Installing the Cisco VG310 and Cisco VG320 Voice Gateways

This document describes how to install and connect Cisco VG310 and Cisco VG320 voice gateways to LAN, WAN, and voice networks. The following sections are included:

Safety Recommendations

The following information is included to alert you about safety recommendations and best practices to be followed when working with this equipment.

Maintaining Safety with Electricity

Follow these guidelines when working on equipment powered by electricity.

Warning When installing the product, please use the provided or designated connection cables/power cables/AC adaptors/batteries. Using any other cables/adaptors could cause a malfunction or a fire. Electrical Appliance and Material Safety Law prohibits the use of UL-certified cables (that have the "UL" or "CSA" shown on the cord), not regulated with the subject law by showing "PSE" on the cord, for any other electrical devices than products designated by CISCO. Statement 371

Warning Do not work on the system or connect or disconnect cables during periods of lightning activity. Statement 1001

Warning This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than 120 V, 15 A or 240 V, 16 A for the Circuit Breaker. Statement 1005

Warning Class 1 laser product. Statement 1008

Warning There is the danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions. Statement 1015

Warning To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telephone-network voltage (TNV) circuits. LAN ports contain SELV circuits, and WAN ports contain TNV circuits. Some LAN and WAN ports both use RJ-45 connectors. Use caution when connecting cables. Statement 1021

Warning This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available. Statement 1024

Warning Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place. Statement 1029

Warning Do not use this product near water; for example, near a bathtub, wash bowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool. Statement 1035

Warning Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface. Statement 1037

Warning Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning. Statement 1038

Warning To report a gas leak, do not use a telephone in the vicinity of the leak. Statement 1039

Warning Before opening the unit, disconnect the telephone-network cables to avoid contact with telephone-network voltages. Statement 1041

Warning This equipment contains a ring signal generator (ringer), which is a source of hazardous voltage. Do not touch the RJ-11 (phone) port wires (conductors), the conductors of a cable connected to the RJ-11 port, or the associated circuit-board when the ringer is active. The ringer is activated by an incoming call. Statement 1042

Warning For diverging beams, viewing the laser output with certain optical instruments within a distance of 100 mm may harm your eyes. For collimated beams, viewing the laser output with certain optical instruments designed for use at a distance may harm your eyes. Statement 1054

Warning Installation of the equipment must comply with local and national electrical codes. Statement 1074

General Safety Practices

Follow these guidelines to ensure personal safety and protect the equipment:

- Keep the area around the chassis clear of obstacles and free from dust during and after installation.
- If you remove a chassis during installation and maintenance, place the chassis cover in a safe place.
- Keep tools away from walk areas to prevent hazards such as slips, trips, and falls.
- Do not wear loose clothing that may get caught in the chassis.
- Wear safety glasses if you are working under conditions that might be hazardous to the eyes.

Warning This equipment must be installed and maintained by service personnel as defined by AS/NZS 3260. Incorrectly connecting this equipment to a general-purpose outlet could be hazardous. The telecommunications lines must be disconnected 1) before unplugging the main power connector or 2) while the housing is open, or both. Statement 1043

Safety Tips

Use these tips as safety guidelines when installing and working around this equipment:

- Locate the emergency power off switch for the room in which you are working in order to be able to quickly turn off power, if an electrical accident occurs.
- Disconnect all power before installing or removing a chassis.
- Do not work alone if potentially hazardous conditions exist.
- Never assume that power is disconnected from a circuit. Always check.
- Look carefully for possible hazards in your work area, such as moist floors, ungrounded power extension cables, and missing safety grounds.
- If an electrical accident occurs, proceed as follows:
  - Use caution; do not become a victim yourself.
  - Turn off power to the system.
  - If possible, send another person to get medical aid. Otherwise, assess the condition of the victim and then call for help.
  - Determine if the person needs rescue breathing or external cardiac compressions, and then take appropriate action.

Preventing Electrostatic Discharge Damage

Always follow ESD-prevention procedures when removing and replacing components. These procedures include:

- Ensure that the chassis is electrically connected to earth ground.
- Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact.
- Connect a clip to the ESD-strap connection jack (to the left of the power switch on the rear of the chassis) or to an unpainted chassis frame surface.

Caution For safety, periodically check the resistance value of the antistatic strap, which should be between 1 MΩ and 10 MΩ.

What You Need to Know

Slot and Port Numbers

Cisco VG310 and Cisco VG320 have built in ports and slots to accommodate modules and interface cards that include the Enhanced High-Speed WAN Interface Card (EHWIC) and the Packet Voice and Data Module (PVDM3). For information on slot and port numbering, see Interfaces and Service Capabilities.

Before You Begin

Read the Safety Recommendations before installing and connecting Cisco VG310 or Cisco VG320.

Unpacking and Inspecting

Do not unpack the voice gateway until you are ready to install it. If the installation site is not ready, keep the chassis in its shipping container to prevent accidental damage.

