



Upgrading to the Cisco uBR7246VXR Universal Broadband Router

This document outlines the process for upgrading an existing Cisco uBR7246 universal broadband router to a Cisco uBR7246VXR chassis, along with the NPE-225, NPE-400, UBR7200-NPE-G1, or UBR7200-NPE-G2 processor card. The Cisco uBR7246VXR router extends the proven functionality and performance of the Cisco uBR7246 router by supporting faster processor cards, a higher backplane capacity (1.2 Gbps compared to 600 Mbps in the Cisco uBR7246 router), and increased reliability, in addition to the other proven capabilities of the Cisco uBR7246 router.

To successfully complete this upgrade, you will need to perform these steps in the order shown:

- [Determining the Upgrade Scenario, page 2](#)
- [Preparing the Existing Cisco uBR7246 Router for the Upgrade, page 4](#)
- [Upgrading to the New Cisco uBR7246VXR Chassis, page 6](#)



Caution

The order of steps in this upgrade procedure is crucial because certain steps must be performed first and because it limits the changes that are done at any one time. Do not proceed to a step in the upgrade procedure before you have completed the previous one and have verified that the router is still operational. This will simplify troubleshooting if any problems occur during this process.

For additional information, see the following sections:

- [Related Documentation, page 8](#)
- [Obtaining Documentation and Submitting a Service Request, page 9](#)



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Determining the Upgrade Scenario

When upgrading from an existing Cisco uBR7246 router to a new Cisco uBR7246VXR router, first determine the upgrade scenario you will be using. This will depend on the following points:

- If you are currently using the NPE-150 or NPE-200 processor, you **must** upgrade the processor card because the NPE-150 and NPE-200 processor cards are not supported on the Cisco uBR7246VXR router.
- If you are currently using the NPE-225 processor, you can continue to use it on the Cisco uBR7246VXR router. However, consider upgrading to the NPE-400, UBR7200-NPE-G1, or UBR7200-NPE-G2 processor to take advantage of the full performance capabilities of the Cisco uBR7246VXR router.
- If you are planning to upgrade to the UBR7200-NPE-G1 processor, you will have to perform several preparatory steps before beginning the upgrade. For complete information on these steps, see the [Cisco uBR7200-NPE-G1 Read Me First](http://www.cisco.com/en/US/docs/cable/cmts/ubr7200/ubr7246vxr/upgrade/guide/15066R.html) document, which is available at the following URL: <http://www.cisco.com/en/US/docs/cable/cmts/ubr7200/ubr7246vxr/upgrade/guide/15066R.html>

Depending on the model of processor you will be using, you might have to upgrade the release of Cisco IOS software and your I/O Controller boot image. [Table 1](#) summarizes the possible upgrade scenarios and their requirements:

Table 1 Possible Cisco uBR7246VXR Upgrade Scenarios

Current Platform and Processor	New Platform and Processor ¹	Requirements for Upgrade
Cisco uBR7246 router NPE-150 or NPE-200 processor	Cisco uBR7246VXR router NPE-225 processor	Cisco IOS Release 12.0(7)SC or later 12.0 SC release, Cisco IOS Release 12.1(2)EC1 or later 12.1 EC release Cisco IOS Release 12.2(4)BC1 or later 12.2 BC release I/O Boot Image: 12.0(15)SC or later
Cisco uBR7246 router NPE-225 processor	Cisco uBR7246VXR router NPE-225 processor	Cisco IOS Release 12.0(7)SC or later 12.0 SC release, Cisco IOS Release 12.1(2)EC1 or later 12.1 EC release Cisco IOS Release 12.2(4)BC1 or later 12.2 BC release I/O Boot Image: 12.0(15)SC or later
Cisco uBR7246 router NPE-150, NPE-200, or NPE-225 processor	Cisco uBR7246VXR router NPE-400 processor	Cisco IOS Release 12.1(6)EC1 or later 12.1 EC release Cisco IOS Release 12.2(4)BC1 or later 12.2 BC release I/O Boot Image: 12.0(15)SC or later
Cisco uBR7246 router NPE-150, NPE-200, or NPE-225 processor	Cisco uBR7246VXR router UBR7200-NPE-G1 processor	Cisco IOS Release 12.2(11)CX NPE-G1 Boot image: 12.2(11)CX
Cisco uBR7246 router NPE-150, NPE-200, or NPE-225 processor	Cisco uBR7246VXR router UBR7200-NPE-G2 processor	Cisco IOS Release 12.2(33)SCA NPE-G2 Boot image: Cisco IOS Release 12.2(33)SCA

1. Although the Cisco uBR7246VXR router supports the NPE-300 processor, Cisco does not recommend using the NPE-300 for your upgrade because the NPE-300 entered the End-of-Life (EOL) process August 15, 2001. If you decide to use the NPE-300, you must upgrade to Cisco IOS 12.0(7)SC (or later) or Cisco IOS 12.1(2)EC1 (or later) and upgrade the I/O Controller boot image to 12.0(15)SC (or later) before upgrading to the Cisco uBR7246VXR router.



