

Configuration Procedures

3.1 Purpose

This chapter provides information about configuring your Cisco 675. Configuration procedures will vary depending on how your Cisco 675 is already configured.

Note It is recommended that only one command line application be used to configure the Cisco 675 at any given time. For example, Telnet and the serial management interface should not be used simultaneously.

3.2 Checklist

Table 3-1 Checklist for Configuration

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3.3 Logon to the CBOS

After connecting all the Cisco 675 cables, turning on your Cisco 675, and starting your terminal access program (as shown in “Set Up the Cisco 675 Hardware Environment” section on page 2-3), press the **Enter** key until the CBOS welcome screen appears. When you see the welcome screen, you can logon to CBOS.

Before proceeding, you should check the version of the CBOS and verify that the version number and date reflect the most recent firmware update: `cbos# show version`.

If the CBOS is out of date, get the latest version from your service provider or from Cisco. See the TFTP command in “TFTP Server” section on page 3-24, for more information on how to update the Cisco 675 firmware.

3.3.1 Operation Modes

CBOS also has two modes of operation: Exec and Enable. CBOS defaults to Exec mode when you log in. Exec mode grants read-only privileges to a user. To write changes to NVRAM, you must work in Enable mode. Follow the steps below to invoke Enable mode:

- 1 Type enable at the command line:
cbos# enabled
- 2 Type another password when CBOS prompts you:
cbos# enabled
Password:

Note If you have not set any passwords for the Cisco 675, press the **Enter** key when the system prompts you for a password.

You are now in Enable mode.

3.4 Select a Connection Mode

The CBOS supports two kinds of connection modes: bridging and routing. Routing mode has two options: Configurationless Provisioning (default) and Manual Provisioning.

Note Routing and bridging cannot be used simultaneously.

3.5 Bridging Mode Procedures

When the Cisco 675 operates in bridge mode, it behaves like a wire connecting a local PC directly to a service provider's network. Because bridges operate at a MAC layer only, applications requiring IP communication, such as Telnet, TFTP, RADIUS, Syslog, Ping, and the web interface, are not available unless a management VC is configured.

Cisco currently supports a learning bridge mode for RFC 1483. The VPI/VCI configuration of the Cisco 675 is unaffected by the operational mode (bridging versus routing) of the device.

- 1 To enable RFC1483 bridging, enter:

```
cbos# set bridging rfc1483 enabled
```
- 2 To enable the management VC for RFC1483 bridging, enter:

```
cbos# set bridging rfc1483 management enabled
```
- 3 To save your changes, enter:

```
cbos# write
```
- 4 To reboot the device, enter:

```
cbos# reboot
```

Note that you must reboot the Cisco 675 to enable bridging. When rebooting is complete, you should get a banner page similar to the following:

```
Cisco Broadband Operating System V2.0 - Cisco 675
Build date and time: Xxx xx 1998 XX:XX:XX
Monitor version MON960 3.0.2 Jan 06 1998 15:18:12
Copyright (c) 1998 Cisco Systems, Inc. All rights reserved.
12303 Technology Blvd - Austin Texas USA -
www.cisco.com
```

```
*** Bridging Mode Enabled ***
```

- 5 To disable RFC1483 bridging, enter:

```
cbos# set bridging rfc1483 disabled
```

For more information on using the **set bridging** command, see the *Cisco Broadband Operating System User's Guide*.

The rules that govern the **bridge** command are:

- Bridging and routing do not operate simultaneously on the Cisco 675.

- Only one bridging mode is allowed at any one time (that is, RFC1483 or PPP/BCP—not both).
- The following commands do not work while in bridge mode:
 - ping
 - **set route** (and setting static routes)
 - RIP-related commands (**set** and **show**)
 - Filter-related commands (**set** and **show**)
 - Web interface
 - Telnet
 - RADIUS
 - Syslog

Cisco provides a management VC to configure and manage the Cisco 675 running in bridge mode. Use Telnet to access the Cisco 675 and the CBOS command set for configuration and management purposes. The management VC is always the second VC on a Cisco 675 configured for bridging. For example, a bridging Cisco 675 with the management VC enabled would use WAN0-0 for the bridge VC and WAN0-1 for the management VC. Only the WAN side has access to the Cisco 675 management facilities; the Ethernet LAN side does not have access to these functionalities.

