

# Copying Bundled Portware from the Cisco IOS Image to Onboard Modems

---

The following sections are provided:

- Feature Summary, page 1
- Platforms, page 2
- Configuration Tasks, page 2
- Configuration Example, page 2
- Command Reference, page 6
- What to Do Next, page 9

## Feature Summary

Upgrading modem firmware to capture new software features and bug fixes is becoming a common practice among access server administrators. However, managing and monitoring multiple versions of modem firmware is a challenging task. Cisco Systems addresses this challenge by providing the **show modem mapping** EXEC command. This command displays a snapshot of all the firmware versions running on all the modems in the access server. It also shows the source location of each version of firmware (for example, running out of Flash memory, boot Flash memory, or bundled with Cisco IOS software).

**Caution** Cisco ships the access server with the latest version of modem code portware installed in the system Flash memory and mapped to the modems. It is usually important to keep the factory configuration and not use the **copy system:/ucode/filename modem** (or, for Cisco IOS releases earlier than 11.3AA or 12.0, the **copy ios-bundled modem**) command, unless you absolutely need to revert to the previous modem code version bundled with the system software. If you choose to use the modem code bundled with your installed Cisco IOS software, you would probably be reverting to a previous version of modem code. Also note that once you map the bundled modem code to your modems, each time you upgrade the Cisco IOS software, the new bundled modem code is automatically mapped to your modems. For more information see “Upgrading Modem Code,” in the following document:

[http://www.cisco.com/univercd/cc/td/doc/product/access/acs\\_serv/5300/53modgd/53mmicv2.htm](http://www.cisco.com/univercd/cc/td/doc/product/access/acs_serv/5300/53modgd/53mmicv2.htm)

# Platforms

These access servers support this feature:

- Cisco AS5300
- Cisco AS5200

## Configuration Tasks

Modem firmware is bundled with Cisco IOS images that run on high end access servers, such as the Cisco AS5300 and Cisco AS5200. However, it is possible that your Cisco IOS software is bundled with a more current version of modem firmware than what is running on your access server's modems. For example, this may happen if you upgrade your Cisco IOS software but maintain the mapping of an older modem firmware file stored in system Flash or boot Flash memory.

To display the current modem-to-firmware mapping on a high end access server and download new bundled modem firmware from a Cisco IOS software image, perform the tasks in the following table beginning in EXEC mode:

Step	Command	Purpose
1	<b>show modem mapping</b>	Display a snapshot of all the firmware versions running on all modems in the access server.
2	<ul style="list-style-type: none"> <li>• <b>copy system:/ucode/mica_port_firmware</b></li> <li>Or</li> <li>• <b>copy system:/ucode/microcom_firmware</b></li> </ul>	Download the bundled modem firmware, which is embedded in the Cisco IOS software image, to the onboard modems.
3	<b>show modem mapping</b>	Verify that the onboard modems are now running the latest version of firmware, which was downloaded from the Cisco IOS software image.

## Configuration Example

This example shows how to download new modem firmware, which is embedded in a Cisco IOS image, to a series of onboard MICA modems on a Cisco AS5300.

**Step 1** Display the modem-to-firmware mapping information on the access server. In this example, a total of 96 MICA modems are installed in slot 1 and slot 2. Each modem is running firmware version 2.0.1.7. The firmware source file is located in Flash memory. However, the **show modem mapping** command shows that firmware version 2.2.3.0 is bundled in the Cisco IOS software image. In Step 2, we will upgrade the firmware running on the modems to version 2.2.3.0.

```
as5300# show modem mapping

Slot 1 has Mica Carrier card.
```

```

      Modem      Firmware      Firmware
Module  Numbers  Rev      Filename
  0  1/0 - 1/5   2.0.1.7  flash:mica-modem-portware-2.0.1.7.bin
  1  1/6 - 1/11 2.0.1.7  flash:mica-modem-portware-2.0.1.7.bin
  2  1/12 - 1/17 2.0.1.7  flash:mica-modem-portware-2.0.1.7.bin
  3  1/18 - 1/23 2.0.1.7  flash:mica-modem-portware-2.0.1.7.bin
  4  1/24 - 1/29 2.0.1.7  flash:mica-modem-portware-2.0.1.7.bin
  5  1/30 - 1/35 2.0.1.7  flash:mica-modem-portware-2.0.1.7.bin
```

```

6 1/36 - 1/41 2.0.1.7 flash:mica-modem-portware-2.0.1.7.bin
7 1/42 - 1/47 2.0.1.7 flash:mica-modem-portware-2.0.1.7.bin

```

Slot 2 has Mica Carrier card.

