



SuperStack® 3

Webcache 1000 (3C16115)

Webcache 3000 (3C16116)

User Guide

<http://www.3com.com/>

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REGULATORY NOTICES

ABOUT THIS GUIDE

This guide provides all the information you need to install and use a SuperStack® 3 Webcache 1000/3000. It also describes the features of the Webcache and outlines how to use those features to optimize the performance of the Webcache.

This guide is intended for the system or network administrator who is responsible for installing, configuring and managing the network. It assumes a basic working knowledge of local area network (LAN) and wide area network (WAN) operations.



If release notes are shipped with your product and the information there differs from the information in this guide, follow the instructions in the release notes.

Most user guides and release notes are available in Adobe Acrobat Reader Portable Document Format (PDF) or HTML on the 3Com World Wide Web site:

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Conventions

Table 1 and Table 2 list conventions that are used throughout this guide.

Table 1 Notice Icons




Icon	Notice Type	Description
	Information note	Information that describes important features or instructions
	Caution	Information that alerts you to potential loss of data or potential damage to an application, system, or device
	Warning	Information that alerts you to potential personal injury

Table 2 Text Conventions

Convention	Description
Screen displays	This typeface represents information as it appears on the screen.
Syntax	The word “syntax” means that you must evaluate the syntax provided and then supply the appropriate values for the placeholders that appear in angle brackets. Example: To change your password, use the following syntax: <code>system password <password></code> In this example, you must supply a password for <code><password></code> .
Commands	The word “command” means that you must enter the command exactly as shown and then press Return or Enter. Commands appear in bold. Example: To reboot the Webcache, enter the following command: system control reboot
The words “enter” and “type”	When you see the word “enter” in this guide, you must type something, and then press Return or Enter. Do not press Return or Enter when an instruction simply says “type.”
Keyboard key names	If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example: Press Ctrl+Alt+Del

(continued)

Table 2 Text Conventions (continued)

Convention	Description
Words in <i>italics</i>	<p>Italics are used to:</p> <ul style="list-style-type: none"> ■ Emphasize a point. ■ Denote a new term at the place where it is defined in the text. ■ Identify menu names, menu commands, and software button names. Examples: <p>From the <i>Help</i> menu, select <i>Contents</i>.</p> <p>Click <i>OK</i>.</p>

Related Documentation

In addition to this Guide, the Webcache 1000/3000 documentation set includes the following documents:

- *Webcache 1000/3000 Online Help*

This online help system contains information about the Web interface operations that enable you to manage the Webcache. It contains an explanation for each operation and the available parameters. You can access it by clicking *Help* on any of the Web interface screens.

- *Webcache 1000/3000 Release Note*

These notes provide information about the current software release, including new features, modifications, and known problems.

There are other publications you may find useful, such as:

- Documentation accompanying 3Com Network Supervisor. This is supplied on the CD-ROM that accompanies the Webcache.

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Please include the following information when contacting us:

- Document title
- Document part number (on the title page)

- Page number (if appropriate)

Example:

- SuperStack 3 Webcache 1000/3000 User Guide
- Part number: DUA1611-5AAA01
- Page 25



Please note that we can only respond to comments and questions about 3Com product documentation at this e-mail address. Questions related to technical support or sales should be directed in the first instance to your network supplier.

Product Registration

You can now register your SuperStack 3 Webcache on the 3Com Web site:

<http://support.3com.com/registration/frontpg.pl>



GETTING STARTED

- Chapter 1 Introducing the Webcache
- Chapter 2 Installing the Webcache
- Chapter 3 Configuring Web Browsers

1

INTRODUCING THE WEBCACHE

This chapter contains introductory information about the Webcache 1000/3000 and how it can be used in your network. It covers summaries of hardware and software features and also the following topics:

- What is the Webcache?
- The Webcache and 3Com Network Supervisor
- Webcache — Front View Detail
- Webcache — Rear View Detail
- Default Settings

What is the Webcache?

The SuperStack® 3 Webcache 1000 and 3000 are high-performance, easily configurable webcache appliances. They offer the following benefits to your network:

- **Reduced Network Traffic**

The Webcache locally stores frequently accessed Web content and quickly serves it to the end user on demand. This reduces the amount of traffic on the WAN, providing significant cost benefits by reducing the bandwidth requirement on expensive WAN links.

- **Reduced Web Latency**

The end user receives Web content more quickly and with greater quality of service if it is served from a local, high-speed Webcache than if it is served from the Internet. Web object requests that have to travel over long distances are limited to the speed and capacity of the slowest link in the path. A Webcache that is closer to the client machines reduces the potential for slow links and dropped data packets.

- **Smoother Traffic Flow**

Traffic surges can stress your network and server. The Webcache can help smooth out network traffic and reduce delays in serving Web content. As more users request the same Web content, it becomes more likely that the content will be stored in the Webcache, and in turn the Webcache becomes more effective at eliminating upstream traffic.

- **Controlled Web Access**

The Webcache allows you to control which client machines in your network can access the Internet, and which Web sites can be accessed. Access Logs show you who has used the Internet and where they have been.

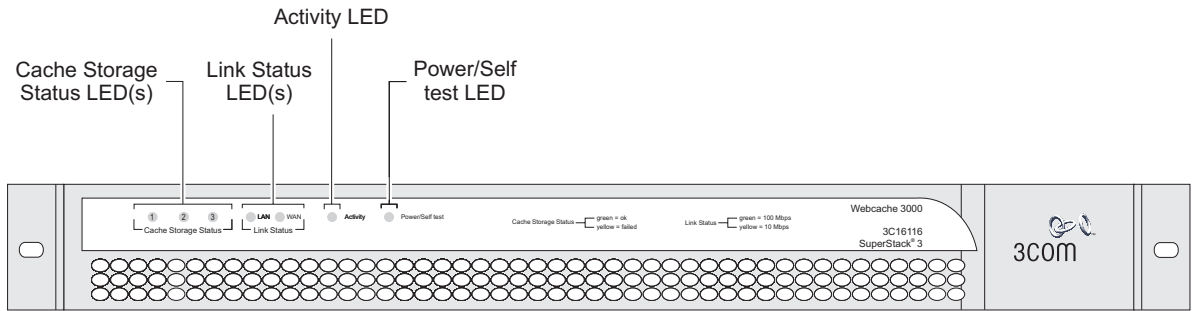
The Webcache and 3Com Network Supervisor

The latest version of 3Com Network Supervisor is supplied on the CD-ROM that accompanies the Webcache. 3Com Network Supervisor provides powerful, intuitive network management for small to medium enterprise networks. It automatically discovers network devices and reports network activity, stress monitoring and performance metrics for network managers. This information helps to provide the most efficient, cost-effective use of network resources.

3Com Network Supervisor offers the following support:

- If your 3Com Network Supervisor management station is located on the LAN, it discovers the Webcache automatically and displays it on the topology map.
- The topology map indicates that the Webcache is a 3Com Webcache and uses a caching icon to represent it.
- Double-clicking on the caching icon launches the Web interface of the Webcache.

Webcache — Front View Detail **Figure 1** Webcache — Front View



The above illustration shows a Webcache 3000. The Webcache 1000 contains a single Cache Storage Device and therefore has one Cache Storage Status LED on the front panel. The Webcache 3000 contains two Cache Storage Devices and can also be upgraded with a third device in the future; therefore it has three Cache Storage Status LEDs.

LEDs

Table 3 lists LEDs visible on the front of the Webcache, and how to read their status according to color. For information on using the LEDs for problem solving, see “Solving Problems Indicated by LEDs” on page 32.

Table 3 LED Behavior

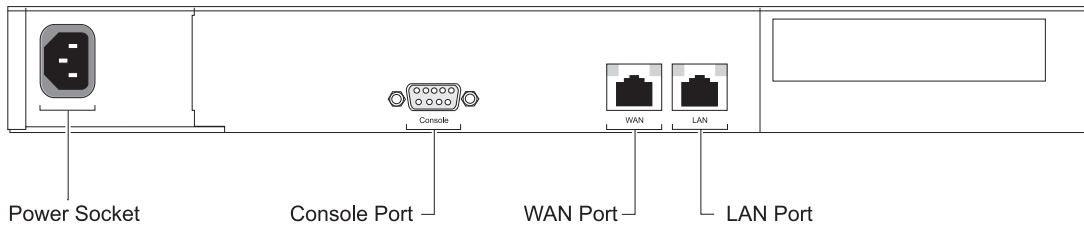
LED	Color	Indicates
Cache Storage Status LED(s)		
	Green	The cache storage device is present and operating normally.
	Yellow	The cache storage device has failed.
	Off	The cache storage device is not present.
Link Status LEDs		
	Green	A Fast Ethernet speed (100 Mbps) link is present, and the port is enabled.
	Yellow	An Ethernet speed (10 Mbps) link is present, and the port is enabled.
	Off	No link is present.

(continued)

LED	Color	Indicates
Activity LED		
	Green flashing	The cache is active and caching is occurring.
	Off	The cache is not active. This is normal behavior for an idle Webcache.
Power/Self test LED		
	Green	The Webcache is powered-up and operating normally.
	Green flashing	The Webcache is either initializing or performing a software upgrade.
	Yellow	The Webcache is powered-up but is not caching - a failure has occurred.
	Off	The Webcache is not powered-up. This may indicate a power failure.

Webcache — Rear View Detail

Figure 2 Webcache — Rear View



WARNING: WAN and LAN RJ-45 Ports. These are shielded RJ-45 data sockets. They cannot be used as standard traditional telephone sockets, or to connect the unit to a traditional PBX or public telephone network. Only connect RJ-45 data connectors, Switches or Routers to these sockets.

Either shielded or unshielded data cables with shielded or unshielded jacks can be connected to these data sockets.

Power Socket The Webcache automatically adjusts its power setting to any supply voltage in the range 90-240 VAC.

Console Port The console port allows you to connect a terminal, terminal emulator or modem and perform remote or local out-of-band management. The

console port uses a standard null-modem cable and is set to 9600 baud, 8 data bits, no parity and 1 stop bit.

WAN Port The WAN port is an auto-negotiating 10BASE-T/100BASE-TX RJ-45 port. It is used to connect the Webcache to the network in an inline deployment environment.



CAUTION: *The Webcache does not support inline deployment in Version 1.0. You should not connect network cabling to the WAN port.*

LAN Port The LAN port is an auto-negotiating 10BASE-T/100BASE-TX RJ-45 port. It is used to connect the Webcache to the network in either Proxy or Transparent deployment environments. Web network traffic travels to and from the Webcache via the LAN port. For more information, see “Deploying the Webcache in Your Network” on page 33.



You must connect the LAN port to your network using an appropriate network cable. For more information, see the “Cable Specifications and Pin-outs” appendix on page 147.

WAN and LAN Port LEDs

Figure 3 Webcache — WAN and LAN Port LEDs

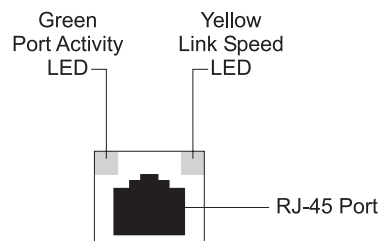


Table 4 lists LEDs visible on the rear of the Webcache, and how to read their status according to color. For information on using the LEDs for problem solving, see “Solving Problems Indicated by LEDs” on page 32.

Table 4 LED Behavior

LED	Color	Indicates
Port Activity LED		
	Green On	A link is present.
	Green Flashing	Packets are being transmitted/received on the port.
	Green Off	No link is present.
Link Speed LED		
	Yellow On	A Fast Ethernet speed (100 Mbps) link is present.
	Yellow Off	An Ethernet speed (10 Mbps) link is present.



The Link Speed LED does not change its state if the link is broken. It remains in its current state until a new link is established. Therefore Green Off, Yellow On indicates that no link is present and that the link was previously 100Mbps. It does not indicate that a 100Mbps link is still present.

Default Settings

Table 5 shows the factory default settings for the Webcache:

Table 5 Default Settings

Feature	Webcache 1000/3000
Port Speed	10BASE-T/100BASE-TX Mbps ports are auto-negotiated
Duplex Mode	10BASE-T and 100BASE-TX ports are auto-negotiated
Flow Control	Enabled with auto-negotiation in full duplex
Console Port	9600 Baud, 8 data bits, no parity, 1 stop bit, no flow control
IP Address	192.168.1.253 non-broadcast address
Subnet Mask	255.255.255.0
Domain Name System (DNS) Server	0.0.0.0
Default Router	0.0.0.0
Host Name	Null
Domain Name System (DNS) Domain	Null
Caching	Enabled
Caching Mode	Proxy

(continued)

Feature	Webcache 1000/3000
Caching Port	8080
Access Logging	Disabled
Web Site Blocking	Disabled
Web Client Blocking	Disabled
Simple Network Management Protocol (SNMP)	Enabled but requires configuration
Network Time Protocol (NTP)	Disabled
Web Browser Auto-Configuration	Disabled
Upgrade Notification	Enabled but requires configuration
Upgrade Detection/Download	Enabled
Email Notification Events	Disabled
Multi Router Traffic Grapher (MRTG) Graphs	Always Enabled
admin Password	(none)
Password Recovery	Enabled

If you initialize the Webcache by selecting System -> Control -> Initialize in the Web interface or by entering `system control initialize` in the Command Line Interface, the following settings are retained to allow you to connect to and manage the Webcache:

- IP Address
- Subnet Mask
- Default Router
- Domain Name System (DNS) Server
- Host Name
- Domain Name System (DNS) Domain

All other settings are reset to the default values shown in Table 5.

2

INSTALLING THE WEBCACHE

This chapter contains the information you need to install and set up the Webcache 1000/3000. It covers the following topics:

- Package Contents
- Choosing a Suitable Site
- Rack-Mounting the Webcache
- The Power-up Sequence
- Deploying the Webcache in Your Network
- Setting Up the Webcache for Management
- Getting Started Wizard Settings
- Connecting the Webcache to the Live Network
- Network Configuration Concepts



WARNING: Safety Information. Before installing or removing any components from the Webcache 1000/3000 or carrying out any maintenance procedures, you must read the safety information provided in Appendix A of this guide.



AVERTISSEMENT: Consignes de sécurité. Avant d'installer ou d'enlever tout composant du Webcache 1000/3000 ou d'entamer une procédure de maintenance, lisez les informations relatives à la sécurité qui se trouvent dans l'Appendice A de ce guide.



WARNHINWEIS: Sicherheitsinformationen. Bevor Sie Komponenten aus dem Webcache 1000/3000 entfernen oder dem Webcache 1000/3000 hinzufügen oder Instandhaltungsarbeiten verrichten, lesen Sie die Sicherheitsanweisungen, die in Appendix A (Anhang A) in diesem Handbuch aufgeführt sind.

Package Contents

- Webcache 1000 (3C16115) or Webcache 3000 (3C16116)
- CD-ROM
- User Guide (this guide)
- Release Notes
- Warranty Card
- Power Cord
- Rack-Mounting Kit containing:
 - 2 x Rack Mounting Rails
 - 2 x Rack Mounting Brackets
 - 2 x Adjustable Brackets
 - 2 x Front Plates
 - 16 x Screws

These items are shown in Figure 4 on page 27.

Choosing a Suitable Site

The Webcache must be mounted in a standard 19-inch 4-posted equipment rack, and is suited for use in a wiring closet, an equipment room, a server room, or telecommunications room. A rack-mounting kit is supplied with the Webcache.



CAUTION: *Ensure that the ventilation holes in the Webcache are not obstructed.*

When deciding where to position the Webcache, ensure that:

- Cabling is located away from:
 - sources of electrical noise such as radios, transmitters and broadband amplifiers.
 - power lines and fluorescent lighting fixtures.
- The Webcache is accessible and cables can be connected easily.
- Water or moisture cannot enter the case of the Webcache.
- Air-flow is not restricted around the Webcache. 3Com recommends that you provide a minimum of 25 mm (1 in.) clearance.
- Air temperature around the Webcache does not exceed 40 °C (104 °F).



If the Webcache is installed in a 19-inch rack or closed assembly its local air temperature may be greater than room ambient temperature.

- The air is as free from dust as possible.
- The Webcache is installed in a clean, air conditioned environment.

Rack-Mounting the Webcache

The Webcache is 1U high and will fit in most standard 19-inch rack mounts.



CAUTION: The rear of the Webcache must be supported. This is best achieved through the use of a 19-inch 4-posted rack.

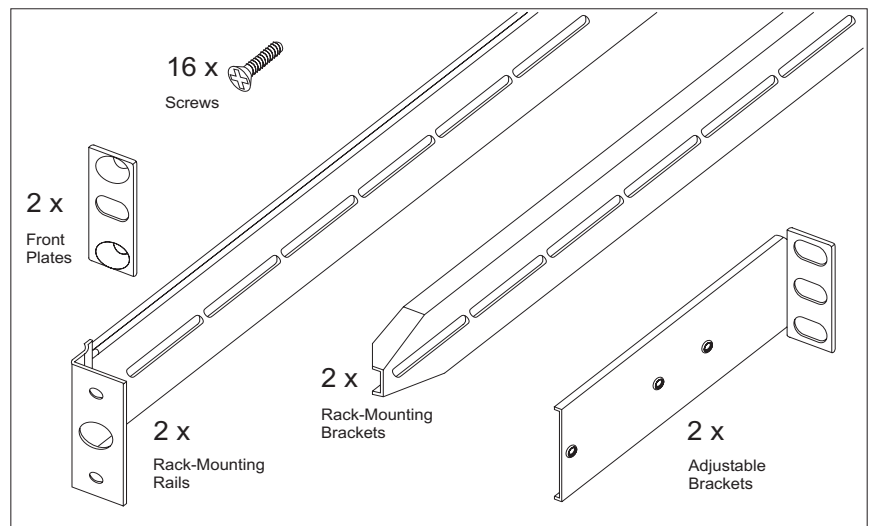


CAUTION: Disconnect all cables from the Webcache before continuing.

To rack-mount your Webcache:

- 1 Place the Webcache the right way up on a hard flat surface, with the front facing towards you.
- 2 Locate the Rack-Mounting Kit that is supplied with the Webcache. The Kit contains the items shown in Figure 4.

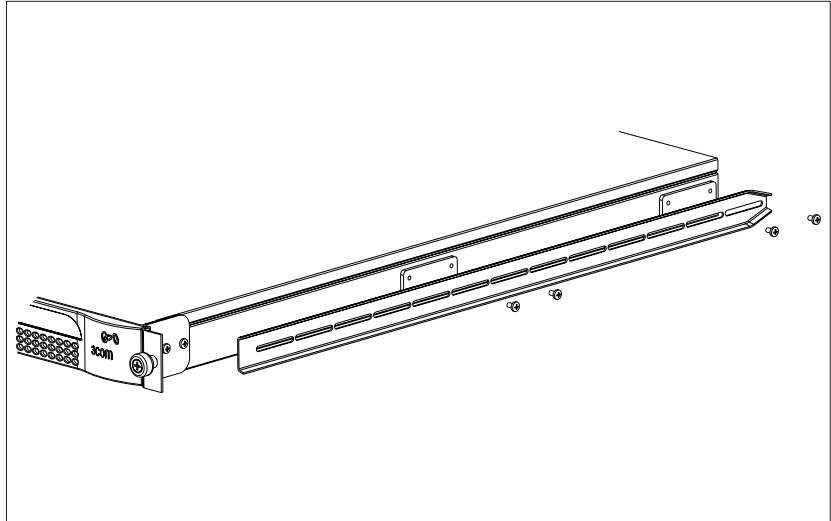
Figure 4 The Rack-Mounting Kit Contents



You must use the rails and screws supplied with the Rack-Mounting Kit. Damage caused to the Webcache by using incorrect rails and screws invalidates your warranty.

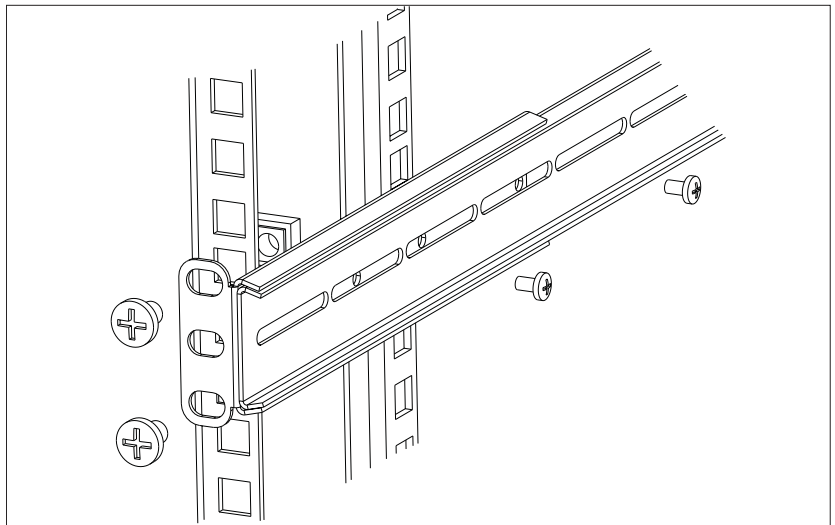
- 3 Attach a rack-mounting bracket to each side of your Webcache using 4 of the screws provided for each bracket, as shown in Figure 5.

Figure 5 Fitting a Rack-Mounting Bracket to the Webcache



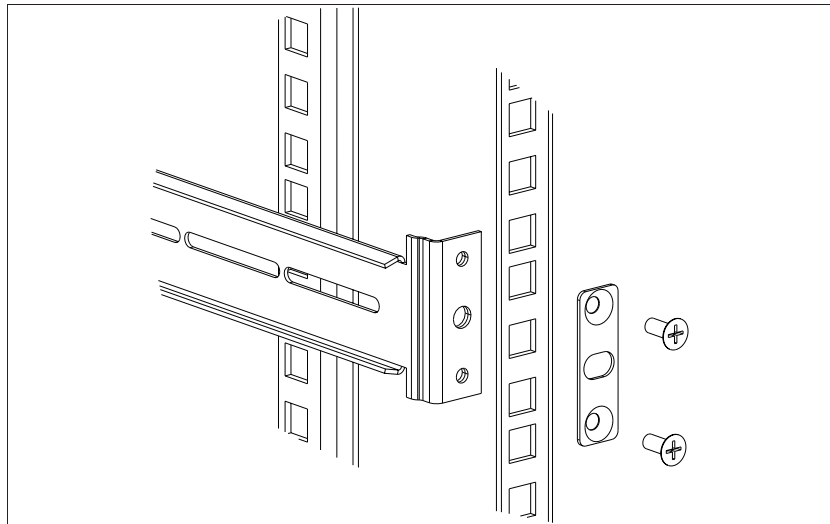
- 4 Use an adjustable bracket to secure a rack-mounting rail to the rear of your rack as shown in Figure 6. To do this:
 - a Slide the adjustable bracket onto the rack-mounting rail and attach it using two of the screws provided at a position suitable for your rack.
 - b Use rack-nuts (not supplied) to attach the rack-mounting rail and adjustable bracket assembly to the rear of your rack.

