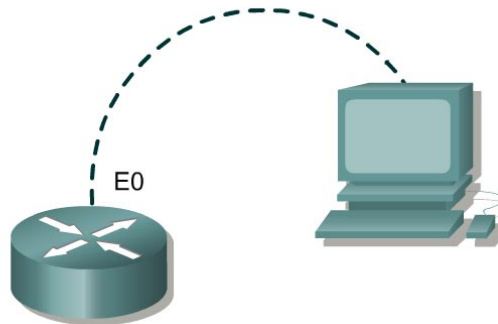




## Lab 5.2.3 Managing Configuration Files with TFTP – Instructor Version 2500



| Router designation | Router name | Enable secret password | Enable/VTY/ and Console passwords | Fast Ethernet 0 address | Subnet mask all addresses |
|--------------------|-------------|------------------------|-----------------------------------|-------------------------|---------------------------|
| Router 1           | GAD         | class                  | cisco                             | 192.168.14.1            | 255.255.255.0             |

|                        |            |
|------------------------|------------|
| Straight-through cable | —————      |
| Serial cable           | —————<br>⚡ |
| Console (Rollover)     | .....      |
| Crossover cable        | - - - - -  |

### Objective

- Backup a copy of a router configuration file.
- Reload the backup configuration file from a TFTP server into RAM on a router.
- Save the new running-config to NVRAM.

### Background/Preparation

For documentation and recovery purposes it is important to keep backup copies of router configuration files. These can be stored in a central location such as a TFTP server for reference and retrieval if necessary.

Setup a network as displayed in the figure. Any router that meets the interface requirements may be used. Possible routers include 800, 1600, 1700, 2500, 2600 routers, or a combination. Refer to the chart at the end of the lab to correctly identify the interface identifiers to be used based on the equipment in the lab. The configuration output used in this lab is produced from 1721 series routers. Any other router used may produce slightly different output.

Start a HyperTerminal session as performed in the Establishing a HyperTerminal session lab.

**Note:** Go to the erase and reload instructions at the end of this lab. Perform those steps on all routers in this lab assignment before continuing.

## Step 1 Configure the GAD router

- Using the table at the beginning of the lab, configure the router hostname and Ethernet interface.  
If there are any difficulties configuring hostname, refer to the Configuring Router Passwords lab.  
If there are any difficulties configuring the interface, refer to the Configuring Host Tables lab.
- Verify the routers configurations by performing a `show running-config` on each router. If not correct, fix any configuration errors and verify.
- Issue the command `copy running-config startup-config` to save the changes.

## Step 2 Configure the workstation

- A workstation with TFTP server software must be available for this lab. There are a number of good freeware and shareware TFTP servers available by searching the Internet for "tftp server". This Lab uses the Cisco TFTP server. Verify that the software is available. If not, ask the instructor for assistance.

Configure the TFTP Host as follows:

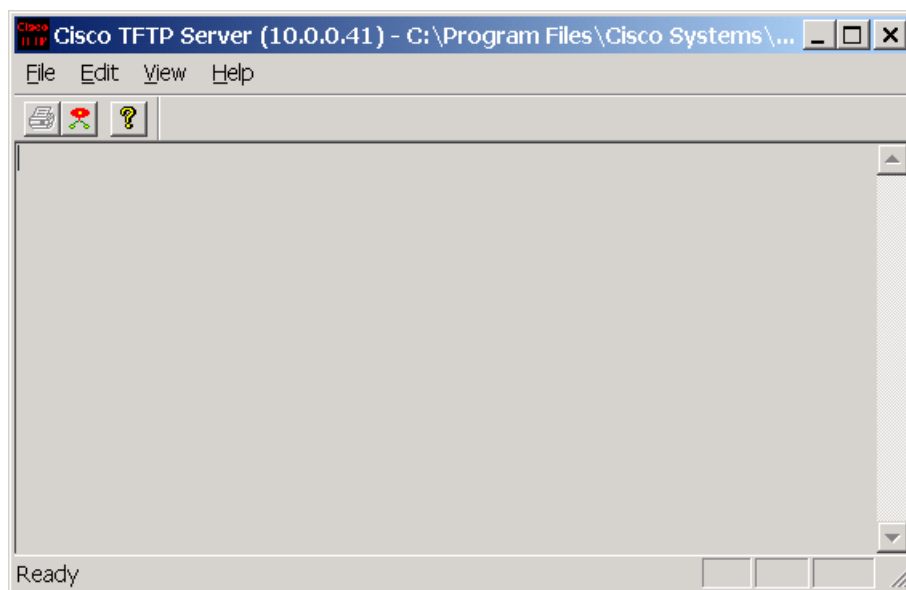
|                 |               |
|-----------------|---------------|
| IP Address      | 192.168.14.2  |
| IP subnet mask  | 255.255.255.0 |
| Default gateway | 192.168.14.1  |

