

# Deploying and Upgrading Avaya G430 Branch Gateway

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#### Virtualization

The following applies if the product is deployed on a virtual machine. Each product has its own ordering code and license types. Note that each Instance of a product must be separately licensed and ordered. For example, if the end user customer or Avaya Channel Partner would like to install two Instances of the same type of products, then two products of that type must be ordered.

#### How to Get Help

For additional support telephone numbers, go to the Avaya support Website: <u>http://www.avaya.com/support</u>. If you are:

- Within the United States, click the Escalation Contacts link that is located under the Support Tools heading. Then click the appropriate link for the type of support that you need.
- Outside the United States, click the Escalation Contacts link that is located under the Support Tools heading. Then click

the International Services link that includes telephone numbers for the international Centers of Excellence.

#### **Providing Telecommunications Security**

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

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

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

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

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

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

#### Responsibility for Your Company's Telecommunications Security

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

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

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

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

#### **TCP/IP Facilities**

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

#### **Product Safety Standards**

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

 IEC 60950-1 latest edition, including all relevant national deviations as listed in the IECEE Bulletin—Product Category OFF: IT and Office Equipment. · CAN/CSA-C22.2 No. 60950-1 / UL 60950-1 latest edition.

This product may contain Class 1 laser devices.

- · Class 1 Laser Product
- Luokan 1 Laserlaite
- Klass 1 Laser Apparat

#### **Electromagnetic Compatibility (EMC) Standards**

This product complies with and conforms to the following international EMC standards, as applicable:

- CISPR 22, including all national standards based on CISPR 22.
- CISPR 24, including all national standards based on CISPR 24.
- IEC 61000-3-2 and IEC 61000-3-3.

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

#### Federal Communications Commission Part 15 Statement:

For a Class A digital device or peripheral:

#### 😠 Note:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

For a Class B digital device or peripheral:

#### Note:

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

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

#### Equipment With Direct Inward Dialing ("DID"):

Allowing this equipment to be operated in such a manner as to not provide proper answer supervision is a violation of Part 68 of the FCC's rules.

Proper Answer Supervision is when:

- 1. This equipment returns answer supervision to the public switched telephone network (PSTN) when DID calls are:
  - · answered by the called station,
  - · answered by the attendant,
  - routed to a recorded announcement that can be administered by the customer premises equipment (CPE) user
  - routed to a dial prompt
- 2. This equipment returns answer supervision signals on all (DID) calls forwarded back to the PSTN.

Permissible exceptions are:

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

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

#### Automatic Dialers:

When programming emergency numbers and (or) making test calls to emergency numbers:

- Remain on the line and briefly explain to the dispatcher the reason for the call.
- Perform such activities in the off-peak hours, such as early morning or late evenings.

#### **Toll Restriction and least Cost Routing Equipment:**

The software contained in this equipment to allow user access to the network must be upgraded to recognize newly established network area codes and exchange codes as they are placed into service.

Failure to upgrade the premises systems or peripheral equipment to recognize the new codes as they are established will restrict the customer and the customer's employees from gaining access to the network and to these codes.

#### For equipment approved prior to July 23, 2001:

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

#### For equipment approved after July 23, 2001:

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the Administrative Council on Terminal Attachments (ACTA). On the rear of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXX. If requested, this number must be provided to the telephone company.

The REN is used to determine the quantity of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs should not exceed 5.0.

L'indice d'équivalence de la sonnerie (IES) sert à indiquer le nombre maximal de terminaux qui peuvent être raccordés à une interface téléphonique. La terminaison d'une interface peut consister en une combinaison quelconque de dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'excède pas cinq.

To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. For products approved after July 23, 2001, the REN for this product is part of the product identifier that has the format US:AAAEQ##TXXX. The digits represented by ## are the REN

without a decimal point (for example, 03 is a REN of 0.3). For earlier products, the REN is separately shown on the label.

#### Means of Connection:

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

Manufactu rer's Port Identifier	FIC Code	SOC/ REN/ A.S. Code	Network Jacks
Off premises station	OL13C	9.0F	RJ2GX, RJ21X, RJ11C
DID trunk	02RV2.T	AS.2	RJ2GX, RJ21X, RJ11C
CO trunk	02GS2	0.3A	RJ21X, RJ11C
	02LS2	0.3A	RJ21X, RJ11C
Tie trunk	TL31M	9.0F	RJ2GX
Basic Rate Interface	02IS5	6.0F, 6.0Y	RJ49C
1.544 digital interface	04DU9.BN	6.0F	RJ48C, RJ48M
	04DU9.1K N	6.0F	RJ48C, RJ48M
	04DU9.1S N	6.0F	RJ48C, RJ48M
120A4 04DU9.DN channel service unit		6.0Y	RJ48C

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

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

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

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

Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

#### Installation and Repairs

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

Repairs to certified equipment should be coordinated by a representative designated by the supplier. It is recommended that repairs be performed by Avaya certified technicians.

#### FCC Part 68 Supplier's Declarations of Conformity

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

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

Copies of SDoCs signed by the Responsible Party in the U. S. can be obtained by contacting your local sales representative and are available on the following Web site: <u>http://support.avaya.com/DoC</u>.

#### **Canadian Conformity Information**

This Class A (or B) digital apparatus complies with Canadian ICES-003.

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

This product meets the applicable Industry Canada technical specifications/Le présent materiel est conforme aux specifications techniques applicables d'Industrie Canada.

#### **European Union Declarations of Conformity**



Avaya Inc. declares that the equipment specified in this document bearing the "CE" (Conformité Europeénne) mark conforms to the European Union Radio and Telecommunications Terminal Equipment Directive (1999/5/EC), including the Electromagnetic Compatibility Directive (2004/108/EC) and Low Voltage Directive (2006/95/EC).

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#### **European Union Battery Directive**



Avaya Inc. supports European Union Battery Directive 2006/66/EC. Certain Avaya Inc. products contain lithium batteries. These batteries are not customer or field replaceable parts. Do not disassemble. Batteries may pose a hazard if mishandled.

#### Japan

The power cord set included in the shipment or associated with the product is meant to be used with the said product only. Do not use the cord set for any other purpose. Any non-recommended usage could lead to hazardous incidents like fire disaster, electric shock, and faulty operation.

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#### If this is a Class A device:

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

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#### If this is a Class B device:

This is a Class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

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#### About this task

Use this procedure to find product documentation on the Avaya Support website.

#### Procedure

- 1. Use a browser to navigate to the Avaya Support website at <a href="http://support.avaya.com/">http://support.avaya.com/</a>.
- 2. At the top of the screen, enter your username and password and click **Login**.
- 3. Put your cursor over Support by Product.
- 4. Click Documents.
- 5. In the Enter your Product Here search box, type the product name and then select the product from the drop-down list.
- 6. If there is more than one release, select the appropriate release number from the **Choose Release** drop-down list.
- Use the Content Type filter on the left to select the type of document you are looking for, or click Select All to see a list of all available documents.

For example, if you are looking for user guides, select **User Guides** in the **Content Type** filter. Only documents in the selected category will appear in the list of documents.

8. Click Enter.

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# **Chapter 1: Before you install**

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

#### **Related links**

Before going to site on page 10 Site requirements on page 14 Firmware Specifications on page 16 Branch Gateway package contents on page 19 EM200 package contents on page 19

# Before going to site

Before going to the site, it is necessary to read the planning documentation and prepare equipment required for installation.

#### **Related links**

Before you install on page 10 Required equipment on page 10 Obtaining the Branch Gateway serial number on page 12 RFA access on page 12 License file with Survivable Remote Server on page 12 Downloading license and authentication files on page 13 Downloading recent firmware on page 13 Gateway authentication file on page 14

# **Required equipment**

Make sure you have the necessary equipment to assist you in the installation before you start working.