Figure 6 Fitting a Rack-Mounting Rail to the Rear of the Rack



- 5 Attach the rack-mounting rail to the front of the rack. To do this:
 - a Insert two screws through aligned openings in the front plate, rack and rack-mounting rail as shown in Figure 7.
 - b Tighten the screws with a suitable screwdriver.

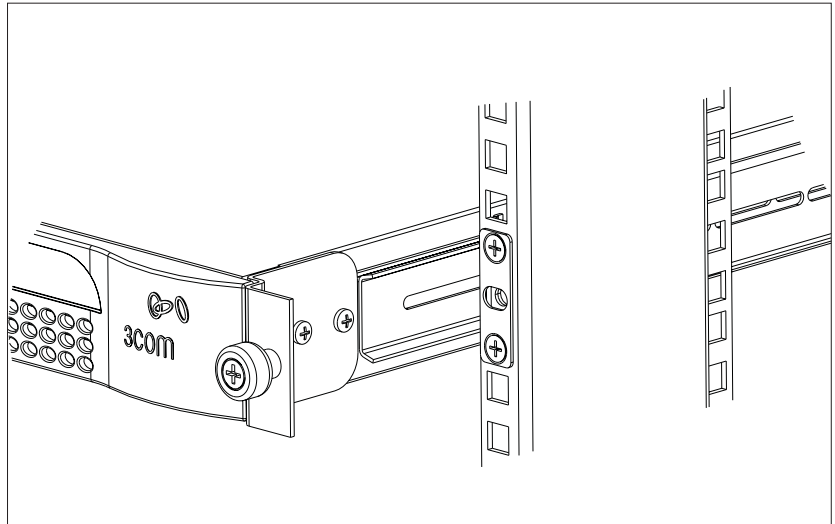
Figure 7 Fitting a Rack-Mounting Rail to the Front of the Rack



- 6 Repeat step 4 and step 5 for the other side of the rack.

- 7 Slide the rack-mounting brackets on the sides of the Webcache into the rack-mounting rails.
- 8 Secure the front of the Webcache to the rack with the captive thumbscrews, as shown in Figure 8.

Figure 8 Attaching the Webcache to the Rack



- 9 Ensure that the ventilation holes in the Webcache are not obstructed.

The Power-up Sequence

The following sections describe how to get your Webcache powered-up and ready for operation.

Powering-up the Webcache

Use the following sequence of steps to power-up the Webcache:

- 1 Plug the power cord into the power socket at the rear of the Webcache.
- 2 Plug the other end of the power cord into your power outlet.
- 3 The Webcache automatically powers-up, which takes approximately 60-90 seconds. During power-up all of the LEDs light and the Power/Self test LED flashes green. When the Webcache has powered-up and is operating normally, the Power/Self test LED changes to non-flashing green.



CAUTION: *The Webcache has no ON/OFF switch; the only method of connecting or disconnecting mains power is by connecting or disconnecting the power cord.*

Checking for Correct Operation of LEDs

During the power-up of the Webcache, all ports on the Webcache are disabled, all of the LEDs light and the Power/Self test LED flashes green

When the power-up has completed, check the Power/Self test LED to make sure that your Webcache is operating correctly. Table 6 shows possible behavior for the LED.

Table 6 Power/Self test LED behavior

Color	State
Green	The Webcache is powered-up and operating normally.
Green flashing	The Webcache is either powering-up or performing a software upgrade.
Yellow	The Webcache is powered-up but is not caching — a failure has occurred.
Off	The Webcache is not powered-up. This may also indicate a power failure.

Solving Problems Indicated by LEDs

If the LEDs on the Webcache indicate a problem, refer to Table 7, which contains a list of problems and suggested solutions.

Table 7 Problems Indicated by LEDs

Problem	Suggested Solution
The Power/Self test LED does not light	Check that the power cable is firmly connected to the Webcache and to the supply outlet. If the connection is secure and there is still no power, you may have a faulty power cord.
On powering-up, the Power/Self test LED lights yellow	The Webcache has failed during its power-up sequence because of an internal problem. Contact your supplier for advice.
A link is connected but the Status LED for the port does not light	Check that: <ul style="list-style-type: none"> ■ All connections are secure. ■ The devices at both ends of the link are powered-up. ■ The quality of cable is satisfactory.

Deploying the Webcache in Your Network

You must determine how you are going to deploy the Webcache in your network. The Webcache can be deployed in two ways:

- *Proxy Cache mode* — The Webcache is connected to a Layer 2 switch in your LAN. You must configure the Web browser on each client machine in your network to direct its Web requests to the Webcache.
- *Transparent Cache mode* — The Webcache is connected to a Layer 4 redirection device — a switch, router or firewall in your LAN which is capable of Redirection. No configuration of the Web browser on each client machine is needed because the Layer 4 device automatically redirects Web requests to the Webcache.



CAUTION: 3Com recommends that you deploy your Webcache on the LAN side of a firewall, or on the SuperStack 3 Firewall's DMZ port as described in "Deploying the SuperStack 3 Firewall as a Proxy Forwarder" on page 35.

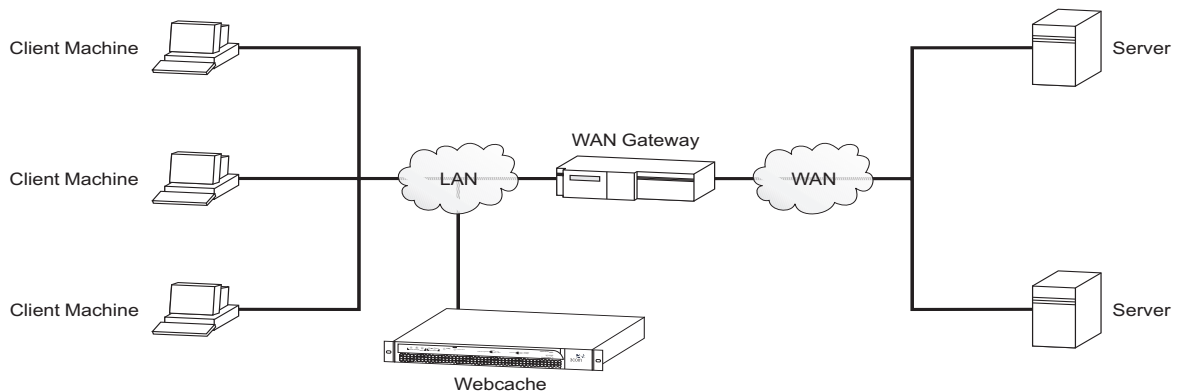


The term "Web requests" refers to three types of network traffic; HTTP, HTTPS (SSL encrypted) and HTTP-FTP. The Webcache can accept all of these traffic types. In Proxy Cache mode, you should configure the Web browser on each client machine to use the Webcache as the server for each of these protocols.



HTTPS (SSL encrypted) traffic is only passed through by the Webcache; it is not decoded or cached.

Proxy Cache Figure 9 Proxy Cache Deployment



In the Proxy Cache deployment the Webcache is connected to an Ethernet switch in your LAN. You must configure the Web browser on each client machine in your network to explicitly direct its Web requests to the Webcache. For more information on Web browser configuration, see “Configuring Web Browsers” on page 49.

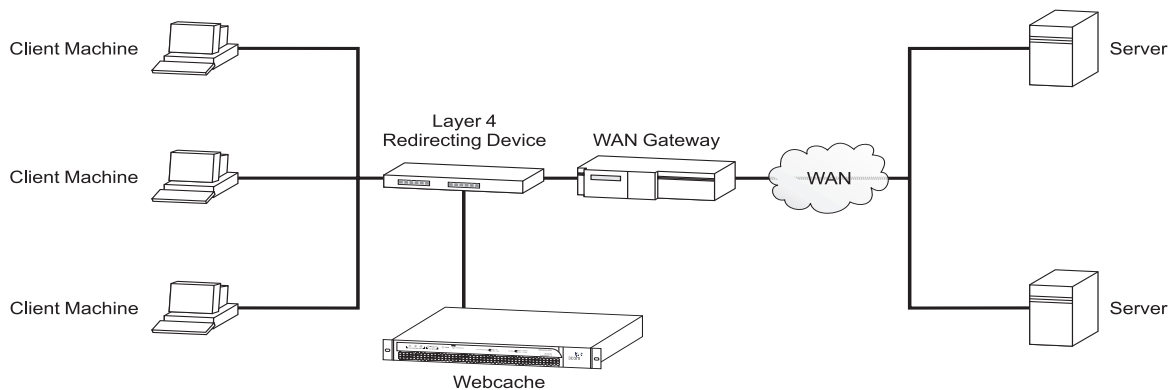
All Web requests are received and served by the Webcache. All non-Web traffic bypasses the Webcache and is sent directly to the appropriate destination.

If the Webcache fails, access to the Web is lost because each client machine has been configured to direct its Web requests to the Webcache.



You can avoid this loss of access to the Web by using Proxy Auto Configuration (PAC) files to configure the Web browser on each client machine. The PAC file can instruct the browser to go directly to the Web if the Webcache is not available. For more information, see page 50.

Transparent Cache **Figure 10** Transparent Cache Deployment



In the Transparent Cache deployment the Webcache is connected to a Layer 4 switch, router or firewall in your LAN which is capable of Redirection. The Layer 4 device (also known as a Layer 4 redirector or Web-enabled device) automatically redirects all Web requests to the Webcache. Therefore no configuration of the Web browser on each client machine is needed, which avoids configuration problems and reduces the demand on technical support.

If the Webcache fails, the Layer 4 device will detect the failure and redirect Web requests to the WAN, if the device supports Webcache health-checks, ensuring that access to the Web is maintained.

Deploying the Webcache in Transparent mode has benefits for the security of your network. It ensures that only client machines that are inside your network can access the systems and resources within it. This eliminates the need for serious access controls.

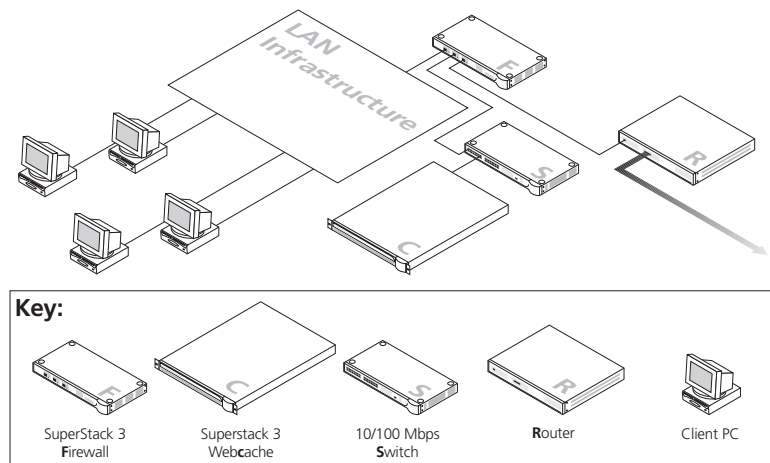
Migrating from Proxy Cache to Transparent Cache Mode

Client machines with Web browsers that are configured to use the Webcache as a Proxy Cache (either directly or through Browser Auto-Configuration) can continue to use the Webcache as a Proxy Cache if you change the Webcache to a Transparent Cache deployment. This allows you to gradually migrate the client machines in your network from a pure Proxy Cache configuration to a pure Transparent Cache configuration, by changing the Web browsers to Transparent Cache mode as required.

Deploying the SuperStack 3 Firewall as a Proxy Forwarder

The following example describes how to install the SuperStack 3 Firewall (3CR16110-9x) as a Proxy Forwarder. The network layout is shown in Figure 11 below.

Figure 11 Deploying the Firewall and Webcache Together



- 1 Install the Webcache as described in this Chapter, taking into account any safety information.
 - a Install the Webcache on a Hub or Switch connected to the DMZ port of the Firewall. Use the LAN port of the Webcache for this connection.



Network Address Translation (NAT) does not apply to the DMZ port of the Firewall so you will need to configure the Webcache with a registered IP address.

- b** Set the Webcache to *Proxy Mode*. This setting can be made from the *Getting Started Wizard* or by selecting *Device View > System > Caching > Set Caching Mode* from the Web interface.
 - c** In the *Port Number* field enter the number **8080** (this is the default value).
 - d** Do not enable *Web Site Blocking* on the Webcache as the Firewall has more advanced filtering abilities and is able to use the 3Com Web Site Filter (3C16111) if installed.
- 2** Install the Firewall according to the Superstack 3 Firewall User Guide (DUA1611-0AAA0x) taking into account any safety information.
- a** On the Web interface of the Firewall click *Advanced* then *Proxy Relay*.
 - b** In the *Proxy Web Server Address* field enter the IP address of your Webcache.
 - c** In the *Proxy Web Server Port* field enter the number **8080**.
 - d** Click *Update* to save your changes.
- 3** No configuration is necessary on the client machines. The Firewall will intercept any HTTP requests for external URLs and will forward the traffic to the Webcache.

Setting Up the Webcache for Management

You can quickly set up the Webcache for management in two ways:

- **Setting Up Using the Web Interface** — Connect a management workstation to the Webcache over an IP test network or directly via a cross-over cable. For more information, see “Setting Up Using the Web Interface” on page 38.
- or
- **Setting Up Using the Command Line Interface** — Connect a management workstation to the Webcache over an IP test network or connect a terminal or terminal emulator to the console port of the Webcache directly, or through a modem. For more information, see “Setting Up Using the Command Line Interface” on page 40.



CAUTION: *You must configure the basic settings of the Webcache by completing the Getting Started wizard before you introduce the*

Webcache to your live network. In particular, ensure that the IP settings of the Webcache fit into those of your network. For more information, see “Getting Started Wizard Settings” on page 43.

Before You Begin

To setup the Webcache for management, you must correctly configure it with the following information. Ensure that you have this information for the Webcache ready before you begin.

- **An IP address** — for more information, see “IP Addresses” on page 45.
- **A subnet mask** — for more information, see “Subnets and Using a Subnet Mask” on page 46.
- **A default router address** — for more information, see “Default Router” on page 46.
- **A Domain Name System (DNS) server address** — for more information, see “Domain Name System” on page 47.
- **A Network Time Protocol (NTP) address** — for more information, see the “System Time” chapter on page 67. You can choose to enter the system time manually instead of using NTP.
- **A Host Name** — The Host Name is combined with the **Domain Name System domain** to give the internet name of the Webcache. The host name is the name of the Webcache within the local domain.
- **A Domain Name System (DNS) domain** — The Domain Name System domain is combined with the **Host Name** to give the internet name of the Webcache. The domain name is a grouping of computers with related properties. For example you might group all computers in your company in the domain `mycompany.com`.

Example

The internet (DNS) name `webcache.mycompany.com` is formed by combining the Host Name `webcache` with the DNS domain `mycompany.com`.

- **A Caching Mode** — for more information, see “Deploying the Webcache in Your Network” on page 33.
- **A Caching Port Number** — The Caching Port Number is the port on which the Webcache will listen for traffic. The default number is 8080. The caching port number is only required if you set the Caching Mode to “Proxy Mode”.

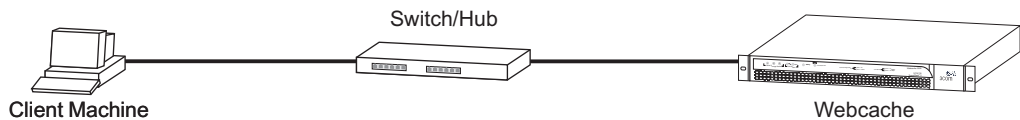
Setting Up Using the Web Interface

You can setup the Webcache for management via the Web interface by using a Web browser on a management workstation that is connected to the Webcache over your test network, or directly using a cross-over cable.

Setting Up Over the Test Network

The Webcache is pre-configured with a default IP address, which is within the range of addresses reserved by the IETF for private IP networks. This default address allows you to run the Web interface without any initial configuration of IP addresses. The default IP address of the Webcache is 192.168.1.253.

Figure 12 Setting Up Over the Test Network



To connect the Webcache to the test network:

- The client machine must be in the same subnet as the Webcache to be able to access it using the default IP address.
- You must have an IP stack correctly installed on the client machine. You can check this by trying to browse the World Wide Web; if you can browse, an IP stack is installed. If you do not have access to the World Wide Web, you can check that the IP stack is installed by pinging another device in your network. For more information, see “Pinging Other Devices” on page 91.

Setting Up Using a Cross-over Cable

Alternatively, you can directly connect a client machine to the Webcache by attaching a cross-over cable to the LAN port on the rear panel. For more information, see “Webcache — Rear View Detail” on page 20.

Figure 13 Setting Up Using a Cross-over Cable



Accessing the Web Interface

To access the Web interface:

- 1 Open the Web browser on the management workstation. To display the Web interface correctly, use one of the following Web browsers:
 - Microsoft Internet Explorer v4.0
 - Microsoft Internet Explorer v5.0
 - Microsoft Internet Explorer v5.5
 - Netscape Communicator v4.5
 - Netscape Communicator v4.6
 - Netscape Communicator v4.7



Netscape Navigator version 6 is not supported by the Webcache.



For the browser to operate the Web interface correctly JavaScript™ and Cascading Style Sheets must be enabled on your browser. These features are enabled on a browser by default. You will only need to enable them if you have changed your browser settings. Also the Web interface has been optimised for PC screens with the desktop area set to 800 by 600 pixels. 3Com recommends that you set the font size to Small Fonts.

- 2 In the Location/Address field of the browser, enter the URL of the Webcache. This must be in the format:

http://nnn.nnn.nnn.nnn:8081

where **nnn.nnn.nnn.nnn** is the IP address of the Webcache and **8081** is the port on which the Webcache listens. You must enter **http://** and the port number to successfully access the Webcache using your browser.



192.168.1.253 is the default IP address of the Webcache.



In Netscape, you can enter a shortened URL such as 192.168.1.253:8081 and Netscape successfully accesses the Webcache. In Internet Explorer, however, this URL is not recognized. You must include "http://" at the start of the URL i.e. http://192.168.1.253:8081.

- 3 When the browser has located the Webcache, a user name and password screen is displayed as shown in Figure 14.

Figure 14 User name and password screen

If the user name and password screen is not displayed, see "Solving Web Interface Problems" on page 130.

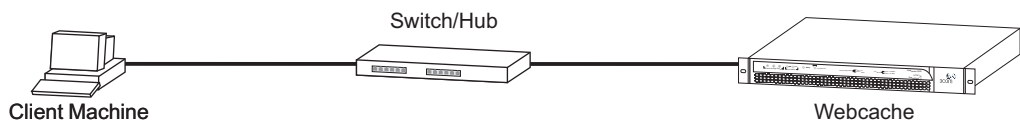
- 4 Enter your user name and password. For further information, see "Logging in as a Default User" on page 58. Click OK.
- 5 The Getting Started wizard is displayed when the Web interface has loaded. You must configure the basic settings of the Webcache by completing the Getting Started wizard before you introduce the Webcache to your live network. For more information, see "Getting Started Wizard Settings" on page 43.

Setting Up Using the Command Line Interface

You can setup the Webcache for management via the Command Line Interface by running a Telnet session on a management workstation that is connected to the Webcache over your test network, or locally via a console port connection.

Setting Up Over the Test Network

The Webcache is pre-configured with a default IP address, which is within the range of addresses reserved by the IETF for private IP networks. This default address allows you to run the Command Line Interface without any initial configuration of IP addresses. The default IP address of the Webcache is 192.168.1.253.

Figure 15 Setting Up Over the Test Network

To setup the Webcache using the Command Line Interface over a test network using Telnet, open a Telnet session using a terminal emulator by specifying the IP address of the Webcache. If you are unsure how to do this, check the documentation supplied with the Telnet facility

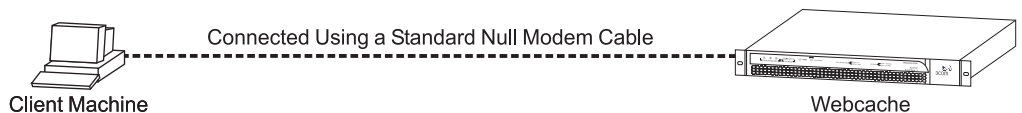
To connect the Webcache to the test network:

- The client machine must be in the same subnet as the Webcache to be able to access it using the default IP address.
- You must have an IP stack correctly installed on the client machine. You can check this by trying to browse the World Wide Web; if you can browse, an IP stack is installed. If you do not have access to the World Wide Web, you can check that the IP stack is installed by pinging another device in your network. For more information, see “Pinging Other Devices” on page 91.

Setting Up Through the Console Port

Alternatively, you can directly connect a client machine to the Webcache by attaching a null-modem cable to the console port on the rear panel. For more information, see “Webcache — Rear View Detail” on page 20.

Figure 16 Setting Up Through the Console Port



To connect to the Webcache via the console port:

- 1 You must connect a terminal or terminal emulator to the console port on the rear panel of the Webcache. For more information, see “Webcache — Rear View Detail” on page 20.
 - If you are connecting directly to the console port, you need a standard null-modem cable.
 - If you are connecting to the console port using a modem, you need a standard modem cable. The console port of the Webcache has a male 9-pin D-type connector. You can find pin-out diagrams for both cables in the “Cable Specifications and Pin-outs” appendix on page 147.

To connect the cable:

- a Attach the female connector on the cable to the male connector on the console port of the Webcache.

- b Tighten the retaining screws on the cable to prevent it from being loosened.
 - c Connect the other end of the cable to your terminal, terminal emulator, or modem. Make sure that the terminal, terminal emulator, or modem have the same settings as the console port:
 - 8 data bits
 - no parity
 - 1 stop bit
- 2 To configure the settings of the terminal, terminal emulator, or modem, see the documentation that accompanies it. You must configure the terminal and set the line speed (baud) to 9600. You can change the baud rate of the console port via the Web interface.

