

Blue Coat® Systems ProxySG® Appliance

Volume 1: Getting Started

SGOS Version 5.3



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Document Number: 231-03010

Document Revision: SGOS 5.3.1—08/2008

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@version 3.0 (December 2000)

Optimised ANSI C code for the Rijndael cipher (now AES)

@author Vincent Rijmen <vincent.rijmen@esat.kuleuven.ac.be>

@author Antoon Bosselaers <antoon.bosselaers@esat.kuleuven.ac.be>

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In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations (now Zope Corporation, see <http://www.zope.com>). In 2001, the Python Software Foundation (PSF, see <http://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation is a sponsoring member of the PSF.

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Table 1.1:

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0.9.0 thru 1.2	-	1991-1995	CWI	yes
1.3 thru 1.5.2	1.2	1995-1999	CNRI	yes
1.6 1.5.2	-	2000	CNRI	no
2.0	1.6	2000	BeOpen.com	no
1.6.1	1.6	2001	CNRI	yes (2)
2.1	2.0+1.6.1	2001	PSF	no

Table 1.1:

Release	Derived From	Year	Owner	GPL-compatible? (1)
2.0.1	2.0+1.6.1	2001	PSF	yes
2.1.1	2.1+2.0.1	2001	PSF	yes
2.2	2.1.1	2001	PSF	yes
2.1.2	2.1.1	2002	PSF	yes
2.1.3	2.1.2	2002	PSF	yes
2.2.1	2.2	2002	PSF	yes
2.2.2	2.2.1	2002	PSF	yes
2.2.3	2.2.2	2003	PSF	yes
2.3	2.2.2	2002-2003	PSF	yes
2.3.1	2.3	2002-2003	PSF	yes
2.3.2	2.3.1	2002-2003	PSF	yes
2.3.3	2.3.2	2002-2003	PSF	yes
2.3.4	2.3.3	2004	PSF	yes
2.3.5	2.3.4	2005	PSF	yes
2.4	2.3	2004	PSF	yes
2.4.1	2.4	2005	PSF	yes
2.4.2	2.4.1	2005	PSF	yes
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zlib.h -- interface of the 'zlib' general purpose compression library

version 1.2.3, July 18th, 2005

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The data format used by the zlib library is described by RFCs (Request for Comments) 1950 to 1952 in the files <http://www.ietf.org/rfc/rfc1950.txt> (zlib format), rfc1951.txt (deflate format) and rfc1952.txt (gzip format).

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libarchive 2.3.1

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Index

Chapter 1: Introduction

Volume 1: Getting Started describes how to access the ProxySG using the CLI or Management Console, and provides basic configuration information that is required in every environment.

About This Book

This book includes the following topics:

- ❑ Chapter 2: "Licensing" on page 31
- ❑ Chapter 3: "Accessing the ProxySG" on page 43
- ❑ Chapter 4: "Configuring Basic Settings" on page 51
- ❑ Chapter 5: "Configuring Adapters and Virtual LANs" on page 57
- ❑ Chapter 6: "Software and Hardware Bridges" on page 75
- ❑ Chapter 7: "Distributing Traffic Through Gateways" on page 91
- ❑ Chapter 8: "Configuring DNS" on page 97
- ❑ Chapter 9: "Backing Up the Configuration" on page 109
- ❑ "Glossary" on page 141

Document Conventions

Table 1–1 lists the typographical and Command Line Interface (CLI) syntax conventions used in this manual.

Table 1–1 Document Conventions

Conventions	Definition
<i>Italics</i>	The first use of a new or Blue Coat-proprietary term.
<code>Courier font</code>	Screen output. For example, command line text, file names, and Blue Coat Content Policy Language (CPL).
<code>Courier Italics</code>	A command line variable that is to be substituted with a literal name or value pertaining to the appropriate facet of your network system.
Courier Boldface	A Blue Coat literal to be entered as shown.
Arial Boldface	Screen elements in the Management Console.
{ }	One of the parameters enclosed within the braces must be supplied
[]	An optional parameter or parameters.

Table 1–1 Document Conventions (Continued)

	Either the parameter before or after the pipe character can or must be selected, but not both.
--	--

Notes and Warnings

The following is provided for your information and to caution you against actions that can result in data loss or personal injury:

Note: Information to which you should pay attention.

Important: Critical information that is not related to equipment damage or personal injury (for example, data loss).

WARNING! Used *only* to inform you of danger of personal injury or physical damage to equipment. An example is a warning against electrostatic discharge (ESD) when installing equipment.

About Procedures

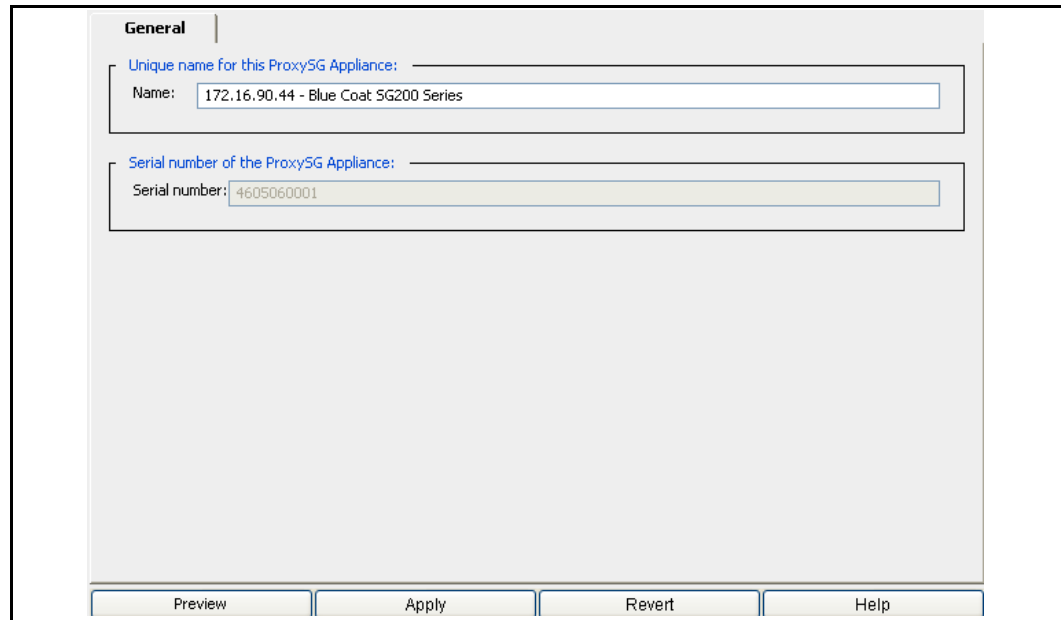
Many of the procedures in this volume begin:

- ❑ **Select Configuration > *TabName***, if you are working in the Management Console, or
- ❑ **From the (config) prompt**, if you are working in the command line interface (CLI).

Blue Coat assumes that you are logged into the first page of the Management Console or entered into configuration mode in the CLI.

Illustrations

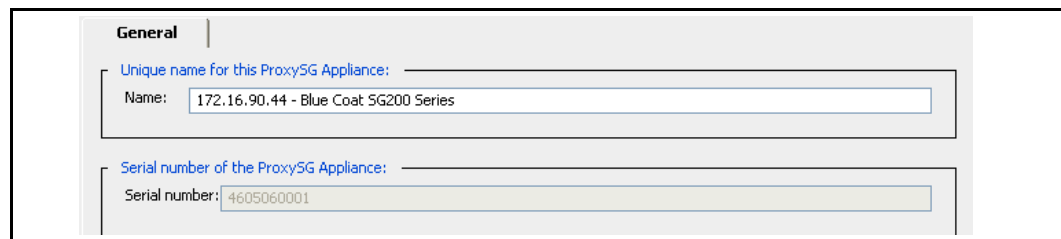
To save space, screen shots illustrating a procedure often have the bottom portion removed, along with the blank space.



The screenshot shows a configuration window titled "General". It contains two input fields: "Name" with the value "172.16.90.44 - Blue Coat SG200 Series" and "Serial number" with the value "4605060001". At the bottom of the window, there are four buttons: "Preview", "Apply", "Revert", and "Help".

Figure 1–1 **Configuration > General** Tab with Bottom Buttons

- ❑ **Preview:** Use this button to view the configuration changes before applying the configuration to the ProxySG. To modify your changes, click **Close** and return to the tab whose settings you want to modify.
- ❑ **Apply:** Use this button to apply unsaved configuration changes to the ProxySG.
- ❑ **Revert:** Use this button to revert any unapplied changes to the ProxySG configuration. Changes that previously have been applied to the ProxySG are not affected.
- ❑ **Help:** Use this button to view conceptual and procedural documentation about the tab's topic.



The screenshot shows the same configuration window as Figure 1–1, but the bottom buttons ("Preview", "Apply", "Revert", and "Help") have been removed. The input fields for "Name" and "Serial number" remain the same.

Figure 1–2 **Configuration > General** Tab with Bottom Buttons Removed

Related Documentation

The following table describes the volumes in the *Blue Coat ProxySG Configuration and Management Guide Suite*.

Document	Description
<i>Volume 1: Getting Started</i>	Volume 1, the introduction to the <i>Blue Coat ProxySG Configuration and Management Guide Suite</i> , describes basic set up and configuration.
<i>Volume 2: Proxies and Proxy Services</i>	Volume 2 describes the various proxies that are available, as well basic and advanced configuration information.
<i>Volume 3: Web Communication Proxies</i>	Volume 3 discusses IM and streaming proxies, including real-time streaming protocol (RTSP) and Windows Media over HTTP.
<i>Volume 4: Securing the Blue Coat ProxySG Appliance</i>	Volume 4 discusses security of the: <ul style="list-style-type: none">• SGOS system• enterprise• Internet
<i>Volume 5: Advanced Networking</i>	Volume 5 discusses networking tasks that do not need to be done in all environments, such as WAN optimization, setting failover and configuring TCP-IP, attack detection, and WCCP. Health checks, forwarding, and managing bandwidth are also discussed in this volume.
<i>Volume 6: The Visual Policy Manager and Advanced Policy</i>	Volume 6 discusses configuring policy through the graphical user interface called the Visual Policy Manager (VPM). Also discussed in this volume are the four policy files that are used to manage policy and pop-up ad blocking, managing active content, and creating exceptions. This volume also contains a reference guide and several tutorials for using VPM.
<i>Volume 7: Managing Content</i>	Volume 7 discusses content filtering for the Internet, including how to configure and use third-party vendors with the ProxySG. External Services (ICAP and Websense off-box) are also found in this volume.

Document	Description
<i>Volume 8: Access Logging</i>	Volume 8 discusses log formats, upload clients, upload schedules, and protocols. The Access Log Formats appendix discusses ELFF, SQUID, NCSA/Common, and custom logs.
<i>Volume 9: Managing the Blue Coat ProxySG Appliance</i>	<p>Volume 9 discusses upgrading the system and configuring event logs, SMNP, STMP, heartbeats, and core images, as well as diagnostics.</p> <p>Health monitoring, new in this release, is discussed in this volume.</p> <p>The statistics chapter discusses viewing various kinds of statistics, including system usage, efficiency, resources, and logs of all kinds.</p>
<i>Volume 10: Content Policy Language Guide</i>	Volume 10 discusses configuring policy without VPM by using Content Policy Language (CPL).

Chapter 2: Licensing

This chapter describes the ProxySG licensing behavior.

Topics in this Chapter

This chapter includes information about the following topics:

- ❑ ["About Licensing"](#) on page 31
- ❑ ["Licensable Components"](#) on page 31
- ❑ ["About the Trial Period"](#) on page 33
- ❑ ["Disabling the Components Running in Trial Period"](#) on page 34
- ❑ ["About License Expiration"](#) on page 35
- ❑ ["About the System Serial Number"](#) on page 35
- ❑ ["Obtaining a WebPower Account"](#) on page 35
- ❑ ["Registering and Licensing Blue Coat Hardware and Software"](#) on page 36
- ❑ ["Retrieving the License"](#) on page 38
- ❑ ["Manual License Installation"](#) on page 38
- ❑ ["Manually Updating a License"](#) on page 40
- ❑ ["Automatically Updating a License"](#) on page 41

About Licensing

SGOS 5.3 features a global licensing system for the SGOS software. License key files are issued on a per-appliance basis. One license key file includes all of the component licenses for whichever SGOS features you have elected to use.

Note: When your ProxySG order was completed, you received an e-mail that contained serial numbers for licensable components. Those numbers are required for the procedures in this chapter.

Licensable Components

There are three types of licensable components:

- ❑ Required—The SGOS 5; these features are required on the ProxySG.
- ❑ Included—Additional SGOS 5.x features, which are provided by Blue Coat and that are included in the SGOS 5 base license.
- ❑ Optional— Any additional (purchased) features.

When the license key file is created, it contains components of all three types. The following table lists the ProxySG licensable components, categorized by type.

Table 2–1 Licensable Components

Type	Component	Description
Required	SGOS Base	The ProxySG operating system, plus base features: HTTP, FTP, TCP-Tunnel, SOCKS, and DNS proxy.
Included	3rd Party Onbox Content Filtering	Allows use with third-party vendor databases: Intersafe, Optenet, Proventia, SmartFilter, SurfControl, Websense, and Webwasher.
Included	ProxyClient Acceleration	Enables you to support acceleration with ProxyClients in your enterprise.
Included	ProxyClient Web Filtering	Enables you to support content filtering with ProxyClients in your enterprise. The Web filtering license requires BCWF license and a fresh (not older than 60 days) BCWF database to be present on the Client Manager.
Included	Websense Offbox Content Filtering	For Websense off-box support only.
Included	ICAP Services	External virus and content scanning with ICAP servers.
Included	Bandwidth Management	Allows you to classify, control, and, if required, limit the amount of bandwidth used by different classes of network traffic flowing into or out of the ProxySG.
Included	Windows Media Streaming	MMS and RTSP proxy for Windows Media content; content caching and splitting. Full policy control over MMS and RTSP traffic for Windows Media content. When the maximum number of concurrent streams is reached, all subsequent streams are denied and the client receives a message.
Included	Real Media Streaming	RTSP proxy for Real Media content; content caching and splitting. Full policy control over RTSP traffic for Real Media content. When the maximum number of concurrent streams is reached, all subsequent streams are denied and the client receives a message.
Included	QuickTime Streaming	RTSP proxy for QuickTime content; no caching or splitting; content pass-through. Full policy control over RTSP traffic for QuickTime content.
Included	Netegrity SiteMinder	Allows realm initialization and user authentication to SiteMinder servers.
Included	Oracle COREid	Allows realm initialization and user authentication to COREid servers.

Table 2–1 Licensable Components (Continued)

Type	Component	Description
Included	Peer-to-Peer	Allows you to recognize and manage peer-to-peer P2P activity relating to P2P file sharing applications.
Included	HTTP Compression	Allows reduction to file sizes without losing any data.
Optional	SSL	SSL Proxy and HTTPS Reverse Proxy (SSL termination).
Optional	AOL Instant Messaging	AIM proxy with policy support for AOL Instant Messenger.
Optional	MSN Instant Messaging	MSN proxy with policy support for MSN Instant Messenger.
Optional	Yahoo Instant Messaging	Yahoo proxy with policy support for Yahoo Instant Messenger.

About the Trial Period

Blue Coat provides a trial period, enabled by default. During initial configuration of new hardware, you can specify an edition of SGOS to run during the trial period. The ProxySG can run either the MACH5 or Proxy Edition of SGOS during the trial period.

Note: If you select Proxy Edition for the trial period but you purchase a MACH5 Edition license, the ProxySG configuration is reset when you install the license. The following defaults differ between the two editions: default proxy policy, trust destination IP address, transparent WAN interception on disabled bridge cards, and tolerating HTTP requests.

In the trial period, the Base SGOS user limit is unlimited. When a full license is installed, any user limits imposed by that license are enforced, even if the trial period is still valid.

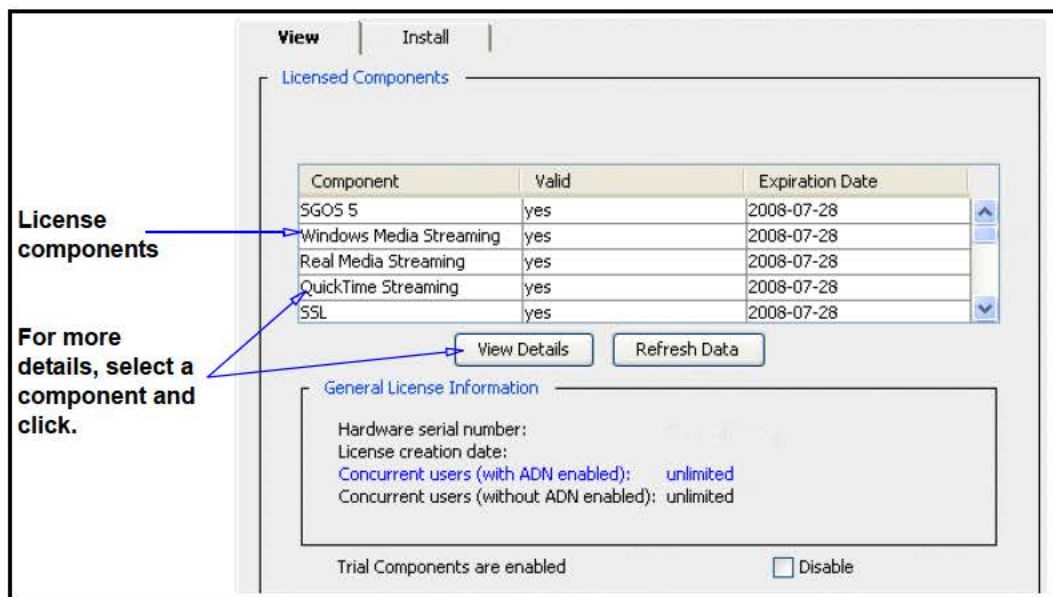
The initial system boot-up triggers the 60-day trial; during this time you can evaluate the SGOS functionality. For the first 60 days, all licensable components for the trial edition you chose are active and available to use. When a license or demo license is installed during the trial period, components previously available in the trial period, but not part of that license, remain available and active for the remainder of the trial period. However, if the license edition is different than the trial edition you selected, only functionality available in the edition specified in the license remains available for trial.

If you require more time to explore the SGOS features, a demo license is available; refer to your reseller or contact Blue Coat Sales.

Viewing License Status

There are two methods to access the license status page:

- ❑ Each time you navigate to the Management Console **Statistics/Configuration/Maintenance** pages, the license status displays as a link in the upper right hand-corner. Hovering over the license link displays information, such as the expiration date of the trial period. Click the link to switch to the **View** license tab. ~or~
- ❑ Select **Maintenance > Licensing > View**. displays the license components with expiration dates.



Disabling the Components Running in Trial Period

You have the option to not let users access features that are currently running in trial period; however, you cannot selectively disable trial period features. You must either enable all of them or disable all of them.

To disable trial period components:

1. Select **Maintenance > Licensing > View**.
2. Select the **Trial Components are enabled** option.
3. Click **Apply**.
4. Click **Refresh Data**. All licenses that are in trial period switch from **Yes** to **No**. Users cannot use these features, and no dialogs warning of license expiration are sent.

Also notice that this option text changes to **Trial Components are disabled: Enabled**. Repeat this process to re-enable trial licenses.

About License Expiration

At the end of the trial or demo period or, subsequently, when any normally licensed component expires, components that have not been licensed do not process requests; all requests bypass the ProxySG if the default policy is set to ALLOW. A license expiration notification message is logged in the Event Log (refer to the Event log information in *Volume 7: Managing Content* for details).

If a license expires, users might not receive notification, depending upon the application they are using. Notifications do occur for the following:

- ❑ HTTP (Web browsers)—An HTML page is displayed stating the license has expired.
- ❑ SSL—An exception page appears when an HTTPS connection is attempted.
- ❑ Instant Messaging clients—Users do not receive a message that the license has expired. Any IM activity is denied, and to the user it appears that the logon connection has failed.
- ❑ FTP clients—If the FTP client supports it, a message is displayed stating the license has expired.
- ❑ Streaming media clients—If the Windows Media Player, RealPlayer, or QuickTime player version supports it, a message is displayed stating the license has expired.
- ❑ ProxyClient—After the trial license has expired, clients cannot connect to the ADN network.

You can still perform SGOS configuration tasks through the CLI, SSH console, serial console, or Telnet connection. Although the component is disabled, feature configurations are *not* altered. Also, policy restrictions remain independent of component availability.

About the System Serial Number

Each ProxySG serial number is the appliance identifier used to assign a license key file. The ProxySG contains an EEPROM with the serial number encoded. The appliance recognizes the serial number upon system boot-up.

The serial number is visible by navigating to **Configuration > General > Identification**.

Obtaining a WebPower Account

Before you can register your ProxySG and retrieve the license key, you must have a Blue Coat WebPower user account.

If you do not have a WebPower account or have forgotten your account information, perform the following procedure.

To obtain a WebPower account:

1. Select **Maintenance > Licensing > Install**.
2. In the **License Administration** field, click **Register/Manage**. The License Configuration and Management Web page appears (ignore the dialog at this time).
3. Perform one of the following:
 - To obtain a new account, click the link for **Need a WebPower User ID**. Enter the information as prompted.
 - To obtain your current information for an existing account, click the **Forgot your password** link.

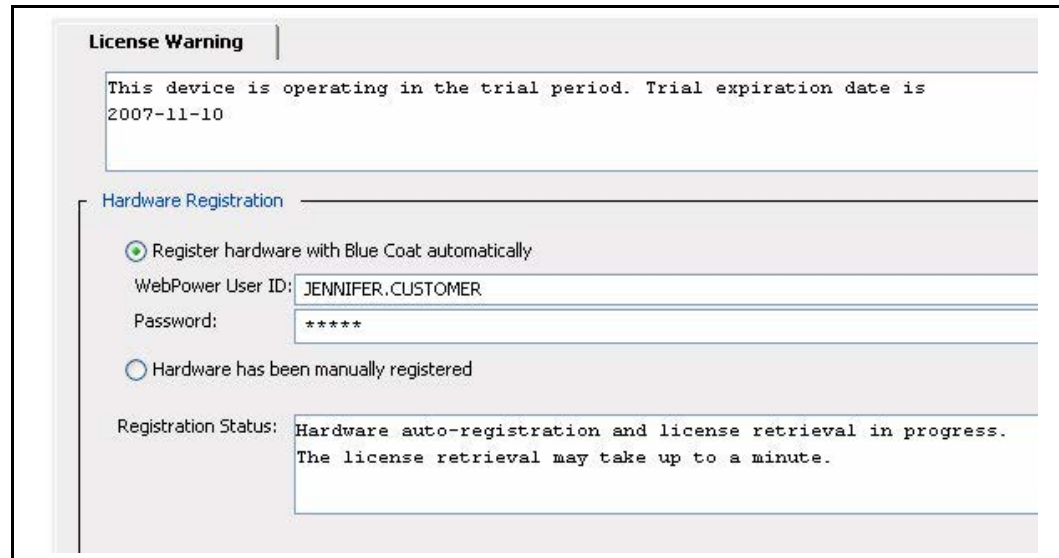
Registering and Licensing Blue Coat Hardware and Software

This section describes how to automatically register the hardware and software with Blue Coat.

- ❑ If you have not manually registered the hardware, you can automatically register the hardware and install the software license in one step. Continue with the procedure in this section.
- ❑ If you have new hardware (SG210, SG510, SG810, SG 8100) that previously has been registered, the license is already associated with the hardware. Navigate to **Maintenance > Licensing > Install** and click **Retrieve** to obtain the license. For more information, see "[To retrieve the software license:](#)" on page 38.
- ❑ If you have older hardware that previously has been registered or if the ProxySG does not have Internet access, you can install the software license under **Maintenance > Licensing > Install**. For more information, see "[Manual License Installation](#)" on page 38.

To register the hardware and software:

1. Open a browser and verify pop-up blocking is disabled.
2. Enter the SGOS Management Console URL.
`https://IP_address:8082`
3. Enter the access credentials specified during initial setup.
4. Click **Management Console**. The license warning/registration page displays.



License Warning

This device is operating in the trial period. Trial expiration date is 2007-11-10

Hardware Registration

☒ Register hardware with Blue Coat automatically

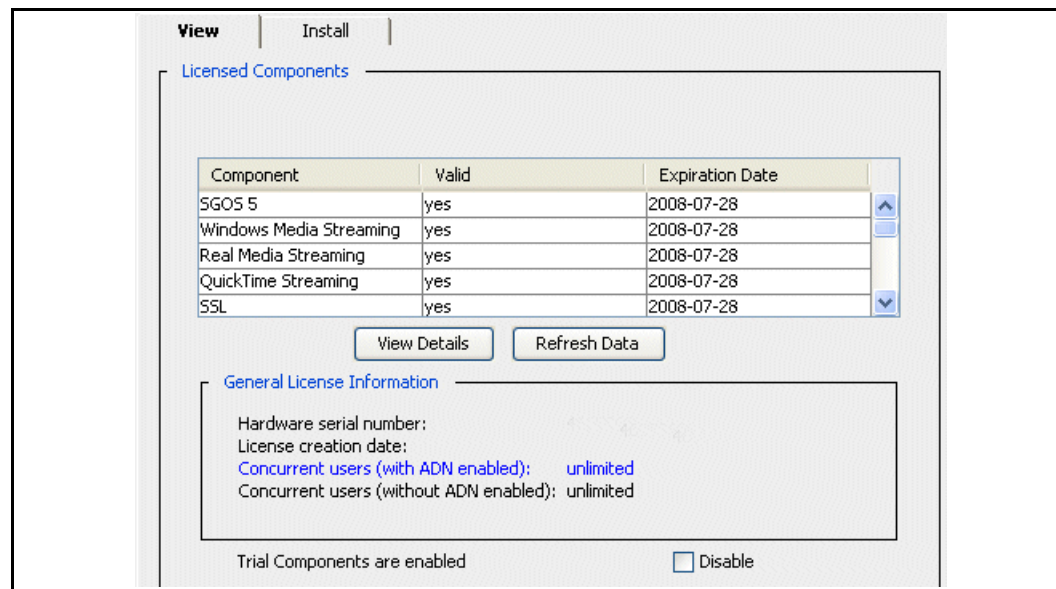
WebPower User ID: JENNIFER.CUSTOMER

Password: *****

☐ Hardware has been manually registered

Registration Status: Hardware auto-registration and license retrieval in progress. The license retrieval may take up to a minute.

5. Enter your WebPower credentials and click **Register Now**. It might take up for a minute for the **Registration Status** field to display the results.
6. Click **Continue**.
7. Select **Maintenance > Licensing > View**.



View | Install

Licensed Components

Component	Valid	Expiration Date
SGOS 5	yes	2008-07-28
Windows Media Streaming	yes	2008-07-28
Real Media Streaming	yes	2008-07-28
QuickTime Streaming	yes	2008-07-28
SSL	yes	2008-07-28

View Details Refresh Data

General License Information

Hardware serial number: [blurred]

License creation date: [blurred]

Concurrent users (with ADN enabled): unlimited

Concurrent users (without ADN enabled): unlimited

Trial Components are enabled ☐ Disable

Each licensable component is listed, along with its validity and its expiration date.

- To view the most current information, click **Refresh Data**.
- Highlight a license component and click **View Details**. A dialog displays with more detailed information about that component.

- If the trial period is enabled and you click **Maintenance > Licensing > View**, the Management Console displays a check box to disable the trial components. If the trial period is disabled, the Management Console displays a check box to enable the trial components.

Retrieving the License

If the ProxySG is a new system and the hardware has been registered, you can retrieve the associated license by completing the following steps:

To retrieve the software license:

1. Navigate to **Maintenance > Licensing > Install**.
2. Click **Retrieve**. The Request License Key dialog displays.
 - a. Enter your WebPower account login information.
 - b. Click **Send Request**. The Confirm License Install dialog displays.
 - c. Click **OK** to close the dialog.
3. Click **OK** when the **License Install Succeeded** message displays.
4. Click **Close** to close the Request License Key dialog.

Manual License Installation

Perform manual license installation if:

- ❑ The ProxySG serial number is not associated with a software license (you have registered the hardware separately).
- ❑ The ProxySG does not have Internet access.

To manually obtain and install the license:

1. Select **Maintenance > Licensing > Install**.
2. Click **Register/Manage**. A new browser window opens and prompts you for your WebPower login information.
3. Enter your WebPower username and password and click **Login**. The **Support - License Management** page displays.

Support - License Management

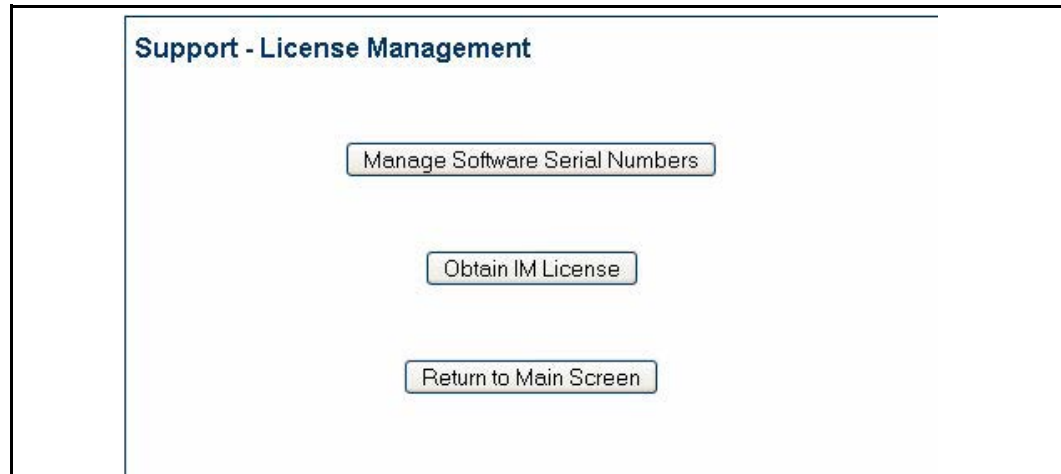
Currently Registered Hardware:

The following appliances are currently registered to your organization:

Serial Number	Part Number	Description
XXXXXXXXXX	33	400-0, 2x10/100Base-T

To configure the software license for an appliance listed above, select that appliance's serial number.

4. Click the serial number of the unit. The **Support - License Management Manage Serial Numbers/Obtain IM License** page displays.



5. Click **Manage Software Serial Numbers**. The **License Self Service Change Hardware Record** displays.

LICENSE SELF-SERVICE		CHANGE HARDWARE RECORD									
<p>You are currently reviewing the software options associated with:</p> <table> <tr> <td>Hardware Model:</td> <td>Blue Coat SG200-B</td> <td>Valued Customer:</td> <td></td> </tr> <tr> <td>Hardware Serial Number:</td> <td>4605060001</td> <td>Organization:</td> <td>Blue Coat Systems Tech</td> </tr> </table>				Hardware Model:	Blue Coat SG200-B	Valued Customer:		Hardware Serial Number:	4605060001	Organization:	Blue Coat Systems Tech
Hardware Model:	Blue Coat SG200-B	Valued Customer:									
Hardware Serial Number:	4605060001	Organization:	Blue Coat Systems Tech								
<p>CURRENT</p> <p>4605060001 - Blue Coat SG200-B</p> <p>The following software options are currently linked to this product. To modify this configuration, select the appropriate tab below and follow the instructions.</p> <table> <thead> <tr> <th>Software S/N</th> <th>Description</th> <th>Expires</th> </tr> </thead> <tbody> <tr> <td colspan="3">No Installed Software</td> </tr> </tbody> </table>				Software S/N	Description	Expires	No Installed Software				
Software S/N	Description	Expires									
No Installed Software											
<p>ADD REMOVE MOVE TO HISTORY</p> <p>Add a New Software Option to this appliance</p> <p>To link a software option that is not listed above, record the software serial number(s) below and click 'Apply'.</p> <div> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> </div>											

6. The next action depends on whether you have Internet access.
 - a. If the ProxySG has Internet access:
 - Click **Add** to add a software license to the appliance.

