



## Cisco uBR7200-NPE-G1 Read Me First

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**Product Number: Cisco uBR7200-NPE-G1=**  
**March 2008**

**Platform: Cisco uBR7246VXR and Cisco uBR7225VXR universal broadband routers**

**This document describes the preliminary steps that are needed before physically installing a Cisco uBR7200-NPE-G1 processor into an existing Cisco uBR7246VXR or Cisco uBR7225VXR universal broadband router. Failure to follow the instructions in this document could result in having to manually reconfigure the router after installing the Cisco uBR7200-NPE-G1.**



### Note

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This document does not describe the physical installation of the Cisco uBR7200-NPE-G1 processor or the optional removal of the I/O controller card. Because the processor and I/O controller cards are not hot-swappable, you must fully power down the universal broadband router before you begin the physical installation procedure. For complete installation information, refer to the *Network Processing Engine and Network Services Engine Installation and Configuration* document at the following URL:

[http://www.cisco.com/en/US/products/hw/cable/ps2217/prod\\_installation\\_guides\\_list.html](http://www.cisco.com/en/US/products/hw/cable/ps2217/prod_installation_guides_list.html)

Also see the “[Related Documentation](#)” section on [page 19](#) for additional documentation that might be helpful in the installation.

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### Tip

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Before beginning the installation procedure, be sure to look over the “[Upgrade Checklist](#)” section on [page 4](#) for a guide to the installation process and to ensure that you have completed all of the prerequisites for installation.

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## Document Revision History

The Document Revision History table records technical changes to this document. [Table 1](#) shows the document revision number for the change, the date of the change, and a brief summary of the change. Note that not all Cisco documents use a Document Revision History table.

**Table 1**            **Document Revision History**

Revision	Month	Change Summary
78-15066-02	March 2008	Added details of the Cisco uBR7225VXR universal broadband router.
78-15066-01	September 2003	Initial release of this document.

## Overview

The Cisco uBR7200-NPE-G1 is different from prior network processing engines for the Cisco uBR7246VXR universal broadband router. Upgrading to the Cisco uBR7200-NPE-G1 requires a different procedure than previous processor upgrades because of the following considerations:

- The Cisco uBR7200-NPE-G1 contains its own onboard I/O controller, which includes the boot flash memory and NVRAM memory. After you install the Cisco uBR7200-NPE-G1 in a chassis, you can no longer access the boot flash and NVRAM memory on the I/O controller. You must therefore copy the Cisco IOS software image and configuration file to the memory on the Cisco uBR7200-NPE-G1.
- The Cisco uBR7200-NPE-G1 includes three onboard Gigabit Ethernet interfaces. If you want to use these interfaces to replace the Fast Ethernet interfaces on the existing I/O controller, you will have to configure the new interfaces before they can be used to access the network. If you are also removing the existing I/O controller, you will need to remove the configuration for its Fast Ethernet interfaces.
- The Cisco uBR7200-NPE-G1 uses Type 1 Compact Flash disk memory instead of the Type 2 Flash disk memory used in existing I/O controllers. If you are also removing the I/O controller when you install the new processor, you must transfer any information currently saved on Flash disks to a

Compact Flash disk so that it can be used after the upgrade to the Cisco uBR7200-NPE-G1. If you are planning to keep the current I/O controller installed in the router, you can use the I/O controller's Flash disk slots to copy the files to the Compact Flash disk.

It is critical that you read the information below before you install the Cisco uBR7200-NPE-G1. Also read the [“Upgrade Checklist” section on page 4](#) to ensure that you have completed all of the prerequisites for installation and to make sure that you understand the upgrade process.

**Caution**

Before powering down the router to install the Cisco uBR7200-NPE-G1, you must save the running configuration to a Flash disk, PC card, or TFTP server. If you do *not* do this, you lose the configuration and you must then manually reenter it on the router.

By default, the Cisco IOS software looks to the Cisco uBR7200-NPE-G1 for the running configuration, because the NVRAM on the Cisco uBR7200-NPE-G1, by default, stores the running configuration—whether or not an I/O controller is installed with the Cisco uBR7200-NPE-G1.

In addition, you should be aware of the following differences between the interface ports on the Cisco uBR7200-NPE-G1 and the existing I/O controllers:

- The RJ-45 ports and GBIC ports are both reported in software as Gigabit Ethernet 0/1, Gigabit Ethernet 0/2, and Gigabit Ethernet 0/3. Only one of the pair of interface ports can be used at a time. For example, you can use either the GBIC 0/2 port or the RJ-45 0/2 port, but not both.
- If the RJ-45 port is in use, the EN (enabled) LED is on. If the GBIC is in use, the EN (enabled) LED is off.
- The Fast Ethernet interface on the UBR7200-I/O-FE/E or UBR7200-I/O-2FE/E I/O controller is numbered FE 0/0.
- An I/O controller can be used with the Cisco uBR7200-NPE-G1, but an I/O controller is not necessary for system functionality. When both the Cisco uBR7200-NPE-G1 and an I/O controller are installed, the I/O controller functionality on the Cisco uBR7200-NPE-G1 is shared with that of the I/O controller as follows:
  - Installing an I/O controller in a chassis with the Cisco uBR7200-NPE-G1 activates the console and auxiliary ports on the I/O controller and automatically disables the console and auxiliary ports onboard the Cisco uBR7200-NPE-G1.
  - When both an I/O controller and Cisco uBR7200-NPE-G1 are installed, you can access the NVRAM and boot flash memory only on the Cisco uBR7200-NPE-G1. You will not be able to access the NVRAM and boot flash memory on the I/O controller.
  - You can use both the Fast Ethernet and Gigabit Ethernet ports on the I/O controller and the Cisco uBR7200-NPE-G1 when both cards are installed.
  - You can access the Flash disk slots on the I/O controller and the Compact Flash disk slot on the Cisco uBR7200-NPE-G1 when both cards are installed. The Flash disk slots continue to use the slot0/disk0 and slot1/disk1 numbering, and the Compact Flash disk slot is always disk2.