Accessing the Command Line Interface

To access the Command Line Interface, take the following steps:

- 1 The login sequence for the Command Line Interface begins as soon as the Webcache detects a connection to its console port, or as soon as a Telnet session is started.



If the login sequence does not begin immediately, press Return a few times until it does begin. If the sequence still does not begin, see "Solving Command Line Interface Problems" on page 133.

- 2 At the Login and Password prompts, enter your user name and password. For further information, see "Logging in as a Default User" on page 58.
- 3 If you have logged on correctly, the Top-level menu of the Command Line Interface is displayed as described in "Understanding the Command Line Interface" on page 112. If you have not logged on correctly, the message `Incorrect password.` is displayed and the login sequence starts again.
- 4 Access the Getting Started wizard, which allows you to quickly configure the basic setup information for the Webcache.

At the Top-level menu, enter:

gettingStarted

- 5 The Getting Started wizard is displayed. You must configure the basic settings of the Webcache by completing the Getting Started wizard before you introduce the Webcache to your live network. For more information, see "Getting Started Wizard Settings" below.

Getting Started Wizard Settings

The following table shows the settings that you can configure in both the Web interface and Command Line Interface Getting Started wizards.



CAUTION: You must configure the basic settings of the Webcache by completing the Getting Started wizard before you introduce the Webcache to your live network. In particular, ensure that the IP settings of the Webcache fit into those of your network.

Table 8 Getting Started wizard Settings

Setting	Meaning	Default	Example
System Name	A name that uniquely identifies the Webcache in your network. Can be up to 255 characters long.	(none)	Webcache 3000 #1
Location	A description that identifies the location of the Webcache in your network. Can be up to 255 characters long.	(none)	Main server room
Contact	The name of the person who is responsible for the Webcache. Can be up to 255 characters long.	(none)	Joe Brown
IP Address	A unique IP address for the Webcache.	192.168.1.253	192.168.1.253
Subnet Mask	A suitable Subnet Mask for the Webcache.	(none)	255.255.255.0
Default Router IP Address	The IP address of the default IP router (gateway) in your network.	(none)	192.168.2.0
DNS Server IP Address	The IP address of the Domain Name System (DNS) server in your network.	(none)	192.168.25.0
Host Name	The Host Name is combined with the DNS Domain Name to give the internet name of the Webcache. The host name is the name of the Webcache within the local domain.	(none)	webcache
Domain Name System (DNS) Domain Name	The DNS Domain Name is combined with the Host Name to give the internet name of the Webcache. The Domain Name is a grouping of computers with related properties.	(none)	mycompany.com
Timezone	The timezone in which the Webcache will operate.	(GMT - 05:00) Eastern Time (US)	(GMT) London, Dublin, Edinburgh
NTP Server IP Address	The IP address of a Network Time Protocol server.	(none)	200.49.40.1
Current Date	The current day, month and year.	(none)	06 March 2001
Current Time	The current time in 24hr clock format.	(none)	12:15:45

(continued)

Setting	Meaning	Default	Example
Password	A password for the admin user name, which you must enter whenever you manage the Webcache via the Web interface or Command Line Interface. Can be up to 10 characters long, is case-sensitive and must only contain alpha-numeric characters.	(no password)	1a2b3c4d4e
Caching Mode	Choose how the Webcache is deployed within your network - either Proxy Mode or Transparent Mode.	Proxy Mode	N/A
Caching Port Number	The port number on which the Webcache will listen for traffic. This is only required if you set the Caching Mode to "Proxy Mode". You may use any other numbers in the range 1024-8080 and 8090-65534. 3Com recommends you use the default port number of 8080.	8080	8080

Connecting the Webcache to the Live Network

The following sections describe how to connect the Webcache to your live network.

Choosing the Correct Cables

3Com recommends that you use Category 5 cable to connect the LAN port to your network — the maximum segment length for this type of cable is 100 m (328 ft).

Connecting the Webcache

Use the following sequence of steps to connect the Webcache to your network:

- 1 Connect an appropriate network cable to the LAN port on the rear panel of the Webcache. Simply slot the connector on the cable into the RJ-45 LAN port. When the connector is fully in, its latch locks in place. To disconnect the cable, push the connector's latch in and remove it.
- 2 Connect the other end of the network cable to a 10BASE-T/100BASE-TX port on a suitable switch or hub in your network. The switch or hub that you connect the Webcache to is determined by the deployment environment that you choose; for further information, see "Deploying the Webcache in Your Network" on page 33.

Network Configuration Concepts

The following sections explain certain key concepts of configuring your network, which you must understand in order to set up the Webcache successfully.

IP Addresses

If you are uncertain about what IP addresses to assign your equipment, contact your network administrator.

To operate correctly, each device on your network (for example a webcache or management station) must have a unique IP address. IP addresses have the format *nnn.nnn.nnn.nnn* where *n* is a decimal number between 0 and 255. An example IP address is '192.168.100.8'.

The IP address can be split into two parts:

- The first part ('192.168' in the example) identifies the network on which the device resides.
- The second part ('100.8' in the example) identifies the device within the network.

If your network is internal to your organization only, you may use any arbitrary IP address. We suggest you use addresses in the series 192.168.100.X (where X is a number between 1 and 254) with a subnet mask of 255.255.255.0.



These suggested IP addresses are part of a group of IP addresses that have been set aside specially for use "in house" only.



CAUTION: *If your network has a connection to the external IP network, you must apply for a registered IP address. This registration system ensures that every IP address used is unique; if you do not have a registered IP address, you may be using an identical address to someone else and your network will not operate correctly.*

Obtaining a Registered IP Address

InterNIC Registration Services is the organization responsible for supplying registered IP addresses. The following contact information is correct at time of publication:

World Wide Web site: <http://www.internic.net>

Subnets and Using a Subnet Mask

You can divide your IP network into sub-networks also known as subnets. Support for subnets is important because the number of bits assigned to the device part of an IP address limits the number of devices that may be addressed on any given network. For example, a Class C address is restricted to 254 devices.



If you have a small network (less than 254 devices), you may decide not to have multiple subnets.

A subnet mask is used to divide the device part of the IP address into two further parts:

- The first part identifies the subnet number.
- The second part identifies the device on that subnet.

The bits of the subnet mask are set to 1 if the device is to treat the corresponding bit in the IP address as part of the original network number or as part of the subnet number. These bits in the mask are set to 0 if the device is to treat the bit as part of the device number.

If you are unsure about what mask to use, 3Com suggest that you contact your network administrator.

Default Router

A Router is a device on your network which is used to forward IP packets to a remote destination. An alternative name for a Router is a Gateway. "Remote" refers to a destination device that is not directly attached to the same network segment as the source device.

The source device cannot send IP packets directly to the destination device because it is in a different network segment. Instead you configure it to send the packets to a router which is attached to multiple segments.

When it receives the IP packets, the router determines the next network hop on the path to the remote destination, and sends the packets to that hop. This could either be the remote destination or another router closer towards the destination.

This hop-by-hop process continues until the IP packets reach the remote destination.

To configure the Webcache, enter the IP address of the default router on the local subnet in which the Webcache is located. If no default router

exists on your network, enter the IP address `0.0.0.0` or leave the field blank.



If you set the default router to 0.0.0.0 or leave it blank, the Webcache will only be able to access devices that are in the same subnet as the Webcache.

Domain Name System

The Domain Name System (DNS) maps a numerical Internet Protocol (IP) address to a more meaningful and easy-to-remember name. When you need to access another device on your network, you enter the name of the device, instead of its IP address. A Domain Name System server on your network is contacted and asked the electronic form of the question, “What is the IP address of the destination device?”. The DNS server is a machine that keeps track of all the names and their equivalent numeric IP addresses. The DNS server responds with the correct IP address (e.g. 128.118.2.23), allowing the two devices to communicate with each other.

To enable the Domain Name System, you must setup a DNS server on your network. If you are uncertain about how to do this, contact your network administrator.

The following Webcache features are only available if you have setup a DNS server:

- **Access to the Webcache by DNS Name** — You can access the Web interface or Command Line Interface of the Webcache via its DNS name, rather than its IP address e.g. `webcache.mycompany.com`.
- **Web Proxy Auto-Discovery** — This protocol can be used to configure Web browsers on client machines in a Proxy Cache deployment. For further information, see “Web Proxy Auto-Discovery (WPAD)” on page 53.

Domain Name System Syntax

You must use the following syntax for the Domain Name System host name and domain name:

- **Host Name**
 - The host name must be at least 1 character long.
 - The host name must not exceed 63 characters long.
 - The host name must be comprised of alphanumeric characters, - (hyphens) and _ (underscores).

- You cannot enter a host name starting or ending with a . (dot) character. It must start and end with a letter or number.
- You cannot enter a host name containing a space character.
- **Domain Name**
 - The domain name must be at least 1 character long.
 - The domain name must not exceed 63 characters long.
 - The domain name must be comprised of alphanumeric characters, - (hyphens) and _ (underscores).
 - You cannot enter a domain name starting or ending with a . (dot) character. It must start and end with a letter or number.
 - Each part of the domain name (known as a label) must be separated with a . (single dot).
- You cannot enter a domain name which has two . (dots) next to each other.

3

CONFIGURING WEB BROWSERS

This chapter contains information about configuring Web browsers on client machines for use in a Webcache proxy cache deployment. It covers the following alternative methods:

- Manual Configuration
- Proxy Auto Configuration (PAC) File Scripts
- Web Proxy Auto-Discovery (WPAD)
- Third-party Tools



For more information about Proxy Cache deployment, see “Proxy Cache” on page 33.



No configuration of Web browsers on client machines is required for a Webcache transparent cache deployment; for more information, see “Transparent Cache” on page 34.

Manual Configuration

You can manually configure the Web browser on each client machine to explicitly direct its Web requests to the Webcache.

To manually configure Internet Explorer 5:

- 1 Open Internet Explorer.
- 2 From the *Tools* menu, click *Internet Options*.
- 3 Click the *Connections* tab.
- 4 Click *LAN Settings*.
- 5 Tick *Use a proxy server*.
- 6 Enter the URL or location of the Webcache in the *Address* field.
- 7 Enter the caching port number on which the Webcache is listening in the *Port* field. The default port number is 8080.

You can view the port number for the Webcache by:

- a Logging into the Web Interface.
 - b Selecting Device View -> System -> Caching -> Set Caching Mode.
- 8 Click *OK*.

To manually configure Netscape Navigator 4.5:

- 1 Open Netscape Navigator.
- 2 From the *Edit* menu, click *Preferences*.
- 3 Click the *Advanced* category and click *Proxies*.
- 4 Select *Manual Proxy Configuration*.
- 5 Click *View*.
- 6 Enter the URL or location of the Webcache in the *HTTP, Security* and *FTP* fields.
- 7 Enter the caching port number on which the Webcache is listening in each *Port* field. The default port number is 8080.
- 8 Click *OK*.



3Com recommends that you configure the client machine that you use to manage the Webcache so that it does not use the Webcache as a proxy server. In Internet Explorer, select Tools -> Internet Options -> Connections -> LAN Settings and disable Use a Proxy Server. In Netscape, select Edit -> Preferences -> Advanced -> Proxies and select Direct Connection to the Internet.

Proxy Auto Configuration (PAC) File Scripts

You can use a Proxy Auto Configuration (PAC) file to configure the Web browser on each client machine. PAC files allow you to create configuration rules that determine how the Web browser operates when the Webcache is being deployed as a Proxy cache. The PAC file can be stored either on the Webcache or a network server, and the Web browser is set to read the PAC file when it is opened.

The main disadvantage of PAC files is that the PAC file is read once when the Web browser is first opened, and then executed within the browser for every object within every Web page visited. This can cause a perceived response time degradation, although the performance degradation is likely to be small.



You can only use a PAC file to configure the Web browsers on client machines when the Webcache is operating in Proxy mode.

You can use the Browser Auto-Configuration screen to create a PAC file which is stored on the Webcache. You can configure the PAC file to:

- Bypass the Webcache for plain host names
- Use a backup Webcache if the first one fails
- Directly access the Web if neither the first or second Webcache is available

Alternatively, you can disable the PAC file that the Webcache creates and use a different PAC file which is located elsewhere on your network.



CAUTION: *If you are using Browser Auto-Configuration Files to configure your client machine Web browser settings, and you are using Web Client Blocking to control access to the Internet, you should ensure that Go Direct if no Webcache Available is **not** ticked in the Browser Auto-Configuration screen. If this box is ticked, the Web browser will bypass the Webcache entirely after reading the Browser Auto-Configuration file, and will never be blocked.*

To use the Webcache as a PAC file server, first configure the Webcache PAC file using the Browser Autoconfiguration screen:

- 1 Log in to the Web interface.
- 2 Click *Device View* on the Toolbar.
- 3 Select **System** -> **Caching** -> **Browser Auto-Config** in the Navigation Tree.
- 4 Tick *Bypass Plain Host Names* if you want to configure Web browsers to bypass the Webcache for plain host names. These are typically domain names which do not contain dots, commonly used for Intranet sites e.g. `http://intranet`
- 5 Tick *Use Backup Cache on Cache Failure* if you want to configure Web browsers to use an alternative Webcache in your network if the first one fails. Enter the IP address of the alternative Webcache in the *Backup Cache IP Address* field. Enter the port number on which the Webcache will be listening for network traffic in the *Port* field. The default port number is 8080.

- 6 Tick *Go Direct if no Webcache Available* if you want to configure Web browsers to directly access the Web if the main and backup Webcaches fail. Click *OK*.

You must next set the Web browser to read the PAC file for its settings.

To set Internet Explorer 5:

- 1 Open Internet Explorer.
- 2 From the *Tools* menu, click *Internet Options*.
- 3 Click the *Connections* tab.
- 4 Click *LAN Settings*.
- 5 Tick *Use automatic configuration script*.
- 6 Enter the URL or location of the Webcache in the *Address* field in the following format:

http://nnn.nnn.nnn.nnn:8082/

where **nnn** is a decimal number between 0 and 255. An example IP address is '192.168.1.253'. The port number on which the Webcache always serves PAC files is 8082; you cannot change this port number.

- 7 Click *OK*.

To set Netscape Navigator 4.5:

- 1 Open Netscape Navigator.
- 2 From the *Edit* menu, click *Preferences*.
- 3 Click the *Advanced* category and click *Proxies*.
- 4 Select *Automatic Proxy Configuration*.
- 5 Enter the URL or location of the Webcache in the *Configuration location* field in the following format

http://nnn.nnn.nnn.nnn:8082/

where **nnn** is a decimal number between 0 and 255. An example IP address is '192.168.1.253'.



In Netscape, you can enter a shortened PAC address such as `webcache:8082` and Netscape successfully configures itself using the PAC file. In Internet Explorer, however, this address is not recognized and you are not warned that the PAC file is being ignored. You must include "http://" at the start of the URL i.e. `http://webcache:8082`.

- 6 Click *Reload*.
- 7 Click *OK*.

Web Proxy Auto-Discovery (WPAD)

The Webcache and Microsoft Internet Explorer 5 (and later versions) support the Web Proxy Auto-Discovery (WPAD) protocol. This protocol enables the Web browser on client machines to automatically find and load proxy configuration information (stored in a PAC file) from a server on your network without user intervention.



You cannot set up the 3Com Webcache to be used as a WPAD server.



The Web Proxy Auto-Discovery (WPAD) protocol is not supported by Netscape Navigator.

You can set up a WPAD server that holds a PAC file in a suitable domain on your network. When Internet Explorer 5 is launched it searches for a WPAD server. The Web browser adds the subdomain "wpad" to the beginning of the fully-qualified domain name and progressively removes subdomains until it either finds a WPAD server answering the domain name or reaches the third-level domain. For example, Web browsers on client machines in the a.b.3Com.com domain would query wpad.a.b.3Com, wpad.b.3Com.com, and then wpad.3Com.com. If a WPAD server is found, the Web browser downloads and executes the PAC file and configures the browser settings.

You must define your network Domain Name System (DNS) server with the appropriate use of domains in order to use a WPAD server. For further information about the Domain Name System, see "Domain Name System" on page 47.



When a Web browser on a client machine is configured to use a WPAD server on your network, there may be a pause of several seconds when it first tries to connect to the server. The delay is caused by the Web browser connecting to your Domain Name System (DNS) server when it is initially started. This is normal behavior. Once the Web browser has accessed the WPAD server, subsequent browser requests will operate without delays caused by WPAD.

To configure Internet Explorer 5 to use WPAD:

- 1 Open Internet Explorer.
- 2 From the *Tools* menu, click *Internet Options*.
- 3 Click the *Connections* tab.
- 4 Click *LAN Settings*.
- 5 Tick *Automatically detect settings*.
- 6 Click *OK*.

Web Proxy Auto-Discovery Resources

You can view the Internet Draft for the Web Proxy Auto-Discovery Protocol at:

`http://www.ietf.org/internet-drafts/draft-cooper-webi-wpad-00.txt`
(correct at time of publishing)

Third-party Tools

There are applications from many vendors that can help you to manage networks of client machines.

Microsoft offers the Internet Explorer Administration Kit and Systems Management Server, which allow you to remotely configure Web browsers and Proxy Cache settings.

`http://www.microsoft.com/windows/ieak/en/default.asp`

Other vendors include Hewlett Packard, Intel and Tivoli.



WEBCACHE FEATURES

- Chapter 4 Managing the Webcache
- Chapter 5 System Time
- Chapter 6 Security
- Chapter 7 Controlling and Monitoring Web Access
- Chapter 8 System Events
- Chapter 9 Performance Monitoring
- Chapter 10 System Diagnostics
- Chapter 11 Software Upgrade and Installation

4

MANAGING THE WEBCACHE

This chapter contains information about managing the Webcache using the management software that resides on the Webcache. Managing the Webcache can help you to improve the efficiency of the Webcache and therefore the overall performance of your network. It allows you to make full use of the features offered by the Webcache, and to change and monitor the way it works. The following topics are covered:

- Management Software Interfaces
- Logging in as a Default User
- Accessing the Web Interface
- Understanding the Web Interface
- The Banner
- The Toolbar
- The Navigation Tree
- The Information Area

Management Software Interfaces

You can manage the Webcache using the Web interface management software. This is an internal set of Web pages that allow you to manage the Webcache using a Web browser that has Javascript™ enabled. Refer to the *Webcache Online Help* for detailed information about the Web interface.

The Webcache also has a Command Line Interface that allows you to manage certain features; for more information, see the “Command Line Interface” chapter on page 109.



Even if you do not intend to actively manage the Webcache, 3Com recommends that you change the default password to prevent unauthorized access to your Webcache. See “Setting Passwords” on page 71 for more information.

Logging in as a Default User

If you manage the Webcache using the Web interface or the Command Line Interface, you need to log in with a valid user name and password.

The Webcache has one user name, which is listed in Table 9. You cannot create new user names for the Webcache.

Table 9 User Names

User name	Default Password	Access Level
admin	(no password)	The user can access and change all manageable parameters



CAUTION: To prevent unauthorized access and configuration of the Webcache, 3Com recommends that you set a password for the admin user name as soon as possible.



The admin user name is case-sensitive.

Accessing the Web Interface

To access the Web interface:

- 1 Open the Web browser on the management workstation. To display the Web interface correctly, use one of the following Web browsers:
 - Microsoft Internet Explorer v4.0
 - Microsoft Internet Explorer v5.0
 - Microsoft Internet Explorer v5.5
 - Netscape Communicator v4.5
 - Netscape Communicator v4.6
 - Netscape Communicator v4.7



Netscape Navigator version 6 is not supported by the Webcache.



For the browser to operate the Web interface correctly JavaScript and Cascading Style Sheets must be enabled on your browser. These features are enabled on a browser by default. You will only need to enable them if you have changed your browser settings. Also the Web interface has

been optimized for PC screens with the desktop area set to 800 by 600 pixels. It is also recommended to set the font size to Small Fonts.

- In the Location/Address field of the browser, enter the URL of the Webcache. This must be in the format:

`http://nnn.nnn.nnn.nnn:8081`

where `nnn.nnn.nnn.nnn` is the IP address of the Webcache and `8081` is the port on which the Webcache listens. You must enter `http://` and the port number to successfully access the Webcache using your browser.



192.168.1.253 is the default IP address of the Webcache.



In Netscape, you can enter a shortened URL such as 192.168.1.253:8081 and Netscape successfully accesses the Webcache. In Internet Explorer, however, this URL is not recognized. You must include "http://" at the start of the URL i.e. http://192.168.1.253:8081.

- When the browser has located the Webcache, a user name and password screen is displayed as shown in Figure 17.

Figure 17 User Name and Password Screen

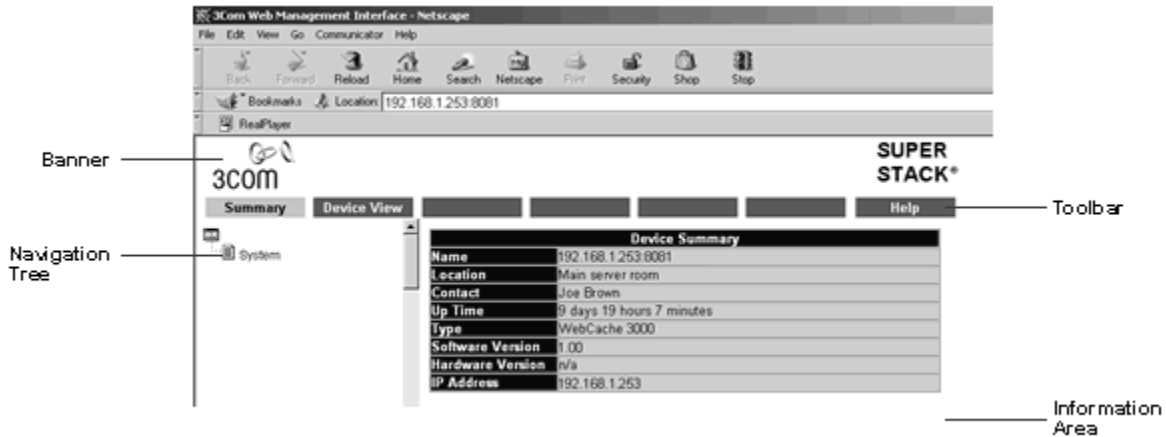


If the user name and password screen is not displayed, see "Solving Web Interface Problems" on page 130.

- Enter your user name and password. For further information, see "Logging in as a Default User" on page 58. Click OK.

Understanding the Web Interface

Figure 18 The Web Interface



The Web interface is made up of four areas:

- **The Banner**

This is always displayed at the top of the browser window. It displays the 3Com logo and SuperStack® logo.