- Using the serial numbers you received when the ProxySG shipment was delivered, add the serial numbers.
 - Click **Apply** when finished. The software license is now associated with the hardware.
 - From **Management Console > Maintenance > Licensing > Install**, click **Retrieve** and provide the WebPower login information again. For more information on the Retrieve procedure, see "[To retrieve the software license:](#)" on page 38.
- b. If the ProxySG does not have Internet access:
- In the **Cust Info > Links** panel, click **Get License**. You are prompted to save a `.bin` file with the license information.
 - Save the `.bin` file.
 - From **Management Console > Maintenance > Licensing > Install**, select one of the following from the **License Key Manual Installation** drop-down list and click **Install**:

Note: A message is written to the event log when you install a license through the ProxySG.

- **Remote URL**—If the file resides on a Web server. The Install License Key dialog displays.

Enter the URL path and click **Install**. The **Installation Status** field displays relevant information. When installation is complete, click **Results**; examine the results, close the window, and click **OK**. Click **Apply**.

- **Local File**—If the file resides in a local directory. The Upload and Install File window opens.

Enter a path to the license file or click **Browse** and navigate to the file. Click **Install**. A results window opens. Examine the license installation results; close the window. Click **Close**. Click **Apply**.

The license is now installed. All features that you subscribed to are fully operational.

Manually Updating a License

After the initial license installation, you might decide to use another feature that requires a license. The license must be updated to support the new feature.

To update a license:

1. Select **Maintenance > Licensing > Install**.
2. Click **Register/Manage**.
3. Follow the instructions on the Blue Coat License Self-Service Web page.
4. If using the automatic license installation feature, click **Update**; otherwise, manually install the license as described in "[Manual License Installation](#)" on page 38.

Automatically Updating a License

The license automatic update feature allows the ProxySG to contact the Blue Coat licensing Web page 31 days before the license is to expire. If a new license has been purchased and authorized, the license is automatically downloaded. If a new license is not available on the Web site, the ProxySG continues to contact the Web site daily for a new license until the current license expires. Outside the above license expiration window, the ProxySG performs this connection once every 30 days to check for new license authorizations. This feature is enabled by default.

To configure the license auto-update:

1. Select **Maintenance > Licensing > Install**.
2. Select **Use Auto-Update**.
3. Select **Apply**.

Note: If the automatic license update fails and you receive a Load from Blue Coat error.

4. You must log on to your License Management account:
`https://services.bluecoat.com/eservice_enu/licensing/mgr.cgi.`
5. Click **Update License Key**.

Related CLI Syntax to Manage Licensing

```
SGOS# licensing {disable-trial | enable-trial}
SGOS# licensing request-key [force] user_ID password
SGOS# licensing update-key [force]
SGOS# licensing register-hardware [force] user_ID password
SGOS# licensing mark-registered
```


Chapter 3: Accessing the ProxySG

This chapter discusses the various methods to access the ProxySG appliance.

The SGOS software uses the Secure Shell (SSH) and HTTPS protocols to securely access the SGOS CLI and Management Console. Both SSHv1 and SSHv2 are enabled by default, and host keys have already been created on the ProxySG.

All data transmitted between the client and the ProxySG using SSH/HTTPS is encrypted.

During initial configuration, you assigned the ProxySG a username and password and a privileged-mode (enabled/configuration) password. These passwords are always stored and displayed hashed.

Topics in this Chapter

This chapter includes information about the following topics:

- ❑ ["Before You Begin: About Modes"](#) on page 43
- ❑ ["Accessing the ProxySG"](#) on page 44
- ❑ ["Changing the Logon Parameters"](#) on page 48

Important: This chapter assumes that you have completed the first-time setup of the ProxySG using either the front panel or serial console, and that the appliance is running on the network. These steps must be completed before accessing the appliance.

You can manage the ProxySG by logging on to and using one of the following:

- ❑ An SSH session to access the CLI.
- ❑ The Management Console graphical interface.

You can also use a serial console to access the CLI.

Note: To use a Telnet session, you must use a serial console connection until you configure Telnet for use. (For security reasons Blue Coat does not recommend using Telnet).

Before You Begin: About Modes

SGOS 5.x supports different levels of command security:

- ❑ Standard, or unprivileged, mode is read-only. You can see but not change system settings and configurations. This is the level you enter when you first access the CLI.

- ❑ Enabled, or privileged, mode is read-write. You can make immediate but not permanent changes to the ProxySG, such as restarting the system. This is the level you enter when you first access the Management Console.
- ❑ Configuration is a mode within the Enabled mode. From this level, you can perform permanent changes to the ProxySG configuration.

If you use the Management Console, you are in configuration mode when you log into Enabled mode and type `conf t`.

If you use the CLI, you must enter each level separately:

```
Username: admin
Password:
SGOS> enable
Enable Password:
SGOS# configure terminal
Enter configuration commands, one per line. End with CTRL-Z.
SGOS#(config)
```

For detailed information about the CLI and the CLI commands, refer to *Volume 11: Command Line Interface Reference*.

Note: Although most administrator tasks can be performed using either the Management Console or the CLI, there is the occasional task that can only be done using one of the two: these are specified in the manual.

Accessing the ProxySG

You can access the ProxySG through either the CLI or the Management Console. By default, SSHv2 (CLI) and HTTPS (Management Console) are used to connect to the appliance.

The SSH and HTTPS ports are configured and enabled. For SSH, you can use either version 1 or version 2 (with password or RSA client key authentication).

Accessing the Management Console

The Management Console is a graphical Web interface that allows you to manage, configure, monitor, and upgrade the ProxySG from any location.

The Management Console consists of a set of Web pages stored on the ProxySG. The appliance acts as a Web server on the management port to serve these pages. From the ProxySG home page on the appliance, you can access the configuration, maintenance, and statistics pages, and the documentation. The Management Console is supported with a complete online help facility to assist you in defining the various configuration options.

Note: If, when you access the Management Console home page, you see a `host mismatch` or an `invalid certificate` message, you must recreate the security certificate used by the HTTPS-Console. For information on changing the security certificate, refer to the console services information in *Volume 2: Proxies and Proxy Services*.

Logging On

Each time you access the Management Console, you must log on.

To log on to the Management Console:

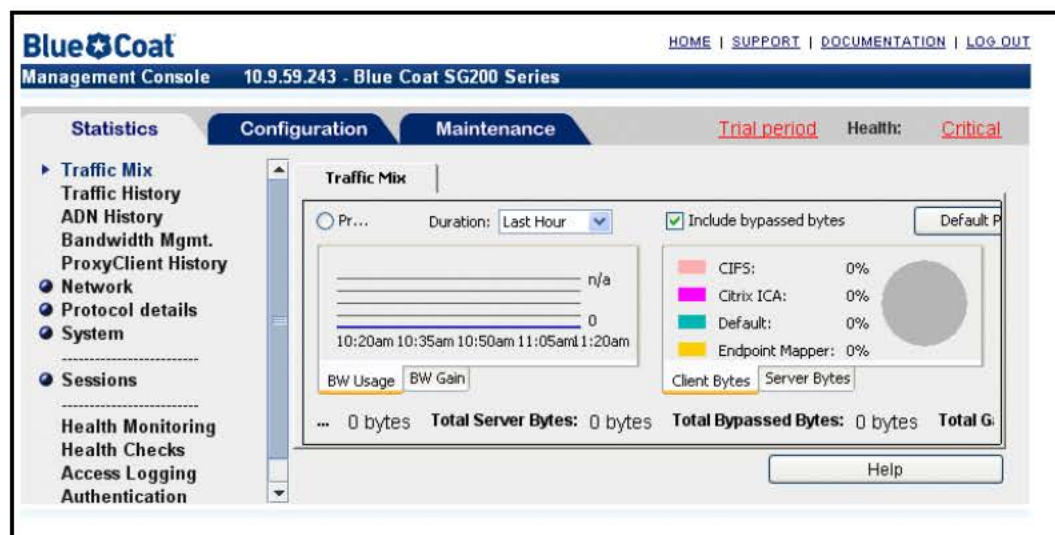
1. In the Web browser, enter HTTPS, the ProxySG IP address, and port 8082 (the default management port).

Note: For example, if the IP address configured during first-time installation is 10.25.36.47, enter the URL `https://10.25.36.47:8082` in the Web browser.



2. Enter the user name and password that you have already created.

Note: All successful and failed logon attempts are logged to the event log.



- The Blue Coat Management Console **Statistics > Traffic Mix** page displays in the browser.

Note: You can change the username and password for the console. See ["Changing the Logon Parameters"](#) on page 48.

The **Statistics** screen provides a visual representation of the overall traffic and health of the ProxySG. The health states are based on the health monitoring metrics, which are described in the Monitoring chapter of *Volume 9: Managing the Blue Coat ProxySG Appliance*.

The health icon is located in the upper right corner of the Management Console.



The following health states are possible:

- ❑ **Ok (Green)**
- ❑ **Warning (Yellow)**
- ❑ **Critical (Red)**

These states are represented by a text string and a color that corresponds to the health of the system (green, yellow or red). The system health changes when one or more of the health metrics reaches a specified threshold or returns to normal.

The Management Console polls the ProxySG every 10 seconds and updates the health state indicator accordingly.

To obtain more information about the health state, click the health icon. Clicking the health icon displays the **Statistics > Health** page, which lists the current condition of the system's health monitoring metrics.

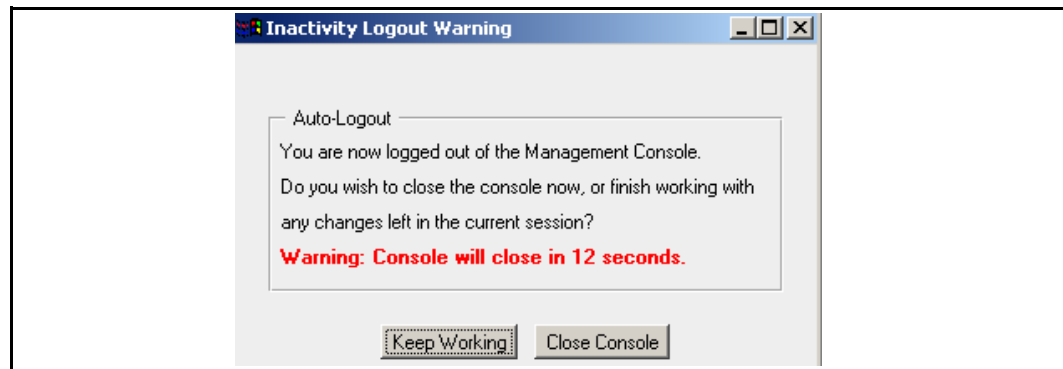
Refer to *Volume 9: Managing the Blue Coat ProxySG Appliance* for more information about the health monitoring metrics.

Logging Out

Once you have logged on, you do not have to log on again unless you exit the current session or the session times out. The session timeout period, with a default of 900 seconds (15 minutes), is configurable.

Thirty seconds before the session times out, a warning dialog displays. Click the **Keep Working** button or the **X** in the upper-right-corner of the dialog box to keep the session alive.

Note: The **Keep Working** button saves your changes. However, you must log back on to work in other pages.



If you do not click **Keep Working** or the **X** in the upper-right-hand corner within the thirty-second period, you are logged out. You must log back on to access the Management Console.

To log back on, click the hyperlink.

Note: If you are on the Management Console home page when the session times out, you are logged out without seeing the logout warning dialog. You might not be aware that you are logged out until you try to access a Management Console page. You must enter the logon information again.

Accessing the CLI

If you use the CLI, you can use SSHv2 to access the ProxySG, but you cannot use SSHv1 or Telnet without additional configuration.

Note: Enabling the Telnet-Console introduces a security risk, so it is not recommended.

To use SSHv1, you must first create an SSHv1 host key. For more information on creating SSH host keys, refer to *Volume 2: Proxies and Proxy Services*.

To log on to the CLI, you must have:

- ❑ the account name that has been established on the ProxySG
- ❑ the IP address of the ProxySG
- ❑ the port number (22 is the default port number)

You must log on from your SSH client.

Changing the Logon Parameters

You can change the console username and password, the console realm name (which displays when you log on to the ProxySG), and the auto-logout timeout (in seconds; the default is 900 seconds.)

The Management Console requires a valid administrator username and password to have full read-write access; you do not need to enter a privileged-mode password as you do when using the CLI. A privileged-mode password, however, must already be set.

Note: To prevent unauthorized access to the ProxySG, only give the console username and password to those who administer the system.

Changing the Username and Password

You can change either the username or the password without changing both. The console account username was assigned during initial setup of the system. You can change the username at any time.

Note: Changing the Console Account username or password causes the Management Console to refresh and log back on using the new information. Each parameter must be changed and individually refreshed. You cannot change both parameters at the same time.

To change the username:

1. Select **Configuration > Authentication > Console Access > Console Account**.

2. Enter the username of the administrator or administrator group who is authorized to view and revise console properties. Only one console account exists on the ProxySG. If you change the console account username, that username overwrites the existing console account username. The console account username can be changed to anything that is not null and contains no more than 64 characters.
3. Click **Apply**. After clicking **Apply**, an **Unable to Update configuration** error is displayed. The username change was successfully applied, but the configuration could not be fetched from the ProxySG, as the username offered in the fetch request is still the old username.
4. Refresh the screen. You are then challenged for the new username.

To change the password:

The console password and privileged-mode password were defined during initial configuration of the system. The console password can be changed at any time. The privileged-mode, or enabled-mode, password can only be changed through the CLI or the serial console.

1. Select **Configuration > Authentication > Console Access > Console Account**.
2. Click **Change Password**.
3. Enter and re-enter the console password that is used to view and edit configuration information. The password must be from 1 to 64 characters long. As you enter the new password, it is obscured with asterisks. Click **OK**.

Note: This does not change the enabled-mode password. You can only change the enabled-mode password through the CLI.

4. Refresh the screen, which forces the SGOS software to re-evaluate current settings. When challenged, enter the new password.
5. (Optional) Restrict access by creating an access control list or by creating a policy file containing `<Admin>` layer rules. For more information, see *Volume 4: Securing the Blue Coat ProxySG Appliance*: Chapter 3, "Controlling Access to the Internet and Intranet."

Changing the ProxySG Realm Name

The realm name displays when you log on to the Management Console. The default realm name is the connection used to access the ProxySG, usually the IP address of the system.

To change the realm name:

1. Select **Configuration > Authentication > Console Access > Console Account**.
2. Enter a new realm name.

The new realm name displays the next time you log on to the Management Console.

3. Click **Apply**.

Related CLI Syntax to Change the Realm Name

```
SGOS#(config) security management display-realm name
```

The new realm name displays the next time you log on to the Management Console.

Changing the ProxySG Timeout

The timeout is the length of time a session persists before you are logged out. The default timeout is 900 seconds (15 minutes).

To change the timeout:

1. Select **Configuration > Authentication > Console Access > Console Account**.
2. Either deselect **Enforce auto-logout** (which eliminates auto-logout entirely) or change the auto-logout timeout from its default of **900** seconds (15 minutes) to another value (in seconds). This is the allowable length of time on the ProxySG before the current session times out. Acceptable values are between **300** and **86400** seconds (5 minutes to 24 hours).

If you change the timeout value, the change takes effect on the next refresh of any Management Console page.

3. Click **Apply**.

Related CLI Syntax to Change the Timeout

```
SGOS#(config) security management auto-logout-timeout seconds
```

Chapter 4: Configuring Basic Settings

The ProxySG global configurations include: defining the ProxySG name and serial number, setting the time, and configuring NTP for your environment.

Topics in this Chapter

This chapter includes information about the following topics:

- ❑ ["Configuring the ProxySG Name"](#) on page 51
- ❑ ["Viewing the Appliance Serial Number"](#) on page 51
- ❑ ["Configuring the System Time"](#) on page 51
- ❑ ["Network Time Protocol"](#) on page 54
- ❑ ["Configuring HTTP Timeout"](#) on page 55

Configuring the ProxySG Name

You can assign any name to a ProxySG. A descriptive name helps identify the system.

To set the ProxySG name:

1. Select **Configuration > General > Identification**.
2. In the **Appliance name** field, enter a unique name for the ProxySG.
3. Click **Apply**.

Related CLI Syntax for Setting the ProxySG Name

```
SGOS#(config) hostname name
```

Viewing the Appliance Serial Number

The ProxySG serial number assists Blue Coat Systems Customer Support when analyzing configuration information, including heartbeat reports. This number is found on the ProxySG. The serial number is visible on the Management Console home page.

Configuring the System Time

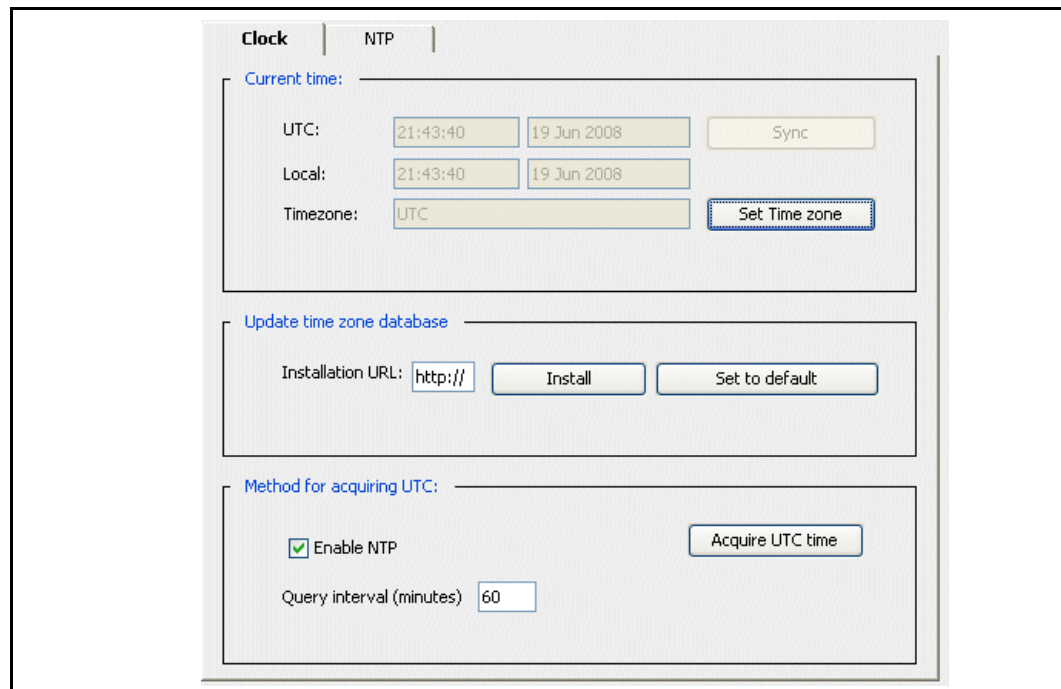
To manage objects, the ProxySG must know the current Coordinated Universal Time (UTC), which is the international time standard and is based on a 24-hour clock. However, time stamps can also record in local time. To do this, local time must also be set based on time zones.

By default, the ProxySG attempts to connect to an NTP server, in the order the servers appear in the NTP server list on the **NTP** tab, to acquire the UTC time. The appliance ships with a list of NTP servers available on the Internet. If the appliance cannot access any of the listed NTP servers, you must manually set the UTC time.

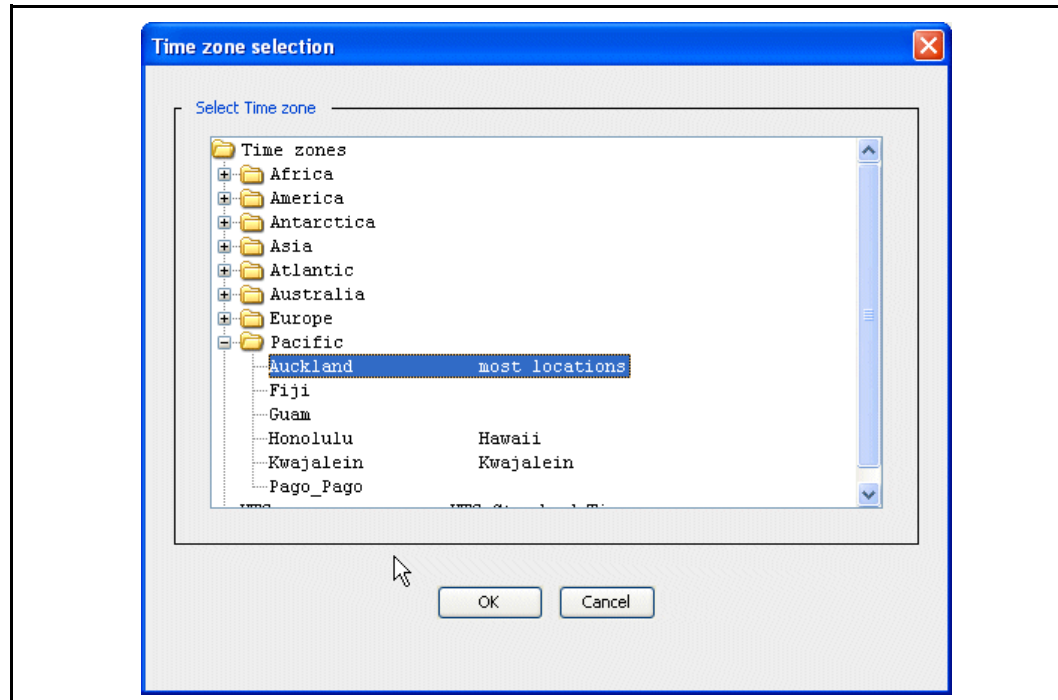
Additionally, the ProxySG ships with a limited list of time zones. If a particular time zone is missing from the included list, the list can be updated at your discretion. Also, the time zone database might need to be updated if the Daylight Savings rules change in your area. The list can be updated by downloading the full time zone database from <http://download.bluecoat.com/release/timezones.tar>.

To set local time:

1. Select **Configuration > General > Clock > Clock**.

The screenshot shows the 'Clock' configuration page in the ProxySG web interface. At the top, there are two tabs: 'Clock' and 'NTP'. The 'Clock' tab is active. Below the tabs, there are three main sections. The first section, titled 'Current time:', contains three rows: 'UTC:' with a time field showing '21:43:40' and a date field showing '19 Jun 2008', 'Local:' with a time field showing '21:43:40' and a date field showing '19 Jun 2008', and 'Timezone:' with a dropdown menu showing 'UTC'. To the right of these fields are two buttons: 'Sync' and 'Set Time zone'. The second section, titled 'Update time zone database', contains an 'Installation URL:' field with 'http://' and two buttons: 'Install' and 'Set to default'. The third section, titled 'Method for acquiring UTC:', contains a checkbox labeled 'Enable NTP' which is checked, a 'Query interval (minutes)' field with '60', and an 'Acquire UTC time' button.

2. Click **Set Time zone**. The Time Zone Selection dialog displays.



3. Select the time zone that represents your local time. After you select the local time zone, event logs record the local time instead of GMT. To add additional time zones to the list, update the appliance's time zone database, as described in the following procedure.
4. Click **OK** to close the dialog.
5. Click **Apply**.

To update the database:

1. Select **Configuration > General > Clock > Clock**.
2. Enter the URL from which the database will be downloaded or click **Set to default**.
3. Click **Install**.

Related CLI Syntax for Adding New Time Zones to the Database:

```
SGOS# (config) timezone database-path [url | default]
SGOS# (config) load timezone-database
```

To acquire the UTC:

1. Ensure that **Enable NTP** is selected.
2. Click **Acquire UTC Time**.

Related CLI Syntax for Acquiring and Setting UTC Time:

```
SGOS# acquire-utc
SGOS# (config) clock [subcommands]
```

Network Time Protocol

The Network Time Protocol (NTP) is used to synchronize the time of a computer client or server to another server or reference time source, such as a radio or satellite receiver or modem. There are more than 230 primary time servers, synchronized by radio, satellite and modem.

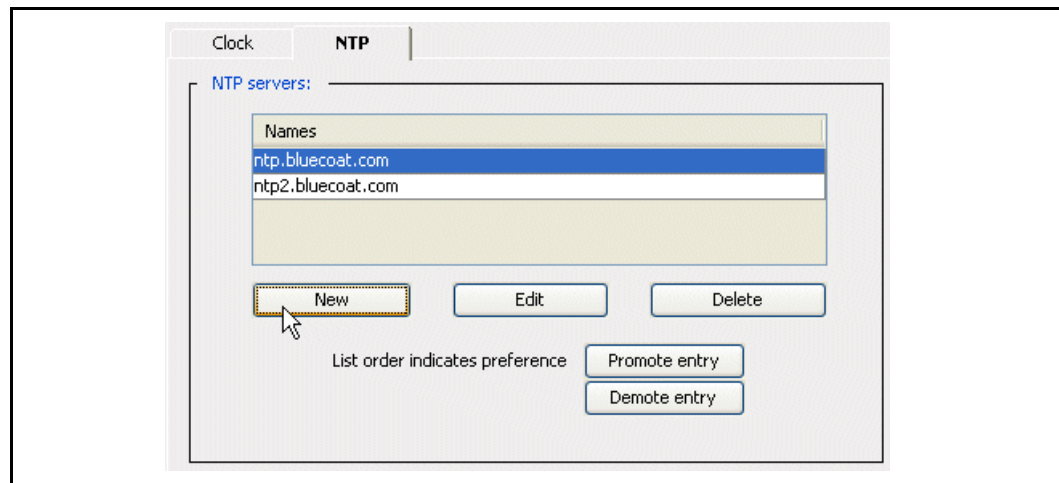
The ProxySG ships with a list of NTP servers available on the Internet, and attempts to connect to them in the order they appear in the NTP server list on the **NTP** tab. You can add others, delete NTP servers, and reorder the NTP server list to give a specific NTP server priority over others.

The ProxySG uses NTP and the Coordinated Universal Time (UTC) to keep the system time accurate.

You can add and reorder the list of NTP servers the ProxySG uses for acquiring the time. (The reorder feature is not available through the CLI.)

To add an NTP server:

1. Select **Configuration > General > Clock > NTP**.



2. Click **New**. The Add List Item dialog displays.
3. Enter either the domain name or IP address of the NTP server and click **OK** to close the dialog.
4. Click **Apply**.

Related CLI Syntax for Acquiring and Setting UTC Time:

```
SGOS#(config) ntp [subcommands]
```

To change the access order:

NTP servers are accessed in the order displayed. You can organize the list of servers so the preferred server appears at the top of the list. This feature is not available through the CLI.

1. Select **Configuration > General > Clock > NTP**.
2. Select an NTP server to promote or demote.
3. Click **Promote entry** or **Demote entry** as appropriate.
4. Click **Apply**.

Configuring HTTP Timeout

You can configure various network receive timeout settings for HTTP transactions. You can also configure the maximum time that the HTTP proxy waits before reusing a client-side or server-side persistent connection. You must use the CLI to configure these settings.

To configure the HTTP receive timeout setting:

At the (config) command prompt, enter the following command:

```
SGOS#(config) http receive-timeout {client | refresh | server}
#_seconds
```

where:

client	#_seconds	Sets the receive timeout for client to #_seconds. The default is 120 seconds.
refresh	#_seconds	Sets receive timeout for refresh to #_seconds. The default is 90 seconds.
server	#_seconds	Sets receive timeout for server to #_seconds. The default is 180 seconds.

To configure the HTTP persistent timeout setting:

At the (config) command prompt, enter the following command:

```
SGOS#(config) http persistent-timeout {client | server} #_seconds
```

where

:

client	#_seconds	The maximum amount of time the HTTP proxy waits before closing the persistent client connection if another request is not made. The default is 360 seconds.
server	#_seconds	The maximum amount of time the HTTP proxy waits before closing the persistent server connection if that connection is not re-used for any subsequent request from the proxy. The default is 900 seconds.

Chapter 5: Configuring Adapters and Virtual LANs

This chapter describes ProxySG network adapters, the adapter interfaces, and how to configure the ProxySG to function within a Virtual LAN (VLAN) environment. Although you most likely have performed initial configuration tasks to get the ProxySG live on the network, this chapter provides additional conceptual information to ensure the configuration matches the deployment requirement.

Topics in this Chapter

The following topics are covered in this chapter:

- ❑ ["How Do I...?"](#) on page 57—Begin here if you are not sure of the answer you seek.
- ❑ ["How ProxySG Adapters Interact on the Network"](#) on page 58
- ❑ ["About Virtual LAN Configurations"](#) on page 61
- ❑ ["Changing the Default Adapter and Interface Settings"](#) on page 65
- ❑ ["Viewing Interface Statistics"](#) on page 71
- ❑ ["Detecting Network Adapter Faults"](#) on page 73

How Do I...?

To navigate this chapter, identify the task to perform and click the link:

How do I...?	See...
Verify the ProxySG is connected properly based on the basic deployment type, such as bridging and in-path?	"About WAN and LAN Interfaces" on page 58
Learn basic information about virtual LAN (VLAN) deployments?	"About Virtual LAN Configurations" on page 61
Change the settings for default link speeds for interfaces?	"About Link Settings" on page 60

How do I...?	See...
Verify that traffic is flowing through the interfaces and see what type of traffic it is?	"Viewing Interface Statistics" on page 71
Troubleshoot interface connectivity?	"Detecting Network Adapter Faults" on page 73

How ProxySG Adapters Interact on the Network

Each ProxySG ships with one or more network adapters installed on the system, each with one or more interfaces (the number of available interfaces varies by ProxySG model).

Note: In Blue Coat documentation, the convention for the interface is *adapter:interface*. For example, 0:0.

About WAN and LAN Interfaces

Recent ProxySG models have labels next to the physical interfaces (on the appliance backplate) that identify the WAN and LAN links. These interface labels are also hard coded in SGOS 5.3.x and are displayed in the respective interface graphics in the Management Console. Based on your deployment type (the ProxySG directly in-path between users and a router or the ProxySG connected to a router that resides in-path, virtually in-path, and explicit), verify the following connections:

- ❑ The ProxySG is deployed in-path with bridging.

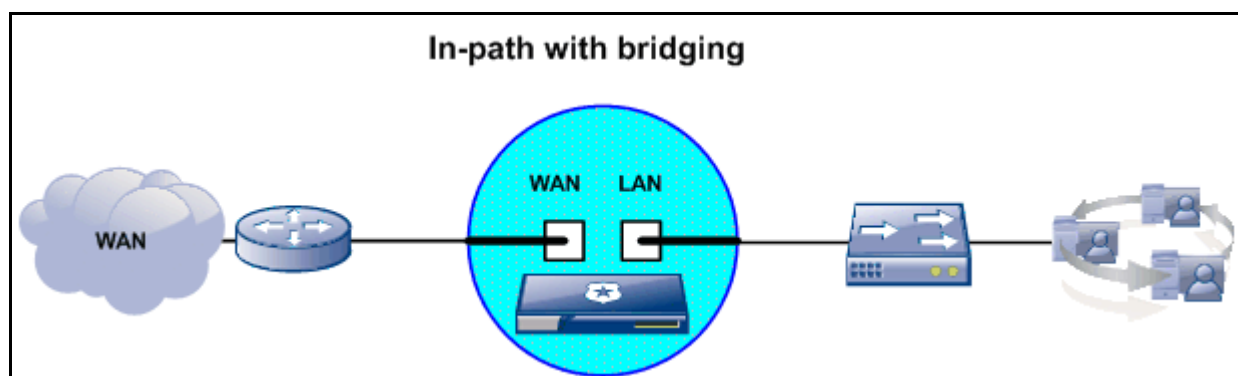


Figure 5–1 Connecting WAN and LAN interfaces in-path with bridging.

- ❑ Clients and WAN links connect to the ProxySG transparently through a router with WCCP.

