Ugrading Cisco IOS Software on a uBR900 Series Cable Modem

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Questions

Introduction

This document addresses common questions and issues that new owners of uBR900 series cable modems may encounter in configuring the modem and upgrading Cisco IOS® Software. For information about other aspects of configuring and using uBR900 series cable modems, refer to the following documents:

- Beginners FAQ for uBR900 Series Cable Modem End Users
- Configuring the uBR900 Series Cable Modem
- Connectivity Problems for uBR900 Cable Modems
- uBR900 Cable Modem Performance Issues
- uBR900 Cable Modem Error Messages
- Miscellaneous Questions About uBR900 Series Cable Modems

Q. When should I consider upgrading the Cisco IOS Software that is running on my uBR900 cable modem?

A. If your uBR900 cable modem is working satisfactorily and you are not lacking any required functionality, then there is no reason to upgrade the Cisco IOS Software on your router.

You should only upgrade the Cisco IOS Software on your uBR900 cable modem if:

- There is a known bug that is present in your current version of firmware that is negatively impacting your Internet connectivity through the uBR900 cable modem.
- You require access to a new feature not supported in your current version.
- You have been advised to upgrade by the Cisco Technical Assistance Center (TAC) or your cable service provider.

Q. How do I obtain a copy of a new Cisco IOS Software image?

A. Cisco IOS Software for the uBR900 cable modem can be downloaded from the Cisco Software Center (registered customers only) . If the Cisco TAC or your cable service provider asks you to upgrade, they will typically provide the image for you.

Note: The Cisco Technical Assistance Center (TAC) will only provide new Cisco IOS Software images in order to fix bugs that are affecting your uBR900 cable modem. The TAC will not generally provide Cisco IOS Software images in order to provide extra features and functionality. For example, if your current version of Cisco IOS Software does not support IPSec functionality, the TAC is not authorized to give you a Cisco IOS Software image that does support IPSec. You must purchase this image with extra functionality from Cisco, or from another authorized party.

Q. How do I upgrade the Cisco IOS Software that is running on my uBR900 cable modem?

A. If your service provider is recommending that the version of Cisco IOS Software on your uBR900 cable modem should be upgraded, then the cable service provider can generally do this themselves, assuming that the cable modem is online.

If you find that you need to upgrade your uBR900 cable modem yourself through the the local Ethernet segment, you will first need to manually assign an IP address to the cable modem's Ethernet port and manually assign an IP address to one of your local PCs. In addition, you need to download and install a TFTP server application. There are many TFTP servers available, and they can be easily found by searching for "tftp server" on your favorite Internet search engine. Cisco does not specifically recommend any particular TFTP implementation.

Note: UNIX−based operating systems typically have a built−in TFTP Daemon such as tftpd or in.tftpd. Consult your operating system documentation for more details.

Once you have downloaded the Cisco IOS Software image to your PC through FTP, use the following procedure to load it onto the uBR900 cable modem:

1. Connect your PC to the cable modem with an Ethernet cross−over cable.
2. Assign appropriate IP addresses on the two Ethernet interfaces in the same subnet.

   Note: The procedure for manually assigning an IP address to your local PC or workstation varies depending on what platform and operating system you use. If you are using a Microsoft Windows−based system, then the IP address of your PC can normally be set using the control panel application.

   Note: For this example, assume that the PC's IP address will be manually changed to 192.168.1.10 with a network mask of 255.255.255.0. No other IP−related parameters need to be set on the PC at this stage.
3. Make sure that you record the initial IP address settings on your PC so that you can put them back after the Cisco IOS Software upgrade procedure is complete. When you change the IP address on your PC or workstation, you may have to reboot it in order for the changes to take affect.

   Once you have manually configured your PC's IP address, launch the TFTP server application. Your TFTP server should be ready to run.

   Note: If you are running the Cisco TFTP server application, you need to change some settings in order to avoid a potential problem with the server which may surface when using some versions of Windows. To make the necessary changes, complete these steps:

   a. In the TFTP server application, select **View > Options**.

b. In the **Options** dialog, deselect **Show file transfer progress** and **Enable logging**.
c. Click **OK**.

Note: At this stage, the TFTP server should be ready to run.

4. Locate the Cisco IOS Software image that you intend to place on the uBR900 cable modem, and copy it to the appropriate directory on your computer. Typically, users name such a directory *TFTPboot*, but you can name it whatever you want. By default, the Cisco TFTP server uses the following location for the TFTP root directory:

```
C:\Program Files\Cisco Systems\Cisco TFTP Server
```

This means that you must copy the new Cisco IOS Software image to this directory. If you would like to change the TFTP root directory using the Cisco TFTP server, specify it by selecting **View** > **Options** and indicate the desired TFTP root in the Options dialog.