The voice gateway, cables, printed publications, and any optional equipment you ordered might be shipped in more than one container. When you unpack each shipping container, check the packing list to ensure that you have received all the following items:

- The Cisco VG310 or Cisco VG320 Analog Voice Gateway
- Power cord, 6 foot (1.8 m)
- RJ-45-to-DB-25 adapter cable (labeled *Console*)
- RJ-45-to-DB-9 adapter cable (labeled *Auxiliary*)
- Rack-mounting brackets for 19-inch rack (one pair) with screws for attaching to chassis
- Chassis guard for wall-mounting applications
- Grounding lug and fasteners

Inspect all items for shipping damage. If anything appears damaged, or if you encounter problems when installing or configuring your system, contact Cisco customer service representative. (See Obtaining Technical Assistance.)

Mounting the Chassis

There are three methods of installing the chassis:

- Mounting the Chassis on a Rack, on page 6
- Mounting the Chassis on a Wall, on page 8
- Installing the Voice Gateway on a Bench, on page 10

Mounting Screws

Two types of mounting screws are provided in separate packages to attach the mounting brackets to the chassis. Take care to use the correct screw type and washers for the required mounting option (rack mounting or wall mounting). The following table shows the differences between rack-mounting and wall-mounting screws.

Table 1: Difference Between Rack-Mounting and Wall-Mounting Screws

Rack-Mounting Screws	Wall-Mounting Screws
Eight countersunk Phillips head screws (four per bracket)	Four 6–32 slotted hexagonal head screws (two per bracket) and four plastic washers
Washers are not required	Washers are required

Mounting the Chassis on a Rack

To mount the chassis on a rack:

Before you begin

Your chassis ships with a pair of brackets and mounting screws for use with a 19-inch rack. For information about the mounting screws that you must use, see Mounting Screws, on page 6.

Warning To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack. Statement 1006
- The unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting the unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.

Warning This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available. Statement 1024

Warning Take care when connecting units to the supply circuit so that wiring is not overloaded. Statement 1018

Warning To prevent the system from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of: 40 °C (104 °F). Statement 1047

Caution If installed on enclosed racks, the racks must have adequate ventilation. An enclosed rack should never be overcrowded and should have louvers and a fan.

If the Cisco VG310 or Cisco VG320 is installed in an enclosed rack with a ventilation fan at the top, make sure that heated air drawn upward from other equipment does not pass through the Cisco VG310 or Cisco VG320 chassis.

If the chassis is installed using slide rails, check for blocked ventilation ports when it is in position in the rack or cabinet. Make sure that the ventilation ports of the chassis are not blocked.

Tip Baffles can help isolate exhaust air from intake air. Baffles also help draw cooling air through the cabinet. The best location for the baffles depends on the airflow patterns in the rack. You can test the airflow by experimenting with different equipment arrangements.

Note Machine screws for securing the chassis in a rack are not included in the package. You must arrange for machine screws of the appropriate size required by your rack.

Procedure

Step 1 Attach the long leg of the mounting brackets to the chassis.

Figure 1: Attaching the Brackets to a Chassis (For 19-Inch Rack)

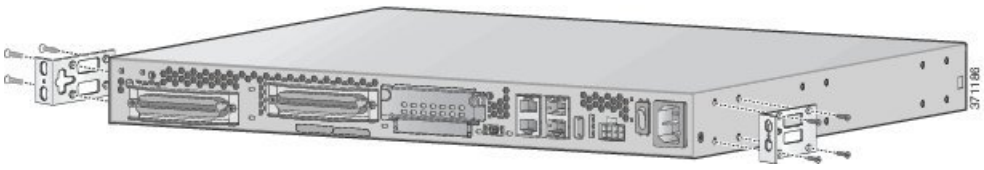
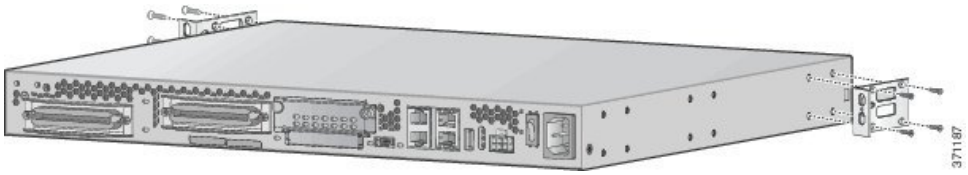


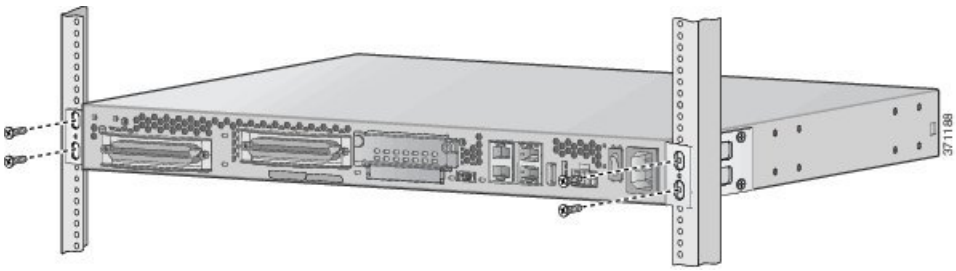
Figure 2: Attaching the Brackets to a Chassis (For Telco 19-Inch Rack)



Step 2 Position the chassis on the rack to align the holes on the short leg of the bracket with the appropriate holes on the 19-inch rack.

Step 3 Using the machine screws (not supplied), attach the bracket to the rack to secure the chassis in the rack. (See the following figure.)

