

# Common Problems in Installing Images Using TFTP or an RCP Server

Document ID: 15098

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## Questions

**Introduction**

**Default Gateway**

**IP Addresses**

**Troubleshooting Problems During Software Transfer**

**Before Reloading**

**Troubleshooting Problems when Verifying the Software Image**

**Related Information**

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## Introduction

This document is designed to assist you with problems that may develop while you are installing Cisco IOS® software images using a TFTP or Remote Copy Protocol (RCP) server application. For RCP applications, substitute RCP for TFTP in the instructions.



**Warning:** Do not save anything while you are in boot mode. Avoid issuing save commands (such as

**write mem** or **copy run start**) and answer NO to any prompt suggesting that you save your current configuration. If you save while you are in this mode, your configuration can be partially or completely erased. The following is an example of this:

```
router(boot)#reload
*Mar  1 00:30:49.972: %SYS-5-CONFIG_I: Configured from console by console

System configuration has been modified. Save? [yes/no]: NO
Proceed with reload? [confirm]

*Mar  1 00:30:58.932: %SYS-5-RELOAD: Reload requested
```

## Default Gateway

### Q. How do I add the default gateway in the configuration?

A. Once you determine the IP address of the default gateway, from configuration mode, issue the **ip default-gateway [ip address]** command.

### Q. How do I know if the TFTP server and the router are in the same network?

A. Compare the IP addresses and masks of the TFTP server and the Ethernet interface of the router. Here is one example:

The TFTP server IP address is 172.17.247.195, and the mask is 255.255.0.0. The interface ethernet 0 of the router IP address is 172.17.3.192, and the mask is 255.255.0.0. In this example, the TFTP server and this interface of the router are in the same network, so a default gateway is not required.

Here is another example:

The TFTP server IP address is 172.17.247.195 and the mask is 255.255.0.0. The interface ethernet 0 of the router IP address is 172.10.3.192 and the mask is 255.255.0.0. In this example, the TFTP server and this interface of the router are on different IP networks, so it is necessary to configure a default gateway on the router.

## Q. How do I determine the default gateway for the router?

A. The default gateway is always the next hop that any packet has to cross to reach the workstation where you have the TFTP server or Telnet session source, or both. The **tracert** command shows the IP address of the default gateway in the first line of the output, as shown in the following example:

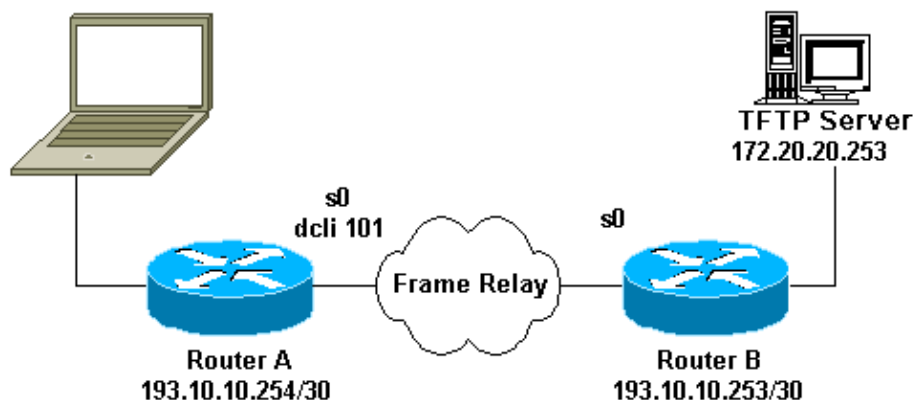
```
Router>tracert 172.17.247.195

Type escape sequence to abort.
Tracing the route to 172.17.247.195

 0 10.200.40.1 4 msec 4 msec 4 msec
 1 172.17.247.195 4 msec * 0 msec
Router>
```

## Q. What needs to be configured if a Frame Relay link needs to be crossed to reach the TFTP server?

A. Consider the remote end of the Frame Relay link as the default gateway, and issue the **frame-relay map ip** command in the configuration with the IP address of that remote end and the Data-Link Connection Identifier (DLCI) number needed to reach it. The following is a diagram of this sample network:



The Router A configuration is as follows:

*!--- Output suppressed.*

```

!
interface serial 0
encapsulation frame-relay
ip address 193.10.10.254 255.255.255.252
frame-relay interface-dlci 101
frame-relay map ip 193.10.10.253 101 broadcast
!
.....
!
ip default-gateway 193.10.10.253

```

## IP Addresses

### Q. How do I determine the IP address and mask on the router?

A. Look for the **ip address** command under the **interface ethernet** command in your configuration, as shown below.

```

Router>enable
Password:
Router#show run
Building configuration...

Current configuration:
!
version 11.3
service timestamps debug uptime

.....

interface Ethernet0
 ip address 172.17.3.192 255.255.0.0

```

### Q. How do I determine the IP address of the TFTP server on Windows 95?

A. From the tool bar, choose **Start > Run**. Enter **winipcfg** in the text field, and then click **OK**. The IP configuration dialog box is displayed.

### Q. How do I determine the IP address of the TFTP server on a UNIX workstation?

A. Issue the **netstat -in** command. The IP addresses of the interfaces on your station are displayed. Select the one that goes into the router network.

## Troubleshooting Problems During Software Transfer

### Q. Why do I get the message "Text checksum verification failure" during the copy?

A. The following are possible reasons for receiving this message:

- ◆ If you have seen many `.` instead of `!` during the copy, you may see a message similar to the following example:

```
COPY: Text checksum verification failure
TFTP from 172.17.247.195 failed/aborted
Verifying checksum... invalid (expected 0x62B7,
computed 0x60B9)
```

- ◆ If you issue the **show flash** command, you may see something similar to the following example:

```
router#show flash
PCMCIA flash directory:
File Length Name/status
1 3437967 c1600-sy-mz.120-8.0.2.T
2 3489036 c1600-y-1.112-19.P1
3 290304 c1600-y-1.112-18.P [invalid checksum]
```

In both cases, a checksum failure indicates that the file has not been properly copied into the memory, and you need to copy it again. First verify that the file you copied to the TFTP server is the same size as the original file. If the network is very busy, you may also see this behavior; try the copy again when the network is not so loaded, or establish a direct Ethernet connection between the TFTP server and the router to download the file.

**Note:** File size is listed in bytes on the router, and is sometimes listed in kilobytes on TFTP servers.

## Q. Why do I get the message "error opening tftp"?

**A.** If you see the error message below, verify that the IP address of the TFTP server is correct, that the file is in the root directory of the TFTP server, and that you have entered the correct filename. Some easily mistaken characters are I (capital i), l (small L), and 1 (one).

```
router#copy tftp flash
Address or name of remote host [172.17.0.5]?
Source filename [rsp-dsv-mz.112-19.P1.bin]?
Destination filename [rsp-dsv-mz.112-19.P1.bin]?
Accessing tftp://172.17.0.5/rsp-dsv-mz.112-19.P1.bin...
%Error opening tftp://172.17.0.5/rsp-dsv-mz.112-19.P1.bin (No such file or directory)
```

If all the above are correct, try accessing the file from a different host running TFTP server software, or alternately, try running different TFTP server software on the intended host.

## Q. Why do I get "Timeout" error messages?

**A.** Verify that the TFTP server is open on your PC. Also, make sure the file is in the root directory (from the TFTP application software menu bar, choose **View > Options**).

Try to eliminate extraneous networking complexities between the router and the TFTP server, such as hubs and switches, or reduce the hop count between the router and server. This may involve moving the TFTP server or setting up a new server on a network segment topologically closer to the router, or on the same LAN segment as the router.

This issue can also occur if the file size is larger than 16MB since the Cisco IOS TFTP client cannot transfer files larger than 16MB in size. For more information, refer to the document [Cisco IOS TFTP Client Cannot Transfer Files Larger than 16MB in Size](#).

Finally, if these actions fail to resolve the problem, try to use different TFTP server software or use FTP.

## Q. Why do I get the message "can't open file"?

A. Verify that the TFTP server is running on your PC. Verify that you have copied the exact filename. Some easily mistaken letters are I (capital i), l (small L), and 1 (one).