- **The Toolbar**

This is always displayed at the top of the browser window, underneath the Banner. It contains three buttons which allow you to select different views in the View Area.

- **The Navigation Tree**

This is always displayed on the left side of the browser window. It contains various icons which allow you to manage your Webcache.

- **The Information Area**

This is always displayed on the right side of the browser window. It contains information about the managed Webcache.

The Banner

The Banner is always displayed at the top of the browser window. It displays the 3Com logo and SuperStack logo.

The Toolbar

The Toolbar is always displayed at the top of the browser window, underneath the Banner. It contains three buttons which allow you to select different views:

- **The Summary View**

Click *Summary* to display the Summary View. This view allows you to update the latest summary information for the Webcache.

- **The Device View**

Click *Device View* to display the Device View. This view allows you to configure the physical and networking aspects of the Webcache.

- **The Help View**

Click *Help* to display the Help View. This view allows you to access the Online Help system for the Webcache, additional information from the 3Com Web site and provides specification guidelines for running the Web interface.

The Summary View

Click *Summary* on the Toolbar to access the Summary View. This is the default view when you first browse to the Webcache and when you click the browser *Refresh* button.

Click the System icon in the Navigation Tree to update the Information Area with the latest summary information for the Webcache.

The summary information is displayed in a table:

- **Device Summary**

The table is entitled System Summary and displays information for the Webcache. It shows the System Name, Location, Contact, Up Time, Type, Software Version, Hardware Version and IP Address of the Webcache.



The Summary View only displays information for the Webcache. You cannot perform any operations from this view. You must use the Device View to perform operations.

The Device View

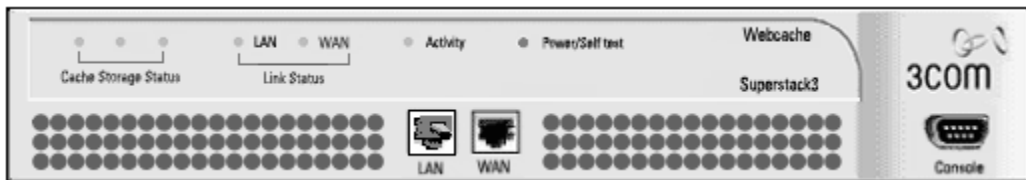
Click *Device View* on the Toolbar to access the Device View. This view allows you to configure the physical and networking aspects of the Webcache.

The Device View Navigation Tree is displayed on the left side of the browser window and allows you to perform operations for the Webcache.

The Device View Information area is displayed on the right side of the browser and contains the device mimic and the Device Summary table.

Device Mimic

Figure 19 The Device Mimic



The device mimic is a virtual, interactive representation of the Webcache. All of the ports on the Webcache are shown, even though the LAN, WAN and Console ports are actually located on the rear of the unit. The device mimic is periodically updated to reflect changes in the Webcache. You can also perform certain operations by clicking on parts of the device mimic called “hotspots”:

- **Console Port Hotspot**

The Console Port on the mimic is a “hotspot”. Click the port to open a pop-up menu that contains an operation which you can launch for the console port.

The operation is Setup Console Port.

- **LAN Port Hotspot**

The LAN Port on the mimic is a “hotspot”. Click the port to open a pop-up menu that contains an operation which you can launch for the LAN port.

The operation is Clear Cache.

- **Unit Hotspot**

The non-port area of the mimic is a “hotspot”. Click anywhere on this area to open a pop-up menu that contains operations which you can launch for the Webcache as a whole.

The operations are:

- Web Client Blocking
- Web Site Blocking
- Save Configuration
- Notepad
- System Information

Device Summary

A table entitled Device Summary displays the following information for the Webcache. It shows the DNS Name, Type, Software Version, Hardware Version, IP Address, MAC Address, Boot Version, Product Number, Serial Number and Up Time of the Webcache.

The Help View Click *Help* on the Toolbar to access the Help View. This view allows you to access the Online Help system for the Webcache, additional information from the 3Com Web site and provides specification guidelines for running the Web interface.

The Help View Navigation Tree contains five options that allow you to access additional information from the 3Com Web site. Your management workstation must have access to the Web for the first four options to work:

- Click *Contacts* to display contact information from the 3Com Web site in a new browser window.
- Click *Home Page* to display the Home page of the 3Com Web site in a new browser window.
- Click *Library* to display the Online Library of the 3Com Web site in a new browser window.
- Click *Support* to display support information from the 3Com Web site in a new browser window.
- Click *On-line Help* to display the Webcache Online Help system in a new browser window.

The Help View Information Area provides specification guidelines for running the Web interface. It is recommended that you access the Web Interface using the suggested Web Browsers and PC Platforms.

The Navigation Tree The Navigation Tree is always displayed on the left side of the browser window. It is a Windows® Explorer-like interface that contains various icons which allow you to manage your Webcache.

By default, when you open the Web interface, the Summary View is selected and the Navigation Tree is fully collapsed with only the top-level options displayed.





Operations that you can perform to manage your Webcache are grouped into folders within the Navigation Tree in the Device View. You can also perform some operations by using the device mimic.

Click the folders or the nodes (the plus and minus symbols) to expand and collapse the Navigation Tree.







Every option within the Navigation Tree is selected by single-clicking the left mouse button.

The following table shows the various Navigation Tree symbols and their associated behavior:

Symbol	Behavior
	Indicates that the next level of the Navigation Tree hierarchy is currently expanded. Click the symbol to collapse the next level. This only affects the Navigation Tree — no changes are made to the Information Area.
	Indicates that the next level of the Navigation Tree hierarchy is currently collapsed. Click the symbol to expand the next level to its last expanded state. This only affects the Navigation Tree — no changes are made to the Information Area.
	Indicates that the next level of the Navigation Tree hierarchy is currently expanded. Click the symbol to collapse the next level. This only affects the Navigation Tree — no changes are made to the Information Area.
	Indicates that the next level of the Navigation Tree hierarchy is currently collapsed. Click the symbol to expand the next level. This only affects the Navigation Tree — no changes are made to the Information Area.

(continued)

Symbol	Behavior
 System	Click the symbol to update the Information Area with the latest summary information for the Stack and the units within it. This symbol is only available in the Summary View.
	Click the symbol to perform an operation by opening a new window.
	Click the symbol to open a wizard in a new window.
	Click the symbol to launch a Help operation.

The Information Area

The Information Area is always displayed on the right side of the browser window. It contains information about the managed Webcache.

If the Summary View is currently selected, a table is displayed which shows summary information for the Webcache.

If the Device View is currently selected, the Device Mimic and the Device Summary table are displayed.

If the Help View is currently selected, specification guidelines for running the Web interface are displayed.

5

SYSTEM TIME

This chapter explains how to configure the system time of the Webcache. It contains the following topics:

- Configuring the System Time
- What is the Network Time Protocol?
- Choosing a Network Time Protocol Server
- Configuring the System Time Using the Network Time Protocol
- Configuring the System Time Manually
- System Time and Performance Graphs

Configuring the System Time

You must select how the Webcache determines the current time during the Getting Started wizard, which automatically runs when you first access the Webcache's Web interface.

You can change how the Webcache determines the current time at any point using the Time Configuration wizard. Select **System** -> **Management** -> **Time Configuration** in the Navigation Tree to access the wizard.

You can configure the system time in either of the following ways:

- Configuring the System Time Using the Network Time Protocol — for more information, see page 69
- Configuring the System Time Manually — for more information, see page 69.



3Com recommends that you use the Network Time Protocol to configure the system time of the Webcache.

What is the Network Time Protocol?

The Network Time Protocol (NTP) is used to synchronize the time of client machines and servers with other well-known, highly accurate servers or reference time sources. It maintains a consistent Coordinated Universal Time (UTC) within your network which is far more accurate than the internal system clocks of client machines and prevents time drift from occurring on the Webcache.

NTP provides client machine and server time accuracies typically within a millisecond on LANs, relative to a primary NTP server synchronized to UTC via a Global Positioning Service (GPS) receiver. Such accurate time-keeping is an essential part of the operation of the Webcache.

Choosing a Network Time Protocol Server

You can choose to use one of the many public NTP servers that are available on the Internet or set up your own NTP server. When you have access to an NTP server, you can configure the Webcache to determine the current time using NTP; see “Configuring the System Time Using the Network Time Protocol” on page 69 for more information.

Public NTP servers are grouped into *stratums*. The NTP primary (stratum 1) servers are connected to a reference clock, which is typically an expensive cesium clock or cheaper GPS receiver. Servers operating at stratum 1 are the most accurate available, but also the fewest in number because of the prohibitive cost of reference clocks.


The NTP secondary (stratum 2) servers are in turn connected to a stratum 1 server and are therefore less accurate but greater in number. Stratum 3 servers are connected to stratum 2 servers, and so on, up to an imposed limit of 15 strata. You should not use a high level public stratum server because of their limited number and because the load placed on them is increasingly heavy.



3Com recommends that if your network has an internal NTP server, you should use this rather than a public stratum server. If not, you should use the lowest stratum public NTP server available to you.


Configuring the System Time Using the Network Time Protocol

To configure the system time of the Webcache using the Network Time Protocol, you must enter the following information in the Getting Started wizard or Time Configuration command in the Web interface:

- 1 Select a timezone from the options in the *Timezone* drop-down list.
 *The Webcache automatically performs daylight savings adjustments according to the timezone that you have selected.*
- 2 Choose *Network Time Protocol* by clicking the appropriate radio button.
- 3 Enter the IP address of the NTP server that you want to use in the *NTP Server IP Address* field.

Configuring the System Time Manually

To manually configure the system time of the Webcache, you must enter the following information in the Getting Started wizard or Time Configuration command in the Web interface:

- 1 Select a timezone from the options in the *Timezone* drop-down list.
 *The Webcache automatically performs daylight savings adjustments according to the timezone that you have selected.*
- 2 Choose *Manual Time Configuration* by clicking the appropriate radio button.
- 3 Enter the current day, month, year and the current time (in 24 hour clock format) in the appropriate fields.
- 4 Click *Apply Now* as soon as you have manually entered this information to ensure the greatest accuracy. You cannot click *Next* until you have done this.

System Time and Performance Graphs

When the system time of the Webcache is set manually, all of the current Performance Graphs are reset and all previous graph history is lost. You should therefore only change the system time when it is absolutely necessary. The following system time changes affect the Performance Graphs in this way:

- The system time is manually configured.
- The system time is changed from Network Time Protocol to Manual Time Configuration, or vice versa.
- The IP address of the Network Time Protocol server is changed.

A Warning window appears asking if you want to continue with the system time change. Click *Yes* to continue and reset the Performance Graphs, or *No* to cancel the change.

6

SECURITY

This chapter contains information about ensuring that the Webcache 1000/3000 is secure. It covers the following topics:

- What are Passwords?
- Setting Passwords
- What is Password Recovery?
- Enabling/Disabling Password Recovery
- Performing Password Recovery

What are Passwords?

Whenever you manage the Webcache using the Web interface or Command Line Interface, you need to log in with the *admin* username and password, as described in “Logging in as a Default User” on page 58.



CAUTION: *To prevent unauthorized access and configuration of the Webcache, 3Com recommends that you set a password for the admin username as soon as possible.*


Setting Passwords

To set the password using the Web interface, you need to login as the *admin* user and select **Security** -> **Set Password** in the Navigation Tree to access the Password Configuration screen. Then follow the steps below.



You are prompted to set a password for the admin user account during the Getting Started wizard, which automatically runs when you first access the Webcache’s Web interface.

You must enter the following information in both the Getting Started wizard and the Password Configuration screen:

- 1 Choose between the following options by clicking the appropriate radio button:
 - Do Not Change Password
 - Change Password for the Account
 - Set Admin Password to the Factory Default Setting
 - 2 Either:
 - If you choose *Do Not Change Password*, the existing password will not be changed.
 - If you choose *Change Password for the Account*, enter a new password in the *Password* field and enter it again in the *Confirm* field.
-  *Passwords can be up to 10 characters long, are case-sensitive and must only contain alpha-numeric characters.*
- If you choose *Set Admin Password to the Factory Default Setting*, the password is automatically set to the default for the admin user account (no password).

What is Password Recovery?

If you forget the password for the *admin* user account, you will no longer be able to perform important management operations on the Webcache. Password Recovery allows you to define a new password for the admin account, even though you have forgotten the current one, and regain access to the management interfaces.

Enabling/Disabling Password Recovery

In order to perform password recovery, Password Recovery must be enabled on the Webcache.



Password Recovery is enabled by default on the Webcache. You will only need to complete the following steps if you want to check that password recovery is enabled, or if you know that it has previously been disabled.

You may want to disable password recovery if you are concerned about the security of the Webcache. When password recovery is enabled,

anyone who has physical access to the Webcache can potentially change the password and lock you out of the management interfaces.



CAUTION: 3Com recommends that you leave Password Recovery enabled. If you disable it and subsequently forget the password for the admin username, you will have to return the Webcache to 3Com.

To enable or disable Password Recovery using the Web interface:

- 1 Log in to the Web interface.
- 2 Click *Device View* on the Toolbar.
- 3 Select **Security -> Recovery** in the Navigation Tree. The Password Recovery screen is displayed.
- 4 Check *Enable Password Recovery Feature* to enable Password Recovery, or uncheck *Enable Password Recovery Feature* to disable it.
- 5 Click *OK*.

Performing Password Recovery

Use the password recovery method outlined below to define a new password for the *admin* username:

- 1 Access the Command Line Interface and enter the username "recover" and password "recover" to place the Webcache in password recovery mode. The Webcache remains in password recovery mode for a maximum of 30 seconds, before it returns to the CLI login prompt.
- 2 Reboot the Webcache whilst it is in password recovery mode by removing the power cord from the power socket at the rear of the Webcache and reinserting it.



3Com recommends that you access the CLI in this instance by connecting a standard null-modem cable to the console port on the Webcache. This enables you to be physically close enough to the Webcache to reboot the Webcache before password recovery mode resets.



You cannot use a soft reboot operation to reset the password of the admin username. This will end the password recovery procedure and return you to the CLI login prompt.

- 3 When the Webcache has rebooted enter a new password for the *admin* username.
- 4 Enter **enable** to leave password recovery enabled, or enter **disable** to turn it off. You are now logged in as the default *admin* user.

7

CONTROLLING AND MONITORING WEB ACCESS

This chapter contains information about controlling the access of the users of your network through the Webcache to the Internet. It covers the following topics:

- What is Web Site Blocking?
- Configuring Web Site Blocking
- Customizing the Response
- What is Web Client Blocking?
- Configuring Web Client Blocking
- What is Access Logging?
- Configuring Access Logging
- Viewing the Access Log
- Analyzing the Access Logs

What is Web Site Blocking?

Web Site Blocking allows you to control which Web sites can be accessed through the Webcache. If you enable web site blocking, you can enter the domain names of Web sites that you want to either allow or deny access to. You can specify one of two blanket rules with exceptions; either "Deny access to all sites except..." the ones that you enter, or "Allow access to all sites except..." the ones that you enter. Web requests from client machines will then either be served or blocked by the Webcache, according to the rules that you have set up. A customizable, automatically generated Web page informs the end user that access to the Web site has been denied.

Configuring Web Site Blocking

To configure Web Site Blocking using the Web interface:

- 1 Log in to the Web interface.
- 2 Click *Device View* on the Toolbar.
- 3 Select **System** -> **Caching** -> **Web Site Blocking** in the Navigation Tree.
- 4 Check *Enable Web Site Blocking*.
- 5 Select *Deny Access to All Sites* to deny access to all Web sites except the ones that you enter in the list, or select *Enable Access to All Sites* to allow access to all Web sites except those listed.
- 6 In the *Except the Following* field, enter the domain name of the Web site you want to exclude from the option you chose in step 5 and click *Add*. Repeat this for each Web site that you want to block.

Example

You can enter **yahoo.com** to block access to that entire domain, or enter **auctions.yahoo.com** to block access to that subdomain.

Domain Name Rules

- You cannot enter a domain starting with **http:**.
- You cannot enter a domain containing the / (forward slash) character.
- You cannot enter a domain containing a space character.
- You cannot enter a domain starting or ending with a . (dot) character. The domain must start and end with a letter or number.
- The domain name can only contain the following characters:
 - Uppercase A-Z and lowercase a-z
 - Any digit 0-9
 - Hyphen characters (-)
- The domain name must be at least 1 character long.
- The domain name must not exceed 63 characters long.

Customizing the Response

You can modify the response screen that is automatically generated by the Webcache when a client machine tries to access a Web site that is blocked. This allows you to enter additional information to make the response screen more user friendly. For example, you could add "Access

to this website has been denied. If you do not agree with this site being blocked, please contact extension 1234”.

To customize the response using the Web interface:

- 1 Click *Device View* on the Toolbar.
- 2 Select **System** -> **Caching** -> **Customize Response** in the Navigation Tree.
- 3 Enter up to 512 characters of text or HTML code in the *Add This Text* field that you want to add to the response screen that informs the end user that access has been denied. The text or HTML that you enter will be appended to the standard text that appears, which is “You are not authorized to view this page”. You cannot change or delete this standard text.
- 4 If you want to view your changes before saving them to check that your text or HTML is correct, click *Preview*.

Click *OK* to save the text or HTML code that you have entered.



There is a default option in Microsoft Internet Explorer 4 and later versions that will cause a “friendly HTTP error message” to be displayed when a Web site is blocked, rather than the response page generated by the Webcache. You can turn this setting off by selecting Tools -> Internet Options -> Advanced and unchecking Show friendly HTTP error messages. The response page generated by the Webcache will never be displayed by Internet Explorer if you do not change this setting. The following Microsoft knowledgebase article describes the use of friendly HTTP-status error messages:

<http://support.microsoft.com/support/kb/articles/Q218/1/55.ASP>

What is Web Client Blocking?

Web Client Blocking allows you to control which client machines in your network can access the Web through the Webcache. If you enable Web Client Blocking, you can enter the static IP addresses or IP address ranges of client machines that you want to allow access to the Web through the Webcache. Web access from all other client machines will be denied by the Webcache.

Dynamic Host Configuration Protocol (DHCP) servers can be used with Web Client Blocking in two ways:

- You can configure your network into subnets and assign specific client machine MAC addresses to be provided IP addresses within specific subnets by DHCP. You can then prevent specific subnet IP address ranges from accessing the Web through the Webcache through Web Client Blocking.

For example, you configure your user group A to use a subnet defined as 10.1.2.0-255, and group B to use another subnet defined as 10.1.3.0-255. If you want to prevent group B from accessing the Web, you would add the subnet 10.1.3.0-255 to the Web Client Blocking configuration. Group B would then be unable to access the Web, while group A would have access.

- You can configure your DHCP server to return specific IP addresses based on the requesting client machine's MAC address. You can configure Web Client Blocking to block either specific client machine IP addresses, or ranges of IP addresses, as appropriate.

Configuring Web Client Blocking

To configure Web Client Blocking using the Web interface:

- 1 Log in to the Web interface.
- 2 Click *Device View* on the Toolbar.
- 3 Select **System** -> **Caching** -> **Client Machine Blocking** in the Navigation Tree.
- 4 Check *Block Access From All Web Clients* to enable Web Client Blocking.
- 5 In the *Except these IP Addresses* field, type the IP addresses or IP address ranges of the client machines that you want to allow access and click *Add*.

Example

You can enter **216.115.105.2-217.115.105.2** to allow access for that IP address range, or enter **216.115.105.2** to allow access for that IP address. Separate individual ranges or addresses with a comma.



CAUTION: *If the browser on the client machine that you are using to configure the Webcache is also using the Webcache as a proxy, and you enable Web Client Blocking, you must ensure that you add the client machine to the Except these IP Addresses field. If you do not do this, access from the client machine to the Webcache will be blocked,*

preventing you from using the Web interface. You can regain access by either:

- Changing the client machine's browser settings to remove the use of the Webcache as a proxy or
- Using a browser on a client machine whose IP address is not blocked by Web Client Blocking to access the Web Interface.



CAUTION: If you are using Browser Auto-Configuration Files to configure your client machine Web browser settings, and you are using Web Client Blocking to control access to the Internet, you should ensure that Go Direct if no Webcache Available is **not** checked in the Browser Auto-Configuration screen. If this box is checked, the Web browser will bypass the Webcache entirely after reading the Browser Auto-Configuration file, and will never be blocked. For more information, see "Proxy Auto Configuration (PAC) File Scripts" on page 50.

What is Access Logging?

Access Logging allows you to track which client machines have accessed which Web sites through the Webcache. By default Access Logging is disabled. If you enable Access Logging you must specify a FTP server that you want to periodically save the log to. The log is saved to the FTP server whenever the log is approaching full, or every 6 hours, whichever comes first. You can see a complete history of every web request made through the Webcache by combining all the FTPed logs; the saved logs are based on the standard Squid access log format and can be analyzed using off-the-shelf log analysis tools.



An SNMP trap is automatically generated if the Webcache fails to save the access log to the FTP server.

The access logs contain the following fields:

Table 10 Access Log Fields

Field	Description
Time	A timestamp expressed as Coordinated Universal Time (UTC) with a millisecond resolution.
Elapsed	The amount of time in milliseconds that the Webcache took to serve the request.
Client	The IP address of the requesting client machine.

(continued)

Field	Description
Action/Code	Information on the kind of request and how it was satisfied or how it failed i.e. was the request a hit, miss or an error.
Size	The amount of data that was delivered to the client machine in bytes, including headers.
Method	The way in which the Web object was requested i.e. GET, CONNECT, TRACE.
URL	The URL that the client machine requested.
Ident	No value is returned for this field.
Hierarchy/From	These fields are not applicable to the Webcache.
Content	The content type of the Web object.

Configuring Access Logging

To configure Access Logging using the Web interface:

- 1 Log in to the Web interface.
- 2 Click *Device View* on the Toolbar.
- 3 Select **System** -> **Caching** -> **Access Logging** in the Navigation Tree.
- 4 Check *Enable Access Logging*. You can view the last 256 lines of the Access Log using the *View Access Log* command; for more information, see "Viewing the Access Log" on page 81.
- 5 Check *Enable Web Access Log Save to FTP Server* if you want to save the access logs onto an FTP server that you specify.
- 6 In the *FTP Server Address* field, enter the IP address of the FTP server that you want to save the access logs to.
- 7 In the *Directory* field, enter the full path within the FTP server that you want to save the access logs to.
The directory can only contain alphanumeric and "/", ".", "-" or "_" characters and can only be up to 32 characters in length.
- 8 In the *Username* field, enter the user name for the FTP server that you want to save the access logs to.
- 9 In the *Password* field, enter the password for the username entered in step 8. The password must be between 1 and 32 characters in length.