Module	Modem Numbers	Firmware Rev	Firmware Filename
0	2/48 - 2/53	2.0.1.7	flash:mica-modem-portware-2.0.1.7.bin
2	2/54 - 2/59	2.0.1.7	flash:mica-modem-portware-2.0.1.7.bin
3	2/60 - 2/65	2.0.1.7	flash:mica-modem-portware-2.0.1.7.bin
4	2/66 - 2/71	2.0.1.7	flash:mica-modem-portware-2.0.1.7.bin
5	2/72 - 2/77	2.0.1.7	flash:mica-modem-portware-2.0.1.7.bin
6	2/78 - 2/83	2.0.1.7	flash:mica-modem-portware-2.0.1.7.bin
7	2/84 - 2/89	2.0.1.7	flash:mica-modem-portware-2.0.1.7.bin
8	2/90 - 2/95	2.0.1.7	flash:mica-modem-portware-2.0.1.7.bin

IOS Bundled Firmware Information:

```

Mica Boardware Version: 1.3.4.5
Mica Portware Version: 2.2.3.0
Microcom Firmware Version : 3.1.30
Microcom DSP Software Version : 1.01

```

Firmware files on Boot Flash:  
There are no Modem Firmware files on bootflash.

Firmware files on System Flash:

Firmware-file	Version	Firmware-Type
flash:mica-modem-portware-2.0.1.7.bin	2.0.1.7	Mica Portware

**Step 2** Download modem firmware version 2.2.3.0 to all the onboard MICA modems using the **copy system:ucode/filename modem** (or, for Cisco IOS releases earlier than 11.3AA or 12.0, **copy ios-bundled modem**) command. (To view a list of microcode filenames, use the command **dir system:ucode**.) After this download is completed, the firmware running on all modems will be mapped to the Cisco IOS software image. If you upgrade to a newer version of Cisco IOS software in the future, the modem mapping intelligence will be recalled by the system. The modems will be automatically updated with the latest firmware at the next system reload.

```

as5300# copy ios-bundled modem
Modem Numbers (<slot>/<port> | group <number> | all)? all
Type of service [busyout/reboot] busyout
Copy bundled firmware from IOS image to modems? [yes/no] yes
as5300#
%MODEM-5-DL_START: Modem (1/0) started firmware download
%MODEM-5-DL_START: Modem (1/1) started firmware download
%MODEM-5-DL_START: Modem (1/2) started firmware download
%MODEM-5-DL_START: Modem (1/3) started firmware download
%MODEM-5-DL_START: Modem (1/4) started firmware download
%MODEM-5-DL_START: Modem (1/5) started firmware download
as5300#
%MODEM-5-DL_GOOD: Modem (1/0) completed firmware download:
%MODEM-5-DL_GOOD: Modem (1/1) completed firmware download:
%MODEM-5-DL_GOOD: Modem (1/2) completed firmware download:
%MODEM-5-DL_GOOD: Modem (1/3) completed firmware download:
%MODEM-5-DL_GOOD: Modem (1/4) completed firmware download:
%MODEM-5-DL_GOOD: Modem (1/5) completed firmware download:
%MODEM-5-DL_START: Modem (1/6) started firmware download

```

```
%MODEM-5-DL_START: Modem (1/7) started firmware download
%MODEM-5-DL_START: Modem (1/8) started firmware download
%MODEM-5-DL_START: Modem (1/9) started firmware download
%MODEM-5-DL_START: Modem (1/10) started firmware download
%MODEM-5-DL_START: Modem (1/11) started firmware download
...
```

**Step 3** Verify that the new modem firmware was successfully downloaded to the modems and mapped to the Cisco IOS image with the **show modem mapping** command. This example shows that version 2.2.3.0 was successfully loaded. Notice that the modem mapping, which is displayed in the “Firmware Filename” column, now displays “IOS-Default.” The means that the modem firmware is now mapped to the bundled firmware in the Cisco IOS software image.

```
as5300# show modem mapping
```

```
Slot 1 has Mica Carrier card.
```