Now that the TFTP server is running and the new Cisco IOS Software image is in the TFTP root directory, make sure that the TFTP server application is pointing to that directory and its path. In this case the directory name is `TFTPboot`. Usually this parameter is set in the **Options** dialog of the TFTP server application, and it looks like `D:\TFTPboot`.

5. Manually assign an IP address to the Ethernet port of the cable modem. Accomplish this by performing the following steps:

a. Shut down the cable interface of the modem.
b. Disable bridging and enable routing, as shown below. In the example below, the Ethernet port is being assigned an IP address of 192.168.1.1 with a network mask of 255.255.255.0.

Note: If you have already enabled routing on your uBR900 cable modem, then you will not need to perform these steps.

```
Router>enable
Router#write memory

!--- This saves the cable modem's current configuration.

Router#config t
Router(config)#no bridge 59
Router(config)#interface cable-modem 0
Router(config-if)#no cable-modem compliant bridge
Router(config-if)#shutdown
Router(config-if)#exit
Router(config)#ip routing
Router(config)#interface ethernet 0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#end
Router#
```

6. At this point, make sure that the router and the PC are able to communicate with each other over the Ethernet segment. You can verify connectivity between the two devices by issuing the **ping** command. For example, if your PC's IP address was set to 192.168.1.10 then you could execute the following router command:

```
Router#ping 192.168.1.10
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.10, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 1/35/100 ms
```

```
Router#
```

An exclamation point means that a ping was successful. If you get more than three out of five successful pings then this is good enough. If you get less than three out of five successful pings, then check the physical cabling between your uBR900 cable modem and PC. Also check to make sure that the PC and cable modem have IP addresses that are not the same as each other, and that the IP addresses have the same network number and subnet mask.

7. Copy the Cisco IOS Software image to the router, as shown in the example below. The address or name of the remote host should be set to the TFTP server PC's IP address, and the source filename should be set to the exact Cisco IOS Software image name as in your TFTP root directory. In this example the upgrade image name is ubr920−k8o3v6y5−mz.122−3.

```
Router#
Router#copy tftp flash
Address or name of remote host []? 192.168.1.10
Source filename []? ubr920−k8o3v6y5−mz.122−3
Destination filename [ubr920−k8o3v6y5−mz.122−3]?
<hit enter here>
Accessing tftp://192.168.1.10/ubr920−k8o3v6y5−mz.122−3...
Erase flash: before copying? [confirm]
<hit enter here>
Erasing the flash filesystem will remove all files! Continue? [confirm]
<hit enter here>
Erasing device... eeeeeeeeeeeeeeeeeeeeeeeeeeeeee ...erased
Erase of flash: complete
Loading ubr920−k8o3v6y5−mz.122−3 from 192.168.1.10 (via cable−modem0):
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
. . . . .
. . . . .
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK − 4147112/8093696 bytes]
Verifying checksum... OK (0xE6BB)
4147112 bytes copied in 123.135 secs (32903 bytes/sec)
Router#
```

Look for a message like the following:

```
%Error opening tftp://192.168.1.10/ubr920−k8o3v6y5−mz.122−3
(No such file or directory)
```

If you see such a message at any stage, double−check to make sure that you have the image name correct and that the Cisco IOS Software image is in the correct directory on your workstation. In addition, you can try adding **.bin** to the end of the filename when you type it in on the uBR900 cable modem.

Also, look for the following message:

```
%Error opening tftp://192.168.1.10/ubr920−k8o3v6y5−mz.122−3 (Timed out)
```

If you see this or a similar message at any stage, then make sure that the TFTP server is up and running and that you can ping the IP address of the TFTP server machine from the uBR900 cable modem.

8. Reload the uBR900 cable modem.

If the TFTP transfer was successful, you have the new Cisco IOS Software image on your uBR900 cable modem and you need to reload the device in order to run the new

software. You can do this by either power cycling the router or by issuing the **reload** command. If you issue the **reload** command, do not tell the router to save the configuration. Remember that you have made some temporary configuration changes that you probably do not wish to keep, and you have already saved the original configuration.

```
Router#reload
System configuration has been modified. Save? [yes/no]: no
Proceed with reload? [confirm]
<hit enter>
```

Your router should now reload with the new version of Cisco IOS Software. When the router has successfully rebooted, issue the **show version** command to confirm that the router has successfully loaded the new Cisco IOS Software image.

At this stage you should set your PC's IP address properties back to what they were originally. You may need to reboot your PC in order for the changes to take affect.

Related Information

- **Broadband and Cable Solutions**
- **Cisco uBR900 Series Software Release Notes and Features**
- **Cable Solutions**
- **Technical Support & Documentation − Cisco Systems**

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