If you choose bridging as your connection mode, see the following sections:

- “Bridging Mode Procedures” section on page 3-4
- “Configure the WAN Ports” section on page 3-9
- “Configure Applications” section on page 3-14 through “Evaluate System Activity and Performance” section on page 3-28

3.6 Routing Mode Procedures

Routing mode supports two types of configuration procedures: configurationless and manual provisioning.

3.6.1 Configurationless Provisioning

With the configurationless provisioning feature enabled, you can use the Cisco 675 without following many of the procedures described in this chapter. See the following section to enable configurationless provisioning.

Enabling Configurationless Provisioning

If the information listed above does not display when you enter the **show ps** command, the feature is not enabled. Follow the steps below to enable the Configurationless Provisioning feature for the Cisco 675.

- 1 Enable the DHCP client:
`cbos# set dhcp client enabled`
- 2 Enable the DHCP server:
`cbos# set dhcp server enabled`
- 3 Enable NAT:
`cbos# set nat enabled`
- 4 To check whether this feature is enabled, enter the following command:
`cbos# ps`
- 5 Write the changes to NVRAM:
`cbos# write`
- 6 Reboot the Cisco 675:
`cbos# reboot`

When the Cisco 675 reboots, configurationless provisioning is enabled.

Disabling Configurationless Provisioning

Follow the steps below to disable the Configurationless Provisioning feature for the Cisco 675.

- 1 Disable the DHCP client:
`set dhcp client disabled`
- 2 Disable the DHCP server:
`set dhcp server disabled`

- 3** Disable NAT:
`set nat disabled`
- 4** Write the changes to NVRAM:
`cbos# write`
- 5** Reboot the Cisco 675:
`cbos# reboot`

Note After you disable the configurationless provisioning feature, you must manually configure the Cisco 675.

Changing Configurationless Provisioning

Use the commands below to change the components of configurationless provisioning:

- `set dhcp server binding`
- `set dhcp server pool`
- `set dhcp client port`
- `set nat entry add`
- `set nat entry delete`
- `set nat timeout`
- `set nat outside`

For a complete description of each of these commands, see the *Cisco Broadband Operating System User's Guide*.

3.6.2 Manual Provisioning

If you disable Configurationless Provisioning, see the steps for manual provisioning in the “Configure the Ethernet Port (eth0)” section on page 3-8 through the “Evaluate System Activity and Performance” section on page 3-28.

3.7 Configure the Ethernet Port (eth0)

To configure the Ethernet port, you must assign an IP address and netmask to the port. Follow the steps below to configure your IP address and your netmask. When setting the IP address of a particular interface, the netmask is set automatically unless it is explicitly specified. Substitute your own IP address for the ones shown in steps two through four.

- 1 Logon to the CBOS (cbos#) using the serial connection.

Note Always use a serial connection when you set or change your IP address because you will lose your Telnet connection if you change the IP address for the Cisco 675 via Telnet.

- 2 To set the IP address (and your netmask), follow the example of the following command:

```
cbos# set interface eth0 address 192.168.34.9
```

The IP address becomes 192.168.34.9 and the netmask becomes 255.255.255.0 by default. If you wish to explicitly set the netmask, enter the following command:

```
cbos# set interface mask 255.255.255.248
```

- 3 To set the destination IP address for the WAN port, enter the following:

```
cbos# set interface wan0-0 dest 192.168.34.10
```

- 4 To save your changes, enter:

```
cbos# write
```

- 5 To allow the system to come up with these new settings, reboot the Cisco 675 by entering:

```
cbos# reboot
```

- 6 Log back on to the CBOS to continue.

For more detailed information on the **set interface** command, see the *Cisco Broadband Operating System User's Guide*.

3.8 Configure the WAN Ports

The Cisco 675 has two types of WAN ports: physical (wan0) and logical (wan0-x). The physical WAN port connects the Cisco 675 to the Wide Area Network. The logical WAN port or ports allow you to create virtual WAN connections for plural destinations. When configuring the physical WAN port, you can change the default line rate settings. To configure logical WAN ports, you must provision ATM virtual connections and optionally set ScalaRate for each logical connection. The instructions for each are shown below.