Figure 3: Attaching the Chassis to the 19-Inch Rack



Mounting the Chassis on a Wall

Before you begin

Warning This unit is intended to be mounted on a wall. Read the wall-mounting instructions carefully before beginning installation. Failure to use the correct hardware or to follow the correct procedures could result in a hazardous situation to people and damage to the system. Statement 248

Caution Ensure that the chassis is oriented with the back panel connectors aligned sideways and not facing vertically upward or downward.

Caution Two types of mounting screws are provided in separate packages to attach the mounting brackets to the chassis. Take care to use the correct screw type and washers for the required mounting option (rack mounting or wall mounting). For more information, see Mounting Screws, on page 6.

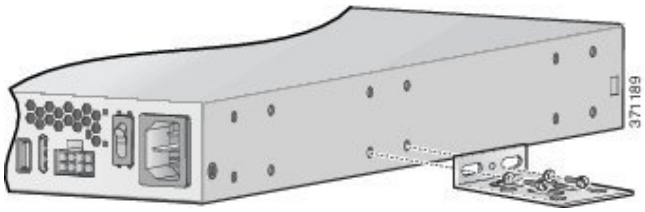
Note You must arrange for the fasteners required to install the chassis on a wall. These fasteners are not included in the package. We recommend that you select the fasteners that are appropriate for the material the wall is made of.

To mount the chassis on a wall:

Procedure

Step 1 Attach the short leg of one bracket to the chassis, using two 6-32 × 1/4 slotted hex screws (provided). Use a plastic washer (provided) with each screw, with the narrow end of the washer fitting into the bracket slot, and facing the chassis.

Figure 4: Attaching the Brackets for Wall Mounting



Step 2 Attach the second bracket to the opposite side of the chassis.

Step 3 Orient the chassis to ensure that the back panel with connectors faces sideways.

Note Vertical orientation of the chassis with the back panel connectors facing up or down is not recommended.

Step 4 Secure the long legs of the brackets to the wall with fasteners that are appropriate for the material that wall is made of:

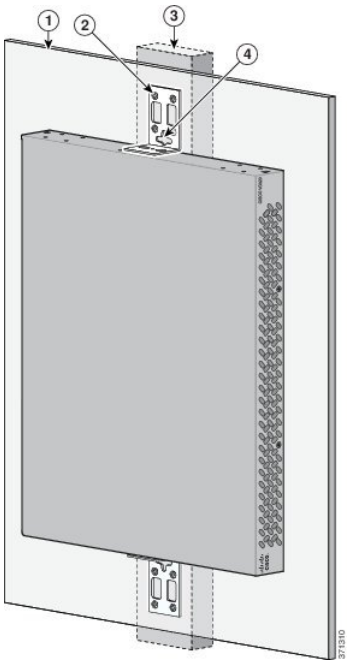
a) To hold the unit in place for easy installation, install a starter screw in the wall, and hook the bracket keyhole over the screw.

b) Secure both brackets to the wall using the fasteners (not supplied).

Note To attach the brackets to a wall stud, each bracket requires two #10 wood screws (round-head or pan-head) with #10 washers, or two #10 washer-head screws. The screws must be long enough to penetrate at least 3/4 inch (20 mm) into the supporting wood or metal wall stud.

Note For hollow-wall mounting, each bracket requires two wall anchors with washers. Wall anchors and washers must be #10.

Figure 5: Mounting the Chassis on a Wall



1	Wall	3	Wall stud

2	Bracket	4	Keyhole for starter screw

Installing the Voice Gateway on a Bench

Caution Do not plug this unit into an AC outlet that does not have a UL-certified receptacle that is properly tied to the building ground.

Caution If the unit is placed on a bench top, do not stack other equipment or paper on the chassis. Provide plenty of space for air circulation (front to back). Inadequate ventilation can result in overheating and damage.

Note Ensure that a suitable AC power outlet is available.

1. Place the four rubber feet (from the accessory kit) in the four indentations on the underside of the chassis. This facilitates proper airflow through and around the chassis.
2. Place the unit on a smooth, flat surface.

Installing the Ground Connection

To ground the Cisco VG310 or Cisco VG320 chassis, follow this procedure:

Before you begin

Warning This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available. Statement 1024

Warning Use copper conductors only. Statement 1025

You must connect the chassis to a reliable earth ground; the ground wire must be installed in accordance with local electrical safety standards.

- For NEC-compliant grounding, use size AWG 14 (2 mm^2) or larger wire and an appropriate user-supplied ring terminal.
- For EN/IEC 60950-compliant grounding, use size AWG 18 (1 mm^2) or larger wire and an appropriate user-supplied ring terminal.

Procedure

Step 1 Locate a suitable ground location.

Tip Use a multimeter to measure the resistance between various ground locations:

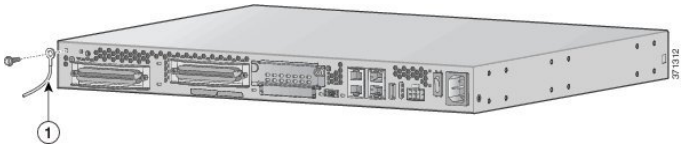
- Between the ground of a junction box (outlet) and the ground of a power tap
- Between the ground of a junction box and a metal water pipe
- Between the chassis and the ground of a power tap
- Between the chassis and the ground of a junction box

Note A good ground connection should read between 0.0 Ω and 0.5Ω.

