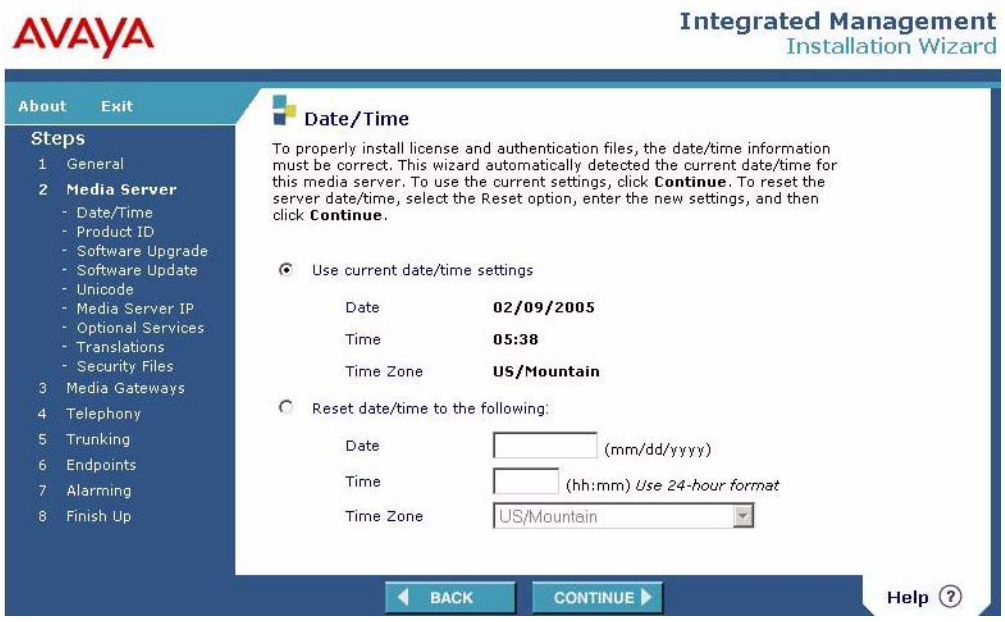
7. Click **Continue**. The Checklist screen appears. The Checklist screen displays a list of required and optional items you need to configure the G350. For details, see Chapter 2: Before you install on page 19.



8. Click **Continue**. The NVRAM INIT screen appears. This screen allows you to restore all factory default settings.



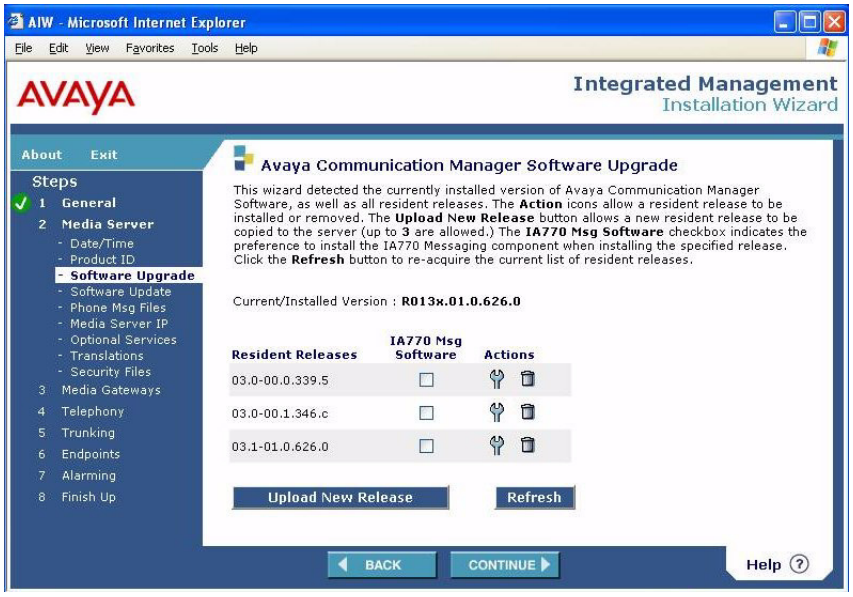
9. Click **Continue**. The Date/Time screen appears. This screen allows you to reset the G350's date and time.



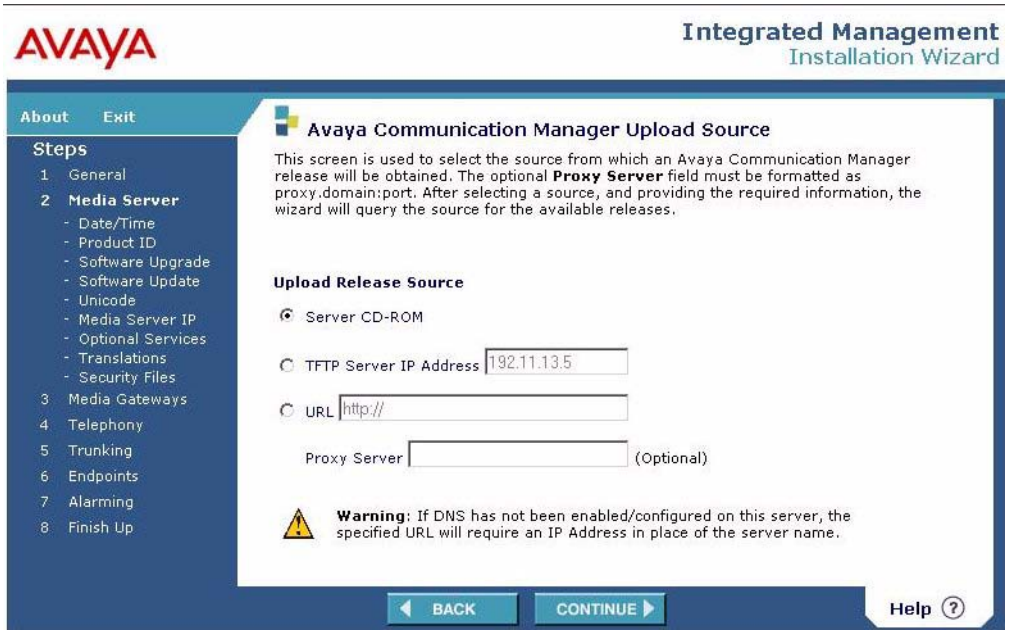
10. Click **Continue**. The Product ID screen appears. If you are configuring a new G350, enter the product ID in the ID field and select **Assign the new product ID**.

Upgrading an existing MGC

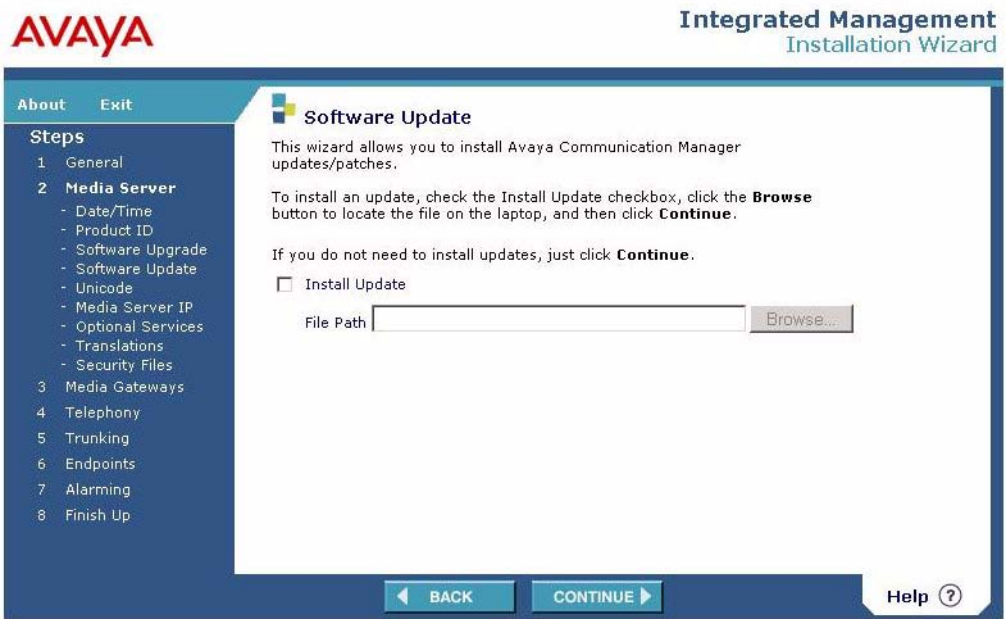
11. Click **Continue**. The Avaya Communication Manager Software screen appears. This screen allows you to upgrade the Communication Manager software on the S8300 installed in the G350.



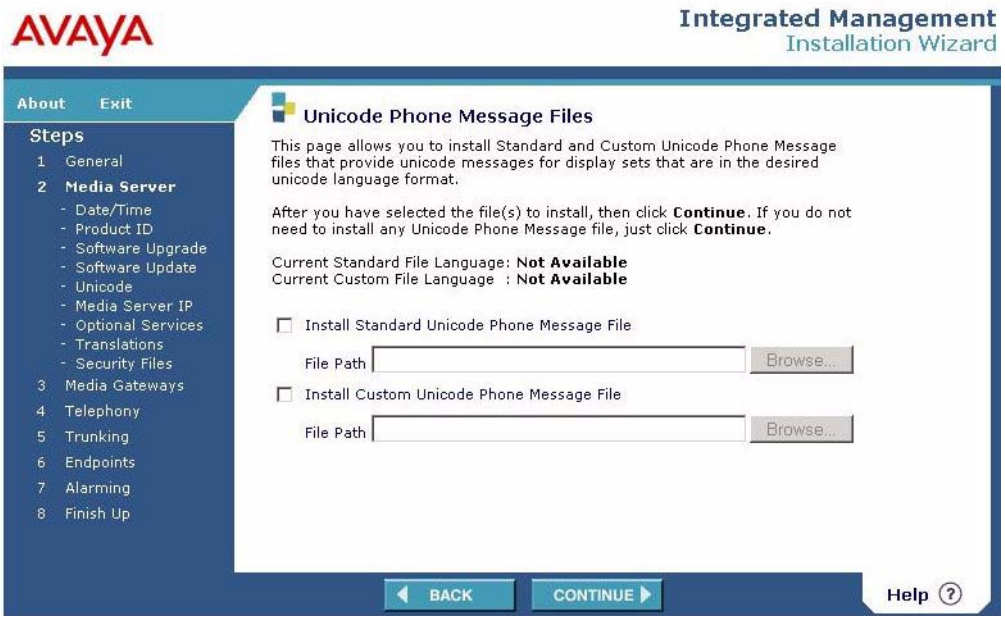
12. If you want to use the currently installed version of Avaya Communication Manager software, move on to step 14. If you want to upload a new release of Avaya Communication Manager software, click Upload New Release.



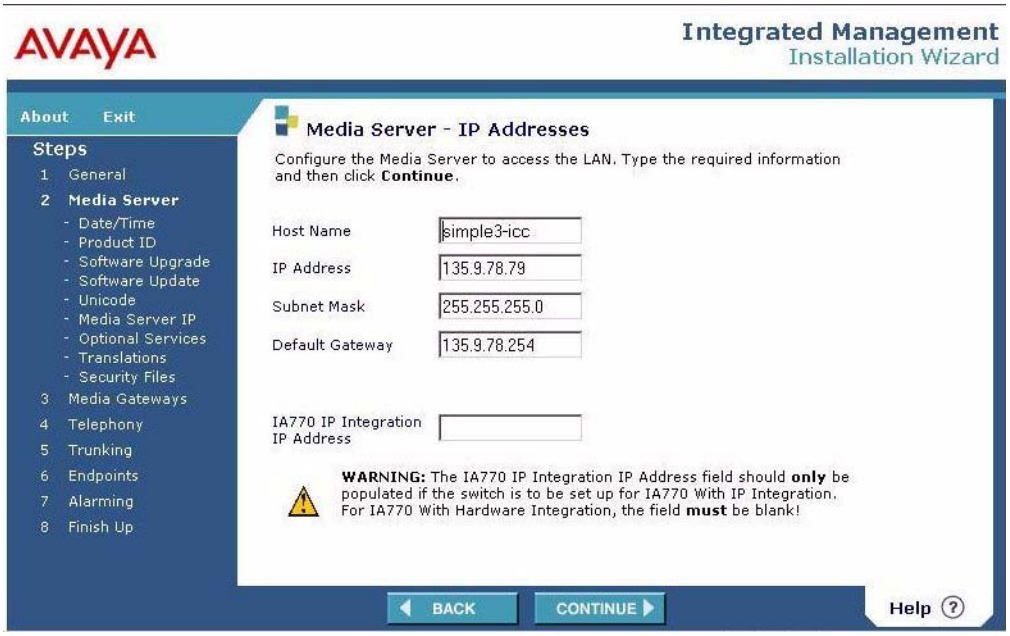
13. Select the source from which the Avaya Communication Manager release will be uploaded.
14. Click **Continue**. The Software Update screen appears. This screen allows you to install Avaya Communication Manager updates.



15. If you want to install an Avaya Communication Manager update, check Install Update and browse to locate the update file on the laptop.
16. Click **Continue**. The Install Unicode Phone Message Files screen appears. This screen allows you to install files that provide unicode messages for display sets that are in the desired unicode language format.



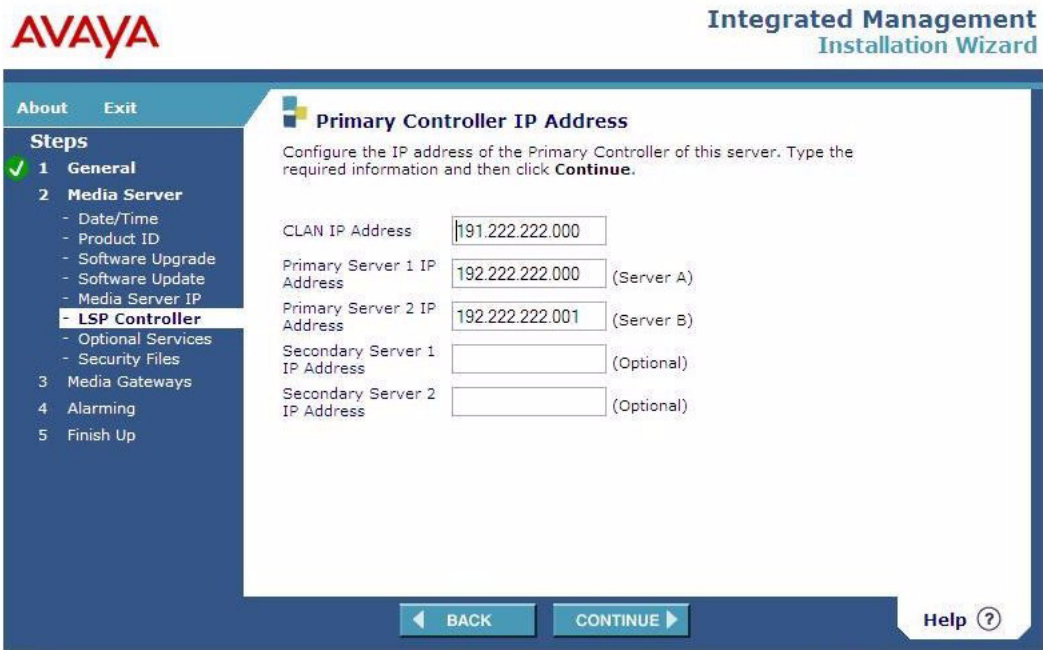
17. Click **Continue**. The Media Server - IP Addresses screen appears. If your S8300 media server is already configured, the Avaya IW should detect and display its address information in this screen. If not, you must enter the required information.



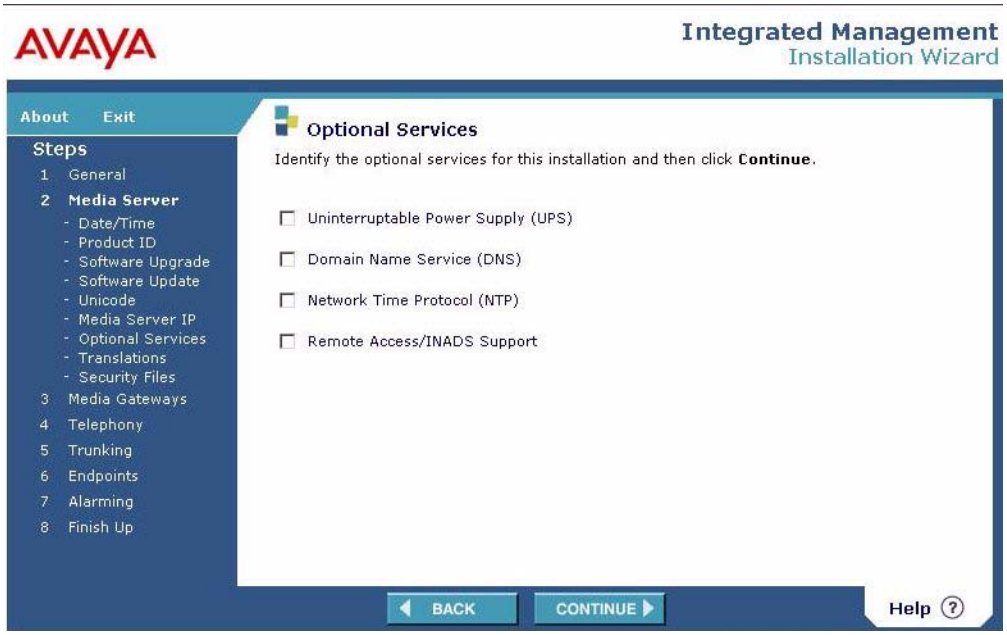
Configuring the primary controller IP addresses

To configure the primary controller IP addresses follow these steps:

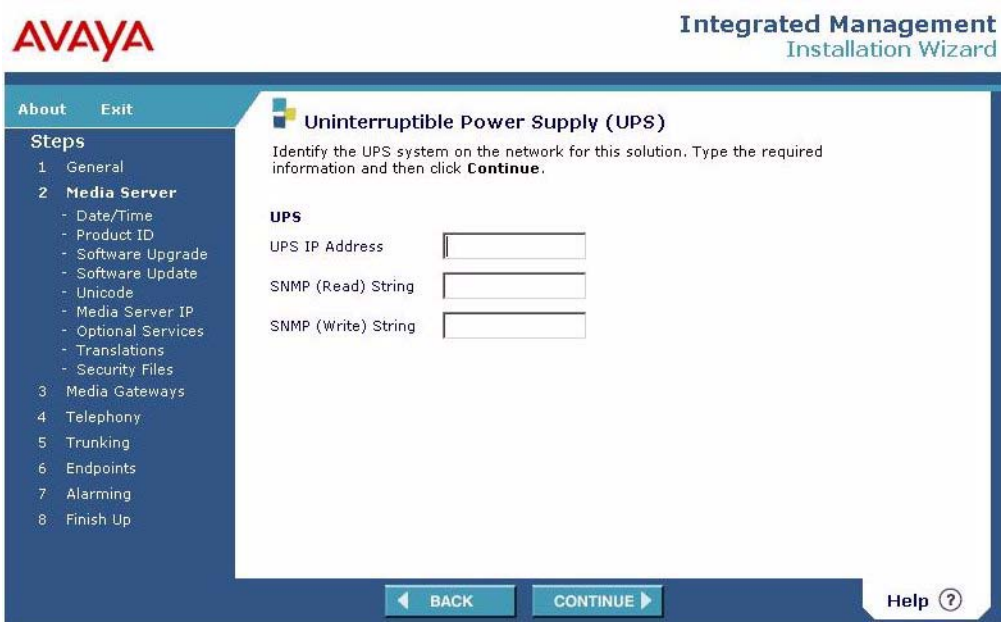
18. Click **Continue**. If you selected the **Install this media server as an LSP** option in the Usage Options screen, the Primary Controller IP Address screen appears. The IP addresses required vary depending on the type of primary controller. Enter the required IP address(es) for the primary controller.