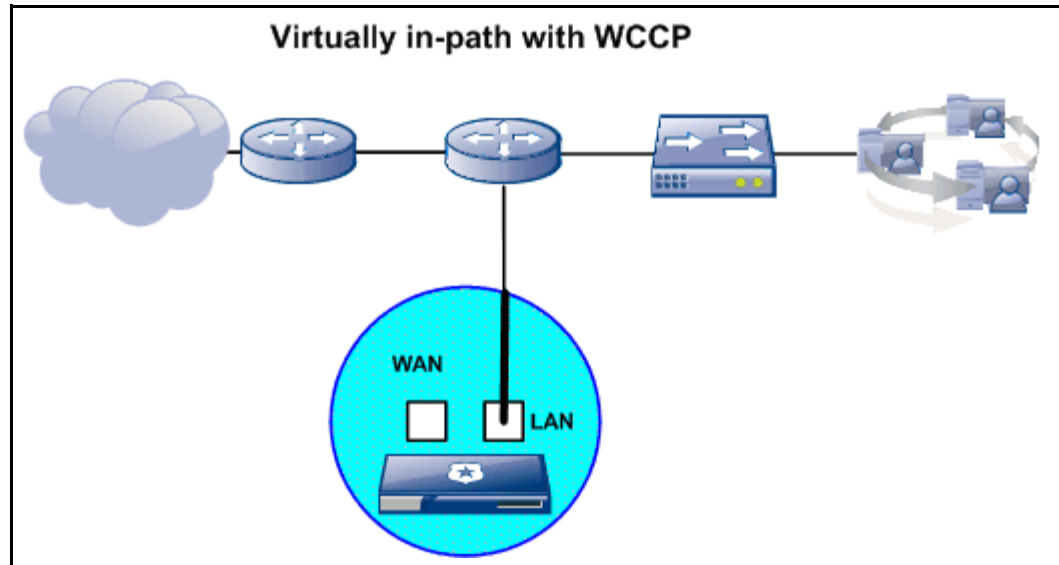


Figure 5–2 Connecting the LAN interface to a router with WCCP.

About Interception Options

The ProxySG allows you to execute one of three actions upon intercepting traffic on a per-interface basis:

- ❑ Allow: Bridge/forward traffic and intercept appropriate traffic as defined by Proxy Services.
- ❑ Bypass: Bridge/forward all traffic without interception.
- ❑ Firewall: Drop (silently block) any traffic not related to established ProxySG connections.

The following table describes what effect each allow-intercept option setting has on different traffic types.

Table 5–1 How each interception option affects connections.

Option	ProxySG Settings		ProxySG Management and Console Connections	Explicit Proxy Service Traffic	Transparent Proxy Service Traffic	Other Traffic
	reject-inbound	allow-intercept				
Allow	Disabled	Enabled	Intercepted	Intercepted	Intercepted	Forwarded
Bypass	Disabled	Disabled	Intercepted	Intercepted	Forwarded	Forwarded
Firewall	Enabled	Enabled/Disabled	Silently dropped	Silently dropped	Silently dropped	Silently dropped

The default intercept option depends on the type of license on this ProxySG:

- ❑ Proxy Edition: The default is **Bypass transparent interception**.
- ❑ Mach 5 Edition: The default is **Allow transparent interception**. The ProxySG performs normal proxy interception, as configured in **Configuration > Services**, for traffic on the interface. If you require this ProxySG to perform interception of traffic on specific interface(s), set the other interfaces to either bypass (bridge/forward, but do not intercept traffic on it) or firewall it (drop all traffic not related to established proxy connections).

About Link Settings

By default, the ProxySG auto-negotiates the interface *speed* and *duplex* settings with the switch or router to which it is connected.

- ❑ The ProxySG supports multiple Ethernet modes. The speed setting is the maximum transfer speed, in Megabits or Gigabits per second (Mbps/Gbps), the interface supports.
- ❑ The duplex setting designates two-way traffic capabilities. In **Full** duplex mode, both devices may transmit to and from each other simultaneously, allowing each direction to use the maximum transfer speed without affecting the other direction. In **Half** duplex mode, only one device may transmit at any one time, effectively sharing the maximum transfer speed of the interface.

The ProxySG appliance's health monitoring capability provides alerts if interface use reaches warning and critical capacity levels. In **Full** duplex mode, the ProxySG reports the larger percentage value of the sending and receiving values. For example, if the ProxySG is receiving 20 Mbps and sending 40 Mbps on a 100 Mbps-capable interface, the reported value is 40%. If the same interface was set to half duplex, the reported value is 60%, or the aggregated values.

Blue Coat strongly recommends using the (default) auto-negotiation feature. The key issue is the ProxySG settings must match the settings on the switch; therefore, if you manually change the settings on the ProxySG, you must also match the settings on the router or switch.

Note: When the 100 Mbps Ethernet interfaces on the ProxySG 200, 210, 400, 800 and 8000 models are connected to Gigabit Ethernet capable devices, they might incorrectly auto-negotiate when fail-open pass-through is used.

If both the interfaces on these ProxySG appliances are connected to Gigabit capable switches or hubs, Blue Coat recommends that you configure the link settings manually to 100 Mbps. To configure the link settings, see Step 3 in "[To configure a network adapter:](#)" on page 65.

The following table lists the results of various ProxySG and router link settings for 100 Mbps speeds. The values are listed in the format: **speed/duplex**.

Table 5–2 Results for 100 Mbps link speed settings on the ProxySG and the switch

Router/Switch Auto-negotiation Result (speed/duplex)	Router/Switch Interface Settings	ProxySG Interface Setting	ProxySG Auto-negotiation Result
100/Full Duplex	Auto	Auto	100/Full Duplex
N/A	100/Full Duplex	Auto	100/Half Duplex
N/A	100/Full Duplex	100/Full Duplex	N/A
100/Half Duplex	Auto	100/Full Duplex	N/A

The following table lists the results of various ProxySG and router link settings for 1 Gbps speeds. The values are listed in the format: **speed/duplex**.

Table 5–3 Results for 1Gbps link speed settings on the ProxySG and switch

Router/Switch Auto-negotiation Result	Router/Switch Interface Setting	ProxySG Interface Setting	ProxySG Auto-Negotiation Result
No Link	Auto	Gig/Full Duplex	No link
Gig/Full Duplex	Auto	Auto	Gig/Full Duplex
No Link	Gig/Full Duplex	Auto	No link

See Also

Health Monitoring (Volume 9, Chapter 2)

About Virtual LAN Configurations

This section discusses VLAN deployments and how the ProxySG manages VLAN-tagged traffic.

About VLAN Deployments

VLANs are *logical* network segments that allow hosts to communicate, regardless of physical network location. The benefit to this is that clients can be separated logically—based on organizational unit, for example—rather than based on physical connectivity to interfaces. The ProxySG treats VLAN interfaces identically to traditional physical LAN interfaces.

VLAN segments are defined on the switch. The network administrator specifies which ports belong to which VLANs. The following diagram illustrates a port-based VLAN configuration. Clients on network segments attached to switch ports 1 and 2 belong to VLAN 1, which has the network address 10.0.1.x; network segments attached to switch ports 14 and 15 belong to VLAN 2, which has the network address 10.0.2.x.

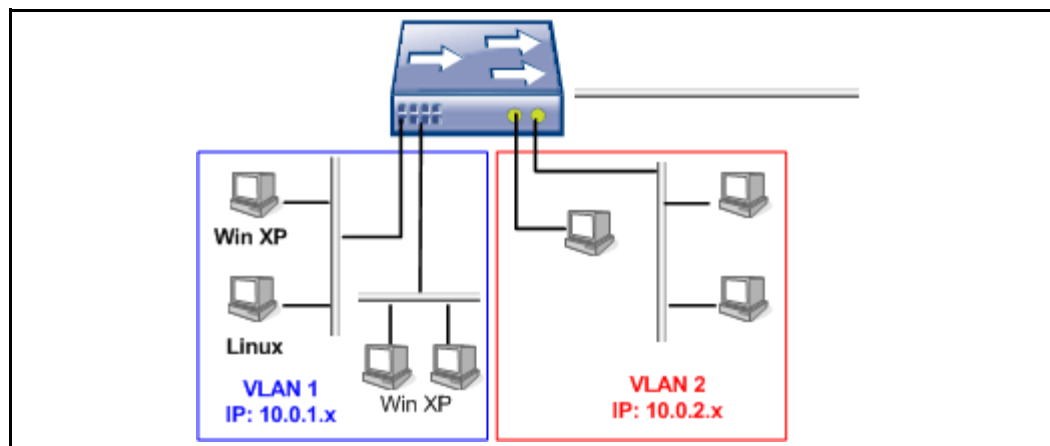


Figure 5–3 Multiple VLANs connected to ports on one switch

As also illustrated in the diagram, clients of different OS types can reside within a VLAN. However, not all clients are able to detect (send or receive) VLAN-tagged packets.

About VLAN Trunking

Trunk ports are ports that carry traffic for more than one VLAN. They tag each packet with the VLAN ID in the packet header. Trunk ports are commonly used between switches and routers that must switch or route traffic from or to multiple VLANs.

In the following diagram, multiple VLANs are connected by trunk link between two switches.

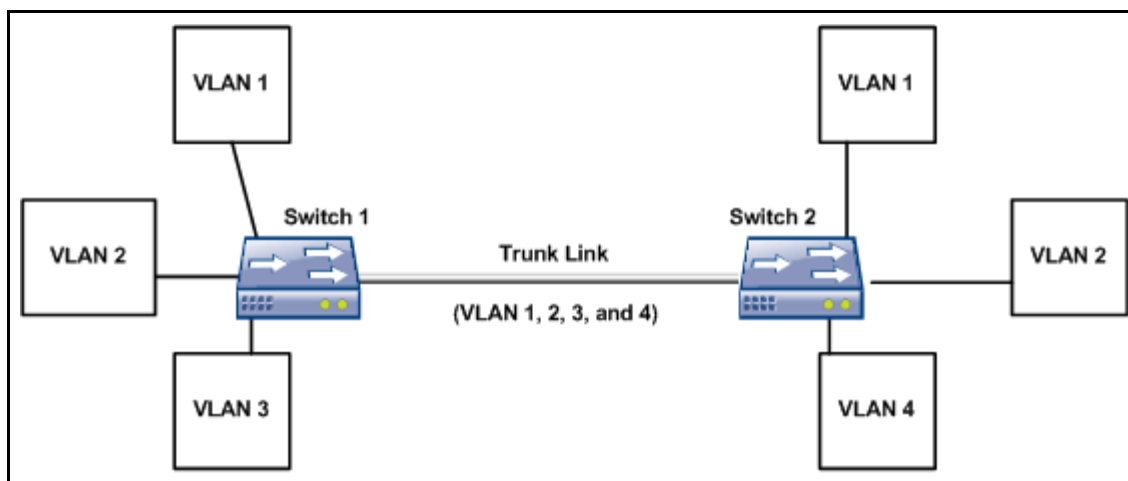


Figure 5–4 Two switches connected by a trunk

About Native VLANs

Each switch port has a designated *native* VLAN. Traffic on the port associated with the native VLAN is not tagged. Traffic destined for VLANs other than the native VLAN is tagged.

The trunk link carries both the native VLAN and all other VLAN (tagged) packets, as illustrated in the following diagram.

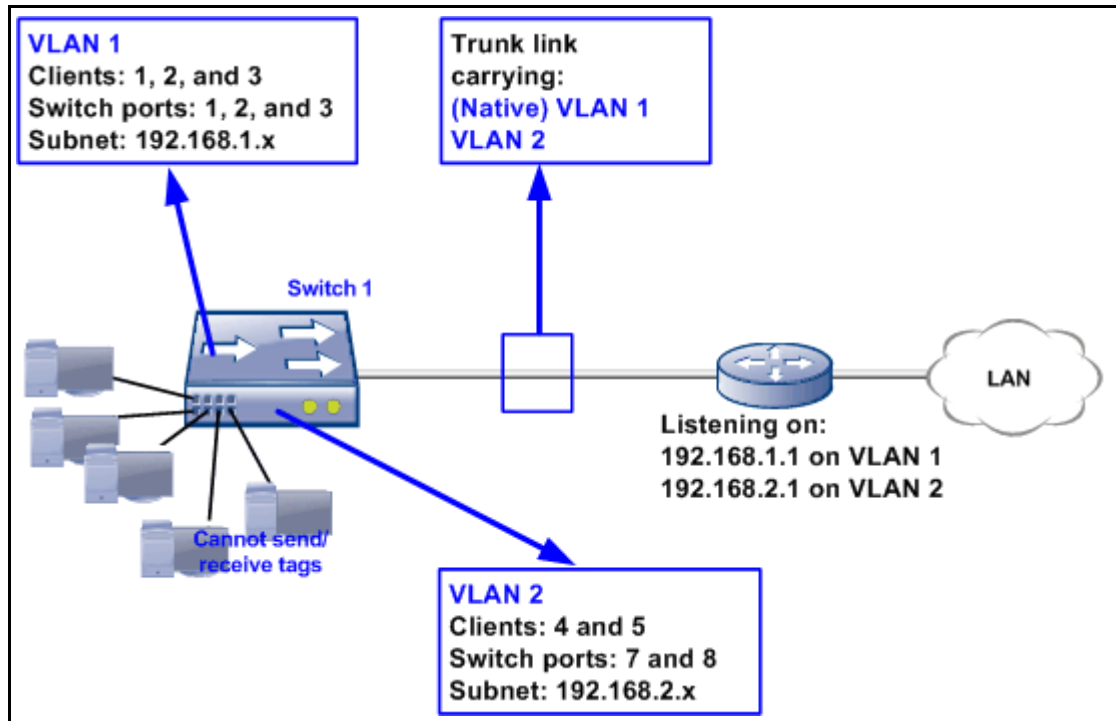


Figure 5-5 A switch broadcasting native and regular VLAN traffic over a trunk

In this example, the client attached to port 7 belongs to VLAN 2. Even though port 7 is part of VLAN 2, it does not set tags or receive VLAN-tagged packets. The switch associates the traffic with VLAN 2 and tags it accordingly when appropriate. Conversely, it strips the VLAN 2 tag on the response. The trunk link carries VLAN 1 (the native) and 2 traffic to a router that forwards traffic for those VLANs.

Deployment complications arise when a device (other than a router) is required between switches. Any network device without VLAN-tagging support might drop or misinterpret the traffic.

As a best practice, do not deploy a device that is *not* configured to recognize VLAN-tagged traffic in-path of a trunk link.

Note: In Blue Coat documentation, the convention for VLAN is `adapter:interface.VLAN_ID`. Example: 1:0.10 refers the VLAN ID 10 on adapter 1, interface 0.

The Blue Coat Solution

The ProxySG supports VLAN tagging; therefore, a ProxySG can be deployed in-path with switches that are exchanging VLAN-tagged traffic. This allows for uninterrupted VLAN service, plus enables benefits gained with the proxy features.

The Management Console enables you to configure VLAN interfaces the same way you configure physical interfaces. After a VLAN is added, it appears in the list of network interfaces. Settings such as `allow-intercept` and `reject-inbound` are applicable to VLAN interfaces.

The most common deployment is a ProxySG residing between two switches or a switch and a router; in these cases, preserving tagged packets is essential to proper network operation.

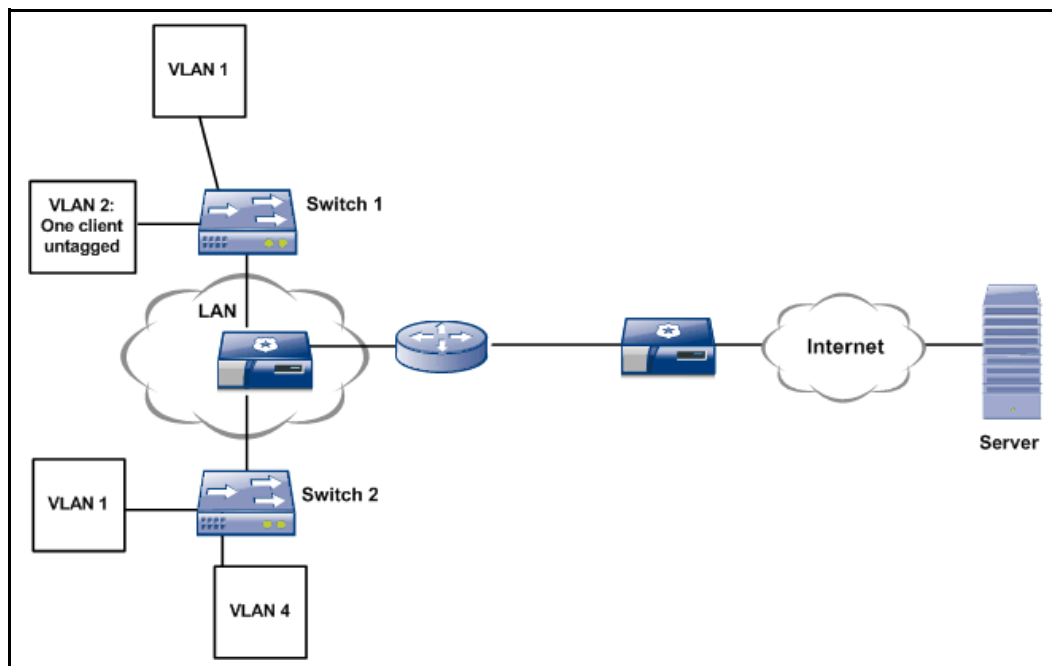


Figure 5-6 ProxySG deployed between two switches

The ProxySG strips outgoing native VLAN tags. Any packets not matching the native VLAN are dropped unless trunking is enabled on the ProxySG interfaces.

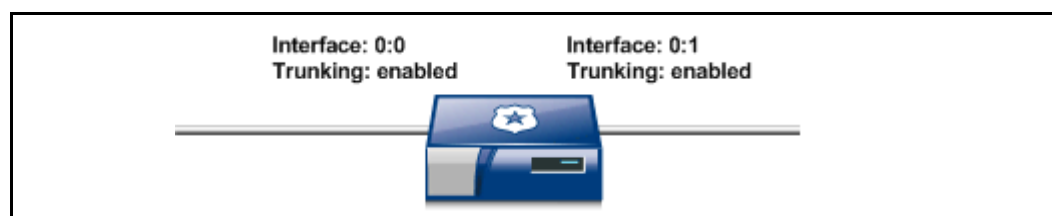


Figure 5-7 Trunking enabled on two ProxySG physical interfaces

Based on this deployment:

- ❑ The ProxySG accepts all packets, regardless of their VLAN tag, and, if configuration and policy allows, passes them from one interface to the other with the original VLAN tag preserved.

- ❑ If a packet arrives on one interface tagged for VLAN 2, it remains on VLAN 2 when it is forwarded out another interface. If a packet arrives untagged and the destination interface has a different native VLAN configured, the ProxySG adds a tag to ensure the VLAN ID is preserved. Similarly, if a tagged packet arrives and the VLAN ID matches the native VLAN of the destination interface, the ProxySG removes the tag before transmitting the packet.

Changing the Default Adapter and Interface Settings

The following procedure describes how to change the default adapter and interface settings because of site-specific network requirements. These include inbound connection restrictions, link settings, browser/PAC file settings, and VLAN settings. Repeat the process if the system has additional adapters. By default:

- ❑ The ProxySG allows the transparent interception of inbound connections.
- ❑ By default, the ProxySG auto-negotiates link settings with the connected switch or router. Blue Coat recommends using auto-negotiation except under special circumstances.

Note: Rejecting inbound connections improperly or manually configuring link settings improperly might cause the ProxySG to malfunction. Ensure that you know the correct settings before attempting either of these. If the ProxySG fails to operate properly after changing these settings, contact Blue Coat Technical Support.

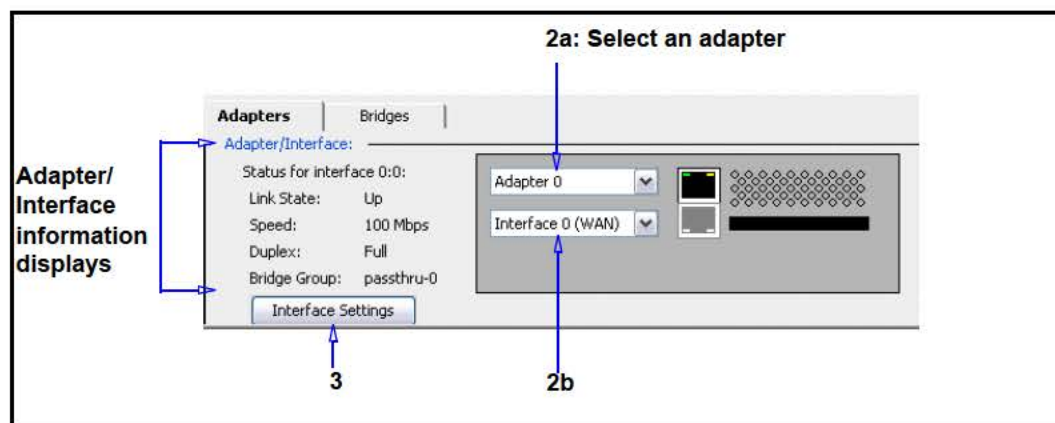
About Multiple IP Addresses

The ProxySG allows you to bind multiple IP addresses to an interface, and typically, the assigned IP addresses are on the same subnet. Multiple IP addresses on an interface allows for managing one service under a specific IP and another service under a different IP. For example, you can assign one IP address for management services/console access and another IP address for managing proxy traffic. In addition, you could assign unique IP addresses to manage different services, that is have HTTP traffic on one and native FTP on another.

To configure a network adapter:

1. Select **Configuration > Network > Adapters > Adapters** tab.

Note: Different ProxySG models have different adapter configurations, and the appearance of the **Adapters** tab varies accordingly.



2. Select the adapter and interface to configure:

- a. In the **Adapter/Interface** area, select an adapter from the **Adapter** drop-down menu.
- b. If you have a multiple-interface adapter, select an interface from the drop-down list.

Note: If this ProxySG supports it, the interfaces are labeled for WAN and LAN connections, which correspond to the interface labels on the ProxySG backplate.

- c. Notice that for each interface selected, status information displays. The current link status is displayed on the right-hand side of the pane.
 - **Status:** Interface status, **Up** or **Down**.

Note: When the link status of an interface changes, a message is added to the event log.

- **Duplex:**
 - **Speed:** The maximum transfer speed available through the interface, depending on the type of Ethernet technology. The values are: **10**, **100**, and **1000** Mbps.

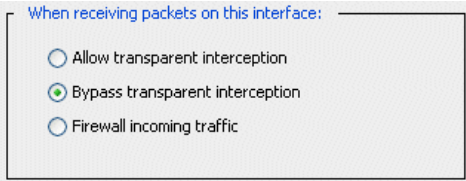
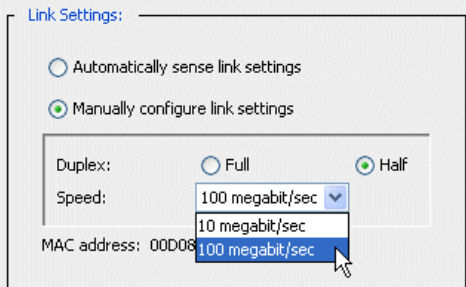
Note: An N/A status might indicate a network connectivity issue.

- **Full:** The interface can simultaneously send and receive at the defined maximum speed (previous bullet). For example, a 100 Mbps full duplex link can send up to 100 Megabits per second (Mbps) of data and simultaneously receive up to 100 Mbps of data.

- **Half:** The interface can only send data in one direction at a time. For example, a 100 Mbps half duplex link can only send and receive a *combined* maximum of 100 Mbps of data.

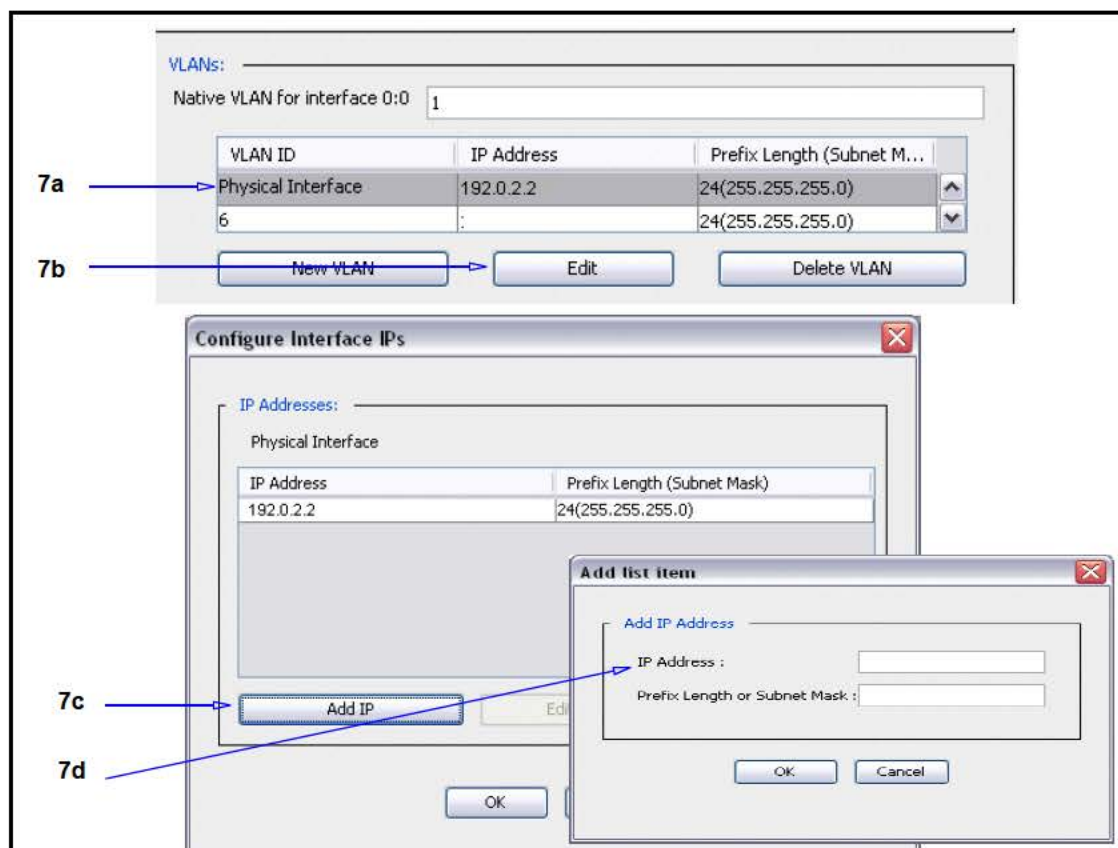
For more information about network bridging, see [Chapter 6: "Software and Hardware Bridges" on page 75](#).

3. Click **Settings**. The Settings dialog displays, which contains three configuration option areas.

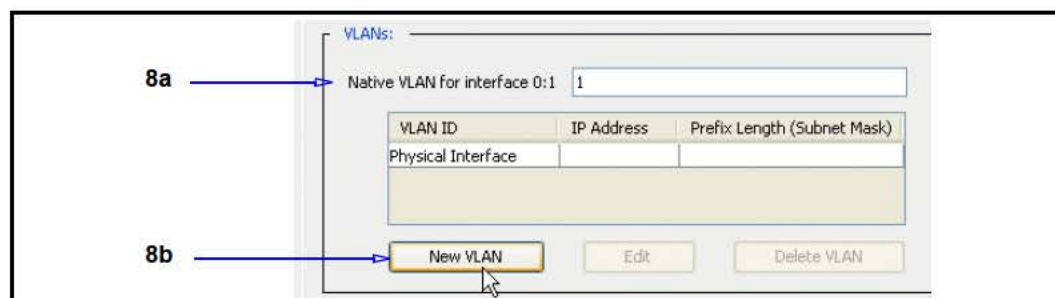
Dialog Area	Option
 <p>The default is Allow transparent interception. The ProxySG performs normal proxy interception, as configured in Configuration > Services, for the traffic arriving on the interface. If you require this ProxySG to perform interception on traffic from a specific interface or set of interfaces, set the other interfaces to either bypass the traffic (pass it through but not intercept it) or firewall it (block it completely).</p> <p>For more detailed information, see "About Interception Options" on page 59.</p>	<p>Inbound connection options:</p> <ul style="list-style-type: none"> • Allow transparent interception (default): The ProxySG intercepts the appropriate traffic based on settings configured in Configuration > Services; all other traffic is bridged or forwarded. • Bypass transparent interception: The ProxySG bridges or forwards <i>all</i> inbound traffic on this interface, regardless of the services configuration. • Firewall incoming traffic: The ProxySG drops all inbound connections on this interface, regardless of the services configuration.
	<p>Link settings:</p> <ul style="list-style-type: none"> • Automatically sense link settings (default, recommended): The ProxySG auto-negotiates the link settings for this interface. • Manually configure link settings: Select the options that meet your network requirements. This method requires a consistent configuration on the router or switch connected to this ProxySG.

4. Click **OK** to close the dialog.
5. Click **Apply** to save changes to the adapter/interface settings.
6. Next step:
 - If you need to bind multiple IP addresses to an interface, proceed to Step 7.
 - If you require additional VLAN configuration, proceed to Step 8.

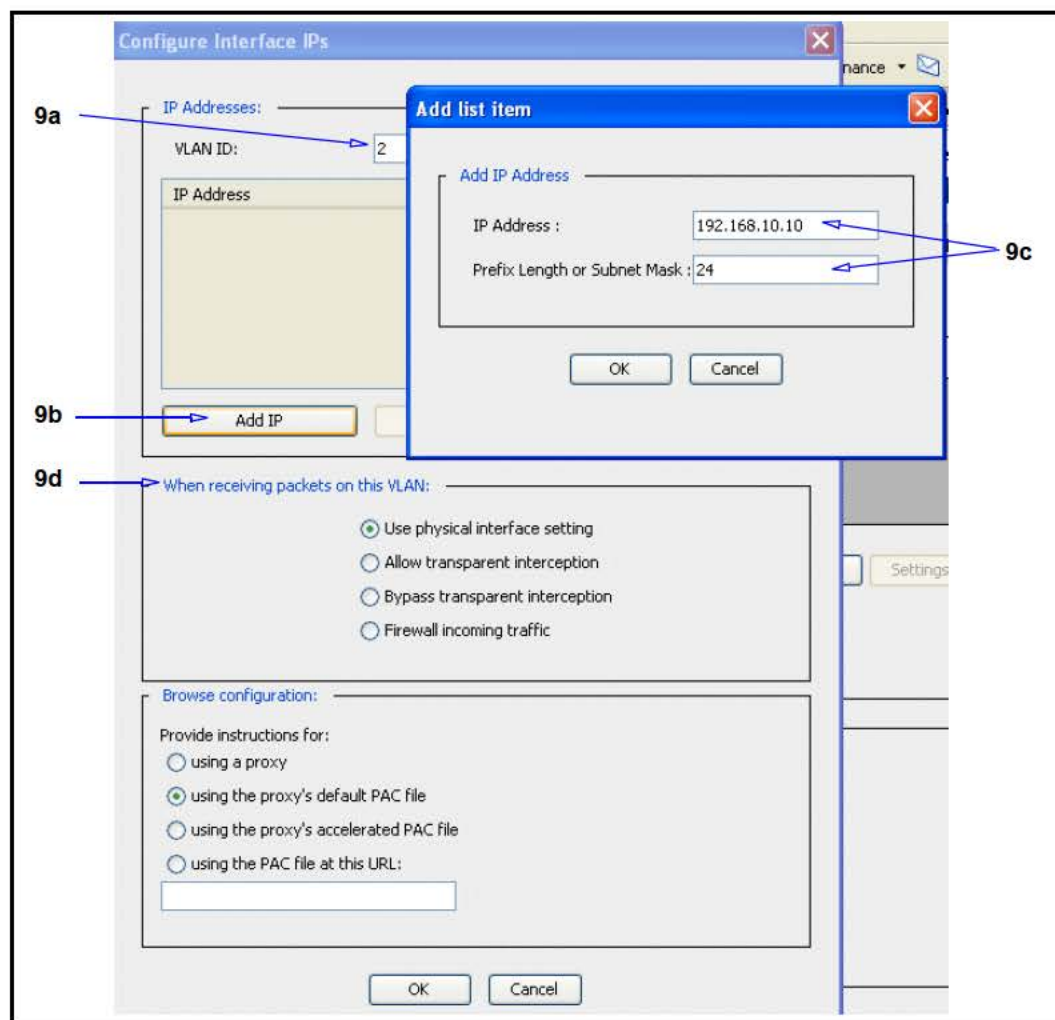
- Otherwise, click **Apply**; the adapter configuration is complete. Proceed to "Viewing Interface Statistics" on page 71 for verification.