*When a password has been set, ***** is displayed in the Password field, regardless of how many characters the password actually has. You*

can change the password by clicking Change Password and entering the new password.

- 10** If you want to test and upload the Access Log now, click *FTP Now*. Enter a filename for the log and click *OK*. The filename can only contain alphanumeric and . (dot), - (hyphen) or _ (underscore) characters and can only be up to 32 characters in length.

Clicking *FTP Now* will immediately FTP the currently active Access Log to the FTP server. This allows you to test your FTP settings or to save the Access Log without waiting for the next automatic FTP. Since the Webcache may still be writing to the Access Log, using *FTP Now* may result in an incomplete record at the end of the saved Access Log.



If no client machines have accessed a Web site through the Webcache before you click FTP Now, then an empty log file will be saved on the FTP server.

Viewing the Access Log

To view the Access Log using the Web interface:

- 1** Log in to the Web interface.
- 2** Click *Device View* on the Toolbar.
- 3** Select **System -> Caching -> View Access Log** in the Navigation Tree.
- 4** The last 256 lines of the Access Log are displayed.

Click *Refresh* to update the information that is displayed.



If the Webcache is deployed in Proxy mode, multiple entries for the pages in the Web interface itself will be made in the Access Logs. This is standard behavior for the Webcache, as it is "seeing" the requests for the Web interface pages and logging these requests in the Access Logs. You should either leave the Web Interface open for only short periods of time to reduce the entries made, or use a log analyzer tool such as Webtrends to view and analyze the Access Logs.

Analyzing the Access Logs

The access logs that have been saved on the FTP server are based on the native Squid format. This is optimized for efficient generation and can be analyzed using a wide variety of off-the-shelf log analysis tools.

3Com recommends that you use Webtrends Log Analyzer to analyze the access logs that the Webcache produces:

<http://www.webtrends.com>

8

SYSTEM EVENTS

This chapter contains information about the system events that can occur on the Webcache 1000/3000. It covers the following topics:

- What are System Events?
- Email Notification
- SNMP Traps

What are System Events?

System events are events that occur on the Webcache which can be reported to you. They range in significance from minor, such as Upgrade Started, to major, such as System Failure. You can configure the Webcache to automatically inform you about these events using email notification and SNMP traps. Such notification allows you to respond more quickly to Webcache events and helps save you valuable time and effort. It is an important element in the remote management of the Webcache.

Email Notification

You can configure the Webcache to automatically send emails to specified email accounts when certain significant system events occur. The emails are generated internally within the Webcache in a fixed format that is also used by 3com Network Supervisor. The emails can be sent to as many accounts as you like.

Configuring Email Notification

To configure Email Notification using the Web interface:

- 1 Log in to the Web interface.
- 2 Click *Device View* on the Toolbar.
- 3 Select **System -> Management -> Events -> Email Notification** in the Navigation Tree. The Email Notification screen is displayed.

- 4 Check *Enable Email Notification of System Events*.
- 5 In the *SMTP IP Address* field, enter the IP address of the server to which the email notifications from the Webcache will be sent.



CAUTION: To use the email notification feature, you must enter the IP address of an SMTP server that does not require SMTP authentication in the SMTP IP Address field in the Email Notification screen.

- 6 In the *From Addresses for Notifications* field, enter the address of the email account from which the email notifications will appear to be sent from.



CAUTION: If you do not enter a valid email address, the email notifications will be rejected by the server that you entered in the SMTP Name/IP address field. A valid email address is a fully specified address containing a domain name, for example "webcache@3com.com". The partial address "webcache" would be rejected by the server.

3Com recommends that you use the domain name of the Webcache as the email address. If you have entered "webcache" as the host name and "mycompany.com" as the DNS domain name of the Webcache, then you would enter "webcache@mycompany.com" as the email address.

- 7 In the *To Addresses to Receive Notifications* field, enter the addresses of all the email accounts that will receive the email notifications. Ensure that you separate each address with a comma. You can enter up to 255 characters in this field.
- 8 You can configure the Webcache to send an email notification when certain system events occur by checking the relevant boxes:

- **Webcache Software Upgrade Events**

This includes the following events:

- A new software upgrade is available.



This email notification will only be sent if you have enabled automatic software upgrade detection on the Webcache. You can do this using the Upgrade Settings screen.

- A software upgrade has succeeded.
- A software upgrade has failed.

- **Webcache System Failure Events**

This includes the following events:

- The Webcache has failed its Power On Self Test.



System Failure is also indicated by a yellow Power/Self Test/System Fault LED on the front panel of the Webcache; for more information, see the "Introducing the Webcache" chapter on page 17.

- A cache storage device has failed.

9 Click OK.

SNMP Traps

You can configure the Webcache to automatically generate Simple Network Management Protocol (SNMP) traps when certain significant system events occur. An SNMP trap is a message generated by the Webcache in response to a particular event. It is sent to a specified network management station in your network which receives and filters it. You can configure the network management station to log the generated traps, filter out the traps that you are not interested in and issue event notifications. The structure and content of the SNMP traps are defined in the Management Information Bases (MIBs) that the Webcache supports.

The Webcache supports the following MIB-2 (standard MIB) and Webcache MIB traps:

Table 11 SNMP Traps

SNMP Trap	Description
Cold Start	The Webcache is reinitializing itself such that its system configuration may be altered.
Login Failed	The <i>admin</i> user has failed to login to the Webcache, or a user name other than <i>admin</i> has been entered.
Upgrade Completed Successfully	A Software Upgrade has been successfully completed on the Webcache.
Upgrade Failed	A Software Upgrade has failed on the Webcache.
New Image Detected	The Webcache has detected and downloaded a new software version that you can choose to upgrade to. The trap indicates the current software version on the Webcache and the software version that has been downloaded.
Image Detection Server Unavailable	The FTP site that the Webcache automatically detects and downloads software upgrades from is unavailable. You can use the <i>Upgrade Settings</i> screen to change the FTP site. For more information, see the "Software Upgrade and Installation" chapter on page 83.

(continued)

SNMP Trap	Description
Caching Disk Failed	A cache storage device within the Webcache has failed. You have to return the unit to 3Com.
System Error	The Webcache can no longer function as a cache due to hardware failure.

Configuring SNMP Traps

To configure SNMP Traps using the Web interface:

- 1 Log in to the Web interface.
- 2 Click *Device View* on the Toolbar.
- 3 Select **System** -> **Management** -> **Events** -> **SNMP Traps** in the Navigation Tree. The SNMP Trap Destination Setup screen is displayed.
- 4 Enter the IP address of the network management station in your network that will handle the SNMP traps in the *IP Address of Management Station* field.



The community string of the network management station is set to "monitor". You can only change this default setting using the Command Line Interface; for more information, see "Setting the Webcache SNMP Community String" on page 124.

9

PERFORMANCE MONITORING

This chapter contains information about monitoring the performance of the Webcache 1000/3000. It covers the following topics:

- What is Performance Monitoring?
- Caching Performance Graphs
- System Performance Graphs
- I/O Performance Graphs

What is Performance Monitoring?

Performance monitoring allows you to assess the caching and system performance of the Webcache via a series of easy-to-understand MRTG (Multi Router Traffic Grapher) graphs. The Caching Performance graphs show the bandwidth savings, hit/miss rate, request rate, response time and throughput for the Webcache. You can use them to find out quickly and accurately how the Webcache is performing and how much value it is providing to your network.

The System Performance and I/O Performance graphs show more detailed information which is intended for use by your System Administrator and 3Com support personnel.



Performance monitoring is always enabled; you cannot turn it off.

Caching Performance Graphs

The Caching Performance graphs show detailed information about the caching performance of the Webcache.

To view the Caching Performance graphs:

- 1 Log in to the Web interface.
- 2 Select **Performance** -> **Graphs** in the Navigation Tree.

- 3 Select *Caching Performance Graphs* from the available graph types. Select one of the three available time periods, *Daily*, *Weekly*, or *Monthly*, by clicking the appropriate radio button.
- 4 Click *OK*.

The Caching Performance graphs show the following information, which is updated every 5 minutes:

- **Bandwidth Saving (%)**

The average percentage of bandwidth savings obtained through the use of the Webcache. This is calculated as the ratio of bytes served by the Webcache to total requested bytes.

- **Hit and Miss Rate (%)**

The percentage of client machine HTTP requests sent to the Webcache that have been served from the Webcache (a cache hit) and not served from the Webcache (a cache miss). A cache miss requires the content to be retrieved from the origin server over the Web.

A high hit rate indicates more efficient operation, as the Webcache is saving requests from being sent to the Web, which speeds up response time and reduces bandwidth use. A reasonable hit rate is 40-60%. The hit rate that the Webcache achieves is largely dependant upon:

- How frequently the same request is made. The hit rate will be low if there is no revisiting of sites. Caching only works well if the same request is made frequently. The smaller the range of requests made, the more effective the Webache will be and the higher the hit rate will be.
 - Whether the content provider on the origin web site allows the content to be cached or not. Some content providers will prevent certain information from being cached.
 - Whether the content is frequently changed on the origin web site. If so, the copy held on the Webcache must be discarded, and the new version retrieved. This is treated as a cache miss.
 - **Request Rate (sec⁻¹)**
- The average number per second of client machine HTTP requests sent to the Webcache.

- **Hit and Miss Latencies (msec)**

The average time per request that the Webcache takes to respond to client machine HTTP requests. The response time includes both cache hits and cache misses.

A short response time indicates more efficient operation, because more content is being served from the high speed Webcache, and less from the slow World Wide Web.

- **Throughput (Kbits/sec)**

The average amount per second of HTTP throughput served by the Webcache.

System Performance Graphs

The System Performance graphs show more detailed information about the performance of the Webcache. They are intended for use by your System Administrator and 3Com support personnel.

To view the System Performance graphs:

- 1 Log in to the Web interface.
- 2 Select **Performance** -> **Graphs** in the Navigation Tree.
- 3 Select *System Performance Graphs* from the available graph types. Select one of the three available time periods, *Daily*, *Weekly*, or *Monthly*, by clicking the appropriate radio button.
- 4 Click *OK*.

The System Performance graphs show the following information, which is updated every 5 minutes:

- **CPU Load (%)**

The average and maximum percentage of load on the Webcache's central processing unit (CPU).

- **Memory Usage (Mbytes)**

The average amount of physical memory that is being used in the Webcache.

I/O Performance Graphs

The I/O (Input/Output) Performance graphs show more detailed information about the performance of the Webcache. They are intended for use by your System Administrator and 3Com support personnel.

To view the I/O Performance graphs:

- 1 Log in to the Web interface.
- 2 Select **Performance** -> **Graphs** in the Navigation Tree.
- 3 Select *I/O Performance Graphs* from the available graph types. Select one of the three available time periods, *Daily*, *Weekly*, or *Monthly*, by clicking the appropriate radio button.
- 4 Click *OK*.

The I/O Performance graphs show the following information, which is updated every 5 minutes:

- **Disk Activity (sec⁻¹)**

The average number of disk operations per second to the caching disk(s).

- **Network Packets (sec⁻¹)**

The average number per second of TCP packets sent to and received by the Webcache.

- **New TCP Connection (sec⁻¹)**

The average number per second of TCP connections established by the Webcache.

- **DNS Lookups (sec⁻¹)**

The average number per second of Domain Name System (DNS) server requests sent to the Webcache.

- **DNS Hit Rate (%)**

The average percentage of Domain Name System (DNS) server requests served by the Webcache. This is calculated as the ratio of host database hits to host database requests.



The Webcache has its own internal cache of DNS entries. The DNS Hit Rate shows how effective this cache is being in avoiding DNS lookups to the DNS server.

10

SYSTEM DIAGNOSTICS

This chapter contains information about troubleshooting the configuration and network connectivity of the Webcache 1000/3000. It covers the following topics:

- What are System Diagnostics?
- Pinging Other Devices
- Tracing IP Addresses
- System Log

What are System Diagnostics?

You can use the various system diagnostic capabilities of the Webcache to help you identify any problems that may occur.

- **Ping** — Ping other devices on the network.
- **Trace Route** — Trace the network hops to a device on your network.
- **System Log** — View information about the Webcache.

Pinging Other Devices

The PING feature allows you to send out a PING request to test whether devices on an IP network are accessible and functioning correctly. This feature is useful to diagnose connectivity problems such as a failed network device between the Webcache and the web server being accessed.

Performing a Ping To ping a device using the Web interface:

- 1 Log in to the Web interface.
- 2 Click *Device View* on the Toolbar.
- 3 Select **Protocol** -> **Ping/TraceRoute** in the Navigation Tree. The Ping/Traceroute screen is displayed.

- 4 In the *IP Address* field, enter the IP address of the device that you want to PING. Click *Ping*.
- 5 The Webcache sends a single PING request to the specified device and a message similar to the following is displayed:

```
Starting ping, resolution of displayed time is 10
milli-seconds
```

If the device is accessible and functioning correctly, a message similar to the following is displayed:

```
64 bytes from 192.156.136.22: icmp_seq=0 ttl=248 time=195.2
ms
```

If the device is not accessible, or is not functioning correctly, a message similar to the following is displayed:

```
No answer from 192.156.136.22
```



You can interrupt a PING request at any time by clicking Stop.

Tracing IP Addresses

The Trace Route feature allows you to display the network hops from the Webcache to a device on an IP network. This feature is useful to diagnose connectivity problems such as a failed network device between the Webcache and the web server being accessed.

Performing a Trace Route

To perform a trace route to a device using the Web interface:

- 1 Log in to the Web interface.
- 2 Click *Device View* on the Toolbar.
- 3 Select **Protocol** -> **Ping/TraceRoute** in the Navigation Tree. The Ping/Traceroute screen is displayed.
- 4 In the *IP Address* field, enter the IP address of the device that you want to trace. Click *TraceRoute*.
- 5 The Webcache sends a trace route request to the specified device and a message similar to the following is displayed:

```
traceroute to 191.128.40.121, 30 hops max, 38 byte packets
```

If the device is accessible and functioning correctly, a message similar to the following is displayed which displays the network hops. Each hop may take a few seconds to complete:

```

1.routercl (140.204.20.20) 1.292ms, 1.343ms, 1.810ms
2.BW-RTR-4.EUR.3Com.COM (161.71.21.45) 26.027ms, 27.156ms,
44.902ms
3.BW-RTR-1.EUR.3Com.COM (140.204.220.15) 24.323ms, 24.854ms,
30.096ms
4.janeway (161.71.123.36) 27.303ms, 33.639ms

```

If the device is not accessible, or is not functioning correctly, only the hops that worked are displayed.



You can interrupt a trace route request at any time by clicking Stop.

System Log

The System Log records all of the events that occur on the Webcache and displays the information in text format. You can configure how detailed the information is, how much of it is displayed and how it is accessed. The System Log is primarily intended to be used by your System Administrator and 3Com support personnel to troubleshoot the Webcache.

Configuring the System Log

To configure the System Log using the Web interface:

- 1 Log in to the Web interface.
- 2 Click *Device View* on the Toolbar.
- 3 Select **Diagnostics** -> **Setup System Log** in the Navigation Tree. The Setup System Log screen is displayed.
- 4 You can choose to save the contents of the System Log onto a single management station in your network that has syslog analysis tools. This is of particular benefit if you are working with 3Com support personnel. Enter the IP address of the syslog server in the *Enter Syslog Server IP Address* field to enable this feature.
- 5 If you want to record more detailed system log information, check *Enable Verbose Logging* and select either *Low*, *Medium* or *High*.



By default, the save system log information feature is disabled. You must enable this feature if you want to view the entire contents of the System Log on a syslog server. You can only view the last 256 lines of the log using the View System Log command of the Web interface. However, enabling verbose system logging may affect the performance of the Webcache because of the extra information that it is recording. You

should only enable it if you have been instructed to do so by 3Com support personnel.

What is a Syslog Server?

Syslog is a standard protocol for reporting system events that occur on the Webcache and most other modern network devices. A syslog server allows you to capture these system events, store them and display them in a variety of formats. The purpose of a syslog server is to listen for incoming syslog messages (system events) on a UDP port (usually 514) and then decode and process the messages for logging and notification purposes. Syslog servers are also known as "syslog daemon" or, on Unix, "syslogd und Unix". Unix systems always have a syslog server installed, but Microsoft Windows does not include one.

Obtaining a Syslog Server

The CD-ROM contains a freeware application called 3CDaemon that allows you to configure a Syslog and TFTP server on a Microsoft Windows server. You can use the 3CDaemon syslog server to capture syslog events from devices and machines on your network. Note that 3CDaemon is provided without warranty by 3Com.

WebTrends Firewall Suite has an integral Syslog server which you can also use to capture syslog events from devices and machines on your network. Download this from:

<http://www.webtrends.com>
(correct at time of publishing)

Microsoft recommends free syslog servers for Windows:

<http://www.microsoft.com/NTServer/nts/exec/vendors/freeshare/Special.asp>
(correct at time of publishing)

You can purchase a syslog server program for Windows. For example you can purchase WinSyslog from:

<http://www.winsyslog.com/en/>
(correct at time of publishing)

Viewing the System Log To view the contents of the System Log using the Web interface:

- 1 Log in to the Web interface.
- 2 Click *Device View* on the Toolbar.
- 3 Select **Diagnostics** -> **View System Log** in the Navigation Tree. The System Log screen is displayed. The last 256 lines of the System Log are displayed. Click *Refresh* to update the information that is displayed.



The System Log is primarily intended to be used by your System Administrator and 3Com support personnel to troubleshoot the Webcache.

11

SOFTWARE UPGRADE AND INSTALLATION

This chapter contains information about upgrading and installing the management software of the Webcache 1000/3000. It covers the following topics:

- What is a Software Upgrade?
- Detecting Software Upgrades
- Performing a Software Upgrade
- What is a Software Installation?
- Performing a Software Installation
- Saving and Restoring Configurations
- Saving a Configuration
- Restoring a Configuration

What is a Software Upgrade?

You can upgrade the management software of the Webcache when a new version becomes available.



3Com recommends that you always upgrade to the latest software version to take advantage of additional functionality, bug fixes and features.

You can configure the Webcache to automatically detect and download new software versions, and notify you of their availability (via email notification; for more information, see "Email Notification" on page 83). The next time that you log in to the Webcache, the Upgrade Software wizard opens and guides you through the software upgrade process.

Alternatively, you can manually perform a software upgrade, by downloading and locating the software upgrade file yourself.

The configuration of the Webcache is preserved after a software upgrade has been performed; you do not have to re-configure the settings.



3Com recommends that you configure the Webcache to automatically detect new software versions.

Software Upgrade SNMP Traps

An SNMP Trap is sent to your network management station when any of the following events occur:

- When the software upgrade server is not available and automatic software upgrade detection is enabled.
- A new software upgrade is detected.
- A software upgrade is successful.

If the software upgrade is completed successfully, the trap indicates that the upgrade has been successful and tells you what software version the Webcache is now running.

- A software upgrade fails.

If the software upgrade is completed unsuccessfully, the trap indicates that the upgrade has been unsuccessful and tells you why it failed.

For more information about SNMP Traps, see “SNMP Traps” on page 85.

Unsuccessful Software Upgrades

The Webcache software upgrade process is robust and guards against an upgrade failure. Should a software upgrade fail, the Webcache will automatically revert to using the software version that was installed before the upgrade was started. The upgrade process is resilient to power failure, network failure or system failure. Prior to offering an automatic software upgrade, the Webcache will download the new software version onto temporary storage on the Webcache, ensuring that the complete software image file is available before commencing the upgrade.

Detecting Software Upgrades

To configure the detection of software upgrades using the Web interface:

- 1 Click *Device View* on the Toolbar.
- 2 Select **System > Control > Upgrade Settings** in the Navigation Tree.

- 3 If you want the Webcache to automatically detect and download new software versions, and notify you of their availability, check *Enable Automatic Software Upgrade Detection*.



The Webcache notifies you of the availability of new software versions via email notification; for further information, see "Email Notification" on page 83.

If you want to disable automatic detection, and instead perform software upgrades from a file on a local server, ensure that *Enable Automatic Software Upgrade Detection* is unchecked.

- 4 The default FTP site settings are displayed:

- FTP Server Address: ftp.3com.com
- FTP Server Directory: pub/webcache
- Username: anonymous
- Password: webcache@hostname.domainname



*When a password has been set, ***** is displayed in the Password field, regardless of how many characters the password actually is. You can change the password by clicking Change Password and entering the new password. The password must be between 1 and 32 characters in length. The default password is Webcache@hostname.domainname. If you set the DNS domain name to be mycompany.com and the DNS host name to be mycache, the default FTP password would be Webcache@mycache.mycompany.com. If the DNS host name and domain are not set, the default password is Webcache.*

If necessary, you can change the FTP site that the Webcache automatically downloads software upgrades from by entering the new FTP address, directory, user name and password in the appropriate fields. You may want to change the FTP site in order to download a software upgrade from a location other than the default 3Com FTP site.



You can restore the FTP site to the factory defaults by clicking Restore Defaults.

Performing a Software Upgrade

Performing an Automatically Detected Software Upgrade

This occurs if *Enable Automatic Software Upgrade Detection* is checked in the Upgrade Settings screen and a new software version has been detected. The Software Upgrade wizard will automatically start the next time that you log in to the Webcache.



3Com recommends that you save your system configuration settings once the Webcache is configured and deployed within your network. Saving the configuration settings ensures that you can recover your entire system configuration if you ever need to re-install an older software version. For more information, see “Saving and Restoring Configurations” on page 103.

- 1 Log in to the Web interface.
- 2 If a new software version has been detected, the first screen of the Upgrade Software wizard is displayed. Click *Next*.
- 3 The *Software Upgrade Available* screen is displayed. Click *Next*.
- 4 You have four options to choose from:
 - **View Upgrade Version Release Notes**
Select this to view detailed information about the new software version.
 - **Upgrade Now**
Select this to upgrade the Webcache to the new software version now.
 - **Upgrade Later**
Select this to upgrade the Webcache to the new software version at a later time. You will be reminded about the upgrade when you next log in to the Webcache, as the Upgrade Software wizard will automatically open.
 - **Discard Upgrade**
Select this if you do not want to upgrade the Webcache to the new software version. You will not be reminded about the upgrade to this particular version. The Upgrade Software wizard will not offer you the chance to upgrade to this version if you discard the software version. If you select *Discard Upgrade* and later wish to install the software version, you must disable Automatic Software Upgrade Detection in the Upgrade Settings window and perform a manual software upgrade.
Select an option and click *Next*.
- 5 If you selected *View Upgrade Version Release Notes*, the release notes are displayed in a new instance of the browser window. Click *Close* to return to the *Software Upgrade Available* screen.
If you selected *Upgrade Now*, the *Finish* screen is displayed. Go to step 6.