Step 2 Strip one end of the ground wire till the length required for the ground lug or terminal is reached.

Step 3 Crimp the ground wire to the ground lug or ring terminal using a crimp tool of the appropriate size.

Figure 6: Chassis Ground Connection Using Ring Terminal



1	Ring terminal attachment

Step 4 Attach the ground lug or ring terminal to the chassis as shown in the following figures. For the ground lug, use the two screws with captive locking washers provided. For a ring terminal, use one of the screws provided. Use a number 2 Phillips screwdriver and tighten the screws to a torque of 8 in-lb to 10 in-lb (0.9 N-m to 1.1 N-m).

Note You can orient the crimped end of the ground lug in either direction (right or left).

Step 5 Connect the other end of the ground wire to a grounding point at your site.

Connecting Cables

Warning Do not work on the system or connect or disconnect cables during periods of lightning activity. Statement 1001

Warning This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than 120 V, 15 A or 240 V, 16 A for the Circuit Breaker. Statement 1005

Warning To prevent accidental discharge in the event of a power line cross, route on-premise wiring away from power cables and off-premise wiring, or use a grounded shield to separate the on-premise wiring from the power cables and off-premise wiring. A power line cross is an event, such as a lightning strike, that causes a power surge. Off-premise wiring is designed to withstand power line crosses. On-premise wiring is protected from power line crosses by a device that provides overcurrent and overvoltage protection. Nevertheless, if the on-premise wiring is in close proximity to, or not shielded from, the off-premise wiring or power cables during a lightning strike or power surge, the on-premise wiring can carry a dangerous discharge to the attached interface, equipment, and nearby personnel. Statement 338

The voice gateway ports are color-coded for identification.

Note The installation must comply with all applicable codes.

Note For information on cables and pinouts, see Cable Specifications and Information.

LAN and Power Cables

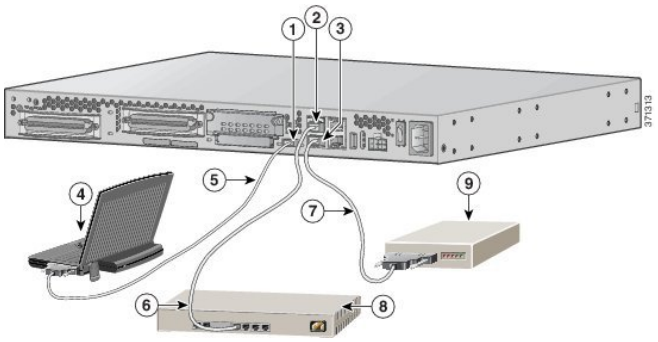
The cables and connections are described in the following table.

Table 2: LAN and Power Cables

Port or Connection	Color or Type	Connected To	Cable
Gigabit Ethernet	Yellow	Gigabit Ethernet switch	Straight-through Gigabit Ethernet cable (not included)
Console	Light blue	PC or ASCII terminal communication (COM) port	RJ-45-to-DB9 console cable (included)
Auxiliary	Black	Modem for remote access	RJ-45-to-DB25 auxiliary cable (included)
Power (not shown)	Power	100–240 VAC, 50–60 Hz	Grounding power cord (included) **Note** Power cables may vary according to meet local requirements.

The following figure shows the LAN and administrative access connections.

Figure 7: LAN and Administrative Access Connections



1	Mini USB port	6	RJ-45-to-DB9 auxiliary cable
2	AUX port	7	RJ-45-to-DB25 console cable
3	Console port	8	Ethernet hub
4	PC	9	Modem
5	USB cable		

Connecting Power

Warning Do not work on the system or connect or disconnect cables during periods of lightning activity. Statement 1001

Warning Read the installation instructions before you connect the system to its power source. Statement 1004

Warning This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than 120 V, 15 A or 240 V, 16 A for the Circuit Breaker. Statement 1005

Warning This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means by security. Statement 1017

Caution The Cisco chassis provides inputs for both AC and DC power. Design your installation to use only one type of power. *Do not use AC and DC power at the same time*. If you do, the unit stops operating, and you must reboot it with only a single power source.

Depending on the power source you want to connect, see:

- Connecting the Chassis to an AC Power Source, on page 14
- Connecting the Chassis to a +12V DC Power Supply, on page 15

Connecting the Chassis to an AC Power Source

Before you begin

Warning AC connected units must have a permanent ground connection in addition to the power cable ground wire.

Caution Design your installation to use either AC or DC power source. *Do not use AC and DC power at the same time*. If you do, the unit stops operating, and you must reboot it with only a single power source.

Note If you suspect that your AC power is not clean—if lights flicker often or there is machinery with large motors nearby—have a qualified person test the power. Install a power conditioner if necessary.

The Cisco VG310 or Cisco VG320 voice gateway with AC power supply autoselects either 100–127 volt or 200–240 volt operation. AC versions include a 6-foot (1.8-meter) electrical power cord. A label near the power cord indicates the correct voltage, frequency, current draw, and power dissipation.