Note

You cannot use the UBR7200-NPE-G1 processor if you are using any release of Cisco IOS Release 12.1 EC software. The Cisco IOS 12.1 EC images do not support the UBR7200-NPE-G1 processor.

Please consider the following points when planning your upgrade:

- If the I/O Controller is not already using the Release 12.0(15)SC boot image, the boot image should be upgraded to this or a later boot image. This is required for some users and strongly recommended for all users because it ensures compatibility with future upgrades and enhancements.



Note All I/O Controllers shipped since April, 2001 contain this or a later boot image. This upgrade is not required if you are installing the UBR7200-NPE-G1 or UBR-7200-NPE-G2 because this processor contains an onboard I/O controller that contains its own boot image.

- If you are upgrading to an NPE-400 processor, you must upgrade to Cisco IOS Release 12.1(6)EC1 or later.
- If you are upgrading to a UBR7200-NPE-G1 processor, you must upgrade to Cisco IOS Release 12.2(11)CX, or a later Cisco IOS 12.2 BC release. If you are upgrading to a or UBR-7200-NPE-G2 processor, you must upgrade to Cisco IOS Release 12.2(33)SCA, or a later Cisco IOS 12.2 SC release.
- If you are upgrading to a UBR7200-NPE-G1 processor, you must also decide whether you will keep the existing I/O controller installed after the upgrade. Keeping the I/O controller is optional because the UBR7200-NPE-G1 contains its own NVRAM, boot image, Ethernet interfaces, and PC Card slot.
- If you are upgrading to a UBR7200-NPE-G2 processor, you must upgrade to Cisco IOS Release 12.2(33)SCA or a later Cisco IOS 12.2 SC release.
- If you plan to use the NPE-225 processor, you can use either the 12.0(7)SC (or later) or 12.1(2)EC1 (or later). However, Cisco recommends upgrading to the latest version of the 12.1 EC release for the following reasons:
 - Cisco IOS Release 12.0 SC has entered the End-of-Life (EOL) process and is no longer being updated. For more information, see the *End of Engineering for 12.0 SC* product bulletin, available on Cisco.com at the following URL:
http://www.cisco.com/en/US/products/sw/iosswrel/ps1828/prod_bulletin09186a0080091f53.html
 - Cisco IOS Release 12.1 EC supports the NPE-400 processor card, simplifying your future possible upgrade path. (Cisco IOS Release 12.1 EC does not support the UBR7200-NPE-G1 processor, however.)
 - Cisco IOS Release 12.1 EC supports the full range of cable interface line cards that are available for the Cisco uBR7246VXR, including the Cisco uBR-MC16S, the Cisco uBR-MC28C, and Cisco uBR-MC28C-BNC line cards.
 - Cisco IOS Release 12.1 EC supports port adapters that are not supported on the Cisco IOS 12.0 SC release.



Note The latest release of Cisco IOS Release 12.1 EC is recommended. At the time of publication, this is Cisco IOS Release 12.1(19)EC, but a later version might be available at the time of your upgrade.

- The Cisco uBR-MC12 cable interface line card began its End-of-Life process on August 15, 2001. If you are currently using the Cisco uBR-MC12 card, consider upgrading to a higher-density line card, such as the Cisco uBR-MC14C, Cisco uBR-MC16C, Cisco uBR-MC16S, or Cisco uBR-MC28C line card.

- Certain port adapters might need to be upgraded or replaced to be used on the Cisco uBR7246VXR router. See the “[Verifying Port Adapter Compatibility](#)” section on page 6 for more details.

Preparing the Existing Cisco uBR7246 Router for the Upgrade

This section describes the steps that are required on the existing Cisco uBR7246 router to prepare its components for the upgrade. Failing to perform these steps before upgrading the existing router could make it difficult or impossible to bring up the new Cisco uBR7246VXR router using the existing components.