3.8.1 Set the ADSL Line Rates (wan0)

The Cisco 675 uses its RADSLS functionality to automatically train up to the ideal line speed. By default Cisco 675s are provisioned with rates of seven Mbps downstream and one Mbps upstream, which allows for the maximum rate as determined by the Central Office ADSL equipment. Follow the instructions below to change settings:

- 1 To show the current line rate enter:
`cbos# show rate`
- 2 To set the ADSL downstream rate to 7168Kbps, enter:
`cbos# set interface wan0 rate down 7168`
- 3 To set the upstream rate to 680Kbps, enter:
`cbos# set interface wan0 rate up 680`
- 4 To save your changes, enter:
`cbos# write`
- 5 To exit the CBOS, enter:
`cbos# quit`

3.8.2 Set Up ATM Virtual Connections

On the Cisco 675, the WAN0 port is always ready to send and receive network traffic. You may need to define an ATM Virtual Connection (VC) when communicating across an ATM network. There are two types of ATM connections: (1) virtual paths, identified by virtual path identifiers (VPI); and (2) virtual circuit, identified by the combination of a VPI and a

virtual circuit identifier (VCI). Because the Cisco 675 connects to the Cisco 6100, the subscriber side VPI/VCI settings are not seen by the ATM network. All subscriber side VCs use VPI 1 by default.

Cisco 675 comes pre-configured with one VC already established. Each VC is expressed as WAN0-*x*, where *x* is a number between one and four.

To set the maximum number of VCs, enter:

```
cbos# set interface
```

Table 3-2 shows the valid ranges for the VPI and VCI addresses.

Table 3-2 Valid VPI and VCI Address Ranges

VPI <count>	VPI Range	VCI Range
1	0	0..255
2	0..1	0..127
4	0..3	0..63
8	0..7	0..31

Changing VPI Settings

- 1 To set the VPI number to 2, enter:

```
cbos# set interface wan0-1 vpi 2
```

Note If you try to enter the command `cbos# set interface wan0-1` on a connection that is already open, the system prompts you to close that connection before you change the VPI setting. To close the connection, enter: `cbos# set interface wan0-1 close`.

- 2 To begin using this connection with the new settings, enter:

```
cbos# set interface wan0-1 open
```

- 3 Repeat steps 1 and 2 for every VPI assignment you want to make.

- 4 To save the new WAN port configuration, enter:

```
cbos# write
```

- 5 To exit the CBOS, enter:

```
cbos# quit
```

Changing VCI Settings

- 1 To set the VCI number to 4, enter:

```
cbos# set interface wan0-0 vci 4
```

Note If you try to enter the command `cbos# set interface wan0-0` on a connection that is already open, the system prompts you to close that connection before you change the VCI setting. To do this enter the command `cbos# set interface wan0-0 close`.

- 2 To begin using this connection with the new settings, enter:

```
cbos# set interface wan0-0 open
```

- 3 Repeat steps 1 and 2 for every VCI assignment you want to make.

- 4 To save the new WAN port configuration, enter:

```
cbos# write
```

- 5 To exit the CBOS, enter:

```
cbos# quit
```

For more information on configuring VPI/VCI address mapping, see the *Cisco Broadband Operating System User's Guide*.

3.8.3 Set ScalaRate for wan0-x

ScalaRate is a technology developed by Cisco that allows dynamic allocation of bandwidth within an ATM-based ADSL connection. This bandwidth allocation is specified and controlled by the end-point devices without affecting the provisioning or status of the underlying ATM transport VC. Bandwidth within the ADSL connection is allocated on a VC basis and provides flexibility in rate structures and deployment models for service providers and network administrators.

The key features of ScalaRate are as follows:

- Applicable to individual logical WAN ports (wan0-x).

- Sets maximum upstream rate per VC in the Cisco 675, and maximum downstream rate per subscriber in the Cisco 7200.
- Can be set in increments of 64Kbps.
- Rounds down to the nearest 64Kbps increment. For example, if you set the rate to 68Kbps, the setting will be rounded down to 64Kbps.
- Can be set for less than or equal to the maximum ADSL trained rate.

Note Before you change the ScalaRate value, close the wan0-x port.

To set the wan0-x to ScalaRate use the following steps.