#### **Related links**

<u>Before going to site</u> on page 10 <u>Equipment required for installation</u> on page 11 Equipment required for mounting on page 11

Equipment required for installing an S8300 Server on page 11 Equipment required if you are not installing an S8300 Server on page 11

# Equipment required for installation

- · One loop start analog trunk for connecting a modem
- A separate telephone line, if needed, for verbal communication during remote configuration

#### **Related links**

Required equipment on page 10

# Equipment required for mounting

- A crosspoint screwdriver if rack mounting or wall mounting the Branch Gateway
- If you will mount the Branch Gateway on a flat wall: screws to fasten the Branch Gateway to the wall
- If you will mount the Branch Gateway on a non-flat wall:
  - A 48 in. x 48 in. (1.2 m x 1.2 m) plywood board (US: 3/4 inch plywood), 0.75 in. (20 mm) thick.
  - Wood screws to fasten the Branch Gateway to the plywood.
  - Screws to fasten the plywood board to the wall (pan head at least <sup>3</sup>/<sub>4</sub> in, #10-12 screw)

#### **Related links**

Required equipment on page 10

#### Equipment required for installing an S8300 Server

- One USB CD-ROM drive
- A laptop computer with Internet Explorer

#### **Related links**

Required equipment on page 10

#### Equipment required if you are not installing an S8300 Server

- · A PC on the local network, optionally with a USB flash drive
- If the port is recognized, it is listed by the Device Manager.
- A modem to connect to the Branch Gateway to enable dial-in configuration.

#### **Related links**

Required equipment on page 10

# **Obtaining the Branch Gateway serial number**

#### About this task

Look for the serial number sticker on the back of the Branch Gateway 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 <u>http://rfa.avaya.com</u> website, this task will require a preliminary trip to the customer site.

#### **Related links**

Before going to site on page 10

# **RFA** access

You need to obtain a personal Single Sign-On (SSO) for Remote Feature Activation (RFA) website 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
- · Associates should point their browsers to the Avaya Associate portal
- · Contractors should point their browsers to avaya.com
- Alternatively go directly to <a href="http://rfa.avaya.com">http://rfa.avaya.com</a>

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

#### **Related links**

Before going to site on page 10

# License file with Survivable Remote Server

If you are installing an S8300 as a Survivable Remote Server (SRS), the license file for the S8300 must have a Communication Manager release that is equal to or greater than that of the server that acts as primary controller. This is necessary so that if control passes to the SRS, it can allow the same level of call processing as that of the primary controller.

Additionally, the SRS must have a version of Avaya Aura<sup>®</sup> Communication Manager that is identical to that of the primary controller.

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

#### **Related links**

Before going to site on page 10

# **Downloading license and authentication files**

#### About this task

If you are installing a Branch Gateway with an S8300 Server as a primary controller, you need license and authentication files for the Communication Manager.

#### Procedure

- 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 http://rfa.avaya.com.
- 3. Login using your SSO login and password.

The AFS and RFA information home page appears.

4. Start the RFA application from the RFA information page.

To create and download the license file and authentication file, follow the instructions outlined in the *Avaya Remote Feature Activation (RFA) User Guide*, 03-300149.

5. Use the download or email capabilities of the RFA website to download the license and authentication files to your laptop.

#### Result

You can use the Maintenance Web Interface to install the Communication Manager license and authentication files.

#### **Related links**

Before going to site on page 10

# Downloading recent firmware

#### About this task

Download any recently updated firmware for the Branch Gateway and media modules to your laptop. Visit the Avaya Support website <u>www.avaya.com/support</u> 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 website, and any Communication Manager service packs that may be required for the upgrade.

#### **Related links**

Before going to site on page 10 Solution Deployment Manager on page 14

# **Solution Deployment Manager**

You can upgrade the S8300 using the Solution Deployment Manager. For information about upgrading S8300 firmware using the Solution Deployment Manager, see *Administering Avaya Aura*<sup>®</sup> *System Manager*.

From Release 7.0, Solution Deployment Manager replaces Software Update Manager (SUM).

#### **Related links**

Downloading recent firmware on page 13

# Gateway authentication file

An authentication file is preinstalled in the gateway, and can be updated if needed. Check the authentication file version using the 'show auth-file info' function. Gateway firmware version 6.x and newer (including versions 7.0.0+) use the 6.x authentication files. See the *Deploying and Upgrading Avaya G430 Branch Gateway* guide.

#### Note:

When FIPS mode is enabled on the gateway, services logins using the authentication file are disabled.

#### A Warning:

Use of the set fips-mode CLI command is currently unsupported and should not be used at this time. FIPs-mode will be made available in a later release once certification and testing has been completed.

#### **Related links**

Before going to site on page 10

# 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 Branch Gateway may be installed in a 19" rack, mounted on a wall, or placed on a sturdy table. Installation instructions are provided in <u>Installing the Branch Gateway</u> on page 21. The ambient temperature should be in the range 32 to 104°F (0 to 40°C). The humidity should not be higher than 90%.

#### **Related links**

<u>Before you install</u> on page 10 <u>Verifying temperatures and clearances</u> on page 15 <u>Verifying power outlets</u> on page 15 <u>Verifying the grounds</u> on page 15

# Verifying temperatures and clearances

#### About this task

Verify that temperatures and clearances are within the recommended technical parameters. Consult the table of Technical Specifications in the topic 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.

#### **Related links**

Site requirements on page 14

# Verifying power outlets

#### About this task

Check that an adequate number of power outlets are available. Verify that the Branch 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 the topic Power cord specifications.



Do not overload the power circuit.

#### **Related links**

Site requirements on page 14

# Verifying the grounds

#### About this task

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 <u>Attaching ground conductors</u> on page 33).

#### A Warning:

Installation in a Restricted Access Location and secure access are required in Finland, Norway, and Sweden. The Branch Gateway relies on two ground connections: first, the mains plugs for the power supplies are required to be connected to AC outlets that have earth contacts; and second, the Supplementary Ground Conductor provided with the system provides a non-

removable ground even when the AC cords are disconnected. However, because of unreliable earthing concerns in Finland, Norway, and Sweden, the Branch 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 Branch 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.

#### **Related links**

Site requirements on page 14

# **Firmware Specifications**

#### New Comcode numbers for G450

#### New Comcode numbers for G430

Old codes will still be active for G430 with imbedded MP20 and MP80 bundle option.

- 700503274 : G430 120 channel DSP daughter board Single MP120 for upgrades
- 700506957 : G430 MP120 Media Gateway New bundle no on board MP20 and preinstalled MP120
- 700506958 : G430 MP120 Media Gateway Non-GSA New bundle number on board MP20 and preinstalled MP120
- 700508198 : G430 120 CHANNEL DSP daughter board

Firmware version	Build	v1a	v2b	v2d	v3b	Recommended CM Version
BGW 5.2.1	30.28.0 +	Yes	Yes	Yes	Yes (min FW load 30.28.0)	CM 5.2.1 (SP 16) or higher
					1040 30.20.0)	AA 6.3 FP3, CM6.3 .2 +
BGW 6.1	31.26.0	Yes	Yes	Yes	No - require new FW (base not supported)	CM 6.0.1 - Nov 2010
BGW 6.2.1	32.26.0	Yes	Yes	Yes	No - require new FW (base not supported)	AA 6.2 FP1-CM 6.2 sp4 - Dec 2012
BGW 6.3	33.13.0	Yes	Yes	Yes	No - require new FW (base not supported)	AA 6.2 FP2-CM 6.3 - May 2013
BGW 6.1 JITC	33.13.1	Yes	Yes	Yes	Would require JITC request	CM 6.3.1.1 (JITC SP)