If you selected *Upgrade Later*, the *Finish* screen is displayed. Click *Finish* to exit the Upgrade Software wizard.

If you selected *Discard Upgrade*, the *Finish* screen is displayed. Click *Finish* to exit the Upgrade Software wizard.

- 6 Carefully read the summary information, which displays the name of the software image file, its software version and the date on which it was created. Click *Finish* to start the upgrade.
- 7 The software upgrade may take several minutes to complete. The *Software Upgrade Successful* screen is displayed when the software upgrade has been successful.
- 8 Click *OK* to exit the Upgrade Software wizard and reboot the Webcache. This will complete the software upgrade. The Device View is displayed in the Web interface.

Performing a Manual Software Upgrade

You can manually perform a software upgrade by downloading and locating the software upgrade file yourself. You must disable automatic software upgrade detection before you can perform a manual upgrade; for more information see "Detecting Software Upgrades" on page 98. Also, you can only perform a software upgrade if you have downloaded a newer software version than the one that is currently installed on the Webcache. To do this:

- 1 Log in to the Web interface.
- 2 Click *Device View* on the Toolbar.
- 3 Select **System -> Control -> Upgrade Software** in the Navigation Tree. The first screen of the Upgrade Software wizard is displayed. Click *Next*.
- 4 In the *Webcache Software Image* field, enter the network path and filename of the software image file that you want to upgrade to.
You can click *Browse* to search for the location of a software image file. Click *Next*.
- 5 The Webcache will verify if the file that you have selected is valid. If it is not valid, the software upgrade fails.
- 6 If the file is valid, the final screen of the wizard is displayed. Carefully read the summary information, which displays the name, software version and creation date of the current software image file and the new software image file that you are upgrading to. Ensure that the software image is the one that you want to upgrade to. Click *Finish* to start the upgrade.

- 7 The software upgrade may take several minutes to complete. The *Software Upgrade Successful* screen is displayed when the software upgrade has been successful.
- 8 Click *OK* to exit the Upgrade Software wizard and reboot the Webcache. This will complete the software upgrade. The Device View is displayed in the Web interface.

What is a Software Installation?

You can install an older version of management software on the Webcache than the version that is currently running. This is useful in the unlikely event that you are experiencing problems following a software upgrade of the Webcache. A software installation should only be performed as an emergency recovery procedure.



3Com recommends that you always run the latest software version on the Webcache.



CAUTION: *Unlike a software upgrade, all of the Webcache's configuration settings are lost after a software installation has been completed; the Webcache is reset to its factory defaults. For more information, see "Default Settings" on page 22. To restore the settings after the installation is complete, you must restore a system configuration file that you have previously saved. This configuration file must have been saved on the same software version as the software that you have just installed. For more information, see "Saving and Restoring Configurations" on page 103.*

Unsuccessful Software Installations

The Webcache software installation process is robust and guards against an installation failure. Should a software installation fail, the Webcache will automatically revert to using the software version that was installed before the installation was started. The installation process is resilient to power failure, network failure or system failure.

Performing a Software Installation

To install an older version of management software using the Web interface:

- 1 Log in to the Web interface.
- 2 Click *Device View* on the Toolbar.

- 3 Select **System -> Control -> Install Software** in the Navigation Tree. The first screen of the Software Installation wizard is displayed. Click *Next*.
- 4 In the *Webcache Software Image* field, enter the network path and filename of the software image file that you want to install.
You can click *Browse* to search for the location of a software image file.
Click *Next*.
- 5 If the file that you have selected is an invalid Webcache software image, the *Software Installation Failed* screen opens. Click *Back* to specify the location of the software image file again.
If the file that you have selected is a valid Webcache software image, the *Perform Software Installation* screen opens. Go to step 6.
- 6 Carefully read the summary information, which displays the name of the software image file, its software version and the date on which it was created. Ensure that the software image is the one that you want to install. Click *Finish* to start the installation.
- 7 The software installation may take several minutes to complete. The *Software Installation Successful* screen is displayed when the software installation has been successful.
- 8 Click *Reboot* to exit the Software Installation wizard and reboot the Webcache. This will complete the software installation. The Device View is displayed in the Web interface.

Saving and Restoring Configurations

Saving and Restoring configurations is primarily intended to allow you to revert to a previous software version in the unlikely event that you are experiencing problems following a software upgrade of the Webcache. You should always save your system configuration prior to commencing a software upgrade. You can save a snapshot of the current configuration settings of the Webcache to another client machine or server on your network. This is useful if you need to install an older version of software on the Webcache, as all configuration settings are lost after a software installation. You can save the configuration settings at any time for the current Webcache software version. Also, if the Webcache fails and is replaced with a new unit, you can use a saved configuration to quickly configure the settings of the replacement Webcache.

The Save Configuration operation saves the Webcache's current system configuration as a file in another location on your network. The saved

system configuration file includes a record of the Webcache software version that was running when the configuration was saved.

The Restore Configuration operation restores the system configuration from the file to the Webcache. It checks that the system configuration being restored was created on the same Webcache software version as the one that the Webcache is running.

Example

You perform a software upgrade and experience problems with the Webcache. You now want to return the Webcache to a previous working software version. You need to install the previous software version and then restore the configuration that you saved prior to commencing the upgrade.

To do this, you need to install the software image of the previous software version. This is available either on the CD supplied with the Webcache or on the 3Com FTP site. The same software image is used for installation and for upgrades.

You need to perform a software installation to return the Webcache to a previous working software version. All of the Webcache's configuration settings are lost after a software installation has been completed, except the IP and DNS configuration. You should now browse to the Webcache's Web interface and restore the system configuration file that you saved the last time the Webcache was running this older software version. You would perform the Restore Configuration command to go back to a fully configured Webcache running the previous software version.

If you had not previously saved a system configuration file for the older software version, you would still be able to install a previous software image, but you would have to re-enter all of the configuration settings.



CAUTION: *You cannot restore a system configuration which was created on a different software version to the version that the Webcache is currently running.*

Example: *You save a configuration when the Webcache is running software version 1.00. You later perform a software upgrade to version 1.01 and attempt to restore the 1.00 system configuration to the Webcache. The Web interface will not allow you to restore the configuration.*

Therefore you should save a configuration file for each different software version that you run on the Webcache. If you need to go back to an

earlier software version via a software installation, you can use a matching configuration file to restore the settings.

Saving a Configuration

To save the current system configuration of the Webcache using the Web interface:

- 1 Log in to the Web interface.
- 2 Click *Device View* on the Toolbar.
- 3 Select **System** -> **Control** -> **Save Configuration** in the Navigation Tree. The Save Configuration screen is displayed.
- 4 Click *Save*.
- 5 Your Web browser prompts you to enter a filename and to choose a location. When you have entered the required information, click *OK*. The save process begins and the Save Configuration screen is closed. The save process may take a few seconds to complete.
- 6 Write down the filename and location of the system configuration file for future reference. You should repeat this for every configuration that you save.
- 7 The *Save Configuration* screen in the Web interface does not close automatically when the save process has been completed. Click *Cancel* to close the screen when the configuration has been saved.



You can exit the Save Configuration screen without saving a system configuration file by clicking Cancel instead of Save.

Restoring a Configuration

To restore a saved system configuration file to the Webcache using the Web interface:

- 1 Log in to the Web interface.
- 2 Click *Device View* on the Toolbar.
- 3 Select **System** -> **Control** -> **Restore Configuration** in the Navigation Tree. The Restore Configuration screen is displayed.
- 4 In the *Configuration Filename* field, enter the network path and filename of the saved system configuration file that you want to restore.

You can click *Browse* to search for the location of a file.



CAUTION: *You cannot restore a system configuration file which was created on a different software version to the version that the Webcache is currently running.*

- 5 Click *Restore*. The restore process begins.
- 6 The *Restore Configuration Successful* screen appears. Click *OK* to reboot the Webcache and complete the restoration of the system configuration file. The Device View is displayed in the Web interface.



You can exit the Restore Configuration screen without restoring a system configuration file by clicking Cancel instead of Restore.



COMMAND LINE INTERFACE

Chapter 12 Command Line Interface

12

COMMAND LINE INTERFACE

The Webcache 1000/3000 has a Command Line Interface that allows you to manage certain features from a terminal. You may want to use the Command Line Interface to setup the Webcache for management through the console port or over your network via Telnet.

This chapter describes how to access and use the Command Line Interface. It covers the following topics:

- Accessing the Command Line Interface
- Logging In To the Command Line Interface
- Understanding the Command Line Interface
- A Quick Guide to the Commands
- Getting Started
- Displaying and Changing IP-related Information
- Displaying and Changing Security Information
- Displaying and Changing Webcache Information and Functions

Accessing the Command Line Interface

You can access the Command Line Interface using:

- A terminal or terminal emulator connected to the console port of the Webcache directly, or through a modem.
- A terminal or terminal emulator connected to the Webcache over an IP network using Telnet. You can do this in two ways:
 - Run a telnet session explicitly to the IP address or Domain Name System (DNS) name of the Webcache.
 - Select System -> Control -> Telnet in the Web interface. This opens a telnet session to the Command Line Interface.



You must use a VT52 or VT100/ANSI compatible terminal emulator.

Accessing the Command Line Interface Through the Console Port

To manage the Webcache using the Command Line Interface through the console port:

- 1 Connect the terminal or terminal emulator to the console port.
 - If you are connecting directly to the console port, you need a standard null-modem cable.
 - If you are connecting to the console port using a modem, you need a standard modem cable. The console port of the Webcache has a male 9-pin D-type connector. You can find pin-out diagrams for both cables in the "Cable Specifications and Pin-outs" chapter on page 147.

To connect the cable:

- a Attach the female connector on the cable to the male connector on the console port of the Webcache.
- b Tighten the retaining screws on the cable to prevent it from being loosened.
- c Connect the other end of the cable to your terminal, terminal emulator, or modem. Make sure that the terminal, terminal emulator, or modem have the same settings as the console port:
 - 8 data bits
 - no parity
 - 1 stop bit

To configure the settings of the terminal, terminal emulator, or modem, see the documentation that accompanies it. You must configure the terminal and set the line speed (baud) to match that of the Webcache console port. Unless you have changed it, the default line speed is 9600 baud. You can change the baud rate of the console port via the Web interface.

- 2 Access the Command Line Interface using a valid user name and password. Default user names and passwords are described in "Logging in as a Default User" on page 58.
- 3 Configure the basic settings of the Webcache by completing the Getting Started wizard. For more information, see "Setting Up Using the Command Line Interface" on page 40.

Accessing the Command Line Interface Over the Network

To manage the Webcache using the Command Line Interface over a network using Telnet, open a Telnet session using a terminal emulator by specifying the IP address of the Webcache. If you are unsure how to do this, check the documentation supplied with the Telnet facility.

Logging In To the Command Line Interface

To log in to the Command Line Interface, take the following steps:

- 1 Set up your network for Command Line Interface management; for more information, see "Accessing the Command Line Interface" on page 109. The login sequence for the Command Line Interface begins as soon as the Webcache detects a connection to its console port, or as soon as a Telnet session is started.



If the login sequence does not begin immediately, press Return a few times until it does begin. If the sequence still does not begin, see "Solving Command Line Interface Problems" on page 133.

- 2 At the Login and Password prompts, enter your user name and password. For further information, see "Logging in as a Default User" on page 58.



To prevent unauthorized configuration of the Webcache, 3Com recommends that you change the default password as soon as possible. To do this using the Command Line Interface, you need to log in as the default user and then follow the steps described in "Changing the Admin Password" on page 121.

If you have logged on correctly, the Top-level menu of the Command Line Interface is displayed as described in "Understanding the Command Line Interface" on page 112. If you have not logged on correctly, the message `Incorrect password.` is displayed and the login sequence starts again.

Exiting the Interface

You can exit the Command Line Interface at any time; to do this, enter `logout` at the Top-level of the Command Line Interface. If there is a period of inactivity lasting longer than 30 minutes, you are logged out of the Command Line Interface automatically. After the exit, the first key that you press returns you to the login sequence.

Understanding the Command Line Interface

Once you log in to the Command Line Interface, the Top-level menu is displayed as shown below:

Figure 20 The Top-level Menu

```

Menu options: -----3Com SuperStack 3 Webcache 3000-----
gettingStarted      - Basic getting started instructions
logout              - Logout of the Command Line Interface
protocol            - Administer protocols
security            - Administer security
system              - Administer system-level functions

Type ? for help
-----
Select menu option:

```

The Command Line Interface is made up of two areas:

- *The Menu Area* — Contains the current menu of commands. The menu can contain commands to configure the Webcache or commands to display other menus in the Command Line Interface. Each command is accompanied by a brief description of its purpose.
- *The Command Area* — Contains a `select menu option:` prompt where you can enter the commands displayed in the menu area.

From the Top-level menu, you can access these sub-menus:

- **GettingStarted command**
This command allows you to specify basic configuration settings for the Webcache.
- **Logout command**
This command allows you to logout of the Command Line Interface.
- **Protocol menu**
This menu contains commands that allow you to view and change IP-related information and to display diagnostics-related information for the Webcache.
- **Security menu**
This menu contains commands that allow you to view and change security-related information for the Webcache and the network.

- **System menu**

This menu contains commands that allow you to view and configure information about the Webcache.

Entering Commands

The command area of the Command Line Interface contains a Select menu option prompt that allows you to enter the commands in the menu area.



Commands are not case-sensitive.

- **To enter a simple command:**

At the prompt, enter the name of the command.

- **To enter multiple commands:**

At the prompt, enter each command in succession. For example, to enter the Protocol menu and change the Webcache IP configuration, enter:

```
protocol ip basicConfig
```

from the Top-level menu.

- **To enter commands that require values:**

Append the values to the name of the command. For example, to display the system menu and change your password, enter:

```
system password <password>
```

If you do not specify values for a command that requires them, you are prompted to enter the values. At each prompt, the default value is displayed in brackets.

- **To enter abbreviated commands:**

At the prompt, enter enough characters to uniquely identify the commands. For example, to enter the security menu and change the password for the admin user, enter:

```
se pa <password>
```

from the Top-level menu.

- **To abort a command**

Press [Esc] to return to the Top-level menu.

Displaying Menus

There are several ways to display the menus in the Command Line Interface menu structure:

- **To display sub-menus:**

At the Select menu option prompt, enter the name of the menu or menus.

- **To display parent menus:**

At the Select menu option prompt, enter `q`.

- **To display the Top-level menu:**

Press [Esc].

Obtaining Help

You can access the Command Line Interface help system at any time by entering `?` at the Select menu option prompt.

A Quick Guide to the Commands

Table 12 describes the commands that are available in the Command Line Interface.

Table 12 Command line interface commands

Command	What does it do?
<code>gettingStarted</code>	Specifies basic setup information for the Webcache.
<code>logout</code>	Exits the current user from the Command Line Interface.
<code>protocol ip basicConfig</code>	Specifies basic IP management configuration.
<code>protocol ip dnsConfig</code>	Specifies Domain Name System (DNS) configuration.
<code>protocol ip initializeConfig</code>	Resets IP information to factory default settings.
<code>protocol ip ping</code>	Pings other devices on your network.
<code>protocol ip summary</code>	Displays IP summary information.
<code>protocol ip traceRoute</code>	Traces the network hops to devices on your network.
<code>security password</code>	Specifies the password for the current user.
<code>security pwdRecover</code>	Enables and disables password recovery.
<code>system control initialize</code>	Initializes the Webcache to factory default settings.
<code>system control reboot</code>	Reboots the Webcache.
<code>system management community</code>	Sets the SNMP community string.
<code>system management contact</code>	Specifies a contact name for the Webcache.
<code>system management location</code>	Specifies location details for the Webcache.
<code>system management name</code>	Specifies a name for the Webcache.
<code>system summary</code>	Displays summary information for the Webcache.

Getting Started

The Getting Started command allows you to quickly configure or view basic setup information for the Webcache.

To configure basic setup information:

- 1 At the Top-level menu, enter:

```
gettingStarted
```

The following prompt is displayed:

```
Enter system name:
```

- 2 Enter a system name for the Webcache. The name can be up to 80 characters long.

The following prompt is displayed:

```
Enter system contact:
```

- 3 Enter a system contact for the Webcache. The name can be up to 80 characters long.

The following prompt is displayed:

```
Enter system location:
```

- 4 Enter a physical location for the Webcache. The location name can be up to 80 characters long.

The following prompt is displayed:

```
Enter IP address [192.168.1.253]:
```

- 5 Enter a valid IP address.

The following prompt is displayed:

```
Enter subnet mask [255.255.255.0]
```

- 6 Enter a valid subnet mask.

The following prompt is displayed:

```
Enter gateway IP address [0.0.0.0]:
```

- 7 Enter a valid gateway IP address.

The following prompt is displayed:

```
Enter host name
```

- 8 Enter a valid host name.

The following prompt is displayed:

```
Enter domain name
```

- 9 Enter a valid domain name.

The following prompt is displayed:

```
Enter DNS Server IP address [0.0.0.0]:
```

- 10 Enter a valid Domain Network System (DNS) Server IP address.

The following prompt and a list of timezones is displayed:

```
Enter the index of timezone (1-30) [14]:
```

- 11 Enter the index number of the timezone that you want the Webcache to operate in.

Example

Enter 7 if you want to select (T - 06:00) Central Time (US).

The following prompt is displayed:

```
Enter time option (NTP,manual) [manual]:
```

- 12 Enter either **NTP** (Network Time Protocol) or **manual**.

- If you entered NTP, the following prompt is displayed:

```
Enter NTP server IP address [0.0.0.0]:
```

Enter a valid NTP server IP address.

- If you entered manual, the following prompt is displayed:

```
Enter date [dd/mm/yy]:
```

Enter a valid date.

The following prompt is displayed:

```
Enter time: [hour:min:sec]
```

Enter a valid time.



The date and time are set as soon as you press Return.

- 13 The following prompt is displayed:

```
Old password:
```

- 14 Enter the current password for the *admin* user.

The following prompt is displayed:

```
Enter new password:
```



If you press Return without entering a password, the password is set to <no password>.

- 15 Enter the new password for the *admin* user.

The following prompt is displayed:

Retype password:

- 16** Re-enter the new password. A message is displayed informing you that the password has been successfully changed.

The following prompt is displayed:

Please enter mode of operation (proxy, transparent) [proxy]:

- 17** Enter either **proxy** or **transparent**.

For further information, see “Deploying the Webcache in Your Network” on page 33.

If you entered **proxy**, the following prompt is displayed:

Enter caching port number

- 18** Enter the port number on which the Webcache will listen for traffic.

The Finish prompt is displayed, which summarises the selections that you have made.

Exiting the Command Line Interface

You can exit the Command Line Interface at any time using the `logout` command on the Top-level menu.

To exit the Command Line Interface, at the Top-level menu, enter:

logout



If a period of inactivity lasts longer than 30 minutes, the Webcache will automatically log you out.



After the exit, the first key that you press returns you to the login sequence.

Displaying and Changing IP-related Information

You can display and change the IP-related information for the Webcache using the commands on the IP menu. These commands allow you to:

- Specify basic IP management configuration
- Configure the Domain Name System settings
- Reset IP information to factory default settings
- Send out a PING request
- Display IP summary information

- Specify an IP address to be traced

Specifying Basic IP Configuration

You can use the `basicConfig` command on the IP menu to configure the IP stack of the Webcache. This will allow you to manage the Webcache over IP via the CLI or Web interface. This command allows you to configure the IP address, subnet mask and the default router IP address.

To configure basic IP management:

- 1 At the Top-level menu, enter:

```
protocol ip basicConfig
```

The following prompt is displayed:

```
Enter IP address [196.168.100.1]:
```

- 2 Enter a valid IP address.

The following prompt is displayed:

```
Enter Subnet mask [255.255.255.0]
```

- 3 Enter a valid subnet mask.

The following prompt is displayed:

```
Enter Gateway IP address [196.168.100.2]:
```

- 4 Enter a valid gateway IP address.

Specifying Domain Name System Configuration

You can use the `dnsConfig` command on the IP menu to configure the Domain Name System settings of the Webcache. This command allows you to configure the host name, domain name and the Domain Network System (DNS) server address.

To configure the Domain Name Settings:

- 1 At the Top-level menu, enter:

```
protocol ip dnsConfig
```

The following prompt is displayed:

```
Enter host name:
```

- 2 Enter a valid host name.

The following prompt is displayed:

```
Enter domain name
```

- 3 Enter a valid domain name.

The following prompt is displayed:

```
Enter DNS Server IP address [196.168.100.3]:
```

- 4 Enter a valid Domain Name System (DNS) Server IP address.

Resetting IP Information to Factory Default Settings

You can reset all IP information on the Webcache to factory default settings using the `initializeConfig` command on the IP menu.

To reset IP information to factory defaults:

- 1 At the Top-level menu, enter:

```
protocol ip initializeConfig
```

The following prompt is displayed:

```
WARNING: This change will lock out all SNMP, Telnet and Web
management access. Do you wish to continue (yes,no) [no]: no
```

- 2 Enter **yes** to reset the IP address for the Webcache.

Pinging Other Devices

The PING feature allows you to send out a PING request to test whether devices on an IP network are accessible and functioning correctly. This feature is useful for testing that the Webcache is installed and set up correctly, and that your network connections are working.

You can PING other devices on your network using the `ping` command on the IP menu.

To PING a device:

- 1 At the Top-level menu, enter:

```
protocol ip ping
```

The following prompt is displayed:

```
Enter destination IP address:
```

- 2 Enter the IP address of the device that you want to PING.

The Webcache sends a single PING request to the specified device and a message similar to the following is displayed:

```
Starting ping, resolution of displayed time is 10
milli-seconds
```

If the device is accessible and functioning correctly, a message similar to the following is displayed:

```
64 bytes from 192.156.136.22: icmp_seq=0 ttl=248 time=195.2
ms
```

If the device is not accessible, or is not functioning correctly, a message similar to the following is displayed:

```
No answer from 192.156.136.22
```

Displaying IP Summary Information

You can display IP summary information for the Webcache using the `summary` command on the IP menu.