## Q. How do I copy a system image from one device to another in run-from-RAM installations?

A. The following is a list of the possibilities for copying a system image using the **copy tftp?** command:

- ◆ **bootflash:** Copy to bootflash: file system
- ◆ **disk0:** Copy to disk0: file system
- ◆ **disk1:** Copy to disk1: file system
- ◆ **flash:** Copy to flash: file system
- ◆ **ftp:** Copy to ftp: file system
- ◆ **lex:** Copy to lex: file system
- ◆ **null:** Copy to null: file system
- ◆ **nvr:** Copy to nvr: file system
- ◆ **rcp:** Copy to rcp: file system
- ◆ **running-config:** Update (merge with) current system configuration
- ◆ **slot0:** Copy to slot0: file system
- ◆ **slot1:** Copy to slot1: file system
- ◆ **startup-config:** Copy to startup configuration
- ◆ **system:** Copy to system: file system
- ◆ **tftp:** Copy to tftp: file system

Below are the three most common possibilities.

```
copy tftp flash
copy rcp flash
copy slot0: slot1:
```

The following is a detailed example:

```
router#show slot0
-#- ED --type-- --crc--- -seek-- nlen -length- -----date/time-----
name
1 .D unknown 5E8B84E6 209D8 11 2392 Jan 22 2000 00:22:42
flashconfig
2 .. image 5E7BAE19 B623C4 22 11802988 Jan 22 2000 00:23:18
rsp-jsv-mz.1
20-8.0.2.T

router#show slot1:
-#- ED --type-- --crc--- -seek-- nlen -length- -----date/time-----
name
1 .. unknown 6A2B4BA7 6FA9E0 20 7186784 Jul 30 1999 15:05:19
rsp-jv-mz.11 1-26.CC1
2 .. config 631F0D8B 6FB1EC 6 1929 Oct 19 1999 06:15:49
config
3 .. config 631F0D8B 6FB9F8 7 1929 Oct 19 1999 06:16:03
config1

router#copy slot0: slot1
Source filename []? rsp-jsv-mz.120-8.0.2.T
Destination [slot1]?
```

```
CCCCCCCCCCCCCCCCCCCC
2392 bytes copied in 0.300 secs
```

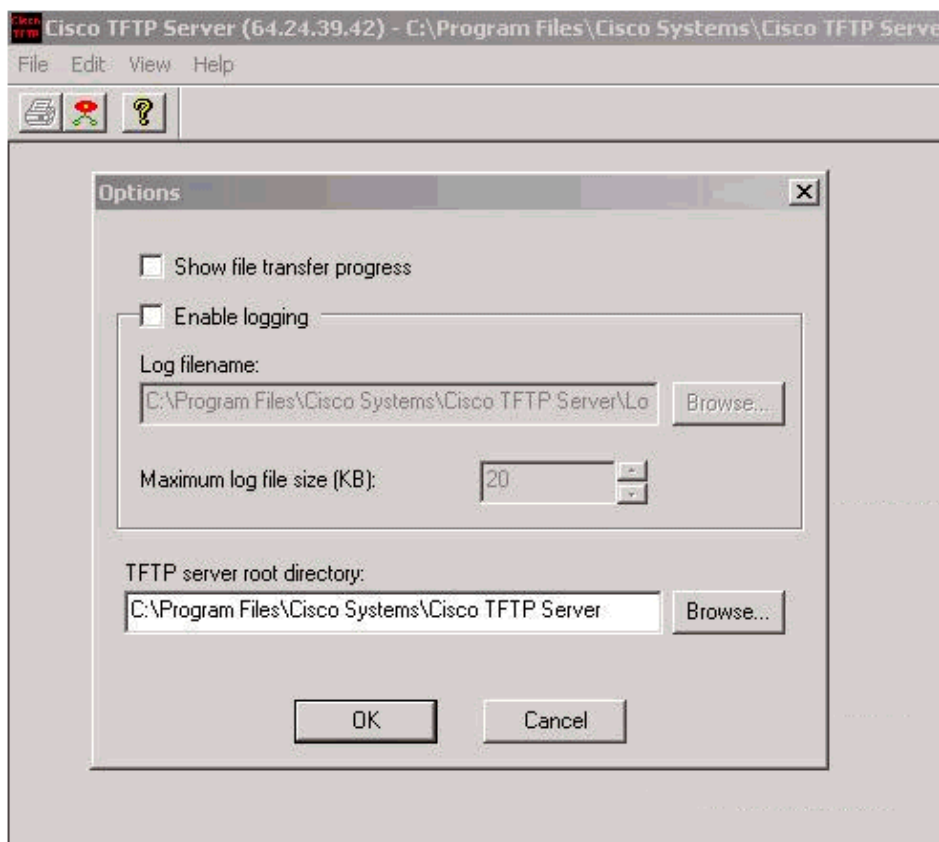
## Q. Why do I get a "Failed (State Error)" using Cisco TFTP server software while copying an image into the Flash?

