

Upgrading the Modem Firmware/Portware in Cisco Routers with Internal Digital Modems

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Introduction

This step-by-step guide describes the firmware/portware upgrade process for Cisco routers with digital modems. This document assumes you already have a Trivial File Transfer Protocol (TFTP) server that contains the new modem firmware/portware images you need to load onto your router. Alternatively, you can use the newer File Transfer Protocol (FTP) copy.

Refer to the software installation instructions of your hardware for more information on the upgrade process.

Note: This document does not describe the portware upgrade procedure for analog modems in the NM-8AM and NM-16AM modules. Refer to Analog Modem Firmware Upgrade Configuration Note for more information on how to upgrade the code on the analog modem modules.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

This document is not restricted to specific software and hardware versions.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Conventions

Refer to Cisco Technical Tips Conventions for more information on document conventions.

Modem Firmware/Portware Upgrade Procedure

Complete these steps in order to upgrade the firmware/portware on your modems:

1. Copy the firmware/portware file into flash memory from a TFTP server. **Do not erase the flash.**

You upload the software from a TFTP server in much the same way that you upload new Cisco IOS® software:

```
router#copy tftp flash
```

Refer to the software installation instructions of your hardware for more information.

Cisco IOS Software Release 11.3T introduces a new command that allows you to use FTP instead of TFTP. For example:

```
router#copy ftp://CCOUSERNAME:CCOPASSWORD@ftp.cisco.com/cisco/access/modems/mica/mi
```

Whichever method you use, the **show flash** command lists the files that are currently stored locally. Look for the new firmware/portware image in order to verify its presence. If you do not see the new file, make sure nothing failed during the transfer process.

2. Load the new firmware/portware into the digital signal processors (DSPs) of the modem.

It is possible to have multiple versions of portware loaded in flash memory. The modem uses the firmware version that is bundled with the current Cisco IOS software, unless you explicitly configure it to behave differently.

The remainder of this document describes different firmware/portware upgrade scenarios.

Cisco AS5xxx

Cisco IOS Software Release 12.0(5)T and Earlier

Complete these steps in order to upgrade the firmware/portware on an AS5200/AS5300 with Cisco IOS Software Release 12.0(5)T and earlier:

1. Use the **copy flash modem** command. The router prompts you to enter the modems you want to upgrade. Usually, you upgrade all of them, but this feature is useful if the access server runs more than one type of modem. In this example, modems 12 through 23 on the second modem carrier card are upgraded:

```
Modem Numbers ([-/] | group | all)? 2/12-2/23
```

2. The router prompts you to choose the file to copy to the modems. The version of Cisco IOS software you use determines if you need to tell the system the directory or memory area where the file resides. If you are not sure where the file resides, use the **show flash** command in order to find the file. In this example, the file is in flash memory located in the images directory:

```
Name of file to copy? images/c5300_portware1-1
```

3. The router prompts you to choose the type of service to use in order to upgrade the modems. Remember, Modem ISDN Channel Aggregation (MICA) modems must be upgraded in groups of six, because that is how many modems are built onto each modem card. The reboot service delays the upgrade until the next reboot of the system. The busyout service tells the router to busyout modems on a given modem card until all six of the modems are free. It does not disconnect users that are connected. Use care if there are a large number of users on the system when the busyout service is used on the entire system. For example, if you choose Modem Numbers: **all**, if even one user is on each of the modem cards, all of the modems are marked busy until those few users disconnect. The only way to avoid that situation is to disconnect users with the **clear** command:

```
Type of service [busyout/reboot] busyout
```

Cisco IOS Software Releases later than 12.0(5)T

Complete these steps in order to upgrade the firmware/portware on an AS5xxx with Cisco IOS software releases later than 12.0(5)T:

1. In some releases of Cisco IOS Software Release 12.0(5)T, the **copy flash modem** command is no longer available. All Cisco AS5xxx access servers support the new **spe** command in order to download firmware to the internal modems. For example:

```
router#configure terminal
router(config)#spe 1/0 2/7

!--- This is used to access the SPE configuration mode and specify
!--- a range of modems to download firmware into.

router(config-spe)#firmware location flash:mica-modem-pw.2.7.3.0.bin
```

Syntax Description	
firmware location {system flash}: filename	
system	The router loads the firmware from a built-in file within the Cisco IOS image.
flash	The router loads the firmware from the flash non-volatile random access memory (NVRAM) located within the router.
<i>filename</i>	This is the name of the desired firmware file, for example, mica-modem-pw.2.7.3.0.bin. If system is specified, enter the path to the filename you want to download.

As soon as you specify a firmware, the download begins. It is not recommended to specify an upgrade of all of the modems on a busy access server. The modems that are not busy are all marked busy, and the server waits until all of the modems on each of the given cards are free before it upgrades the multiple-port cards. The only way to avoid this situation is to disconnect users with the **clear** command.

Normally, groups of modems are specified with the **spe slot/spe_begin slot/spe_end** statements, and upgrades are performed consecutively instead of all at once.

2. Use the **show modem version** and **show spe version** commands in order to verify that the modems run the portware version that you specified.
3. Refer to Using the Cisco IOS File System for more information about the Cisco IOS file system. Refer to the Modem Management Operations section of Operations for more information on modem operations.

Cisco 3600

Cisco IOS Software Releases 12.0(5) and Earlier

Complete these steps in order to upgrade the firmware/portware for Cisco IOS Software Release 12.0(5) and earlier on the Cisco 3600:

1. Enter the **reload** command.
2. Copy the modem firmware that comes bundled with the Cisco IOS software with these commands:

```
router#show modem bundled-firmware
```

```
!--- shows the bundled firmware version
```

```
router#copy ios-bundled modem
```

Cisco IOS Software Releases Later than 12.0(5)

For the Cisco 3600 Series routers, you must reload the router in order to load the modem portware.

Complete these steps in order to upgrade the modem code:

1. Load the desired portware into flash. See the Modem Firmware/Portware Upgrade Procedure section of this document for instructions.
2. Reload the router. When the router reloads, it loads the latest version of available portware. Therefore, if multiple versions of portware are stored in flash, the router loads only the latest version. This includes the portware bundled with the Cisco IOS software.

Note: If the version bundled with Cisco IOS is later than the version in flash, the router loads the portware bundled with Cisco IOS instead of the portware saved in flash.

Related Information

- [Downloading Modem Code](#)
- [Updating Modem Firmware](#)
- [Technical Support & Documentation – Cisco Systems](#)

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