

Quick Start Guide

Cisco VG224 Voice Gateway INCLUDING LICENSE AND WARRANTY

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1 Cisco 90-Day Limited Hardware Warranty Terms

There are special terms applicable to your hardware warranty and various services that you can use during the warranty period. Your formal Warranty Statement, including the warranties and license agreements applicable to Cisco software, is available on Cisco.com at the following URL:

www.cisco.com/go/warranty.

You can also contact the Cisco service and support website for assistance:

http://www.cisco.com/en/US/support/

Duration of Hardware Warranty

Ninety (90) days.

Replacement, Repair, or Refund Policy for Hardware

Cisco or its service center will use commercially reasonable efforts to ship a replacement part within ten (10) working days after receipt of a Return Materials Authorization (RMA) request. Actual delivery times can vary, depending on the customer location.

Cisco reserves the right to refund the purchase price as its exclusive warranty remedy.

To Receive a Return Materials Authorization (RMA) Number

Contact the company from whom you purchased the product. If you purchased the product directly from Cisco, contact your Cisco Sales and Service Representative.

Complete the information below, and keep it for reference:

Company product purchased from	
Company telephone number	
Product model number	
Product serial number	
Maintenance contract number	

2 Related Documentation

User Documentation

The latest information is always online. To view or print an online document in its original format, click the PDF icon.

To find online user documentation (PDF and HTML formats):

From Cisco.com at the following location:

http://www.cisco.com Products and Services > Voice Gateways > Cisco VG224 Voice Gateway

From the Cisco legacy website (Cisco Connection Online) at the following location:

http://www.cisco.com/univered/home/home.htm



To navigate to the next higher level in the documentation hierarchy, click on **CONTENTS** in the navigation bar at the top of each page.

Cisco VG224 Documentation

This Document

You can find this quick start guide at the following URL:

http://www.cisco.com/en/US/products/hw/gatecont/ps2250/prod_installation_guides_list.html

Regulatory Compliance and Safety Information

The Regulatory Compliance and Safety Information document provides essential safety information applicable to your Cisco VG224 and contains multiple-language translations of the safety warnings applicable to this device.

You can find this document at the following URL:

http://www.cisco.com/en/US/docs/routers/access/iad2400/hardware/rcsi/2400rcsi.html

Hardware Installation Guide

The hardware installation guide provides additional detailed description, installation, and cabling information.

You can find this document at the following URL:

http://www.cisco.com/en/US/docs/routers/access/vg224/hardware/installation/guide/hig.html

Software Configuration Guide

The software configuration guide provides additional detailed configuration information specific to the Cisco VG224 Voice Gateway.

You can find this document at the following URL:

http://www.cisco.com/en/US/products/hw/gatecont/ps2250/products_installation_and_configuration_guides_list.html

Release Notes

Cisco IOS release notes for the Cisco VG224 Voice Gateway provide up-to-date information about Cisco IOS software releases used on Cisco VG224 Voice Gateways.

You can find these documents at the following URL:

http://www.cisco.com/en/US/products/hw/gatecont/ps2250/prod_release_notes_list.html

Cisco IOS Software Documentation

Master Index to Software Documentation

The master index provides links to topics and commands for each Cisco IOS software release. This includes configuration guides, command references, release notes, new feature documentation, and system messages.

You can find master indexes at the following URL:

http://www.cisco.com/univercd/cc/td/doc/product/software/index.htm

That resource is also available at the following URL:

http://www.cisco.com/public/sw-center/

If you have an account on Cisco.com, you can get updated information about platform support for features from Cisco Feature Navigator at the following URL:

http://www.cisco.com/go/cfn

3 Equipment, Tools, and Accessories

Description of the Cisco VG224 Voice Gateway

The Cisco VG224 Voice Gateway is shown in Figure 1. The Cisco VG224 Voice Gateway chassis includes a slot for the external compact flash card, as well as console, auxiliary, and compact flash (CF) ports. Analog voice ports use an RJ-21 interface.