#### Minimum firmware requirements for G450

Firmware version	Build	v1a	v2b	v2d	v3b	Recommended CM Version
BGW 6.3.1	34.6.0 +	Yes	Yes	Yes	Yes (min FW load 34.6.0)	AA 6.2 FP3 CM 6.3.2 + (Oct 2013)
						AA 6.2 FP 2, CM 6.3 & CM 5.2.1 SP 16+
BGW 6.3.5	35.x.y	Yes	Yes	Yes	Yes	AA 6.2 FP3, CM 6.3.2 +
						AA 6.2 FP 2, CM 6.3 & CM 5.2.1 SP 16+
BGW 6.3.6	36.x.y	Yes	Yes	Yes	Yes	AA 6.2 FP 4, CM 6.3.6
JITC						AA 6.2 FP3, CM 6.3.2 & CM 5.2.1 SP 16+
BGW 6.3.7	36.16.0 +	Yes	Yes	Yes	Yes	AA 6.2 FP 4 CM 6.3.6 +
BGW 6.3.8	36.16.0 +	Yes	Yes	Yes	Yes	AA 6.2 FP 4 CM 6.3.6 +
BGW 6.3.9	36.16.0 +	Yes	Yes	Yes	Yes	AA 6.2 FP 4 CM 6.3.6 +
BGW 6.3.10	36.16.0 +	Yes	Yes	Yes	Yes	AA 6.2 FP 4 CM 6.3.6 +
BGW 6.3.11	36.16.0 +	Yes	Yes	Yes	Yes	AA 6.2 FP 4 CM 6.3.6 +
BGW 6.3.12	36.16.0	Yes	Yes	Yes	Yes	AA 6.2 FP 4 CM 6.3.6 +
BGW 6.3.13	36.17.0	Yes	Yes	Yes	Yes	AA 6.2 FP 4 CM 6.3.6 +
BGW 7.0	37.20.0	Yes	Yes	Yes	Yes	AA 7.0, CM 7.0
						AA 6.2 FP 4 CM 6.3.6 +
BGW 7.0.0.1	37.20.0	Yes	Yes	Yes	Yes	AA 7.0, CM 7.0
						AA 6.2 FP 4 CM 6.3.6 +
BGW 7.0.0.2	37.21.0	Yes	Yes	Yes	Yes	AA 7.0, CM 7.0
						AA 6.2 FP 4 CM 6.3.6 +
BGW 7.0.1	37.38.0	Yes	Yes	Yes	Yes	AA 7.0 FP 1, CM 7.0.1
						AA 6.2 FP 4, CM 6.3.6
						AA 7.0, CM 7.0

# Minimum firmware requirements for G430

Firmware version	Build	v1a	v2a (MP120 Preinstalled)	Comments	Recommended CM Version - Older versions of CM will work
BGW 5.2.1	30.28.0	Yes	No	No BGW support MP120	CM 5.2.1(SP 16) or higher (CM blocks more than 105 channels)
BGW 6.1	31.26.0	Yes	No	No BGW support MP120	CM 6.0.1

Firmware	Build	v1a	v2a	Comments	Recommended CM Version
version			(MP120 Preinstalled)		- Older versions of CM will work
					(CM blocks more than 105 channels)
BGW 6.2.1	32.26.0	Yes	No	No BGW support MP120	AA 6.2 FP1 CM 6.2 sp 4 — Dec 2012
					(CM blocks more than 105 channels)
BGW 6.3	33.13.0	Yes	No	No BGW support	AA 6.2 FP2 CM 6.3 — May 2013
				MP120	(CM supports all 120 channels)
BGW 6.3.1	34.6.0	Yes	No	No BGW support	AA6.2 FP3 CM6.3.2 — Oct 2013
				MP120	(CM supports all 120 channels)
BGW 6.3.5	35.x.y	Yes	Yes	MP120 Support	AA 6.2 FP3 CM 6.3.2 +
				V150.1 Features	(CM supports all 120 channels)
BGW 6.3.6	36.x.y	Yes	Yes	MP120 Support	AA 6.2 FP 4 CM 6.3.6
JITC					AA 6.2 FP3 CM 6.3.2 +
					(CM supports all 120 channels)
BGW 6.3.7	36.16.0 +	Yes	Yes	MP120 Support	AA 6.2 FP 4 CM 6.3.6 +
BGW 6.3.8	36.16.0 +	Yes	Yes	MP120 Support	AA 6.2 FP 4 CM 6.3.6 +
BGW 6.3.9	36.16.0 +	Yes	Yes	MP120 Support	AA 6.2 FP 4 CM 6.3.6 +
BGW 6.3.10	36.16.0 +	Yes	Yes	MP120 Support	AA 6.2 FP 4 CM 6.3.6 +
BGW 6.3.11	36.16.0 +	Yes	Yes	MP120 Support	AA 6.2 FP 4 CM 6.3.6 +
BGW 6.3.12	36.16.0	Yes	Yes	MP120 Support	AA 6.2 FP 4 CM 6.3.6 +
BGW 6.3.13	36.17.0	Yes	Yes	MP120 Support	AA 6.2 FP 4 CM 6.3.6 +
BGW 7.0	37.20.0	Yes	Yes	MP120 Support	AA 7.0, CM 7.0
					AA 6.2 FP 4 CM 6.3.6 +
BGW 7.0.0.1	37.20.0	Yes	Yes	MP120 Support	AA 7.0, CM 7.0
					AA 6.2 FP 4 CM 6.3.6 +
BGW 7.0.0.2	37.21.0	Yes	Yes	MP120 Support	AA 7.0, CM 7.0
					AA 6.2 FP 4 CM 6.3.6 +
BGW 7.0.1	37.38.0	Yes	Yes	MP120 Support	AA 7.0 FP 1, CM 7.0.1
					AA 7.0, CM 7.0 +

Firmware	Build	v1a	v2a	Comments	Recommended CM Version
version			(MP120 Preinstalled)		- Older versions of CM will work
					AA 6.2 FP 4, CM 6.3.6 +

#### **Related links**

Before you install on page 10

# **Branch Gateway package contents**

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

- One Branch Gateway chassis. The required media modules may be installed.
- One accessories box, containing:
  - Two 19" mounting brackets
  - One cable management assembly
  - Two wall mounting brackets
  - One Supplementary Ground Conductor
  - Nine 4-40 flat head screws
  - Four rubber feet
- Auto-run CD

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

#### **Related links**

Before you install on page 10

# EM200 package contents

The EM200 chassis and accessories are shipped in a box. If you ordered an EM200 expansion unit or units, each EM200 package should contain the following items:

- · One EM200 chassis. The required media modules may be installed.
- One accessories box, containing:
  - One expansion cord
  - Two standard mounting brackets
  - One mounting bracket with cable guides
  - One Supplementary Ground Conductor

- Nine 4-40 flat head screws
- Four rubber feet.

#### **Related links**

Before you install on page 10 Unpacking and checking package contents on page 20

# Unpacking and checking package contents

#### About this task

For the G430 package and for the EM200 package(s), if ordered:

#### Procedure

1. Unpack the Branch Gateway and accessories.

#### A Electrostatic alert:

Wear an anti-static wrist ground strap whenever handling components of a Branch Gateway or EM200. 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.

#### Result

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

#### **Related links**

EM200 package contents on page 19

# Chapter 2: Installing the Branch Gateway and EM200

# **Branch Gateway installations**

Installing the Branch Gateway consists of installing the Branch Gateway chassis, installing the EM200 expansion module(s) if ordered, installing media modules, attaching ground conductors, and connecting the power.

#### **Related links**

Roadmap for installing the Branch Gateway on page 21 Mounting the Branch Gateway chassis on page 21 Placing the Branch Gateway on a table on page 26

# Roadmap for installing the Branch Gateway

#### About this task

Install these devices in the following order using the appropriate procedure described in this section:

#### Procedure

- 1. Branch Gateway chassis
- 2. EM200 expansion modules
- 3. Media modules
- 4. Ground conductors
- 5. Power to the EM200 expansion modules
- 6. Power to the Branch Gateway

#### **Related links**

Branch Gateway installations on page 21

# Mounting the Branch Gateway chassis

You can mount the Branch Gateway in a rack, on a wall, or on a table.

#### **A** Electrostatic alert:

When handling any components of an S8300 Server or Branch 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.

#### **Related links**

Branch Gateway installations on page 21 Branch Gateway racks on page 22 Mounting the Branch Gateway on a wall on page 25

#### **Branch Gateway racks**

The Branch Gateway mounts in a standard 19-inch rack.

You can fasten the Branch Gateway to the rack either at the front of the Branch Gateway or at the middle. In either case, mounting brackets must be attached to the Branch Gateway.

There are two types of mounting brackets provided with the Branch Gateway:

- 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 and is useful for cable management.