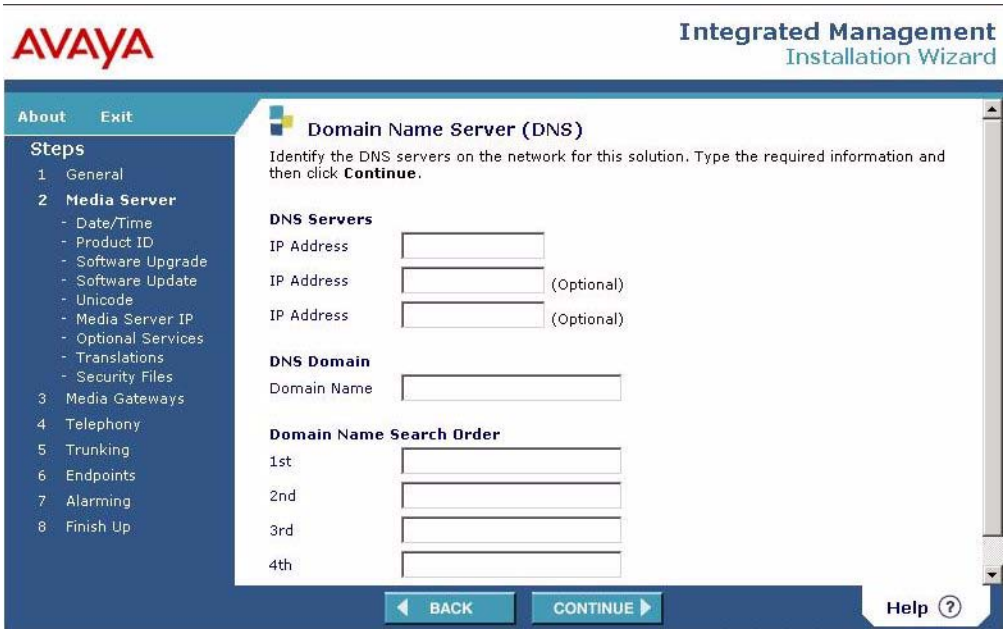
19. Click **Continue**. The Optional Services screen appears. Select the services you want.



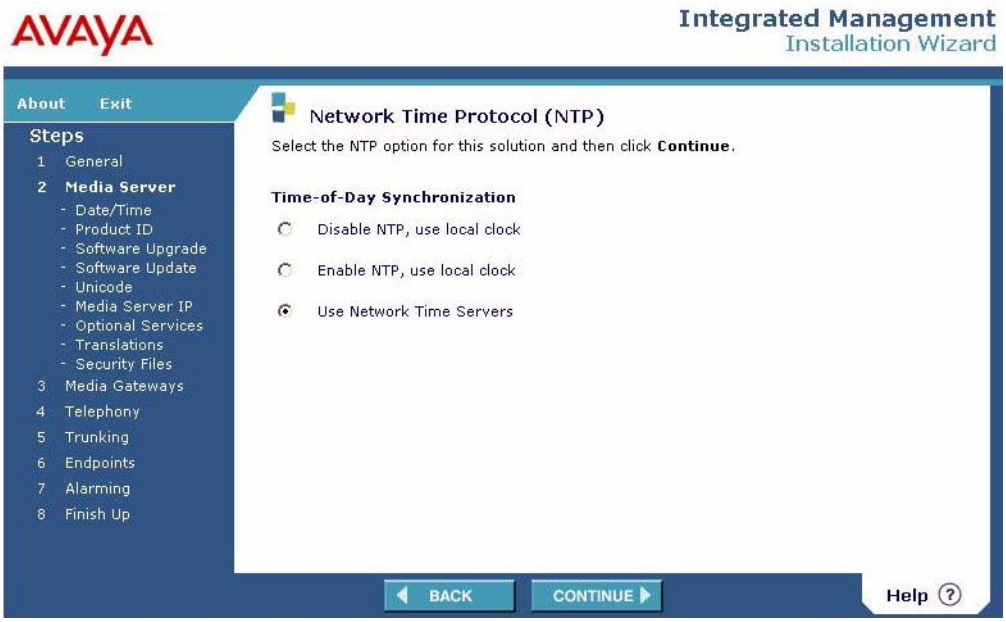
20. Click **Continue**. If you selected Uninterruptible Power Supply (UPS) in the Optional Services screen, the Uninterruptible Power Supply (UPS) screen appears. Enter the required information.



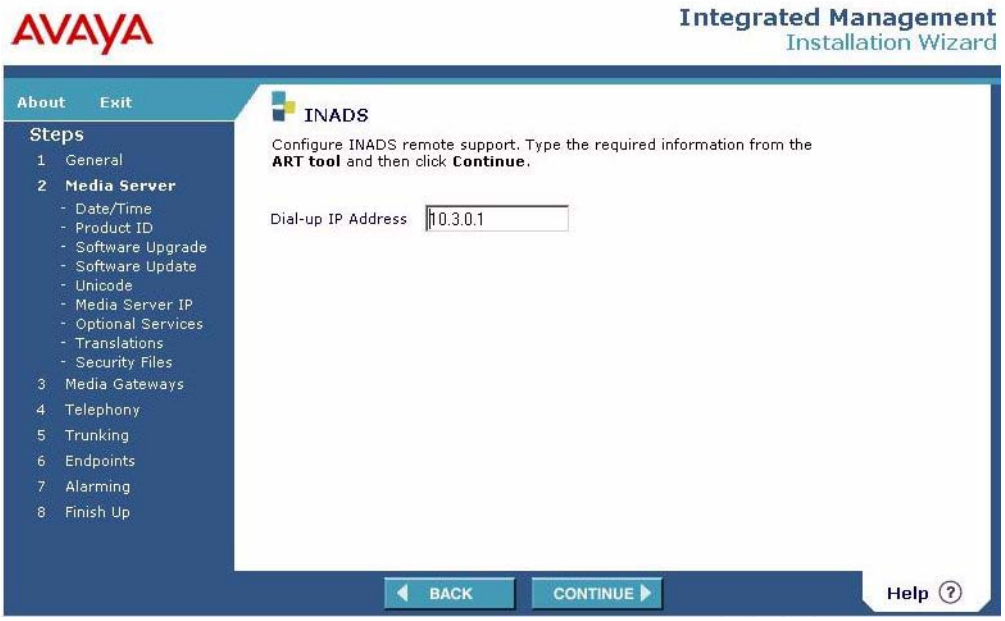
21. Click **Continue**. If you selected Domain Name Service (DNS) in the Optional Services screen, the Domain Name Service (DNS) screen appears. Enter the required information.



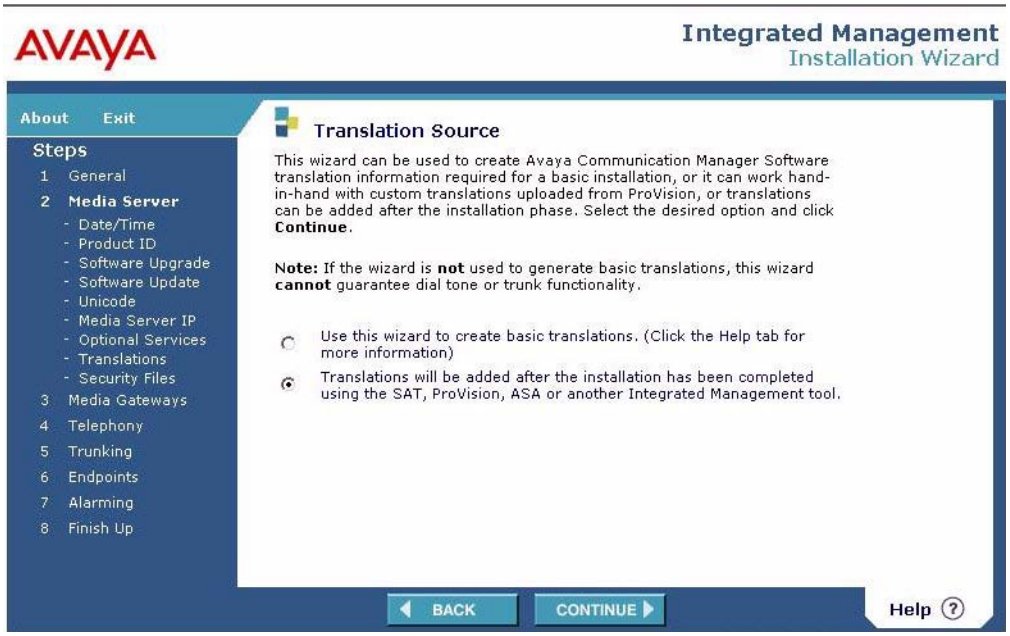
22. Click **Continue**. If you selected Network Time Protocol (NTP) in the Optional Services screen, the Network Time Protocol (NTP) screen appears. Select an NTP option.



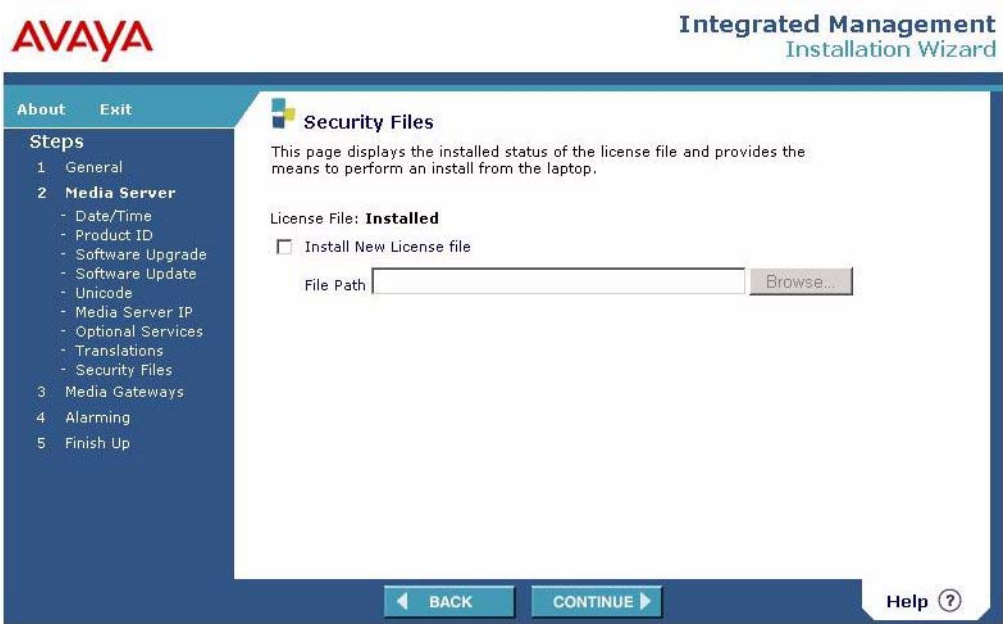
23. Click **Continue**. If you selected Remote Access/INADS Support in the Optional Services screen, the INADS screen appears. Enter a dialup IP address for Installation and Administration System (INADS) remote support. For instructions on how to obtain the INADS IP address, see Run the Automatic Registration Tool (ART) for the RAS IP address on page 22.



24. Click **Continue**. The Translation Source screen appears. This screen allows you to generate Avaya Communication Manager translation information. This feature provides basic translations for administration of extension ranges, trunk types, routes, class of service, feature access codes, trunk access codes, station button assignment, and several other parameters.

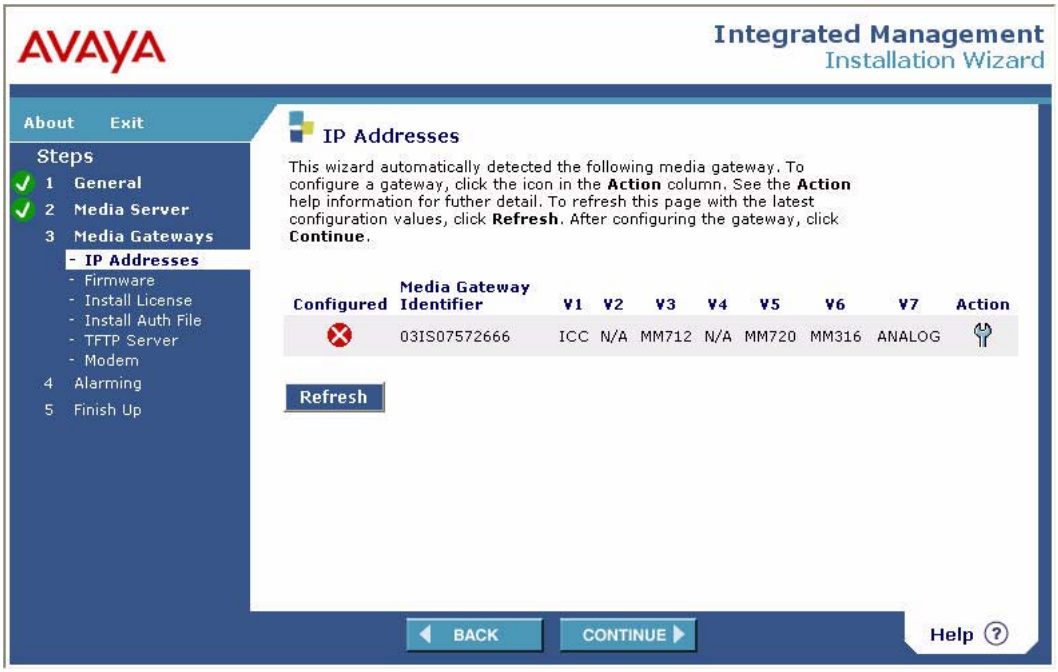


25. Click **Continue**. The Security Files screen appears. This screen displays the status of your license and authentication files, and allows you to install these files from a laptop. For information on these files, see Download license and authentication files to your laptop on page 22.



Gateway configuration

26. Click **Continue**. The IP Addresses screen appears. This screen displays the G350's ID, as well as the type of media module residing in each slot of the G350's chassis.



27. Click the wrench icon corresponding to the G350 in the **Action** column. The PMI configuration screen appears. The IP address and subnet mask of the PMI should appear in this screen. Change this IP address and subnet mask in accordance with your system specifications. The Primary Management Interface (PMI) address is the interface used for the following management functions:

    - Registration of the G350 to an MGC
    - Sending SNMP traps
    - Opening telnet sessions from the G350
    - Sending messages from the G350 using FTP and TFTP protocol

    You can assign any IP interface that the MGC recognizes to be the PMI.

28. Click **Continue**. The SNMP V1 Community Strings screen appears. In the Read Only Community String field, specify a name for the SNMP read community access name to assign to the G350. In the Read Write Community String field, specify a name for the SNMP write community access name to assign to the G350. Re-enter the strings in the Re-enter

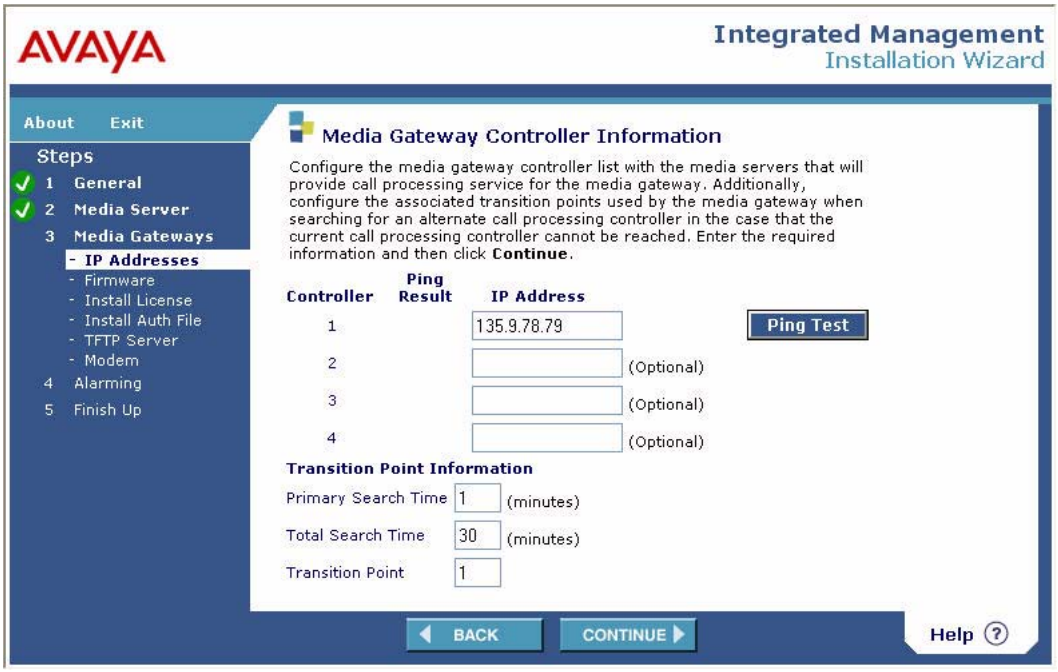
Community String fields for confirmation. For information about SNMP, see *Administration for the Avaya G250 and Avaya G350 Media Gateways,* 03-300436.

29. Click **Continue**. The SNMP V3 screen appears.

30. Complete all fields if you want to configure an SNMP V3 user. Otherwise, leave all fields blank.
31. Click **Continue**. The Media Gateway Controller Information screen appears. Configure the list of Media Gateway Controllers (MGCs) that will provide call processing services for the G350. You must specify a primary MGC in the first IP address box. You can specify up to three backup MGCs in the optional IP address boxes, in priority order. The G350 searches for the primary MGC first. If it cannot connect to the primary MGC, it searches for a backup MGC. An MGC may be the Avaya S8300 Media Server installed in the G350 or an external Avaya S8500 Media Server or Avaya S8700 Media Server, or an Avaya S8300 Media Server installed in an external media gateway. Specify your primary MGC in accordance with the usage option you chose (see step 4). If you do not configure the S8300 installed in the G350 as the primary MGC, configure the S8300 as a backup MGC.

Note:

To register an S8500 or S8700 media server as the MGC, use the IP address of the media server's Control-LAN card (CLAN) rather than the IP address of the media server itself.

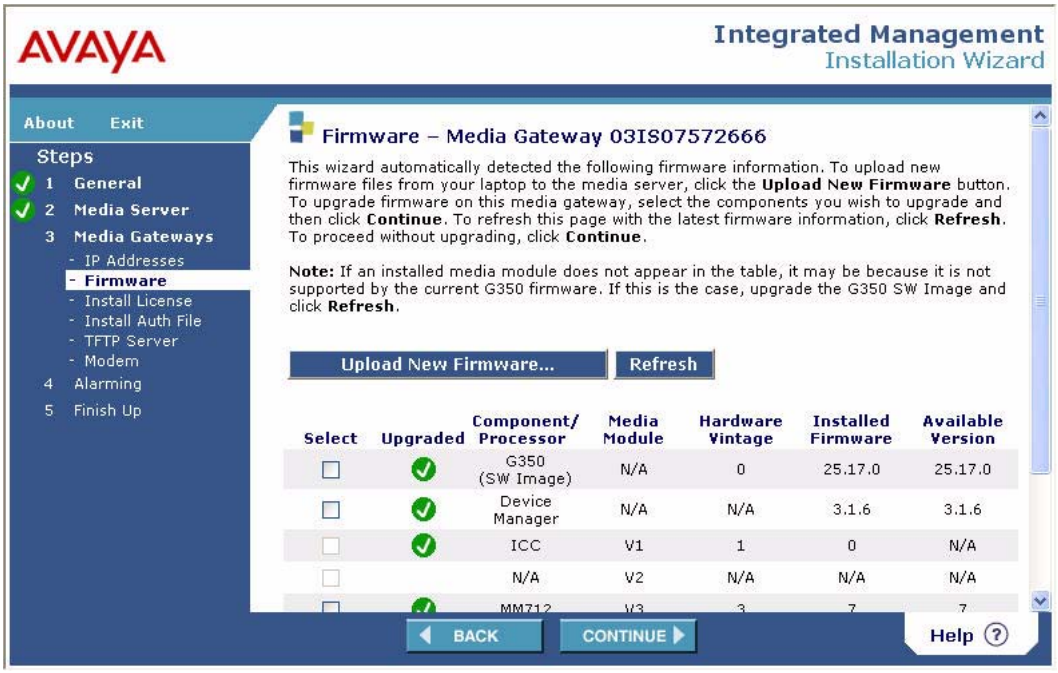


Firmware configuration

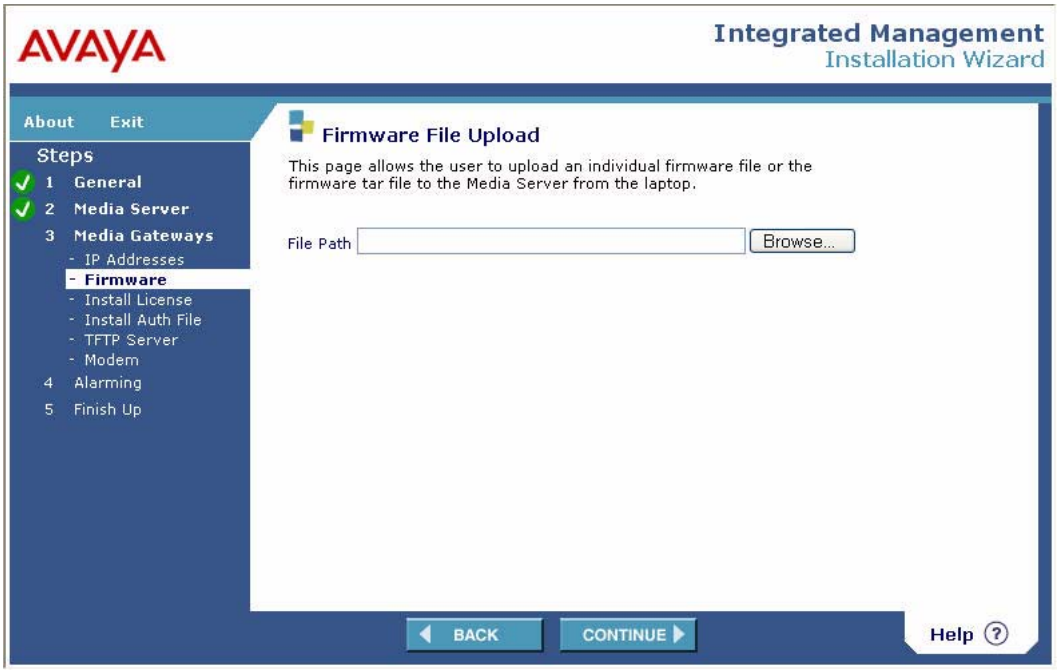
32. To upgrade the G350 firmware, click **Continue** on the Media Gateway Controller Information screen.