**Note**

The I/O controller is supported only on the Cisco uBR7246VXR router.



If the Cisco uBR7200-NPE-G1 will be installed in a router with a UBR7200-I/O-2FE/E I/O controller, copy your running configuration to a Flash disk, not a PC card. PC cards are not supported on this particular I/O controller when a Cisco uBR7200-NPE-G1 is present. If you copy the running configuration to a PC card on the UBR7200-I/O-2FE I/O controller, you will not be able to retrieve the running configuration after the Cisco uBR7200-NPE-G1 is installed.

- The default media for the Cisco uBR7200-NPE-G1 Gigabit Ethernet interfaces is the RJ-45 port. To change the media type, use the **media-type** command.
- Only the port selected by the **media-type** command is active. A cable attached to the other of the RJ-45 and GBIC pair will be ignored. For example, if GBIC GigabitEthernet 0/2 is selected using the **media-type** command, RJ-45 GigabitEthernet 0/2 is ignored, even if a cable is attached to the RJ-45 port.

Table 2 lists the NPE-G1 processor models supported in the Cisco uBR7246VXR and Cisco uBR7225VXR universal broadband routers.

**Table 2 Supported NPE-G1 Models**

Chassis	NPE-G1 Processor
Cisco uBR7246VXR	<ul style="list-style-type: none"> <li>• UBR7200-NPE-G1</li> <li>• UBR7200-NPE-G1=</li> </ul>
Cisco uBR7225VXR	<ul style="list-style-type: none"> <li>• UBR7200-NPE-G1</li> <li>• UBR7200-NPE-G1=</li> </ul>

## Upgrade Checklist

To ensure a smooth upgrade, use the following checklist when you install a Cisco uBR7200-NPE-G1 in an existing router and optionally remove the existing I/O controller. To complete this procedure, you need the following documents:

- *Network Processing Engine and Network Services Engine Installation and Configuration* at the following URL:  
[http://www.cisco.com/en/US/products/hw/cable/ps2217/prod\\_installation\\_guides\\_list.html](http://www.cisco.com/en/US/products/hw/cable/ps2217/prod_installation_guides_list.html)
- *Input/Output Controller Replacement Instructions* at the following URL:  
[http://www.cisco.com/en/US/docs/routers/7200/install\\_and\\_upgrade/7200\\_i.o\\_controller\\_install/447io.html](http://www.cisco.com/en/US/docs/routers/7200/install_and_upgrade/7200_i.o_controller_install/447io.html)

<b>Step 1</b>	Copy the configuration file from the existing router to a TFTP server, Flash disk, or PC. See the <a href="#">“Copying the Configuration File”</a> section on page 9 for details.
<b>Step 2</b>	Modify the configuration file to accommodate the new Gigabit Ethernet interfaces on the Cisco uBR7200-NPE-G1. If you are planning to remove the I/O controller, also remove the configuration lines for the Fast Ethernet interfaces on the I/O controller. You can perform this step either here or after Step 14 when you have finished the installation and have powered up the router.  See the <a href="#">“Configuring the Native Gigabit Ethernet Interfaces”</a> section in Chapter 6 of the <i>Network Processing Engine and Network Services Engine Installation and Configuration</i> document.

<b>Step 3</b>	<p>Copy the modified configuration file to a Compact Flash disk that can be used on the Cisco uBR7200-NPE-G1. This step is optional if you are keeping the I/O controller installed but is required if you are planning to remove the I/O controller during the upgrade.</p> <p>See the “Copying the Configuration to a Compact Flash Disk Before Installation” section on page 13 for details.</p>
<b>Step 4</b>	<p>Download the proper Cisco IOS software image for the router and the UBR7200-NPE-G1 processor from the Cisco IOS Software Center, at the following URL:  <a href="http://www.cisco.com/public/sw-center/">http://www.cisco.com/public/sw-center/</a></p>
<b>Step 5</b>	<p>(Optional) Copy the proper Cisco IOS software image to the Compact Flash disk, using the same technique you used to copy the configuration file in Step 3.</p> <p><b>Note</b> You do not need to perform this step if you plan to boot the router from a TFTP server, but you must add the proper <b>boot</b> configuration command to the configuration file when you modify it in Step 2.</p>
<b>Step 6</b>	<p>Power down and remove power from the router.</p> <p>See the “Powering Down the Router and Disconnecting Input Power” section in Chapter 6 of the <i>Network Processing Engine and Network Services Engine Installation and Configuration</i> document.</p>
<b>Step 7</b>	<p>Remove the existing NPE processor.</p> <p>See the “Removing the NPE or NSE-1” section in Chapter 6 of the <i>Network Processing Engine and Network Services Engine Installation and Configuration</i> document.</p>
<b>Step 8</b>	<p>(Optional) Remove the existing I/O controller.</p> <p>See the “Removing the Input/Output Controller” section in the <i>Input/Output Controller Replacement Instructions</i> document.</p>
<b>Step 9</b>	<p>Install the Compact Flash disk in the Cisco uBR7200-NPE-G1.</p> <p>See the “Installing the Compact Flash Disk” section in Chapter 6 of the <i>Network Processing Engine and Network Services Engine Installation and Configuration</i> document.</p>
<b>Step 10</b>	<p>(Optional) If you are using the optical Gigabit Ethernet ports, install the gigabit interface converters (GBICs).</p> <p>See the “Installing a GBIC” section in Chapter 6 of the <i>Network Processing Engine and Network Services Engine Installation and Configuration</i> document.</p>
<b>Step 11</b>	<p>(Optional) If you have purchased an SDRAM memory upgrade for the Cisco uBR7200-NPE-G1, install the memory upgrade now.</p> <p>See the “Upgrading the SDRAM SODIMMs on the NPE-G1” section in Chapter 6 of the <i>Network Processing Engine and Network Services Engine Installation and Configuration</i> document.</p>
<b>Step 12</b>	<p>Insert the Cisco uBR7200-NPE-G1 card into the chassis.</p> <p>See the “Inserting the NPE-G1” section in Chapter 6 of the <i>Network Processing Engine and Network Services Engine Installation and Configuration</i> document.</p>
<b>Step 13</b>	<p>(Optional) Attach the cable-management brackets for the Cisco uBR7200-NPE-G1.</p> <p>See the “Attaching the Rear Cable-Management Brackets and Cables” section in Chapter 6 of the <i>Network Processing Engine and Network Services Engine Installation and Configuration</i> document.</p>
<b>Step 14</b>	<p>Reconnect power to the router and power up the router for its initial bootup.</p> <p>See the “Reconnecting Input Power and Powering Up the Router” section in Chapter 6 of the <i>Network Processing Engine and Network Services Engine Installation and Configuration</i> document.</p>