#### **Related links**

Mounting the Branch Gateway chassis on page 21 Brackets without cable guides on page 22 Attaching a mounting bracket to the front of the Branch Gateway on page 23 Attaching a mounting bracket to the middle of the Branch Gateway on page 23 Brackets with cable guides on page 23 Attaching a mounting bracket with cable guides on page 24 Attaching each mounting bracket to the Branch Gateway on page 24 Before mounting the Branch Gateway on page 24 Mounting the Branch Gateway in the rack on page 25

#### Brackets without cable guides

Mounting brackets without cable guides can be attached in either of the following positions:

• To each side of the front of the Branch Gateway for fastening the chassis to the rack at the front

• To the middle of each side panel of the Branch Gateway for fastening the chassis to the rack at the middle

#### **Related links**

Branch Gateway racks on page 22

#### Attaching a mounting bracket to the front of the Branch Gateway

#### About this task



#### **Related links**

Branch Gateway racks on page 22

#### Attaching a mounting bracket to the middle of the Branch Gateway

#### About this task



#### **Related links**

Branch Gateway racks on page 22

#### Brackets with cable guides

You can attach the mounting bracket with cable guides to the front of the Branch Gateway on 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:

Connecting a DCP telephone to an MM712 or MM717 media module on page 48

😵 Note:

Connecting a DCP telephone to an MM712 or MM717 media module on page 48

#### 😵 Note:

It is recommended to attached the mounting bracket with cable guides to the right side of the rack, so as not to block your view of the system LEDs.

#### **Related links**

Branch Gateway racks on page 22

#### Attaching a mounting bracket with cable guides

# <image>

#### Related links

Branch Gateway racks on page 22

#### Attaching each mounting bracket to the Branch Gateway

#### About this task

The Branch Gateway is held in place by mounting screws through the two mounting ears. Fill racks from the bottom; that is, mount units in the lower positions first, to avoid balancing problems and cabling complications.

#### Procedure

- 1. Position a bracket over the desired mounting position.
- 2. Affix the bracket to the chassis with three of the nine4-40 flat head screws provided.
- 3. Tighten with a screwdriver.

#### **Related links**

Branch Gateway racks on page 22

#### Before mounting the Branch Gateway Procedure

1. 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.

2. If the Branch Gateway is being mounted in a rack with other equipment already installed, the Branch Gateway must be positioned to avoid imbalance.

#### Result

# 😵 Note:

The Branch Gateway weighs under 11 pounds (5 kg) empty and between 13 and 14 pounds (between 6 and 7 kg) when equipped with media modules. The EM200 weighs under 11 pounds (5 kg) empty and between 12 and 13 pounds (between 5 and 6 kg) when equipped with media modules.

#### **Related links**

Branch Gateway racks on page 22

# Mounting the Branch Gateway in the rack

#### Procedure

1. Position the Branch Gateway in the rack.

Ensure that there is adequate ventilation.

2. Verify that the screw holes are aligned with the rack hole positions.

#### **Related links**

Branch Gateway racks on page 22

## Mounting the Branch Gateway on a wall

#### About this task

#### 😵 Note:

You can only mount a G430 on a wall if you do not attach any EM200 modules to it.

To mount the Branch Gateway on a wall, use the two wall mounting brackets You can also add a mounting bracket with cable guides if desired, as explained in <u>Brackets with cable guides</u> on page 23.

#### **A** Caution:

If you are installing the Branch Gateway in the United States of America:

- The AC power supply cord must not be attached to the building wall, for example with wire staples, clamps, and so on.
- You must install the Branch Gateway near the AC receptacle (socket outlet) that services the Branch Gateway.
- You must install the AC power supply cord in a way that minimizes the risk of physical damage to the cord. The cord must not be hanging on the floor, or routed in any way that can subject it to physical abuse.

#### **Related links**

<u>Mounting the Branch Gateway chassis</u> on page 21 <u>Attaching brackets to the Branch Gateway for wall mounting</u> on page 26

#### Fastening the Branch Gateway to the wall on page 26

#### Attaching brackets to the Branch Gateway for wall mounting

#### About this task

Attach a wall mounting bracket to each side of the Branch Gateway, as shown in the following figure.



#### Figure 1: Attaching a bracket to each side of the Branch Gateway

#### **Related links**

Mounting the Branch Gateway on a wall on page 25

#### Fastening the Branch Gateway to the wall

#### About this task

😵 Note:

The plywood and the hardware to mount the plywood are customer-provided.

#### Procedure

1. If the wall does not have a portion of plywood available, mount a plywood sheet at least <sup>3</sup>/<sub>4</sub> in (2.0 cm) thick and at least 4 x 4 ft (1.2 x 1.2 m) in size, horizontally onto the wall.

Make sure the plywood is sufficiently anchored in the wall. Use a minimum of four wood screws and ensure the screws are driven into wall studs, or use four wall anchors rated not less than 50 pounds (22.5 kg) shear strength each.

- 2. Mark the plywood with the location of the Branch Gateway bracket screw holes before fastening the plywood to the wall.
- 3. Position the Branch Gateway so that its front panel is facing up, and secure it to the plywood using a minimum of four screws (pan head at least <sup>3</sup>/<sub>4</sub> in, #10-12 screw).

#### **Related links**

Mounting the Branch Gateway on a wall on page 25

# Placing the Branch Gateway on a table

#### About this task

If you install the Branch Gateway as a tabletop unit, affix the provided rubber feet to the underside of the Branch Gateway.

#### Procedure

- 1. Remove the four feet from their packaging.
- 2. Turn the Branch Gateway upside down.
- 3. Position each foot into one of the mounting sites, near each corner of the chassis.

#### **Related links**

Branch Gateway installations on page 21

# Mounting the EM200 expansion module

#### About this task

You can optionally extend the G430 by attaching one or two EM200 expansion modules to the G430. Since the cables attaching the EM200 expansion modules to the G430 are short, you must install the Branch Gateway and EM200s directly above or below each other.

The EM200 expansion modules can be mounted in a rack or on a table, similarly to how the Branch Gateway is mounted. Refer to <u>Mounting the Branch Gateway chassis</u> on page 21. Note that although the figures illustrating the mounting instructions depict a Branch Gateway, all rack and table mounting procedures apply equally to both the G430 and the EM200. Keep in mind the following:

#### Procedure

If you are mounting the Branch Gateway and EM200 module(s) on a table, always place the G430 on top of the EM200(s).

This enables easy access in case you need to open the G430 cover in order to add or replace a DSP module or the RAM card.

#### Result

😵 Note:

You cannot mount a G430 with EM200 modules on a wall.

#### **Related links**

EM200 installation on page 27

# **EM200** installation

If you mounted one or two EM200 modules for the purpose of expanding the Branch Gateway, connect each EM200 to the G430 using the expansion cable supplied with each EM200.

- If you mounted one EM200:
  - 1. Connect one end of the expansion cable to the CONNECTOR OUT 1 connector on the rear of the G430.

2. Connect the other end of the expansion cable to the CONNECTOR IN connector on the rear of the EM200.



Figure 2: Connecting an EM200 to the G430

 If you mounted two EM200 modules, connect one EM200 to the CONNECTOR OUT 1 connector on the rear of the G430, and one EM200 to the CONNECTOR OUT 2 connector on the rear of the G430.

#### **Related links**

Mounting the EM200 expansion module on page 27

# Installing the media modules

When the Branch Gateway chassis and optionally the EM200 module(s) are installed, you can insert the media modules. Each module is shipped with two thumb screws for securing the module in the Branch Gateway or EM200 chassis.

#### 😵 Note:

The required media modules are sometimes pre-installed in the Branch Gateway or EM200 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.

#### **Related links**

Before inserting media modules into the Branch Gateway or EM200 chassis on page 28 Combination limitations on page 29 Slot allocation on page 29 Inserting S8300 Server on page 31 Inserting media modules on page 32

# Before inserting media modules into the Branch Gateway or EM200 chassis

- Do not install an unsupported combination of media modules. See <u>Combination limitations</u> on page 29.
- Allocate a permissible slot to each media module. See *Slot Allocations*.

# **Marning**:

Do not operate the Branch Gateway and EM200 with any open slots. Failure to cover empty slots with the supplied blank plates can cause overheating due to inadequate air distribution.

#### **Related links**

Installing the media modules on page 28

# **Combination limitations**

The Branch Gateway chassis is designed to accommodate:

- Up to three of the following telephony media modules: MM710, MM710B, MM711, MM712, MM714, MM714B, MM720, MM722
- Up to two of the following telephony media modules: MM716, MM717
- Up to one S8300 server, in slot V1 only

Each EM200 chassis is designed to accommodate:

- Up to two of the following telephony media modules: MM710, MM170B, MM711, MM712, MM714, MM714B, MM716, MM717, MM720, MM722
- Up to four MM721 modules
- 😵 Note:

Although you can insert a total of seven MM710 or MM710B media modules in the extended G430 (a G430 with two EM200 expansion modules), the optimum number is four MM710 or MM710B media modules, since the Branch Gateway can support up to 100 VoIP channels.