7. If applicable, bind multiple IP addresses to an interface.
 - a. Select the **Physical Interface**.
 - b. Click **Edit**. The Configure Interface IPs dialog displays.
 - c. Click **Add IP**. The Add list item dialog displays.
 - d. Specify the IP address and subnet mask; click **OK** to close the dialog
 - e. Click **OK**.
 - f. Click **Apply**.



8. If applicable, configure Virtual LAN (VLAN) options (see "[About Link Settings](#)" on page 60):
 - a. By default, the native VLAN ID for any ProxySG interface is **1**, as most switches by default are configured to have their native VLAN IDs as **1**. Only change this value if the native VLAN ID of the switch or router connected to this interface is a value other than **1**; match that value here.
 - b. To add VLANs other than the native VLAN to the interface, click **New VLAN**. The Configure Interface IPs dialog displays.



9. Configure the VLAN options:
 - a. Specify the **VLAN ID** (VID) number of the VLAN accepted on this interface.
 - b. Click **Add IP** to display the Add List Item dialog.
 - c. Specify the VLAN IP address and subnet mask; click **OK** to close the dialog.
 - d. The receiving packet and browser behavior is the same as for physical interfaces (see [Table 5–1, "How each interception option affects connections."](#) on page 59) with the exception of **Use physical interface setting**, which applies the same configuration to the VLAN as was set on the physical interface.
 - e. Click **OK** in both dialogs.
10. Click **Apply**.

Related CLI Syntax to Configure an Adapter/Native VLAN

- ❑ To enter configuration mode:

```
SGOS#(config) interface fast-ethernet adapter:interface
SGOS#(config) interface adapter:interface
```

- ❑ The following VLAN subcommands are available:

```
SGOS#(config interface adapter:interface) native-vlan #
SGOS#(config interface adapter:interface.vlan_id) vlan-trunk {enable |
disable}
```

Related CLI Syntax to Enable/Disable Transparent Interception

- ❑ For standard interfaces:

```
SGOS#(config interface adapter:interface) allow-intercept {enable |
disable}
```

- ❑ For VLAN interfaces:

```
SGOS#(config interface adapter:interface.vlan_id) allow-intercept
{enable | disable | inherit}
```

Related CLI Syntax to Manually Configure Link Settings

- ❑ To enter configuration mode for standard interfaces:

```
SGOS#(config interface adapter:interface) {full-duplex | half-duplex}
SGOS#(config interface adapter:interface) speed {10, 100, 1gb}
```

Related CLI Syntax for Rejecting Inbound Connections

- ❑ To enter configuration mode for standard interfaces:

```
SGOS#(config interface adapter:interface) reject-inbound {enable |
disable}
```

- ❑ To enter configuration mode for VLAN interfaces:

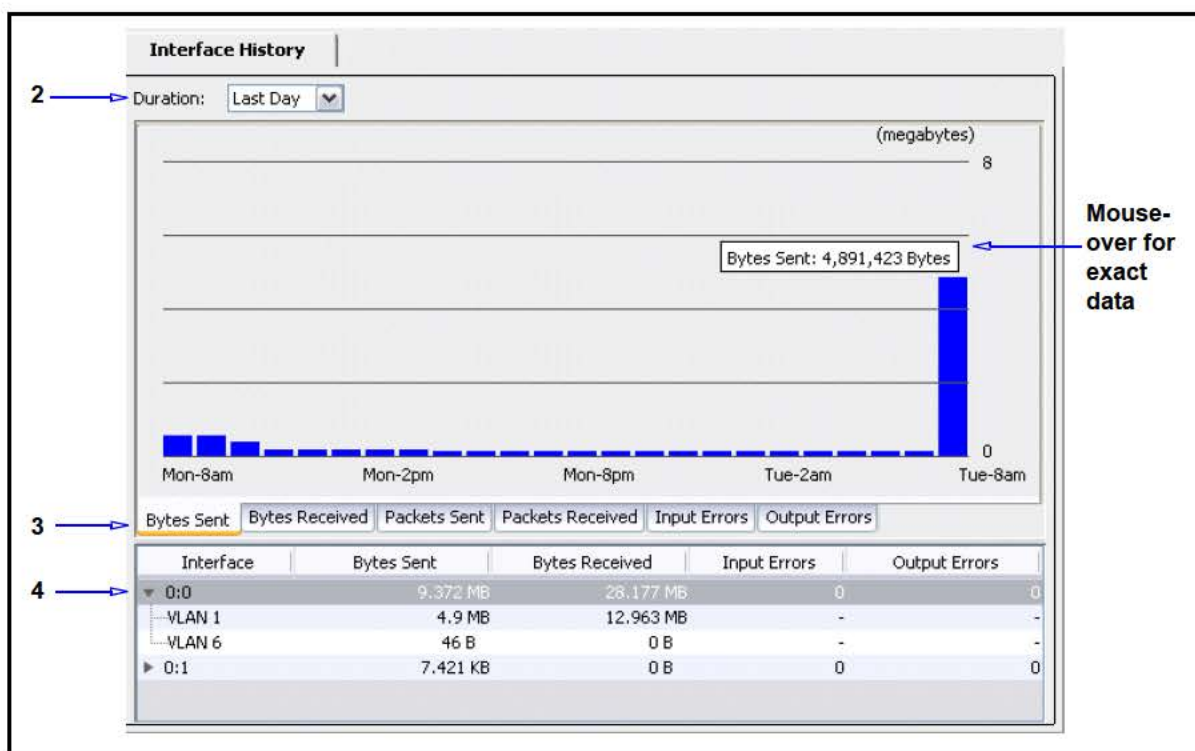
```
SGOS#(config interface adapter:interface.vlan_id) reject-inbound
{enable | disable | inherit}
```

Viewing Interface Statistics

As traffic flows to and from the ProxySG, you can review statistics for each interface (including VLAN traffic). This allows you to verify your deployment is optimized. For example, if you notice that traffic flowing through the LAN interface is consistently near capacity, you might consider routing traffic differently or spreading the load to another ProxySG.

To view interface-specific statistics:

1. In the Management Console, select **Statistics > Network > Interface History**.



2. From the **Duration** drop-down list, select a time frame.

3. Select a data type:

Data Type	Description
Bytes Sent	The number of outgoing bytes sent from this interface or VLAN.
Bytes Received	The number of inbound bytes received on this interface or VLAN.
Packets Sent	The number of outgoing packets sent from this interface or VLAN.
Packets Received	The number of inbound packets received on this interface or VLAN.
Input Errors	The number of input and output errors that occurred on the interface (not applicable on VLANs). This information provides details that Blue Coat Technical Support uses to troubleshoot issues.
Output Errors	

4. Select an interface to view. If an interface has attached VLANs, the tree expands to display the VLAN(s), which are also selectable.

In the graph area, roll your mouse over data lines to view exact metrics.

See Also

Health Monitoring (Volume 9, Chapter 2)

Detecting Network Adapter Faults

The ProxySG can detect whether the network adapters in an appliance are functioning properly. If the appliance detects a faulty adapter, it stops using it. When the fault is remedied, the ProxySG detects the functioning adapter and uses it normally.

To determine whether an adapter is functioning properly:

1. Check whether the link is active (that is, a cable is connected and both sides are up).
2. Check the ratio of error packets to good packets: both sent and received.
3. Check if packets have been sent without any packets received.
4. Check the event log. If an adapter fault is detected, the ProxySG logs a severe event. In addition, the ProxySG logs an entry even when a faulty adapter is restored.

Chapter 6: Software and Hardware Bridges

This chapter describes the SGOS hardware and software bridging capabilities. Network bridging through the ProxySG provides transparent proxy pass-through and failover support.

Topics in this Chapter

The following topics are covered in this chapter:

- ❑ ["About Bridging" on page 75](#)
- ❑ ["About the Pass-Through Adapter" on page 77](#)
- ❑ ["Configuring a Software Bridge" on page 78](#)
- ❑ ["Configuring Programmable Pass-Through/NIC Adapters" on page 80](#)
- ❑ ["Customizing the Interface Settings" on page 83](#)
- ❑ ["Setting Bandwidth Management for Bridging" on page 83](#)
- ❑ ["Configuring Failover" on page 84](#)

About Bridging

Bridging functionality allows each ProxySG to be easily deployed as a transparent redirection device, without requiring the additional expense and maintenance of L4 switches or WCCP-capable routers. Bridging is especially useful in smaller deployments in which explicit proxies or L4 switches are not feasible options.

Bridges are used to segment Ethernet collision domains, thus reducing frame collisions. Unlike a hub, a bridge uses a frame's destination MAC address to make delivery decisions. Because these decisions are based on MAC addressing, bridges are known as Layer 2 devices.

To make efficient delivery decisions, the bridge must discover the identity of systems on each collision domain, and then store this information in its bridging table. After learning the identity of the systems on each collision domain, the bridge uses the source MAC address of frames to determine from which interface a given system can be reached.

A branch office that would take advantage of a bridging configuration is likely to be small; for example, it might have only one router and one firewall in the network, as shown below.

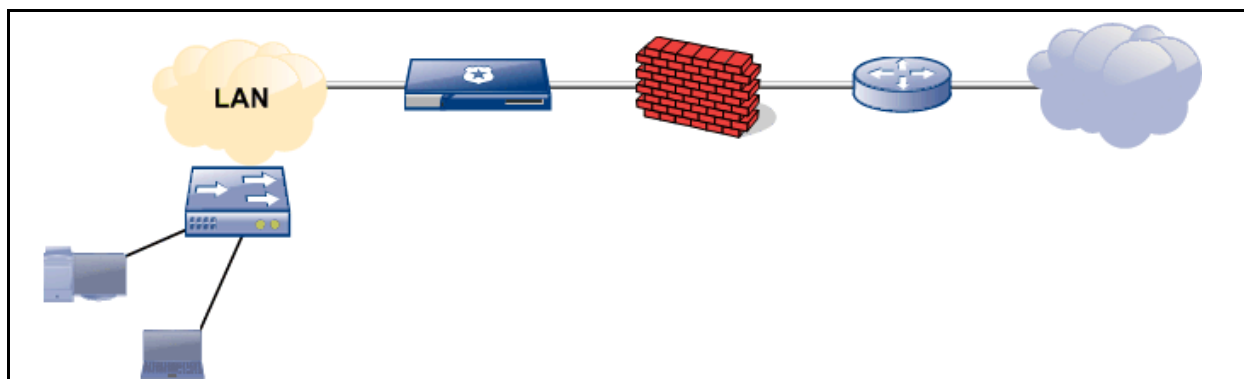


Figure 6-1 A Bridged Configuration

To ensure redundancy, the ProxySG supports both serial and parallel failover modes. See ["Configuring Failover"](#) on page 84 for more information about serial and parallel failover configurations.

About Traffic Handling

Because the bridge intercepts all traffic, you can take advantage of the powerful proxy services and policies built into the ProxySG to control how that traffic is handled. If the ProxySG recognizes the intercepted traffic, you can apply policy to it. Unrecognized traffic is forwarded out. The following diagram illustrates this traffic handling flow.

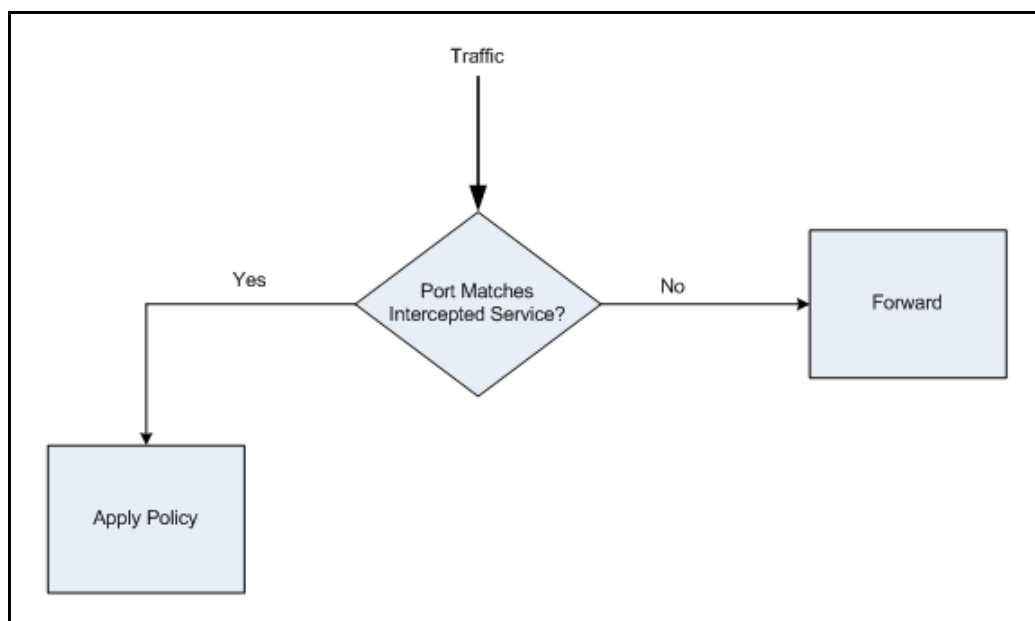


Figure 6-2 Traffic Flow Decision Tree

Because policy can be applied only to recognized protocols, it is important to specify port ranges that will capture all traffic, even that operating on lesser-known ports.

About Bridging Methods

The ProxySG provides bridging functionality by two methods:

- ❑ Software—A software, or *dynamic*, bridge is constructed using a set of installed interfaces. Within each logical bridge, interfaces can be assigned or removed.

See "[Configuring Programmable Pass-Through/NIC Adapters](#)" on page 80 for more information.

- ❑ Hardware—A hardware, or *pass-through*, bridge uses a 10/100 dual interface Ethernet adapter. This type of bridge provides pass-through support.

See "[About the Pass-Through Adapter](#)" on page 77 for more information.

Note: If you want to use an L4 switch or an explicit proxy instead of bridging, you must disable the bridging pass-through card.

About the Pass-Through Adapter

A pass-through adapter is a 10/100 dual interface Ethernet adapter designed by Blue Coat to provide an efficient fault-tolerant bridging solution. If this adapter is installed on a ProxySG, SGOS detects the adapter on system bootup and automatically creates a bridge—the two Ethernet interfaces serve as the bridge ports. If the ProxySG is powered down or loses power for any reason, the bridge fails open; that is, Web traffic passes from one Ethernet interface to the other. Therefore, Web traffic is uninterrupted, but does not route through the appliance.

Important: This scenario creates a security vulnerability.

After power is restored to the ProxySG, the bridge comes back online and Web traffic is routed to the appliance and thus is subject to that appliance's configured features, policies, content scanning, and redirection instructions. Note that bridging supports only failover; it does not support load balancing.

Note: The adapter state is displayed on **Configuration > Network > Adapters**.

Reflecting Link Errors

When the ProxySG is deployed transparently with bridging enabled, link errors that occur on one interface can be reflected to the other bridge interface. This allows a router connected to the ProxySG on the healthy link to detect this failure and recompute a path around this failed segment. When the interface with the original link error is brought back up, the other interface is automatically restarted as part of the health check process.

Reflecting link errors requires that two interfaces be available and connected in a bridging configuration; it also requires that the `propagation-failure` option is enabled. By default, `propagation-failure` is disabled.

Note: This feature is only applicable to a two-interface hardware or software bridge. The `propagation-failure` option sets itself to disabled in any other scenario.

If the link goes down while `propagation-failure` is disabled, the previous link state is immediately reflected to the other interface if `propagation-failure` is enabled during this time.

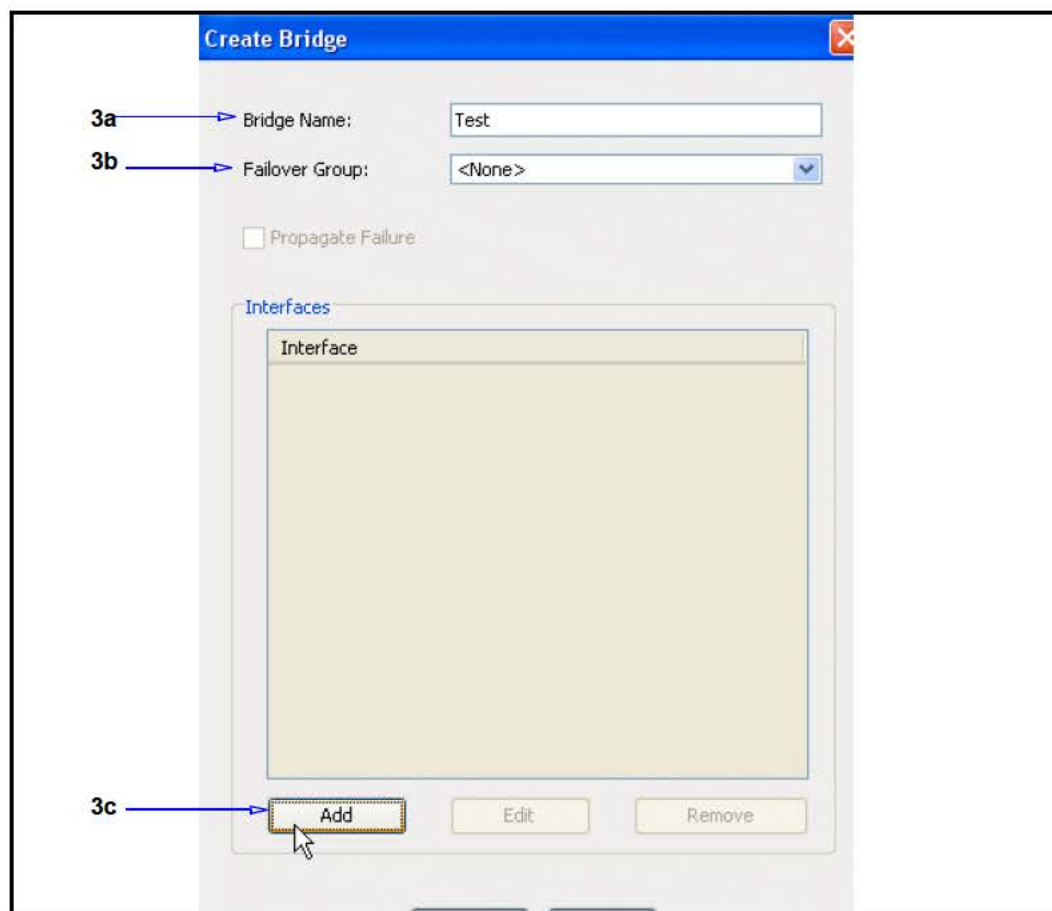
Configuring a Software Bridge

This section describes how to use the Management Console or the CLI to link adapters and interfaces to create a network bridge.

Before configuring a software bridge, ensure that your adapters are of the same type. Although the software does not restrict you from configuring bridges with adapters of different speeds (10/100 or GIGE, for example), the resulting behavior is unpredictable.

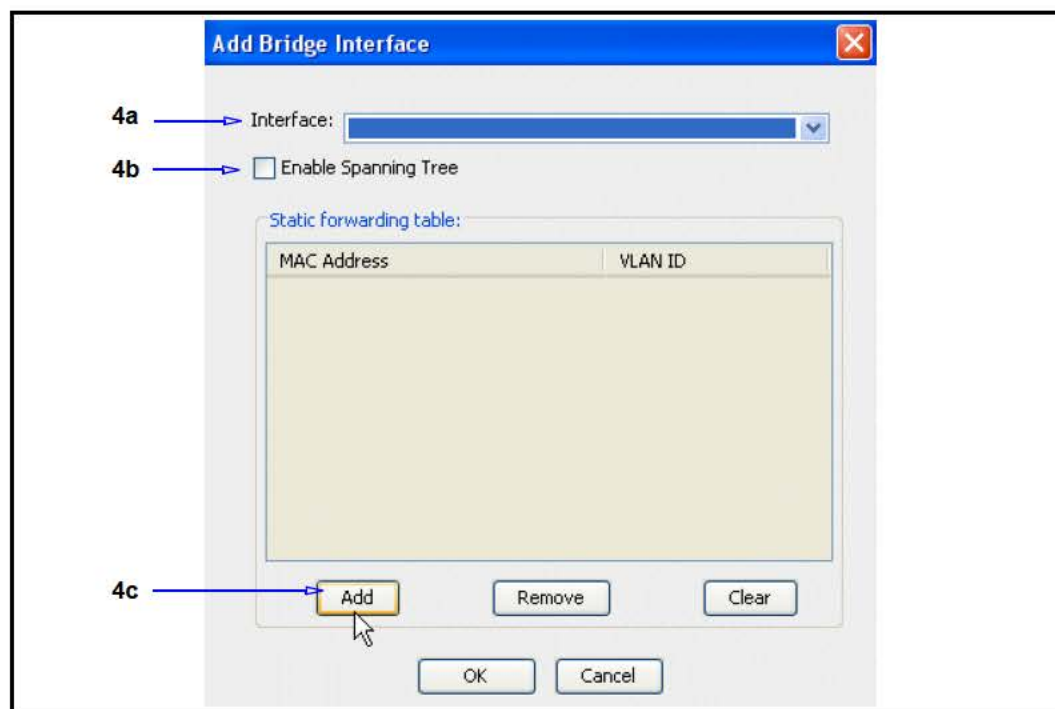
To create and configure a software bridge:

1. Select **Configuration > Network > Adapters > Bridges**.
2. Click **New**. The Create Bridge dialog displays.



3. Configure bridge options:

- a. In the **Bridge Name** field, enter a name for the bridge—up to 16 characters. The bridge name is case insensitive, that is, you cannot name one bridge **ABC** and another bridge **abc**.
- b. (Optional) If you want to assign the bridge to a failover group select it from the **Failover Group** drop-down list.
- c. See "[Configuring Failover](#)" on page 84 for more information about configuring failover.
- d. Click **Add**. The **Add Bridge Interface** dialog displays.



4. Configure the bridge interface options:
 - a. From the **Interface** drop-down menu, select an interface.
 - b. (Optional) To enable bridging loop avoidance, select **Enable Spanning Tree**. See ["Bridging Loop Detection"](#) on page 85 for more information about the Spanning Tree Protocol.
 - c. If you are using firewall configurations that require the use of static forwarding table entries, add a static forwarding table entry that defines the next hop gateway that is on the correct side of the bridge. For more information on static forwarding table entries, see ["Adding Static Forwarding Table Entries"](#) on page 87.
 - d. Click **OK**.
 - e. Repeat Step 4 for each interface you want to attach to the bridge.
5. Click **OK** to close the Create Bridge Interface and Create Bridge dialogs.
6. Click **Apply**.

Related CLI Syntax to Configure a Software Bridge

```
SGOS#(config) bridge
SGOS#(config bridge) edit bridge_name
```

Configuring Programmable Pass-Through/NIC Adapters

Some ProxySGs ship with a network adapter card that can be used as a pass-through adapter or as a Network Interface Card (NIC), depending on the configured mode. If the network adapter mode is set to disabled, the adapter interfaces can be used as NICs or as part of a software bridge.

If your appliance includes a programmable adapter card, the Edit Bridge dialog displays a **Mode** option that allows you to specify the card behavior. The following programmable adapter modes are available:

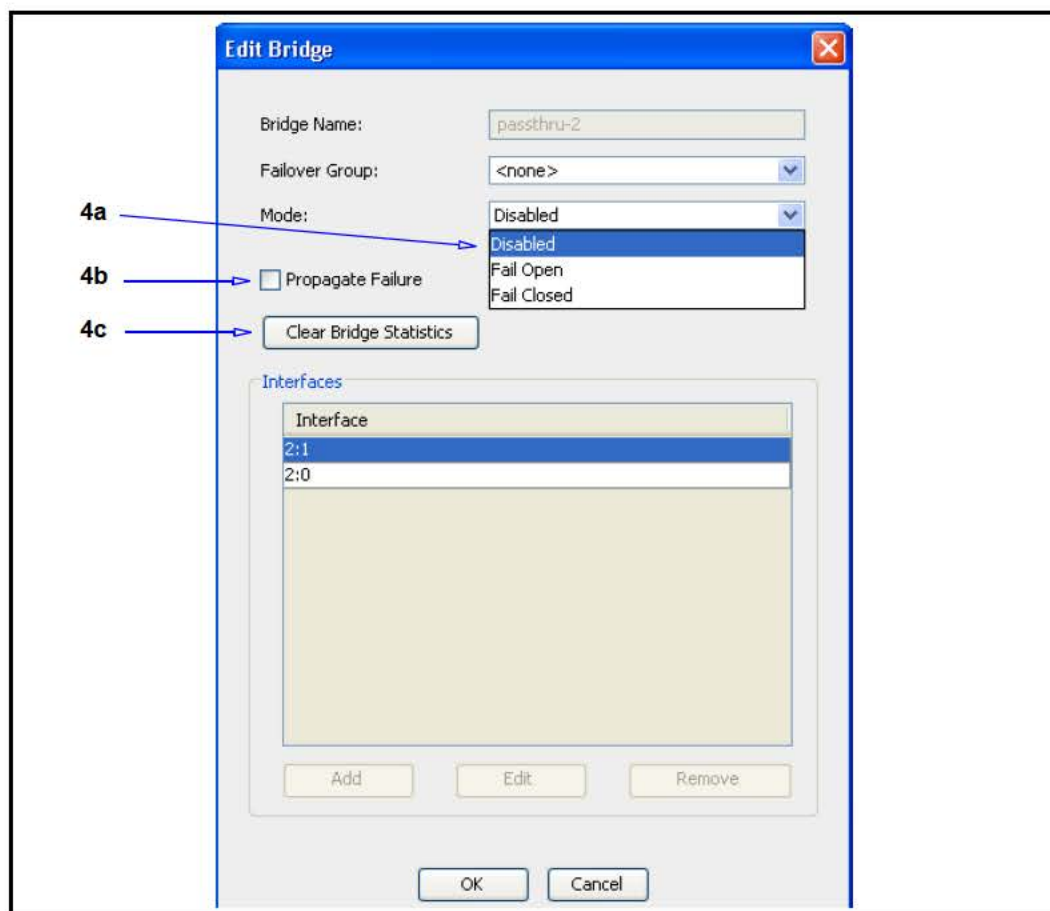
- ❑ **Disabled**—Disables the bridge and allows the adapter interfaces to be reused as NICs or as part of another bridge.
- ❑ **Fail Open**—If the ProxySG fails, all traffic passes through the bridge so clients can still receive data.
- ❑ **Fail Closed**—If the ProxySG fails, all traffic is blocked and service is interrupted. This mode provides the same functionality as a user-configured software bridge.

Note: If you create a software bridge, the programmable bridge card mode is implicitly Fail Closed (if the appliance fails, the software bridge is non-functional).

The following procedure describes programmable adapter configuration.

To configure the function of the programmable adapter:

1. Select **Configuration > Network > Adapters > Bridges**.
2. In the **Bridges** section, select the bridge you want to configure.
3. Click **Edit**. The Edit Bridge dialog displays.



4. Configure the bridge options:
 - a. Select the desired mode from the **Mode** drop-down list.
 - b. If you have a two-interface bridge and want to enable link error propagation, select the **Propagate Failure** check box.
 - c. (Optional) Click **Clear Bridge Statistics** to reset the traffic history of the bridge, which includes packet and byte counts, to 0.
 - d. Click **OK** to save your changes and close the Edit Bridge dialog.
5. Click **Apply**.

Related CLI Syntax to Configure a Programmable Adapter Card

```
SGOS#(config) bridge
SGOS#(config bridge) edit bridge_name
SGOS#(config bridge bridge_name) mode fail-open
SGOS#(config bridge bridge_name) mode fail-closed
SGOS#(config bridge bridge_name) mode disable
```

Note: If the bridge adapters are not programmable, the `mode` commands are not visible.

Customizing the Interface Settings

To further customize the bridge, edit the interface settings.

Editing the interface settings allows you to

- ❑ Allow transparent interception. It is bypassed by default. You must configure the WAN interface to allow transparent interception.

Note: If you have a MACH5 license, a programmable bridge card, and labeled WAN/LAN interfaces, the WAN interface allows transparent interception by default.

- ❑ Firewall incoming traffic. Firewalls must be specifically configured.

See [Chapter 5: "Configuring Adapters and Virtual LANs"](#) on page 57 for more information.

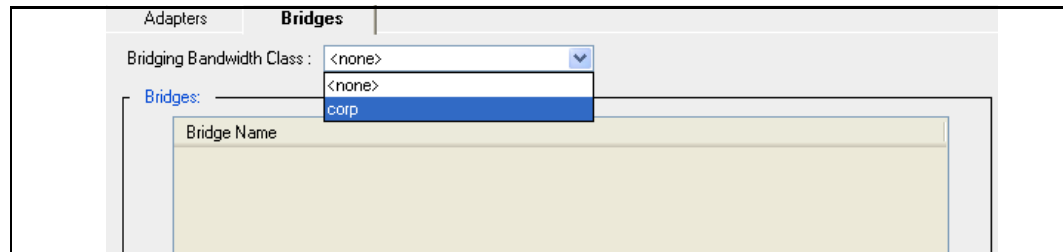
The **Bridge Settings** options allow you to clear bridge forwarding table and clear bridge statistics.

Setting Bandwidth Management for Bridging

After you have created and configured a bandwidth management class for bridging, you can manage the bandwidth used by all bridges. Refer to *Volume 5: Advanced Networking* for more information on bandwidth management.

To configure bandwidth management for bridging:

1. Select **Configuration > Network > Adapters > Bridges**.



2. In the **Bridging Bandwidth Class** drop-down menu, select a bandwidth management class to manage the bandwidth for bridging, or select **<none>** to disable bandwidth management for bridging.

Note: This setting only controls the bandwidth class used by bypassed traffic on this bridge. To manage intercepted traffic, you must define a Manage Bandwidth policy (using VPM or CPL).

3. Click **Apply**.

Related CLI Syntax to Set a Bridging Bandwidth Class

```
SGOS#(config bridge) bandwidth-class bridge_name  
SGOS#(config) bandwidth-management
```

```
SGOS#(config bandwidth-management) [subcommands]
```

Configuring Failover

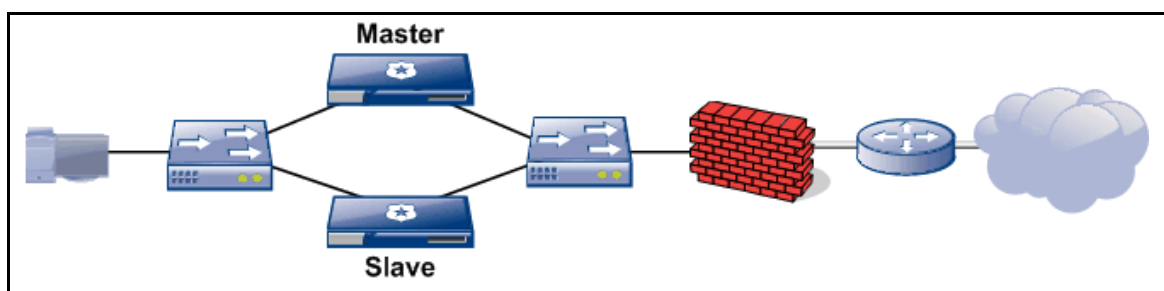
In failover mode, two appliances are deployed, a master and a slave. The master sends keepalive messages (*advertisements*) to the slaves. If the slaves do not receive advertisements at the specified interval, the slave takes over for the master. When the master comes back online, the master takes over from the slave again.