Figure 1 Cisco VG224 Voice Gateway Front Panel

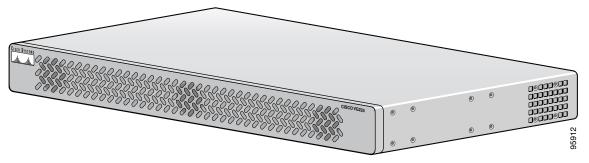
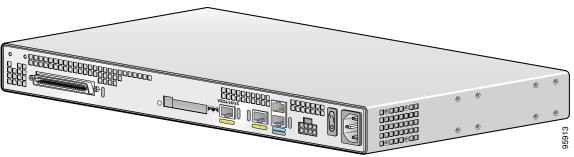


Figure 2 identifies the back panel and features of the Cisco VG224 Voice Gateway.

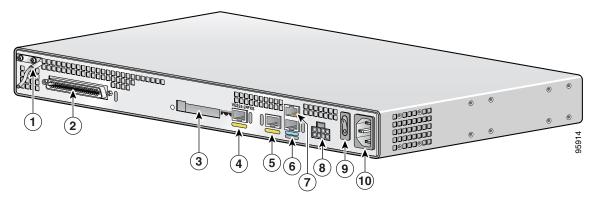
Figure 2 Identifying Back-Panel Features of the Cisco VG224 Voice Gateway



Cisco VG224

- RJ-21 analog voice interface
- FE ports: 2
- External compact flash

Figure 3 Back-Panel Feature Locations



1 (Chassis ground connection	5	Fast Ethernet port 0	9	On/off switch
2 I	RJ-21 connector	6	AUX port	10	AC power input
3 (Compact flash port	7	Console port		
4 I	Fast Ethernet port 1	8	DC power input		



The Console port is above the AUX port.

Items Included with Cisco VG224 Voice Gateway

The following are included with the Cisco VG224:

- Rack-mount brackets for 19-inch rack; grounding lug and fasteners; power cord
- Chassis guard for wall-mounting applications
- Connected RJ-45-to-DB9 cable (labeled Console)
- Connected RJ-45-to-DB-25 cable (labeled Auxiliary)
- Cisco VG224 Voice Gateway Quick Start Guide (this document)



Power cords vary, depending upon local requirements.

Items Not Included

You may need one or more items in this list for your application:

- Four telco machine screws, for installing the chassis in a rack (Use the screw size required by the rack.)
- Eight wood screws or other fasteners, for installing the chassis on a wall. An additional starter screw is used to facilitate wall mounting.
- PC running terminal emulation software for administrative access
- Modem for remote access
- Fast Ethernet RJ-45-to-RJ-45 straight-through cable
- Analog voice RJ-21 cable
- Tools: number 2 Phillips screwdriver; medium blade screwdriver; ESD-preventive wrist strap

4 Product Serial Number Location

The serial number label for the Cisco VG224 Voice Gateway is located on the bottom of the chassis, near the compliance label. The size of the serial number label is 0.25 x 1 inch. It has the letters "SN:" followed by eleven characters.

5 Installing the Chassis

Safety Information



For safety information you need to know before working on your Cisco VG224, see the *Cisco VG224 Regulatory Compliance and Safety Information* document that accompanied this product. That document provides translations for each of the warnings.

IMPORTANT SAFETY INSTRUCTIONS



This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. To see translations of the warnings that appear in this publication, refer to the translated

safety warnings that accompanied this device.

Note: SAVE THESE INSTRUCTIONS

Note: This documentation is to be used in conjunction with the specific product installation guide that shipped with the product. Statement 1071

Warning

Only trained and qualified personnel should be allowed to install or replace this equipment. Statement 1030



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 of security. Statement 1017



Ultimate disposal of this product should be handled according to all national laws and regulations. Statement 1040



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



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

Chassis Installation Options

You can set the chassis on a desktop, install it in a rack, or mount it on a wall.



Before proceeding, consider the location of the equipment with respect to a good ground. See the "Grounding the Chassis" section on page 10.

See the following instructions:

- Using Quick Installation Brackets, page 7
- Using the Correct Bracket Screws, page 6
- Rack-Mounting the Chassis, page 7
- Wall-Mounting the Chassis, page 8
- Grounding the Chassis, page 10



Caution

Use only the mounting hardware supplied with this product.