#### **Related links**

Installing the media modules on page 28

# **Slot allocation**

The Branch Gateway chassis has three media module slots, marked V1, V2, and V3 (see the figure).Each of the two optional EM200 expansion modules has two media module slots respectively.The slots of the EM200 connected to the EXPANSION OUT 1 connector on the rear of the G430 are slots V5 and V6, and the slots of the EM200 connected to the EXPANSION OUT 2 connector on the rear of the G430 are slots V7 and V8.<u>Table 1</u> on page 30 lists the permitted slots for each media module.

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



Figure 3: The G430 Branch Gateway front panel ports and slots

#### Table 1: Figure notes:

- 1. System LEDs
- 2. RST button
- 3. ASB button
- 4. USB 2.0 ports
- 5. CCA (Contact Closure) port
- 6. 10/100M Services port
- 7. 10/100M ETH WAN port
- 8. 10/100M ETH LAN ports
- 9. Compact Flash slot
- 10. V1 slot for media module or S8300 Server
- 11. V2 slot for media module
- 12. V3 slot for media module



#### Figure 4: The EM200 front panel slots

#### Table 2: Figure notes:

1. System LEDs

- 1. V5/V7 slot for media module
- 2. V6/V8 slot for media module

#### Table 3: Permitted slots for Branch Gateway and EM200 media modules

Media module	Permitted slots	Description
MM710	V1-V3, V5-V8	1 T1/E1 ISDN PRI trunk port
MM710B	V1-V3, V5-V8	1 T1/E1 ISDN PRI trunk port
MM711	V1-V3, V5-V8	8 universal analog ports

Media module	Permitted slots	Description
MM712	V1-V3, V5-V8	8 DCP telephone ports
MM714	V1-V3, V5-V8	4 analog telephone ports and 4 analog trunk ports
MM714B	V1-V3, V5-V8	4 analog telephone ports, 4 analog trunk ports, and an emergency transfer relay
MM716	V1-V3, V5-V8	24 analog ports
MM717	V1-V3, V5-V8	24 DCP telephone ports
MM720	V1-V3, V5-V8	8 ISDN BRI trunk or endpoint (telephone or data) ports
MM721	V1-V3, V5-V8	8 ISDN BRI trunk or endpoint (telephone or data) ports
MM722	V1-V3, V5-V8	2 ISDN BRI trunk ports
S8300C or S8300D	V1	Communication Manager server

#### **Related links**

Installing the media modules on page 28

# **Inserting S8300 Server**

#### About this task

You can install the S8300D or S8300E server in slot V1 on the left side of the Branch Gateway.

#### A Electrostatic alert:

Hold the module only by its 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.

#### \land 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.

#### Procedure

- 1. If you are installing an S8300D or S8300E server, remove the plate above slot V1
- 2. Remove the blank plate from slot V1.
- 3. Position the server before the V1 bay opening and engage both sides of the module in the interior guides.
- 4. Slide the S8300D or S8300E server 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 S8300D or S8300E server

5. Apply firm pressure to engage the connectors.

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

6. Lock the S8300D or S8300E server module into the chassis by tightening the spring-loaded captive screws on the front of the module.

If you are installing an S8300D or S8300E server, replace the plate labelled "Remove before removing or inserting S8300 module" above slot V1

7. After you have inserted the S8300D or S8300E server module, if applicable, insert the rest of the media modules.

Make sure to insert each module in a permissible slot.

#### Result

#### 🛕 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.

#### **Related links**

Installing the media modules on page 28

# Inserting media modules

#### About this task

After you have inserted the S8300D or S8300E server module, if applicable, insert the rest of the media modules. Make sure to insert each module in a permissible slot. Remove the blank plate from the empty bay.

#### Electrostatic alert:

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.

#### \land 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.

#### Procedure

- 1. Position the media module before the selected bay on the front of the Branch Gateway or EM200 chassis and engage both sides of the module in the interior guides.
- 2. 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

3. Apply firm pressure to engage the connectors.

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

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

#### Result

#### A 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.

#### **Related links**

Installing the media modules on page 28

# **Ground conductor attachments**

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

#### **Marning**:

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.

#### **Related links**

<u>General grounding requirements</u> on page 34 <u>Approved grounds</u> on page 36 <u>Safety ground connections</u> on page 39 <u>Connecting power to the EM200 expansion modules</u> on page 41 <u>Connecting power to the Branch Gateway</u> on page 42

# **General grounding requirements**

#### 😵 Note:

Grounding requirements differ widely from country to country. In addition to the grounding instructions presented in this section, you must follow the local electrical installation codes for your location.

Two safety grounds are required to ensure safe operation of each Branch Gateway and each EM200: 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 Branch Gateway or EM200, use that cord whenever possible.

#### **Related links**

Ground conductor attachments on page 33 Installation location on page 34 Ground conductor on page 35 Ground block on page 35 Restricted Access Location on page 35

#### Installation location

Select a location for the Branch Gateway or EM200 installation that is close enough for use with the supplied secondary grounding conductor. If this location requirement is not met, contact a licensed electrician to install a Supplementary Ground Conductor per Article 250 of the National Electrical Code (NEC).

#### **Marning**:

If the installation location is greater than the length of the supplied secondary grounding conductor from an approved ground, do not install the Branch Gateway or EM200 until a licensed electrician is present to install a Supplementary Ground Conductor.

#### **Related links**

General grounding requirements on page 34

#### **Ground conductor**

A Supplementary Ground Conductor is provided with the equipment, and is constructed of 10 AWG (4.0 mm<sup>2</sup>) wire, with an insulated ring terminal crimped to one end that is suitable for the #8 (M4) stud/screw on the rear of the Branch Gateway or EM200 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).

#### **Related links**

General grounding requirements on page 34

#### **Ground block**

A ground block, supplied by the customer and installed by an electrician, is available for use when you are installing multiple Branch Gateway or EM200s. The ground block, intended for rack mounting, has ten terminals available for terminating Supplementary Ground Conductors. Up to ten Branch Gateway devices or EM200s 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.

#### **A** 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.

#### **Related links**

General grounding requirements on page 34

## **Restricted Access Location**

In Finland, Norway, and Sweden, the Branch Gateway and EM200s 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 Branch Gateway or EM200s is gained by the use of a tool (such as a lock and key) or other means of security.

## \rm Marning:

For installations in Finland, Norway, and Sweden, the Branch Gateway and EM200 rely on two ground connections (mains plug with an earth contact, and a Supplementary Ground Conductor).

#### **Related links**

General grounding requirements on page 34

# **Approved grounds**

There are two methods for equipment grounding.

The first is based on NFPA 70: National Electrical Code (NEC - a United States code).

#### 😵 Note:

Compliance with NFPA 70: NEC – or – with the equivalent local electrical code/grounding requirements is mandatory.

The second is based on ANSI/EIA/TIA-607 (Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications).

#### 😵 Note:

ANSI/EIA/TIA-607 (TIA-607) defines an intra-building ground-wiring scheme for communications equipment, and specifies equipment connection/grounding points according to that scheme. TIA-607 assumes the underlying building grounding infrastructure is in compliance with NFPA 70: NEC. Compliance with the NEC (or the equivalent local electrical code/grounding requirements) is essential for the proper application of TIA-607.

Compliance with NFPA 70: NEC will provide suitable grounding for the Avaya equipment. TIA-607 provides an enhanced, communications-specific grounding scheme: where TIA-607 has been implemented the Avaya equipment shall be grounded per this method.

#### Important:

- 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.
- If you have difficulty interpreting the grounding methods in this document, Avaya recommends obtaining the services of a certified power contractor or auditor prior to system installation or cutover.

#### A Warning:

Failure to follow grounding recommendations can result is a system installation that is:

- · Unsafe for personnel handling or using the equipment
- · Not properly protected from lightning or power transients
- · Subject to service interruptions

#### NFPA 70: NEC

In buildings without a ground-cabling infrastructure meeting TIA-607 the Avaya equipment shall be grounded by connection to the nearest accessible location on one of the following approved building grounds:

#### 😵 Note:

The following are approved grounds in keeping with the NFPA 70: National Electrical Code of the United States (NEC). For additional information regarding these grounds consult the NEC, Article 250.52.