Module	Modem Numbers	Firmware Rev	Firmware Filename
0	1/0 - 1/5	2.2.3.0	IOS-Default
1	1/6 - 1/11	2.2.3.0	IOS-Default
2	1/12 - 1/17	2.2.3.0	IOS-Default
3	1/18 - 1/23	2.2.3.0	IOS-Default
4	1/24 - 1/29	2.2.3.0	IOS-Default
5	1/30 - 1/35	2.2.3.0	IOS-Default
6	1/36 - 1/41	2.2.3.0	IOS-Default
7	1/42 - 1/47	2.2.3.0	IOS-Default

```
Slot 2 has Mica Carrier card.
```

Module	Modem Numbers	Firmware Rev	Firmware Filename
0	2/48 - 2/53	2.2.3.0	IOS-Default
1	2/54 - 2/59	2.2.3.0	IOS-Default
2	2/60 - 2/65	2.2.3.0	IOS-Default
3	2/66 - 2/71	2.2.3.0	IOS-Default
4	2/72 - 2/77	2.2.3.0	IOS-Default
5	2/78 - 2/83	2.2.3.0	IOS-Default
6	2/84 - 2/89	2.2.3.0	IOS-Default
7	2/90 - 2/95	2.2.3.0	IOS-Default

```
IOS Bundled Firmware Information:
```

```
Mica Boardware Version : 1.3.4.5
Mica Portware Version : 2.2.3.0
Microcom Firmware Version : 3.1.30
Microcom DSP Software Version : 1.01
```

```
Firmware files on Boot Flash:
There are no Modem Firmware files on bootflash.
```

```
Firmware files on System Flash:
```

Firmware-file	Version	Firmware-Type
flash:mica-modem-portware-2.0.1.7.bin	2.0.1.7	Mica Portware

---

**Note** If you are using a Cisco AS5300, the firmware file `flash:mica-modem-portware-2.0.1.7.bin` still exists in Flash memory. The only way to remove this file is to erase the entire contents of Flash memory. If you do this, be sure to first backup your Cisco IOS image on a local TFTP server and save your configuration file. If you are using a Cisco AS5200, the file is stored in boot Flash.

---

# Command Reference

This section provides a command reference page for the **show modem mapping** command. All other commands used with this feature are documented in the Cisco IOS Release 11.3 command references.

## show modem mapping

To display a snapshot of all the firmware versions running on all the modems in the access server, use the **show modem mapping EXEC** command. This command also shows the source location of each version of firmware (for example, running out of Flash, boot Flash, or bundled with Cisco IOS software).

### Usage Guidelines

This command first appeared in Cisco IOS Release 11.3 T.

This command is useful for managing and monitoring multiple versions of modem firmware running in an access server.

Modem firmware can reside in the access server’s Flash, boot Flash, or bundled with the Cisco IOS software. To copy modem firmware that is bundled with Cisco IOS software to a modem or range of modems, issue the **copy system:/ucode/filename modem** (or, for Cisco IOS releases earlier than 11.3AA or 12.0, **copy ios-bundled modem**) command. To view a list of microcode filenames, issue the **dir system:/ucode** command.

Firmware can also be copied from a local TFTP server to the onboard modems. For the Cisco AS5300, issue the **copy tftp flash** command followed by the **copy flash modem** command. The Cisco AS5300 stores individual firmware files that are not bundled with the Cisco IOS software in Flash memory. For the Cisco AS5200, issue the **copy tftp bootflash** command followed by the **copy bootflash modem** command. The Cisco AS5200 stores individual firmware files not bundled with the Cisco IOS software in boot Flash memory.

All the modems in a single MICA modem module run the same version of firmware (for example, modems 1/0 through 1/5 in module 0). However, different versions of modem firmware can exist between different modem modules (for example, module 0 and module 1).

Individual firmware files cannot be erased from Flash or boot Flash memory. The entire contents of Flash or boot Flash memory must be deleted during the erase operation. If you do this, be sure to backup your Cisco IOS software and running configuration *before* you erase your system’s Flash or boot Flash memory.

### Example

The following is sample display output for the **show modem mapping EXEC** command. This access server is loaded with MICA and Microcom modems. Table 1 describes each field in the display.

```
router# show modem mapping

Slot 1 has Mica Carrier card.

      Modem      Firmware  Firmware
Module Numbers  Rev       Filename
  0  1/0 - 1/5   2.0.1.7   IOS-Default
  1  1/6 - 1/11 2.0.1.7   IOS-Default
  2  1/12 - 1/17 2.0.1.7   IOS-Default
```

```

3  1/18 - 1/23  2.0.1.7  IOS-Default
4  1/24 - 1/29  2.0.1.7  IOS-Default
5  1/30 - 1/35  2.0.1.7  IOS-Default
6  1/36 - 1/41  2.0.1.7  IOS-Default
7  1/42 - 1/47  2.2.3.0  flash:mica-modem-portware.2.2.3.0.bin

```

Slot 2 has Microcom Carrier card.