- 1** To set an upstream ScalaRate for a particular VC, enter:
`cbos# set interface wan0-0 rate 512`
- 2** To set an upstream ScalaRate to the maximum allowable rate, enter:
`cbos# set interface wan0-0 rate auto`
- 3** To save your changes, enter:
`cbos# write`
- 4** To exit the CBOS, enter:
`cbos# quit`

3.9 Create Routing Tables

In order to pass data through a network and onto the Internet or wide area network, you may need to add the IP address(es) of gateway(s) to the routing table. Follow the instructions below to build a routing table manually by adding or deleting entries in the table.

Note If your Cisco 675 was provisioned to run in bridging or configurationless mode, you must disable both before attempting to establish routing.

- 1 To add a route to IP address 192.9.9.1 without specifying a specific gateway, mask or metric, enter:

```
cbos# set route add ip 192.9.9.1
```

- 2 To add a set route and specify a netmask, gateway, or metric, enter:

```
cbos# set route add ip 192.10.10.0 mask 255.255.255.0
gw 208.203.245.228 metric 1
```

- 3 To set a default route, enter:

```
cbos# set route default 208.203.245.228
```

- 4 To set a destination address for each VC, enter:

```
cbos# set interface wan0-0 dest 208.203.245.228
mask 255.255.255.0
```

- 5 To save your changes, enter:

```
cbos# write
```

- 6 To exit the CBOS, enter:

```
cbos# quit
```

For more information on using the **set route** command, see the *Cisco Broadband Operating System User's Guide*.

Enable Routing Information Protocol (RIP)

To enable RIP and RIP2 in the CBOS, enter:

```
cbos# set rip enabled
```

To disable RIP, enter:

```
cbos# set rip disabled
```

For more information on using the **set rip** commands, see the *Cisco Broadband Operating System User's Guide*.

3.10 Enable IP Filtering

The Cisco 675 supports up to ten filters for TCP and UDP packets passing through the Cisco 675 interfaces. Enabled filters are applied to packets in sequential order according to filter number.

Below are examples of how to use filtering:

- 1 To block all packets going through the Ethernet interface, enter:

```
cbos# set filter 0 on deny 0.0.0.0 0.0.0.0 0.0.0.0
0.0.0.0
```

- 2 To activate all enabled filters, enter:

```
cbos# set filter on
```

For more information on using the **set filter** command, see the *Cisco Broadband Operating System User's Guide*.

3.11 Configure Applications

The Cisco 675 supports several applications for management and control of the system. These applications include:

- DHCP Client
- DHCP Server
- NAT
- RADIUS Client
- SYSLOG Client
- Telnet Server
- TFTP Server
- Web

3.11.1 DHCP Client

The DHCP Client requests an IP address from the DHCP server. See the instructions below to enable the DHCP client:

- 1 Enable the DHCP client:
`cbos# set dhcp client enabled`
- 2 Write the changes to NVRAM:
`cbos# write`
- 3 Reboot the Cisco 675:
`cbos# reboot`

For more information on using DHCP clients, see the **set dhcp client** commands.

3.11.2 DHCP Server

The DHCP Server application automatically assigns IP addresses to DHCP clients. Follow the steps below to enable the Configurationless Provisioning feature for the Cisco 675.

- 1 Enable the DHCP server:
`cbos# set dhcp server enabled`
- 2 Write the changes to NVRAM:
`cbos# write`
- 3 Reboot the Cisco 675:
`cbos# reboot`

Note The DHCP Server defaults with one IP address configured.

For more information on using DHCP servers, see the **set dhcp server** series of commands in *Cisco's Broadband Operating System User's Guide*.

3.11.3 NAT

NAT converts IP addresses on a private network (designated as “inside” or “LAN”) to global IP addresses that can forward packets to another registered network (designated as “outside” or “WAN”). See the instructions below to enable NAT:

1 Enable NAT:

```
cbos# set nat enabled
```

2 To check whether this feature is enabled, enter the following command:

```
cbos# ps
```

3 Write the changes to NVRAM:

```
cbos# write
```

4 Reboot the Cisco 675:

```
cbos# reboot
```

For more information on using NAT, see the **set nat** series of commands in *Cisco’s Broadband Operating System User’s Guide*.