Before moving any components to the new Cisco uBR7246VXR router, first verify that the existing Cisco uBR7246 router is powered on and functional. Then prepare the existing Cisco uBR7246 router for the upgrade by performing the following steps in the order shown:

- [Upgrading the I/O Boot Flash Image on the Existing I/O Controller](#)
- [Upgrading the Cisco IOS Software](#)
- [Verifying the Boot Image and Cisco IOS Release](#)
- [Shutting Down the Existing Cisco uBR7246 Router](#)

Upgrading the I/O Boot Flash Image on the Existing I/O Controller

Before upgrading to a new Cisco uBR7246VXR chassis, you must first upgrade the boot image on the existing Cisco uBR7246 I/O Controller to the most current 12.0 SC image (which at the time of this document’s publication is **ubr7200-boot-mz.120-15.SC.bin**). This must be done before the upgrade because an I/O controller with an older boot image will not recognize the processors used on the new Cisco uBR7246VXR chassis.



Tip

You will need to perform this step only if you purchased your I/O Controller before April, 2001. All I/O Controllers shipped since April, 2001 contain this boot image (or later). This step is not required if you are installing the UBR7200-NPE-G1 or UBR7200-NPE-G2 because this processor contains an onboard I/O controller that contains its own boot image.

For information on this procedure, see the page for this boot image on the [Download Software Area](#) web site (<http://www.cisco.com/cisco/web/download/index.html>). Also see the [Oversized Cisco 7200/uBR 7200 BootImage](#) field notice, available on [Cisco.com](#) at <http://www.cisco.com/en/US/ts/fn/610/fn61128.html>.



Note

To find the most current boot image for the I/O Controller, go to the Download Software Area web site, select **UBR7200**, then select **12.0(15)SC**, and finally select **BOOT IMAGE** as the file to download.

Upgrading the Cisco IOS Software

You must also select the Cisco IOS software that you intend to use on the Cisco uBR7246VXR router after the upgrade. The correct software release depends on the processor you will be using:

- If using an NPE-225 or NPE-400 processor, you must upgrade the Cisco uBR7246VXR router with the most current release of Cisco IOS 12.1 EC or Cisco IOS 12.2 BC, which support the most current set of port adapters and the most complete feature sets that are available.

At the time of publication the most current Cisco IOS 12.1 EC release is Cisco IOS Release 12.1(13)EC, and the most current Cisco IOS 12.2 BC release is Cisco IOS Release 12.2(8)BC2, but a later release might be available at the time of your upgrade. If so, you should use the latest version, unless a Cisco TAC or service engineer instructs you otherwise.

- If using a UBR7200-NPE-G1 processor, you must upgrade the Cisco uBR7246VXR router with Cisco IOS Release 12.2(11)CX.
- If you are upgrading to a UBR7200-NPE-G2 processor, you must upgrade to Cisco IOS Release 12.2(33)SCA.

For detailed instructions on upgrading the Cisco IOS software for the Cisco uBR7200 series routers, see the [Software Installation and Upgrade Procedure](#) page that is at

http://www.cisco.com/en/US/products/hw/routers/ps259/products_tech_note09186a00801fc986.shtml

For general instructions on the procedure, see the *Loading and Maintaining System Images and Microcode* document at

http://www.cisco.com/en/US/products/hw/routers/ps259/products_tech_note09186a00801fc986.shtml



Tip

Cisco recommends upgrading the Cisco IOS image on the existing Cisco uBR7246 router to verify that the new IOS image is functional before the upgrade. The new software image can then be saved on a PC card, along with the saved configuration, which can be transferred to the new Cisco uBR7246VXR router. If you are upgrading to the UBR7200-NPE-G1 or UBR7200-NPE-G2 processor, you must copy this software image to a Compact Flash Disk or to a TFTP server.



Note

To find the most current software release, go to the [Download Software Area](#) web site, select **UBR7200**, and select the latest version of the software that is available. For more general information, see the [Cisco IOS Upgrade Ordering Instructions](#) product bulletin, available on CCO at http://www.cisco.com/en/US/products/sw/iosswrel/ps1839/prod_bulletin09186a0080113c9c.html.