The SGOS bridging feature allows two different types of failover modes, *parallel* and *serial*. Hardware and software bridges allow different failover modes:

- ❑ Software bridges allow serial or parallel failover. However, note that if the ProxySG fails, serial failover also fails.
- ❑ Hardware bridges allow serial failover only.

Parallel Failover

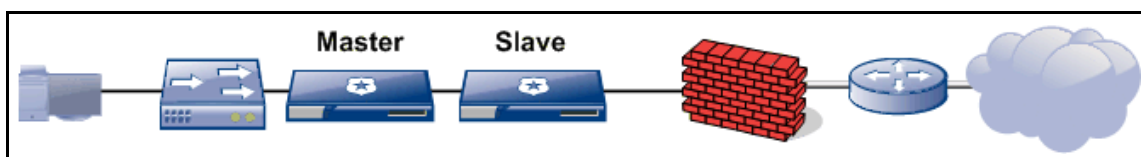
In parallel failover mode, two systems are deployed side by side on redundant paths. In parallel failover, the slave does not actively bridge any packets unless the master fails. If the master fails, the slave takes over the master IP address and begins bridging. A parallel failover configuration is shown in the following figure.



Because of the redundant paths, you must enable Spanning Tree to avoid bridge loops. See "[Bridging Loop Detection](#)" on page 85 for more information about STP.

Serial Failover

In serial failover mode, the slave is inline and continuously bridges packets, but does not perform any other operations to the bridged traffic unless the master fails. If the master fails, the slave takes over the master IP address and applies policy, etc. A serial configuration is shown in the following figure.



Setting Up Failover

Failover is accomplished by doing the following:

- ❑ Creating virtual IP addresses on each proxy.

- ❑ Creating a failover group.
- ❑ Attaching the bridge configuration.
- ❑ Selecting a failover mode (parallel or serial).

Both proxies can have the same priority (for example, the default priority). In that case, priority is determined by the local IP address—the ProxySG with the highest local IP will assume the role of master.

Example

The following example creates a bridging configuration with one bridge on standby.

Note: This deployment requires a hub on both sides of the bridge or a switch capable of interface mirroring.

- ❑ ProxySG A—software bridge IP address: 10.0.0.2. Create a virtual IP address and a failover group, and designate this group the *master*.

```
SGOS_A#(config) virtual-ip address 10.0.0.4
SGOS_A#(config) failover
SGOS_A#(config failover) create 10.0.0.4
SGOS_A#(config failover) edit 10.0.0.4
SGOS_A#(config failover 10.0.0.4) master
SGOS_A#(config failover 10.0.0.4) enable
```

The preceding commands create a failover group called 10.0.0.4. The priority is automatically set to 254 and the failover interval is set to 40.

- ❑ ProxySG B—software bridge IP address: 10.0.0.3. Create a virtual IP address and a failover group.

```
SGOS_B#(config) virtual-ip address 10.0.0.4
SGOS_B#(config) failover
SGOS_B#(config failover) create 10.0.0.4
SGOS_B#(config failover) edit 10.0.0.4
SGOS_B#(config failover 10.0.0.4) enable
```

In the bridge configuration on each SG, attach the bridge configuration to the failover group:

```
SGOS_A#(config bridge bridge_name) failover group 10.0.0.4
SGOS_B#(config bridge bridge_name) failover group 10.0.0.4
```

- ❑ Specify the failover mode:

```
SGOS_A#(config bridge bridge_name) failover mode serial
SGOS_B#(config bridge bridge_name) failover mode serial
```

Bridging Loop Detection

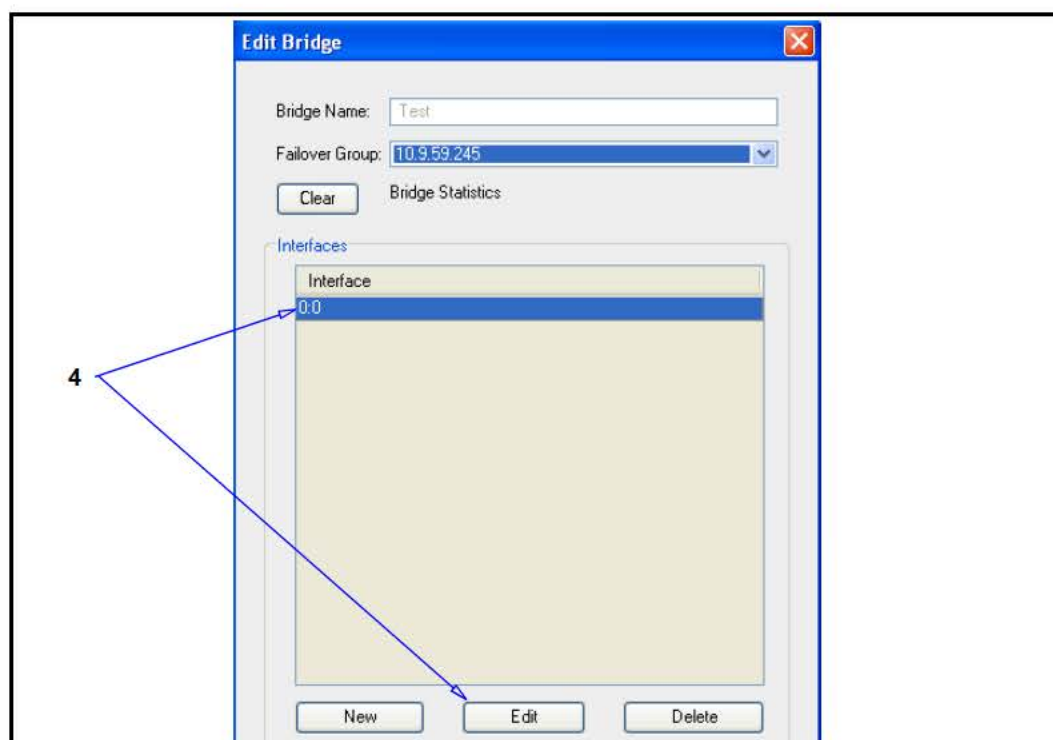
Bridging now supports the Spanning Tree Protocol (STP). STP is a link management protocol that prevents bridge loops in a network that has redundant paths that can cause packets to be bridged infinitely without ever being removed from the network.

STP ensures that a bridge, when faced with multiple paths, uses a path that is loop-free. If that path fails, the algorithm recalculates the network and finds another loop-free path.

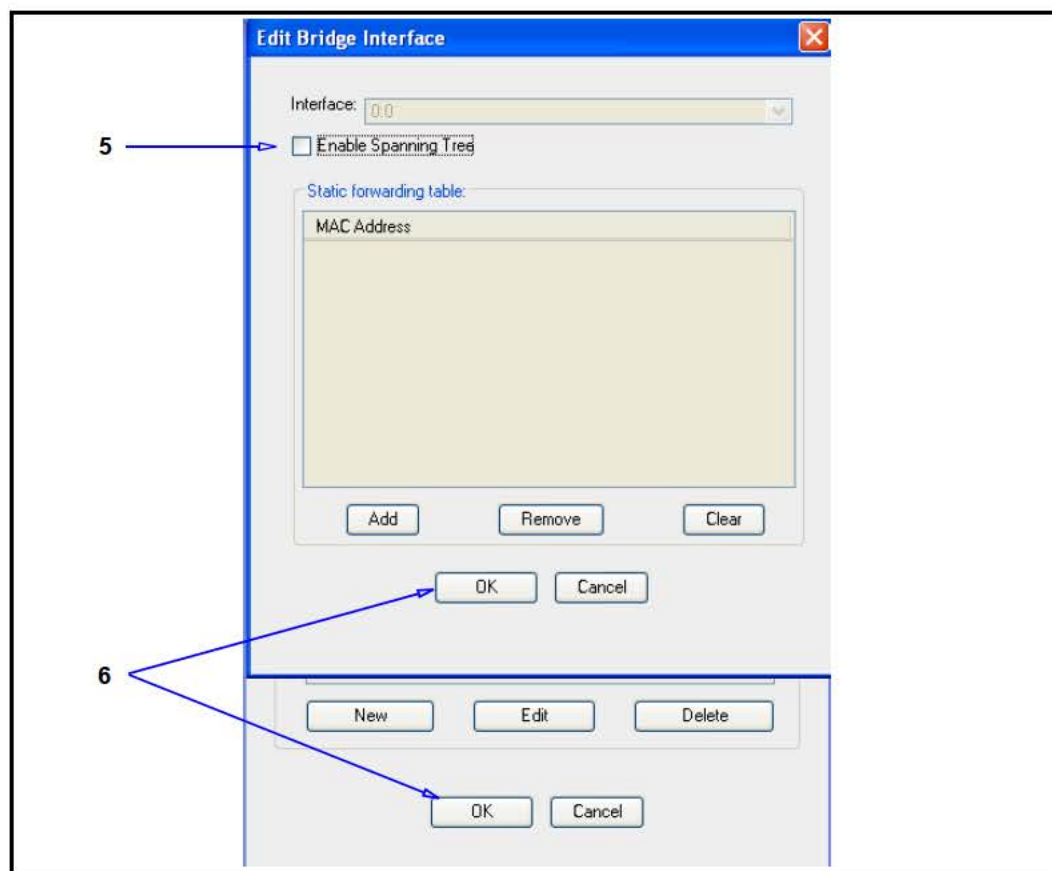
The administrator can enable or disable spanning tree participation for the interface.

Enable spanning tree participation:

1. Select **Configuration > Network > Adapters > Bridges**.
2. Select the desired bridge.
3. Click **Edit**.



4. In the Edit Bridge window, highlight the interface to configure and click **Edit**. The Edit Bridge Interface dialog displays.



5. Click **Enable Spanning Tree**.
6. Click **OK** to close the Edit Bridge Interface and Edit Bridge dialogs.
7. Click **Apply**.

Related CLI Syntax to Enable Spanning Tree Participation:

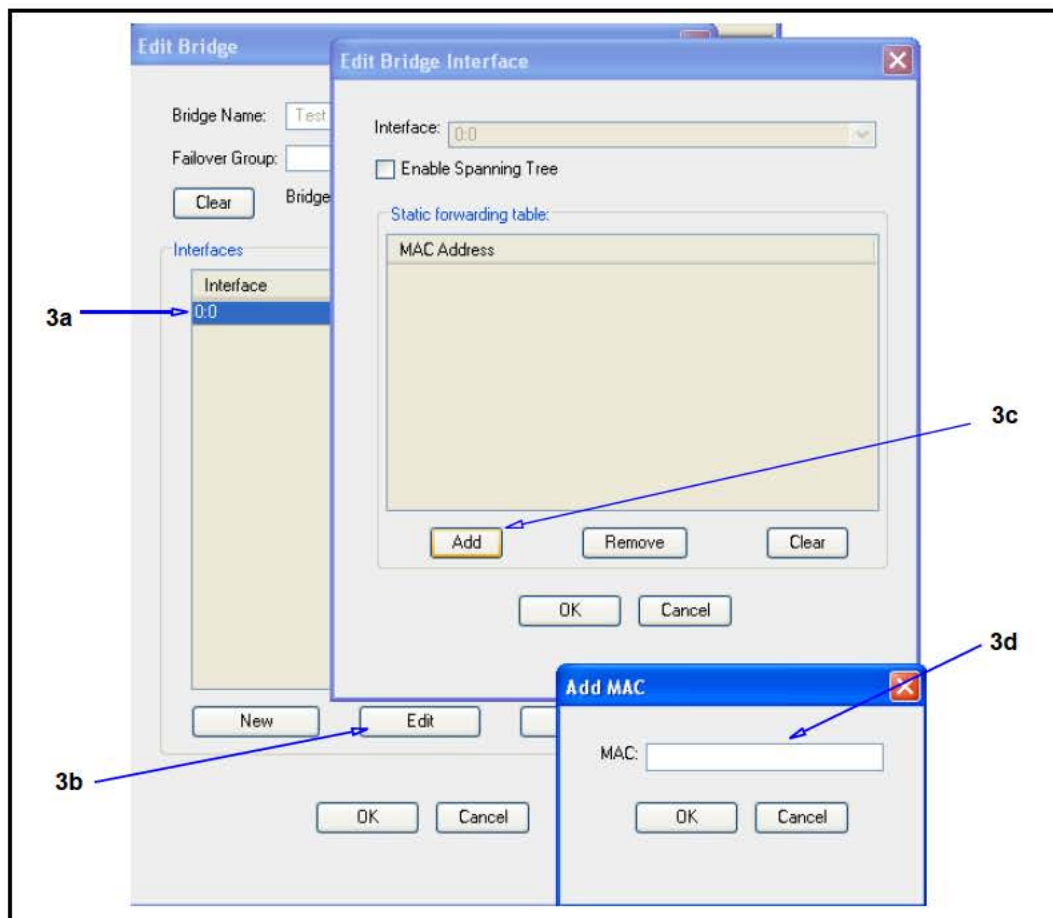
```
SGOS#(config bridge bridge_name) spanning-tree adapter#:interface#
{enable | disable}
```

Adding Static Forwarding Table Entries

Certain firewall configurations require the use of static forwarding table entries. Failover configurations use virtual IP (VIP) addresses and virtual MAC (VMAC) addresses. When a client sends an ARP request to the firewall VIP, the firewall replies with a VMAC (which can be an Ethernet multicast address); however, when the firewall sends a packet, it uses a physical MAC address, not the VMAC. The solution is to create a static forwarding table entry that defines the next hop gateway that is on the correct side of the bridge.

To create a static forwarding table:

1. Select **Configuration > Network > Adapters > Bridges**.
2. Select the bridge to edit and click **Edit**. The Edit Bridge Interface dialog displays.



3. Add the static forwarding table entry.
 - a. In the Edit Bridge dialog, select the interface on which to create the static forwarding table entry.
 - b. Click **Edit**.
 - c. In the Edit Bridge Interfaces dialog, click **Add**.
 - d. In the Add MAC dialog, add the MAC address of the next hop gateway and click **OK**.
4. Click **OK** to close the Edit Bridge Interface and Edit Bridge dialogs.
5. Click **Apply**.

Related CLI Syntax to Create a Static Forwarding Table Entry

```
SGOS#(config bridge bridge_name) static-fwtable-entry
adapter#:interface# mac-address
```

Bypass List Behavior

The dynamic bypass list is handled differently, depending on the OS version. In SGOS 4.x, packets matching the dynamic bypass list are forwarded in the IP layer. In SGOS 5.x, the packets are forwarded in the bridge layer, which is more appropriate and efficient. For more information on using bypass lists in SGOS 5.x, refer to *Volume 2: Proxies and Proxy Services*.

The behavior of the static bypass list stays the same. The packets are forwarded in IP layer.

Chapter 7: Distributing Traffic Through Gateways

This chapter describes how to distribute traffic originating at the ProxySG through multiple gateways. You can also fine tune how the traffic is distributed to different gateways. This feature works with any routing protocol (such as static routes or RIP).

Note: Load balancing through multiple gateways is independent from the per-interface load balancing the ProxySG automatically does when more than one network interface is installed.

Topics in this Chapter

This chapter includes information about the following topics:

- ❑ ["About Gateways"](#) on page 91
- ❑ ["ProxySG Specifics"](#) on page 91
- ❑ ["Switching to a Secondary Gateway"](#) on page 92
- ❑ ["Routing"](#) on page 93

About Gateways

During the initial setup of the ProxySG, you optionally defined a *gateway* (a device that serves as entrance and exit into a communications network) for the ProxySG.

By using multiple gateways, an administrator can assign a number of available gateways into a preference group and configure the load distribution to the gateways within the group. Multiple preference groups are supported.

The gateway specified applies to all network adapters in the system.

ProxySG Specifics

Which gateway the ProxySG uses at a given time is determined by how the administrator configures the assignment of preference groups to default gateways. You can define multiple gateways within the same preference group. A ProxySG can have from 1 to 10 preference groups. If you have only one gateway, it automatically has a weight of 100.

Initially, all gateways in the lowest preference group are considered to be the active gateways. If a gateway becomes unreachable, it is dropped from the active gateway list, but the remaining gateways within the group continue to be used until they all become unreachable, or until an unreachable gateway in a lower preference group becomes reachable again. If all gateways in the lowest preference group become unreachable, the gateways in the next lowest preference group become the active gateways.

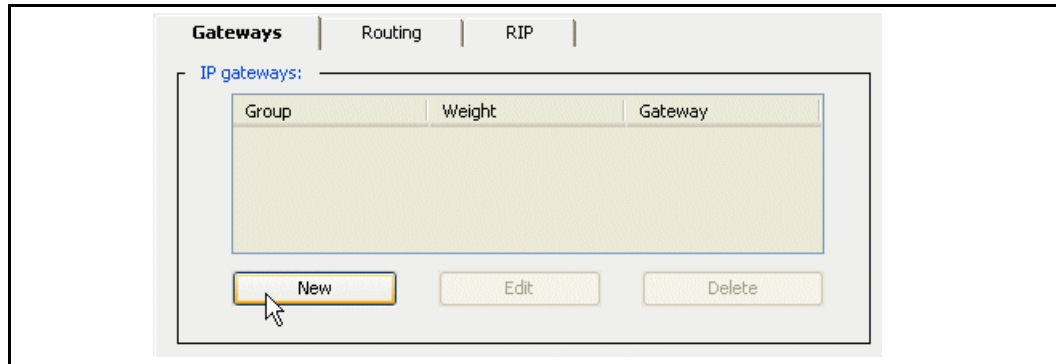
In addition to a preference group, each gateway within a group can be assigned a relative weight value from 1 to 100. The weight value determines how much bandwidth a gateway is given relative to the other gateways in the same group. For example, in a group with two gateways, assigning both gateways the same weight value, whether 1 or 100, results in the same traffic distribution pattern. In a group with two gateways, assigning one gateway a value of 10 and the other gateway a value of 20 results in the ProxySG sending approximately twice the traffic to the gateway with a weight value of 20.

Switching to a Secondary Gateway

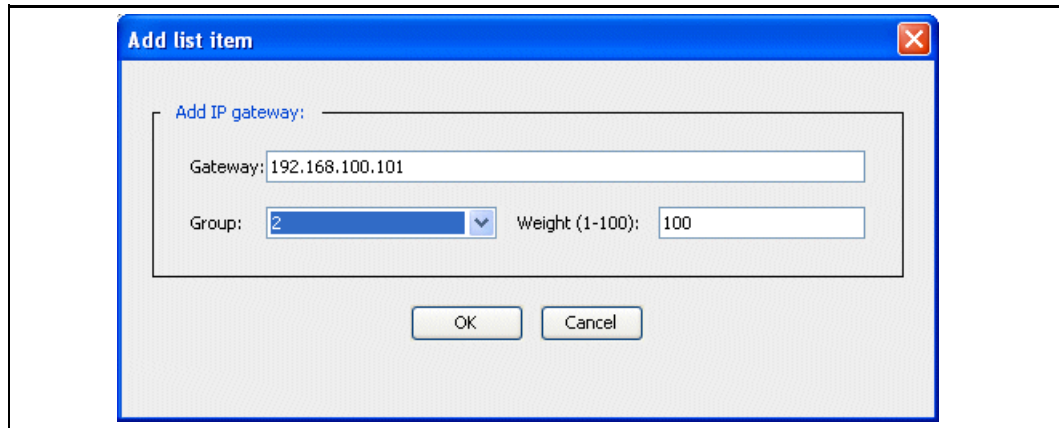
When a gateway goes down, the networking code detects the unreachable gateway in 20 seconds, and the switch over takes place immediately if a secondary gateway is configured. All configured gateways are affected, not just default gateways, as was the case in earlier releases.

To configure multiple gateway load balancing:

1. Select **Configuration > Network > Routing > Gateways**.



2. Click **New**. The Add List Item dialog displays.



3. Configure the gateway options:
 - a. In the **Gateway** field, enter the gateway IP address,
 - b. From the **Group** drop-down list, select the preference group for this gateway.
 - c. In the **Weight** field, enter the relative weight within the preference group.
 - d. Click **OK** to close the dialog.
4. Repeat steps 2 to 4 until IP addresses, groups, and weights have been defined for all of your gateways.
5. Click **Apply**.

Related CLI Syntax to Configure Multiple Gateway Load Balancing

```
SGOS#(config) ip-default-gateway ip_address preference_group weight
```

Routing

By default, routing occurs transparently if the ProxySG can verify (trust) the destination IP addresses provided by the client. If the destination IP addresses cannot be trusted, the ProxySG uses static routes.

Note: If your environment uses explicit proxy or Layer-4 redirection, or if the destination IP addresses cannot be verified by the ProxySG, static routes must be configured.

Hardware or software bridges can be transparently routed if the destination IP address/hostname can be verified. If the client-provided destination IP address is not in the list of resolved IP addresses for the particular host, then the ProxySG uses static routes instead. For hostname-less protocols such as CIFS and FTP, the IP address can always be trusted. For other protocols, such as HTTP, RTSP, and MMS, which have a hostname that must be resolved, verification can be an issue. URL rewrites that modify the hostname also can cause verification to fail.

Transparent ADN connections that are handed off to an application proxy (HTTP or MAPI, for example) can utilize L2/L3 transparency. Also, transparent ADN connections that are tunneled but not handed off can utilize the functionality.

Note: IM is not supported with trust client addressing. In order to login and chat, the default router must have Internet access. Other IM features require direct connections, so static routes are required.

This feature is not user-configurable.

Using Static Routes

If you use an explicit proxy or layer-4 redirection deployment, or a Blue Coat feature such as forwarding where the destination IP cannot be verified by the ProxySG, you can use static routes.

A static route is a manually-configured route that specifies the transmission path a packet must follow, based on the packet's destination address. A static route specifies a transmission path to another network, and a default static route already exists.

Situations in which static routes are used include:

- ❑ DNS load balancing. Sites that use DNS load balancing and return a single IP address cause a mismatch between the IP address provided by the client and the IP address resolved by the ProxySG.
- ❑ Anywhere that appropriate client-side routing information is unavailable, such as for forwarding hosts, dynamic categorization, and ADN peers.

Note: For bridged deployments, transparent routing, in most cases, overrides any static route lookups.

The routing table is a text file containing a list of IP addresses, subnet masks, and gateways. You are limited to 10,000 entries in the static routes table. The following is a sample router table:

10.25.36.0	255.255.255.0	10.25.36.1
10.25.37.0	255.255.255.0	10.25.37.1
10.25.38.0	255.255.255.0	10.25.38.1

When a routing table is installed, all requested URLs are compared to the list and routed based on the best match.

You can install the routing table several ways.

- ❑ Using the Text Editor, which allows you to enter settings (or copy and paste the contents of an already-created file) directly onto the appliance.
- ❑ Creating a local file on your local system; the ProxySG can browse to the file and install it.
- ❑ Using a remote URL, where you place an already-created file on an FTP or HTTP server to be downloaded to the ProxySG.

- ❑ Using the CLI `inline static-route-table` command, which allows you to paste a static route table into the ProxySG.
- ❑ Using the CLI `static-routes` command, which requires that you place an already-created file on an FTP or HTTP server and enter the URL into the ProxySG.

Note: If you upgrade to SGOS 5.x from SGOS 4.x, entries from the central and local bypass lists are converted to static route entries in the static route table. The converted static route entries are appended after the existing static route entries. Duplicate static route entries are silently ignored.

All traffic leaving the ProxySG is affected by the static route entries created from the SGOS 4.x bypass lists.

Installing a Routing Table

To install a routing table:

1. Select **Configuration > Network > Routing > Routing**.
2. From the drop-down list, select the method used to install the routing table; click **Install**.
 - Remote URL:
Enter the fully-qualified URL, including the filename, where the routing table is located. To view the file before installing it, click **View**. Click **Install**. To view the installation results, click **Results**; close the window when you are finished. Click **OK**.
 - Local File:
Click **Browse** to bring up the Local File Browse window. Browse for the file on the local system. Open it and click **Install**. When the installation is complete, a results window opens. View the results and close the window.
 - Text Editor:
The current configuration is displayed in installable list format. You can customize it or delete it and create your own. Click **Install**. When the installation is complete, a results window opens. View the results, close this window, and click **Close**.
3. Click **Apply**.

Related CLI Syntax to Install a Routing Table

To install a routing table, you can use the `inline` command to install the table directly, or enter a path to a remote URL that has an already-created text file ready to download.

- ❑ To paste a static route table directly into the CLI:


```
SGOS#(config) inline static-route-table end-of-file_marker
paste static routing table
eof
ok
```

- ❑ To enter the static route table manually:

```
SGOS#(config) inline static-route-table end-of-file_marker
10.25.36.0    255.255.255.0    10.25.46.57
10.25.37.0    255.255.255.0    10.25.46.58
10.25.38.0    255.255.255.0    10.25.46.59
eof
ok
```

- ❑ To enter a path to a remote URL:

```
SGOS#(config) static-routes path url
SGOS#(config) load static-route-table
```

Notes

- ❑ Any deployment that causes traffic to traverse the link from the ProxySG to the home router twice is not supported. Some WCCP configurations might not work as expected.
- ❑ If you use URL host rewrite functionality in your policies, mismatches can occur between the client-provided IP address and the resolved, rewritten hostname. In these cases, static routing is used.

Chapter 8: Configuring DNS

This chapter describes various configuration tasks associated with Domain Name Services (DNS). During first-time installation of the ProxySG, you configured the IP address of a single primary DNS server. You can add one or more alternate DNS servers, as well as define custom DNS server groups.

Topics in this Chapter

This chapter includes information about the following topics:

- ❑ ["About DNS" on page 97](#)
- ❑ ["About Configuring DNS Server Groups" on page 99](#)
- ❑ ["Adding DNS Servers to the Primary Group" on page 100](#)
- ❑ ["Adding DNS Servers to the Alternate Group" on page 101](#)
- ❑ ["Creating a Custom DNS Group" on page 102](#)
- ❑ ["Deleting Domains" on page 103](#)
- ❑ ["Deleting DNS Groups and Servers" on page 103](#)
- ❑ ["Resolving Hostnames Using Name Imputing Suffixes" on page 105](#)
- ❑ ["Caching Negative Responses" on page 106](#)

About DNS

A hierarchical set of DNS servers comprises a Domain Name System. For each domain or subdomain, one or more authoritative DNS servers publish information about that domain and the name servers of any domains that are under it.

Note: The DNS servers are configured in groups. For more information, see ["About Configuring DNS Server Groups" on page 99](#).

There are two types of queries, which are:

- ❑ Non-recursive, which means that a DNS server can provide a partial answer or return an error to the client
- ❑ Recursive, which means that the DNS server either fully answers the query or returns an error to the client

ProxySG Using Non-Recursive DNS

If you have defined more than one DNS server, the ProxySG uses the following logic to determine which servers are used to resolve a DNS host name and when to return an error to the client.

Note: Servers are always contacted in the order in which they appear in a group list.

- ❑ The ProxySG first checks all the DNS groups for a domain match, using domain-suffix matching to match a request to a group.
 - If there is a match, the servers in the matched group are queried until a response is received; no other DNS groups are queried.
 - If there is *no* match, the ProxySG selects the Primary DNS group.
- ❑ The ProxySG sends requests to DNS servers in the Primary DNS server group in the order in which they appear in the list. If a response is received from one of the servers in the Primary group, no attempts are made to contact any other Primary DNS servers.
- ❑ If none of the servers in the Primary group resolve the host name, the ProxySG sends requests to the servers in the Alternate DNS server group. (If no Alternate servers have been defined, an error is returned to the client.)
 - If a response is received from a server in the Alternate group list, there are no further queries to the Alternate group.
 - If a server in the Alternate DNS server group is unable to resolve the host name, an error is returned to the client, and no attempt is made to contact any other DNS servers.

Note: The Alternate DNS server is not used as a failover DNS server. It is only used when DNS resolution of the Primary DNS server returns a name error. If the query to each server in the Primary list times out, no alternate DNS server is contacted.

- If the ProxySG receives a referral (authoritative server information), DNS recursion takes over if it is enabled. See the next section, "[ProxySG Using Recursive DNS](#)" and "[Enabling Recursive DNS](#)" on page 99.

Note: If the ProxySG receives a negative DNS response (a response with an error code set to `name error`), it caches that negative response. See "[Caching Negative Responses](#)" on page 106.

ProxySG Using Recursive DNS

If you have enabled recursive DNS, the ProxySG uses the following logic to determine how to resolve a DNS host name and when to return an error to the client.

- ❑ If the DNS server response does not contain an A record with an IP address but instead contains authoritative server information (a referral), the ProxySG follows all referrals until it receives an answer. If the ProxySG follows more than eight referrals, it assumes there is a recursion loop, aborts the request, and sends an error to the client.

Enabling Recursive DNS

If you have a DNS server that cannot resolve all host names, it might return a list of authoritative DNS servers instead of a DNS A record that contains an IP address. To avoid this situation, configure the ProxySG to recursively query authoritative DNS servers.

To enable recursive DNS:

1. Select **Configuration > Network > DNS > Groups**.
2. Select **Enable DNS Recursion**.
3. Click **Apply**.

Related CLI Syntax to Enable Recursive DNS

```
SGOS# (config) dns recursion enable
```

Related CLI Syntax to Disable Recursive DNS

```
SGOS# (config) dns recursion disable
```

About Configuring DNS Server Groups

Customers with split DNS server configuration (for example, environments that maintain private internal DNS servers and external DNS servers) might choose to add servers to an Alternate DNS server group as well as to the Primary DNS server group. In addition, you can create custom DNS server groups.

In the ProxySG, internal DNS servers are placed in the Primary group, while external DNS servers (with the Internet information) populate the Alternate group.

The following rules apply to DNS server groups:

- ❑ You can add servers to the Primary and Alternate groups, but you cannot change the domain or add additional domains; these groups are defined at initial configuration.
- ❑ The Primary and Alternate DNS groups cannot be deleted.
- ❑ A custom DNS group must have at least one server in order to add domains.

About DNS Health Checks

Each time you add a DNS server to a group, the ProxySG automatically creates a DNS health check for that server IP address and uses a default configuration for the health check. For example, if you add a DNS server to a primary or alternate DNS group, the created health check has a default hostname of bluecoat.com. If you add a DNS server to a custom group, the longest domain name is used as the default hostname for the health check.

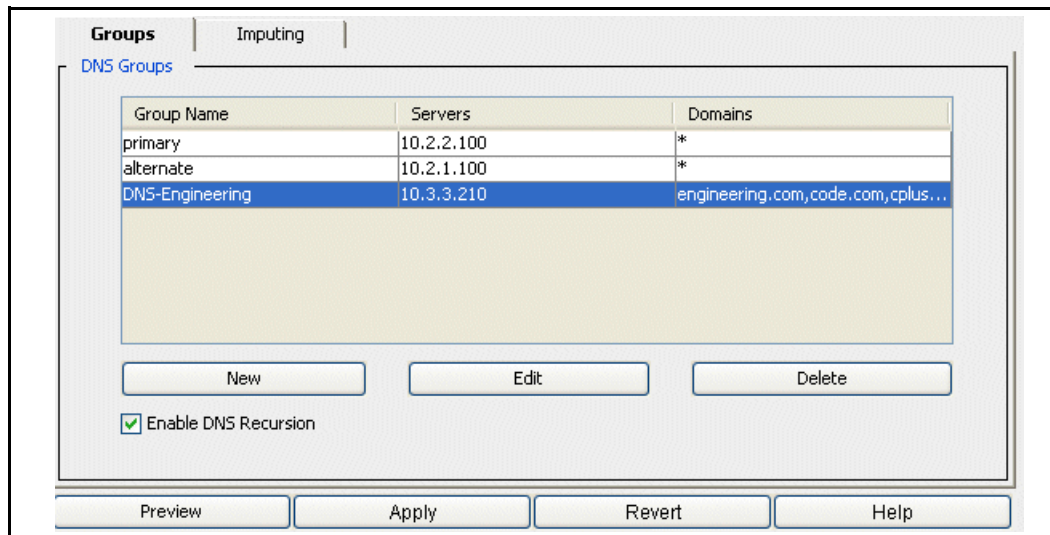
After you add DNS servers to a group, we recommend that you check the DNS server health check configurations and edit them as required. For complete details about configuring DNS server health checks, see *Volume 5, Advanced Networking*, Chapter 14, Section E: “DNS Server Health Checks.”