3.11.4 RADIUS Client

Remote Authentication Dial-In User Service (RADIUS), authenticates users for access to a network. The RADIUS server uses an authentication scheme, such as PAP, to authenticate incoming messages from RADIUS clients. When a password is present, it is hidden using a method based on the RSA Message Digest Algorithm MD5 [1].

The Cisco 675 has been successfully tested for compatibility with the following RADIUS server providers:

- Livingston Enterprises RADIUS 2.01
- Sun Solaris 2.5
- Merit RADIUS (Sun binary)
- RADIUS NT (Microsoft)

The Cisco 675 Implementation

The Cisco 675 supports a RADIUS client. However, for most environments, the Cisco 675 Radius client is not used. The RADIUS client exists on the service provider's remote access server (for instance, the Cisco 7200). The Cisco 675 communicates with the RADIUS client via PAP packets.

Configuring RADIUS on Cisco 675

The following examples assume that the Cisco 675 is connected to a Cisco 7200 that is running a RADIUS client.

- Disable RADIUS:

```
cbos# set radius disabled
RADIUS is disabled
```

- Set the PPP login and password:

```
cbos# set ppp wan0-0 radius disabled
cbos# set ppp wan0-0 login Cisco
cbos# set ppp wan0-0 password is great
```

The default configuration of the Cisco 675 for RADIUS appears.

Note A RADIUS test command, `cbos# set radius test` activates the RADIUS debug option. This allows you to test that RADIUS works with current client settings by sending a test message to the RADIUS server.

For more information on RADIUS commands, see the *Cisco Broadband Operating System User's Guide*.

3.11.5 SYSLOG Client

SYSLOG logs significant system information to a remote SYSLOG server for processing without requiring large amounts of local storage or local processing.

Implementing SYSLOG

Using the CBOS, the Cisco 675 allows you to specify a remote server for logging system messages. Cisco supports the following levels of severity:

- Debug
- Info
- Warning
- Alarm
- Critical
- Crash

The messages are similar to the standard Berkley Software Distribution (BSD)-style severity levels for SYSLOG; however, they do not include None and Mark. To configure your SYSLOG daemon to receive Cisco SYSLOG messages, modify the `/etc/syslog.conf` configuration file (remember to use tabs, not spaces). Many systems, such as Linux and FreeBSD, have SYSLOG setup by default.

Note A SYSLOG test command, `cbos# set syslog test` activates the SYSLOG debug option. This allows you to test that SYSLOG works with current client settings by sending a test message to the SYSLOG server.

The following `/etc/syslog.conf` configuration file entry enables all messages for Info severity levels and above:

```
*.info/var/log/messages
```

To enable only alarm messages and above, enter the following in `/etc/syslog.conf`:

```
*.alarm/var/log/messages
```

Be sure your UNIX **syslogd** daemon accepts remote reception (network messages). Some processes may need to be killed and restarted with a `-r` option. Using the **man syslog** command to view the online UNIX manuals for information about the SYSLOG daemon.

Using SYSLOG from a UNIX Machine

To use SYSLOG, simply enter the following at your CBOS prompt:

```
cbos# set syslog remote <IPaddress of remote server>
```

Attention Windows NT and Windows 95 Users

Windows NT and Windows 95 do not have a SYSLOG client. If you want to utilize SYSLOG on a Windows 95 or Windows NT system, you must install a SYSLOG client from a third-party vendor onto your system. One way to locate a SYSLOG client is to use an Internet search engine to locate a vendor who sells a SYSLOG client. Some SYSLOG clients are provided as share or freeware on the Internet.

Cisco has proven compatibility with the following third-party products:

- Sun Solaris 2.5
- Linux 2.0.27
- NTSyslog (shareware program)

For more information on SYSLOG commands, see the *Cisco Broadband Operating System User's Guide*.

3.11.6 Telnet

Telnet provides a command line interface and is used as a means of providing remote login connections between machines on many networks, including the Internet.



Caution Before closing a Telnet connection, always enter `exit` or `quit` at the `cbos#` prompt

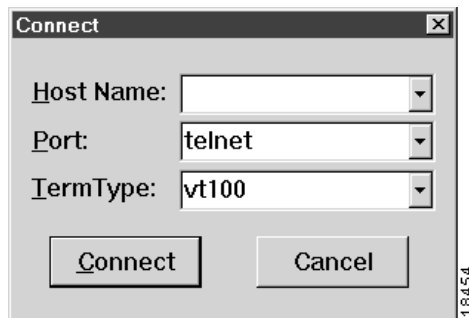
Using Telnet to Connect to the Cisco 675

Use the **telnet** daemon to connect to CBOS and configure and operate the Cisco 675.