    The Firmware screen appears. This screen displays the currently installed firmware versions on the G350 and its media modules, as well as the most recent available versions.

    - To upgrade firmware, select the modules you want to upgrade and click **Continue**.
    - To upload a new firmware version from a laptop, click **Upload New Firmware**. The Firmware File Upload screen appears.
    - To proceed without upgrading any firmware, clear all the boxes in the **Select** column and click **Continue**.

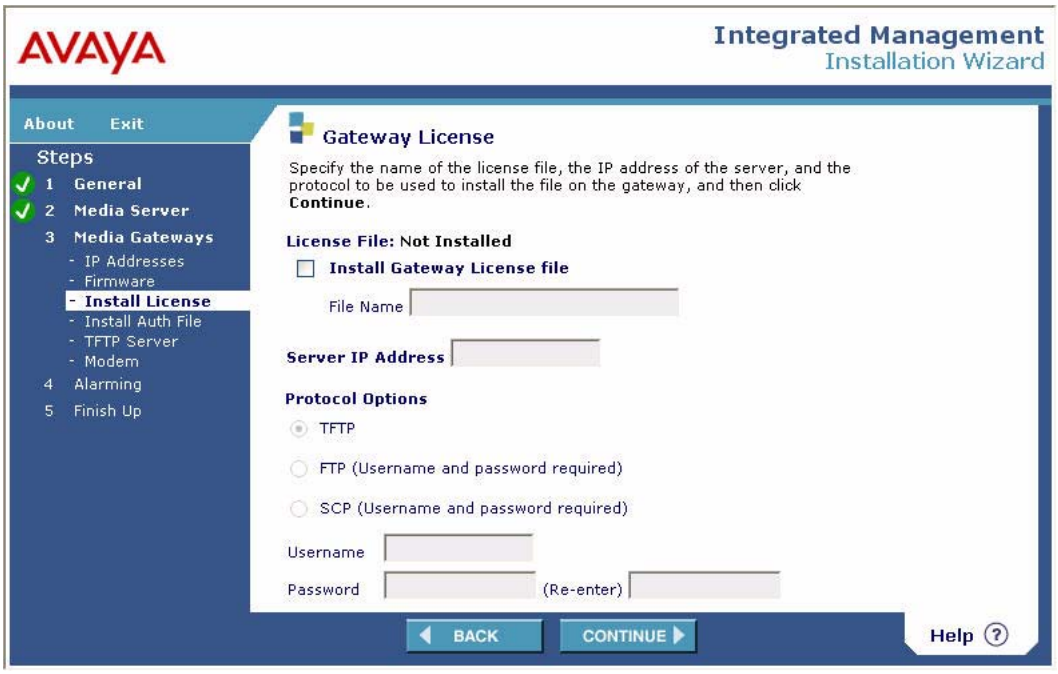


33. The Firmware File Upload screen allows you to upload a new firmware file from a laptop. Enter the file path of the file you want to upload, or use the **Browse** button to locate the file.



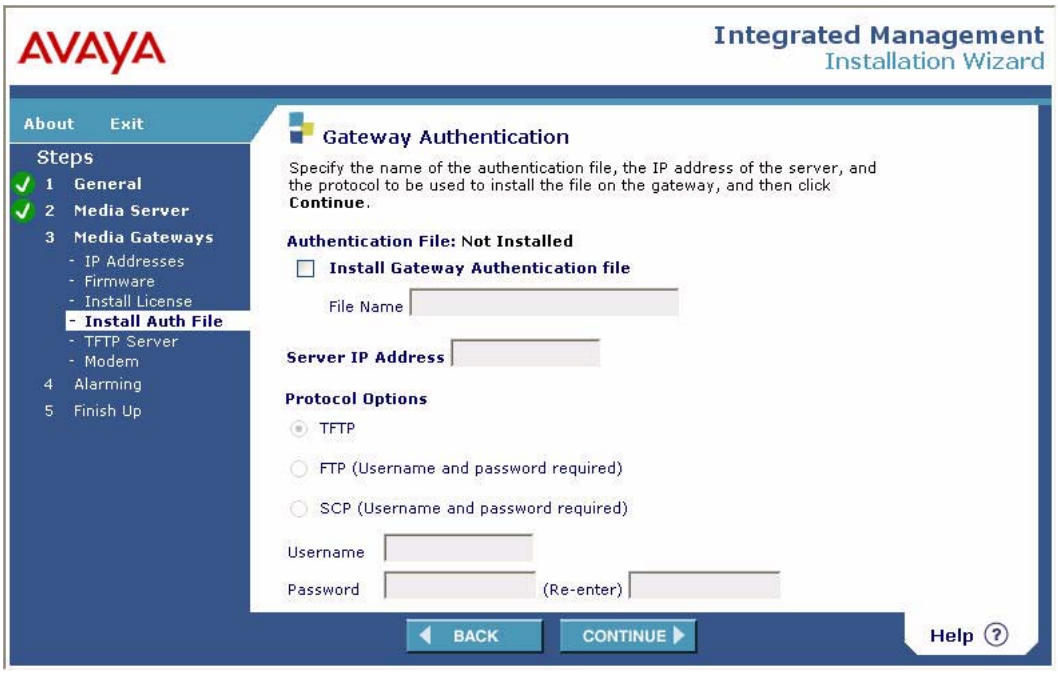
34. Click **Continue**. The file is uploaded and the Firmware screen returns. Clear all the checkboxes in the Select column.

35. Click **Continue**. The Gateway License screen appears.



36. If you will need to use the VPN feature on the G350, check Install Gateway License file and fill in the remaining fields to install the gateway license file.

37. Click **Continue**. The Gateway Authentication appears.



38. Do not complete the fields in this screen.

39. Click **Continue**. The TFTP Server screen appears.

40. If you want to upload configuration and firmware files for IP phones to the G350 TFTP Server, do the following:
    a. In the Server IP Address field, enter the IP address of the machine hosting the files that are to be uploaded.
    b. Select the file transfer protocol (TFTP, FTP, or SCP) you want to use to upload the files from the host machine. TFTP is selected by default.
    c. The use of the SCP protocol is limited to copying files of 1 MB or less. Therefore, an SCP server can be used for copying the script files, which do not exceed 128 KB, but cannot be used for copying image files.
    d. If you selected FTP or SCP, enter the username and password in the Username and Password fields, and re-enter the password for confirmation in the Re-enter Password field.
41. In the Select column, check any files you wish to upload. If you selected SCP as your upload protocol, the checkboxes for the phone images are disabled. If a green circled checkmark is displayed in the Uploaded column, the file has already been uploaded.

Modem configuration

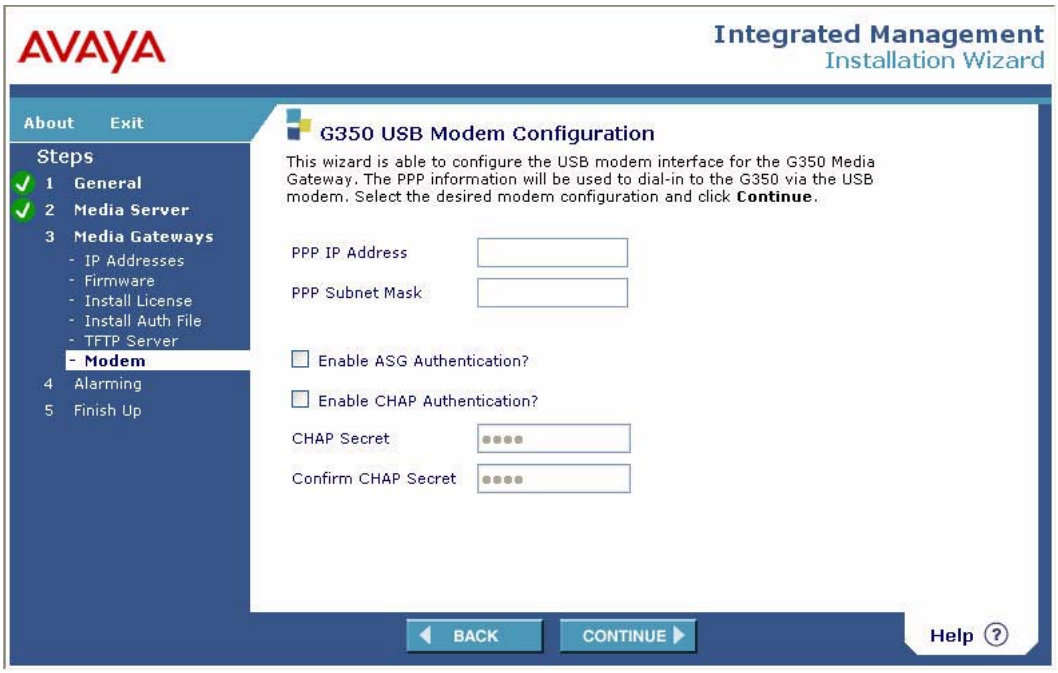
42. To configure the G350 for modem use, click **Continue** on the TFTP Server screen .

    The G350 Modem Type Selection screen appears. Select the modem type you want to use. For more information on using a modem with the G350, see Chapter 5: Connecting and enabling a modem for remote access on page 61.

43. Click **Continue**. If you selected **Serial Modem**, the G350 Serial Modem Configuration screen appears. If you selected **USB Modem**, the G350 USB Modem Configuration screen appears. If you selected **None**, the Country screen appears. See Telephony configuration on page 175.

44. If you selected **Serial Modem**, enter the required information in the G350 Serial Modem Configuration screen, then click **Continue**.

45. If you selected **USB Modem**, enter the required information in the G350 USB Modem Configuration screen, then click **Continue**.

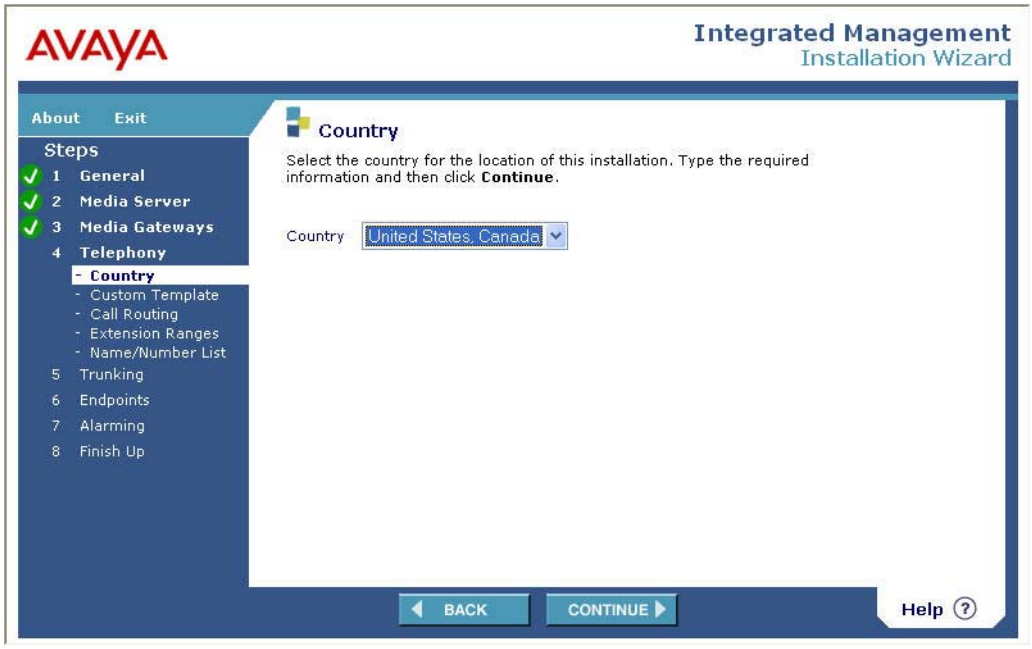


Telephony configuration

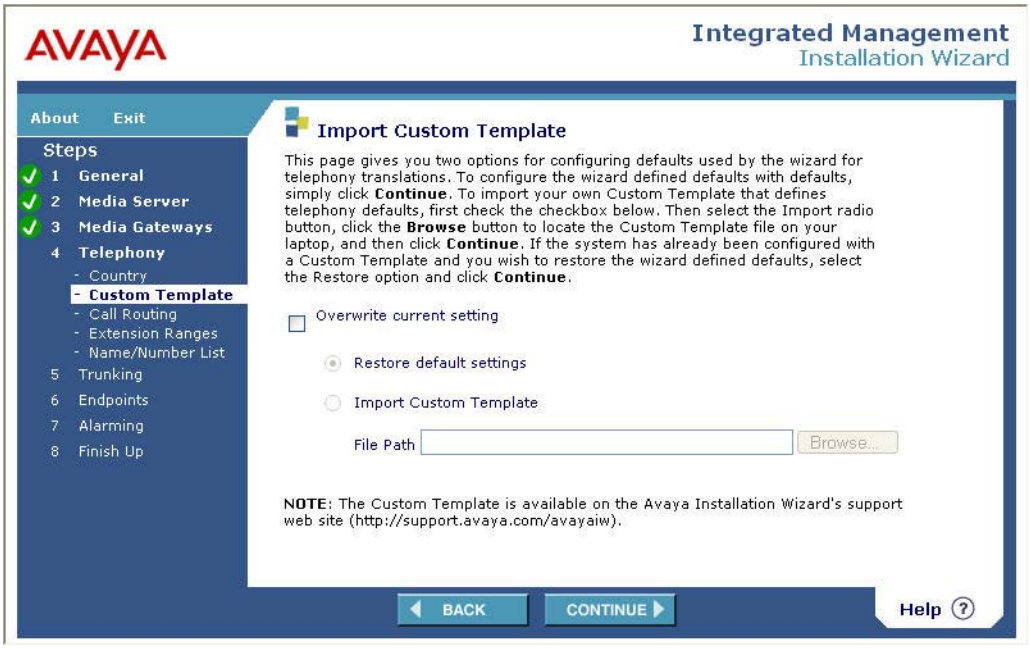
If you selected the option to use this wizard to create basic translations in the Translation Source screen (see step 24), the Telephony, Trunking, and Endpoints sections appear in the wizard. If you did not select the option to use this wizard to create basic translations in the Translation Source screen, skip to Alarm configuration on page 186.

For telephony configuration:

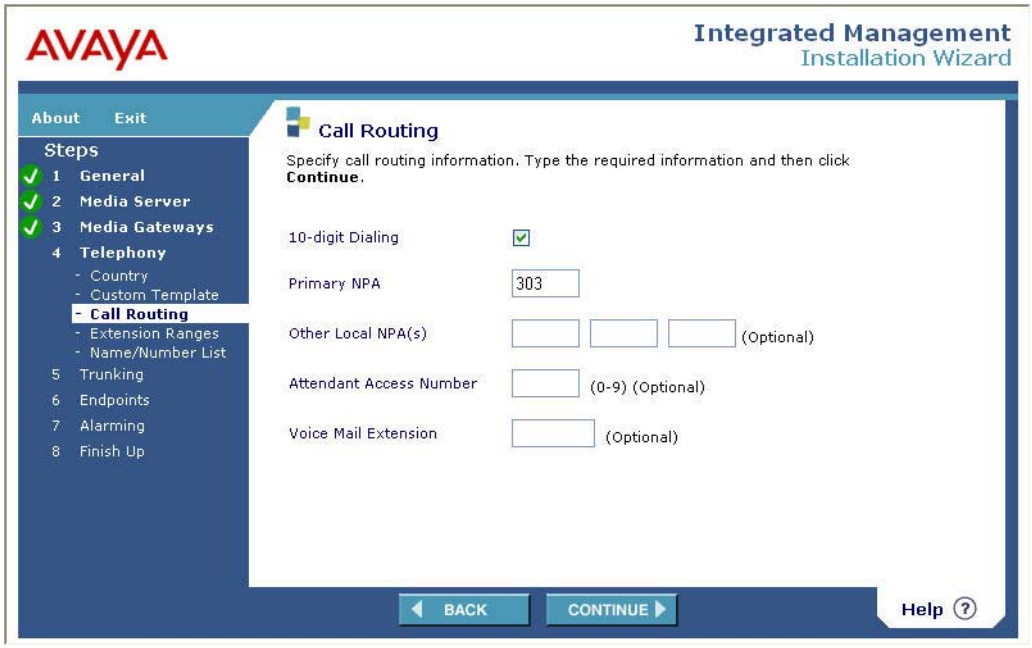
46. To configure the G350's telephony parameters, click **Continue** in the applicable modem configuration screen. The Country screen appears. Select the country in which the installation is taking place.



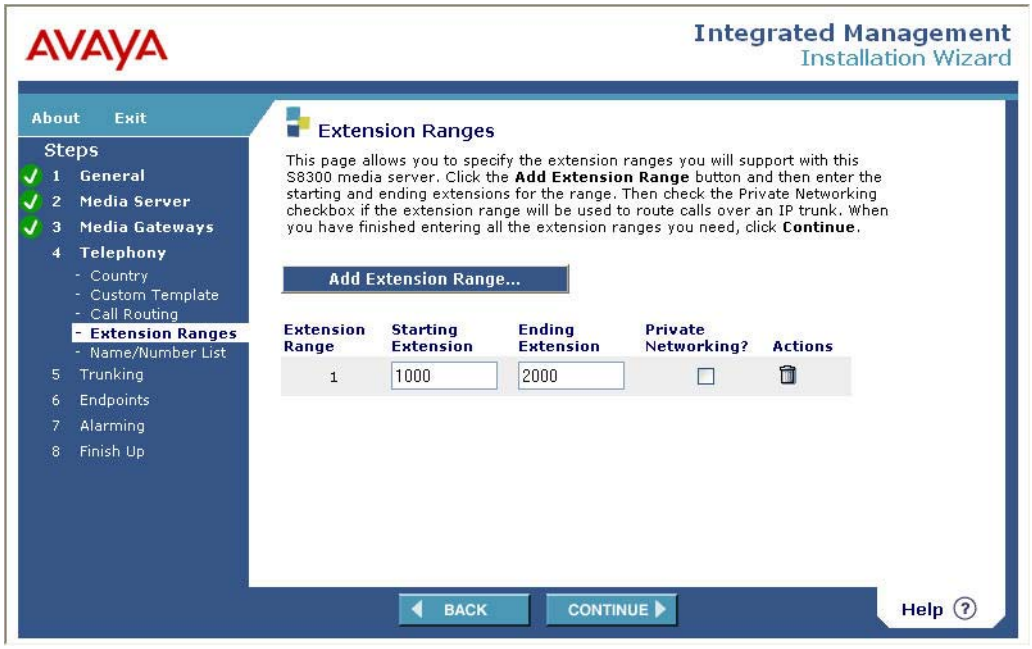
47. Click **Continue**. The Import Custom Template screen appears. This screen allows you to configure telephony translation defaults for the Avaya IW.