# **AC Service Panel:**

• AC ground at the AC service panel serving the Avaya equipment.

# 🛕 Danger:

- Do not perform work inside electrical panels unless you are a qualified electrician.
- Do not try to remove bonding conductors without approval from qualified personnel.

## **Metal Water Pipe:**

The water pipe must meet all the following -

- The entire length of the pipe must be visible except for short sections passing through walls, ceilings, etc.
- Be metallic thorough its length, or made electrically continuous by bonding around insulation joints or insulating pipe.
- Be routed underground for at least 3 meters (10 feet).

Where a metal water pipe is used as an approved ground the following requirements apply to the host building:

- The building must be industrial, commercial, or institutional, where only qualified persons service the water piping.
- The building shall not rely only on the metal water pipe for grounding: a supplemental ground is required. (See NEC Article 250.53 for additional details.)

#### Metal Frame of the Building:

The metal frame member (I-beam, pillar) must be connected to earth by one of the following methods –

- Be in direct contact with the earth, or encased in concrete that is in direct contact with the earth, for at least 3 meters (10 feet).
- Be connected to the reinforcing bars of a concrete-encased electrode. The electrode must be encased by at least 5.1 cm (2 inches) 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 6.1 meters (20 feet) of one or more steel reinforcing bars or rods, 1.3 cm (0.5 inches) in diameter, or at least 6.1 meters (20 feet) of bare solid copper, 4 AWG (26mm<sup>2</sup>) wire.
- Be connected to a ground ring. A ground ring is a buried ground that encircles a building, having a length of at least 6.1 meters (20 feet) of 2 AWG (35mm<sup>2</sup>) bare copper wire.
- Be connected to rod and pipe electrodes. A rod or pipe electrode consists of one 1.6 cm (5/8 inch) solid rod or 2 cm (3/5 inch) conduit driven to a minimum depth of 2.4 meters (8 feet).
- Be connected to plate electrodes. Plate electrodes have a minimum of 0.185 square meter (2 square feet) of metallic surface exposed to the exterior soil.

#### 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 equipment single-point ground terminal. Approved floor grounds may include the following:

• Metal Frame of the Building (in accordance with the criteria specified in <u>Metal Frame of the</u> <u>Building</u> on page 37)

- The grounding conductor for the secondary side of the power transformer feeding the floor
- A grounding point specifically provided in the building for that purpose

# A Warning:

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

# ANSI/EIA/TIA-607:

In buildings where a ground-cabling infrastructure meeting TIA-607 has been implemented the Avaya equipment shall be grounded according to the TIA-607 standard. In a TIA-607 installation, the Telecommunications Main Grounding Busbar (TMGB)/Telecommunications Grounding Busbar (TGB) links the telecommunications equipment to the ground.

Other grounding terminology is:

- · Building principle ground, normally in a building with one floor.
- · Floor ground bar, normally in buildings with more than one floor.

Refer to Figure 7: ANSI/TIA/EIA-607 Grounding Schematic on page 38.

Configure telecommunications subsystems, such as groups of frames or equipment, as separate single-point ground entities connected to the equipment's dedicated service panel via a single-point ground bar. The service panel ground connects to the building principle ground via the main service panel or, in a TIA-607 installation, via the TGB. Refer to Figure 8: Typical Wiring Plan on page 39.

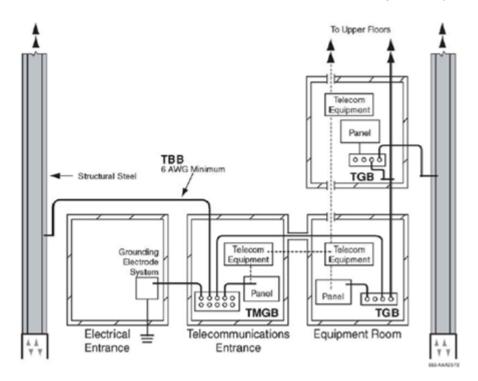
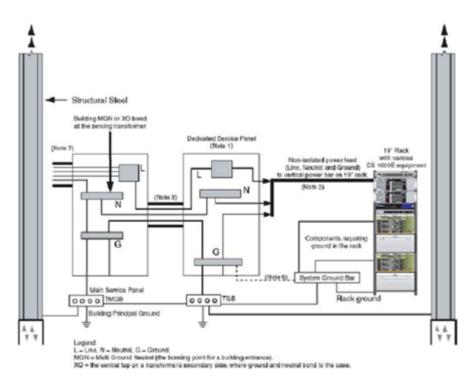


Figure 7: ANSI/TIA/EIA-607 Grounding Schematic



#### Figure 8: Typical Wiring Plan

#### **Related links**

Ground conductor attachments on page 33

# Safety ground connections

Proper grounding of the Branch 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 Branch Gateway.

Proper grounding of the Branch Gateway and EM200s 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 Branch Gateway or EM200.

# 🛕 Danger:

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

Connection of both grounds (through the AC Power Cord and the Supplementary Ground Conductor) is required for safe operation of the Branch Gateway or EM200.

# **Marning**:

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

#### **Related links**

<u>Ground conductor attachments</u> on page 33 <u>Attaching the ground wires</u> on page 40

# Attaching the ground wires

# About this task

Perform the following in each Branch Gateway and EM200.

# Procedure

- 1. Unscrew the lock nut of 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<sup>2</sup>) Supplementary Ground Conductor on the ground screw.
- 3. Tightly close the lock nut.

#### **Related links**

<u>Safety ground connections</u> on page 39 <u>Attaching ground wires for purchased ground blocks</u> on page 40 <u>Attaching ground wires for unused ground blocks</u> on page 41

# Attaching ground wires for purchased ground blocks Procedure

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<sup>2</sup>) 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.

#### Result

# 😵 Note:

The ground block is for use with more than one Branch Gateway or EM200 in the rack. If the ground block is to be used, you must supply it and have it installed by an electrician.

#### **Related links**

Attaching the ground wires on page 40

# Attaching ground wires for unused ground blocks

# Procedure

- 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.

# Result

# 😵 Note:

If two PSUs are installed in the Branch Gateway, the PWR LED blinks if only one PSU is connected to power, and stays on if both PSUs are connected to power.

# **Related links**

Attaching the ground wires on page 40

# **Connecting power to the EM200 expansion modules**

# About this task

# **Marning**:

Connect power to the EM200 expansion modules before you connect power to the G430. Failure to do so may cause unexpected results.

For each EM200 module you connected to the G430:

# Procedure

- 1. Connect the power cable to the power connector on the EM200 back panel.
- 2. Plug the power cable into a mains socket.

The EM200 is now powered.

The V5-V6 LED on the EM200 front panel lights if the EM200 is connected to the CONNECTOR OUT 1 connector on the rear panel of the G430. This indicates that the two media module slots are considered slot 5 and slot 6 of the G430.

The V7-V8 LED on the EM200 front panel lights if the EM200 is connected to the CONNECTOR OUT 2 connector on the rear panel of the G430. This indicates that the two media module slots are considered slot 7 and slot 8 of the G430.

The PWR LED on the front panel lights, indicating the EM200 is powered.

# Result

# **Marning**:

If you wish to move an EM200 in a working system consisting of a G430 and one or two EM200s housing media modules, you must disconnect the EM200 from power before reconnecting the expansion cable to the new location. Failure to do so may cause unexpected results.

# **Related links**

<u>Ground conductor attachments</u> on page 33

# **Connecting power to the Branch Gateway**

## About this task

After you have mounted the Branch Gateway, optionally mounted and connected EM200 device(s), installed the media modules, and attached grounding conductors, you can connect power to the Branch Gateway.

### Procedure

- 1. Connect the power cable to the power connector on the Branch Gateway back panel.
- 2. Plug the power cable into an AC outlet.

The Branch Gateway 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 S8300D or S8300E server, lights up initially and then goes off after about 20 seconds.

#### **Related links**

Ground conductor attachments on page 33

# **Chapter 3: Connecting devices**

# **Connecting devices**

External endpoint 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 Branch Gateway, and EM200s if desired, should be mounted and all media modules should be inserted.