Follow these guidelines before you connect the chassis to an AC power source:

- While being connected to an AC power source, *do not* connect the chassis to the DC power supply as an arrangement for backup power in the event of AC power failures.
- To ensure uninterrupted power, connect the chassis to an uninterruptible power supply (UPS). For more information on connecting a UPS to the chassis, see Connecting a UPS to an AC-Powered Voice Gateway, on page 15.

To connect the chassis to an AC power source:

Procedure

Step 1 Connect the AC power cable (supplied) to the recessed power plug on the rear of the concentrator.

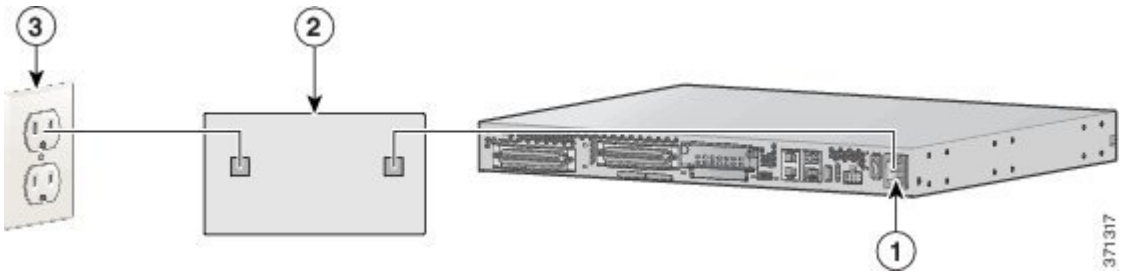
Step 2 Plug the cable into an AC power source with a voltage of 100 VAC to 240 VAC.

Connecting a UPS to an AC-Powered Voice Gateway

Note Before you install a UPS, make sure that you read the installation instructions.

The following figure shows a setup using a UPS.

Figure 8: Connecting a UPS to an AC-Powered Chassis



1	AC plug	3	AC wall plug
2	UPS		

Connecting the Chassis to a +12V DC Power Supply

Caution If you are powering the chassis using a +12V DC power supply, ensure that you have not connected the chassis to an AC power source. *Do not use AC and DC power at the same time*. If you do, the unit stops operating, and you must reboot it with only a single power source.

Power to a DC-powered chassis is provided by a 12 Volt battery.

Follow these guidelines before you install a battery:

- Review the documents accompanying the battery before setting up your system.
- When you make the settings for the DC source voltage, you must consider the voltage drops between the DC power supply and the DC input connector on Cisco VG310 or Cisco VG320. To ensure optimal performance, the input voltage at the DC input connector should not be less than 11.5 V.
- Use a battery of higher capacity if you require longer periods of battery operation (for example, up to 8 hours).
- If you use a battery of high capacity or a high-capacity DC source to power the chassis, install an external fuse for protection against fault and fire.

Power Connector for the DC Power Supply

The Cisco VG310 and Cisco VG320 analog voice gateways support the Molex Mini-Fit Jr. 5557 Series, 8-circuit dual-row, +12V DC power connector (Molex P/N 39-01-2085). The +12V DC power input is designed

to be used with an external UPS system, and it has status signals that are reported to Cisco VG310 or Cisco VG320.

The following table shows the connector pin assignment for the +12V DC power connector pin assignment.

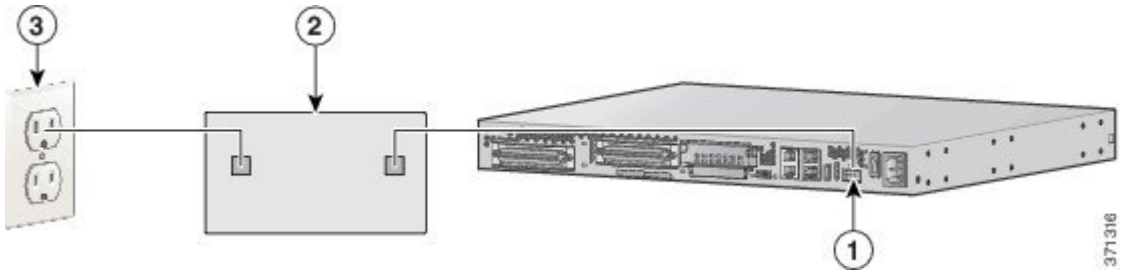
Table 3: +12V DC Connector Pin Assignment

Pin	Direction	Description	SW Register 0x4A80_0038	Definition
1	Input	Enable (tie low)	—	—
2	Input	+12V (power)	—	—
3	Output	REP_BAT (tie low)	Bit 6: REP_MIS_BAT	Battery Missing: Fail 1 = missing Fail 0 = good
4	Input	GND (power return)	—	—
5	Output	ON_BAT (tie low)	Bit 4: BAT_ON	Battery on/off: Status 1 = off Status 0 = on
6	Input	+12V (power)	—	—
7	Output	LOW_BAT (tie low)	Bit 5: BAT_LOW	Battery power: Level status 1 = low Level status 0 = okay
8	Input	GND (power return)	—	—

Connecting a Battery to a DC-Powered Chassis

The following figure shows a setup that uses an external battery. This is one of the many possible setups.