Verifying the Boot Image and Cisco IOS Release

Before proceeding with the upgrade procedure, use the **show version** command to verify that the existing Cisco uBR7246 router is running the correct boot image and Cisco IOS software image. The following example shows sample output:

```
ubr7246-router> show version
Cisco Internetwork Operating System Software
IOS (tm) 7200 Software (UBR7200-IK1ST-M), Version 12.1(7)EC, EARLY DEPLOYMENT RELEASE
SOFTWARE (fc1)
TAC Support: http://www.cisco.com/tac
Copyright (c) 1986-2001 by cisco Systems, Inc.
Compiled Tue 12-Jun-01 14:25 by jenova
Image text-base: 0x60008950, data-base: 0x61366000

ROM: System Bootstrap, Version 11.1(13)CA, EARLY DEPLOYMENT RELEASE SOFTWARE (fc1)
BOOTFLASH: 7200 Software (UBR7200-BOOT-M), Version 12.0(15)SC, RELEASE SOFTWARE (fc2)
...
```

After you have verified that the router is running the correct boot image and Cisco IOS software image, proceed to the next section to shut down the existing Cisco uBR7246 router.

Shutting Down the Existing Cisco uBR7246 Router

Before moving any components between the existing Cisco uBR7246 router and the new Cisco uBR7246VXR router, power down the existing Cisco uBR7246 router by turning the power switch on the AC-input or DC-input power supply to the OFF (0) position. If the router has two power supplies, be sure you turn both off before proceeding.

For safety, then disconnect each power supply from the power outlet. On AC-input power supplies, unplug the AC power cord from the wall outlet and then from the power supply. On DC-input power supplies, turn off the DC power source and then remove the DC-input power leads from the power receptacle next to the power switch.

Upgrading to the New Cisco uBR7246VXR Chassis

After you have prepared and powered down the existing Cisco uBR7246 router, perform the following steps on the new Cisco uBR7246VXR router to complete the upgrade procedure.

- [Verifying Port Adapter Compatibility](#)
- [Moving Upgradable Components to the New Cisco uBR7246VXR Chassis](#)
- [Installing the NPE-225, NPE-400, NPE-G1 or NPE-G2 Processor](#)
- [Powering On the New Cisco uBR7246VXR Router](#)



Caution

Before proceeding with these upgrade procedures, be certain you have read and understand the safety instructions and warnings given in the *Cisco uBR7200 Series Hardware Installation Guide*, available on Cisco.com and the Documentation CD-ROM. In particular, make sure you know how to handle this equipment so as to avoid any electrostatic discharge (ESD) damage.

Verifying Port Adapter Compatibility

The new Cisco uBR7246VXR chassis might require you to upgrade certain port adapters to a revision that supports this chassis. For information on the minimum revision levels required for the VXR chassis, see the *Port Adaptor Compatibility for 7200 VXR Routers* field notice, available on at <http://www.cisco.com/en/US/ts/fn/000/fn3028.html>.

In addition, a few port adapters that are supported on the existing Cisco uBR7246 chassis are not supported on the new Cisco uBR7246VXR chassis. Also, some port adapters are going through the End-of-Life (EOL) process. These port adapters must be replaced by other, recommended replacement port adapters in the new Cisco uBR7246VXR router.



Note

For the Cisco uBR7246VXR chassis, Cisco does not offer one-on-one replacement options for a few of the port adapters that began the EOL process on August 15, 2001. However, for this particular group of port adapters, Cisco does offer replacement port adapters for the Cisco uBR7246VXR chassis that offer similar functionality within the same connectivity group.

For the list of supported port adapters, see the release notes for the Cisco IOS software that you are going to use on the new Cisco uBR7246VXR chassis. At the time of publication, the most current release notes for the 12.1 EC release train were on Cisco.com in the Cisco uBR7200 series directory in the Cisco IOS Release 12.1 release notes section at

http://www.cisco.com/en/US/products/sw/iosswrel/ps1834/prod_release_notes_list.html. Also see the [End-of-Life product bulletin](#) on [Cisco.com](#) for the Cisco uBR7246 router, the NPE-300 processor, the Cisco uBR-MC12C cable interface line card, and some port adapters for information on the possible transition strategies.

Moving Upgradable Components to the New Cisco uBR7246VXR Chassis

The new Cisco uBR7246VXR chassis can use the following components from the Cisco uBR7246 router:

- Up to four cable interface line cards
- Up to two single-width or one dual-width port adapter cards
- One I/O controller card (optional if installing a UBR7200-NPE-G1 or UBR7200-NPE-G2)
- One or two AC-input or DC-input power supplies (the router requires only one power supply for normal operations, but supports a second power supply to provide hot-swappable, load-sharing, redundant power. If using two power supplies, however, they must be the same type—you cannot mix AC-input and DC-input power supplies in the same chassis).