Confirm that the host has accepted the new IP settings with the `winipcfg` command (Windows 9x) or the `ipconfig` command (Windows NT/2000/XP).

- Verify the router configuration by performing a `show running-config`. If not correct, fix any configuration errors and verify.

## Step 3 Start and configure the Cisco TFTP server

Start the TFTP server. If the computer is properly connected, there is no configuration of the Cisco TFTP server needed.



## Step 4 Verify connectivity

ping the TFTP server from the GAD router.

If the ping fails, review host and router configurations to resolve the problem.

## Step 5 Copy the startup-config to TFTP server

- Before copying the files, verify that the TFTP server is running.
- Record the IP address of the TFTP server. [192.168.14.2](#)
- From the privileged EXEC prompt, issue the `copy startup-config tftp` command. Follow the prompts:

```
GAD#copy startup-config tftp
Address or name of remote host []? 192.168.14.2
Destination filename [gad-config]? startup-config
!!
667 bytes copied in 0.036 secs (18528 bytes/sec)
```

## Step 6 Verify the transfer to the TFTP server

Check the TFTP server log file. Click **View** > **Log File**. The output should be similar to the following:

```
Mon Sep 16 14:10:08 2003: Receiving 'startup-config' file from
192.168.14.1 in binary mode
Mon Sep 16 14:11:14 2003: Successful.
```

## Step 7 Copy the startup-config from the TFTP server

- Now that the startup-config is backed up, test this image by restoring the file to the router.  
Assume that the configuration on the GAD router has become corrupt and copy the backup startup-config file from the tftp server to the running-config of the router. To simulate this, change the hostname of the router from GAD to "Router".
- What is the IP address of the TFTP server? [192.168.14.2](#)
- Complete the following to copy the startup-config file from the TFTP server to the router.

```
Router#copy tftp running-config
Address or name of remote host []? 192.168.14.2
Source filename []? startup-config
Destination filename [running-config]? [Enter]
Accessing tftp://192.168.14.2/startup-config...
Loading startup-config from 192.168.14.2 (via FastEthernet0): !
[OK - 667 bytes]
```

667 bytes copied in 9.584 secs (70 bytes/sec)

GAD#

## Step 8 Save the new running-config

Save the new running-config to NVRAM using the following command:

```
GAD#copy running-config startup-config
Destination filename [startup-config]? [Enter]
Building configuration...
[OK]
```

### Step 9 Test the restored file

Issue the `show startup-config` command to verify the entire configuration.

Upon completion of the previous steps, logoff by typing `exit`. Turn the router off.

## Erasing and reloading the router

Enter into the privileged EXEC mode by typing **enable**.

```
Router>enable
```

If prompted for a password, enter **class**. If “class” does not work, ask the instructor for assistance.

At the privileged EXEC mode, enter the command **erase startup-config**.

```
Router#erase startup-config
```

The responding line prompt will be:

```
Erasing the nvram filesystem will remove all files! Continue?  
[confirm]
```

Press **Enter** to confirm.

The response should be:

```
Erase of nvram: complete
```

Now at the privileged EXEC mode, enter the command **reload**.

```
Router#reload
```

The responding line prompt will be:

```
System configuration has been modified. Save? [yes/no]:
```

Type **n** and then press **Enter**.