Using the Correct Bracket Screws

Two sets of bracket attachment screws are provided, in separate packages. Take care to use each screw type, and washers as needed, in the appropriate locations. Table 1 summarizes the bracket attachment screw types.

Table 1 Bracket Attachment Screws for Rack-Mounting and Wall-Mounting

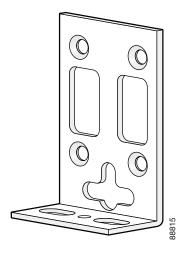
Rack-mounting	Wall-mounting	
• Eight Phillips head screws (four per bracket)	Four 6-32 slotted hex screws (two per bracket) and four plastic washers	
Washers are not required	Washers are required	

Using Quick Installation Brackets

A new bracket accompanies this product. See Figure 4. This bracket, with a keyhole feature, facilitates wall-mounting by allowing the installer to rest the bracket on a starter screw, freeing the installer's hands.

- To rack-mount the unit, you have three positioning options. See the "Rack-Mounting the Chassis" section on page 7.
- To wall-mount the unit, attach the short leg of the bracket to the chassis at the pair of holes in the center of the chassis side. See the "Wall-Mounting the Chassis" section on page 8.

Figure 4 Quick Installation Bracket



Rack-Mounting the Chassis

The following warning applies only when the unit is rack-mounted:



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:

This unit should be mounted at the bottom of the rack if it is the only unit in the rack.

When mounting this 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.

If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack. Statement 1006

To rack-mount the chassis, follow this procedure:

Step 1 Choose one of the methods shown in Figure 5, Figure 6, or Figure 7, and attach the long leg of the mounting brackets to the chassis, as shown.



Make sure to use the correct screws for this mounting option (see Table 1 on page 7).



Screws are included for attaching the brackets to the chassis, but not for installing the chassis in a rack or on a wall. You need four additional machine screws to install the chassis in a rack. Use the screw size required by your rack.

Figure 5 19-Inch Rack-Mounting with Front Panel Forward

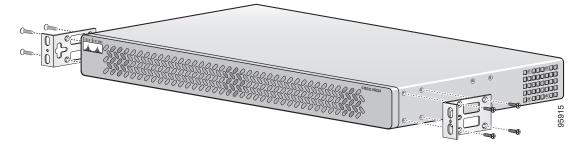


Figure 6 19-Inch Rack-Mounting with Rear Panel Forward

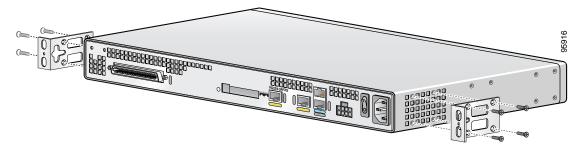


Figure 7 Telco 19-Inch Rack-Mounting with Rear Panel Forward



Step 2 Install the chassis in the rack.

Wall-Mounting the Chassis

The following warning applies only when the unit is wall-mounted:



Warning

This unit is intended to be mounted on a wall. Please 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



You can wall-mount the unit with either the right or left side facing up; however, the front and rear panels must be vertical.



For information about obtaining the chassis guard, refer to field notice number 28655, VG224 Chassis Guard - Safety Regulation, at http://www-tac.cisco.com/Support_Library/field_alerts/fn28655.html.

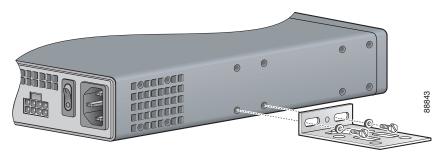
To wall-mount the chassis, follow this procedure:

Step 1 Attach the short leg of one bracket to the chassis, as shown in Figure 8, using two 6-32 x 1/4 slotted hex screws (provided). Be sure to use a plastic washer (provided) with each screw; the narrow end of the washer must fit into the bracket slot, facing the chassis.



Be sure to use the correct screws and plastic washers for this mounting option. (See Table 1 on page 7.)