A. An example of the error is as follows:

```
Thu Sep 21 17:49:49 2000: Sending 'c1700-no3sv3y-mz_121-3.bin' file
to 158.68.111.42 in binary mode
Thu Sep 21 17:49:49 2000: Failed ( State Error ).
Thu Sep 21 17:50:23 2000: Sending 'c1700-no3sv3y-mz_121-3.bin' file
to 158.68.111.42 in binary mode
```

The Cisco IOS TFTP client requests the image several times, and each time the transfer is started over, you see state errors or other errors on your TFTP server. State errors on the TFTP server are perfectly normal. The TFTP client checks to make sure the file is valid for that platform and that the file system it is being saved to has enough space. The transfer is stopped to do those checks. This is transparent to the person on the router, but the TFTP server may print errors about this. If a `Failed ( State Error )` is reported by the TFTP server software while upgrading the Cisco IOS Software, and the Cisco IOS Software file transfer is successfully completed, then this is due to a cosmetic software bug and can be safely ignored.

If a `Failed ( State Error )` is reported while using the Cisco TFTP server software and the Cisco IOS Software file transfer cannot be completed, the TFTP server software may be crashing. If this happens, go to **View > Options** on the TFTP server software. Deselect **show file transfer progress** and deselect **enable logging**, as shown below. Then try the file transfer again.



## Before Reloading

### Q. What steps should I follow before reloading the router?

A. Follow the steps below before reloading.

1. Verify that the new Cisco IOS Software has been stored properly. Issue the **show flash** command to make sure that the file has been saved, that the size is correct, and that you do not have an invalid checksum message. You need to start the installation again if any of the following are true:
  - ◇ The file does not appear.
  - ◇ The file appears, but is followed by [invalid checksum].
  - ◇ The size does not correspond to the file size on the TFTP server. Remember: the size is listed in bytes on the router, and is sometimes listed in kilobytes on TFTP servers.
2. Verify that the boot system commands are in the right order in the configuration. The router stores and executes the boot system commands in the order in which you enter them in the configuration file. If a boot system command entry in the list specifies an invalid device or filename, the router skips that entry. An example is shown below.

```
router>enable
Password:
Router#configure terminal
Enter configuration commands, one per line. End with
CNTL/Z.
Router(config)#
Router(config)#boot system flash c1600-y-1.112-18.P
Router(config)#boot system flash
```

# Troubleshooting Problems when Verifying the Software Image

**Q. What should I do if the version that is appearing in the output of the show version command is not the file I just loaded?**

A. Follow the steps found in the What steps should I follow before reloading the router? section of this document.

**Q. After reloading, I still see the RXboot prompt Router (boot) >. What should I do?**

A. Follow the steps below.

1. Verify that the new Cisco IOS Software has been stored properly by following the first step under the What steps should I follow before reloading the router? section of this document.
2. Verify that the configuration register value is correct. The last digit should be a 2. You can check this by issuing the **show version** command . If the value is not correct, restore a valid value and reload the router.

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## Related Information

- [Cisco Technical Support – Routers](#)
- [How To Choose a Cisco IOS Software Release](#)
- [Release Notes for Cisco IOS Software Version 12.1](#)
- [Technical Support – Cisco Systems](#)

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Updated: Jul 12, 2007

Document ID: 15098

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