To display the IP information, at the Top-level menu, enter:

```
protocol ip summary
```

The IP information for the Webcache is displayed.

An example of the IP information is shown below:

```
IP address: 196.168.100.1
Subnet mask: 255.255.255.0
Default router: 196.168.100.2
Host Name: webcache
Domain name: mycompany.com
DNS address: 196.168.100.3
```

Tracing IP Addresses

The Trace Route feature allows you to display the network hops from the Webcache to a device on an IP network. This feature is useful for testing that the Webcache is installed and set up correctly, and that your network connections are working.

You can perform a trace route to other devices on your network using the `traceRoute` command on the IP menu.

- 1 At the Top-level menu, enter:

```
protocol ip traceRoute
```

The following prompt is displayed:

```
Enter destination IP address:
```

- 2 Enter the IP address of the device that you want to trace.

The Webcache sends a trace route request to the specified device and a message similar to the following is displayed:

```
traceroute to 191.128.40.121, 30 hops max, 38 byte packets
```


If the device is accessible and functioning correctly, a message similar to the following is displayed which displays the network hops:

```
1.routerc1 (140.204.20.20) 1.292ms, 1.343ms, 1.810ms
2.BW-RTR-4.EUR.3Com.COM (161.71.21.45) 26.027ms, 27.156ms,
44.902ms
3.BW-RTR-1.EUR.3Com.COM (140.204.220.15) 24.323ms, 24.854ms,
30.096ms
4.janeway (161.71.123.36) 27.303ms, 33.639ms
```

If the device is not accessible, or is not functioning correctly, a message similar to the following is displayed:

```
No answer from 191.128.40.121
```

Displaying and Changing Security Information

You can display and change the Security-related information for the Webcache using the commands on the Security menu. These commands allow you to:

- Specify the password for the current user
- Enable and disable password recovery

Changing the Admin Password

You can change the password for the *admin* user using the `password` command on the Security menu.

To change the password, you need to login as the *admin* user and then follow the steps below:

- 1 At the Top-level menu, enter:

```
security password
```

The following prompt is displayed, allowing you to enter a new password:

```
Enter the password:
```

- 2 Enter the new password for the *admin* user.

The following prompt is displayed, allowing you to re-enter the new password as confirmation:

```
Re-enter the password:
```



If you press Return without entering a password, the password is set to <no password>.

- 3 A message is displayed informing you that the password has been successfully changed.

Enabling and Disabling Password Recovery

You can enable or disable password recovery for the Webcache using the `pwdRecover` command on the Security menu. For more information about password recovery, see the “Security” chapter on page 71.



CAUTION: 3Com recommends that you leave Password Recovery enabled. If you disable it and subsequently forget the password for the admin user name, you will have to return the Webcache to 3Com.

To enable or disable password recovery:

- 1 At the Top-level menu, enter:

```
security pwdRecover
```

The following example prompt is displayed:

```
The Password Recovery feature is enabled.
Enter new value (enable,disable) [enable]:
```

Displaying and Changing Webcache Information and Functions

You can display and change information about the Webcache using the commands on the System menu. These commands allow you to:

- Initialize the Webcache to factory default settings
- Reboot the Webcache
- Specify a contact name for the Webcache
- Specify location details for the Webcache
- Specify a name for the Webcache
- Specify a community string for the Webcache
- Display summary information for the Webcache

Initializing the Webcache

You can initialize the Webcache using the `initialize` command on the Control menu.

To initialize the Webcache:

- 1 At the Top-level menu, enter:

```
system control initialize
```

The following prompt is displayed:

```
WARNING: This command initializes the system to factory
defaults (excluding IP details) and causes a reset.
Do you wish to continue (yes,no) [no]:
```

- 2 Enter **yes** if you wish to proceed, or **no** if you want to stop the initialization.

What Happens During an Initialization?

Initializing the Webcache returns it to its default (factory) settings; for more information see "Default Settings" on page 22.

You may want to initialize the Webcache if it has previously been used in a different part of your network, and its settings are incorrect for the new environment.



CAUTION: Use great care when initializing the Webcache. It removes all configuration information, including password and security information.



The Webcache takes approximately 60-90 seconds to initialize. While the Webcache is initializing, you cannot communicate with it.

Rebooting the Webcache

You can reboot the Webcache using the `reboot` command on the Control menu.

To reboot the Webcache:

- 1 At the Top-level menu, enter:

system control reboot

The following prompt is displayed:

Are you sure you want to reboot the system (yes,no) [no] :

- 2 Enter **yes** if you wish to proceed, or **no** if you want to stop the reboot.

What Happens During a Reboot?

Rebooting the Webcache simulates a power-off/on cycle. The Telnet session to the Webcache will be terminated.



The Webcache takes about approximately 60-90 seconds to reboot. While the Webcache is being rebooted, you cannot communicate with it.

Specifying a Contact Name

You can specify contact name details for the Webcache using the `contact` command on the Management menu.

To specify the contact name details:

- 1 At the Top-level menu, enter:

```
system management contact
```

The following prompt is displayed:

```
Enter system contact [<contact name>]:
```

- 2 Enter a system contact for the Webcache. The name can be up to 80 characters long.

Specifying Location Details

You can specify physical location details for the Webcache using the `location` command on the Management menu.

To specify the location details:

- 1 At the Top-level menu, enter:

```
system management location
```

The following prompt is displayed:

```
Enter system location [<location>]:
```

- 2 Enter a physical location for the Webcache. The location name can be up to 80 characters long.

Specifying a Webcache Name

You can specify a Webcache name using the `name` command on the Management menu.

To specify the name:

- 1 At the Top-level menu, enter:

```
system management name
```

The following prompt is displayed:

```
Enter system name [<system name>]:
```

- 2 Enter a system name for the Webcache. The name can be up to 80 characters long.

Setting the Webcache SNMP Community String

You can set a new community string for the Webcache using the `community` command on the Management menu. You are setting the community string that must be provided by SNMP management applications seeking to manage the Webcache.

To set the community string:

- 1 At the Top-level menu, enter:

```
system management community
```

The following prompt is displayed:

```
Enter new community for user 'admin' [private]:
```

- 2 Enter a community string for the *admin* user name.

Displaying Summary Information

You can display the summary information for the Webcache using the `summary` command on the System menu. This information may be useful for your technical support representative if you have a problem.

To display the information:

- 1 At the Top-level menu, enter:

```
system summary
```

The administration details are displayed as shown in the example below:

```
3Com SuperStack 3
System Name           : Development
Location              : Wiring Closet, Floor 1
Contact               : System Administrator
Time Since Reset      : 2 days, 3 hours, 10 minutes
Software Version      : 1_00
Hardware Version      : 1.0
MAC Address           : 08:00:00:00:11:11
Serial Number         : 7ZNR001111
```

The following read-only fields are displayed:

- **System Name**

Displays the descriptive name, or system name, for the Webcache. For information about assigning a new name, see "Specifying a Webcache Name" on page 124.

- **Location**

Displays the physical location of the Webcache. For information about assigning a new location, see "Specifying Location Details" on page 124.

- **Contact**

Displays the details of a person to contact about the Webcache. For information about assigning new contact details, see “Specifying a Contact Name” on page 123.

- **Time Since Reset**

Displays the time that has elapsed since the Webcache was last reset, initialized or powered-up.

- **Software Version**

Displays the version number of the management software currently installed on the Webcache.

- **Hardware Version**

Displays the version number of the Webcache hardware.

- **MAC Address**

Displays the MAC (Ethernet) address of the Webcache.

- **Serial Number**

Displays the serial number of the Webcache.

IV

PROBLEM SOLVING

Chapter 13 Problem Solving



13

PROBLEM SOLVING

This chapter contains a list of known problems and suggested solutions. It covers the following topics:

- Accessing the Webcache via the Console Line
- Accessing the Webcache via Telnet
- Solving Web Interface Problems
- Solving Command Line Interface Problems
- Solving Webcache Performance Problems

Accessing the Webcache via the Console Line

The terminal or terminal emulator cannot access the Webcache.

Check that:

- Your terminal or terminal emulator is correctly configured to operate as a generic (TTY) terminal, or a VT100 terminal.
- You have performed the Command Line Interface wake-up procedure by pressing [Return] a few times.
- The settings on your terminal or terminal emulator are correct and match those set for the Webcache console port:
 - 8 data bits
 - no parity
 - 1 stop bit

The Webcache only works with line speeds from 1200 to 19,200 baud. The default line speed of the Webcache is 9600 baud.

If the login sequence still does not display, reset the Webcache. For more information, see "Rebooting the Webcache" on page 123. If this does not work, initialize the Webcache. For more information, see "Initializing the Webcache" on page 122.

The terminal or terminal emulator can no longer access the Webcache over the network.

Check that the connections and network cabling for the LAN port are in place.

If there is still a problem, try accessing the Webcache through a different port. If you can now access the Webcache, a problem may have occurred with the original port. Contact your supplier for further advice.

Accessing the Webcache via Telnet

You cannot access the Webcache using Telnet.

Check that:

- The network cables are secure.
- The network cable used to access the Webcache is connected to the LAN port.
- The Port Activity LED on the Webcache LAN port is Green or Green Flashing.
- The duplex settings are as expected by the rest of your network.
- You can ping the Webcache.
- The terminal or terminal emulator is set to VT52 or VT100 mode.
- Press Return a few times to wake up the CLI.

Solving Web Interface Problems

The Web interface is not displayed in the Web browser.

The Web interface can be accessed by any browser that conforms to the following W3C standards: HTML 4.0, CSS 1.0, DOM, ECMA 262. To display the Web interface correctly, use one of the following Web browsers:

- Microsoft Internet Explorer v4.0
- Microsoft Internet Explorer v5.0
- Microsoft Internet Explorer v5.5
- Netscape Communicator v4.5
- Netscape Communicator v4.6
- Netscape Communicator v4.7



Netscape Navigator version 6 is not supported by the Webcache.

For the browser to operate the Web interface correctly JavaScript™ and Cascading Style Sheets must be enabled on your browser. These features are enabled on a browser by default. You will only need to enable them if you have changed your browser settings.

You cannot access the Web interface.

If the browser on the client machine that you are using to configure the Webcache is also using the Webcache as a proxy, and you enable Web Client Blocking, you must ensure that you add the client machine to the Except these IP Addresses field. If you do not do this, access from the client machine to the Webcache will be blocked, preventing you from using the Web interface. You can regain access by either:

- Changing the client machine's browser settings to remove the use of the Webcache as a proxy or
- Using a browser on a client machine whose IP address is not blocked by Web Client Blocking to access the Web Interface.

You are using Internet Explorer and you cannot access the Web interface.

In Netscape, you can enter a shortened URL such as 192.168.1.253:8081 and Netscape successfully accesses the Webcache. In Internet Explorer, however, this URL is not recognized. You must include "http://" at the start of the URL i.e. http://192.168.1.253:8081.

You are using Internet Explorer to manage multiple Webcaches and the Device Summary table is not updating.

If you are using Internet Explorer to manage more than one Webcache at the same time, the settings displayed in the Device Summary table will not update when you change between the Webcaches. You must delete the browser's Temporary Internet Pages and then click *Refresh* to update the Web interface with the correct information.

Some of the Web interface is not displayed in the Web browser after downloading.

The Web interface responds slowly to commands.

This is probably due either to misbehavior of the Web browser, or large amounts of traffic on the network. Reload the Web interface by clicking *Reload* on the browser's toolbar. If this does not solve the problem, go to the end of the URL in the *Address* field of the browser and press [Return]. This causes the page to be reloaded entirely. If this does not solve the

problem, click in the part of the Web interface that has not displayed and repeat the above.

Some of the text is not displayed in the Web interface windows.

You must ensure that the Display Font Size for your System is set to `Small Fonts (96 dpi)`. If it is set to `Large Fonts`, the Web interface will not display correctly.

"URL not found" messages are displayed when the Contacts, Home Page, Library or Support icons in the Help View are clicked.

Your management workstation cannot access the World Wide Web. Contact your network administrator.

You forget the password for the *admin* user name and can no longer perform important management operations.

Use the password recovery method outlined on page 73 to define a new password for the *admin* user name.

The Customize Response page is not displayed when a Web site is blocked.

There is a default option in Microsoft Internet Explorer 4 and later versions that will cause a "friendly HTTP error message" to be displayed when a Web site is blocked, rather than the response page generated by the Webcache. You can turn this setting off by selecting Tools > Internet Options > Advanced and unchecking *Show friendly HTTP error messages*.

The Proxy Auto Configuration (PAC) file is ignored by the Web browser.

You must set the Web browser to read the PAC file for its settings; for more information, see "Proxy Auto Configuration (PAC) File Scripts" on page 50. In Netscape, you can enter a shortened PAC address such as `webcache:8082` and Netscape successfully configures itself using the PAC file. In Internet Explorer, however, this address is not recognized and you are not warned that the PAC file is being ignored. You must include "`http://`" at the start of the URL i.e. `http://webcache:8082`.

The System Time does not update in the Web interface

The system time shown in the Device Summary table does not get automatically refreshed in the Web interface. Click *Refresh* in your browser to update the time.

The System Time is inaccurate

Check that:

- The Webcache system time is configured to be set through the Network Time Protocol (NTP).
- NTP is enabled on the Webcache. If it is enabled, ping the NTP server that you have specified to check that it is operational.

If the NTP server is not functional, or you are not confident it is working correctly, try using another NTP server.

- The timezone is set correctly.

Alternatively, the Webcache system time can be set manually. If you have configured the system time manually and it is inaccurate, the Webcache clock has probably drifted over time. 3Com recommends that you use the Network Time Protocol to prevent this. If this is not possible, reset the system time manually using the Time Configuration window. Also check that the timezone is set correctly.

The Webcache fails to power-up

Check that:

- The Power/Self Test LED on the front panel is Yellow or Off, possibly indicating a system error. If so, contact 3Com support personnel.
- If no front panel LEDs are lit, check the power connection to the Webcache.

Solving Command Line Interface Problems
The Command Line Interface responds slowly to commands.

This is probably due to large amounts of traffic on the network. Logout and then login again later when the amount of traffic to the Webcache is less.

You forget the password for the *admin* user name and can no longer perform important management operations.

Use the password recovery method outlined on page 73 to define a new password for the admin user name.

Solving Webcache Performance Problems

The performance of the Webcache is poor

Check:

- Whether any of the cache storage devices have failed. Examine the front panel LEDs to ensure there are no faults found. If there are, contact 3Com support personnel. As long as there is at least one working cache storage device, the Webcache will operate as a cache, but the failure of a cache storage device will degrade the performance of the Webcache. If all cache storage devices have failed, the Webcache will pass all requests through to the Web without performing any caching.
- The Caching Performance graphs in the Device View -> Performance folder. Specifically check the Hit and Miss Rate graph. If the hit rate percentage is low, save the system log onto another device in your network. Then use a utility like Webtrends to analyze your web traffic and see if a higher hit rate is expected.
- Run a network performance test between your client machines and your Webcache using the Ping command. Check that the response time is reasonable.
- Analyze your network to look for network errors.
- If you are using Proxy Auto Configuration (PAC) files to configure browsers, try setting the browser settings manually to avoid the overhead of PAC files.
- If you are using the Web Proxy Auto-Discovery (WPAD) protocol to configure the browsers on client machines, try setting the browser settings manually to avoid the overhead of the WPAD protocol.
- The Webcache Domain Name Server configuration to check that it can access the DNS server.

No Web sites can be accessed using the Webcache

Check the Webcache DNS and Default Router settings, and try to ping these addresses from the Webcache.

Alternatively, if the Webcache is operating in transparent mode, it will not service Web requests from browsers on client machines that are using the Webcache as a proxy server. None of those client machines will be able to access the Web. You must configure the browsers to use another proxy server and bypass the Webcache, or configure the browsers so that they are not operating in proxy mode.

Local domain sites cannot be accessed using the Webcache as a proxy

This is caused by an incorrect setting of the DNS domain name on the Webcache. Check the DNS configuration of the Webcache.

V

APPENDICES AND INDEX

- Appendix A Safety Information
- Appendix B Cable Specifications and Pin-outs
- Appendix C Technical Specifications
- Appendix D Technical Support
- Glossary
- Index

A

SAFETY INFORMATION

You must read the following safety information before carrying out any installation or removal of components, or any maintenance procedures on the Webcache 1000/3000.



WARNING: Warnings contain directions that you must follow for your personal safety. Follow all directions carefully.
You must read the following safety information carefully before you install or remove the unit.



AVERTISSEMENT: Les avertissements présentent des consignes que vous devez respecter pour garantir votre sécurité personnelle. Vous devez respecter attentivement toutes les consignes.
Nous vous demandons de lire attentivement les consignes suivantes de sécurité avant d'installer ou de retirer l'appareil.



WARNHINWEIS: Warnhinweise enthalten Anweisungen, die Sie zu Ihrer eigenen Sicherheit befolgen müssen. Alle Anweisungen sind sorgfältig zu befolgen.
Sie müssen die folgenden Sicherheitsinformationen sorgfältig durchlesen, bevor Sie das Gerät installieren oder ausbauen.

Important Safety Information

- Installation and removal of the unit must be carried out by qualified personnel only.
- The unit must be earthed (grounded).
- The unit must be connected to an earthed (grounded) outlet to comply with European safety standards and EMC standards.
- *Power Cord Set*
This must be approved for the country where it is used:
 - UK
 - The supply plug must comply with BS1363 (3-pin 13 amp) and be fitted with a 5A fuse which complies with BS1362.
 - The mains cord must be <HAR> or <BASEC> marked and be of type HO3VVF3gO.75 (minimum).
 - Europe
 - The supply plug must comply with CEE 7/7 (“SCHUKO”).
 - The supply plug must comply with CE123-16/II.
 - USA and Canada
 - The cord set must be UL-approved and CSA certified.
 - The minimum specification for the flexible cord is:
No. 18 AWG
Type SV or SJ
3-conductor
 - The cord set must have a rated current capacity of at least 10A.
 - The attachment plug must be an earth-grounding type with a NEMA 5-15P (15A, 125V) or NEMA 6-15P (15A, 250V) configuration.
 - Denmark
 - The supply plug must comply with section 107-2-D1, standard DK2-1a or DK2-5a.
 - Switzerland
 - The supply plug must comply with SEV/ASE 1011.
- This unit operates under SELV (Safety Extra Low Voltage) conditions according to IEC 950. The conditions are only maintained if the equipment to which it is connected also operates under SELV conditions.
- The appliance coupler (the connector to the unit and not the wall plug) must have a configuration for mating with an EN60320/IEC320 appliance inlet.
- The socket outlet must be near to the unit and easily accessible. You can only remove power from the unit by disconnecting the power cord from the outlet.

- *France and Peru only*
This unit cannot be powered from IT+ supplies. If your supplies are of IT type, this unit must be powered by 230V (2P+T) via an isolation transformer ratio 1:1, with the secondary connection point labelled Neutral, connected directly to earth (ground).
†Impédance à la terre
- *U.K. Only:*
If connecting a modem to the console port of the Webcache 1000/3000, only use a modem which is suitable for connection to the telecommunications system.



WARNING: *RJ-45 Ports. These are shielded RJ-45 data sockets. They cannot be used as standard traditional telephone sockets, or to connect the unit to a traditional PBX or public telephone network. Only connect RJ-45 data connectors, network telephony systems, or network telephones to these sockets.*

Either shielded or unshielded data cables with shielded or unshielded jacks can be connected to these data sockets.

Consignes importantes de sécurité

- L'installation et la dépose de ce groupe doivent être confiés à un personnel qualifié.
- Vous devez mettre l'appareil à la terre (à la masse) ce groupe.
- Vous devez raccorder ce groupe à une sortie mise à la terre (mise à la masse) afin de respecter les normes européennes de sécurité.
- *Cordon électrique*
Il doit être agréé dans le pays d'utilisation :
 - Royaume-Uni
 - La prise secteur doit être conforme aux normes BS1363 (tripolaire, 13 amp) et équipée d'un fusible 5A à conformité BS1362.
 - Le cordon secteur doit porter la mention <HAR> ou <BASEC> et doit être de type HO3VVF3GO.75 (minimum).
 - Europe
 - La prise secteur doit être conforme aux normes CEE 7/7 ("SCHUKO")
 - La prise secteur doit être conforme aux normes CEI23-16/VII.
 - Etats-Unis et Canada
 - Le cordon doit avoir reçu l'homologation des UL et un certificat de la CSA
 - Le cordon souple doit respecter, à titre minimum, les spécifications suivantes :
Calibre 18 AWG
Type SV ou 5J
A 3 conducteurs
 - Le cordon doit être en mesure d'acheminer un courant nominal d'au moins 10 A
 - La prise femelle de branchement doit être du type à mise à la terre (mise à la masse) et respecter la configuration NEMA 5-15P (15 A, 125 V) ou NEMA 6-15P (15 A, 250 V)
 - Danemark
 - La prise mâle d'alimentation doit respecter la section 107-2 D1 de la norme DK2 1a ou DK2 5a
 - Suisse
 - La prise mâle d'alimentation doit respecter la norme SEV/ASE 1011
- L'appareil fonctionne à une tension extrêmement basse de sécurité qui est conforme à la norme CEI 950. Ces conditions ne sont maintenues

que si l'équipement auquel il est raccordé fonctionne dans les mêmes conditions.

- Le coupleur d'appareil (le connecteur du groupe et non pas la prise murale) doit respecter une configuration qui permet un branchement sur une entrée d'appareil EN60320/CEI 320.
- *France et Pérou uniquement:* Ce groupe ne peut pas être alimenté par un dispositif à impédance à la terre. Si vos alimentations sont du type impédance à la terre, ce groupe doit être alimenté par une tension de 230 V (2 P+T) par le biais d'un transformateur d'isolement à rapport 1:1, avec un point secondaire de connexion portant l'appellation Neutre et avec raccordement direct à la terre (masse).



AVERTISSEMENT: *Points d'accès RJ-45. Ceux-ci sont protégés par des prises de données. Ils ne peuvent pas être utilisés comme prises de téléphone conventionnelles standard, ni pour la connection de l'unité à un réseau téléphonique central privé ou public. Raccorder seulement connecteurs de données RJ-45, systèmes de réseaux de téléphonie ou téléphones de réseaux à ces prises.*

Il est possible de raccorder des câbles protégés ou non protégés avec des jacks protégés ou non protégés à ces prises de données.