Connecting from a Windows NT or a Windows 95 Machine

- 1 Click on the **Start** button.
- 2 Select the **Run...** option.
- 3 When the *Run* box appears, enter `telnet` in the space provided.
- 4 Click the **OK** button. The *Connect* menu appears.
- 5 Select the **Remote System...** option from the *Connect* menu. The following window appears:

Figure 3-1 Remote System List Box



- 6 Enter the IP address of the Cisco 675 in the **Host Name** box and press **Connect**. The system then initiates a session with Cisco 675. When it connects, the following information appears on your terminal:

```
Cisco Broadband Operating System V2.0 - Cisco 675 CPE
Copyright (c) 1998 Cisco Systems, Inc. All rights reserved.
12303 Technology Blvd - Austin Texas USA - www.cisco.com
```

Login:

Note Press the **Enter** key a couple of times to establish a connection.

- 7 Provide the login and password information. Once the system authenticates your password, you have access to the CBOS.

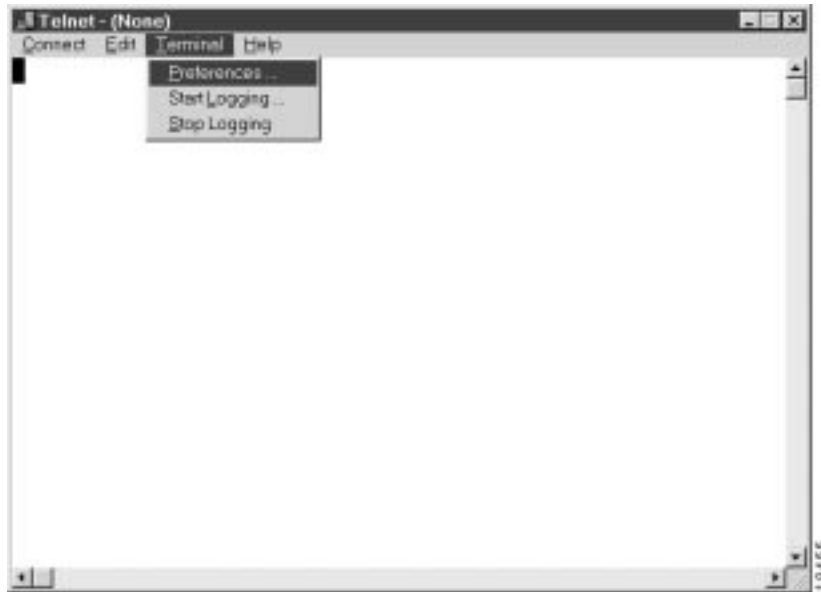
Note Logon using `root` or `user` as the initial user name, with no password. Press the Enter key at the password prompt. See the *Cisco Broadband Operating System User's Guide* for more information about how to set and change passwords.

Notice to Windows Users

Windows' Telnet client does not support NVT (Network Virtual Terminal) or any extra form of option negotiation. However, if you are going to use the Windows Telnet client, please read the following steps to set your terminal settings.

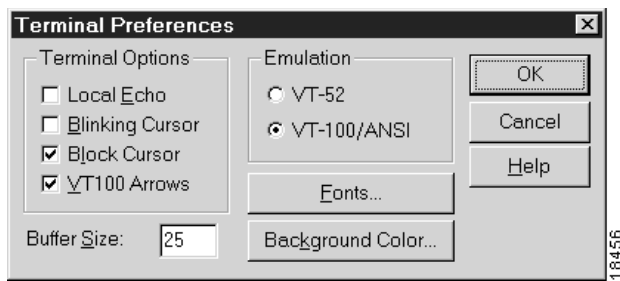
- 1 When the Telnet window appears, access the *Preferences* menu in Telnet by selecting **Preferences** from the **Terminal** drop down menu.

Figure 3-2 Telnet Preferences



2 Set the terminal settings on the Terminal Preferences menu to the following values:

Figure 3-3 Terminal Preferences



Notice to Linux Users

If you try to run Linux without installing the term/termcap database, the message BAD ADDRESS displays during a connection attempt. To install the term/termcap database, check the original Linux installation disks.