48. Click **Continue**. The Call Routing screen appears. Enter the required call routing information.



49. Click **Continue**. The Extension Ranges screen appears. To add a range, click **Add Extension Range** and enter the starting and ending extensions for the range. If you want this range to be used to route calls over an IP trunk, select **Private Networking**. To add additional extension ranges, repeat these steps. When you are finished, click **Continue**.

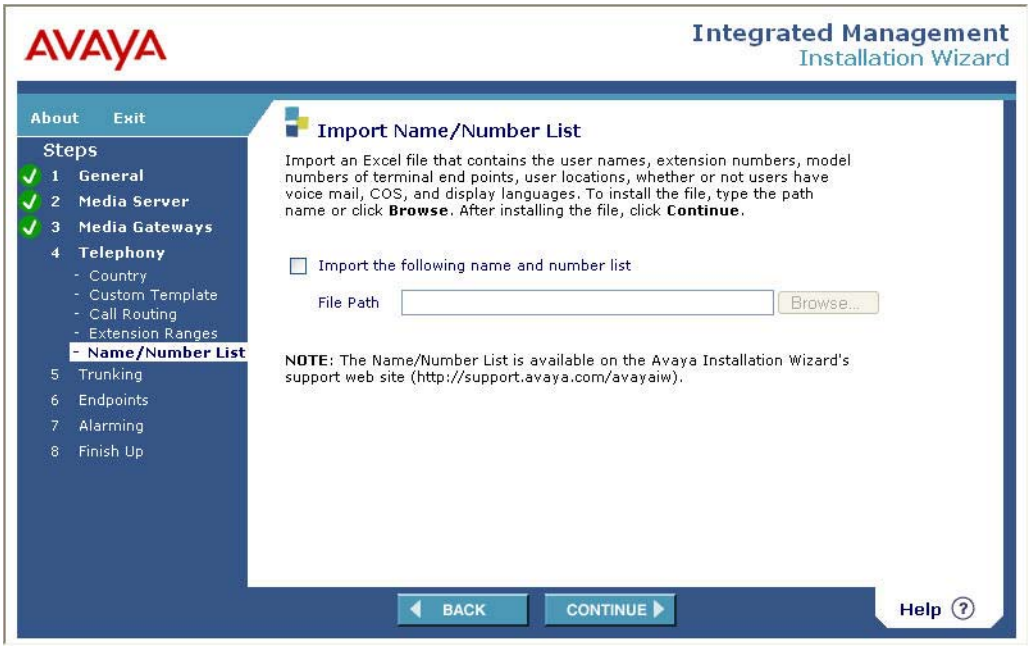


50. Click **Continue**. The Import Name/Number List screen appears. This screen allows you to import an Excel file that contains user names, extension numbers, and other information. To import this file:

    a. Select **Import the following name and number list**.

    b. Enter the file path of the file you want to import, or use the **Browse** button to locate the file.

    c. Click **Continue**.

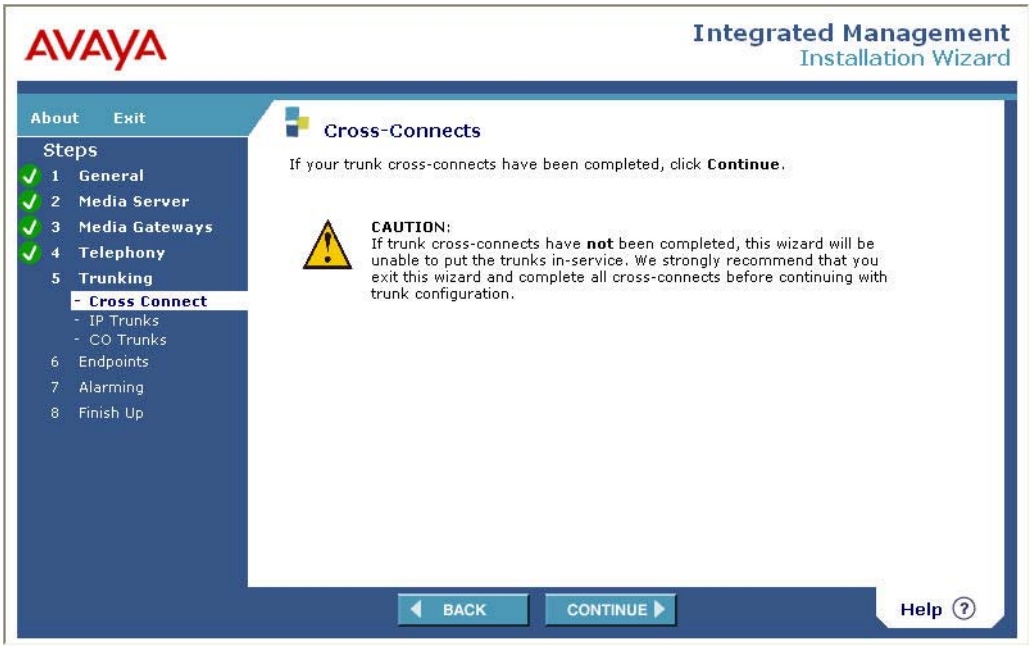


Trunk configuration

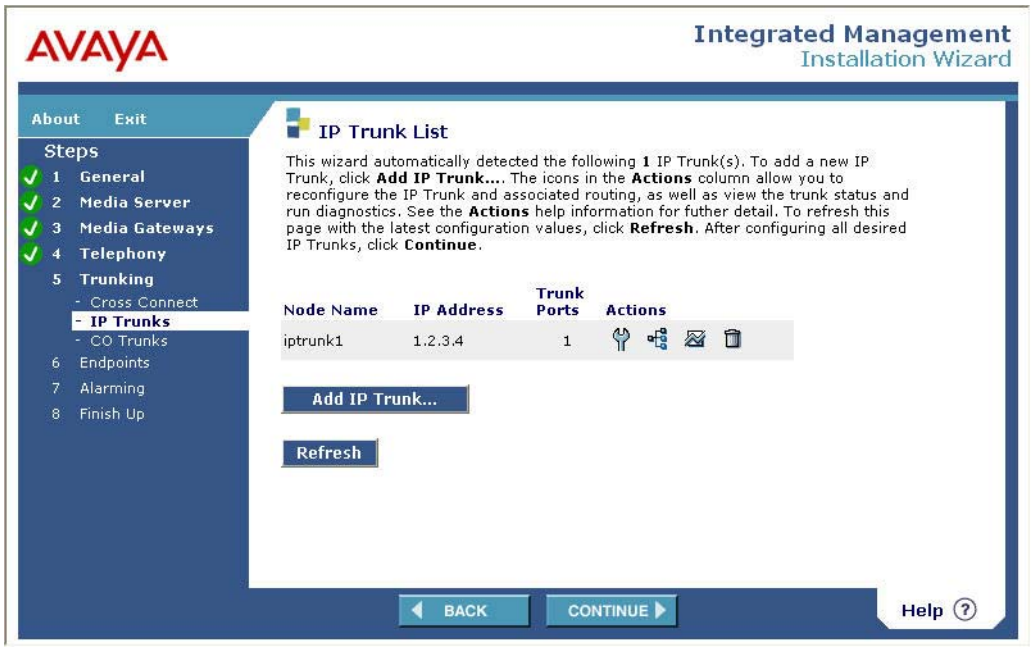
The Trunking section appears in the wizard only if you selected the option to use this wizard to create basic translations in the Translation Source screen (see step 24),. If you did not select the option to use this wizard to create basic translations in the Translation Source screen, skip to Alarm configuration on page 186.

For trunk configuration:

51. To configure the G350's trunk parameters, click **Continue** from the Import Name/Number List screen. The Cross-Connects screen appears. If your trunk cross-connects have been completed, click **Continue** to proceed with trunk configuration. If your trunk cross-connects have not been completed, it is strongly recommended to exit the Avaya IW and complete all cross-connects before proceeding with trunk configuration.



52. Click **Continue**. The IP Trunk List screen appears. This screen displays all IP trunks configured on the G350. To refresh this list, click **Refresh**.

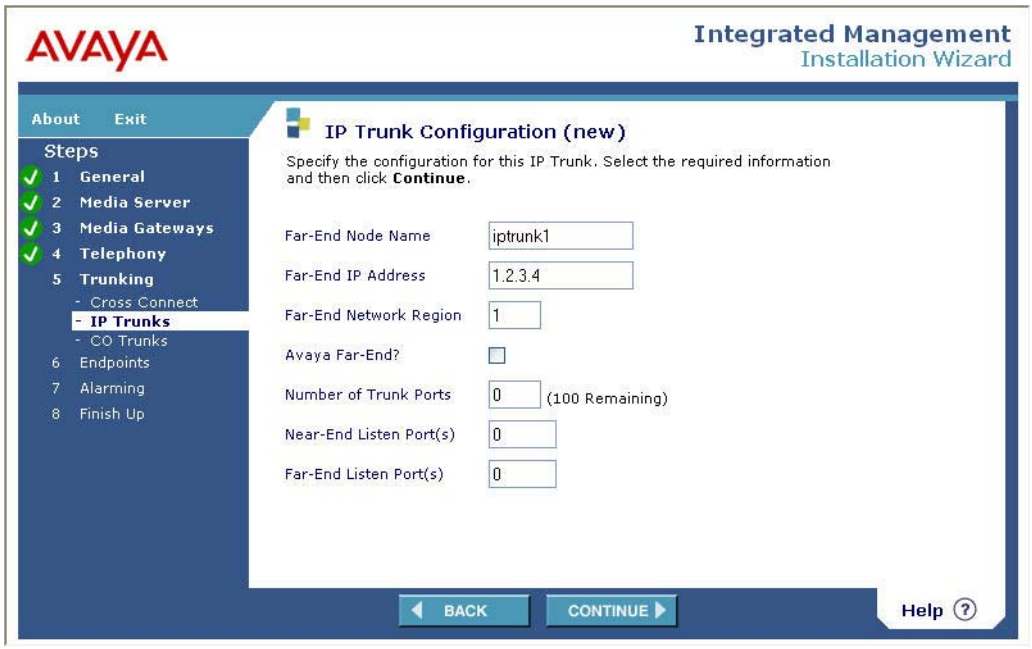


53. You can perform the following actions in the IP Trunk List screen:
    - Adding a trunk
    - Modifying trunk parameters
    - Modifying IP route configuration
    - Displaying trunk status
    - Removing a trunk

    To proceed to the CO Trunk List screen for configuring a trunk media module, click **Continue**. See Configuring a trunk media module on page 185.

Adding a trunk

54. To add a new trunk click **Add IP Trunk**. The IP Trunk Configuration screen appears.

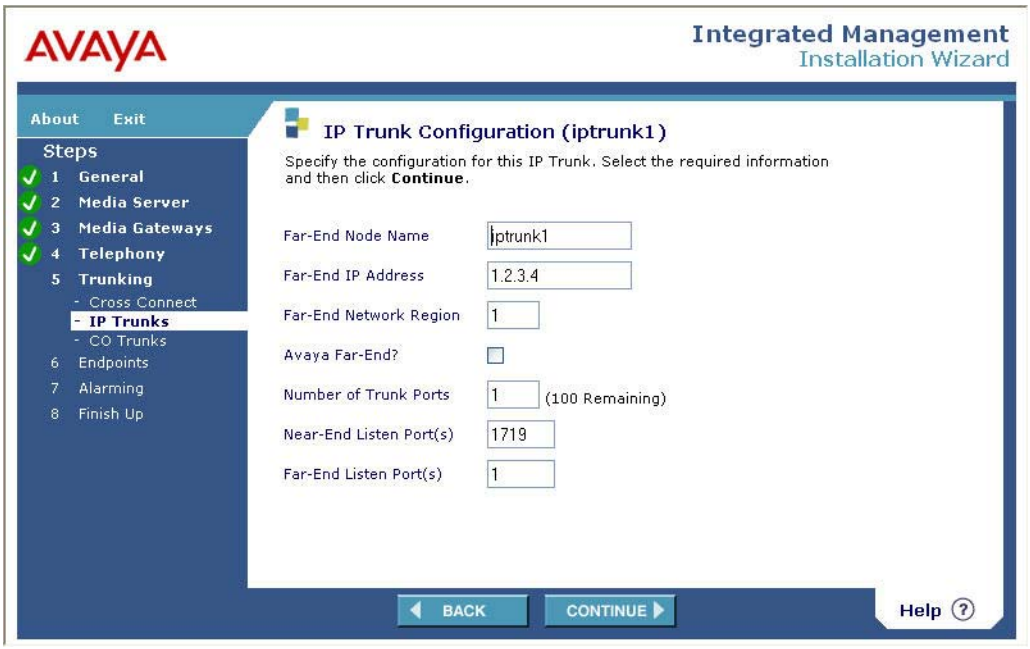


55. Enter the required information in the IP Trunk Configuration screen and click **Continue**. The IP Trunk List appears, with the new trunk included in the list of trunks. To add an additional trunk, click **Add IP Trunk** and repeat this step. When you are finished adding trunks, click **Continue** or select an action from the **Actions** column to modify an existing trunk.

Modifying trunk parameters

56. To modify the trunk's parameters, click the configuration icon in the **Actions** column of the IP Trunk List screen.

The IP Trunk Configuration screen appears, with the trunk's current parameters displayed.

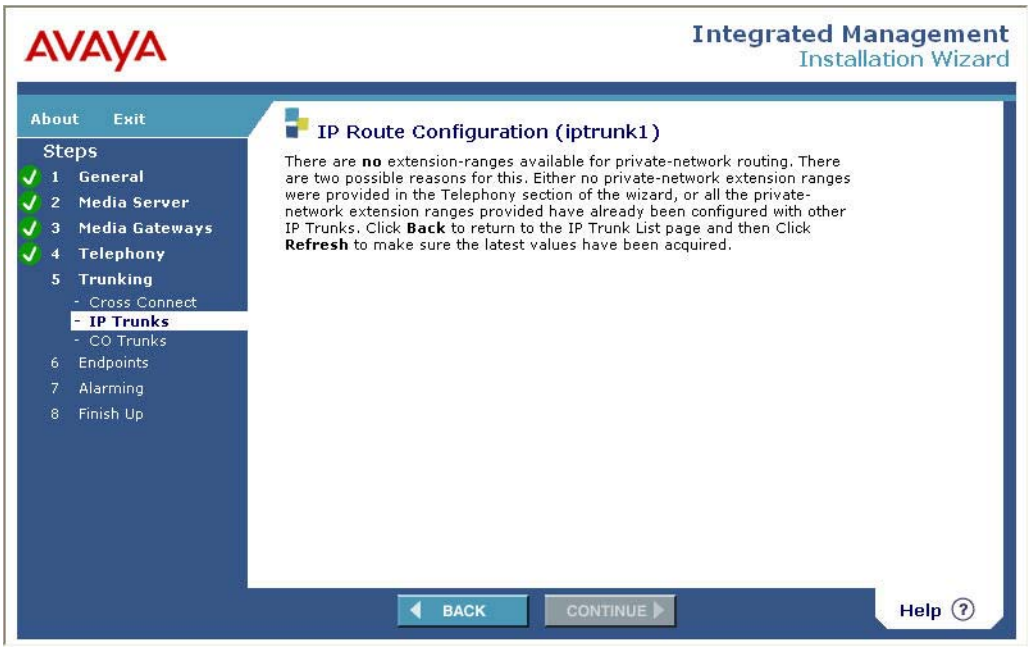


57. Modify the trunk parameters and click **Continue**. The IP Trunk List appears. Select an additional action from the **Actions** column, or click **Continue** to proceed to the CO Trunk List screen. See Configuring a trunk media module on page 185.

Modifying IP route configuration

58. To modify the trunk's IP route configuration, click the IP route icon in the **Actions** column of the IP Trunk List screen.

The IP Route Configuration screen appears.

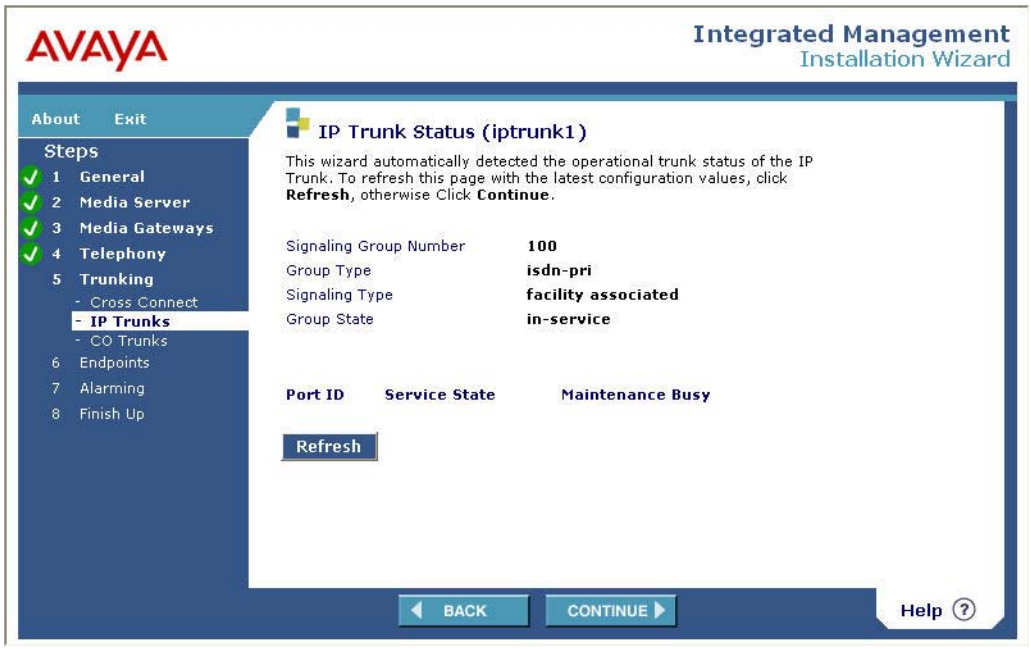


59. The IP Route Configuration screen displays the extension ranges available for private-network routing. Modify these ranges, if any, and click **Continue**. The IP Trunk List appears. Select an additional action from the **Actions** column, or click **Continue** to proceed to the CO Trunk List screen. See Configuring a trunk media module on page 185.

Displaying trunk status

60. To display the trunk's IP route configuration, click the trunk status icon in the **Actions** column of the IP Trunk List screen.

The IP Trunk Status screen appears.