Figure 9: Connecting a Battery to a DC-Powered Chassis

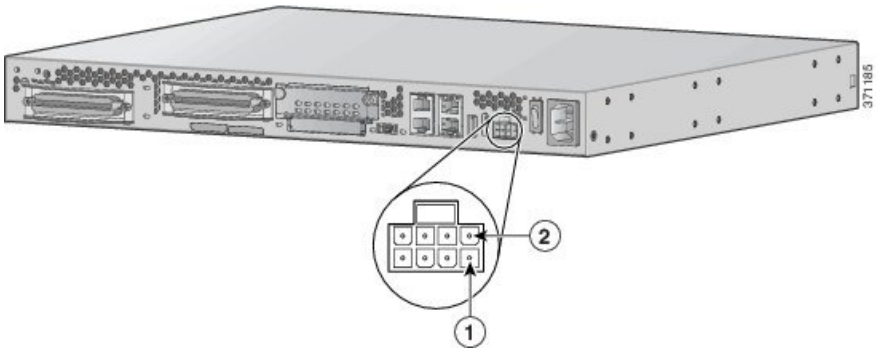


1	DC plug	3	AC wall plug

2	Battery		

Connect the battery to the DC input connector on your Cisco VG310 or Cisco VG320. The following figure shows the DC power connector.

Figure 10: +12V DC Power Connector



1	Pin 1	2	Pin 5

Pinouts for the DC Power Connector

The following table provides information about the pinouts for the DC power connector on Cisco VG310 and Cisco VG320.

Table 4: Pinouts for the DC Power Connector

Pin Number	Description
1	GND (input enable)
2	+12V (power)
3	REP_BAT (replace battery)
4	GND (power return)
5	ON_BAT (battery is on)
6	+12V (power)
7	LOW_BAT (battery is low)
8	GND (power return)

Connecting to a Console Terminal or Modem

The Cisco VG310 or Cisco VG320 analog voice gateway unit has an asynchronous serial port and an auxiliary port. These ports provide administrative access to the unit either locally (with a console terminal or a PC) or remotely (with a modem). To configure the unit using the Cisco IOS CLI, you must establish a connection between the console port on the voice gateway and either a terminal or a PC.

Use the cables and adapters listed in the following table to establish a local or remote connection.

Port Type	Cable	Section Containing Additional Information
Serial (RJ-45)	EIA RJ-45	Connecting to a Serial Port with Microsoft Windows, on page 18
Serial (USB)	USB 5-pin mini USB Type-B-to-USB Type-A	
Auxiliary (Modem)	DB-9-to-DB-25	Connecting an Auxiliary Port to a Modem, on page 19

Connecting to a Serial Port with Microsoft Windows

Before you begin

Note Install the USB device driver before establishing a physical connection between the voice gateway and the PC using the USB console cable plugged into the USB serial port. Otherwise, the connection will fail.

Note You may encounter USB driver-related errors if you are using a PC with Microsoft Windows 7, 64-bit operating system to connectivity with the voice gateway. As a workaround, you can install the Cisco USB Console Driver from the Cisco software section at http://software.cisco.com/download/release.html?mdfid=282774223&flowid=7438&softwareid=282855122&release=3.1&relind=AVAILABLE&rellifecycle=&reltype=latest

For information on cabling, see Cable Specifications and Information.

Procedure

Step 1 Connect the end of the console cable with the RJ-45 connector to the console port on the voice gateway.

or

Connect a USB 5-pin mini-USB Type B to the USB console port, as shown in the figure in LAN and Power Cables, on page 12.

Note When the USB port is used, it takes priority over the RJ-45 EIA port.

Step 2 Connect the end of the cable with the DB-9 connector (or USB Type A) to the terminal or PC. If your terminal or PC has a console port that does not accommodate a DB-9 connector, you must provide an appropriate adapter for that port.

Step 3 To communicate with the voice gateway, start a terminal emulator application, such as Microsoft HyperTerminal for Windows. This software should be configured with the following parameters:

- 9600 baud
- 8 data bits
- No parity

- 1 stop bit
- No flow control

Connecting an Auxiliary Port to a Modem

To connect a modem to the voice gateway, follow these steps:

Before you begin

When a modem is connected to the auxiliary port, a remote user can dial in to Cisco VG310 or Cisco VG320 and configure it. Use the console cable and the DB-9-to-DB-25 connector adapter that comes with the accessory kit.

For information on cabling, see Cable Specifications and Information.

Procedure

Step 1 Connect the RJ-45 end of the adapter cable to the AUX port on the voice gateway.

Step 2 Connect the other end of the cable to the connector on the modem.

See the figure in LAN and Power Cables, on page 12.

Connecting a Gigabit Ethernet Port to a Gigabit Ethernet Switch

Procedure

Step 1 Connect the cable from a Gigabit Ethernet port to an available port on the Gigabit Ethernet switch.

Step 2 If required, connect the second cable.

Ports and Cabling

The following table summarizes typical WAN, LAN, and voice connections for your Cisco VG310 or Cisco VG320 voice gateway. For more information on cabling, see Cable Specifications and Information.