<b>Step 15</b>	If you have not already done so, copy the configuration file to a Compact Flash disk that can be used on the Cisco uBR7200-NPE-G1. This step is optional if you are keeping the I/O controller installed but required if you removed the I/O controller during the upgrade.  See the <a href="#">“Copying the Configuration File to a Compact Flash Disk After Installation”</a> section on page 13 for details.
<b>Step 16</b>	Copy the saved configuration file to the router’s NVRAM memory, which is contained on the Cisco uBR7200-NPE-G1 processor.  See the <a href="#">“Copying the Saved Configuration to NVRAM After the Installation”</a> section on page 15 for details.

## Safety Information and Warnings

Following are safety guidelines that you should follow when working with any equipment that connects to electrical power.



### Warning

**Only trained and qualified personnel should be allowed to install or replace this equipment. To see translations of the warnings that appear in this publication, refer to the appendix “Translated Safety Warnings” in the installation guide that accompanied this device.**

## Electrical Equipment Guidelines

Follow these basic guidelines when working with any electrical equipment:

- Before beginning any procedures requiring access to the chassis interior, locate the emergency power-off switch for the room in which you are working.
- Disconnect all power and external cables before moving a chassis.
- Do not work alone when potentially hazardous conditions exist.
- Never assume that power has been disconnected from a circuit; always check.
- Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.
- Carefully examine your work area for possible hazards such as moist floors, ungrounded power extension cables, and missing safety grounds.

## Preventing Electrostatic Discharge Damage

Electrostatic discharge (ESD) damage, which occurs when electronic cards or components are improperly handled, can result in complete or intermittent failures. The AC-input power shelf and its AC power modules contain a printed circuit card that is fixed in a metal carrier. Electromagnetic interference (EMI) shielding and connectors are integral components of the carrier. Although the metal carrier helps to protect the cards from ESD, use an antistatic strap each time you handle the modules.

Following are guidelines for preventing ESD damage:

- Always use an ESD-preventive wrist or ankle strap and ensure that it makes good skin contact. Before removing a card from the chassis, connect the equipment end of the strap to a bare metal, unpainted surface on the chassis or rack-mount.
- Handle components by the carrier edges only; avoid touching the card components or any connector pins.

- When removing a module, place it on an antistatic surface or in a static-shielding bag. If the module will be returned to the factory, immediately place it in a static-shielding bag.
- Avoid contact between the modules and clothing. The wrist strap protects the card from ESD voltages on the body only; ESD voltages on clothing can still cause damage.

**Caution**

For safety, periodically check the resistance value of the antistatic strap. The measurement should be between 1 and 10 megohms.

## Safety Warnings

**Warning**

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 appendix "Translated Safety Warnings" in the installation guide that accompanied this device.)

**Waarschuwing**

Dit waarschuwingssymbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij elektrische schakelingen betrokken risico's en dient u op de hoogte te zijn van standaard maatregelen om ongelukken te voorkomen. (Voor vertalingen van de waarschuwingen die in deze publicatie verschijnen, kunt u het aanhangsel "Translated Safety Warnings" (Vertalingen van veiligheidsvoorschriften) in de installatiegids die bij dit toestel is ingesloten, raadplegen.

**Varoitus**

Tämä varoitusmerkki merkitsee vaaraa. Olet tilanteessa, joka voi johtaa ruumiinvammaan. Ennen kuin työskentelet minkään laitteiston parissa, ota selvää sähkökytkentöihin liittyvistä vaaroista ja tavanomaisista onnettomuuksien ehkäisykeinoista. (Tässä julkaisussa esiintyvien varoitusten käännökset löydät tämän laitteen mukana olevan asennusoppaan liitteestä "Translated Safety Warnings" (käännettyt turvallisuutta koskevat varoitukset).)

**Attention**

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant entraîner des blessures. Avant d'accéder à cet équipement, soyez conscient des dangers posés par les circuits électriques et familiarisez-vous avec les procédures courantes de prévention des accidents. Pour obtenir les traductions des mises en garde figurant dans cette publication, veuillez consulter l'annexe intitulée « Translated Safety Warnings » (Traduction des avis de sécurité) dans le guide d'installation qui accompagne cet appareil.