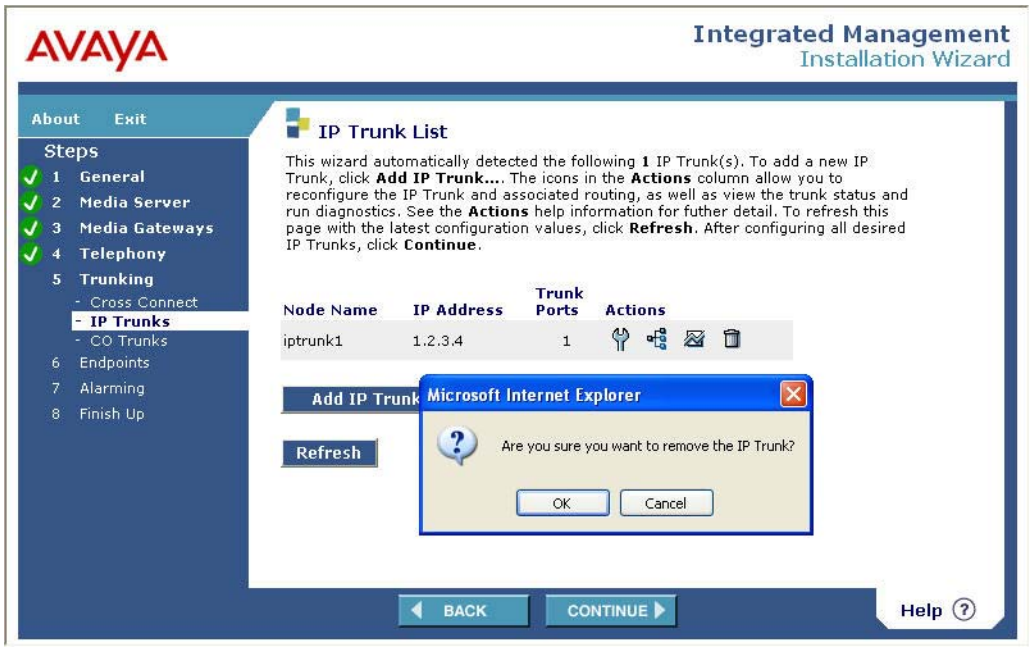


61. The IP Trunk Status screen displays the operational status of the trunk. To refresh the information, click **Refresh**. Otherwise, click **Continue**. The IP Trunk List appears. Select an additional action from the **Actions** column, or click **Continue** to proceed to the CO Trunk List screen. See Configuring a trunk media module on page 185.

Removing a trunk

62. To remove a trunk, click the trunk's remove icon in the **Actions** column of the IP Trunk List screen.

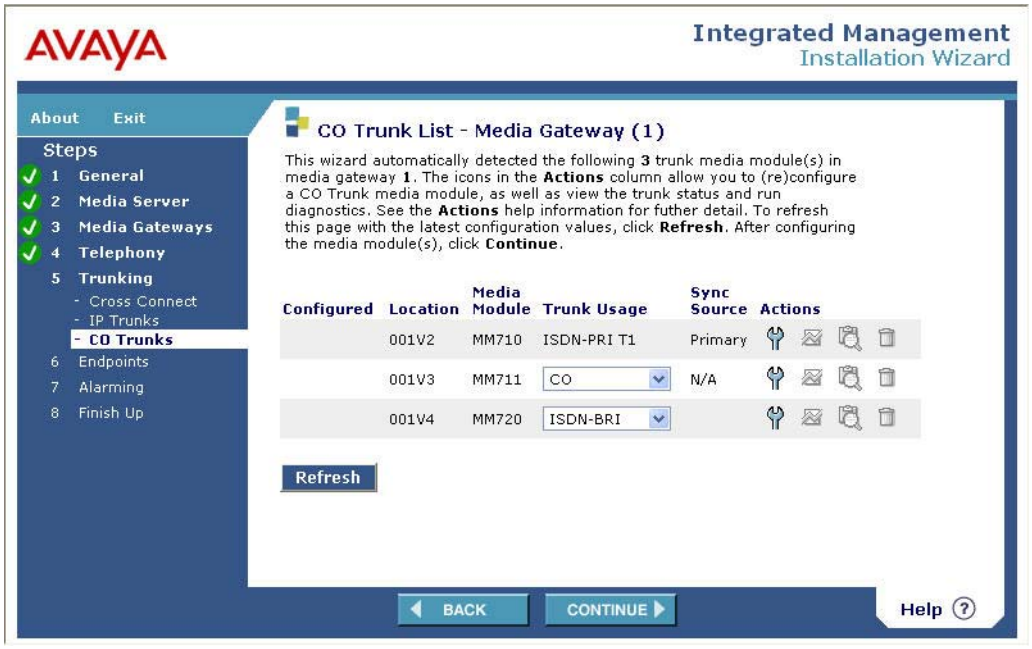
A message appears asking if you want to remove the trunk.



63. Click **OK** to remove the trunk. Select an additional action from the **Actions** column, or click **Continue** to proceed to the CO Trunk List screen.

Configuring a trunk media module

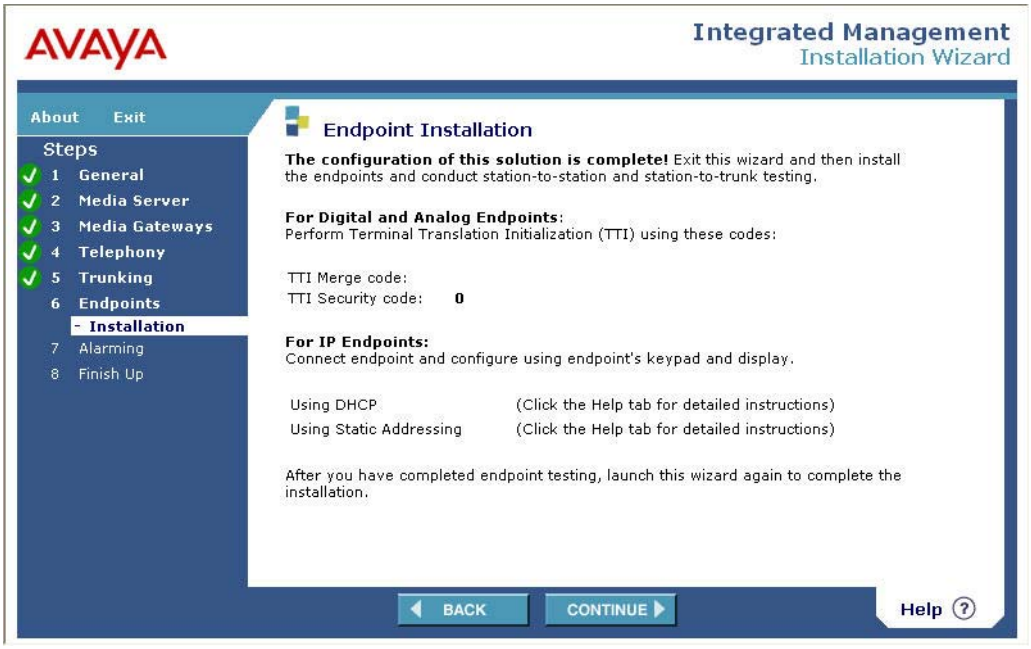
64. To configure a trunk media module, click **Continue** from the IP Trunk List screen. The CO Trunk List screen appears. This screen lists trunk media modules detected in the G350 and allows you to configure a media module and run diagnostics. To configure or run diagnostics on a trunk media module, click the Actions icon for the module.



Endpoint installation

The Endpoint section appears in the wizard only if you selected the option to use this wizard to create basic translations in the Translation Source screen (see step 24),. If you did not select the option to use this wizard to create basic translations in the Translation Source screen, skip to Alarm configuration on page 186.

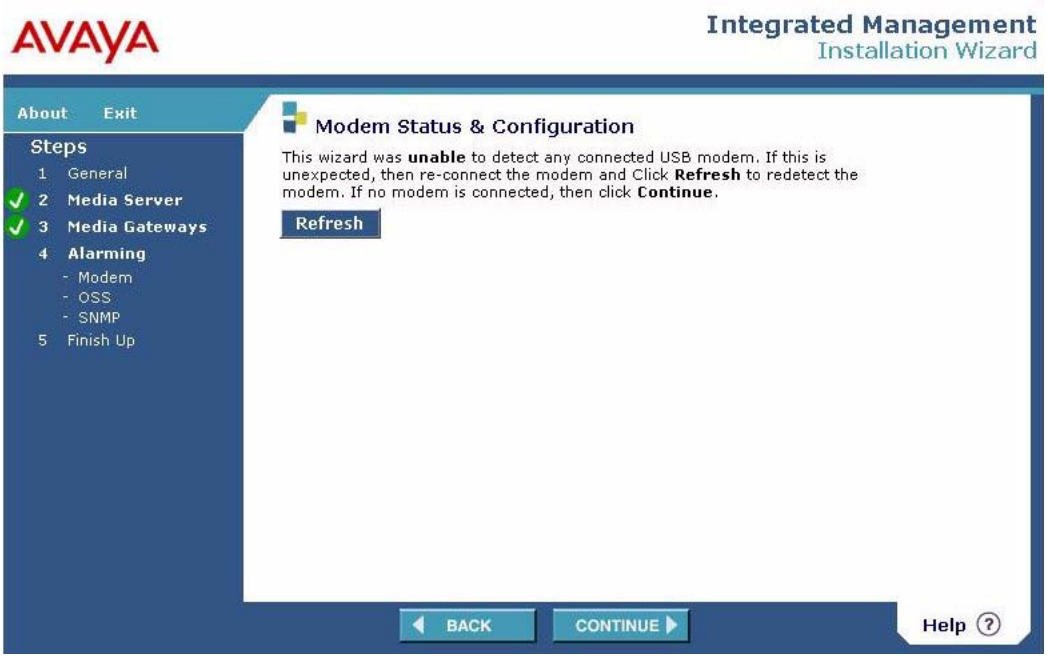
65. For instructions on endpoint installation, click **Continue** from the CO Trunk List screen. The Endpoint Installation screen appears. You can access endpoint installation information from this screen.



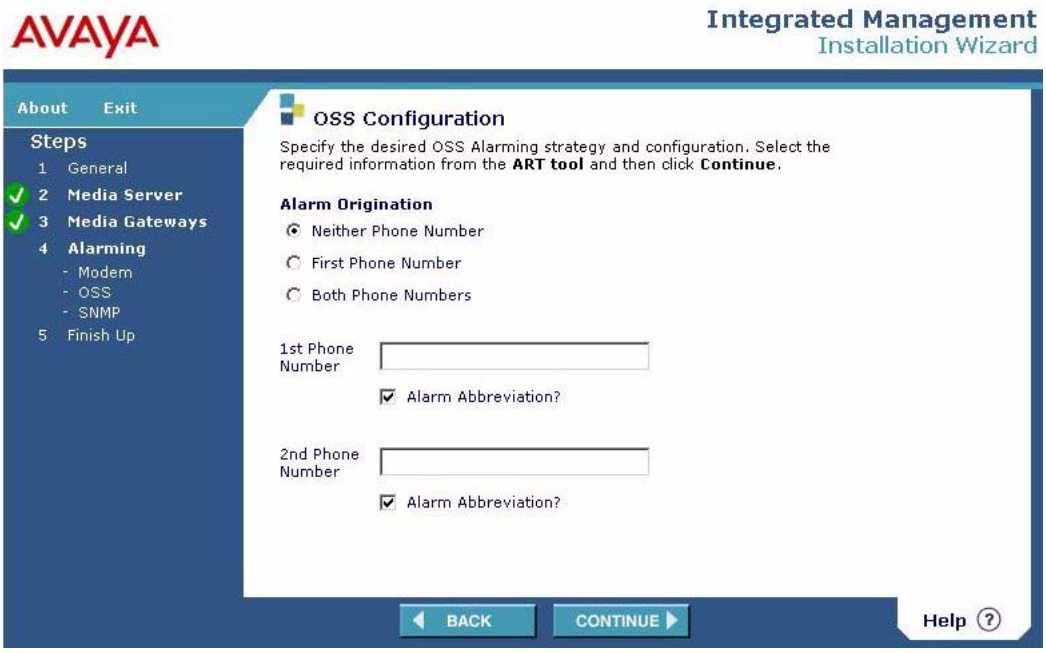
Alarm configuration

66. To display modem status and configure alarms, click **Continue** from the Endpoint Installation screen if you selected the option to create basic translations in the Translation Source screen, or the USB modem screen otherwise. The Modem Status & Configuration screen appears. This screen detects any modem connected to the G350. The screen also displays the results of tests performed on the modem. You can perform the following actions from this screen:

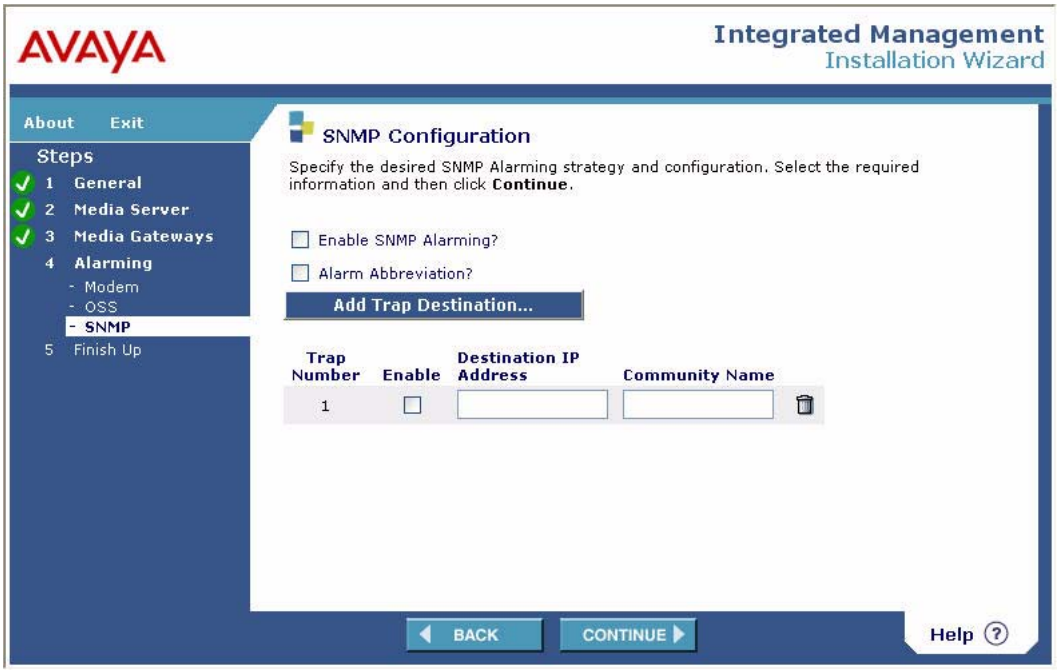
    - Click **Reset** to reset the modem.
    - Click **Refresh** to re-detect and test the modem.
    - Select the appropriate modem access policy in the **Modem Access** area and click **Continue**.



67. Click **Continue**. The OSS Configuration screen appears. Enter the required information from the ART tool. For information on using the ART tool, see Run the Automatic Registration Tool (ART) for the RAS IP address on page 22.



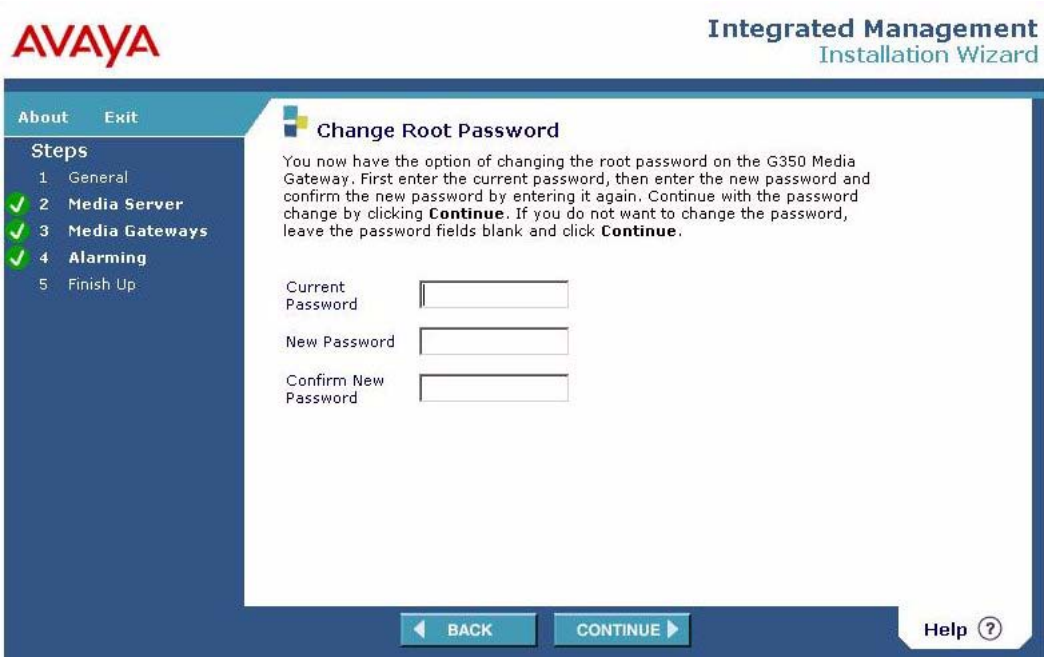
68. Click **Continue**. The SNMP Configuration screen appears. Check Enable SNMP alarming if you want to enable the sending of SNMP traps to the INADS. Check the Alarm abbreviation checkbox if you want to enable SNMP alarm abbreviation. Click Add Trap Destination to add an SNMP trap destination IP address. You can add multiple destinations. For each destination, enter the INADS IP address in the Destination IP Address field. In the Community Name field, enter an SNMP community access string. Check the Enable checkbox to enable each trap destination.



Password and final screens

69. To change your password (optional) and complete the installation, click **Continue** from the SNMP Configuration screen.

    The Change Root Password screen appears. This screen allows you to change the root password on the G350.



70. Click **Continue**. The Finish Up screen appears. This screen allows you to save the installation log file to your laptop. To save the installation log file:

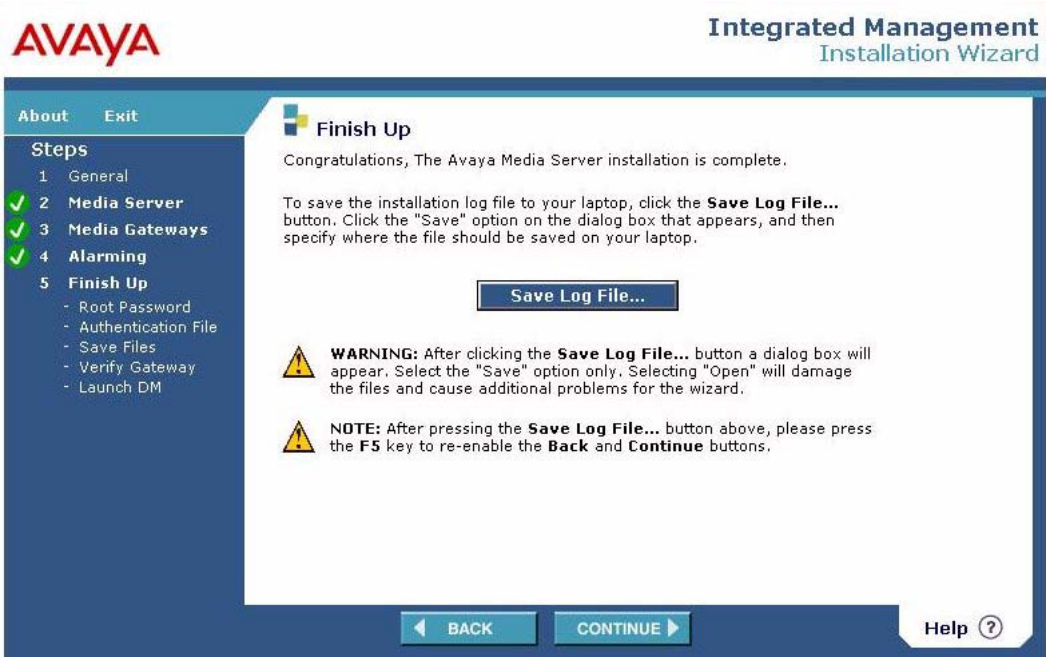
    a. Click **Save Log File**. A dialog box appears.

    b. Click **Save**.