The responding line prompt will be:

```
Proceed with reload? [confirm]
```

Press **Enter** to confirm.

In the first line of the response will be:

```
Reload requested by console.
```

After the router has reloaded the line prompt will be:

```
Would you like to enter the initial configuration dialog? [yes/no]:
```

Type **n** and then press **Enter**.

The responding line prompt will be:

```
Press RETURN to get started!
```

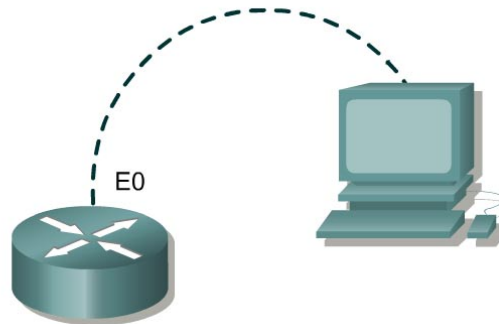
Press **Enter**.

The router is ready for the assigned lab to be performed.

| Router Interface Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                          |                          |                     |                     |              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|---------------------|---------------------|--------------|
| Router Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Ethernet Interface #1    | Ethernet Interface #2    | Serial Interface #1 | Serial Interface #2 | Interface #5 |
| 800 (806)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Ethernet 0 (E0)          | Ethernet 1 (E1)          |                     |                     |              |
| 1600                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Ethernet 0 (E0)          | Ethernet 1 (E1)          | Serial 0 (S0)       | Serial 1 (S1)       |              |
| 1700                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | FastEthernet 0 (FA0)     | FastEthernet 1 (FA1)     | Serial 0 (S0)       | Serial 1 (S1)       |              |
| 2500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Ethernet 0 (E0)          | Ethernet 1 (E1)          | Serial 0 (S0)       | Serial 1 (S1)       |              |
| 2600                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | FastEthernet 0/0 (FA0/0) | FastEthernet 0/1 (FA0/1) | Serial 0/0 (S0/0)   | Serial 0/1 (S0/1)   |              |
| In order to find out exactly how the router is configured, look at the interfaces. This will identify the type of router as well as how many interfaces the router has. There is no way to effectively list all of the combinations of configurations for each router class. What is provided are the identifiers for the possible combinations of interfaces in the device. This interface chart does not include any other type of interface even though a specific router may contain one. An example of this might be an ISDN BRI interface. The string in parenthesis is the legal abbreviation that can be used in IOS command to represent the interface. |                          |                          |                     |                     |              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                          |                          |                     |                     |              |



## Lab 5.2.3 Managing Configuration Files with TFTP – Instructor Version 2600



| Router designation | Router name | Enable secret password | Enable/VTY/ and Console passwords | Fast Ethernet 0 address | Subnet mask all addresses |
|--------------------|-------------|------------------------|-----------------------------------|-------------------------|---------------------------|
| Router 1           | GAD         | class                  | cisco                             | 192.168.14.1            | 255.255.255.0             |

|                        |                            |
|------------------------|----------------------------|
| Straight-through cable | —————                      |
| Serial cable           | —————<br><del>      </del> |
| Console (Rollover)     | .....                      |
| Crossover cable        | - - - - -                  |

### Objective

- Backup a copy of a router configuration file.
- Reload the backup configuration file from a TFTP server into RAM on a router.
- Save the new running-config to NVRAM.

### Background/Preparation

For documentation and recovery purposes it is important to keep backup copies of router configuration files. These can be stored in a central location such as a TFTP server for reference and retrieval if necessary.

Setup a network as displayed in the figure. Any router that meets the interface requirements may be used. Possible routers include 800, 1600, 1700, 2500, 2600 routers, or a combination. Refer to the chart at the end of the lab to correctly identify the interface identifiers to be used based on the equipment in the lab. The configuration output used in this lab is produced from 1721 series routers. Any other router used may produce slightly different output.

Start a HyperTerminal session as performed in the Establishing a HyperTerminal session lab.