Adding DNS Servers to the Primary Group

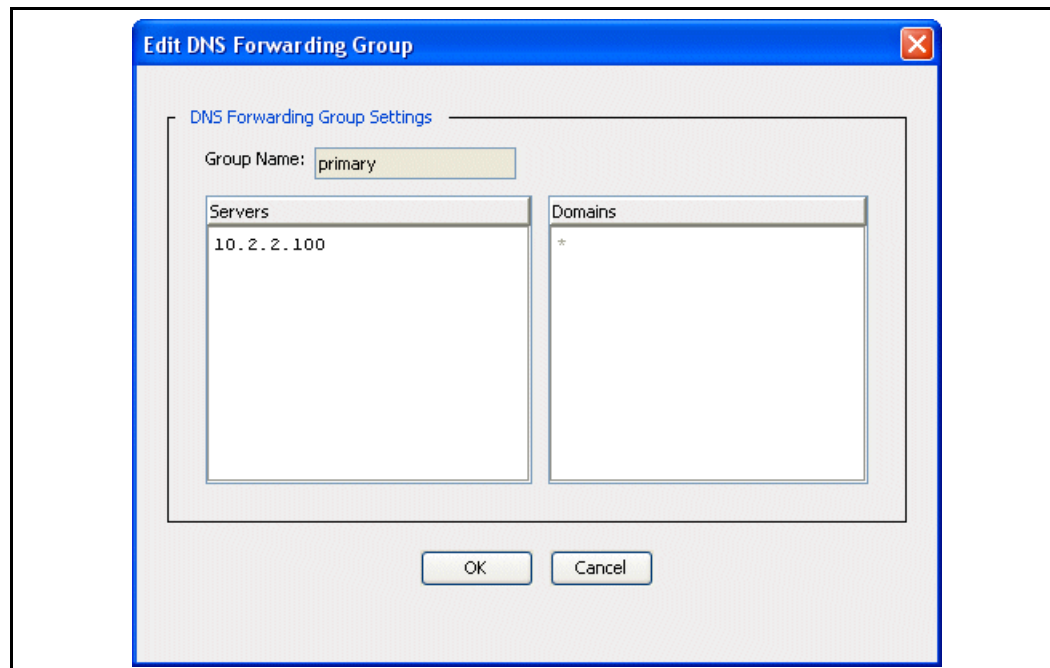
When you installed the ProxySG, you configured a Primary DNS server. You can add DNS servers to the Primary server group or delete DNS servers from the Primary group, but you cannot delete the group.

To add DNS servers to the Primary group:

1. Select **Configuration > Network > DNS > Groups**.



2. Click **Edit**. The Edit DNS Forwarding Group dialog displays.



3. Enter the IP address of each additional Primary DNS server and click **OK**.
4. Click **Apply**.

Related CLI Syntax to Add a Primary DNS Server

To add a primary DNS server:

```
SGOS# (config) dns-forwarding
(config dns forwarding) edit primary
(config dns forwarding primary)add server server_ip
```

See Also

- ❑ ["About DNS"](#)
- ❑ ["Adding DNS Servers to the Alternate Group"](#)
- ❑ ["Creating a Custom DNS Group"](#)
- ❑ ["About Configuring DNS Server Groups"](#)
- ❑ ["Promoting DNS Servers in a List"](#)

Adding DNS Servers to the Alternate Group

To add DNS servers to the Alternate group:

1. Select **Configuration > Network > DNS > Groups**. The list of DNS groups displays.
2. Select the **Alternate** group and click **Edit**. The **Edit DNS Forwarding Group** dialog displays.
3. Enter the IP address of each additional Alternate DNS server and click **OK**.

Note: You can add IP addresses to the Alternate DNS group, but you cannot change the domain or add additional domains. This group is defined at initial configuration.

4. Click **Apply**.

Related CLI Syntax to Adding an Alternate DNS Server

To add an alternate DNS server:

```
SGOS# (config) dns-forwarding
(config dns forwarding) edit alternate
(config dns forwarding alternate)add server server_ip
```

See Also

- ❑ ["About DNS"](#)
- ❑ ["About Configuring DNS Server Groups"](#)
- ❑ ["Adding DNS Servers to the Primary Group"](#)
- ❑ ["Creating a Custom DNS Group"](#)
- ❑ ["Promoting DNS Servers in a List"](#)

Creating a Custom DNS Group

Custom groups enable you to specify servers and domains for specific company needs (such as resolving internal or external hostnames) depending on how you have set up your primary and alternate DNS groups.

Valid DNS entry formats are:

```
example.com  
www.example.com
```

Notes:

- ❑ You can create a maximum of 10 custom groups, and each custom group can contain a maximum of four DNS servers and eight domains.

- ❑ Groups do not accept wild cards, such as:

```
*.example.com
```

- ❑ Groups do *not* partially match domain names, such as:

```
*.example.com  
.example.com
```

Further more:

```
exam.com
```

does not match queries for `www.example.com`.

- ❑ DNS record requirements have been relaxed, as discussed in RFC 2181. Review sections 10 and 11 for more information.

To create a custom group:

1. Select **Configuration > Network > DNS > Groups**. The list of DNS groups displays.
2. Click **New**. The Create DNS Forwarding Group dialog displays.
3. Enter a name for the DNS group.
4. Enter the servers and the domains for the group, and click **OK**. The custom group displays in the DNS Groups list.
5. Click **Save**.

Related CLI Syntax to Create a Custom DNS Group

To create a custom DNS group:

```
SGOS# (config) dns-forwarding  
(config dns forwarding) create group_alias server_ip
```

See Also

- ❑ ["About DNS"](#)
- ❑ ["About Configuring DNS Server Groups"](#)
- ❑ ["Adding DNS Servers to the Primary Group"](#)
- ❑ ["Adding DNS Servers to the Alternate Group"](#)

- ❑ ["Promoting DNS Servers in a List"](#)

Deleting Domains

If a domain becomes defunct, you can easily delete it from a DNS group. In addition, you need to delete all domains associated with the last server in any DNS group before you can delete the server.

To delete domains:

1. Select **Configuration > Network > DNS > Groups**. The list of DNS groups displays.
2. Select the DNS group in the list and click **Edit**. The Edit DNS Forwarding Group dialog displays.
3. Delete domains, and click **OK**.
4. Click **Apply**.

Related CLI Syntax to Delete a Domain

To delete a domain:

```
SGOS# (config) dns-forwarding
(config dns forwarding) edit group_alias
(config dns forwarding group_alias) remove domain domain
```

See Also

["Deleting DNS Groups and Servers"](#)

Deleting DNS Groups and Servers

The following list describes the specific rules that apply when deleting DNS groups and servers.

- ❑ You cannot delete the Primary or Alternate DNS group; you can only delete a custom DNS group.
- ❑ You cannot delete the last server in any DNS group while there are still domains that reference that group; doing so returns an error message.

To delete a DNS server:

1. Select **Configuration > Network > DNS > Groups**.
2. Select the DNS group from which to delete a server, and click **Edit**. The **Edit DNS Forwarding Group** dialog displays.
3. Delete the server, then click **OK**.
4. Click **Apply**.

To delete a custom DNS group:

1. Select **Configuration > Network > DNS > Groups**.
2. Select the custom DNS group to delete, and click **Delete**. A dialog box displays asking you to confirm your choice.
3. Click **OK** to delete the group.

Related CLI Syntax to Delete a DNS Server

To delete a DNS server:

```
SGOS# (config) dns-forwarding
(config dns forwarding) edit group_alias
(config dns forwarding group_alias) remove server server_ip
```

Related CLI Syntax to Delete A Custom DNS Group

To delete a custom DNS group:

```
SGOS# (config) dns-forwarding
(config dns forwarding) delete group_alias
```

See Also

- ❑ ["Deleting Domains"](#)
- ❑ ["Promoting DNS Servers in a List"](#)

Promoting DNS Servers in a List

Using the CLI, you can promote DNS servers in the list for any DNS forwarding group.

To promote DNS servers in a list:

```
#(config dns forwarding) edit group_alias
```

This changes the prompt to:

```
#(config dns forwarding group)
#(config dns forwarding group) promote server_ip #This promotes the
specified server IP address in the DNS server list the number of places
indicated. You must use a positive number. If the number is greater than the
number of servers in the list, the server is promoted to the first entry in the list.
```

See Also

- ❑ ["Adding DNS Servers to the Primary Group"](#)
- ❑ ["Adding DNS Servers to the Alternate Group"](#)
- ❑ ["Creating a Custom DNS Group"](#)
- ❑ ["Deleting DNS Groups and Servers"](#)

Resolving Hostnames Using Name Imputing Suffixes

The ProxySG queries the original hostname before checking imputing suffixes *unless* there is no period in the hostname. If there is no period in the hostname, imputing is applied first.

The ProxySG uses name imputing to resolve hostnames based on a partial name specification (DNS name imputing suffix). When the ProxySG submits a hostname to the DNS server, the DNS server resolves the hostname to an IP address.

The ProxySG then tries each entry in the name-imputing suffixes list until the name is resolved or it reaches the end of the list. If by the end of the list the name is not resolved, the ProxySG returns a DNS failure.

For example, if the name-imputing list contains the entries `example.com` and `com`, and a user submits the URL `http://www.eedept`, the ProxySG resolves the host names in the following order.

```
www.eedept
www.eedept.example.com
www.eedept.com
```

Adding and Editing DNS Name Imputing Suffixes

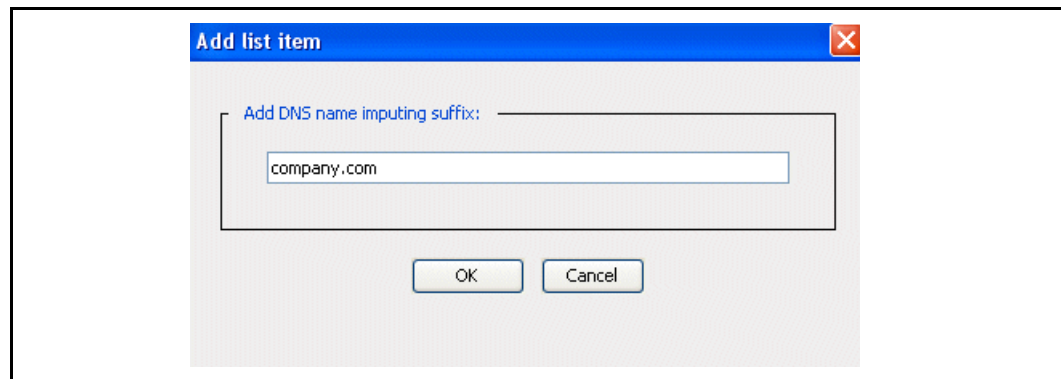
Using name imputing suffixes is particularly useful for a company's internal domains. For example, it can enable you to simply enter `webServer` rather than the more elaborate `webServer.inOurInternalDomain.ForOurCompany.com`. Also, this resolves any problem with external root servers being unable to resolve names that are internal only.

To add names to the imputing list:

1. Select **Configuration > Network > DNS > Imputing**.

The Imputing tab displays.

2. Click **New**. The Add List Item dialog displays.



3. Enter the DNS name imputing suffix and click **OK**.

The name displays in the DNS name imputing suffixes list.

4. Click **Apply**.

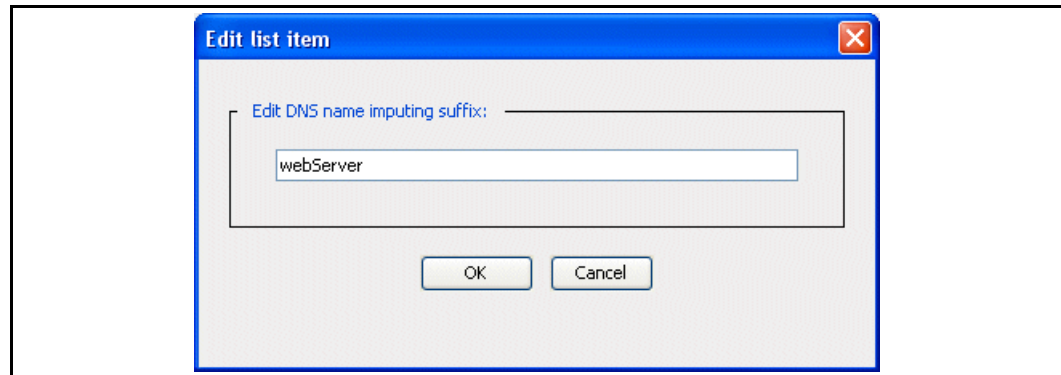
Related CLI Syntax to Add Names to the Imputing List

To add names to the imputing list:

```
SGOS#(config) dns imputing name
```

To edit DNS name imputing suffixes:

1. Select **Configuration > Network > DNS > Imputing**.
2. Select a name in the list and click **Edit**. The Edit List Item dialog displays.



3. Edit the name imputing suffix as required and click **OK**.
4. Click **Apply**.

Changing the Order of DNS Name Imputing Suffixes

The ProxySG uses imputing suffixes according to the list order. You can organize the list of suffixes so the preferred suffix displays at the top of the list.

Note: This functionality is only available through the Management Console. You cannot configure it using the CLI.

To change the order of DNS name imputing suffixes:

1. Select **Configuration > Network > DNS > Imputing**.
2. Select the imputing suffix to promote or demote.
3. Click **Promote entry** or **Demote entry**, as appropriate.
4. Click **Apply**.

Caching Negative Responses

By default, the ProxySG caches negative DNS responses sent by a DNS server. You can configure the ProxySG to set the time-to-live (TTL) value for a negative DNS response to be cached. You can also disable negative DNS response caching.

Note: The ProxySG generates more DNS requests when negative caching is disabled.

The ProxySG supports caching of both type A and type PTR DNS negative responses.

This functionality is only available through the CLI. You cannot configure DNS negative caching through the Management Console.

To configure negative caching TTL values:

From the `(config)` prompt:

```
SGOS#(config) dns negative-cache-ttl-override seconds
```

where *seconds* is any integer between 0 and 600.

Setting the TTL value to 0 seconds disables negative DNS caching; setting the TTL setting to a non-zero value overrides the TTL value from the DNS response.

To restore negative caching defaults:

From the `(config)` prompt):

```
SGOS#(config) dns no negative-cache-ttl-override
```


Chapter 9: Backing Up the Configuration

This chapter describes how to back up your configuration and save it on a remote system so that you can restore it in the unlikely event of system failure or replacement. ProxySG configuration backups are called *archives*.

The archive, taken from the running configuration, contains all system settings differing from system defaults, along with any installable lists configured on the ProxySG.

You should regularly archive the ProxySG configuration so that you can restore it to its previous state in case of error. Also, certain conditions require a complete restoration of the system configuration, for example, if you are upgrading all the disk drives in a system. You should also archive the system configuration before performing any software or hardware upgrade or downgrade.

Existing configuration archives (modified to include only general parameters, not system-specific settings) can also be used to propagate configuration settings to newly-manufactured ProxySG appliances. This process is called *configuration sharing*.

Before Reading Further

Before reading this chapter, you should be familiar with the concepts in the following user guides:

- ❑ The device authentication information in *Volume 5: Advanced Networking*.
- ❑ The X.509 and SSL information in *Volume 4: Securing the Blue Coat ProxySG Appliance*.

Topics in this Chapter

The following topics are covered in this chapter:

- ❑ [Section A: "Archiving Tasks Quick Reference" on page 110](#)
- ❑ [Section B: "Overview of the Archiving and Restoration Process" on page 113](#)
- ❑ [Section C: "About What is Not Archived" on page 115](#)
- ❑ [Section D: "Planning for Archive Creation and Restoration" on page 116](#)
- ❑ [Section E: "Creating Configuration Archives" on page 125](#)
- ❑ [Section F: "Restoring a Configuration Archive" on page 131](#)
- ❑ [Section G: "Sharing Configurations" on page 137](#)
- ❑ [Section H: "Troubleshooting" on page 139](#)

Section A: Archiving Tasks Quick Reference

Section A: Archiving Tasks Quick Reference

The following table lists common host agent management tasks and the location of the Operations Manager user-interface page that enables you to complete them.

Table 9–1 Archiving Task Table

If You Want to...	Go To...
Understand archiving terminology	"Terminology" on page 110
Understand the archive and restoration process	"Overview of the Archiving and Restoration Process" on page 113
Find out what is not archived	"About What is Not Archived" on page 115
Learn about the archive types	"Selecting a Configuration Archive Type" on page 116
Understand signed archives	"Using Signed and Unsigned Archives" on page 117
Learn how to save encrypted passwords	"Saving Encrypted Passwords" on page 118
Create an unsigned archive	"Creating and Saving an Unsigned Configuration Archive" on page 125
Create a signed archive	"Creating and Saving a Signed Configuration Archive to Local Disk" on page 126
Upload an archive to a remote server	"Creating and Uploading an Archive to a Remote Server" on page 127
Understand file name identifiers	"Adding Identifier Information to Archive Filenames" on page 130
Restore an archive	"Restoring an Archive" on page 131
Share Configurations	"Sharing Configurations" on page 137
Troubleshoot archive configuration	"Troubleshooting" on page 139

Terminology

Familiarize yourself with the following terms.

Source Device

The ProxySG used to generate the configuration archive.

Target Device

The ProxySG you are installing the configuration archive onto.

Section A: Archiving Tasks Quick Reference

Signed Archive

A configuration backup that is cryptographically signed with a key known only to the signing entity—the digital signature guarantees the integrity of the content and the identity of the originating device. You can then use a trusted CA Certificate List (CCL) to verify the authenticity of the archive.

Unsigned Archive

A configuration backup that is created without a digital signature. There is no way to programmatically verify the integrity of an unsigned archive.

configuration-passwords-key

An SSL keyring that contains a keypair but not a certificate. This keyring is used to encrypt passwords in the `show configuration` command. You must record the `configuration-passwords-key` data to restore a configuration archive onto a device other than the source device.

Key Pair

In SSL, the combination of private and public keys that are used to encrypt and decrypt data. Public keys are provided to other hosts so that data can be encrypted; private keys are used to decrypt data. The public key is “trusted” when it is guaranteed to belong to an entity by a trusted certificate authority (CA).

Keyring

A repository for encryption key pairs and optionally, certificates and certificate signing requests (CSRs).

Appliance Certificate

An X.509 certificate that contains the hardware serial number of a specific ProxySG device as the CommonName (CN) in the subject field. This certificate then can be used to authenticate the ProxySG whose hardware serial number is listed in the certificate. Information from the presented certificate is extracted and used as the device ID. The appliance certificate can be used to sign archives; the signature guarantees the authenticity of the archive.

Certificate Authority (CA)

A CA is a trusted, third-party organization or company that issues digital certificates used to create digital signatures and public key/private key pairs. The role of the CA is to guarantee that the individuals or company representatives who are granted a unique certificate are who they claim to be. When using signed archives, you must have a CA guarantee the archive signature (or you can use a self-signed certificate).

CA Certificate List (CCL)

A CCL contains a subset of the CA Certificates available on the ProxySG and allows the administrator to control the set of CA certificates trusted for a particular set of SSL connections. A CCL is required to validate signed archives.

Section A: Archiving Tasks Quick Reference

You must ensure that the CCL used to verify the authenticity of signed archives includes the CA that signed the signing certificate (or includes the signing certificate itself, if the certificate is self-signed).

Section B: Overview of the Archiving and Restoration Process

Section B: Overview of the Archiving and Restoration Process

Unless you restore the `SSL configuration-passwords-key` keyring from the source device, archives can only be restored onto the same device that was the source of the archive. This is because the encrypted passwords in the configuration (login, enable, FTP, etc.) cannot be decrypted by a device other than that on which it was encrypted. For more information, see ["Saving Encrypted Passwords"](#) on page 118. The following procedure describes the high-level steps required to create and restore a configuration archive.

1. Record the `configuration-passwords-key` data on the source ProxySG, as described in ["Option 1: Recording SSL Keyring and Key Pair Information"](#) on page 118. If you need to restore the archive onto a different appliance, you must have this data.

Do not lose the password used to encrypt the private key. If you do, you will not be able to recover your private keys.

2. Record any other SSL keyring data you want to save.
3. If you are creating an unsigned archive, go to Step 5. Otherwise, go to Step 4.
4. Verify that the source ProxySG has an appliance certificate, as described in ["Determining if the ProxySG Has an Appliance Certificate"](#) on page 117. If it does not have an appliance certificate:

- a. Create a keyring on the appliance.

A keyring contains a public/private key pair. It can also contain a certificate signing request or a signed certificate.

- b. Create a Certificate Signing Requests (CSR) and send it to a Certificate Signing Authority (CA).
- c. Have the CA sign the CSR.

To get more information about appliance certificates, refer to the X.509 certificate information in *Volume 4: Securing the Blue Coat ProxySG Appliance*.

5. Archive the configuration, as described in ["Creating Configuration Archives"](#) on page 125.
6. Store the archive in a secure location.
7. When you are ready to restore the archive, import the `configuration-passwords-key` onto the target device, as described in ["Importing an Existing Key Pair and Certificate"](#) on page 134.
8. Restore the archive, as described in ["Restoring a Configuration Archive"](#) on page 131.

[Figure 9-1](#) on page 114 describes the archive creation process.

Section B: Overview of the Archiving and Restoration Process

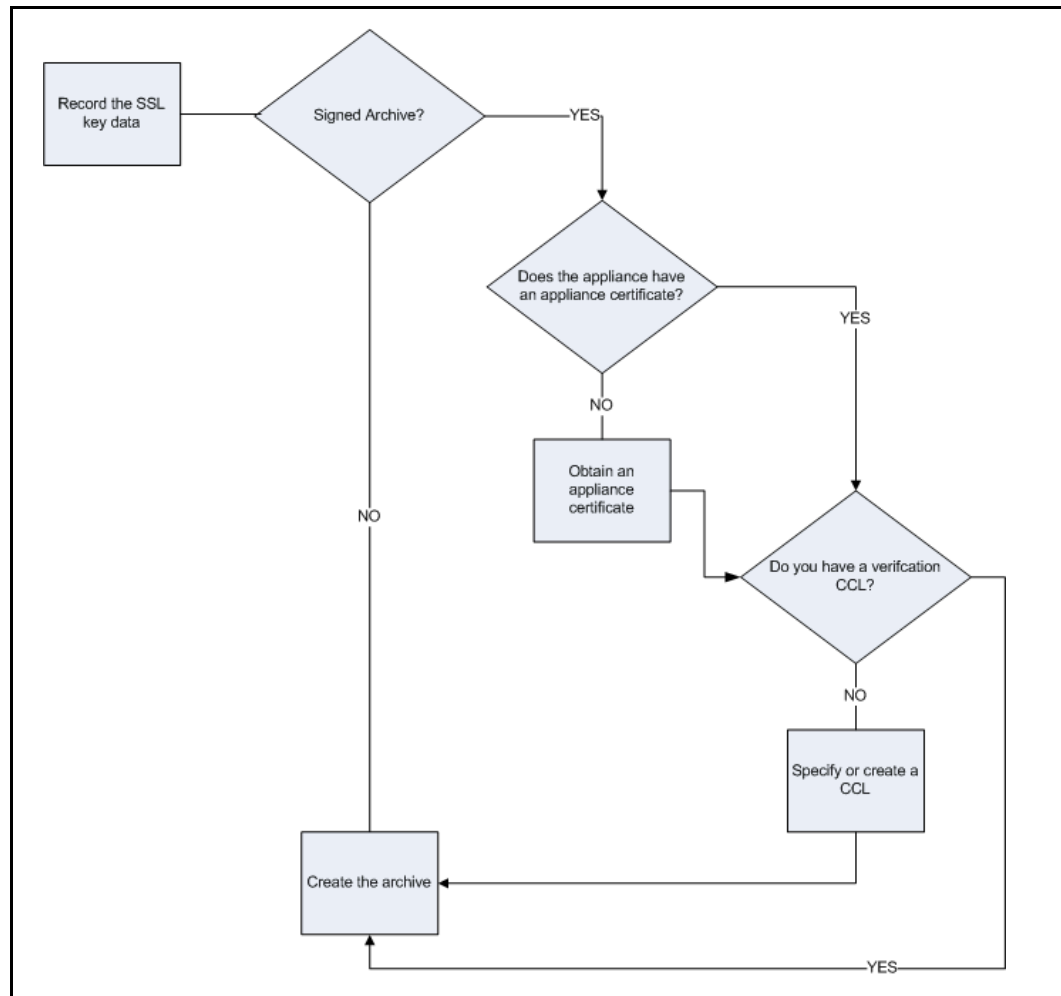


Figure 9–1 Flow Chart of Archive Creation Process

See Also

- ❑ ["Archiving Tasks Quick Reference"](#) on page 110
- ❑ ["Planning for Archive Creation and Restoration"](#) on page 116
- ❑ ["Troubleshooting"](#) on page 139

Section C: About What is Not Archived

Section C: About What is Not Archived

Archiving saves the ProxySG appliance configuration only. Archives do not save the following:

- ❑ Cache objects
- ❑ Access logs
- ❑ Event logs
- ❑ License data (you might need to reapply the licenses)
- ❑ Software image versions
- ❑ SSL key data

See "[Saving Encrypted Passwords](#)" on page 118 for more information.

- ❑ Content-filtering databases

Section D: Planning for Archive Creation and Restoration

Section D: Planning for Archive Creation and Restoration

The following table lists planning tasks to consider before creating a configuration archive, and it describes where to find more information.

Table 9–2 Configuration Archive Planning Considerations.

Task	Go to...
1. Select the appropriate archive type.	"Selecting a Configuration Archive Type" on page 116
2. Choose to use a signed or unsigned archive.	"Using Signed and Unsigned Archives" on page 117
3. Determine how to treat encrypted passwords.	"Saving Encrypted Passwords" on page 118
4. Select an upload transport.	"Selecting an Upload Transport Method" on page 124

Selecting a Configuration Archive Type

Three different archive types are available. Each archive type contains a different set of configuration data:

- ❑ **Configuration - post setup:** This archive contains the configuration on the current system—minus any configurations created through the setup console, such as the IP address. It also includes the installable lists but does not include SSL private key. Use this archive type to share an appliance's configuration with another. See ["Sharing Configurations" on page 137](#) for more information.
- ❑ **Configuration - brief:** This archive contains the configuration on the current system and includes the setup console configuration data, but does not include the installable lists or SSL private key and static route information.

Note: An installable list is a list of configuration parameters that can be created through a text editor or through the CLI inline commands and downloaded to the ProxySG from an HTTP server or locally from your PC. Configurations that can be created and installed this way include the SG Client, archiving, forwarding hosts, SOCKS gateways, ICP, policy files, and exceptions.

- ❑ **Configuration - expanded:** This is the most complete archive of the system configuration, but it contains system-specific settings that might not be appropriate if pushed to a new system. It also does not include SSL private key data. If you are trying to create the most comprehensive archive, Blue Coat recommends that you use the configuration-expanded archive.

Section D: Planning for Archive Creation and Restoration

Using Signed and Unsigned Archives

The ProxySG provides two methods for creating archives, *signed* and *unsigned*. A signed archive is one that is cryptographically signed with a key known only to the signing entity—the digital signature guarantees the integrity of the content and the identity of the originating device. You can then use a trusted CA Certificate List (CCL) to verify the authenticity of the archive.

Use signed archives only when security is high priority. Otherwise, use unsigned archives.

Note: Refer to the CCL information in *Volume 4: Securing the Blue Coat ProxySG Appliance* for more information about CCLs and SSL.

Identifying Signed Archives

A signed archive is a tar file that contains the following files:

- ❑ `show configuration output`
- ❑ `PKCS#7 detached signature`

Signed archives can be identified by the `.bcsc` extension.

Signing guarantees that the archive has not been modified. If you modify a signed archive, you must subsequently restore it as an unsigned archive.

Note: If you created a signed archive and want to verify its authenticity before modifying it, use OpenSSL or another tool to verify the signature before making modifications. (The use of Open SSL is beyond the scope of this document.) Because a signed archive contains the output of the `show configuration` command, you can extract the `show configuration` command output, modify it as required, and treat the archive as unsigned thereafter.

If you have enforced signed archive installation by selecting the **Enforce installation of signed archives** option, non-signed archives cannot be uploaded to the ProxySG.

Determining if the ProxySG Has an Appliance Certificate

To create signed archives, your appliance must have an SSL certificate guaranteed by a CA. If your appliance has a built-in appliance certificate, you can use it and the corresponding `appliance-ccl` CCL to sign the archive. Devices manufactured before July 2006 do not support appliance certificates.

To determine if your device has an appliance certificate:

1. Use an SSH client to establish a CLI session with the ProxySG.
2. Enter enable mode:

```
SGOS # enable
```
3. Enter the following command:

```
SGOS # show ssl certificate appliance-key
```

Section D: Planning for Archive Creation and Restoration

The appliance certificate displays if the appliance has one. Otherwise, the following error is displayed:

```
Certificate "appliance-key" not found
```

If your appliance does not have a built-in appliance certificate, you can obtain one or specify a CA Certificate List (CCL) to use to verify the authenticity of your signed archive. For more information, refer to the ProxySG authentication information in *Volume 5: Advanced Networking*.

Saving Encrypted Passwords

Encrypted passwords (login, enable, FTP, etc.) cannot be decrypted by a device other than that on which it was encrypted—unless you restore the `configuration-passwords-key` keyring from the device on which the archive was created. This keyring is used to encrypt and decrypt the passwords and the passwords cannot be restored without it.

Therefore, to install a configuration archive onto another device, you must do one of the following:

- ❑ Restore the original `configuration-passwords-key` keyring
- ❑ Change the encrypted passwords to clear text so that they can be regenerated.

The following sections describe these options.

Note: Hashed passwords do not have to be changed to clear text. When you restore the archive, they are restored as specified on the source device. The difference between hashing and encryption is that encryption enables information to be decrypted and read, while hashing is a mathematical function used to verify the validity of data. For example, a system might not need to know a user's password to verify that password. The system can run a hash function on the password and confirm that the mathematical result matches that specified for the user.

Option 1: Recording SSL Keyring and Key Pair Information

For security reasons, Blue Coat recommends that you *do not* change encrypted passwords to clear text. Instead, preserve the `configuration-passwords-key` keyring on the source device (the appliance that you created the archive from) and import that keyring to the target device before you restore the archive.

You can also use the following procedure to save any other keyrings required to reload SSL-related configuration that references those keyrings.

To record the `configuration-passwords-key` keyring on the source ProxySG:

1. Copy the following template to a text file and use it to record the certificate information so that you can import and restore it later.

Note: The following example is shown in smaller text to preserve the structure of the commands.

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```
!  
ssl ; switches from config mode to config ssl  
!  
inline keyring show configuration-passwords-key "end-inline"  
!  
end-inline  
inline keyring show default "end-inline"  
!  
end-inline  
!  
inline certificate default "end-inline"  
!  
end-inline  
!  
! repeat this process for each keyring. Be sure to import the private  
key first, then the keyrings certificate  
!  
exit ; returns to config mode  
!
```

Do not specify your passwords; the system will prompt you for them when you restore the keys (SGOS 5.3 and later). You can modify the template to include other keyrings and certificates.

2. From the CLI, access the `config` prompt (using the serial console or SSH):

```
sgos # config terminal
```

3. Enter the following commands:

```
sgos #(config) ssl  
sgos #(config ssl) view keyring
```

A listing of existing keyrings (and certificates) is displayed.

For example (your keyrings might be different):

```
sgos #(config ssl) view keyring  
Keyring ID:          appliance-key  
Private key showability: no-show  
Signing request:     present  
Certificate:         absent  
  
Keyring ID:          configuration-passwords-key  
Private key showability: show  
Signing request:     absent  
Certificate:         absent  
  
Keyring ID:          default  
Private key showability: show  
Signing request:     absent
```


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```
Certificate:                present
Certificate issuer:          Blue Coat SG200 Series
Certificate valid from:      Dec 04 20:11:04 2007 GMT
Certificate valid to:        Dec 03 20:11:04 2009 GMT
Certificate thumbprint:
9D:B2:36:E5:3D:B7:88:21:CB:0A:08:39:2C:A1:4B:CB

Keyring ID:                  passive-attack-protection-only-key
Private key showability:     show
Signing request:             absent
Certificate:                  present
Certificate issuer:           Blue Coat SG200 Series
Certificate valid from:      Dec 04 20:11:07 2007 GMT
Certificate valid to:        Dec 03 20:11:07 2009 GMT
Certificate thumbprint:
0B:AD:07:A7:CF:D9:58:03:89:5B:67:35:43:B9:F2:C9
```

4. Enter the following command:

```
sgos #(config ssl) view keypair des3 configuration-passwords-key
```

Note: The `aes128` and `aes256` encryption options are also supported.