    WARNING:

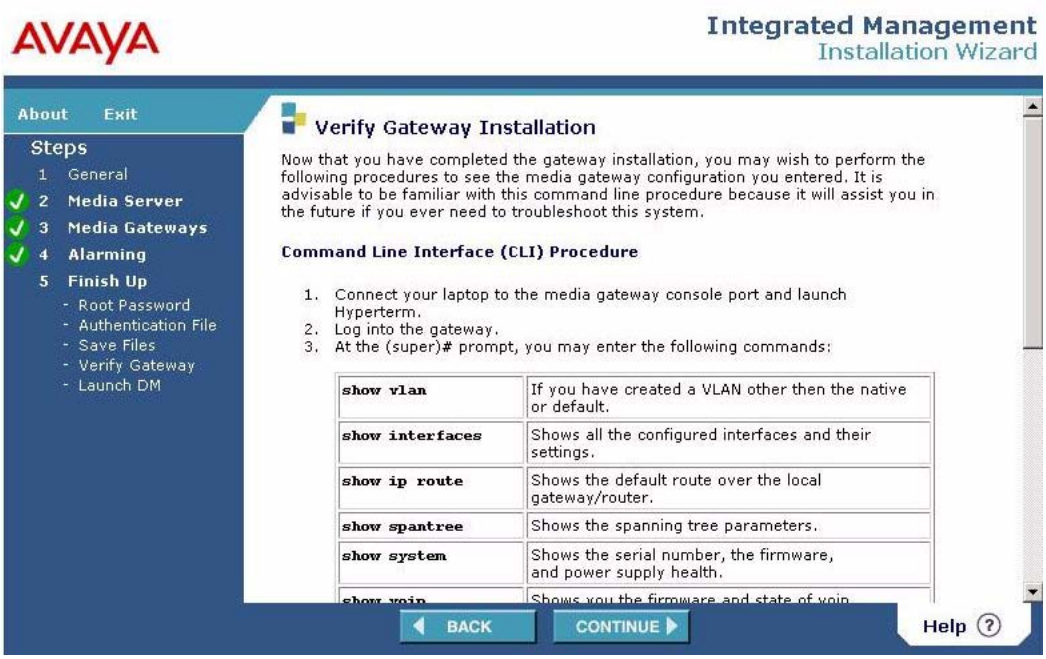
    Do not click **Open**. Clicking **Open** will damage the log file and may cause other problems to the Avaya IW.

    c. Press **<F5>** to restore the **Back** and **Continue** buttons to the Finish Up screen.

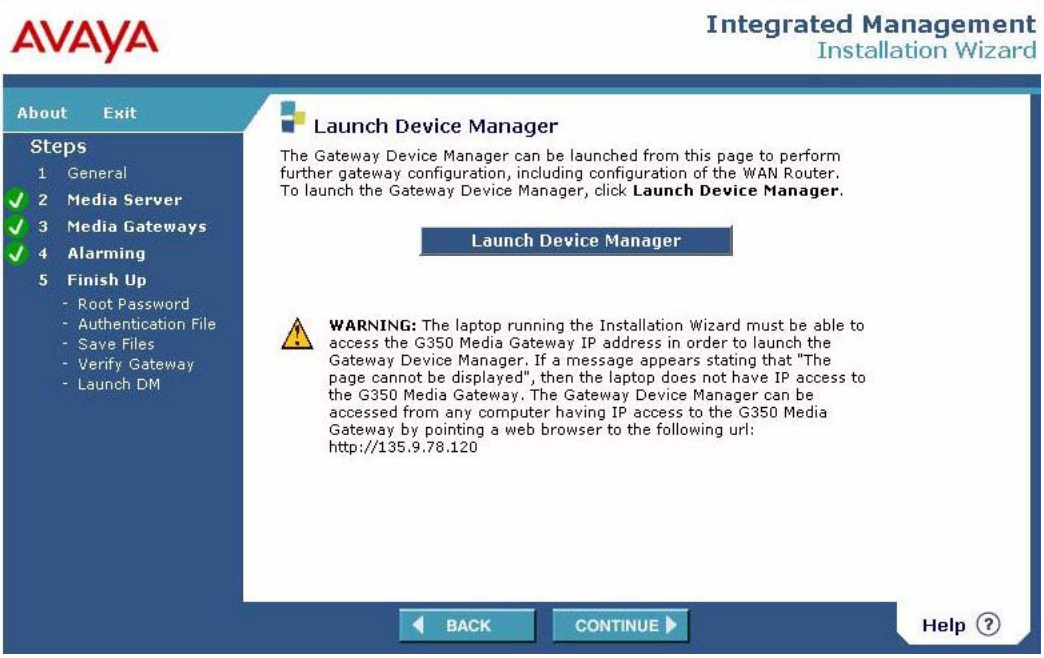


71. Click **Continue**. If you have not installed an allocation license file, a warning appears reminding you to install this file.

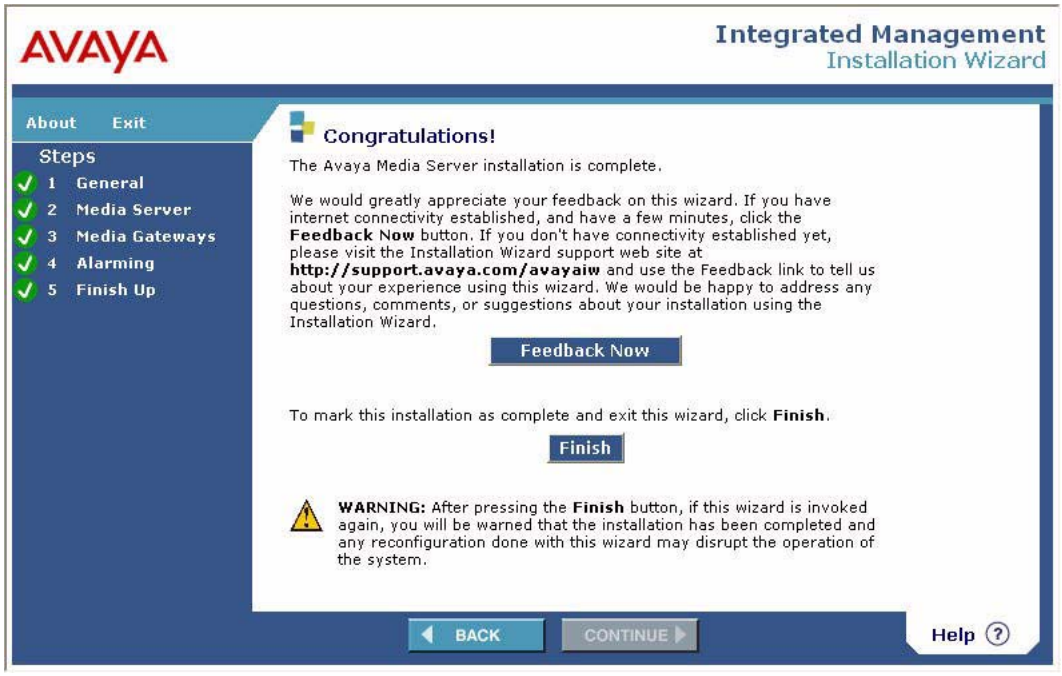
72. Click **Continue**. The Verify Gateway Installation screen appears. This screen displays a list of CLI commands that you can use to verify the G350 configuration. The following figure shows a portion of the Verify Gateway Installation screen.



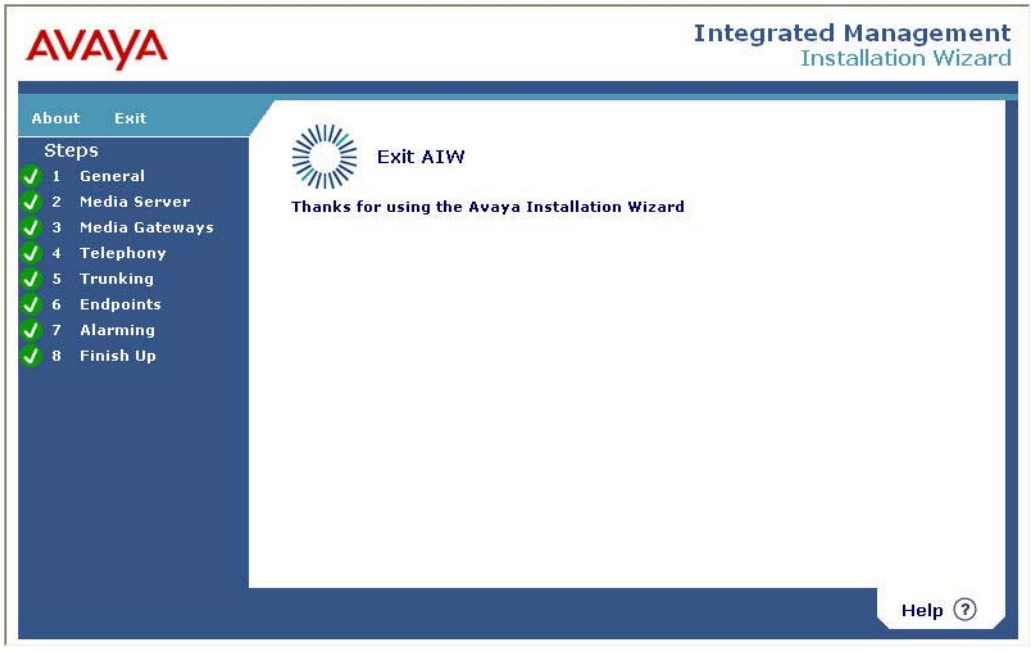
73. Click **Continue**. The Launch Device Manager screen appears. This screen allows you to launch the Gateway Device Manager, an application that allows you to configure the WAN Router and perform other advanced configuration tasks.



74. Click **Continue**. The Congratulations! screen appears to inform you that the installation is complete. To exit the Avaya IW, click **Finish**.



75. The Exit AIW screen appears.



Appendix D: Running the Gateway Installation Wizard (GIW)

If you did not install an S8300 in the G350, you can use the Gateway Installation Wizard (GIW) to perform the configurations required to complete the installation. GIW prompts you for all the configurations required to complete the installation. If you have an EPW (see Obtain the Electronic Preinstallation Worksheet (EPW) on page 24), you will be able to upload configuration parameters from the EPW to GIW as part of your GIW session.

GIW includes the option to enable a modem connected to the S8300. This appendix describes how to run GIW, and how to connect and test a modem if you choose to enable the modem.

Perform the following steps to run GIW and perform the configuration:

1. Run the Gateway Installation Wizard (GIW) on page 195.
2. Connect a modem, if necessary on page 213.
3. Test the modem connection, if necessary on page 214.

Run the Gateway Installation Wizard (GIW)

Run Gateway Installation Wizard (GIW) to perform a basic configuration of the G350. The configuration can include:

- Configuring the Primary Management Interface (PMI)
- Setting SNMP communities and trap destinations
- Upgrading firmware
- Enabling a modem on the G350

To run GIW:

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.

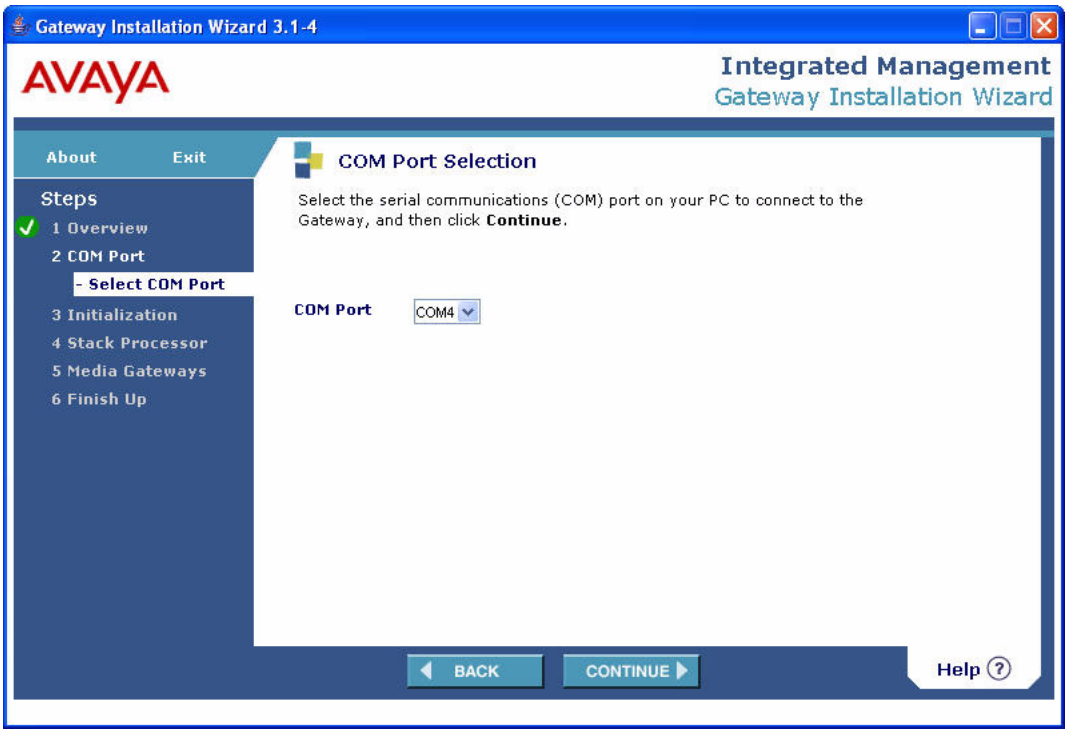
   Note:

   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:

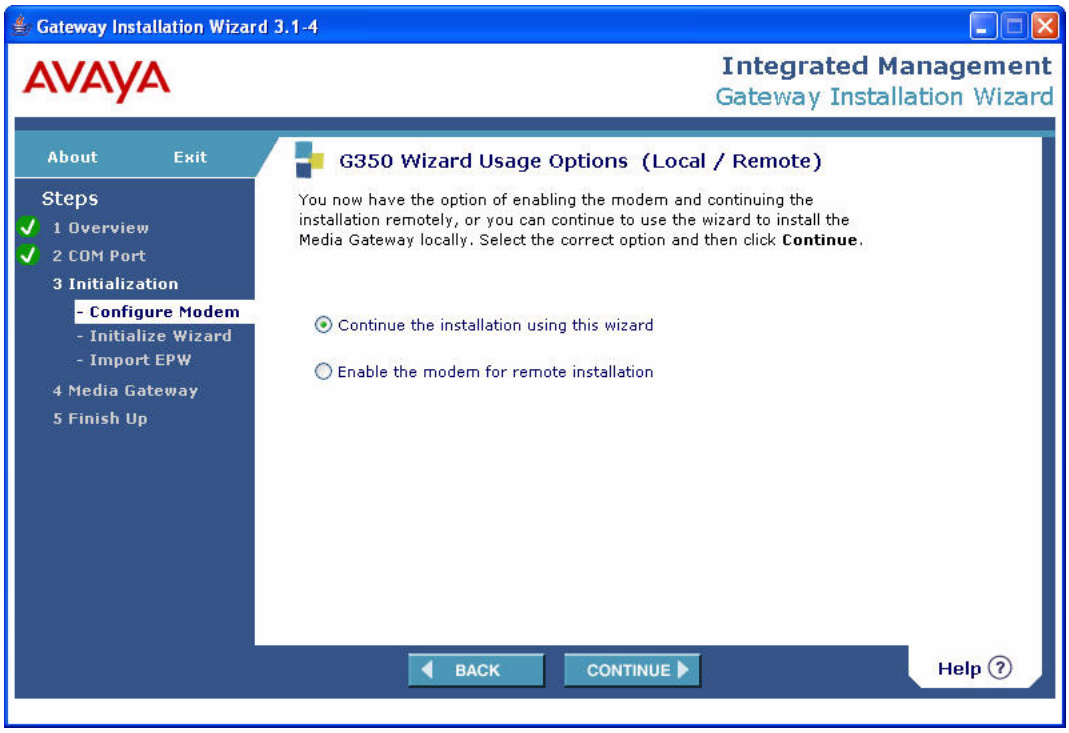
   Firmware upgrades for the G350 and media modules can either be installed from CD or downloaded from the Web. For information about downloading firmware upgrades from the Web to the TFTP server, see Downloading G350 firmware files to a local TFTP server on page 103.

2. Download GIW (Gateway Installation Wizard) from the Avaya web site (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 Overview screen appears.
7. Click **Continue**. The COM Port Selection screen appears.



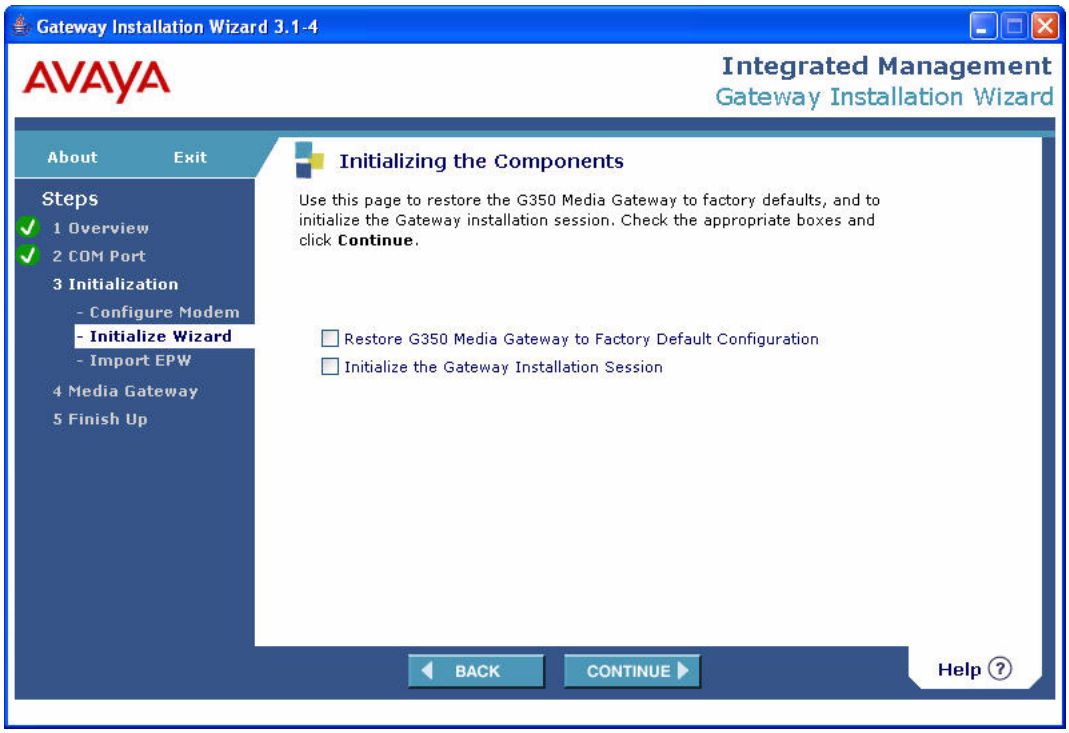
8. Select the COM port on the laptop that you are using to connect to the G350.

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



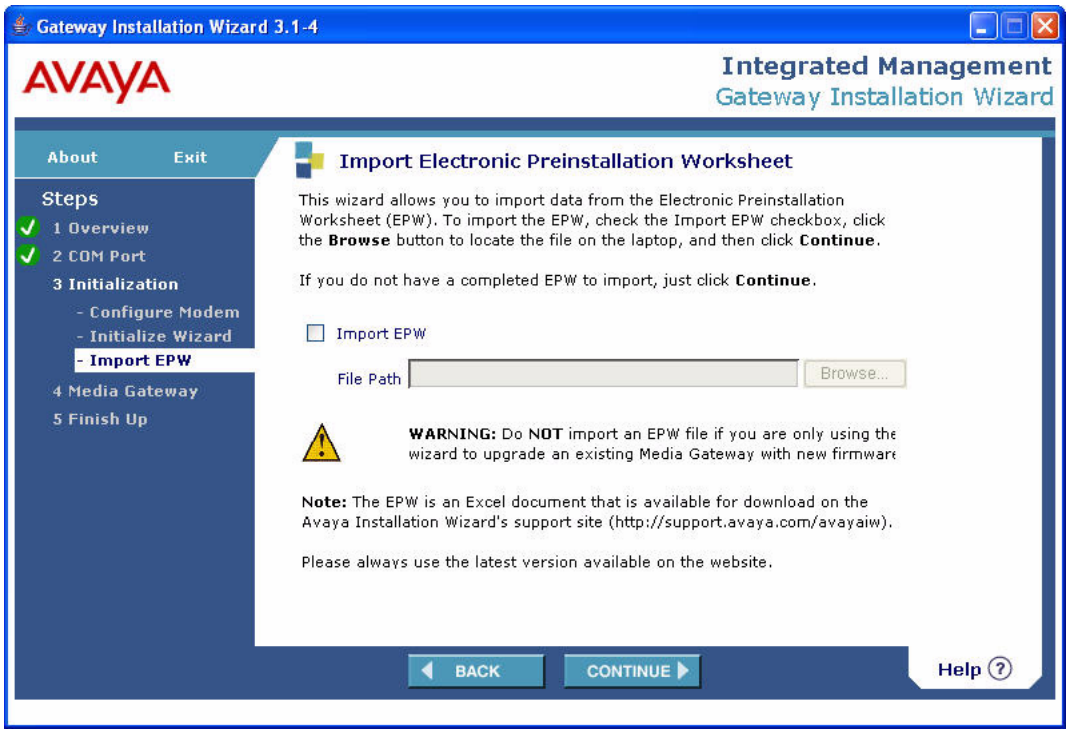
10. Select **Continue the installation using this wizard**.