Table 5: WAN, LAN, and Voice Connections

Port or Connection	Port Type, Color	Connection	Cable
Ethernet	RJ-45, yellow	Ethernet hub or Ethernet switch	Category 5 or higher Ethernet

Port or Connection	Port Type, Color	Connection	Cable
T1/E1	RJ-48C/CA81A RJ-48S, tan	T1 or E1 network External T1 CSU or other T1 equipment	RJ-48 T1/E1 RJ-48S to RJ-48S TE RJ-48S to RJ-48S NT RJ-48S to RJ-48S T1 RJ-48S to bare RJ-48S to BNC RJ-48S to twinaxial cable RJ-48S to DB-15 RJ-48S to DB-15 null
Cisco serial	60-pin D-sub, blue	CSU/DSU and serial network or equipment	Cisco serial transition cable that matches the signaling protocol (EIA/TIA-232, EIA/TIA-449, V.35, X.21, or EIA-530) and the serial port operating mode (DTE or DCE)
Cisco Smart serial	Cisco Smart compact connector, blue	CSU/DSU and serial network or equipment	
Analog voice FXS	RJ-11, gray	Telephone, fax	RJ-11; RJ21, straight-through
Analog voice FXO	RJ-11, pink	Central office, analog PBX	

Cable-Connection Procedures and Precautions

- Connect each WAN, LAN, and voice cable to the appropriate connector on the chassis or on a network module or interface card.
- Position the cables carefully, so that they do not put strain on the connectors.
- Organize cables in bundles so that cables do not intertwine.
- Inspect the cables to make sure that the routing and bend radius is satisfactory. Reposition cables, if necessary.
- Install cable ties in accordance with site requirements.

Voice Cables

Warning Do not use this product near water; for example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool. Statement 1035

Warning Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations. Statement 1036

Warning Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface. Statement 1037

Warning Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning. Statement 1038

Warning To report a gas leak, do not use a telephone in the vicinity of the leak. Statement 1039

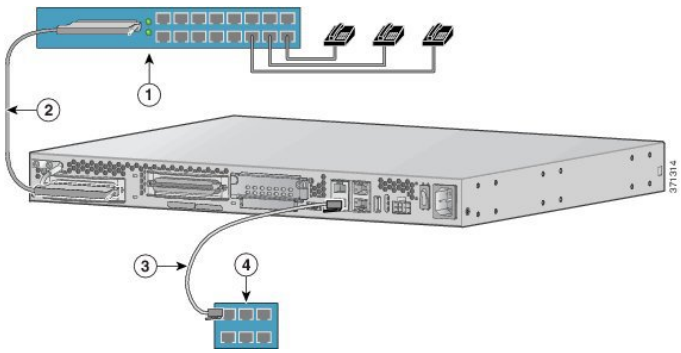
Warning This equipment contains a ring signal generator (ringer), which is a source of hazardous voltage. Do not touch the RJ-11 (phone) port wires (conductors), the conductors of a cable connected to the RJ-11 port, or the associated circuit-board when the ringer is active. The ringer is activated by an incoming call. Statement 1042

Warning For connections outside the building where the equipment is installed, the following ports must be connected through an approved network termination unit with integral circuit protection. FXS/T3/E3 Statement 1044

The following table describes the analog FXS voice cables and connections.

Color or Type	Connected To	Cable
RJ-21	Distribution panel	RJ-21-to-RJ-21 straight-through cable (not included)

Figure 11: WAN and Voice Connections



1	Distribution panel	3	RJ-45 cable (through a patch panel) to central office
2	RJ-21 cable	4	Network demarcation

Connecting the Analog Voice Interface to a Distribution Panel

Before you begin

Make sure that you have an RJ-21 cable with Amphenol 50-pin connectors.

For information on RJ-21X/CA21A pinouts, see Cable Specifications and Information.

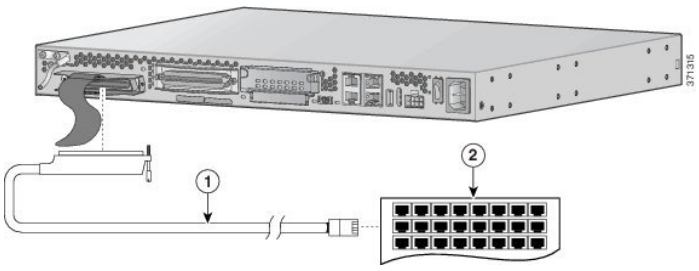
Warning This equipment contains a ring signal generator (ringer), which is a source of hazardous voltage. Do not touch the RJ-11 (phone) port wires (conductors), the conductors of a cable connected to the RJ-11 port, or the associated circuit-board when the ringer is active. The ringer is activated by an incoming call. Statement 1042

Procedure

Step 1 Connect the RJ-21 cable from the analog voice multiport to the distribution panel.

Step 2 Secure the cable in place using the strap.

Figure 12: Analog Voice Connection



1	RJ-21 cable	2	Distribution panel

Ports, Connectors, and Pinouts

The following table summarizes the cable connections between the voice gateway and the network and user interfaces. Find the port and the equipment or network type in the table and then look at the applicable pinout table in Cable Specifications and Information.