Connecting from a UNIX Machine

- 1 Enter the following at your prompt:

```
telnet <IP address of Cisco 675>
```

Once you have connected to the Cisco 675, the following information appears on your terminal:

```
Cisco Broadband Operating System V2.0 - Cisco 675 CPE  
Copyright (c) 1998 Cisco Systems, Inc. All rights reserved.  
12303 Technology Blvd - Austin Texas USA - www.cisco.com
```

Login:

- 2 Provide the login and password information. Once the system authenticates your password, you have access to the CBOS.

How to Keep Telnet from Timing Out During Your Session

Telnet sessions time out after a period of inactivity. Enter the following commands keep the Telnet client from timing out.

```
cbos# set telnet timeout off  
cbos# write
```

The `cbos# set telnet timeout off` setting is not saved in NVRAM after a reboot. You must explicitly set it for every session. For more information on Telnet commands, see the *Cisco Broadband Operating System User's Guide*.

3.11.7 TFTP Server

The Trivial File Transfer Protocol (TFTP) allows you to transfer files to and from a Cisco 675. Cisco 675 runs a **tftp** daemon, which allows users from remote machines who have TFTP client software to remotely transfer files to and from the Cisco 675. The TFTP client can be enabled and disabled from the CBOS or the Web Management Interface.



Caution For security reasons, Cisco recommends that you disable the TFTP application, except when uploading or downloading a file.

Software Updates

Typically, you use TFTP to transfer new software image from Cisco to your Cisco 675, where the file name equals `nsrouter.ima.hr` or `nsrouter.hr`.

Archives

Use TFTP to backup a copy of your configuration file before changing it so you can easily recover the old file if necessary. The naming conventions for the configuration file are:

- When using the **put** option of the **tftp** command, you must name the file `nscfg.cfg`.
- When using the **get** option of the **tftp** command, name the file any name that a standard text editor can view and edit.

Using TFTP from a UNIX Machine

For information on the UNIX TFTP client, access the online manual by entering:

```
man tftp
```

At your command line prompt and the manual page for TFTP appears.

Using TFTP from a Windows NT Machine

Follow these steps:

- 1 Set the remote address for the TFTP host computer by entering:

```
cbos# set tftp remote <192.168.35.4>
```

Substitute the remote IP address for 192.168.35.4 in the above example.

Note If you do not have the Cisco 675 IP address, consult your network administrator.

This command tells the Cisco 675 to accept TFTP transfers from that specific IP address (in the example, IP address 192.168.35.4).

- 2 Start a DOS session and enter one of the following commands:

```
C:>tftp -i <675 IP address> get/put <nsrouter.*>  
C:>tftp -i <675 IP address> get/put <config.*>
```

Where necessary, implement the following options:

-i - Sets the transfer mode to binary mode.

get - Downloads a file to a specified IP address.

put - Uploads a file onto that IP address.

- 3 Be sure that you reboot the device to activate the new image. When you log back into the Cisco 675 after the reboot, Use the following command to verify the version of the firmware that is active:

```
show version
```

Attention Windows 95 Users

Windows 95 does not have a TFTP client. If you want to utilize TFTP on a Windows 95 system, you must install a TFTP client from a third-party vendor on your system. One way to locate a TFTP client is to use an Internet search engine to locate a vendor who sells a TFTP client. Some TFTP clients are provided as share or freeware on the Internet. By request, Cisco will provide a TFTP client.

For more information on TFTP commands, see the *Cisco Broadband Operating System User's Guide*.

3.11.8 Web Interface

The Cisco 675 supports a web interface, which allows you to perform tasks such as configuring interfaces, displaying statistics, and much more. For a complete description of the web interface, see the *Cisco Broadband Operating System User's Guide*.

3.12 Configure Timeout Values (DOH)

The Cisco 675 supports two timeout values: *session* and *idle*. The *session* timeout is based on the total uptime of the session. The setting of the *idle* timeout facilitates the release of the RADSL physical layer so that the Central Office resource may be released, based on inactivity. The expiration of either timeout will end the PPP session. However, since authentication is invisible, only the training delay is perceived by the user (approximately seven to fifteen seconds) when the connection is reestablished.