11. Click **Continue**. The Initializing the Components screen appears.



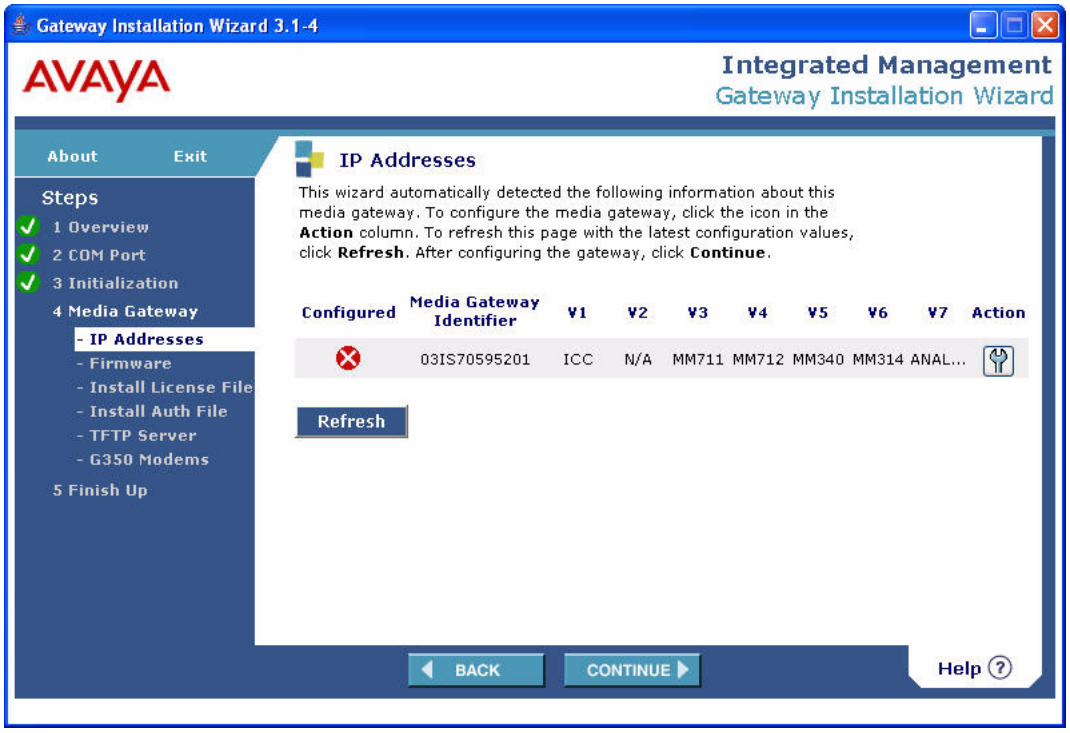
12. Check **Initialize the Gateway Installation Session**.

13. Click **Continue**. The Import Electronic Preinstallation Worksheet screen appears.



14. If you have an EPW on your laptop (see Obtain the Electronic Preinstallation Worksheet (EPW) on page 24), check **Import EPW**. If you are using GIW to only upgrade files, do not check **Import EPW**.
15. Browse to the EPW file on your laptop. Any values that are included in the EPW will appear as default values from now on as you move through this wizard.

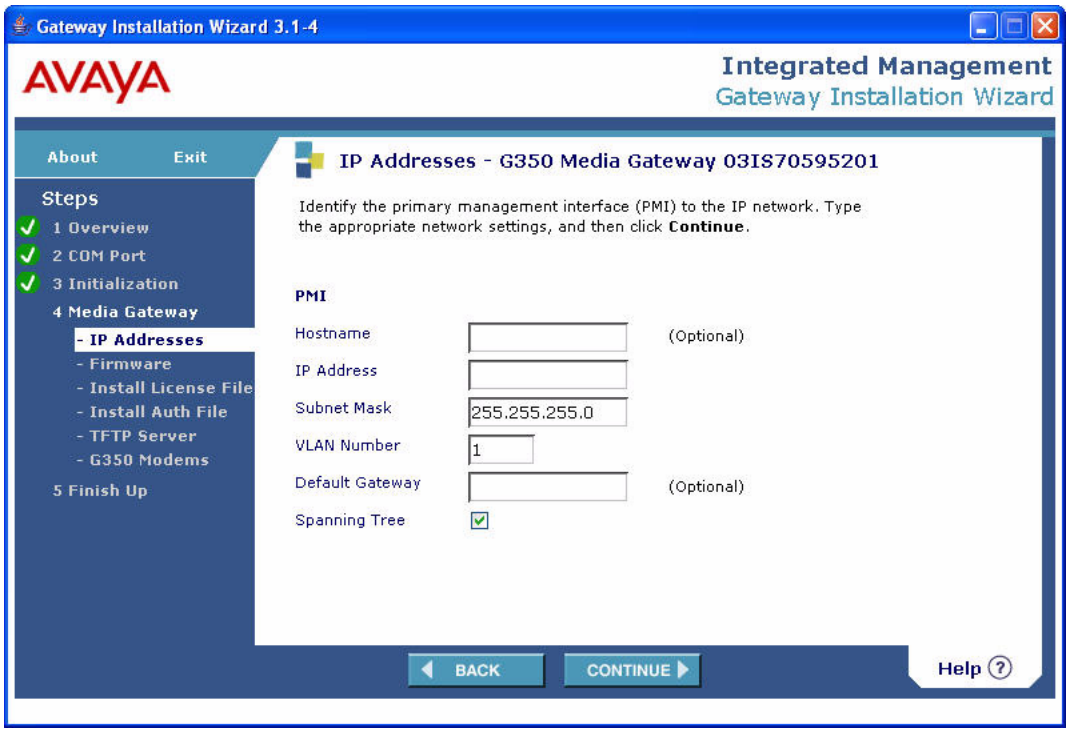
16. Click **Continue**. The IP Addresses screen appears.



The IP Addresses screen displays information about the G350 automatically detected, such as what media modules are installed in the media modules slots.

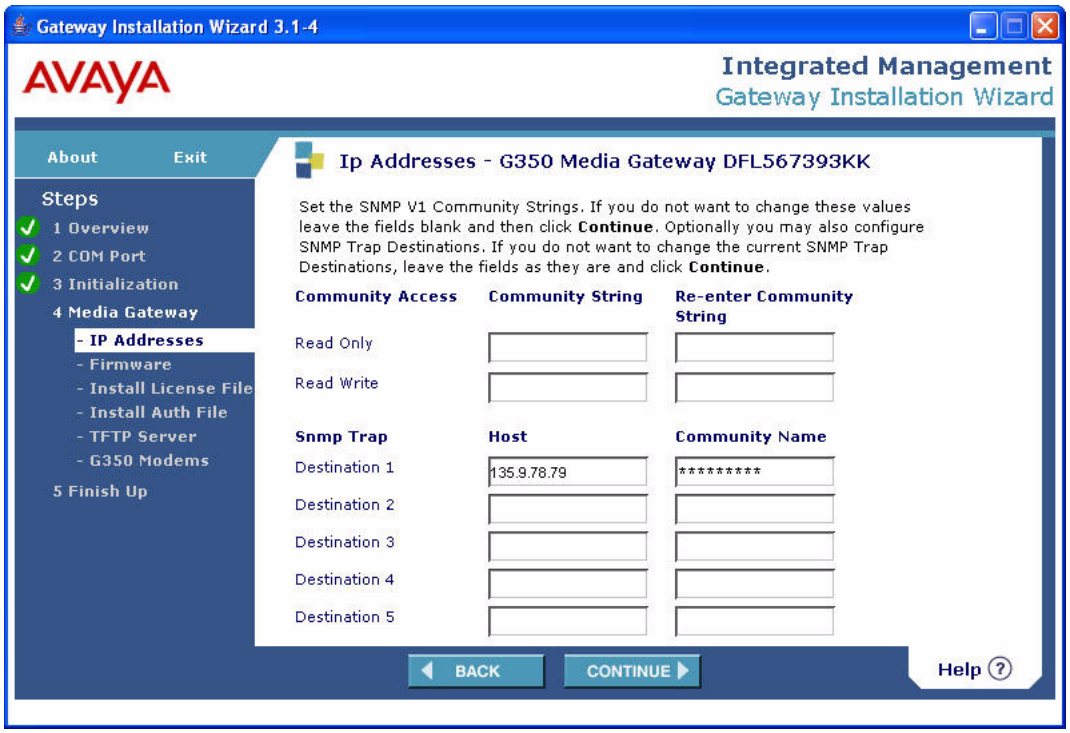
17. If you are using GIW only to upgrade firmware, continue with step 30.

18. Click the icon in the Action column. The PMI screen appears.



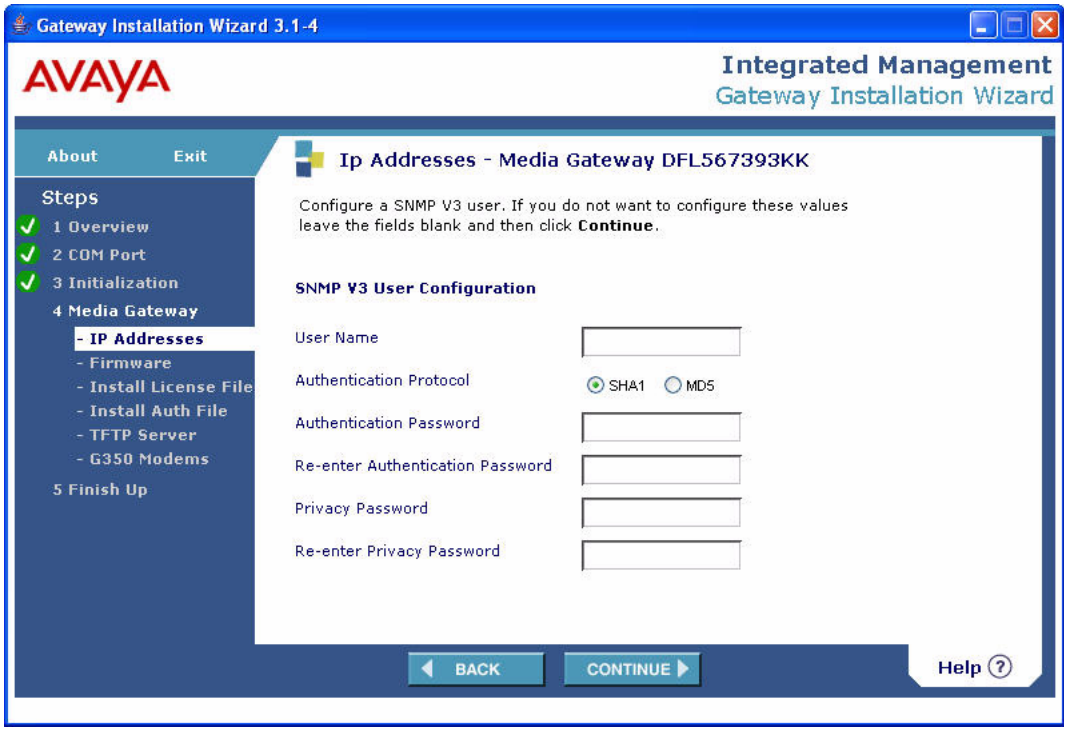
19. In the PMI screen, specify the details of the Primary Management Interface (PMI) for the G350. The PMI is used as the IP address of the G350 for specific management functions. If you do not know which interface to designate as the PMI, check with your project manager.

20. Click **Continue**. The SNMP V1 screen appears.



21. In the SNMP V1 screen, specify SNMP V1 community strings for Read Only and Read Write access.

22. Click **Continue**. The SNMP V3 screen appears.



23. If you want to configure an SNMP V3 user on the G350, do the following:

    a. In the User Name field, enter a string of up to 32 characters representing the SNMP V3 user.

    b. Select the authentication protocol by which the SNMP V3 user should be authenticated (SHA1 or MD5).

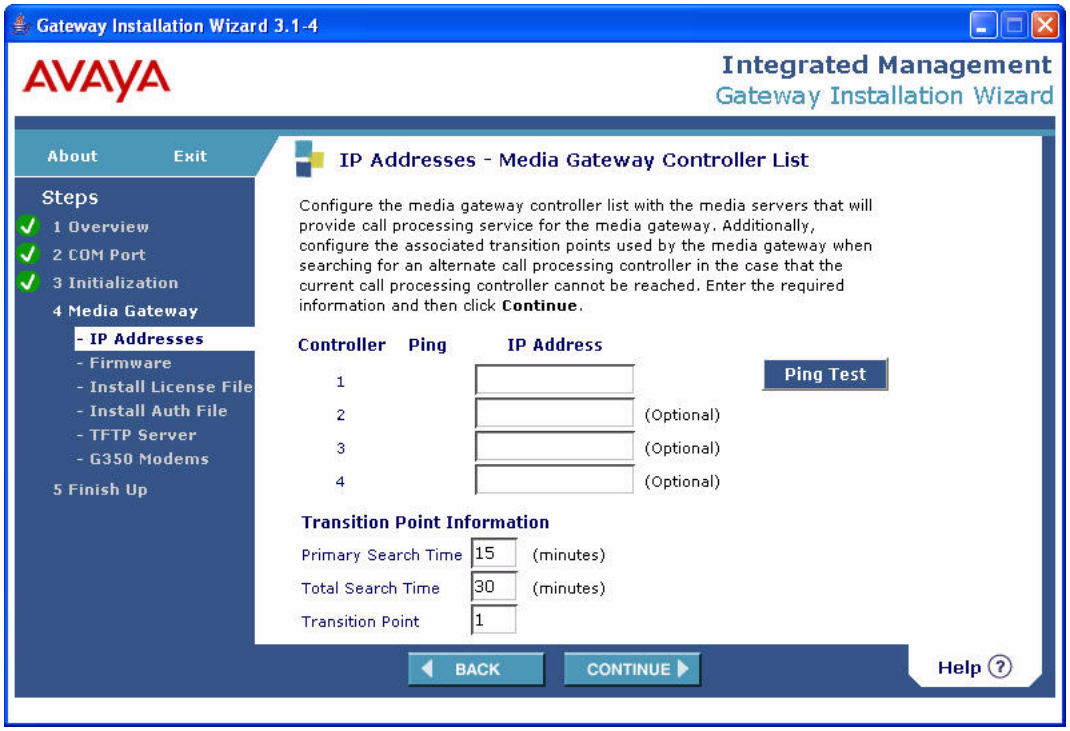
    c. In the Authentication Password field, enter a string of between 8 and 64 characters specifying the user's authentication password. The authentication password is transformed using the authentication protocol and the SNMP engine ID to create an authentication key.

    d. In the Re-enter Authentication Password field, enter the authentication password again for verification.

    e. In the Privacy Password field, enter a string of between 8 and 64 characters specifying the SNMP V3 user's privacy password.

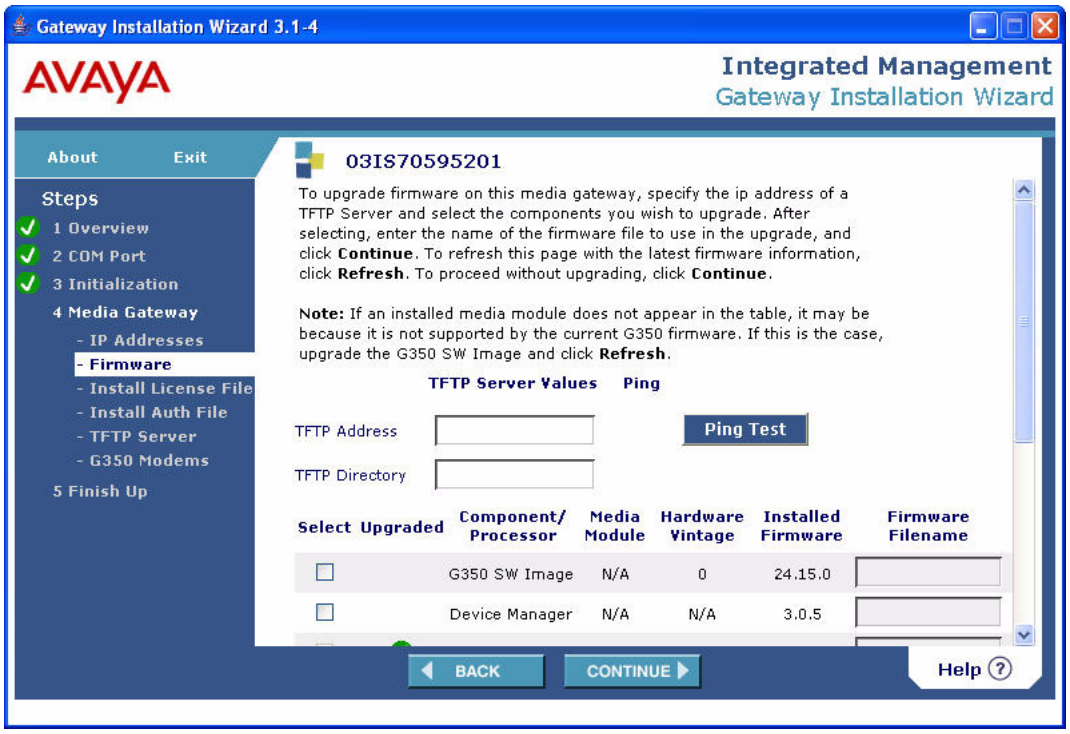
    f. In the Re-enter Privacy Password field, enter the privacy password again for verification.

24. Click **Continue**. The Media Gateway Controller List screen appears.



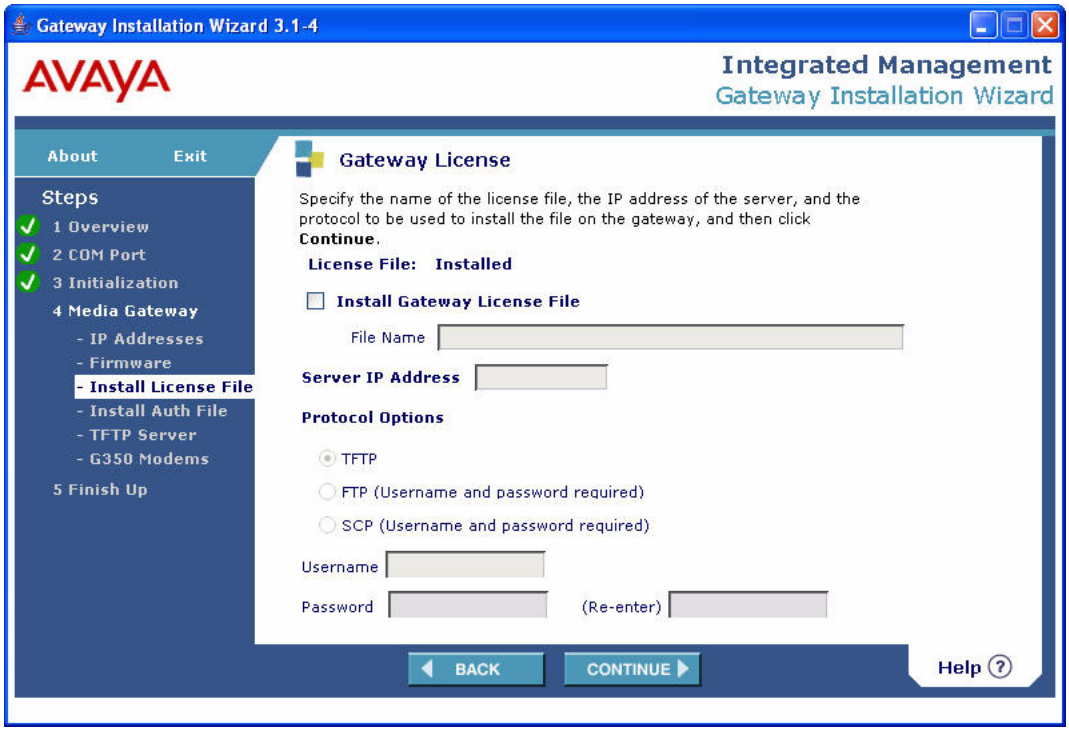
25. In the Media Gateway Controller List screen, specify the IP address of the primary MGC (Media Gateway Controller) in the first IP address box.
26. Specify the IP addresses of up to three additional MGCs, optionally, in the subsequent boxes.
27. Specify Transition Point information.
28. Click **Ping Test** to test the accessibility of each MGC.
29. Click **Continue**. You return to the IP addresses screen.