**Note:** Go to the erase and reload instructions at the end of this lab. Perform those steps on all routers in this lab assignment before continuing.

## Step 1 Configure the GAD router

- Using the table at the beginning of the lab, configure the router hostname and Ethernet interface.  
If there are any difficulties configuring hostname, refer to the Configuring Router Passwords lab.  
If there are any difficulties configuring the interface, refer to the Configuring Host Tables lab.
- Verify the routers configurations by performing a `show running-config` on each router. If not correct, fix any configuration errors and verify.
- Issue the command `copy running-config startup-config` to save the changes.

## Step 2 Configure the workstation

- A workstation with TFTP server software must be available for this lab. There are a number of good freeware and shareware TFTP servers available by searching the Internet for "tftp server". This Lab uses the Cisco TFTP server. Verify that the software is available. If not, ask the instructor for assistance.

Configure the TFTP Host as follows:

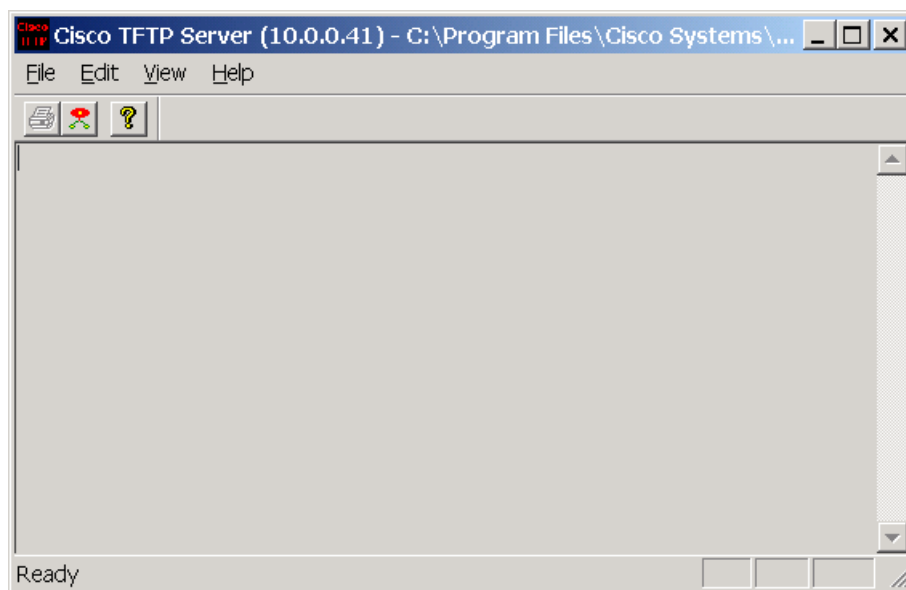
|                 |               |
|-----------------|---------------|
| IP Address      | 192.168.14.2  |
| IP subnet mask  | 255.255.255.0 |
| Default gateway | 192.168.14.1  |

Confirm that the host has accepted the new IP settings with the `winipcfg` command (Windows 9x) or the `ipconfig` command (Windows NT/2000/XP).

- Verify the router configuration by performing a `show running-config`. If not correct, fix any configuration errors and verify.

## Step 3 Start and configure the Cisco TFTP server

Start the TFTP server. If the computer is properly connected, there is no configuration of the Cisco TFTP server needed.





## Step 4 Verify connectivity

ping the TFTP server from the GAD router.

If the ping fails, review host and router configurations to resolve the problem.

## Step 5 Copy the startup-config to TFTP server

- Before copying the files, verify that the TFTP server is running.
- Record the IP address of the TFTP server. [192.168.14.2](#)
- From the privileged EXEC prompt, issue the `copy startup-config tftp` command. Follow the prompts:

```
GAD#copy startup-config tftp
Address or name of remote host []? 192.168.14.2
Destination filename [gad-config]? startup-config
!!
667 bytes copied in 0.036 secs (18528 bytes/sec)
```

## Step 6 Verify the transfer to the TFTP server

Check the TFTP server log file. Click **View > Log File**. The output should be similar to the following:

```
Mon Sep 16 14:10:08 2003: Receiving 'startup-config' file from
192.168.14.1 in binary mode
Mon Sep 16 14:11:14 2003: Successful.
```