Figure 8 Attaching the Brackets for Wall-Mounting



- **Step 2** Attach the second bracket to the opposite side of the chassis.
- **Step 3** Attach the router to the wall using the brackets previously attached and attachment hardware that you provide as follows:
 - You can install a starter screw in the wall, and hook the bracket keyhole over the screw. This holds the unit in place for easy installation of the attachment screws.
 - Attach both brackets to the wall.



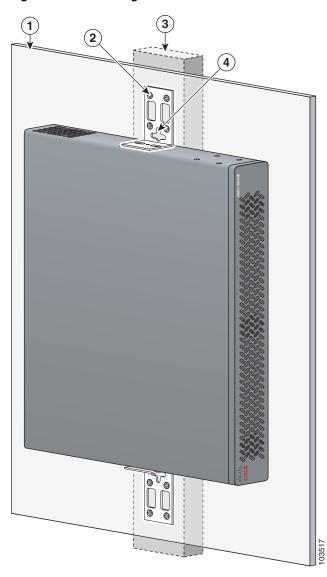
For attaching to a wall stud, each bracket requires two #10 wood screws (round- or pan-head) with #10 washers, or two #10 washer-head screws. The screws must be long enough to penetrate at least 3/4 inch (20 mm) into supporting wood or metal wall stud.



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

• Figure 9 shows the orientation required for installation.

Figure 9 Attaching the Chassis to a Wall



1	Wall	3	Wall stud
2	Bracket	4	Keyhole for starter screw

Grounding the Chassis



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

AC connected units must have a permanent ground connection in addition to the power cable ground wire. NEBS-compliant grounding satisfies this requirement. Statement 248



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 NEBS-compliant grounding, use size AWG 6 (13 mm²) wire and the ground lug provided in the accessory kit.
- For NEC-compliant grounding, use size AWG 14 (2 mm²) or larger wire and an appropriate user-supplied ring terminal.
- For EN/IEC 60950-compliant grounding, use size AWG 18 (1 mm²) or larger wire and an appropriate user-supplied ring terminal.

To connect the chassis to a reliable earth ground, perform the following steps:

Step 1 Locate a suitable ground.



Using a multimeter, measure the resistance between various possible ground locations, such as 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 Cisco IAD chassis and the ground of a power tap, and between the Cisco IAD chassis and the ground of a junction box. A good ground connection should read between 0.0 and 0.5 ohms.

- **Step 2** Strip one end of the ground wire to the length required for the ground lug or terminal.
 - For the NEBS ground lug—approximately 0.75 in. (20 mm)
 - For user-provided ring terminal—as required
- **Step 3** Crimp the ground wire to the ground lug or ring terminal, using a crimp tool of the appropriate size.
- **Step 4** Attach the ground lug or ring terminal to the chassis as shown in Figure 10 or Figure 11. 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 to 10 in-lb (0.9 to 1.1 N-m).
- **Step 5** Connect the other end of the ground wire to a grounding point at your site.

Figure 10 NEBS-Compliant Chassis Ground Connection Using Ground Lug

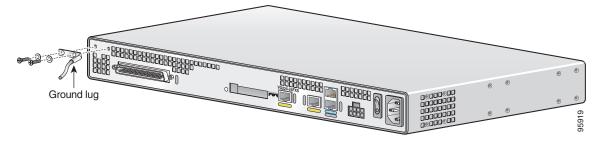


Figure 11 Chassis Ground Connection Using Ring Terminal



6 Connecting Cables

Warning

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

Warning

Hazardous network voltages are present in WAN ports regardless of whether power to the unit is OFF or ON. To avoid electric shock, use caution when working near WAN ports. When detaching cables, detach the end away from the unit first. Statement 1026

Warning

Read the installation instructions before connecting the system to the 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 VAC, 15A (240 VAC, 10A international) Statement 1005

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



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



Before performing any of the following procedures, ensure that power is removed from the DC circuit. Statement 1003



This equipment has been designed for connection to TN and IT power systems. Statement 1007

Connecting LAN and Power Cables



The Cisco VG224 Voice Gateway 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.