Wichtige Sicherheitsinformationen

- Die Installation und der Ausbau des Geräts darf nur durch Fachpersonal erfolgen.
- Das Gerät muß geerdet sein.
- Das Gerät muß an eine geerdete Steckdose angeschlossen werden, die europäischen Sicherheitsvorschriften und den Vorschriften zur EMV entspricht.

- *Netzstecker*

Dies muss von dem Land, in dem es benutzt wird geprüft werden.

Vereinigtes
Königreich:

- Der Netzstecker muß die Norm BS1363 (13 Ampere, 3 Stifte) erfüllen und mit einer 5-A-Sicherung gemäß Norm BS1362 ausgestattet sein.

- Das Netzkabel muß vom Typ HO3VVF3GO.75 (Mindestanforderung) sein und die Aufschrift <HAR> oder <BASEC> tragen.

Europa

- Der Netzstecker muß die Norm CEE 7/7 erfüllen ("SCHUKO").
- Der Netzstecker muß die Norm CEI23-16/VII erfüllen.

USA und Kanada -

Dänemark

- Der Netzstecker muß die Vorschriften laut Abschnitt 107-2-01 der Norm DK2-1a oder DK2-5a erfüllen.

Die Schweiz

- Der Netzstecker muß die Norm SEV/ASE 1011 erfüllen.

- Der Betrieb dieses Geräts erfolgt unter den SELV-Bedingungen (Sicherheitskleinstspannung) gemäß IEC 950. Diese Bedingungen sind nur gegeben, wenn auch die an das Gerät angeschlossenen Geräte unter SELV-Bedingungen betrieben werden.
- Der Gerätestecker (der Anschluß an das Gerät, nicht der Wandsteckdosenstecker) muß eine passende Konfiguration für einen Geräteeingang gemäß EN60320/IEC320 haben.
- *Nur für Frankreich:* Diese Einheit kann nicht über Anschlüsse des Typs IT1 betrieben werden. Wenn Sie über IT-Anschlüsse verfügen, muß die Einheit über einen geerdeten Trenner mit einem Übersetzungsverhältnis 1:1 mit 230 V (2P+T) betrieben werden; dabei muß der zweite Anschlußpunkt die

Bezeichnung Neutral tragen.
†Impédance à la terre.



WARNHINWEIS: RJ-45-Porte. Diese Porte sind geschützte Datensteckdosen. Sie dürfen weder wie normale traditionelle Telefonsteckdosen noch für die Verbindung der Einheit mit einem traditionellem privatem oder öffentlichem Telefonnetzwerk gebraucht werden. Nur RJ-45-Datenanschlüsse, Telefonnetzsysteme or Netztelefone an diese Steckdosen anschließen.

Entweder geschützte oder ungeschützte Buchsen dürfen an diese Datensteckdosen angeschlossen werden.

B

CABLE SPECIFICATIONS AND PIN-OUTS

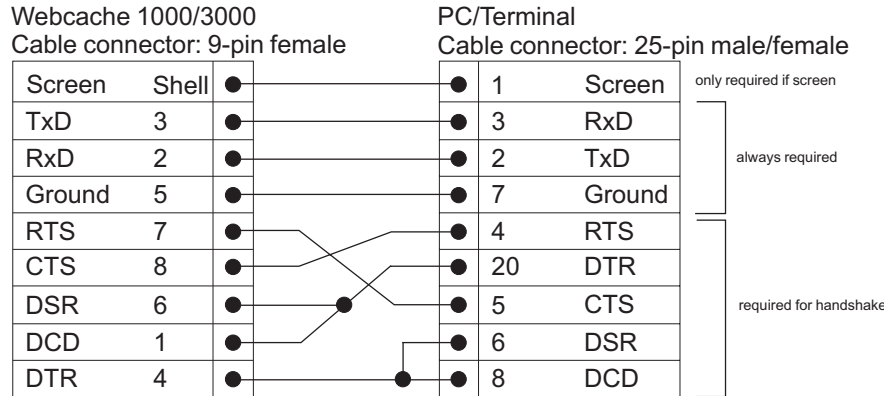
Cable Specifications The Webcache supports the following cable types:

- **Category 3**
One of five grades of Twisted Pair (TP) cabling defined by the EIA/TIA-586 standard. Category 3 is voice grade cable and can only be used in Ethernet networks (10BASE-T) to transmit data at speeds of up to 10 Mbps.
- **Category 5**
One of five grades of Twisted Pair (TP) cabling defined by the EIA/TIA-586 standard. Category 5 can be used in Ethernet (10BASE-T) and Fast Ethernet networks (100BASE-TX) and can transmit data at speeds of up to 100 Mbps. Category 5 cabling is better to use for network cabling than Category 3, because it supports both Ethernet (10 Mbps) and Fast Ethernet (100 Mbps) speeds.

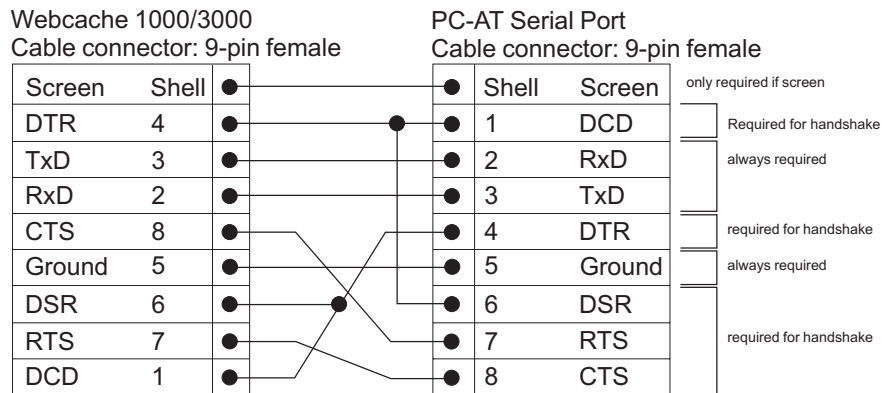
3Com recommends that you use Category 5 cable — the maximum segment length for this type of cable is 100 m (328 ft).

Pin-outs

Null-Modem Cable 9-pin to RS-232 25-pin



PC-AT Serial Cable 9-pin to 9-pin



Modem Cable 9-pin to RS-232 25-pin

Webcache 1000/3000 Cable connector: 9-pin female			RS-232 Modem Port Cable connector: 25-pin male		
Screen	Shell	●	●	1	Screen
TxD	3	●	●	2	TxD
RxD	2	●	●	3	RxD
RTS	7	●	●	4	RTS
CTS	8	●	●	5	CTS
DSR	6	●	●	6	DSR
Ground	5	●	●	7	Ground
DCD	1	●	●	8	DCD
DTR	4	●	●	20	DTR

RJ-45 Pin Assignments

Pin assignments are identical for 10BASE-T and 100BASE-TX RJ-45 connectors.

Table 13 Pin Assignments

Pin Number	Signal	Function
<i>Ports configured as MDI</i>		
1	Transmit Data +	Bidirectional Data A+
2	Transmit Data +	Bidirectional Data A-
3	Receive Data +	Bidirectional Data B+
4	Not assigned	Bidirectional Data C+
5	Not assigned	Bidirectional Data C-
6	Receive Data -	Bidirectional Data B-
7	Not assigned	Bidirectional Data D+
8	Not assigned	Bidirectional Data D-
<i>Ports configured as MDIX</i>		
1	Receive Data +	Bidirectional Data B+
2	Receive Data -	Bidirectional Data B-
3	Transmit Data +	Bidirectional Data A+
4	Not assigned	Bidirectional Data D+
5	Not assigned	Bidirectional Data D-
6	Transmit Data -	Bidirectional Data A-
7	Not assigned	Bidirectional Data C+
8	Not assigned	Bidirectional Data C-



TECHNICAL SPECIFICATIONS

Physical Dimensions	Height: 44.45mm (1.75 in.) x Width: 482.6 mm (19.00 in.) x Depth: 610 mm (24.02 in.) (not including bulge). Weight: 13 Kg (28.66 lbs)
----------------------------	---

Environmental Requirements	
Operating Temperature	0 ° to 40 °C (32 ° to 104 °F)
Storage Temperature	-10 ° to +70 °C (14 ° to 158 °F)
Operating Humidity	10–95% relative humidity, non-condensing
Standards	EN60068 to 3Com schedule (Package testing: paras 2.1, 2.2, 2.30, and 2.32. Operational testing: paras 2.1, 2.2, 2.30 and 2.13).

Safety	
Agency Certifications	UL 1950, EN60950, CSA 22.2 No. 950, IEC 60950, NOM-019 SCFI, AS/NZS 60950

EMC	
Emissions	ICES-003 Class A, FCC Part 15 Class A, EN55022 Class A, VCCI Class A, AS/NZS 3548 Class A, CISPR 22 Class A, EN61000-3-2, EN61000-3-3, CNS 13438 Class A, Korean EMI Class A
Immunity	EN 55024

Heat Dissipation	400 watts maximum (1300 BTU/hour maximum)
-------------------------	---

Power Supply	
AC Line Frequency	50/60 Hz
Input Voltage Options	90–240 VAC
Current Rating	4 A (amps) (maximum)

(continued)

Standards Supported	SNMP:	Terminal Emulation:
	SNMP protocol (RFC 1517)	Telnet (RFC 854)
	MIB-II (RFC 1213)	Protocols Used for Administration:
	Interface MIB (RFC 1573)	UDP (RFC 768)
	Remote Monitoring MIB (RFC 1757)	IP (RFC 791)
		ICMP (RFC 792)
		TCP (RFC 793)
		ARP (RFC 826)
		TFTP (RFC 783)

D

TECHNICAL SUPPORT

3Com provides easy access to technical support information through a variety of services. This appendix describes these services.

Information contained in this appendix is correct at time of publication. For the most recent information, 3Com recommends that you access the 3Com Corporation World Wide Web site.

Online Technical Services

3Com offers worldwide product support 24 hours a day, 7 days a week, through the following online systems:

- World Wide Web site
- 3Com Knowledgebase Web Services
- 3Com FTP site

World Wide Web Site

To access the latest networking information on the 3Com Corporation World Wide Web site, enter this URL into your Internet browser:

<http://www.3com.com/>

This service provides access to online support information such as technical documentation and software, as well as support options that range from technical education to maintenance and professional services.

3Com Knowledgebase Web Services

This interactive tool contains technical product information compiled by 3Com expert technical engineers around the globe. Located on the World Wide Web at <http://knowledgebase.3com.com>, this service gives all 3Com customers and partners complementary, round-the-clock access to technical information on most 3Com products.

3Com FTP Site Download drivers, patches, software, and MIBs across the Internet from the 3Com public FTP site. This service is available 24 hours a day, 7 days a week.

To connect to the 3Com FTP site, enter the following information into your FTP client:

- Hostname: **ftp.3com.com**
- Username: **anonymous**
- Password: **<your Internet e-mail address>**



You do not need a user name and password with Web browser software such as Netscape Navigator and Internet Explorer.

Support from Your Network Supplier

If you require additional assistance, contact your network supplier. Many suppliers are authorized 3Com service partners who are qualified to provide a variety of services, including network planning, installation, hardware maintenance, application training, and support services.

When you contact your network supplier for assistance, have the following information ready:

- Product model name, part number, and serial number
- A list of system hardware and software, including revision levels
- Diagnostic error messages
- Details about recent configuration changes, if applicable

If you are unable to contact your network supplier, see the following section on how to contact 3Com.

Support from 3Com

If you are unable to obtain assistance from the 3Com online technical resources or from your network supplier, 3Com offers technical telephone support services. To find out more about your support options, call the 3Com technical telephone support phone number at the location nearest you.

When you contact 3Com for assistance, have the following information ready:

- Product model name, part number, and serial number

- A list of system hardware and software, including revision levels
- Diagnostic error messages
- Details about recent configuration changes, if applicable

Here is a list of worldwide technical telephone support numbers. These numbers are correct at the time of publication. Refer to the 3Com Web site for updated information.

Country	Telephone Number	Country	Telephone Number
Asia, Pacific Rim			
Australia	1 800 678 515	P.R. of China	10800 61 00137 or
Hong Kong	800 933 486		021 6350 1590 or
India	+61 2 9937 5085 or		00800 0638 3266
	000800 6501111	Singapore	800 6161 463
Indonesia	001 800 61 009	S. Korea	00798 611 2230 or
Japan	03 5783 1270		02 3455 6455
Malaysia	1800 801 777	Taiwan, R.O.C.	00798 611 2230
New Zealand	0800 446 398	Thailand	0080 611 261
Pakistan	+61 2 9937 5083		001 800 611 2000
Philippines	1235 61 266 2602		
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From anywhere in these regions, call:	+44 (0)1442 435529 phone +44 (0)1442 436722 fax		
Europe and South Africa			
From the following countries, you may use the toll-free numbers:			
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Belgium	0800 71429	Netherlands	0800 0227788
Denmark	800 17309	Norway	800 11376
Finland	0800 113153	Poland	00800 3111206
France	0800 917959	Portugal	0800 831416
Germany	0800 1821502	South Africa	0800 995014
Hungary	06800 12813	Spain	900 983125
Ireland	1800 553117	Sweden	020 795482
Israel	1800 9453794	Switzerland	0800 55 3072
Italy	800 8 79489	U.K.	0800 966197
Latin America			
Brazil	0800 13 3266	Puerto Rico	800 666 5065
Mexico	01 800 849CARE	Central and South America	AT&T +800 998 2112
North America			
	1 800 NET 3Com (1 800 638 3266)		
	Enterprise Customers: 1 800 876-3266		

Returning Products for Repair

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To obtain an authorization number, call or fax:

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Europe, Middle East and Africa	+44 (0)1442 435529	+ 44 (0)1442 436722
Central and South America	525 201 0075	
Argentina	0810 222 3266	
Bolivia	511 241 1691	
Brazil	0800 133266 or 55 11 5643 2700	
Caribbean	525 201 0004	
Chile	562 240 6200	
Colombia	525 201 0004	
Ecuador	525 201 0004	
Mexico	525 201 0004	
Paraguay	525 201 0004	
Peru	511 241 1691	
Uruguay	525 201 0004	
Venezuela	525 201 0004	

From the following countries, you may call the toll-free numbers; select option 2 and then option 2:

Austria	0800 297468
Belgium	0800 71429
Denmark	800 17309
Finland	0800 113153
France	0800 917959
Germany	0800 1821502
Hungary	00800 12813
Ireland	1800553117
Israel	1800 9453794
Italy	1678 79489
Netherlands	0800 0227788
Norway	800 11376
Poland	00800 3111206
Portugal	0800 831416
South Africa	0800 995014
Spain	900 983125
Sweden	020 795482
Switzerland	0800 55 3072
U.K.	0800 966197

(continued)

Country	Telephone Number	Fax Number
U.S.A. and Canada	1 800 NET 3Com (1 800 638 3266) Enterprise Customers: 1 800 876 3266	1 408 326 7120 (not toll-free)

GLOSSARY

3Com Network Supervisor The 3Com umbrella management system used to manage all of 3Com's networking solutions.

10BASE-T The IEEE specification for 10 Mbps Ethernet over Category 3, 4 or 5 twisted pair cable.

100BASE-TX The IEEE specification for 100 Mbps Fast Ethernet over Category 5 twisted-pair cable.

auto-negotiation A feature on twisted pair ports that allows them to advertise their capabilities for speed, duplex and flow control. When connected to a port that also supports auto-negotiation, the link can automatically configure itself to the optimum setup.

bandwidth The information capacity, measured in bits per second, that a channel can transmit. The bandwidth of Ethernet is 10 Mbps and the bandwidth of Fast Ethernet is 100 Mbps.

baud The signalling rate of a line, that is, the number of transitions (voltage or frequency changes) made per second. Also known as *line speed*.

cache Stores copies of frequently accessed objects close to users and serves them to users when requested.

cache hit An object in the cache that can be served directly to the client machine.

cache miss An object that is not in the cache or that is in the cache but no longer valid. In both cases, the Webcache must get the object from the origin server.

client machine A computer, printer or server that is connected to a network. In this User Guide, client machine is used to describe a machine on your network which is running a Web browser such as Internet Explorer or Netscape Navigator.

- DNS** Domain Name System. This system maps a numerical Internet Protocol (IP) address to a more meaningful and easy-to-remember name. When you need to access another device on your network, you enter the name of the device, instead of its IP address.
- Ethernet** A LAN specification developed jointly by Xerox, Intel and Digital Equipment Corporation. Ethernet networks use CSMA/CD to transmit packets at a rate of 10 Mbps over a variety of cables.
- Ethernet address** See *MAC address*.
- Fast Ethernet** An Ethernet system that is designed to operate at 100Mbps.
- FTP** File Transfer Protocol. A protocol based on TCP/IP for reliable file transfer.
- full duplex** A system that allows packets to be transmitted and received at the same time and, in effect, doubles the potential throughput of a link.
- gateway** See *router*.
- half duplex** A system that allows packets to be transmitted and received, but not at the same time. Contrast with *full duplex*.
- HTTP** Hypertext Transfer Protocol. This is a set of rules for exchanging files (text, graphic images, sound, video, and other multimedia files) on the World Wide Web.
- IETF** Internet Engineering Task Force. An organization responsible for providing engineering solutions for TCP/IP networks. In the network management area, this group is responsible for the development of the SNMP protocol.
- Intranet** An Intranet is an organisation wide network using Internet protocols such as web services, TCP/IP, HTTP and HTML. An Intranet is normally used for internal communication and information, and is not accessible to computers on the wider Internet.
- IP** Internet Protocol. IP is a layer 3 network protocol that is the standard for sending data through a network. IP is part of the TCP/IP set of protocols that describe the routing of packets to addressed devices.
- IP address** Internet Protocol address. A unique identifier for a device attached to a network using TCP/IP. The address is written as four octets separated

with periods (full-stops), and is made up of a network section, an optional subnet section and a host section.

- LAN** Local Area Network. A network of client machines (such as PCs, printers, servers) and network devices (hubs and switches) that cover a relatively small geographic area (usually not larger than a floor or building). LANs are characterized by high transmission speeds over short distances (up to 1000 m).
- LAN port** An auto-negotiating 10BASE-T/100BASE-TX RJ-45 port which is used to connect the Webcache to the network in either Proxy or Transparent deployment environments.
- latency** The delay between a web request being issued from the Web browser on a client machine and the information arriving back at the browser.
- line speed** See *baud*.
- MRTG** Multi Router Traffic Grapher. A graphing tool provided with the Webcache that enables you to monitor the Webcache's performance.
- NTP** Network Time Protocol. This protocol is used to synchronize the time of client machines and servers with other well-known, highly accurate servers or reference time sources (such as a radio, satellite receiver or modem). It maintains a consistent Coordinated Universal Time (UTC) within your network which is far more accurate than the internal system clocks of client machines.
- origin server** The web server that contains the original copy of the requested information.
- PAC** Proxy Auto Configuration. PAC files allow you to create configuration rules that determine how Web browsers operate when the Webcache is being deployed in a Proxy cache.
- PING** Packet Internet or Inter-Network Gropher. This feature allows you to send out a PING request to test whether devices on an IP network are accessible and functioning correctly.
- protocol** A set of rules for communication between devices on a network. The rules dictate format, timing, sequencing and error control.

- proxy cache** The Webcache is connected to a Layer 2 switch in your LAN. The Web browser on each client machine in your network must be configured to explicitly direct its Web requests to the Webcache.
- router** A router is a device on your network which is used to forward IP packets to a remote destination. An alternative name for a router is a gateway.
- server** A computer in a network that holds the master version of a web page/object. A web request that is not served by the Webcache must go to the server across the World Wide Web. This is termed a cache miss. A web request served by the Webcache is termed a cache hit.
- SNMP** Simple Network Management Protocol. The current IETF standard protocol for managing devices on an TCP/IP network.
- subnet** An IP network can be divided into sub-networks, also known as subnets. If you have a small network (less than 254 devices), you may decide not to have multiple subnets.
- subnet mask** A subnet mask is used to divide the device part of the IP address into two further parts. The first part identifies the subnet number. The second part identifies the device on that subnet.
- TCP/IP** Transmission Control Protocol/Internet Protocol. This is the name for two of the most well-known protocols developed for the interconnection of networks. Originally a UNIX standard, TCP/IP is now supported on almost all platforms, and is the protocol of the Internet. TCP relates to the content of the data travelling through a network — ensuring that the information sent arrives in one piece when it reaches its destination. IP relates to the address of the client machine to which data is being sent, as well as the address of the destination network.
- Telnet** A TCP/IP application protocol that provides a virtual terminal service, letting a user log into another computer system and access a device as if the user were connected directly to the device.
- trace route** This feature allows you to display the network hops from the Webcache to a device on an IP network.
- transparent cache** The Webcache is connected to a Layer 4 device in your LAN which is capable of Redirection. The Layer 4 switch (also known as a Layer 4 redirector or Web enabled switch) automatically redirects all Web requests to the Webcache.

- VLAN** Virtual LAN. A group of location- and topology-independent devices that communicate as if they are on the same physical LAN.
- WAN** Wide Area Network. A communications network that covers a wide area. A WAN can cover a large geographic area, and may contain several LANs within it.
- URL** Uniform Resource Locator. The address that defines the route to a file on the web or other Internet facility.
- UTC** Coordinated Universal Time. This is the standard time common to every place in the world. Formerly and still widely called Greenwich Mean Time (GMT) and also World Time, UTC nominally reflects the mean solar time along the Earth's prime meridian.
- WAN port** On the Webcache, the WAN port is an auto-negotiating 10BASE-T/100BASE-TX RJ-45 port which is used to connect the Webcache to the network in an inline deployment environment.
- WPAD** Web Proxy Auto-Discovery. This protocol enables the Web browser on client machines to automatically find and load proxy configuration information from a server without user intervention.

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This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference to radio communications, in which case the user will be required to correct the interference at their own expense.

INFORMATION TO THE USER

If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the equipment with respect to the receiver.
- Move the equipment away from the receiver.
- Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

How to Identify and Resolve Radio-TV Interference Problems

This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

In order to meet FCC emissions limits, this equipment must be used only with cables which comply with IEEE 802.3.

CSA STATEMENT

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

CE STATEMENT (EUROPE)

This product complies with the European Low Voltage Directive 73/23/EEC and EMC Directive 89/336/EEC as amended by European Directive 93/68/EEC.

Warning: This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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