**Warnung**

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu einer Körperverletzung führen könnte. Bevor Sie mit der Arbeit an irgendeinem Gerät beginnen, seien Sie sich der mit elektrischen Stromkreisen verbundenen Gefahren und der Standardpraktiken zur Vermeidung von Unfällen bewußt. (Übersetzungen der in dieser Veröffentlichung enthaltenen Warnhinweise finden Sie im Anhang mit dem Titel "Translated Safety Warnings" (Übersetzung der Warnhinweise) in der diesem Gerät beiliegenden Installationsanleitung.)

- Avvertenza** Questo simbolo di avvertenza indica un pericolo. Si è in una situazione che può causare infortuni. Prima di lavorare su qualsiasi apparecchiatura, occorre conoscere i pericoli relativi ai circuiti elettrici ed essere al corrente delle pratiche standard per la prevenzione di incidenti. La traduzione delle avvertenze riportate in questa pubblicazione si trova nell'appendice, "Translated Safety Warnings" (Traduzione delle avvertenze di sicurezza), del manuale d'installazione che accompagna questo dispositivo.
- Advarsel** Dette varselsymbolet betyr fare. Du befinner deg i en situasjon som kan føre til personskade. Før du utfører arbeid på utstyr, må du være oppmerksom på de faremomentene som elektriske kretser innebærer, samt gjøre deg kjent med vanlig praksis når det gjelder å unngå ulykker. (Hvis du vil se oversettelser av de advarslene som finnes i denne publikasjonen, kan du se i vedlegget "Translated Safety Warnings" [Oversatte sikkerhetsadvarsler] i installasjonsveiledningen som ble levert med denne enheten.)
- Aviso** Este símbolo de aviso indica perigo. Encontra-se numa situação que lhe poderá causar danos físicos. Antes de começar a trabalhar com qualquer equipamento, familiarize-se com os perigos relacionados com circuitos eléctricos, e com quaisquer práticas comuns que possam prevenir possíveis acidentes. (Para ver as traduções dos avisos que constam desta publicação, consulte o apêndice "Translated Safety Warnings" - "Traduções dos Avisos de Segurança", no guia de instalação que acompanha este dispositivo).
- ¡Advertencia!** Este símbolo de aviso significa peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considerar los riesgos que entraña la corriente eléctrica y familiarizarse con los procedimientos estándar de prevención de accidentes. (Para ver traducciones de las advertencias que aparecen en esta publicación, consultar el apéndice titulado "Translated Safety Warnings," en la guía de instalación que se acompaña con este dispositivo.)
- Varning!** Denna varningssymbol signalerar fara. Du befinner dig i en situation som kan leda till personskada. Innan du utför arbete på någon utrustning måste du vara medveten om farorna med elkretsar och känna till vanligt förfarande för att förebygga skador. (Se förklaringar av de varningar som förekommer i denna publikation i appendix "Translated Safety Warnings" [Översatta säkerhetsvarningar] i den installationshandbok som medföljer denna anordning.)

## Optical Ports Safety Warnings

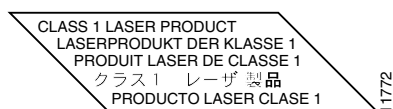


**Caution**

The optical ports on the NPE-G1 use a small laser to transmit the light signal to the network ring. Keep the transmit port covered whenever a cable is not connected to it. You should keep all open ports covered and avoid staring into open ports or apertures. For best performance, you should also clean all optical ports whenever connecting or changing cables.

Figure 1 shows the Class 1 warning label that appears on the Gigabit Ethernet optical ports:

**Figure 1 Laser Class 1 Warning Label**





Warning

Because invisible laser radiation may be emitted from the aperture of the port when no fiber cable is connected, avoid exposure to laser radiation and do not stare into open apertures. To see translations of the warnings that appear in this publication, refer to the appendix “Translated Safety Warnings” in the installation guide that accompanied this device.



Warning

Class 1 laser product. To see translations of the warnings that appear in this publication, refer to the appendix “Translated Safety Warnings” in the installation guide that accompanied this device.



Warning

Class 1 LED product. To see translations of the warnings that appear in this publication, refer to the appendix “Translated Safety Warnings” in the installation guide that accompanied this device.

## Copying the Configuration File

Before powering down the router to install the Cisco uBR7200-NPE-G1, you must save the current configuration to a Flash disk, PC card, TFTP file server, or PC. If you do not do this, the configuration will be lost and you must then manually reenter your configuration.

The Cisco IOS software by default looks in the NVRAM on the Cisco uBR7200-NPE-G1 for the startup configuration, even if you have an I/O controller installed. This is because the NVRAM on the I/O controller is no longer accessible when the Cisco uBR7200-NPE-G1 is installed.

The following sections provide instructions for copying the file to a Flash disk, PC card, or TFTP server, and for copying it manually using a terminal program on a PC:

- [Copying the Configuration File to a Flash Disk or PC Card, page 9](#)
- [Copying the Configuration File to a TFTP Server, page 10](#)
- [Copying the Configuration File Using a PC, page 12](#)
- [Copying the Configuration to a Compact Flash Disk Before Installation, page 13](#)

## Copying the Configuration File to a Flash Disk or PC Card

Use the following instructions for copying the router configuration file to a Flash disk or PC card:



Caution

If the Cisco uBR7200-NPE-G1 will be installed in a router with a UBR7200-I/O-2FE/E I/O controller, copy your running configuration to a Flash disk, not a PC card. PC cards are not supported on this I/O controller when a Cisco uBR7200-NPE-G1 is present. If you copy the running configuration to a PC card with the UBR7200-I/O-2FE/E I/O controller present, you will not be able to retrieve the running configuration after the Cisco uBR7200-NPE-G1 is installed.