Table 6: Reference Guidelines for Cable Usage

Voice Gateway Port	Port Color	Connector/Cable	Interface To	Pinout Information
Console	Light blue	RJ-45/Rollover	PC	Console and Auxiliary Port Signals and Pinouts
			ASCII terminal	Console Port to ASCII Terminal
Auxiliary	Black	RJ-45/Rollover	Modem	Auxiliary Port Signals and Pinouts
Gigabit Ethernet	Yellow	RJ-45/Gigabit Ethernet	LAN	Gigabit Ethernet Connector Pinouts (RJ-45)
Analog voice multiport	Gray	RJ-21X/ 50-conductor	Distribution panel for analog telephone, fax, PBX, or central office line	Analog Voice RJ-21 Pinouts

Remote Terminal Connections (If Applicable)

If you are configuring a voice gateway from a remote location, connect the modem and the remote PC or terminal to the telephone network as described in this section.

Connecting to a Modem

To connect the local modem and the remote modem to live telephone outlets, use standard telephone cables.

Connecting to a Remote PC

Before you begin

Note The remote PC must be running terminal emulation software.

Procedure

Step 1 Connect the remote PC to the modem.

Step 2 Set the PC terminal emulation software requirements as follows:

- 9600 baud
- 8 data bits

- 1 stop bit
- No parity
- No flow control

Step 3 Key in and dial the telephone number of the voice gateway's external modem.

Connecting to a Remote ASCII Terminal

Procedure

Step 1 Connect the remote ASCII terminal and modem.

Step 2 Set the terminal requirements:

- 9600 baud
- 8 data bits
- 1 stop bit
- No parity
- No flow control

Step 3 Key in the telephone number of the voice gateway external modem, or, if you are using a Hayes-compatible modem, enter `ATDT` and the number to be dialed.

Removing and Installing a CompactFlash Memory Card

This section describes how to remove and replace a CompactFlash memory card in Cisco VG310 and Cisco VG320:

- Removing a CompactFlash Memory Card, on page 24
- Replacing a CompactFlash Memory Card, on page 25

Removing a CompactFlash Memory Card

Caution Do not remove a CompactFlash memory card from the chassis while it is being accessed. This can cause data corruption and erratic operation. The CompactFlash memory card LED blinks to indicate when flash memory is being accessed. Removing the CompactFlash memory card from the chassis while flash memory is being accessed can cause data corruption and erratic operation.

Procedure

Step 1 Read the Safety Recommendations and disconnect the power supply before you replace any module.

Step 2 Press the ejector button next to the CompactFlash memory card. The ejector button moves outward so that it projects from the panel.

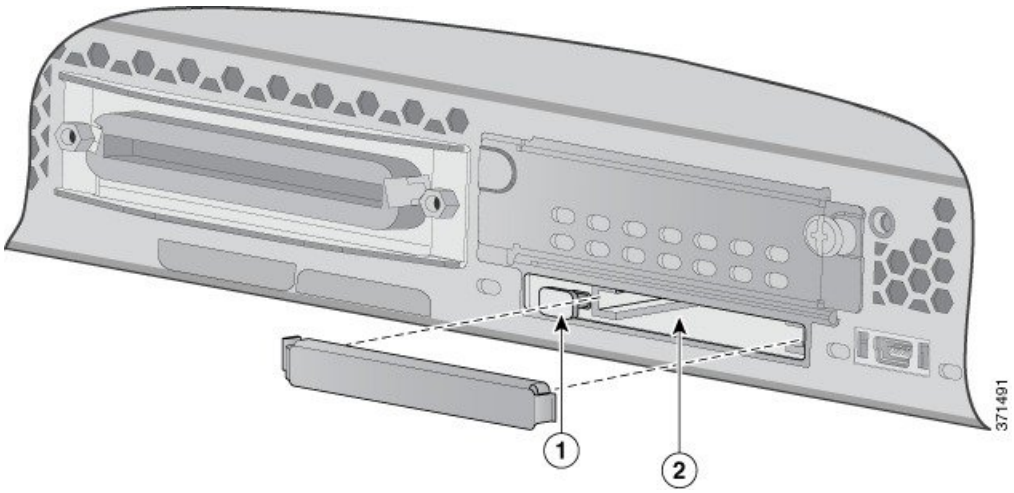
Step 3 Press the ejector button again to eject the CompactFlash memory card partially out of its slot.

Step 4 Pull the memory card out of its slot.

Step 5 Push the ejector button until the button is flush with the chassis.

To prevent damage to the ejector mechanism, the ejector button must remain pressed all the way in (flush against the bezel) when not being used to eject a CompactFlash memory card.

Figure 13: CompactFlash Memory Card Slot



1	Ejector button	2	CompactFlash memory card slot

Replacing a CompactFlash Memory Card

Procedure

Step 1 Read the Safety Recommendations and disconnect the power supply before you replace any module.

Step 2 Make sure that the ejector button is fully seated until it is flush with the chassis.

Note If the ejector button is projecting out from the panel, push it in until it is flush with the chassis.

Step 3 Insert the CompactFlash memory card into the slot until it is fully seated. The ejector button remains flush with the panel.

If the ejector button is projecting from the chassis after you insert the CompactFlash memory card, remove the CompactFlash memory card, press the ejector button until it clicks, and reinsert the CompactFlash memory card.

Caution To prevent damage to the ejector mechanism, the ejector button must remain fully seated when not being used to eject a CompactFlash memory card.