5. When prompted, enter an encryption key password:

```
Encryption key: *****
Confirm encryption key: *****
```

This password is used to encrypt the private-key before displaying it. After confirming the password, the ProxySG displays the encrypted private-key associated with that keyring.

Important: Do not lose the password used to encrypt the private key. If you do, you will not be able to recover your private keys.

For example:

```
sgos #(config ssl)view keypair des3 configuration-passwords-key
Encryption password: *****
Confirm encryption password: *****
-----BEGIN RSA PRIVATE KEY-----
Proc-Type: 4, ENCRYPTED
DEK-Info: DES-EDE3-CBC,D542F10E3FFF899F

aFqxQNOD+321IXdQjCGmT+adeQqMiQDAyCOvWd+aJ+OmDjITpd7bwijcxWA89RB8
y65NSia0UmTC1Y9MM4j6T/fXhBspEu7Wyc/nM+005pJldxTmZgPig6TiIiOlXtMI
ymCLolxjAr+vFSx7ji6jUT13JxZHfksNd9DS06DHLr6hJNERDi9dGog561zlwBo8
zvs0x4PqB+mQ05qewmReMs9tnuLkGgBXguH+2Nw9hIOWKEa9KPFWrznD/+zEZbEo
nM+VOwn3nWuqcFRLFoSUP2QBZ581pU3XAUYdabBn0uBOMR4a3C+F/W/v0p71jJ9o
JL6Ao/S46A4UgPkuswGMXo1kG3K2J/Ev4nMBua6HSZgM87DxvMSiCZ1Xx1K1Bqv
F9P+11o3mdR3g2LzK1DLTvlcA9pEPbW65gmnPGj/WLqhEyNpm+DkplxMtMESxNqM
```

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```

4attb8fXAEcRI+liUWpjxnycqlm+dcFqq6/bLixYSQ4HGXFx5qTot+FtIvB5h3g
KwQusgaLVTiesn9K7BQK4wjXJKlDclIrog+ETlfkxtj2oA5/7HN10Ar0ogBxsZLj
0LS5fwVfHNkuyNLUXZSAiLLOIqFIvtRiRfiWe3e/eJvazIaErEk40NvIaaXP1j9p
ENzK2dw9WS7xtcU5kAcdoiX1lFONauKDVUkHwhvqz3KnMt1p81fkDUpiD1xaVfMg
s2FApgjAsYciEJxDUfPLzYVlvpOpx6DW3t0D0AlEKkPVNmd9RzlnXjk2CPTdPERC
pKN+EIKs2kqpRE6hHu37zzN06ipPNu2cCSHI/ozc0X4=
-----END RSA PRIVATE KEY-----

```

6. Copy the configuration-passwords-key and paste it into the template under the inline keyring show configuration-passwords-key "end-inline" in the template. For example:

```

inline keyring show configuration-passwords-key "end-inline"
-----BEGIN RSA PRIVATE KEY-----
Proc-Type: 4,ENCRYPTED
DEK-Info: DES-EDE3-CBC,2F6148C8A9902D7F

1lJjGKxpkcWBXj424FhyQJPKRdgHUIx12C6HKigth6hUgPqsSJj958FbzEx6ntsB
lI+jXj34Ni6U94/9ugYGEqWLCqed77M1/WA4s6U5TCI9fScVuGaoZ0EVhx48lI3N
LGQpl0JXmr0L5vNj/e1/LSeCOHg+7ASyY/PaFr9Dk8nRqAhoWMM/PQE1kvAxuXzE
8hccfZaa1lH1MiPWfNzxf1RXIEzA2NcUirDHO63/XU3eOCis8hXZvwfuC+DWw0Am
tGVpxhZVN2KnfzSvaBAVYmH/lGsxdEJjjdNhZSu3uRVmSiz1tPyAbz5tEG4Gzbae
sJY/Fs8Tdmn+zRPE5nYQ/0twRGWXzwXOeW+khafNE3iQ1u6jxbST6fCVn2bxw+q/
bB/dEFUMxreYjAO8/Tu86R9ypa3a+uzrXULixg1LnBcnoSvOU+co5HA6JuRohc5v
86ZPk1Q9V4xvApY/+3Q+2mF9skJPsoV01ItYWtrylg9Puw17TE56+k0EAOWU6FWd
dTpGJRguh7lFVm1Q12187NEoyHqutt1IHxRPEKRVNxcGzQI3GEOfmD9wcbyxdlnT
X11U2YgwwwH0gzJHBQPIfPhE9wJTedm1dhW268kPFonc1UY3dZTq0tiOLwtDfsyx
ForzG9JHhPmlUgItujsiG5Cg8S183GSyJFqZs8VKxTyby7xa/rMkjtr/lpS++8Tz
GZ4PimFJM0bgcMsZq6DkOs5MmLSRCilgd3clPSHjcfp+H4Vu0OPIPL98YYPvcV9h
0Io/zDb7MPjIT5gYPku86f7/INIimnVj2R0a0iPYlbKX7ggZEfWDPw==
-----END RSA PRIVATE KEY-----

```

7. If a certificate is associated with a keyring, enter the following command:

```
sgos #(config ssl) view certificate keyring-name
```

For example:

```

sgos #(config ssl)view certificate configuration-passwords-key
-----BEGIN CERTIFICATE-----
MIICUzCCAbygAwIBAgIEFm6QWzANBgkqhkiG9w0BAQUFADBUMQswCQYDVQQGDAIg
IDETMBEGA1UECAwKU29tZS1TdGF0ZTEfMB0GA1UECgwWQmx1ZSBDb2F0IFNHMjAw
IFNlcmllczETMBEGA1UECwwKNDYwNTA2MDAwMTEUMBIGAlUEAwWLMTAuOS41OS4y
MTAwHhcNMMDcxMjA0MjAxMTA3WhcNMMDkxMjAzMjAxMTA3WjBuMQswCQYDVQQGDAIg
IDETMBEGA1UECAwKU29tZS1TdGF0ZTEfMB0GA1UECgwWQmx1ZSBDb2F0IFNHMjAw
IFNlcmllczETMBEGA1UECwwKNDYwNTA2MDAwMTEUMBIGAlUEAwWLMTAuOS41OS4y
MTAwgZ8wDQYJKoZIhvcNAQEBBQADgY0AMIGJAoGBAJ/F/Sn3CzYvbfPwDD03g9Y/
O3jwCrcXLU8cki6SZUV19blgZBTgBY3KyDl2baqZN12QGwkspEtDI45G3/K2GRIF
REs3mKGxY7fbwgRpoL+nRT8w9qWHO393pGr1JKFlDXbYOzn3p31EXUuGRfXkIqeA
919uvOD5gOX0BEzrvDRnAgMBAAEwDQYJKoZIhvcNAQEFBQADgYEASgIR9r2MuRbC

```

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```
ltHq/Lb5rIXn13wFZEND/viO54YOiW1ZixlpCBbDIkef3DdJZLxVy3x7Gbw32OfE
3a7kfIMvVKWmNO+syAn4B2yasy0nxbSyOciJq1C42yPJ+Bj1MuYDmgIvMP6ne5UA
gYYhe/koamOZNcIuaXrAS2v2tYevrBc=
-----END CERTIFICATE-----
```

8. Copy the certificate and paste it into the template under the appropriate `inline certificate cert_name "end-inline"` line in the template.
9. Optional—For *each* named keyring that you want to restore, repeat steps 4 to 8.

Note: SGOS 5.x has an `appliance-key` keyring. This keyring's private key is not viewable, and cannot be transferred to another ProxySG. The `default` and `passive-attack-protection-only-key` keys typically do not need to be restored either.

10. Save the password information (that you used to encrypt the keys) in a secure place, for example, a restricted access cabinet or safe.

After saving this data, create a configuration archive as described in ["Creating Configuration Archives"](#) on page 125. When you are ready to restore the archive, you must first restore the SSL data on the target appliance as described in ["Importing an Existing Key Pair and Certificate"](#) on page 134.

Example: Completed SSL Data Template

The following example shows a completed template. When you restore the data to the appliance, you will be prompted for the encryption password that you used to encrypt the keys.

Note: The commands in the following example are bounded by the document text area and wrap to the next line. They are not shown here as they would appear in the CLI. See Step 1 in ["Option 1: Recording SSL Keyring and Key Pair Information"](#) on page 118 to view an example of how the commands should appear.

```
!
ssl ; switches from config mode to config ssl
!
inline keyring show configuration-passwords-key "end-inline"
-----BEGIN RSA PRIVATE KEY-----
Proc-Type: 4, ENCRYPTED
DEK-Info: DES-EDE3-CBC, 2F6148C8A9902D7F

1lJjGKxpkcWBXj424FhyQJPKRdgHUIx12C6HKigth6hUgPqsSJj958FbzEx6ntsB
lI+jXj34Ni6U94/9ugYGEqWLCqed77M1/WA4s6U5TCI9fScVuGaoZ0EVhx48lI3N
LGQplOJXmr0L5vNj/e1/LSeCOHg+7ASyY/PaFr9Dk8nRqAhoWMM/PQE1kvA XuXzE
8hccfZaa1lH1MiPWfNzxf1RXIEzA2NcUirDHO63/XU3eOCis8hXZvwfuC+DWw0Am
tGVpxhZVN2KnfzSvaBAVYmH/lGsxdEJjjdNhZSu3uRVmSiz1tPyAbz5tEG4Gzbae
```

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```

sJY/Fs8Tdmn+zRPE5nYQ/0twRGWXzwXOeW+khafNE3iQ1u6jxbST6fCVn2bxw+q/
bB/dEFUMxreYjAO8/Tu86R9ypa3a+uzrXULixglLnBcnoSvOU+co5HA6JuRohc5v
86ZPk1Q9V4xvApY/+3Q+2mF9skJPsoV01ItYWtrylg9Puw17TE56+k0EAOWU6FWd
dTpGJRguh7lFVmlQ12187NEoyHquttlIHxRPEKRVNxcZqZI3GEOfmD9wcbyxd1nT
X11U2YgwwwH0gzJHBQPIfPhE9wJTedmldhW268kPFonc1UY3dZTq0tiOLwtDfsyx
ForzG9JHhPmlUgltujSiG5Cg8S183GSyJFqZs8VKxTyby7xa/rMkjtr/lpS++8Tz
GZ4PimFJM0bgcMsZq6DkOs5MmLSRCILgd3clPSHjcfp+H4Vu0OPIPL98YYPvcV9h
0Io/zDb7MPjIT5gYPku86f7/INIimnVj2R0a0iPYlbKX7ggZEfWDPw==
-----END RSA PRIVATE KEY-----
end-inline
!
inline keyring show default "end-inline"
-----BEGIN RSA PRIVATE KEY-----
Proc-Type: 4,ENCRYPTED
DEK-Info: DES-EDE3-CBC,2F6148C8A99AAAA

21JjGKxpkcWBXj424FhyQJPKRdgHUIxl2C6HKigth6hUgPqsSjJ958FbzEx6ntsC
1I+jXj34Ni6U94/9ugYGEqWLCqed77M1/WA4s6U5TCI9fScVuGaoZ0EVhx481I3G
LGQP1OJXmr0L5vNj/e1/LSeCOHg+7ASyY/PaFr9Dk8nRqAhoWMM/PQE1kvAxuXzW
8hccfZaa1lH1MiPWfNzxf1RXIEzA2NcUirDHO63/XU3eOCis8hXZvwfuC+DWw0Am
tGVpxhZVN2KnfzSvaBAVYmH/lGsxdEJjjdNhZSu3uRVmSiz1tPyAbz5tEG4Gzbae
sJY/Fs8Tdmn+zRPE5nYQ/0twRGWXzwXOeW+khafNE3iQ1u6jxbST6fCVn2bxw+q/
bB/dEFUMxreYjAO8/Tu86R9ypa3a+uzrXULixglLnBcnoSvOU+co5HA6JuRohc5v
86ZPk1Q9V4xvApY/+3Q+2mF9skJPsoV01ItYWtrylg9Puw17TE56+k0EAOWU6FWd
dTpGJRguh7lFVmlQ12187NEoyHquttlIHxRPEKRVNxcZqZI3GEOfmD9wcbyxd1nT
X11U2YgwwwH0gzJHBQPIfPhE9wJTedmldhW268kPFonc1UY3dZTq0tiOLwtDfsyx
ForzG9JHhPmlUgltujSiG5Cg8S183GSyJFqZs8VKxTyby7xa/rMkjtr/lpS++8Tz
GZ4PimFJM0bgcMsZq6DkOs5MmLSRCILgd3clPSHjcfp+H4Vu0OPIPL98YYPvcV9h
0Io/zDb7MPjIT5gYPku86f7/INIimnVj2R0a0iPYlbKX7ggZEfWDPw==
-----END RSA PRIVATE KEY-----
end-inline
!
inline certificate default "end-inline"
-----BEGIN CERTIFICATE-----
MIICUzCCAbygAwIBAgIEFjnHtzANBgqhkiG9w0BAQQFADBUMQswCQYDVQQGDAJB
VTETMBEGA1UECAwKU29tZS1TdGF0ZTEfMB0GA1UECgwWQmx1ZSBDb2F0IFNBMjAw
IFNlcmllczETMBEGA1UECwwKMjEwNzA2MzI1ODEUMBIGA1UEAwWLTMTAuOS4x
NTwwHhcNMDCxMDI1MTkxNzExWhcNMTCxMDI1MTkxNzExWjBUMQswCQYDVQQGDAJB
VTETMBEGA1UECAwKU29tZS1TdGF0ZTEfMB0GA1UECgwWQmx1ZSBDb2F0IFNBMjAw
IFNlcmllczETMBEGA1UECwwKMjEwNzA2MzI1ODEUMBIGA1UEAwWLTMTAuOS4x
NTEwZz8wDQYJKoZIhvcNAQEBBQADgY0AMIGJAoGBANF9BL25FOJuBIFVYvjo3ygu
ExUM0GMjF1q2TRrSi55Ftt5d/KNbxzhz3i/DLxlwh0IFWsjv9+bKphrY8H0Ik9N
Q81ru5H1XDvUJ2AW6J82CewtQt/I74xHkBvFJa/leN3uZ+D+fiZTXO15m9+NmZMb
zzGGbCWJRzuqp9z1DVNBqgMBAAEwDQYJKoZIhvcNAQEEBQADgYEAMUYIa1KffIO
J+1S/oZ+9g9IVih+AEtk5nVVL0DASXuIaYPG5Zxo5ddW6wT5qvnY5muPs1B7ugYA

```

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```
wEP3Eli+mwF49Lv4NSJFEkBuF7Sg1l/R2Qj36Yjpdkxu6TPX1BKmnEcpoX9Q1Xbp
XerHBHMPwzHdj14ELqSgx9aei7y8=
-----END CERTIFICATE-----
end-inline
!
! repeat this process for each keyring. Be sure to import the private
key first, then the keyrings certificate
!
exit ; returns to config mode
!
```

Option 2: Changing Encrypted Passwords to Clear Text

Important: Blue Coat strongly recommends recording your SSL keyring and key pair data because changing encrypted passwords to clear text is highly insecure. Use the following procedure at your own risk.

You can edit the configuration to change encrypted passwords to clear text if you choose to keep the existing `configuration-passwords-key` keyring intact on the new appliance. You do not need to change hashed passwords to clear text—when you restore the archive, new hashed-passwords are automatically generated using the target ProxySG appliance's `configuration-passwords-key` keyring.

Important: This procedure is not valid for signed archives. Signing guarantees that the archive has not been modified.

To change encrypted passwords to clear text:

Manually search for every instance of `encrypted-password`, remove the `encrypted-` prefix, and change the encrypted password to clear text. For example:

```
security encrypted-password "$1$rWzR$BT5c6F/RHLPK7uU9Lx27J."
```

In the previous example, if the actual password is `bluecoat`, then you must edit the entry as follows:

```
security password "bluecoat"
```

Selecting an Upload Transport Method

Archives can be uploaded using HTTPS, HTTP, FTP, or TFTP. If you are concerned about security, use HTTPS. For example, you should use HTTPS if you consider the configuration to be confidential.

If you use HTTPS, you must specify an SSL device profile to use for the SSL connection. An SSL device profile, which can be edited, contains the information required for device authentication, including the name of the keyring with the private key and certificate this device uses to authenticate itself. The default keyring is `appliance-key`. (For information on private keys, public keys, and SSL device profiles, refer to *Volume 4: Securing the Blue Coat ProxySG Appliance*.)

Section E: Creating Configuration Archives

Section E: Creating Configuration Archives

Archive configuration requires you to complete pre-configuration planning tasks. The following table provides a high-level description of the tasks required to create and restore a configuration archive. Review this table, then read the referenced sections for detailed information about each task.

Table 9–3 Archive Creation and Restoration Tasks

Task	Go to...
1. Select the archive type.	"Selecting a Configuration Archive Type" on page 116
2. Determine whether to use signed or unsigned archives. Use signed archives if security is a concern.	"Using Signed and Unsigned Archives" on page 117
3. Select a method for dealing with encrypted passwords. The recommended method is to record the SSL keyring and key pair data for later restoration.	"Saving Encrypted Passwords" on page 118
4. Create and save the archive.	"Creating and Saving an Unsigned Configuration Archive" on page 125 or "Creating and Saving a Signed Configuration Archive to Local Disk" on page 126 or "Creating and Uploading an Archive to a Remote Server" on page 127
5. Restore the archive.	"Restoring an Archive" on page 131

Creating and Saving an Unsigned Configuration Archive

This section describes how to use the Management Console to create an unsigned archive of the system configuration. Before performing the following procedure, consider the planning options described in ["Planning for Archive Creation and Restoration"](#) on page 116.

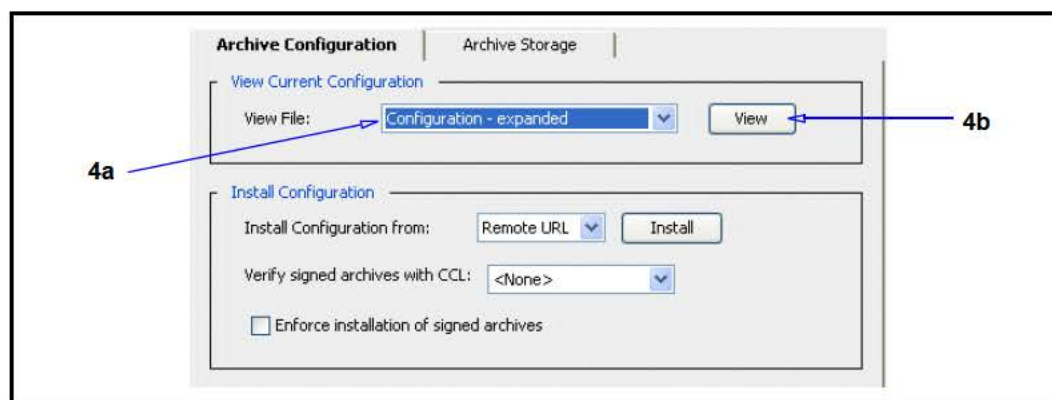
To create an unsigned configuration archive:

1. Record the `configuration-passwords-key` keyring of the ProxySG you want to back up, as described in ["Option 1: Recording SSL Keyring and Key Pair Information"](#) on page 118.

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Important: If you do not record the SSL data, encrypted passwords will not be able to be decrypted when you restore the archive to another device (for example, a replacement appliance) and none of the SSL-related configuration that references those keyrings can be used.

2. Access the Management Console of the ProxySG you want to back up:
`https://ProxySG_IP:8082`
3. Select **Configuration > General > Archive**. The **Archive Configuration** tab displays.



4. Select a configuration type:
 - a. In the **View Current Configuration** section, select **Configuration - expanded** from the View File drop-down list.
 - b. View the configuration you selected by clicking **View**.

A browser window opens and displays the configuration.

Note: You can also view the file by selecting **Text Editor** in the **Install Configuration** panel and clicking **Install**.

5. Save the configuration.

You can save the file two ways:

- Use the browser **Save As** function to save the configuration as a text file on your local system. This is advised if you want to re-use the file.
- Copy the contents of the configuration. (You will paste the file into the Text Editor on the newly-manufactured system.)

Creating and Saving a Signed Configuration Archive to Local Disk

This section describes how to use the Management Console to save a signed archive of the system configuration to the local disk of the device you are using to access the ProxySG. Before performing the following procedure, consider the planning options described in "[Planning for Archive Creation and Restoration](#)" on page 116.

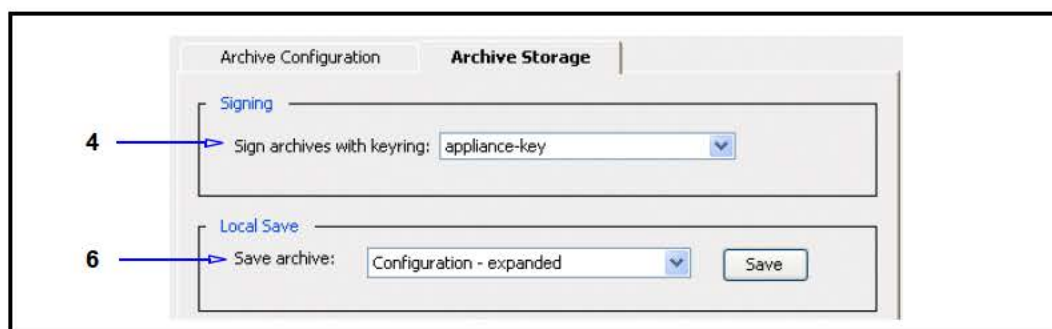
Section E: Creating Configuration Archives

To create and save a signed configuration archive to local disk:

1. Record the `configuration-passwords-key` keyring of the ProxySG you want to back up, as described in ["Option 1: Recording SSL Keyring and Key Pair Information"](#) on page 118.

Important: If you do not record the SSL data, encrypted passwords will not be able to be decrypted when you restore the archive to another device (for example, a replacement appliance) and none of the SSL-related configuration that references those keyrings can be used.

2. Access the Management Console of the ProxySG you want to back up:
`https://ProxySG_IP:8082`
3. Select the **Configuration > General > Archive > Archive Storage** tab.



4. From the **Sign archives with keyring** drop-down list, select a signing keyring to use or accept the default (**appliance-key**).
5. Click **Apply**.

Note: If you do not click **Apply**, a pop-up displays when you click **Save** that indicates that all unsaved changes will be saved before storing the archive configuration. The unsaved changes are the **Sign archives with keyring** option changes you made in Step 4.

6. From the **Save archive** drop-down list, select the archive type (Blue Coat recommends **Configuration - expanded**).
7. Click **Save**.

A new browser window displays, prompting you to open or save the configuration to the local disk of the device you are using to access the ProxySG.

Creating and Uploading an Archive to a Remote Server

Use the following procedure to create a signed or unsigned archive and upload it to a secure, remote host.

Section E: Creating Configuration Archives

You can use HTTP, HTTPS, FTP, or TFTP to upload the archive. When using signed archives, Blue Coat recommends uploading the system configuration using HTTPS.

Before performing the following procedure, consider the planning options described in ["Planning for Archive Creation and Restoration"](#) on page 116.

To create and upload an archive to a remote server:

Note: This procedure creates only `Configuration - expanded` archives. You cannot choose another type.

1. Obtain write permission to a directory on a secure, remote host. This is where the archive will be stored.
2. Record the `configuration-passwords-key` keyring of the ProxySG you want to back up, as described in ["Option 1: Recording SSL Keyring and Key Pair Information"](#) on page 118.

Important: If you do not record the SSL data, encrypted passwords will not be able to be decrypted when you restore the archive to another device (for example, a replacement appliance) and none of the SSL-related configuration that references those keyrings can be used.

3. Access the Management Console of the ProxySG you want to back up:
`https://ProxySG_IP:8082`
4. Select **Configuration > General > Archive**.
5. Select the **Archive Storage** tab.

Section E: Creating Configuration Archives

6. For signed archives, ensure that a keyring has been selected in the **Sign archive with keyring** option.
7. In the Remote Upload section, configure the upload settings:
 - a. From the **Protocol** drop-down list, select an upload protocol.

Note: For maximum security, Blue Coat recommends using HTTPS.

- b. Optional: Add filename prefixes to identify the archive.

The prefixes add unique, time-based variables to the filename. For example:

%H%A

In the preceding example, the %H%A prefix adds the hour (in 24-hour format) and the full weekday name. Various combinations can be used. See ["Adding Identifier Information to Archive Filenames"](#) on page 130 for a list of allowed substitution values.

- c. Optional, for HTTPS—Select an SSL device profile to use for the SSL connection.
See ["Selecting an Upload Transport Method"](#) on page 124 for more information about device profiles.
 - d. Enter the remote server host name or IP address and port number.
 - e. Enter the remote server upload path (not required for TFTP).
 - f. Enter the user name associated with the remote host (not required for TFTP).
 - g. Optional—Change the HTTP, HTTPS, or FTP password.

Section E: Creating Configuration Archives

8. Click **Upload**.

Adding Identifier Information to Archive Filenames

Use the following prefix substitutions to add unique ID information to archive filenames. Specify these prefixes when using the **Remote Upload** option.

Table 9–4 Filename Specifiers

Specifier	Description
%%	Percent sign.
%a	Abbreviated weekday name.
%A	Full weekday name.
%b	Abbreviated month name.
%B	Full month name.
%C	The ProxySG name.
%d	Day of month as decimal number (01 - 31).
%H	Hour in 24-hour format (00 - 23).
%i	First IP address of the ProxySG, displayed in x_x_x_x format, with leading zeros removed.
%I	Hour in 12-hour format (01 - 12).
%j	Day of year as decimal number (001 - 366).
%l	The fourth part of the ProxySG IP address, using three digits (001.002.003. 004)
%m	Month as decimal number (01 - 12).
%M	Minute as decimal number (00 - 59).
%p	Current locale's A.M./P.M. indicator for 12-hour clock.
%S	Second as decimal number (00 - 59).
%U	Week of year as decimal number, with Sunday as first day of week (00 - 53).
%w	Weekday as decimal number (0 - 6; Sunday is 0).
%W	Week of year as decimal number, with Monday as first day of week (00 - 53).
%Y	Year without century, as decimal number (00 - 99).
%Y	Year with century, as decimal number.
%z, %Z	Time-zone name or abbreviation; no characters if time zone is unknown.

Section F: Restoring a Configuration Archive

Section F: Restoring a Configuration Archive

To restore a configuration archive, you must:

- ❑ Perform pre-restoration tasks, for example, restoring the SSL configuration.
- ❑ For signed archives—Select a CCL to use to verify the archive.
- ❑ Restore the archive.

The following sections describe these tasks.

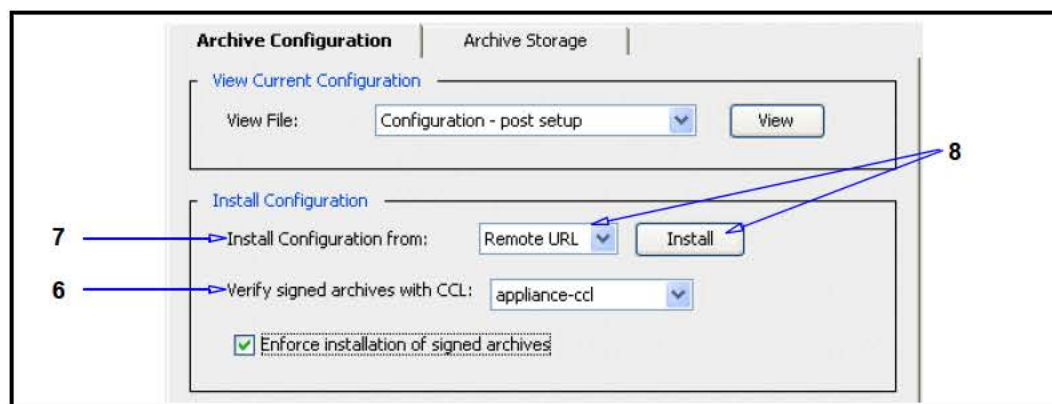
Restoring an Archive

To install the archived configuration:

1. Download a content filter database, if you previously had one and it was lost.
If you restore the archive and it includes content filtering policy, the database must exist so that categories referenced within policy can be matched with the currently installed database.
2. Connect to the appliance Management Console of the target appliance, that is the ProxySG that you are installing the configuration onto.
`https://ProxySG_IP:8082`
3. Go to the Management Console Home page and view the **Software version:** information to verify that the appliance is running the same software version that was used to create the archive. For example:
Software version: SGOS 5.3.0.2 Proxy Edition
You can also verify the version from the appliance CLI:

```
SGOS # enable
SGOS # show version
```
4. Restore the `configuration-passwords-key` data and any other SSL key data.
Import the `configuration-passwords-key` keyring as described in ["Importing an Existing Key Pair and Certificate"](#) on page 134.
5. Select **Configuration > General > Archive**.

Section F: Restoring a Configuration Archive



6. Optional, for signed archives—In the **Install Configuration** panel, check the setting of the **Enforce installation of signed archives** option. If this option is selected, only signed archives can be restored.
7. Optional, for signed archives—Select a CCL to use to verify the archive from the **Verify signed archive with CCL** drop-down list. If you used the **appliance-key** keyring, select **appliance-ccl**.

Note: Depending on the CA that was used to sign the certificate used for the archive signature, you might have to import a CA certificate and create an appropriate CCL. Refer to *Volume 4: Securing the Blue Coat ProxySG Appliance* for information about completing these tasks.

8. Install the configuration using one of the following methods:
 - **Local File:** If you saved the file to your system, select **Local File** and click **Install**. Browse to the location of the archive and click **Open**. The configuration is installed, and the results screen displays.
 - **Text File:** If you copied the contents of the file, select **Text Editor** and click **Install**. Copy the contents of the text file into the Edit and Install the Configuration dialog and click **Install**. The configuration is installed, and the results screen displays.
 - **Remote Download:** If you uploaded the archive to a remote URL, select **Remote URL** and click **Install**. Enter the full path to the archive into the Install Configuration dialog and click **Install**. The configuration is installed, and the results screen displays.

The username and password used to connect to the server can be embedded into the URL. For FTP, the format of the URL is:

Section F: Restoring a Configuration Archive

```
ftp://username:password@ftp-server
```

where *ftp-server* is either the IP address or the DNS-resolvable hostname of the FTP server.

If you do not specify a username and password, the ProxySG assumes that an anonymous FTP is desired and thus sends the following as the credentials to connect to the FTP server:

```
username: anonymous
password: proxy@
```

Note: A message is written to the event log when you install a configuration on the ProxySG.

Using the CLI to Archive and Restore a System Configuration

Use the following procedure to archive and restore a system configuration using the CLI.