Mdm	Module Number	Firmware Rev	Firmware Filename
2/0	0	3.2(10)	flash:mcom-modem-code-3.2.10.bin
2/1	0	3.1(30)	IOS-Default
2/2	0	3.1(30)	IOS-Default
2/3	0	3.1(30)	IOS-Default
2/4	0	3.1(30)	IOS-Default
2/5	0	3.1(30)	IOS-Default
2/6	0	3.1(30)	IOS-Default
2/7	0	3.1(30)	IOS-Default
2/8	0	3.1(30)	IOS-Default
2/9	0	3.1(30)	IOS-Default
2/10	0	3.1(30)	IOS-Default
2/11	0	3.1(30)	IOS-Default
2/12	1	3.1(30)	IOS-Default
2/13	1	3.1(30)	IOS-Default
2/14	1	3.1(30)	IOS-Default
2/15	1	3.1(30)	IOS-Default
2/16	1	3.1(30)	IOS-Default
2/17	1	3.1(30)	IOS-Default
2/18	1	3.1(30)	IOS-Default
2/19	1	3.1(30)	IOS-Default
2/20	1	3.1(30)	IOS-Default
2/21	1	3.1(30)	IOS-Default
2/22	1	3.1(30)	IOS-Default
2/23	1	3.1(30)	IOS-Default

IOS Bundled Firmware Information:

```

Mica Boardware Version : 1.3.4.5
Mica Portware Version : 2.0.1.7
Microcom Firmware Version : 3.1.30
Microcom DSP Software Version : 1.01

```

Firmware files on Boot Flash:

Firmware-file	Version	Firmware-Type
=====	=====	=====

Firmware files on System Flash:

Firmware-file	Version	Firmware-Type
=====	=====	=====
flash:mcom-modem-code-3.2.10.bin	3.2.10	Microcom F/W and DSP
flash:mica-modem-portware.2.2.3.0.bin	2.2.3.0	Mica Portware

Table 1 describes the fields in the previous example.

**Table 1 Show Modem Mapping Field Descriptions**

Field	Description
Slot x has card	Type of modem card inserted in the specified slot.

Field	Description
Module	Modem module number that corresponds with the specified modem or group of modems.
Modem numbers	Range of specified modems, which are displayed as slot/port.
Mdm	Specified modem number, which is displayed as slot/port.
Firmware Rev	Version of firmware running on the modem or module. Each time the access server reloads, this version of firmware is copied to the specified modem or range of modems. The field display “ <i>Unknown</i> ” is displayed when a modem is presently upgrading its firmware.
Firmware Filename	Location or filename of the firmware that is downloaded to the modems.  A firmware file located in Flash memory begins as flash:filename. A file located in boot Flash memory begins as bootflash:filename. If the firmware is embedded or bundled in the Cisco IOS image, the field IOS-Default appears.  On the Cisco AS5300, firmware files are stored in the system Flash memory. On the Cisco AS5200, firmware files are stored in boot Flash memory.
IOS Bundled Firmware Information:	List of firmware versions that are bundled with the Cisco IOS software running on the system.  If the firmware versions in this section are more current than the firmware running on your modems, you should upgrade the running modem firmware with the bundled firmware by using the <b>copy system:/ucode/filename modem</b> (or, for Cisco IOS releases earlier than 11.3AA or 12.0, <b>copy ios-bundled modem</b> ) command.
Firmware files on Boot Flash:	List of current firmware located on boot Flash memory. The categories are Firmware-file, Version, and Firmware-Type.
Firmware files on System Flash:	List of current firmware located on the system Flash memory. The categories are Firmware-file, Version, and Firmware-Type.

Related Commands

- copy tftp flash**
- copy flash modem**
- copy tftp bootflash**
- copy bootflash modem**
- copy system:/ucode/filename modem**

## What to Do Next

For additional software configuration information, see the following publications:

- *Dial Solutions Configuration Guide* (Cisco IOS Release 12.0)
- *Cisco AS5300 Universal Access Server Software Configuration Guide*
- *Cisco AS5200 Universal Access Server Software Configuration Guide*