Use the **set timeout** command to configure the idle or session timeout values in seconds.

- 1** To set the session timeout rate to 300, enter:

```
cbos# set timeout session 300
```
- 2** To set the idle timeout rate to 300, enter:

```
cbos# set timeout idle 300
```
- 3** To save your changes, enter:

```
cbos# write
```
- 4** To exit the CBOS, enter:

```
cbos# quit
```

3.13 Update the CBOS Prompt

The default CBOS prompt is `cbos#`. The command prompt is limited to 8 characters. You can change this prompt to a unique subscriber identifier as shown in the following example.

- 1 Logon to the CBOS using either the serial or Telnet interfaces. See “Telnet” section on page 3-19 for more information on how to use Telnet to logon to the CBOS.
- 2 To change the default prompt to 4412883 as the subscriber identifier, enter:

```
cbos# set prompt 4412883
4412883#
```
- 3 To save your changes, enter:

```
cbos# write
```
- 4 To exit the CBOS, enter:

```
cbos# quit
```

3.14 Change Passwords

After you have configured your Cisco 675, you should pick new passwords for both the `root` and `user`. Examples of good and bad passwords are:

- Good Password:
77ta99y (Do not use the sample password.)
- Bad Passwords:
Passwords such as your name; or your street address, or home phone number are too predictable.

Use the **set password** command to change both the `root` and `user` passwords as in the following:

- 1 To change the `root` password enter:

```
cbos# set password root <new password>
```
- 2 To change the `user` password enter:

```
cbos# set password user <new password>
```
- 3 To save your changes, enter:

```
cbos# write
```

- 4 To exit the CBOS, enter:
- ```
cbos# quit
```

## 3.15 Save Configuration Changes

Use the **write** command to save any changes you have made during provisioning to the NVRAM configuration file.

```
cbos# write
```



**Caution** If you do not use the **write** command after changes, all the changes you made during your current session will be lost when you reboot the machine.

## 3.16 Evaluate System Activity and Performance

### Check Cisco 675 Status LEDs

The following table and illustrations describe the Cisco 675 LEDs and their status. The LEDs are found on the front of the unit.

**Table 3-3 Cisco 675 Status LEDs**

| LED Label | Full Name    | Description                                                                                                                                                                                                                                                                                                                                                       |
|-----------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WAN-LNK   | WAN Link     | When this light is ON, it indicates that a link has been established on the WAN port. The WAN-LNK light blinks steadily during ADSL line training activities. When the light is solid, the Cisco 675 is connected and trained. If the light blinks in a number of times and then stops blinking, this indicates that the Central Office equipment is unavailable. |
| WAN-ACT   | WAN Activity | When this light blinks ON, indicates that the WAN port is transmitting or receiving data.                                                                                                                                                                                                                                                                         |

| LED Label | Full Name               | Description                                                                                                                                                                           |
|-----------|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LAN-LNK   | (Ethernet) LAN Link     | When this light is ON, it indicates that a link has been established on the Ethernet port.                                                                                            |
| LAN-ACT   | (Ethernet) LAN Activity | When this light blinks ON, it indicates activity on the Ethernet port.                                                                                                                |
| PWR/ALARM | Power Light             | When this two-color light is Green, the Cisco 675 is ON and working correctly. When the light is Red, the Cisco 675 is ON but indicates a problem or alarm that needs to be resolved. |

### 3.17 Retrieve Cisco 675 Statistics

Use the **show stats** command to display statistics on Cisco 675 activities. The **show stats** command shows information about the number of packets transmitted and received and activity information about Cisco general applications.

To retrieve Cisco 675 statistics, follow these steps:

- 1 To see a list of variables, enter:  

```
cbos# show stats
```
- 2 To display specific statistics, enter:  

```
cbos# show stats <variable from list>
```
- 3 To exit the CBOS, enter:  

```
cbos# quit
```

#### Interpret Cisco 675 Statistics

Use the **show stats** command to retrieve certain key statistics regarding ADSL performance of your Cisco 675. These statistics are:

- **RS Errors**—This statistic shows the Reed-Solomon errors detected. RS errors are the result of line quality problems. Some RS errors are expected in normal operation.
- **Corrected**—This statistic shows the Reed-Solomon errors corrected.