For instructions on cabling, removing, and installing these components, see the [Cisco uBR7200 Series Hardware Installation Guide](#), available on [Cisco.com](#) and the Documentation CD-ROM. If possible, the Cisco uBR7246VXR chassis should be installed in its rack mount before installing and cabling any cards.



Tip

If you are installing the new Cisco uBR7246VXR chassis into the same rack mount space as the existing Cisco uBR7246 chassis, remove the cards from the existing Cisco uBR7246 chassis and remove the existing Cisco uBR7246 router from the rack mount. Then mount the new Cisco uBR7246VXR chassis in the rack, and install and cable the cards in the new chassis.

Installing the NPE-225, NPE-400, NPE-G1 or NPE-G2 Processor

After installing and cabling the other cards and power supplies into the new Cisco uBR7246VXR chassis, install the new processor module (NPE-225, NPE-400, UBR7200-NPE-G1, or UBR7200-NPE-G2). For information on installing the new processor card, see the [Network Processing Engine and Network Services Engine Installation and Configuration](#) document, available on [Cisco.com](#) and the Documentation CD-ROM.

If installing the UBR7200-NPE-G1, also see the [Cisco uBR7200-NPE-G1 Read Me First](#) document, which is available at the following URL:

<http://www.cisco.com/en/US/docs/cable/cmts/ubr7200/ubr7246vvr/upgrade/guide/15066R.html>.



Tip

This step might involve adding additional memory to the processor. If so, see the [Memory Replacement Instructions for the Network Processing Engine or Network Services Engine and Input/Output Controller](#) document, also available on [Cisco.com](#) and the Documentation CD-ROM.

Powering On the New Cisco uBR7246VXR Router

After you have installed and cabled all cards and power supplies, power on the new Cisco uBR7246VXR router by turning the power switch on each power supply to the ON (1) position. See the instructions in the *Powering On the Cisco uBR7200 Series* section in the *Installing the Cisco uBR7200 Series* chapter in the *Cisco uBR7200 Series Hardware Installation Guide*, available on [Cisco.com](http://www.cisco.com) and the Documentation CD-ROM.

Related Documentation

Your router and the Cisco IOS software running on it contain extensive features and functionality, which are documented in the following resources:

- For information about the Cisco uBR7200 series routers, refer to the following publications:
 - *Cisco uBR7200 Series Universal Broadband Router Hardware Installation Guide*, which is at the following URL:
<http://www.cisco.com/en/US/docs/cable/cmts/ubr7200/installation/guide/ub72khig.html>
 - Cisco uBR7200 Series Configuration Notes, which is at the following URL:
<http://www.cisco.com/en/US/docs/cable/cmts/ubr7200/configuration/guide/cr72scg.html>
 - *Cisco Broadband Cable Command Reference Guide*, which is at the following URL:
http://www.cisco.com/en/US/docs/ios/cable/command/reference/cbl_book.html
- For information about the Cisco uBR7200-NPE-G1 or Cisco uBR7200-NPE-G2, refer to the following publications:
 - *Cisco uBR7200-NPE-G1 Read Me First* document, which is available at the following URL:
<http://www.cisco.com/en/US/docs/cable/cmts/ubr7200/ubr7246vxr/upgrade/guide/15066R.html>
 - *Network Processing Engine and Network Services Engine Installation and Configuration* document, which is available at the following URL:
http://www.cisco.com/en/US/docs/routers/7200/install_and_upgrade/network_process_engine_install_config/npense.html
- Cisco IOS software:

For configuration information and support, refer to the modular configuration and modular command reference publications in the Cisco IOS software configuration documentation set that corresponds to the software release installed on your Cisco hardware.



Note You can access Cisco IOS software configuration and hardware installation and maintenance documentation on the World Wide Web at <http://www.cisco.com>. Translated documentation is available at <http://www.cisco.com/web/siteassets/locator/index.html>.

- For instructions on upgrading the memory and boot helper image, which might be necessary for some installations, see the following document on Cisco.com:
 - *Memory Replacement Instructions for the Network Processing Engine or Network Services Engine and Input/Output Controller*, which is at the following URL:
http://www.cisco.com/en/US/docs/routers/7200/install_and_upgrade/npe-nse_memory_install_memory.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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