**Step 1** Insert the Flash disk or PC card into I/O controller PC card slot 0. If slot 0 is full, use slot 1. If you need to format the Flash disk, go to Step 2. If the Flash disk is already formatted, go to Step 3.

**Step 2** Use the **format disk0:** command to format a Flash disk in slot 0. Use the **format disk1:** command to format a Flash disk in slot 1. If you are using a PC card, use slot0 or slot1 as the device name.

```
System# format disk0:

Format operation may take a while. Continue: [confirm]
Format operation will destroy all data in 'disk0:'. Continue? [confirm]
Format :Drive communication and 1st Sector Write OK...
Writing Monlib sectors
.....
Monlib write complete
Format:All system sectors written. OK...
Format:Total sectors in formatted partition:81760
Format:Total bytes in formatted partition:49861120
Format:Operation completed successfully.

Format of disk0:complete
```

The Flash disk is now formatted and ready to use in the system on which you formatted it.

- Step 3** Make sure that you are in privileged EXEC mode (check the system prompt for a pound sign [#]). If the system prompt does not have a pound sign (#), enter **enable**, and then your password.
- Step 4** Enter the **show running-config** command to display the router’s running configuration. Ensure that the configuration information is complete and correct. If it is not, use the **configure terminal** command to enter global configuration mode so that you can add or modify the existing configuration.
- Step 5** To copy the running configuration file to a Flash disk in slot0, enter the **copy running-config disk0:running-config** command. To copy the running configuration file to a PC card in slot0, enter the **copy running-config slot0:running-config** command:

```
Router# copy running-config disk0:running-config
```

---

You have finished copying the running configuration file to the Flash disk or PC card. You can optionally copy the configuration file to a Compact Flash disk, using the instructions given in the [“Copying the Configuration to a Compact Flash Disk Before Installation”](#) section on page 13.

## Copying the Configuration File to a TFTP Server

Before copying the router configuration file to a TFTP file server, check the following items:

- A console terminal is connected to the console port on the I/O controller or a Telnet session is established to the router.
- The router is connected to a network supporting a file server (remote host).
- The remote host is running a TFTP server.
- You have the name or address of the remote host.

To copy the router's configuration file to a remote host, complete the following steps:

**Step 1** Make sure that you are in privileged EXEC mode (check the system prompt for a pound sign [#]). If the system prompt does not have a pound sign (#), enter **enable**, and then your password.

**Step 2** Use the **ping** command to check the connection between the router and the remote host. For example, the following example shows a successful ping with the host at IP address 10.135.216.14:

```
Router# ping 10.135.216.14
```

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.135.216.14, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/6/8 ms
Router#
```

**Step 3** Enter the **show running-config** command to display the router's running configuration. Ensure that the configuration information is complete and correct. If it is not, use the **configure terminal** command to enter global configuration mode so that you can add or modify the existing configuration.

**Step 4** Enter the **copy running-config startup-config** command to save the new configuration in the router's NVRAM memory.



**Note** For more information on this command, see the software documentation listed in the [“Related Documentation”](#) section on page 19.

**Step 5** Enter the **copy startup-config tftp** command. The EXEC command interpreter prompts you for the name or IP address of the remote host that is to receive the configuration file. (The prompt might include the name or address of a default file server.)

```
Router# copy startup-config tftp
Remote host []?
```

**Step 6** Enter the host name or IP address of the remote host. In the following example, the host name of the remote host is *servername*:

```
Router# copy startup-config tftp
Remote host []? servername
Translating "servername"...domain server (10.1.1.1) [OK]
```

**Step 7** The EXEC command interpreter prompts you for the name of the file that will contain the configuration. By default, the system appends **-confg** to the router's name to create the new filename. Press **Return** to accept the default filename, or enter a different name for the file before pressing **Return**. In the following example, the default is accepted:

```
Name of configuration file to write [Router-confg]?
Write file Router-confg on host 10.1.1.1? [confirm]
Writing Router-confg.....
```

**Step 8** Before the router executes the copy process, it displays the instructions you entered for confirmation. If the instructions are not correct, enter **n** (no), and then press **Return** to stop the process. To accept the instructions, press **Return**, or **y** and then **Return**; the system begins the copy process. In the following example, the default is accepted:

```
Write file Router-confg on host 10.1.1.1? [confirm]
Writing Router-confg: !!!! [ok]
```

While the router copies the configuration to the remote host, it displays a series of exclamation points (! ! !) or periods (. . .). The !!!! and [ok] indicate that the operation is successful. A display of . . . [timed out] or [failed] indicates a failure, which would probably be because of a network fault or the lack of a writable, readable file on the remote file server.

**Step 9** Check the result of the copy process.

- If the display indicates that the process was successful (with the series of exclamation points [! ! !] and [ok]), the copy process is complete. The configuration file is safely stored in the temporary file on the remote file server.
- If the display indicates that the process failed (with the series of periods [. . .] as shown in the following example), your configuration was not saved:

```
Writing Router-config . . . . .
```

**Step 10** If your configuration was not saved, repeat Step 1 through Step 9 and specify a different destination filename. If that does not work, select a different TFTP server and repeat the preceding steps. If you are unable to copy the configuration to a remote host successfully, contact your network administrator.

---

This completes the procedure for copying the configuration file to a TFTP server. You can optionally copy the configuration file to a Compact Flash disk, using the instructions given in the [“Copying the Configuration to a Compact Flash Disk Before Installation”](#) section on page 13.

## Copying the Configuration File Using a PC

Complete the following steps to copy the router’s configuration file to a text file on a PC connected to the router’s console port.

- 
- Step 1** Connect a serial port on the PC to the router’s console port. Start a terminal program on the PC and configure it for the same serial port settings that the console port is using.
  - Step 2** Make sure that you are in privileged EXEC mode (check the system prompt for a pound sign [#]). If the system prompt does not have a pound sign (#), enter **enable**, and then your password.
  - Step 3** Enter the **show running-config** command to display the router’s running configuration. Ensure that the configuration information is complete and correct. If it is not, use the **configure terminal** command to enter global configuration mode so that you can add or modify the existing configuration.
  - Step 4** Enter the **copy running-config startup-config** command to save the new configuration in the router’s NVRAM memory.
  - Step 5** Turn on the terminal program’s capture buffer so that it will save all output to a text file.
  - Step 6** Enter the **show startup-config** command in privileged EXEC mode to display the router’s startup configuration.




---

**Note** Refer to the appropriate software documentation listed in the [“Related Documentation”](#) section on page 19 for descriptions of the configuration options available for the system and individual interfaces, and for specific configuration instructions.

---

**Step 7** When the router has completed displaying the configuration, turn off the terminal program’s capture buffer and save the configuration file to the disk on the PC.

**Step 8** (Optional) Use a text editor on the PC to modify the configuration, as needed.

---

This completes the procedure for copying the configuration file to a PC. You can optionally copy the configuration file to a Compact Flash disk, using the instructions given in the [“Copying the Configuration to a Compact Flash Disk Before Installation”](#) section on page 13.

## Copying the Configuration to a Compact Flash Disk Before Installation

If you are planning to remove the I/O controller when you install the Cisco uBR7200-NPE-G1, you will not be able to copy the configuration file to the Compact Flash disk after you install the Cisco uBR7200-NPE-G1. However, you can still copy the configuration file to a Compact Flash disk using one of the following methods:

- Copy the configuration file to a TFTP server and then copy it to a Compact Flash disk on an existing Cisco uBR7200-NPE-G1.
- Copy the configuration file to a Type 2 Flash disk using the existing I/O controller, as described in the [“Copying the Configuration File to a Flash Disk or PC Card”](#) section on page 9. Then use a multifunction reader that accommodates both Type 1 Compact Flash disk and Type 2 Flash disk memory cards to transfer the configuration file to the Compact Flash disk.
- Use a Type 1-to-Type 2 adapter to convert the Compact Flash disk to the Flash disk form factor. Then insert the Compact Flash disk and adapter into the existing I/O controller and copy the configuration file to it, as described in the [“Copying the Configuration File to a Flash Disk or PC Card”](#) section on page 9.



### Note

The Compact Flash disk must be formatted before you can write any files to it. The Compact Flash disk shipped with the Cisco uBR7200-NPE-G1 is already formatted, but a spare Compact Flash disk must be formatted using the **format** command. Do not format the Compact Flash disk in a PC or other workstation, because a router cannot use Flash disks that are formatted by other computers. After the Compact Flash disk is properly formatted, however, you can write to it using any PC or workstation that recognizes Type 2 Compact Flash disk memory.

---

## Copying the Configuration File to a Compact Flash Disk After Installation

After you have copied the configuration file to a Flash disk, you can optionally copy the file to a Compact Flash disk. This is required only if you will not have a TFTP server available when you install the Cisco uBR7200-NPE-G1, but this step is recommended for all installations because it simplifies the bootup procedure and troubleshooting.

After you have finished installing the Cisco uBR7200-NPE-G1 and if you have kept the I/O controller installed in the router, use the following procedure to copy the configuration file to a Compact Flash disk.

- Step 1** Make sure that you are in privileged EXEC mode (check the system prompt for a pound sign [#]). If the system prompt does not have a pound sign (#), enter **enable**, and then your password.
- Step 2** Insert the Flash disk containing the configuration file into I/O controller PC card slot 0.
- Step 3** Insert the Compact Flash disk into the PC card slot on the Cisco uBR7200-NPE-G1.
- Step 4** If the Compact Flash disk has not been previously formatted, use the **format disk2:** command to format it now.

```
System# format disk2:

Format operation may take a while. Continue: [confirm]
Format operation will destroy all data in `disk2:`. Continue? [confirm]
Format :Drive communication and 1st Sector Write OK...
Writing Monlib sectors
.....
Monlib write complete
Format:All system sectors written. OK...
Format:Total sectors in formatted partition:81760
Format:Total bytes in formatted partition:49861120
Format:Operation completed successfully.

Format of disk2:complete
```



**Note** The Compact Flash disk must be formatted before you write any files to it. The Compact Flash disk shipped with the Cisco uBR7200-NPE-G1 is already formatted, but a spare Compact Flash disk must be formatted using the **format** command. Do not format the Compact Flash disk in a PC or other workstation, because a router cannot use Flash disks that are formatted by other computers. After the Compact Flash disk is properly formatted, however, you can write to it using any PC or workstation that recognizes Type 2 Compact Flash disk memory.

- Step 5** Copy the running configuration file from the Flash disk to the Compact Flash disk by entering the **copy disk0:running-config disk2:running-config** command:

```
Router# copy disk0:running-config disk2:running-config
Destination filename [running-config]?