30. Click **Continue**. The Firmware screen appears.



31. Upload any firmware upgrades you need to install to your TFTP server.
32. In the TFTP Address field, enter the address of your TFTP server.
33. In the TFTP Directory field, enter the name of the directory on the TFTP server in which the upgrade files are located.
34. In the table, check the **Select** box for all firmware components you want to upgrade. The current version of each component is listed to help you confirm the need for upgrade.
35. Enter the filename of each firmware upgrade file you want to install in each line of the table where you checked the **Select** box.

36. Click **Continue**. The firmware is upgraded and the Gateway License screen appears.



37. If you will need to use the VPN feature on the G350, check Install Gateway License file and fill in the remaining fields to install the gateway license file.

38. Click **Continue**. The Gateway Authentication screen appears.

39. Do not complete the fields on this screen.

40. Click **Continue**. The TFTP Server screen appears. The TFTP Server screen enables you to upload firmware and configuration files for IP phone upgrades to the G350 TFTP server.

41. If you want to upload configuration and firmware files for IP phones to the G350 TFTP Server, do the following:

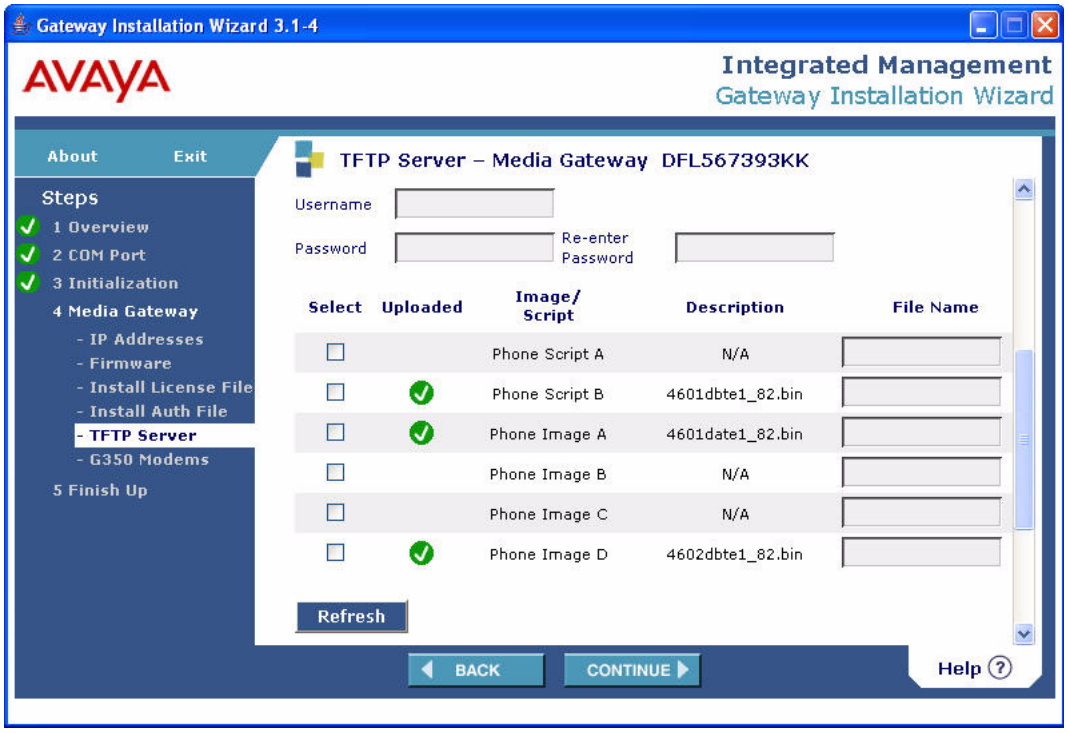
    a. In the Server IP Address field, enter the IP address of the machine hosting the files that are to be uploaded.

    b. Select the file transfer protocol (TFTP, FTP, or SCP) you want to use to upload the files from the host machine. TFTP is selected by default.

    c. The use of the SCP protocol is limited to copying files of 1 MB or less. Therefore, an SCP server can be used for copying the script files, which do not exceed 128 KB, but cannot be used for copying image files.

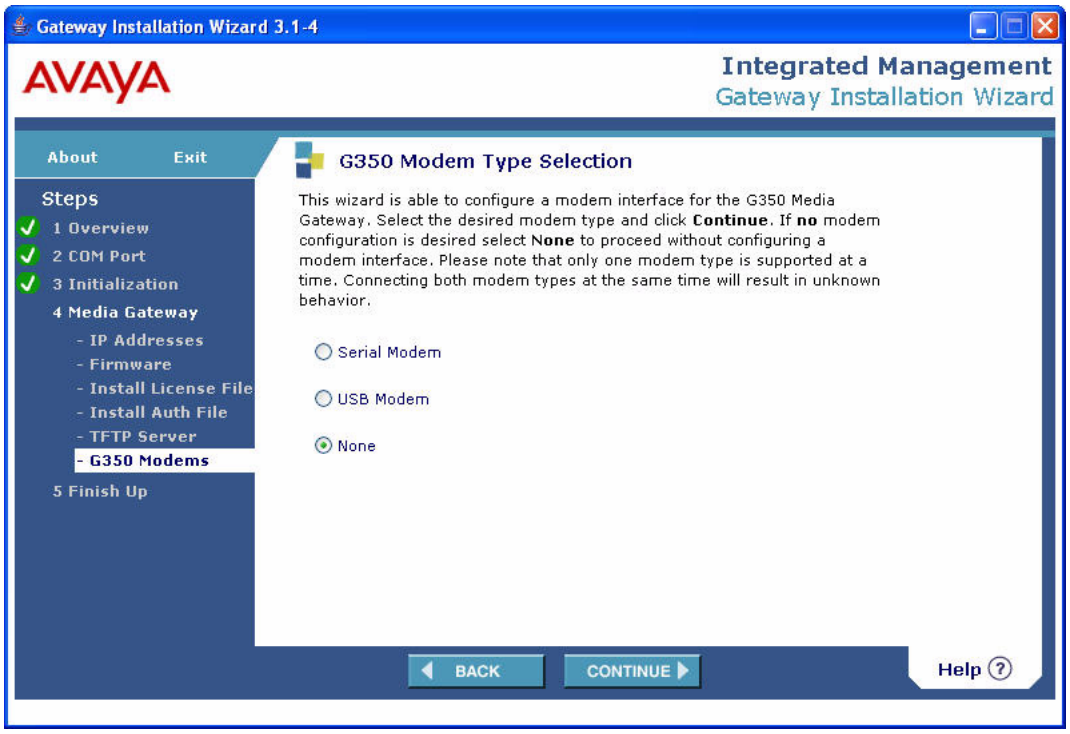
    d. If you selected FTP or SCP, enter the username and password in the Username and Password fields, and re-enter the password for confirmation in the Re-enter Password field.

42. Click **Continue**.



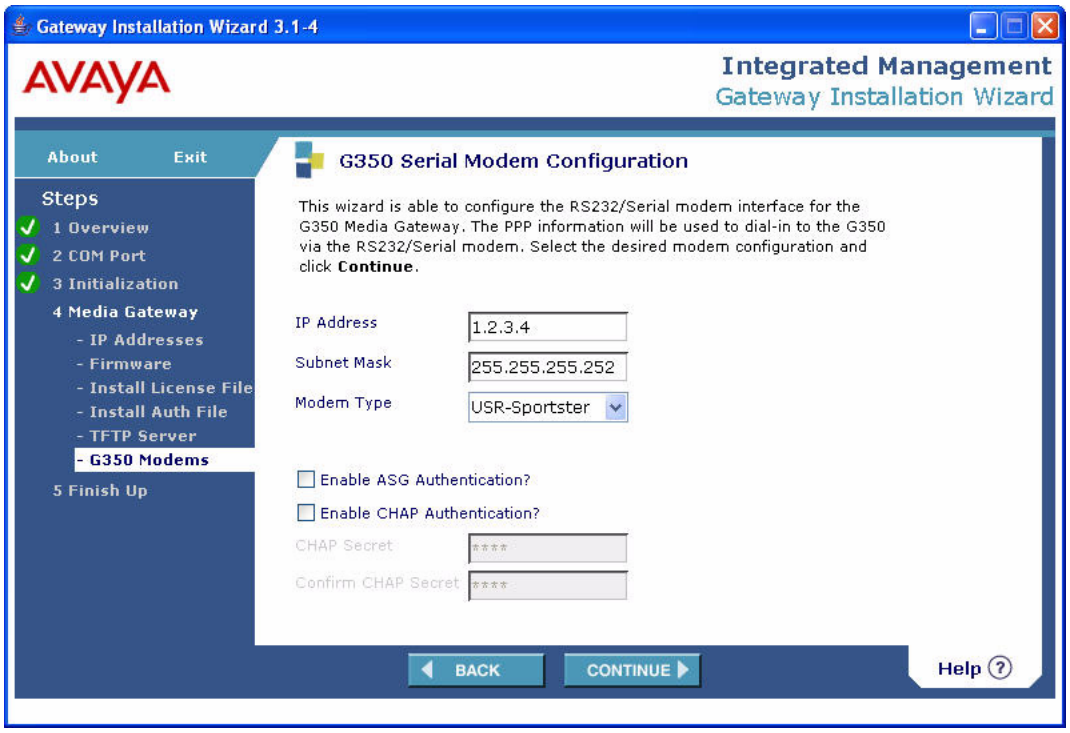
43. In the Select column, check any files you wish to upload. If you selected SCP as your upload protocol, the checkboxes for the phone images are disabled. If a green circled checkmark is displayed in the Uploaded column, the file has already been uploaded.

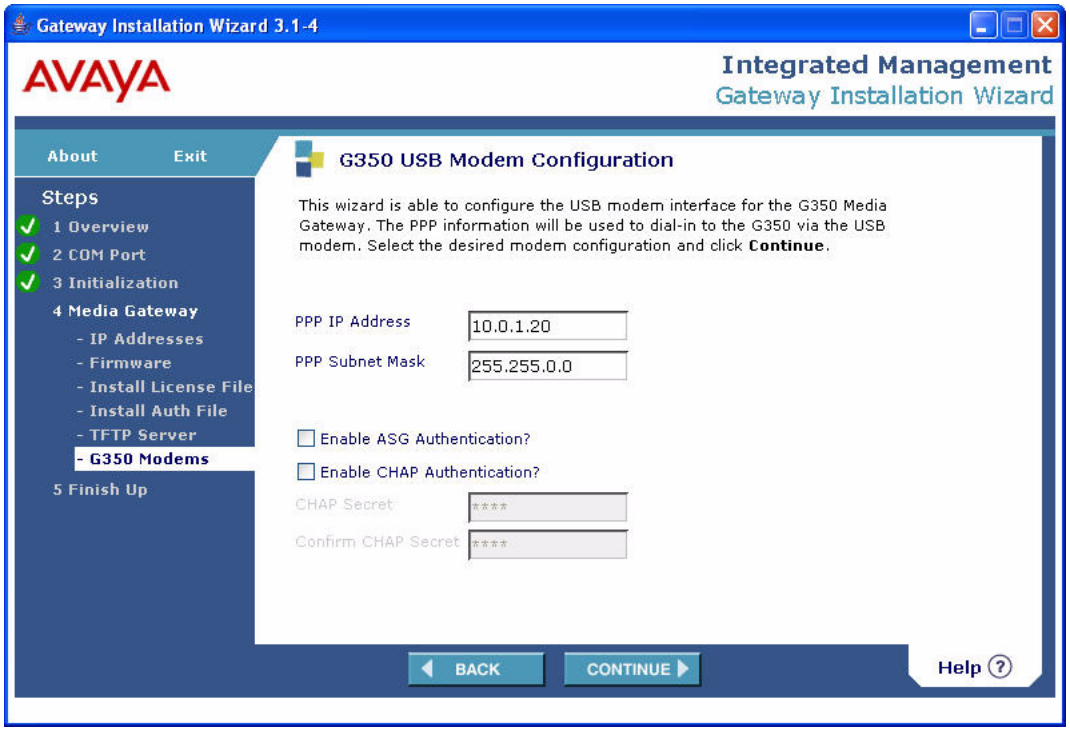
44. Click **Continue**. The files are uploaded and the G350 Modem Type Selection screen appears. If you are using GIW only to upgrade firmware, click **Continue** until you reach the Finish Up screen. Skip the next steps until step 55.



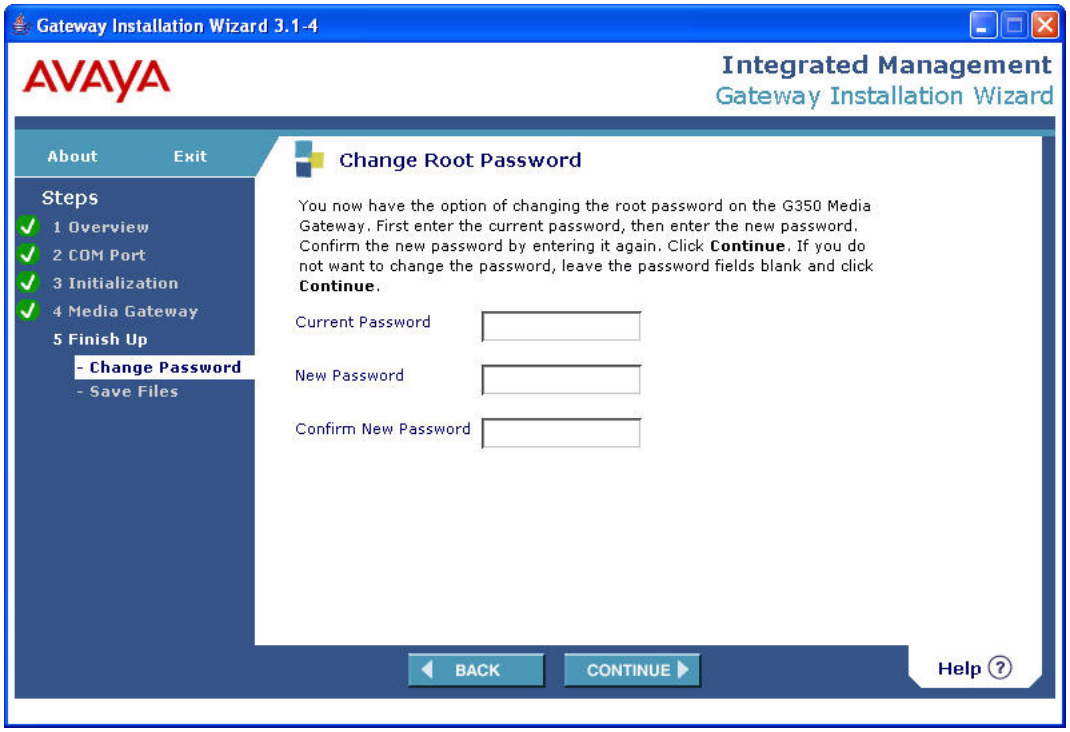
45. If you do not need to connect a modem to the G350, select **None**.
46. If you do need to connect a modem to the G350, select the type of modem you want to connect.

47. Click **Continue**. The appropriate modem configuration screen appears.



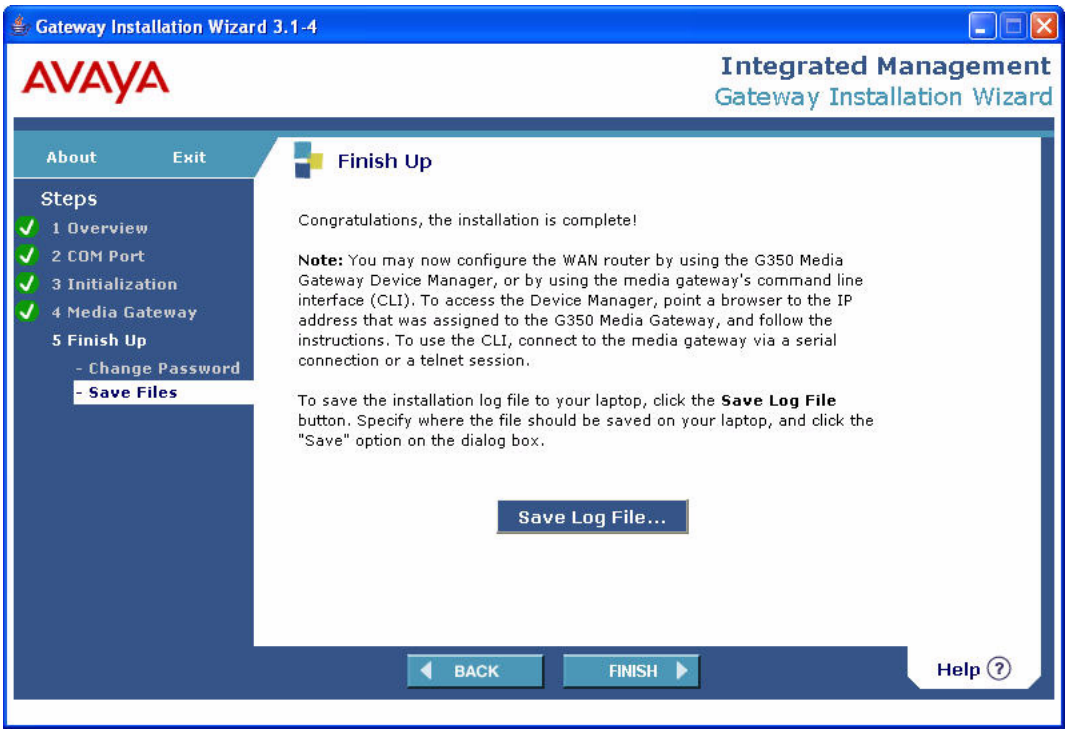


48. In the PPP IP Address field, enter the RAS IP address of the modem obtained using the ART tool. See Run the Automatic Registration Tool (ART) for the RAS IP address on page 22.
49. Enter the PPP Subnet Mask.
50. Check **Enable CHAP Authentication**.
51. In the CHAP Secret field, enter the CHAP secret key obtained using the ART tool. See Run the Automatic Registration Tool (ART) for the RAS IP address on page 22.
52. In the Confirm CHAP Secret field, reenter the CHAP secret key.
53. Click **Continue**. The Change Root Password screen appears.



54. If you would like to change the password on the G350 Media Gateway, enter the current password in the Current Password field, enter a new password in the New Password field, and re-enter the new password in the Confirm New Password field.

55. Click **Continue**. The Finish Up screen appears.



You have completed GIW. Follow the on-screen instructions if you want to save the installation log file. Further configurations, as described in this screen, can now be performed either remotely, via a modem that you enabled with GIW, or locally.

Connect a modem, if necessary

If you enabled a serial or USB modem on the G350 during your GIW session, you can now connect the modem.

To connect a serial modem:

1. Connect the serial modem to a working telephone line.
2. Connect the provided DB-25 adapter to the modem.
3. Disconnect the flat cable from the COM port of the laptop computer.
4. Connect the flat cable to the DB-25 connector on the modem.

To connect a USB modem:

1. Connect a USB modem to a working telephone line.

   Note:

   The MultiTech model MT5634ZBA-USB USB modem is the only USB modem supported by the G350.

2. Connect one end of a USB cable to the modem.
3. Connect the other end of the USB cable to the USB port on the G350 front panel.

Test the modem connection, if necessary

If the modem is successfully initialized, the MDM LED on the G350 front panel lights. If you connected a modem, check that the MDM LED is alight and dial into the modem to verify that you can authenticate to the modem.

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