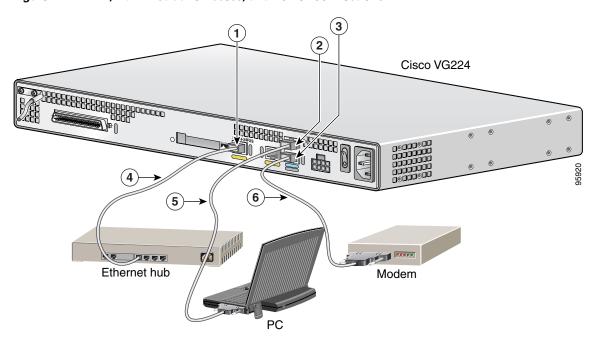
These cables and connections are described in Table 2 and Figure 12.

Table 2 LAN, Administrative Access, and Power Cable Selection

Port or Connection	Color or Type	Connected To	Cable
Fast Ethernet	Yellow	Fast Ethernet hub	Straight-through Fast 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	Power	100–240 VAC, 50–60 Hz	Grounding power cord (included) ¹

^{1.} Power cables vary to meet local requirements.

Figure 12 LAN, Administrative Access, and Power Connections



1	Fast Ethernet port	4	Fast Ethernet (straight-through)
2	Console port	5	RJ-45-to-DB9 console cable
3	AUX port	6	RJ-45-to-DB25 auxiliary cable

Connecting WAN and Voice Cables



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

Also, the following warning applies to the RJ-21 interface.



Warning

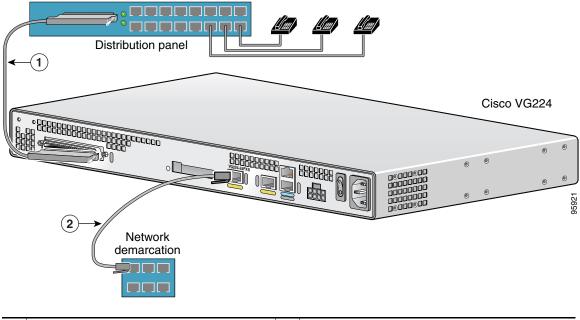
This equipment contains a ring signal generator (ringer), which is a source of hazardous voltage. Do not touch the RJ-11 (phone) port wires (conductors), the conductors of a cable connected to the RJ-11 port, or the associated circuit-board when the ringer is active. The ringer is activated by an incoming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

These cables and connections are described in Table 3 and Figure 13.

Table 3 WAN and Voice Cable Selection

Port or Interface Color or Type Connected To		Connected To	Cable
Analog voice FXS	RJ-21	Distribution panel	RJ-21-to-RJ-21 straight-through cable (not included)

Figure 13 WAN and Voice Connections



1	RJ-21 cable (through a patch panel) to central office	2	RJ-45 cable (through a patch panel) to central office

7 Powering On the Cisco VG224



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.

Checklist for Power-On

You are ready to power on the Cisco VG224 if it meets these requirements:

- The chassis is securely mounted.
- Power and interface cables are connected.

Power-On Procedure

Perform this procedure to power on your Cisco VG224 and verify that it goes through its initialization and self-test. When this is finished, the Cisco VG224 is ready to configure.

To power on the Cisco VG224, follow this procedure:

- Step 1 Power on your terminal or PC, and configure it for 9600 bps, 8 data bits, 1 stop bit, and no parity.
- **Step 2** Move the Cisco VG224 power switch to the ON position.

The green LED next to the auxiliary port should come on and the fan should operate. If this does not happen, see the power-on procedure in the Cisco VG224 Voice Gateway Hardware Installation Guide.

The following message appears at the end of the boot-up messages:

```
--- System Configuration Dialog --- Would you like to enter the initial configuration dialog? [yes/no]:
```

Step 3 Enter no to proceed with manual configuration using the command-line interface (CLI):

```
Would you like to enter the initial configuration dialog? [yes/no]: no Would you like to terminate autoinstall? [yes]
```

Step 4 Press Return to terminate autoinstall and continue with manual configuration.