11323 bytes copied in 0.540 secs (20969 bytes/sec)
Router#
```



**Tip** If you did not keep the I/O controller installed in the router, you can copy the configuration files to a Compact Flash disk using one of the methods described in the [“Copying the Configuration to a Compact Flash Disk Before Installation”](#) section on page 13.

## Copying the Saved Configuration to NVRAM After the Installation

After installing and cabling the Cisco uBR7200-NPE-G1 and powering on the router, copy the configuration file to NVRAM on the Cisco uBR7200-NPE-G1, using one of the following procedures:

- If you have kept the previous I/O controller installed in the Cisco uBR7246VXR router, use the procedure given in the [“Copying the Saved Configuration File from the Flash Disk or PC Card” section on page 15](#) to copy the saved configuration to the NVRAM on the Cisco uBR7200-NPE-G1.
- If you have removed the previously installed I/O controller from the Cisco uBR7246VXR router, and you were able to copy the file to a Compact Flash disk, use the procedure given in the [“Copying the Saved Configuration File from the Compact Flash Disk” section on page 16](#) to copy the saved configuration file to the NVRAM on the Cisco uBR7200-NPE-G1.
- If you have removed the previously installed I/O controller from the Cisco uBR7246VXR router, and you have not been able to copy the file to a Compact Flash disk, use the procedure given in the [“Downloading the Saved Configuration from the TFTP Server” section on page 16](#) to copy the saved configuration file to the NVRAM on the Cisco uBR7200-NPE-G1.

## Copying the Saved Configuration File from the Flash Disk or PC Card

To copy the saved configuration file from the Flash disk or PC card, follow these steps. This procedure assumes that you have also kept the previous I/O controller in the router chassis.

- 
- Step 1** Make sure that you are in privileged EXEC mode (check the system prompt for a pound sign [#]). If the system prompt does not have a pound sign (#), enter **enable**, and then your password.
- Step 2** Insert the Flash disk or PC card containing the saved configuration file into the first PC card slot in the I/O controller.
- Step 3** Enter the **copy disk0:filename running-config** or **copy slot0: filename running-config** command:
- ```
Router# copy disk0:filename running-config
```
- Step 4** Enter the **write memory** command to save the running configuration to the NVRAM:
- ```
Router#: write memory
```
- 

You have finished copying and writing the saved configuration file to NVRAM.

## Copying the Saved Configuration File from the Compact Flash Disk

If you were able to copy the configuration file to the Compact Flash disk before or after the installation, use the following steps to copy the configuration to the NVRAM on the Cisco uBR7200-NPE-G1.

- 
- Step 1** Make sure that you are in privileged EXEC mode (check the system prompt for a pound sign [#]). If the system prompt does not have a pound sign (#), enter **enable**, and then your password.
- Step 2** Insert the Compact Flash disk containing the saved configuration file into the PC card slot in the Cisco uBR7200-NPE-G1.
- Step 3** Enter the **copy disk2:filename** command:
- ```
Router# copy disk2:filename running-config
```
- Step 4** Enter the **write memory** command to save the running configuration to the NVRAM:
- ```
Router#: write memory
```
- 

You have finished copying and writing the saved configuration file to NVRAM.

## Downloading the Saved Configuration from the TFTP Server

After you install the Cisco uBR7200-NPE-G1 in the router and verify a successful router boot, you must retrieve the router configuration from the TFTP server and copy it to NVRAM. Use the **copy tftp running-config** command to copy the saved configuration from the TFTP file server. The system prompts you for a host name and address, the name of the configuration file stored on the host, and confirmation to reboot using the remote file.

After the Cisco uBR7200-NPE-G1 is installed, save the router configuration file to NVRAM (the default is the NVRAM on the Cisco uBR7200-NPE-G1) using the **copy system:running-config nvram:startup-config** command as follows:

```
System# copy system:running-config nvram:startup-config
```

Before retrieving the router configuration file from the TFTP server, check the following:

- A console terminal is connected to the console port on the Cisco uBR7200-NPE-G1 or a Telnet session is established to the router.
- The router is connected to a network supporting a file server (remote host).
- The remote host is running a TFTP server.
- You have the name or address of the remote host.

If you have not already modified the configuration file for the Cisco uBR7200-NPE-G1 interfaces, you will want to do so after retrieving the router configuration and copying it to NVRAM. Before configuring the new interfaces on the Cisco uBR7200-NPE-G1, be prepared with the following information:

- Protocols and encapsulations you plan to use on the new interface
- Protocol-specific information, such as IP addresses, if you will configure the interface for IP routing

For complete descriptions of interface commands and the configuration options available for the interfaces on the universal broadband routers, see the documentation resources listed in the [“Related Documentation”](#) section on page 19.

To retrieve the saved router configuration from the remote host, complete the following steps:

- Step 1** Make sure that you are in privileged EXEC mode (check the system prompt for a pound sign [#]). If the system prompt does not have a pound sign (#), enter **enable**, and then your password.



**Note** Until you retrieve the saved configuration, the router runs from the default configuration in NVRAM. Therefore, any passwords that were previously configured on the system are not valid until you retrieve the configuration.

- Step 2** Use the **ping** command to check the connection between the router and the remote host that contains the configuration file. For example, the following example shows a successful ping with the host at IP address 10.1.1.1:

```
Router# ping 10.1.1.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.135.216.14, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/6/8 ms
Router#
```

- Step 3** At the system prompt, enter the **copy tftp running-config** command.

```
Router# copy tftp running-config
```

- Step 4** The system prompts you to select a host or network configuration file. The default is host; press **Return** to accept the default.

```
Host or network configuration file [host]?
```

- Step 5** The system prompts you for the IP address of the host. Enter the IP address or name of the remote host:

```
IP address of remote host [255.255.255.255]? 10.1.1.1
```

- Step 6** The system prompts you for the name of the configuration file. When the system copies the file to the server, the default is to use the name of the router with the suffix **-config** (router-config in the following example). If you specified a different filename when you copied the configuration, enter that filename; otherwise, press **Return** to accept the default.