# 🛕 Warning:

To reduce the risk of fire, use only 26 AWG or larger telecommunication line cords when installing telephones or adjuncts, or connecting to any media module telecommunication ports.

# **Related links**

Roadmap for connecting devices on page 43 Data and voice device connections on page 44 Circuit protection installation on page 52 Coupled Bonding Conductor installations on page 53 Avaya Partner Contact Closure Adjunct installations on page 54

# **Roadmap for connecting devices**

Connect these devices in the following order using the appropriate procedure described in this section:

- 1. Data and voice devices
- 2. Circuit protection
- 3. Wide Area Network (WAN)
- 4. Coupled Bonding Conductor (CBC)
- 5. Avaya Partner Contact Closure Adjunct

#### **Related links**

Connecting devices on page 43

# Data and voice device connections

There are 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 Branch Gateway.

#### **Related links**

Connecting devices on page 43 Switch or network data port connections on page 44 IP telephone connections on page 44 ISDN BRI station connections on page 45 Connecting an analog telephone on page 46 Connecting a DCP telephone to an MM712 or MM717 media module on page 48 Connecting an analog trunk on page 49 Connecting an analog DID trunk on page 49 Connecting an E1/T1 trunk on page 49 Connecting an ISDN BRI trunk on page 50 Connecting devices to the MM717 and MM716 media modules on page 50

# Switch or network data port connections

You can connect one or more LAN switches to either of the ETH LAN ports on the front panel.

#### **Related links**

Data and voice device connections on page 44

# **IP** telephone connections

😵 Note:

For a full list of supported phones, see Appendix B, *Supported Avaya telephones* in *Overview for the Avaya G430 Branch Gateway*.

Connect the IP telephone to an external Ethernet switch that has connectivity with the Avaya Branch Gateway G430. The IP phone can powered either by the switch or by its own power supply.

#### **Related links**

Data and voice device connections on page 44 Connecting the telephone to the Branch Gateway on page 44

#### Connecting the telephone to the Branch Gateway

#### Procedure

1. Wire a telephone to a port on the switch connected to the Branch Gateway LAN port.

If the switch is a PoE switch, 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 is powered independently, plug the IP telephone into a power supply.

Check that the IP telephone is powered up.

## **Related links**

IP telephone connections on page 44

# **ISDN BRI station connections**

Each ISDN port on the MM720 or MM721 media module supports up to two ISDN BRI stations.

# 😵 Note:

The MM720 and MM721 BRI media modules cannot be administered to support both BRI trunks and BRI stations at the same time. However, the MM720 and MM721 BRI media modules support combining both B-channels together to form a 128-kbps channel. Communication Manager 3.1 enables combining B-channels, using BONDing, to form a higher bandwidth connection. Finally, if the MM720 or MM721 BRI media module is administered to support BRI stations, it cannot be used as a clock synchronization source.

# **Related links**

Data and voice device connections on page 44 Connecting one ISDN BRI station to one ISDN port on page 45 Connecting two ISDN BRI stations to one ISDN port on page 45

# Connecting one ISDN BRI station to one ISDN port

# Procedure

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

#### **Related links**

ISDN BRI station connections on page 45

# Connecting two ISDN BRI stations to one ISDN port Procedure

1. Connect each station to an RJ-45 splitter that provides two RJ-45 4-pair jacks, and one RJ-45 male connector.

See the figure on page 46 for the correct wiring for the splitter.

2. Connect the male connector of the splitter to one of the ISDN ports on an MM720 or MM721 media module.

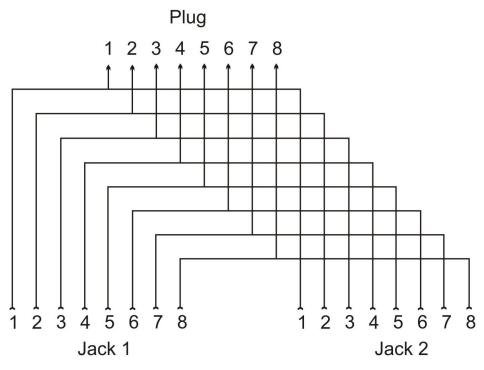


Figure 9: RJ-45 splitter wiring for connecting two ISDN BRI stations to one ISDN port

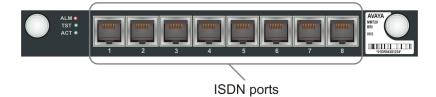


Figure 10: The MM720 media module

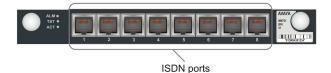


Figure 11: The MM721 media module

#### **Related links**

ISDN BRI station connections on page 45

# Connecting an analog telephone

# About this task

# 😵 Note:

For a full list of supported phones, see Appendix B, *Supported Avaya telephones* in *Overview for the Avaya Branch Gateway G430.* 

# Procedure

- 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 <u>Connecting devices to the MM717 and MM716 media modules</u> on page 50.
  - A LINE port on an MM714 or MM714B media module
- 2. Plug the analog telephone into the telephone port.

# Result

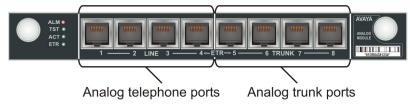


Universal analog ports

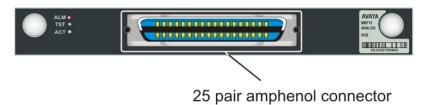
Figure 12: The MM711 media module



Figure 13: The MM714 media module



# Figure 14: The MM714B media module



# Figure 15: The MM716 media module

# Note:

Analog line ports support the following maximum distances:

For phone equipment with a ringer load below 3 REN: up to 2,000 feet (609.6 m).

#### **Related links**

Data and voice device connections on page 44

# Connecting a DCP telephone to an MM712 or MM717 media module

# About this task

# 😵 Note:

For a full list of supported phones, see Appendix B, *Supported Avaya telephones* in *Overview for the Avaya Branch Gateway G430.* 

# 🛕 Warning:

Avaya MM712 and MM717 DCP Lines. DCP lines require the 146E IROB (In-range, Out of Building) protectors, or the 4C3S-75 solid-state 5-pin protectors, when they are used for any connection routed out-of-building. These protection devices provide both overvoltage and overcurrent protection.

# Procedure

Wire a telephone port to a DCP port on the Branch Gateway.

The following media modules provide DCP telephone ports:

- MM712. Eight DCP ports
- MM717. Twenty four 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 <u>Connecting devices to the MM717 and MM716 media modules</u> on page 50.

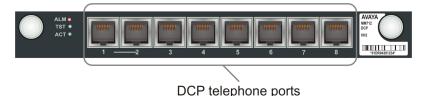


Figure 16: .The MM712 media module

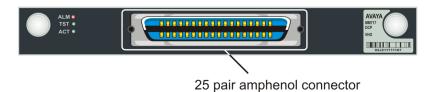


Figure 17: .The MM717 media module

#### **Related links**

Data and voice device connections on page 44

# Connecting an analog trunk

# Procedure

Connect the trunk to one of the following ports:

- · Any universal analog port on an MM711 media module
- One of the ports marked TRUNK on an MM714 or MM714B media module

# **Related links**

Data and voice device connections on page 44

# Connecting an analog DID trunk

# Procedure

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, <u>Connecting devices to the MM717 and MM716 media modules</u> on page 50.

- · One of the ports marked Line on an MM714 or MM714B media module
- The TRUNK port on the Branch Gateway front panel.

# 😵 Note:

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

# **Related links**

Data and voice device connections on page 44

# Connecting an E1/T1 trunk

# About this task

Connect the trunk cable to the E1/T1 port on an MM710 or MM710B media module. The SIG LED lights.



Figure 18: The MM710B media module

# **Related links**

Data and voice device connections on page 44

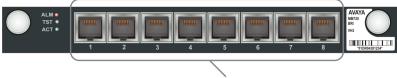
# **Connecting an ISDN BRI trunk**

# About this task

Connect the trunk to any ISDN port on an MM720, MM721 or MM722 media module.