Several messages appear, ending with a line similar to the following:

```
...
Copyright (c) 1986-2003 by cisco Systems, Inc.
Compiled <date> <time> by <person>
```

Step 5 Press Return to bring up the Router> prompt:

```
flashfs[4]: Initialization complete.
Router>
```

Step 6 Enter privileged EXEC mode:

```
Router> enable Router#
```

Step 7 Continue with the next section, "Performing the Initial Configuration."

8 Performing the Initial Configuration

This section shows how to prepare the Cisco VG224 to perform basic communication functions through its 10/100BASE-T Fast Ethernet and WAN interfaces.



The Console port is above the AUX port.

Perform the following initial configuration procedures, as applicable:

- Getting Your Network Information, page 15
- Setting the Fast Ethernet Port IP Address, page 15
- Verifying and Saving Your Configuration, page 16

Getting Your Network Information

Gather the IP addresses of Fast Ethernet ports.

Setting the Fast Ethernet Port IP Address

Follow this procedure to set an IP address for the Fast Ethernet port. After setting this address, you can configure the Cisco VG224 remotely through a Telnet connection.

	Command	Description
Step 1	Router# configure terminal	Enters global configuration mode.
Step 2	Router(config)# enable password password	Sets a password for the privileged EXEC mode.
Step 3	Router(config)# interface Fast Ethernet 0/0	Enters interface configuration mode.
Step 4	Router(config-if)# ip address IP-address subnet-mask	Enters the IP address and subnet mask for the Fast Ethernet port.
Step 5	Router(config-if)# no shutdown	Activates the Fast Ethernet port.
Step 6	Router(config-if)# exit	Returns to global configuration mode.
Step 7	Router(config)# line vty 0 4	Enters line configuration mode.
Step 8	Router(config-line) # password password	Sets a password for remote access to the Cisco VG224.
Step 9	Router(config-line)# end	Returns to privileged EXEC mode.
Step 10	Router# copy system:running-config nvram:startup-config	Saves the configuration.

Verifying and Saving Your Configuration

To verify the configuration and save it in NVRAM so that the configuration remains in effect if the Cisco VG224 is restarted, enter the following commands:

Command	Description		
Router# show running-config	Displays the current operating configuration, including any changes you have just made.		
Router# show startup-config	Displays the configuration currently stored in NVRAM.		
Router# show voice port summary	Displays the voice port parameter settings.		
Router# copy running-config startup-config	Writes the current running configuration to NVRAM, where it overwrites the startup configuration and becomes the new startup configuration.		
	Note If you reboot the Cisco VG224 or turn off the power before you complete this step, you lose the configuration.		

Where to Go Next

For additional specialized configuration procedures, refer to the appropriate Cisco IOS software configuration documentation.



See the "User Documentation" section on page 2 for help in locating these documents.

9 Documentation Feedback

You can send comments about technical documentation to bug-doc@cisco.com.

You can submit comments by using the response card (if present) behind the front cover of your document or by writing to the following address:

Cisco Systems Attn: Customer Document Ordering 170 West Tasman Drive San Jose, CA 95134-9883

We appreciate your comments.

10 Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

From this site, you can perform these tasks:

- Report security vulnerabilities in Cisco products.
- Obtain assistance with security incidents that involve Cisco products.
- Register to receive security information from Cisco.

A current list of security advisories and notices for Cisco products is available at this URL:

http://www.cisco.com/go/psirt

If you prefer to see advisories and notices as they are updated in real time, you can access a Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed from this URL:

http://www.cisco.com/en/US/products/products_psirt_rss_feed.html

Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you might have identified a vulnerability in a Cisco product, contact PSIRT:

- Emergencies—security-alert@cisco.com
- Nonemergencies—psirt@cisco.com



We encourage you to use Pretty Good Privacy (PGP) or a compatible product to encrypt any sensitive information that you send to Cisco. PSIRT can work from encrypted information that is compatible with PGP versions 2.x through 8.x.

Never use a revoked or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one that has the most recent creation date in this public key server list:

http://pgp.mit.edu:11371/pks/lookup?search=psirt%40cisco.com&op=index&exact=on

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532

11 Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

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