```
Name of configuration file [router-config]?
```

- Step 7** Before the system reboots with the new configuration, it displays the instructions you entered for confirmation. If the instructions are not correct, enter **n** (no), and then press **Return** to cancel the process. To accept the instructions, press **Return**, or **y** and then **Return**.

```
Configure using router-config from 10.1.1.1? [confirm]
Booting router-config from 10.1.1.1: !! [OK - 874/16000 bytes]
```

While the router retrieves and boots from the configuration on the remote host, the console display indicates whether or not the operation was successful. A series of exclamation points (!!!) and [OK] (as shown in the preceding example) indicates that the operation was successful. A series of periods (. . .) and [timed out] or [failed] indicates a failure (which would probably be due to a network fault or an incorrect server name, address, or filename). The following is an example of a failed attempt to boot from a remote server:

```
Booting Router-config ..... [timed out]
```

- If the display indicates that the process was successful, proceed to the next step.
  - If the display indicates that the process failed, verify the name or address of the remote server and the filename, and repeat the preceding steps. If you are unable to retrieve the configuration, contact your network administrator.
- Step 8** Enter the **show running-config** command to display the currently running configuration on the terminal. Review the display and ensure that the configuration information is complete and correct. If it is not, verify the filename and repeat Step 1 through Step 7 to retrieve the correct file, or use the **configure** command to add or modify the existing configuration. (Refer to the appropriate software documentation for descriptions of the configuration options available for the system and individual interfaces and specific configuration instructions.)
- Step 9** When you have verified that the currently running configuration is correct, enter the **copy running-config startup-config** command to save the retrieved configuration in NVRAM. Otherwise, the new configuration will be lost when you restart the system.

## New ROMMON Boot Procedures

Cisco IOS Release 12.2 changed the behavior of the ROM monitor (ROMMON) during the bootup sequence. Previously, users could issue the break key during the bootup sequence and break into ROMMON. Users could then continue the boot sequence, or boot a new Cisco IOS image, using the **b** command at the ROMMON prompt.

Because the NPE-G1 processor is using ROMMON software that is based on Cisco IOS Release 12.2, this behavior is no longer supported because interrupting the boot process could leave some hardware registers in an unknown state. Instead, use the following procedure:

- Step 1** At the router's console prompt, use the break key to interrupt the boot process and to enter ROMMON.
- Step 2** Set the configure register to boot into ROMMON by giving the **confreg 0x0** command.
- Step 3** Use the **reset** command to reset the NPE and to boot into ROMMON. This ensures a clean boot into ROMMON, with all registers set to a known state.
- Step 4** Set the configure register to boot an IOS image by giving the **confreg 0x2102** command.
- Step 5** Use the **b** command to boot the desired Cisco IOS image.

The following example starts at the Cisco uBR7246VXR router's privileged EXEC prompt and shows the new ROMMON boot procedure:

```
Router-NPE#
telnet> send brk

*** System received an abort due to Break Key ***
signal= 0x3, code= 0x0, context= 0x6208b290
PC = 0x606b5ab0, SP = 0x80007e00, RA = 0x606d2370
Cause Reg = 0xffffffff, Status Reg = 0x3400ff03

rommon 2 > b flash:newiosimage.bin

Please reset before booting
```

```

rommon 3 > confreg 0x0

You must reset or power cycle for new config to take effect

rommon 4 > reset

System Bootstrap, Version 12.0(9r)SL2, RELEASE SOFTWARE (fc1)
Copyright (c) 2000 by cisco Systems, Inc.
C10000 platform with 524288 Kbytes of main memory

rommon 1 > b flash:newiosimage.bin

Self decompressing the image :
#####
[OK]

Router>

```

## Related Documentation

The following documents provide essential information for the installation and configuration of the Cisco uBR7200-NPE-G1 in the Cisco uBR7246VXR and Cisco uBR7225VXR universal broadband routers:

- *Network Processing Engine and Network Services Engine Installation and Configuration* guide at the following URL:  
[http://www.cisco.com/en/US/products/hw/cable/ps2217/prod\\_installation\\_guides\\_list.html](http://www.cisco.com/en/US/products/hw/cable/ps2217/prod_installation_guides_list.html)
- *Input/Output Controller Replacement Instructions* at the following URL:  
[http://www.cisco.com/en/US/docs/routers/7200/install\\_and\\_upgrade/7200\\_i\\_o\\_controller\\_install/4447io.html](http://www.cisco.com/en/US/docs/routers/7200/install_and_upgrade/7200_i_o_controller_install/4447io.html)
- *Memory Replacement Instructions for the Network Processing Engine or Network Services Engine and Input/Output Controller* at the following URL:  
[http://www.cisco.com/en/US/docs/routers/7200/install\\_and\\_upgrade/npe-nse\\_memory\\_install/memory.html](http://www.cisco.com/en/US/docs/routers/7200/install_and_upgrade/npe-nse_memory_install/memory.html)
- *Cisco uBR7200 Series Universal Broadband Router Hardware Installation Guide* at the following URL:  
[http://www.cisco.com/en/US/products/hw/cable/ps2217/prod\\_installation\\_guides\\_list.html](http://www.cisco.com/en/US/products/hw/cable/ps2217/prod_installation_guides_list.html)
- Cisco IOS software configuration documentation contains Cisco IOS software configuration information and support. See the modular configuration and modular command reference publications in the set that corresponds to the software release installed on your Cisco hardware. Access these documents at the following URL:  
[http://www.cisco.com/en/US/products/ps6566/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/ps6566/tsd_products_support_series_home.html).

## 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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