## Step 7 Copy the startup-config from the TFTP server

- Now that the startup-config is backed up, test this image by restoring the file to the router.  
Assume that the configuration on the GAD router has become corrupt and copy the backup startup-config file from the tftp server to the running-config of the router. To simulate this, change the hostname of the router from GAD to "Router".
- What is the IP address of the TFTP server? [192.168.14.2](#)
- Complete the following to copy the startup-config file from the TFTP server to the router.

```
Router#copy tftp running-config
Address or name of remote host []? 192.168.14.2
Source filename []? startup-config
Destination filename [running-config]? [Enter]
Accessing tftp://192.168.14.2/startup-config...
Loading startup-config from 192.168.14.2 (via FastEthernet0): !
[OK - 667 bytes]
```

667 bytes copied in 9.584 secs (70 bytes/sec)

GAD#

## Step 8 Save the new running-config

Save the new running-config to NVRAM using the following command:

```
GAD#copy running-config startup-config
Destination filename [startup-config]? [Enter]
Building configuration...
[OK]
```

### Step 9 Test the restored file

Issue the `show startup-config` command to verify the entire configuration.

Upon completion of the previous steps, logoff by typing `exit`. Turn the router off.

## Erasing and reloading the router

Enter into the privileged EXEC mode by typing **enable**.

```
Router>enable
```

If prompted for a password, enter **class**. If “class” does not work, ask the instructor for assistance.

At the privileged EXEC mode, enter the command **erase startup-config**.

```
Router#erase startup-config
```

The responding line prompt will be:

```
Erasing the nvram filesystem will remove all files! Continue?  
[confirm]
```

Press **Enter** to confirm.

The response should be:

```
Erase of nvram: complete
```

Now at the privileged EXEC mode, enter the command **reload**.

```
Router#reload
```

The responding line prompt will be:

```
System configuration has been modified. Save? [yes/no]:
```

Type **n** and then press **Enter**.

The responding line prompt will be:

```
Proceed with reload? [confirm]
```

Press **Enter** to confirm.

In the first line of the response will be:

```
Reload requested by console.
```

After the router has reloaded the line prompt will be:

```
Would you like to enter the initial configuration dialog? [yes/no]:
```

Type **n** and then press **Enter**.

The responding line prompt will be:

```
Press RETURN to get started!
```

Press **Enter**.

The router is ready for the assigned lab to be performed.

| Router Interface Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                          |                          |                     |                     |              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------|---------------------|---------------------|--------------|
| Router Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Ethernet Interface #1    | Ethernet Interface #2    | Serial Interface #1 | Serial Interface #2 | Interface #5 |
| 800 (806)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Ethernet 0 (E0)          | Ethernet 1 (E1)          |                     |                     |              |
| 1600                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Ethernet 0 (E0)          | Ethernet 1 (E1)          | Serial 0 (S0)       | Serial 1 (S1)       |              |
| 1700                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | FastEthernet 0 (FA0)     | FastEthernet 1 (FA1)     | Serial 0 (S0)       | Serial 1 (S1)       |              |
| 2500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Ethernet 0 (E0)          | Ethernet 1 (E1)          | Serial 0 (S0)       | Serial 1 (S1)       |              |
| 2600                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | FastEthernet 0/0 (FA0/0) | FastEthernet 0/1 (FA0/1) | Serial 0/0 (S0/0)   | Serial 0/1 (S0/1)   |              |
| In order to find out exactly how the router is configured, look at the interfaces. This will identify the type of router as well as how many interfaces the router has. There is no way to effectively list all of the combinations of configurations for each router class. What is provided are the identifiers for the possible combinations of interfaces in the device. This interface chart does not include any other type of interface even though a specific router may contain one. An example of this might be an ISDN BRI interface. The string in parenthesis is the legal abbreviation that can be used in IOS command to represent the interface. |                          |                          |                     |                     |              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                          |                          |                     |                     |              |