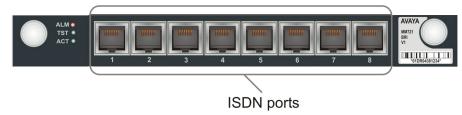
# 😵 Note:

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

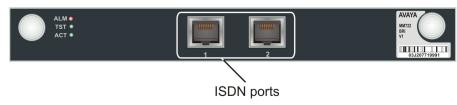


ISDN ports

Figure 19: The MM720 media module



#### Figure 20: The MM721 media module



#### Figure 21: The MM722 media module

#### **Related links**

Data and voice device connections on page 44

# Connecting devices to the MM717 and MM716 media modules

# About this task

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.

#### Procedure

Connect the front panel connector to a punch down block.

You can terminate up to 24 endpoint devices on the connected punch down block.

# **Related links**

Data and voice device connections on page 44 Connecting the MM716 or MM717 front panel connector to a punch down block on page 51

# Connecting the MM716 or MM717 front panel connector to a punch down block Procedure

1. Connect one end of a CAT5 cable with a 25-pair amphenol connector at each end to the 25pair socket on the MM716 or MM717 front panel, so that the cable extends to the right of the Branch Gateway.

The cable you use must be such that the connector you plug into the media module is  $90^{\circ}$  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 22: 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-11 jacks, as needed.

# Result

You can now connect endpoint devices to the RJ-11 jacks. See the table to locate the pin-out of the 25-pair connector.

#### **Related links**

Connecting devices to the MM717 and MM716 media modules on page 50

# **Circuit protection installation**

Protection from over-voltages (lightning, power line induction and so forth) and over-currents (sneak currents) is required for ALL off-premises (out-of-building) trunks, lines, and terminal installations.

Campus installations (interbuilding cabling) of telephones or other standard (tip / ring) devices require over-voltage and sneak current protection in both buildings.

Over-voltage and sneak current protectors must be Listed devices, and installed in accordance with NFPA 70: NEC Article 800 (subsections "Protective Devices" and "Cable and Primary Protector Bonding and Grounding"), or must comply with local safety codes.

Field installed sneak current protectors must have a maximum current rating of 350mA and a minimum voltage rating of 600V.

The following over-voltage and sneak current protection devices have been approved for use with the G430 Gateway:

- For the Avaya MM710, MM710B media modules: Over-voltage and sneak current protection for these interfaces are provided on the media modules themselves.
- For the Avaya MM711, MM714, MM714B, and MM716 Analog media modules: Over-voltage and sneak current protection for these interfaces is provided on the media modules themselves.



Incoming trunks normally have primary over-voltage protection provided by the local telephone company.

Analog voice terminals require one of the following types of combined over-voltage and sneak current protection at both building entry points:

- Gas tube with heat coil. 4B1E-W
- Solid state with heat coil. 4C1S
- IROB. 146C (4 lines) or 146H (25 lines)
- For the Avaya MM712 and MM717 DCP media modules: out-of-building connections require either the 146E IROB (In-Range Out-of-Building) or 4C3S-75 solid state protectors for overvoltage and sneak current.
- For the Avaya MM722 ISDN-BRI media modules: over-voltage and sneak current protection are provided on the media modules themselves.
- For the Avaya MM720 and MM721 ISDN-BRI media modules: All out-of-building installations (both trunk (network) side and line (customer) side) require either the 146E IROB (In-Range

Out-of-Building) or 4C3S-75 solid state protectors for over-voltage and sneak current. Trunk (network) side applications also require an NT-1 device.

# A Warning:

Only service-trained personnel are to install these circuit protection devices.

#### **Related links**

Connecting devices on page 43

# **Coupled Bonding Conductor installations**

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<sup>2</sup>) wire tie wrapped to the exposed cables, a metal cable shield around the exposed cables, or six spare pairs from the exposed cable. Modem access is not supported if FIPS mode is enabled in the gateway. In a high-rise building, connect the CBC to an approved building ground on each floor.

#### **Related links**

<u>Connecting devices</u> on page 43 <u>Installing the CBC</u> on page 53

# Installing the CBC

#### About this task

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

#### Procedure

- 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.

#### Result

#### 😵 Note:

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

#### **Related links**

Coupled Bonding Conductor installations on page 53

# **Avaya Partner Contact Closure Adjunct installations**

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 CCA port on the Branch Gateway 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 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.

# **Related links**

<u>Connecting devices</u> on page 43 Installing the contact closure on page 54

# Installing the contact closure

# Procedure

- 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 Branch Gateway front panel.

Use a 24 gauge minimum telephone wire, no longer than 200 ft, with a standard four wire RJ-11 connector.

#### **Related links**

Avaya Partner Contact Closure Adjunct installations on page 54

# Chapter 4: Connecting and enabling a USB modem for remote access

# About this task

You can connect a USB modem to the Branch Gateway to enable configuration from a remote location.

If an S8300D or S8300E server is installed in the Branch Gateway, leave a modem connected permanently to enable reporting of alarms to remote locations.

Refer to the CLI and Gateway Administration guides for instructions on how to configure a USB or serial modem.

# **Chapter 5: Branch Gateway configuration**

The Branch Gateway requires software configuration. The Branch Gateway can be configured using the Avaya Branch Gateway 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 Branch Gateway G430, 03-603228. For detailed information on CLI commands, see the Avaya Branch Gateway G430 CLI Reference, 03-603234.

The Branch Gateway can be accessed:

- At the customer site via a laptop connected to the Services port of the Branch Gateway. For information about connecting a laptop to the Services port, see Connecting a computer to the Services port.
- From a remote location via a modem. For information about connecting and enabling a modem, see <u>Modems for remote access</u> on page 56.
- Remotely through the network. For information about preparing a newly installed Branch Gateway for configuration via the network, see <u>Configuring basic gateway connectivity</u> on page 57.

#### **Related links**

<u>Modems for remote access</u> on page 56 <u>Configuring basic Branch Gateway connectivity</u> on page 57

# Modems for remote access

You can connect a USB modem to the Branch Gateway to enable configuration from a remote location.

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

Modem access is not supported if FIPS mode is enabled in the gateway.

#### **Related links**

Branch Gateway configuration on page 56

# **Configuring basic Branch Gateway connectivity**

# About this task

You can run an installation script on a newly installed Branch Gateway to configure the basic network parameters required to achieve network connectivity. A remote technician can then further configure the gateway as required. Note that the installation script does not require running any CLI command.

# Procedure

- 1. Prepare a laptop with SSH client software.
- 2. Set the laptop's TCP/IP properties as follows:
  - IP address: 192.11.13.5
  - Subnet mask: 255.255.255.252
  - · Disable DNS service
  - Disable WINS Resolution
- 3. Connect the laptop computer to the Branch Gateway Services port, using an Ethernet cable.
- 4. SSH to 192.11.13.6.
- 5. At the prompt, enter the default username: root and password: root.
- 6. At the prompt, configure a new password.
- 7. At the prompt, enter y to configure basic gateway connectivity.

#### 😵 Note:

If you enter n but then change your mind, you can use the script-config CLI command to run the installation script, so long as you have not saved any configuration changes you may have made.

#### 😵 Note:

If you need to configure the gateway in FIPS mode, enter n and run the command set fips-mode enable. The command will remove the existing configuration and reset. After the reset, repeat from step 4 above.

8. You are prompted to configure the following parameters.

For each parameter, you can enter a value, or press Enter to accept the default value shown in square brackets:

- VLAN number
- IPv4 enabled or disabled
- IPv4 address for the primary management interface
- IPv4 Subnet mask for the primary management interface
- IPv4 address for the default gateway (router)

- IPv6 enabled or disabled
- IPv6 Unicast global address.
- IPv6 prefix length
- IPv6 Link local address
- IPv6 PMI (Global or Link Local)
- IPv6 Default gateway
- Up to eight IP addresses (four IPv4 and four IPv6) to specify the Media Gateway Controllers
- · Hostname for the Branch Gateway

The settings you configured are displayed, and you are prompted for confirmation.

- If you confirm the settings, they are saved and the Branch Gateway reboots.
- If you do not confirm the settings, you are prompted to re-configure them. If you enter y, the parameters are presented again for configuration.
- 9. Connect the Ethernet port to the network to enable remote access to the gateway.

A remote technician can now further configure the Branch Gateway using the CLI.

#### **Related links**

Branch Gateway configuration on page 56

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