Related CLI Syntax for Archiving

To configure the archiving signing options:

At the config prompt, enter the following command:

```
#(config) archive-configuration archive-signing {enforce-signed
(enable | disable) | signing-keyring keyring-name | verify-ccl ccl-
name}
```

To set the SSL device profile:

At the config prompt, enter the following command:

```
#(config) archive-configuration ssl-device-profile ssl-device-profile
name
```

To set upload options:

At the config prompt, enter the following commands:

```
#(config) archive-configuration encrypted-password encrypted_password
#(config) archive-configuration password password
#(config) archive-configuration username username
#(config) archive-configuration filename-prefix filename
#(config) archive-configuration host hostname
#(config) archive-configuration path path
```

Note: To clear the host, password, or path, type the above commands using empty double-quotes instead of the variable. For example, to clear the path, enter `archive-configuration path ""`.

```
#(config) archive-configuration port port
#(config) archive-configuration protocol {ftp | tftp | http | https}
```


Section F: Restoring a Configuration Archive

To archive a system configuration:

At the enable command prompt, enter the following command:

```
SGOS# upload configuration
```

To restore a system configuration:

At the enable command prompt, enter the following command:

```
SGOS# configure network "url"
```

where *url* must be in quotes and is fully-qualified (including the protocol, server name or IP address, path, and filename of the configuration file). The configuration file is downloaded from the server, and the ProxySG settings are updated.

Note: If you rename the archived configuration file so that it does not contain any spaces, the quotes surrounding the URL are unnecessary.

Importing an Existing Key Pair and Certificate

Use the following procedure to import the key pair and certificate data (if you saved it as described in ["Option 1: Recording SSL Keyring and Key Pair Information"](#) on page 118) onto the system you are restoring the archive to.

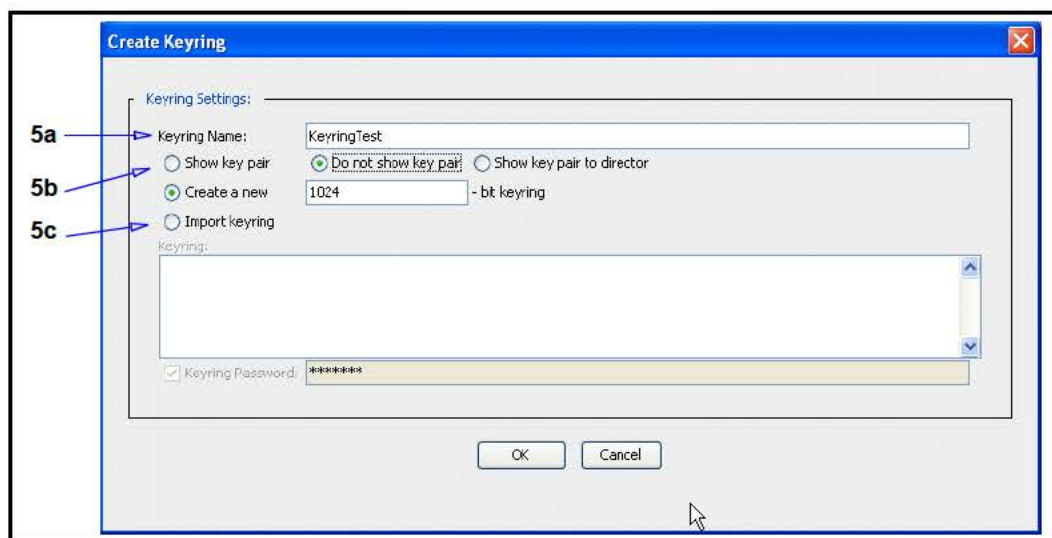
Note: You can also import a certificate chain containing multiple certificates. Use the `inline certificate` command to import multiple certificates through the CLI.

If you are importing a keyring and one or more certificates onto a ProxySG, first import the keyring, followed by its related certificate. The certificate contains the public key from the keyring, and the keyring and certificate are related.

To Import a keyring:

1. Copy the already-created keypair onto the clipboard.
2. Select **Configuration > SSL > Keyrings > SSL Keyrings**.
3. If the keyring already exists, select the keyring and click **Delete** and **Apply**.
4. Click **Create**. The Create Keyring dialog displays.

Section F: Restoring a Configuration Archive



5. Configure the keyring options:
 - a. In the **Keyring Name** field, enter a meaningful name for the keyring.
 - b. Select a show option:
 - **Show keypair** allows the keys to be exported.
 - **Do not show keypair** prevents the keypair from being exported.
 - **Show keypair to director** is a keyring viewable only if Director is issuing the command using a SSH-RSA connection.
 - c. Select **Import keyring**.

Note: The choice among **show**, **do not show** and **show keypair to director** has implications for whether keyrings are included in profiles and backups created by Director. For more information, refer to the *Blue Coat Director Configuration and Management Guide*.

- c. Select **Import keyring**.

The grayed-out **Keyring** field becomes enabled, allowing you to paste in the already existing keypair. The certificate associated with this keypair must be imported separately.

If the keypair that is being imported has been encrypted with a password, select **Keyring Password** and enter the password into the field.
6. Click **OK**.

Section F: Restoring a Configuration Archive

To import a certificate and associate it with a keyring:

1. Copy the certificate onto the clipboard.
2. Select **Configuration > SSL > Keyrings** and click **Edit/View**.
3. From the drop-down list, select the keyring that you just imported.
4. Click **Import** in the **Certificate** field.
5. Paste the certificate into the Import Certificate dialog that appears. Be sure to include the `-----BEGIN CERTIFICATE-----` and `-----END CERTIFICATE-----` statements.
6. Click **OK**.

Related CLI Syntax to Import a Keyring

```
SGOS#(config ssl) inline {keyring show | show-director | no-show}
keyring_id eof
Paste keypair here
eof
```

Related CLI Syntax to Import a Certificate and Associate it with a Keyring

```
SGOS#(config) ssl
SGOS#(config ssl) inline certificate keyring_id eof
Paste certificate here
eof
```

Section G: Sharing Configurations

Section G: Sharing Configurations

You can share configurations between two ProxySGs. You can take a *post-setup* configuration file (one that does not include those configuration elements that are established in the setup console) from an already-configured ProxySG and push it to a newly-manufactured or restored system.

Note: Blue Coat Director allows you to push a configuration from one ProxySG to multiple appliances at the same time. For more information on using Director, see *Volume 9: Managing the Blue Coat ProxySG Appliance* and the *Blue Coat Director Configuration and Management Guide*.

If you push a configuration archive to an appliance that is already configured, the archive is applied to the existing configuration, changing any existing values. This means, for instance, that if the new configuration creates a realm called *RealmA* and the existing configuration has a realm called *RealmB*, the combined configuration includes two realms, *RealmA* and *RealmB*.

Configuration Sharing Requirements

To share configurations, you must download a content filter database, if the configuration includes content filtering.

You can use either the Management Console or the CLI to create a post-setup configuration file on one ProxySG and push it to another.

Note: You cannot push configuration settings to a newly-manufactured system until you have completed initial setup of the system.

To create a configuration archive of the source device's settings using the CLI:

1. Use an SSH client to establish a CLI session with the already configured ProxySG.
2. From the enable prompt (#), enter the following command:

```
show configuration post-setup
```

This displays the configuration on the current system, minus any configurations created through the setup console, such as the hostname and IP address. It also includes the installable lists.
3. Save the configuration. You can save the file two ways:
 - Copy the contents of the configuration to the clipboard.
 - Save it as a text file on an FTP server accessible to the ProxySG. This is advised if you want to re-use the file.
4. On the newly-manufactured ProxySG, retrieve the configuration file by doing one of the following:

Section G: Sharing Configurations

- If you saved the configuration to the clipboard, go to the `(config)` prompt and paste the configuration into the terminal.
- If you saved the configuration on a remote server:

At the enable command prompt, enter the following command:

```
SGOS# configure network "url"
```

See "[Restoring a Configuration Archive](#)" on page 131 for more information about formatting the URL for FTP.

Section H: Troubleshooting

Section H: Troubleshooting

When pushing a shared configuration or restoring an archived configuration, keep in mind the following issues:

- ❑ If the content-filtering database has not yet been downloaded, any policy that references categories is not recognized.
- ❑ Unless you restore the `SSL configuration-passwords-key` keyring from the source device, archives can only be restored onto the same device that was the source of the archive. This is because the encrypted passwords in the configuration (login, enable, FTP, etc.) cannot be decrypted by a device other than that on which it was encrypted.
- ❑ Do not take an expanded archive from an operational ProxySG and install it onto another ProxySG. Expanded archives contain system-specific settings (for example, hostnames, IP addresses, and connection forwarding settings) that will cause conflicts.
- ❑ To use signed archives, your appliance must have an SSL certificate guaranteed by a CA. If your appliance has a built-in appliance certificate, you can use it and the corresponding `appliance-ccl` CCL to sign the archive. Devices manufactured before July 2006 do not support appliance certificates. If your appliance does not have a built-in appliance certificate, you must do the following:
 - Create a keyring on the appliance.
A keyring contains a public/private key pair. It can also contain a certificate signing request or a signed certificate.
 - Create a Certificate Signing Requests (CSR) and send it to a Certificate Signing Authority (CA).
 - Have the CA sign the CSR.

To determine if your appliance has a built-in certificate, see "[Determining if the ProxySG Has an Appliance Certificate](#)" on page 117.

See Also

For more information about appliance certificates, refer to the X.509 certificate information in *Volume 4: Securing the Blue Coat ProxySG Appliance*.

Glossary

A

access control list—Allows or denies specific IP addresses access to a server.

access log—A list of all the requests sent to a ProxySG. You can read an access log using any of the popular log-reporting programs. When a client uses HTTP streaming, the streaming entry goes to the same access log.

account—A named entity that has purchased the ProxySG or the Entitlements from Blue Coat.

activation code—A string of approximately 10 characters that is generated and mailed to customers when they purchase the ProxySG.

active content stripping—Provides a way to identify potentially dangerous mobile or active content and scripts, and strip them out of a response.

active content types—Used in the Visual Policy Manager. Referring to Web Access policies, you can create and name lists of active content types to be stripped from Web pages. You have the additional option of specifying a customized message to be displayed to the user

administration access policy—A policy layer that determines who can access the ProxySG to perform administrative tasks.

administration authentication policy—A policy layer that determines how administrators accessing the ProxySG must authenticate.

AJAX—Acronym for Asynchronous JavaScript and XML, the technology used for live updating of Web objects without having to reload the entire page.

Application Delivery Network (ADN)—A WAN that has been optimized for acceleration and compression by Blue Coat. This network can also be secured through the use of appliance certificates. An ADN network is composed of an ADN manager and backup ADN manager, ADN nodes, and a network configuration that matches the environment.

ADN backup manager—Takes over for the ADN manager in the event it becomes unavailable. See *ADN manager*.

ADN manager—Responsible for publishing the routing table to SG Clients (and to other ProxySG appliances).

ADN optimize attribute—Controls whether to optimize bandwidth usage when connecting upstream using an ADN tunnel.

A record—The central records of DNS, which link a domain or subdomain to an IP address. An A record can correspond to a single IP address or many IP addresses.

asx rewrite—Allows you to rewrite URLs and then direct a client's subsequent request to the new URL. One of the main applications of ASX file rewrites is to provide explicit proxy-like support for Windows Media Player 6.4, which cannot set explicit proxy mode for protocols other than HTTP.

audit—A log that provides a record of who accessed what and how.

authenticate-401 attribute—All transparent and explicit requests received on the port always use transparent authentication (cookie or IP, depending on the configuration). This is especially useful to force transparent proxy authentication in some proxy-chaining scenarios

authenticated content—Cached content that requires authentication at the origin content server (OCS). Supported authentication types for cached data include basic authentication and IWA (or NTLM).

authentication—Allows you to verify the identity of a user. In its simplest form, this is done through usernames and passwords. Much more stringent authentication can be employed using digital certificates that have been issued and verified by a Certificate Authority. *See also* basic authentication, proxy authentication, and SSL authentication.

authentication realm—Authenticates and authorizes users to access SG services using either explicit proxy or transparent proxy mode. These realms integrate third-party vendors, such as LDAP, Windows, and Novell, with the Blue Coat operating system.

authorization—The permissions given to an authenticated user.

B

bandwidth—The amount of data you can send through a network or modem connection, usually measured in bits per second (bps).

bandwidth class—A defined unit of bandwidth allocation.

bandwidth class hierarchy—A grouping of bandwidth classes into a tree structure that specifies the relationship among different classes. You create a hierarchy by creating at least one parent class and assigning other classes as its children.

bandwidth gain—Bandwidth gain is a calculation of the savings that occur when bandwidth is not consumed as a result of some form of optimization.

For example, bandwidth gain for active sessions is calculated by subtracting the number of client bytes from the number of server bytes and dividing the result by the number of server bytes.

$$(\text{Client Bytes} - \text{Server Bytes}) / \text{Server Bytes}$$

bandwidth management—Classify, control, and, if needed, limit the amount of bandwidth used by network traffic flowing in or out of a ProxySG.

basic authentication—The standard authentication for communicating with the target as identified in the URL.

BCAAA—Blue Coat Authentication and Authorization Agent. Allows SGOS 5.x to manage authentication and authorization for IWA, CA eTrust SiteMinder realms, Oracle COREid, Novell, and Windows realms. The agent is installed and configured separately from SGOS 5.x and is available from the Blue Coat Web site.

BCLP—Blue Coat Licensing Portal.

byte-range support—The ability of the ProxySG to respond to byte-range requests (requests with a `Range: HTTP` header).

C

cache—An "object store," either hardware or software, that stores information (objects) for later retrieval. The first time the object is requested, it is stored, making subsequent requests for the same information much faster.

A cache helps reduce the response time and network bandwidth consumption on future, equivalent requests. The ProxySG serves as a cache by storing content from many users to minimize response time and prevent extraneous network traffic.

cache control—Allows you to configure which content the ProxySG stores.

cache efficiency—A tab found on the Statistics pages of the Management Console that shows the percent of objects served from cache, the percent loaded from the network, and the percent that were non-cacheable.

cache hit—Occurs when the ProxySG receives a request for an object and can serve the request from the cache without a trip to the origin server.

cache miss—Occurs when the ProxySG receives a request for an object that is not in the cache. The ProxySG must then fetch the requested object from the origin server.

cache object—Cache contents includes all objects currently stored by the ProxySG. Cache objects are not cleared when the ProxySG is powered off.

Certificate Authority (CA)—A trusted, third-party organization or company that issues digital certificates used to create digital signatures and public key/private key pairs. The role of the CA is to guarantee that the individuals or company representatives who are granted a unique certificate are who they claim to be.

child class (bandwidth gain)—The child of a parent class is dependent on that parent class for available bandwidth (they share the bandwidth in proportion to their minimum/maximum bandwidth values and priority levels). A child class with siblings (classes with the same parent class) shares bandwidth with those siblings in the same manner.

cipher suite—Specifies the algorithms used to secure an SSL connection. When a client makes an SSL connection to a server, it sends a list of the cipher suites that it supports.

client consent certificates—A certificate that indicates acceptance or denial of consent to decrypt an end user's HTTPS request.

client-side transparency—A way of replacing the ProxySG IP address with the Web server IP address for all port 80 traffic destined to go to the client. This effectively conceals the ProxySG address from the client and conceals the identity of the client from the Web server.

concentrator—A ProxySG, usually located in a data center, that provides access to data center resources, such as file servers.

content filtering—A way of controlling which content is delivered to certain users. ProxySG appliances can filter content based on content categories (such as gambling, games, and so on), type (such as http, ftp, streaming, and mime type), identity (user, group, network), or network conditions. You can filter content using vendor-based filtering or by allowing or denying access to URLs.

D

default boot system—The system that was successfully started last time. If a system fails to boot, the next most recent system that booted successfully becomes the default boot system.

default proxy listener—See *proxy service (default)*.

denial of service (DoS)—A method that hackers use to prevent or deny legitimate users access to a computer, such as a Web server. DoS attacks typically send many request packets to a targeted Internet server, flooding the server's resources and making the system unusable. Any system connected to the Internet and equipped with TCP-based network services is vulnerable to a DoS attack.

The ProxySG resists DoS attacks launched by many common DoS tools. With a hardened TCP/IP stack, the ProxySG resists common network attacks, including traffic flooding.

destination objects—Used in Visual Policy Manager. These are the objects that define the target location of an entry type.

detect protocol attribute—Detects the protocol being used. Protocols that can be detected include: HTTP, P2P (eDonkey, BitTorrent, FastTrack, Gnutella), SSL, and Endpoint Mapper.

diagnostic reporting—Found in the Statistics pane, the Diagnostics tab allows you to control whether Daily Heartbeats and/or Blue Coat Monitoring are enabled or disabled.

directives—Commands used in installable lists to configure forwarding and SOCKS gateway.

DNS access—A policy layer that determines how the ProxySG processes DNS requests.

domain name system (DNS)—An Internet service that translates domain names into IP addresses.

dynamic bypass—Provides a maintenance-free method for improving performance of the ProxySG by automatically compiling a list of requested URLs that return various kinds of errors.

dynamic real-time rating (DRTR)—Used in conjunction with the Blue Coat Web Filter (BCWF), DRTR (also known as *dynamic categorization*) provides real-time analysis and content categorization of requested Web pages to solve the problem of new and previously unknown uncategorized URLs—those not in the database.

When a user requests a URL that has not already been categorized by the BCWF database (for example, a brand new Web site), the ProxySG dynamic categorization service analyzes elements of the requested content and assigns a category or categories. The dynamic service is consulted *only* when the installed BCWF database does not contain category information for an object.

E

early intercept attribute—Controls whether the proxy responds to client TCP connection requests before connecting to the upstream server. When early intercept is disabled, the proxy delays responding to the client until after it has attempted to contact the server.

ELFF-compatible format—A log type defined by the W3C that is general enough to be used with any protocol.

emulated certificates—Certificates that are presented to the user by the ProxySG when intercepting HTTPS requests. Blue Coat emulates the certificate from the server and signs it, copying the subjectName and expiration. The original certificate is used between the ProxySG and the server.

encrypted log—A log is encrypted using an external certificate associated with a private key. Encrypted logs can only be decrypted by someone with access to the private key. The private key is not accessible to the ProxySG.

EULA—End user license agreement.

event logging—Allows you to specify the types of system events logged, the size of the event log, and to configure Syslog monitoring. The ProxySG can also notify you by email if an event is logged. *See also* access logging.

explicit proxy—A configuration in which the browser is explicitly configured to communicate with the proxy server for access to content. This is the default for the ProxySG and requires configuration for both the browser and the interface card.

extended log file format (ELFF)—A variant of the common log file format, which has two additional fields at the end of the line—the referer and the user agent fields.

F

fail open/closed—Failing open or closed applies to forwarding hosts and groups and SOCKS gateways. Fail open or closed applies when health checks are showing sick for each forwarding or SOCKS gateway target in the applicable fail-over sequence. If no systems are healthy, the ProxySG fails open or closed, depending on the configuration. If closed, the connection attempt simply fails.

If open, an attempt is made to connect without using any forwarding target (or SOCKS gateway). Fail open is usually a security risk; fail closed is the default if no setting is specified.

filtering—*See content filtering.*

forward proxy—A proxy server deployed close to the clients and used to access many servers. A forward proxy can be explicit or transparent.

FTP—*See Native FTP and Web FTP.*

G

gateway—A device that serves as entrance and exit into a communications network.

H

hardware serial number—A string that uniquely identifies the ProxySG; it is assigned to each unit in manufacturing.

health check tests—The method of determining network connectivity, target responsiveness, and basic functionality. The following tests are supported:

- ICMP
- TCP
- SSL
- HTTP
- HTTPS
- Group
- Composite and reference to a composite result
- ICAP
- Websense
- DRTR rating service

health check type—The kind of device or service the specific health check tests. The following types are supported:

- Forwarding host and forwarding group
- SOCKS gateway and SOCKS gateway group
- CAP service and ICAP service group
- Websense off-box service and Websense off-box service group
- DRTR rating service
- User-defined host and a user-defined composite

heartbeat—Messages sent once every 24 hours that contain the statistical and configuration data for the ProxySG, indicating its health. Heartbeats are commonly sent to system administrators and to Blue Coat. Heartbeats contain no private information, only aggregate statistics useful for pre-emptively diagnosing support issues.

The ProxySG sends emergency heartbeats whenever it is rebooted. Emergency heartbeats contain core dump and restart flags in addition to daily heartbeat information.

host affinity—The attempt to direct multiple connections by a single user to the same group member. Host affinity is closely tied to load balancing behavior; both should be configured if load balancing is important.

host affinity timeout—The host affinity timeout determines how long a user remains idle before the connection is closed. The timeout value checks the user's IP address, SSL ID, or cookie in the host affinity table.

|

inbound traffic (bandwidth gain)—Network packets flowing into the ProxySG. Inbound traffic mainly consists of the following:

- Server inbound: Packets originating at the origin content server (OCS) and sent to the ProxySG to load a Web object.

- **Client inbound:** Packets originating at the client and sent to the ProxySG for Web requests.

installable list—A list of configuration parameters that can be created using a text editor (either Blue Coat or another text editor) or through the CLI inline commands. The list can then be downloaded to the ProxySG from an HTTP server or locally from your PC. Configurations that can be created and installed this way include the SG Client, archiving, forwarding hosts, SOCKS gateways, ICP, policy files, and exceptions.

integrated host timeout—An integrated host is an origin content server (OCS) that has been added to the health check list. The host, added through the `integrate_new_hosts` property, ages out of the integrated host table after being idle for the specified time. The default is 60 minutes.

intervals—Time period from the completion of one health check to the start of the next health check.

IP reflection—Determines how the client IP address is presented to the origin server for explicitly proxied requests. All proxy services contain a `reflect-ip` attribute, which enables or disables sending of client's IP address instead of the IP address of the ProxySG.

issuer keyring—The keyring used by the ProxySG to sign emulated certificates. The keyring is configured on the appliance and managed through policy.

L

licensable component (LC)—(Software) A subcomponent of a license; it is an option that enables or disables a specific feature.

LCAMS—License Configuration and Management System.

license—Provides both the right and the ability to use certain software functions within a ProxyAV (or ProxySG) appliance. The license key defines and controls the license, which is owned by an account.

listener—The service that is listening on a specific port. A listener can be identified by any destination IP/subnet and port range. Multiple listeners can be added to each service.

live content—Also called live broadcast. Used in streaming, it indicates that the content is being delivered fresh.

LKF—License key file.

load balancing—A way to share traffic requests among multiple upstream systems or multiple IP addresses on a single host.

local bypass list—A list you create and maintain on your network. You can use a local bypass list alone or in conjunction with a central bypass list.

local policy file—Written by enterprises (as opposed to the central policy file written by Blue Coat); used to create company- and department-specific advanced policies written in the Blue Coat Policy Language (CPL).

log facility—A separate log that contains a single logical file and supports a single log format. It also contains the file's configuration and upload schedule information as well as other configurable information such as how often to rotate (switch to a new log) the logs at the destination, any passwords needed, and the point at which the facility can be uploaded.

log format—The type of log that is used: NCSA/Common, SQUID, ELFF, SurfControl, or Websense.

The proprietary log types each have a corresponding pre-defined log format that has been set up to produce exactly that type of log (these logs cannot be edited). In addition, a number of other ELFF type log formats are also pre-defined (im, main, p2p, ssl, streaming). These can be edited, but they start out with a useful set of log fields for logging particular protocols understood by the ProxySG. It is also possible to create new log formats of type ELFF or Custom which can contain any desired combination of log fields.

log tail—The access log tail shows the log entries as they get logged. With high traffic on the ProxySG, not all access log entries are necessarily displayed. However, you can view all access log information after uploading the log.

M

MACH5—SGOS 5 MACH5 Edition.

Management Console—A graphical Web interface that lets you to manage, configure, monitor, and upgrade the ProxySG from any location. The Management Console consists of a set of Web pages and Java applets stored on the ProxySG. The appliance acts as a Web server on the management port to serve these pages and applets.

management information base (MIB)—Defines the statistics that management systems can collect. A managed device (gateway) has one or more MIBs as well as one or more SNMP agents, which implements the information and management functionality defined by a specific MIB.

maximum object size—The maximum object size stored in the ProxySG. All objects retrieved that are greater than the maximum size are delivered to the client but are not stored in the ProxySG.

Media Access Control (MAC) address—A unique value associated with a network adapter; also known as hardware address or physical address. For the ProxySG, it is a hardware address that is stored in each network card (such as an SSL accelerator card or a Quad GigE Fiber LX card) on the ProxySG. The MAC address uniquely identifies an adapter on a LAN and is a 12-digit hexadecimal number (48 bits in length).

MIME/FILE type filtering—Allows organizations to implement Internet policies for both uploaded and downloaded content by MIME or FILE type.

multi-bit rate—The capability of a single stream to deliver multiple bit rates to clients requesting content from ProxySG appliances from within varying levels of network conditions (such as different connecting bandwidths and traffic).

multicast—Used in streaming; the ability for hundreds or thousands of users to play a single stream.

multicast aliases—Used in streaming; a streaming command that specifies an alias for a multicast URL to receive an .nsc file. The .nsc files allows the multicast session to obtain the information in the control channel

multicast station—Used in streaming; a defined location on the proxy where the Windows Media player can retrieve streams. A multicast station enables multicast transmission of Windows Media content from the cache. The source of the multicast-delivered content can be a unicast-live source, a multicast (live) source, and simulated live (video-on-demand content converted to scheduled live content).

multimedia content services—Used in streaming; multimedia support includes Real Networks, Microsoft Windows Media, Apple QuickTime, MP3, and Flash.

N

name inputting—Allows a ProxySG to resolve host names based on a partial name specification. When a host name is submitted to the DNS server, the DNS server resolves the name to an IP address. If the host name cannot be resolved, Blue Coat adds the first entry in the name-inputting list to the end of the host name and resubmits it to the DNS server

native FTP—Native FTP involves the client connecting (either explicitly or transparently) using the FTP protocol; the ProxySG then connects upstream through FTP (if necessary).

NCSA common log format—Blue Coat products are compatible with this log type, which contains only basic HTTP access information.

network address translation (NAT)—The process of translating private network (such as intranet) IP addresses to Internet IP addresses and vice versa. This methodology makes it possible to match private IP addresses to Internet IP addresses even when the number of private addresses outnumbers the pool of available Internet addresses.

non-cacheable objects—A number of objects are not cached by the ProxySG because they are considered non-cacheable. You can add or delete the kinds of objects that the appliance considers non-cacheable. Some of the non-cacheable request types are:

- Pragma no-cache, requests that specify non-cached objects, such as when you click refresh in the Web browser.
- Password provided, requests that include a client password.
- Data in request that include additional client data.
- Not a GET request.

.nsc file—Created from the multicast station definition and saved through the browser as a text file encoded in a Microsoft proprietary format. Without an .nsc file, the multicast station definition does not work.

NTP—To manage objects in an appliance, a ProxySG must know the current Universal Time Coordinates (UTC) time. By default, the ProxySG attempts to connect to a Network Time Protocol (NTP) server to acquire the UTC time. The ProxySG includes a list of NTP servers available on the Internet, and attempts to connect to them in the order they appear in the NTP server list on the NTP tab.

O

object (used in caching)—An object is the item that is stored in an appliance. These objects can be frequently accessed content, content that has been placed there by content publishers, or Web pages, among other things.

object (used in Visual Policy Manager)—An object (sometimes referred to as a condition) is any collection or combination of entry types you can create individually (user, group, IP address/subnet, and attribute). To be included in an object, an item must already be created as an individual entry.

object pipelining—This patented algorithm opens as many simultaneous TCP connections as the origin server will allow and retrieves objects in parallel. The objects are then delivered from the appliance straight to the user's desktop as fast as the browser can request them.

Online Certificate Status Protocol (OCSP)—An Internet protocol used for obtaining the revocation status of an X.509 digital certificate. OCSP was created as an alternative to certificate revocation lists (CRL), specifically addressing certain problems associated with using CRLs in a public key infrastructure (PKI). OCSP servers are called OCSP responders due to the request/response nature of these messages.

origin content server (OCS)—Also called origin server. This is the original source of the content that is being requested. An appliance needs the OCS to acquire data the first time, to check that the content being served is still fresh, and to authenticate users.

outbound traffic (bandwidth gain)—Network packets flowing out of the ProxySG. Outbound traffic mainly consists of the following:

- Client outbound: Packets sent to the client in response to a Web request.
- Server outbound: Packets sent to an OCS or upstream proxy to request a service.

P

PAC (Proxy AutoConfiguration) scripts—Originally created by Netscape, PACs are a way to avoid requiring proxy hosts and port numbers to be entered for every protocol. You need only enter the URL. A PAC can be created with the needed information and the local browser can be directed to the PAC for information about proxy hosts and port numbers.

packet capture (PCAP)—Allows filtering on various attributes of the Ethernet frame to limit the amount of data collected. You can capture packets of Ethernet frames going into or leaving a ProxySG.

parent class (bandwidth gain)—A class with at least one child. The parent class must share its bandwidth with its child classes in proportion to the minimum/maximum bandwidth values or priority levels.

passive mode data connections (PASV)—Data connections initiated by an FTP client to an FTP server.

pipelining—See *object pipelining*.

policies—Groups of rules that let you manage Web access specific to the needs of an enterprise. Policies enhance ProxySG feature areas such as authentication and virus scanning, and let you control end-user Web access in your existing infrastructure.

policy-based bypass list—Used in policy. Allows a bypass based on the properties of the client, unlike static and dynamic bypass lists, which allow traffic to bypass the appliance based on destination IP address. See also *dynamic bypass*.

policy layer—A collection of rules created using Blue Coat CPL or with the VPM.

pragma: no cache (PNC)—A metatag in the header of a request that requires the appliance to forward a request to the origin server. This allows clients to always obtain a fresh copy.

proxy—Caches content, filters traffic, monitors Internet and intranet resource usage, blocks specific Internet and intranet resources for individuals or groups, and enhances the quality of Internet or intranet user experiences.

A proxy can also serve as an intermediary between a Web client and a Web server and can require authentication to allow identity-based policy and logging for the client.

The rules used to authenticate a client are based on the policies you create on the ProxySG, which can reference an existing security infrastructure—LDAP, RADIUS, IWA, and the like.

Proxy Edition—SGOS 5 Proxy Edition.

proxy service—The proxy service defines the ports, as well as other attributes, that are used by the proxies associated with the service.

proxy service (default)—The default proxy service is a service that intercepts all traffic not otherwise intercepted by other listeners. It only has one listener whose action can be set to bypass or intercept. No new listeners can be added to the default proxy service, and the default listener and service cannot be deleted. Service attributes can be changed.

ProxySG—A Blue Coat security and cache box that can help manage security and content on a network.

public key certificate—An electronic document that encapsulates the public key of the certificate sender, identifies this sender, and aids the certificate receiver to verify the identity of the certificate sender. A certificate is often considered valid if it has been digitally signed by a well-known entity, which is called a Certificate Authority (such as VeriSign).

public virtual IP (VIP)—Maps multiple servers to one IP address and then propagates that information to the public DNS servers. Typically, there is a public VIP known to the public Internet that routes the packets internally to the private VIP. This enables you to “hide” your servers from the Internet.

R

real-time streaming protocol (RTSP)—A standard method of transferring audio and video and other time-based media over Internet-technology based networks. The protocol is used to stream clips to any RTP-based client.

reflect client IP attribute—Enables the sending of the client's IP address instead of the SG's IP address to the upstream server. If you are using an application delivery network (ADN), this setting is enforced on the concentrator proxy through the **Configuration > App. Delivery Network > Tunneling** tab.

registration—An event that binds the appliance to an account, that is, it creates the Serial#, Account association.

remote authentication dial-in user service (RADIUS)—Authenticates user identity via passwords for network access.

Return to Sender (RTS)—A way of allowing outgoing TCP packets to use the same network interface on which the corresponding incoming TCP packets arrived. The destination Media Access Control (MAC) address for the outgoing packets is the same as the source MAC address of the incoming packets. See also *Media Access Control (MAC) address*.

reverse proxy—A proxy that acts as a front end to a small number of predefined servers, typically to improve performance. Many clients can use it to access the small number of predefined servers.

routing information protocol (RIP)—Designed to select the fastest route to a destination. RIP support is built into ProxySG appliances.

router hops—The number of jumps a packet takes when traversing the Internet.

RTS—See *Return to Sender*.

S

secure shell (SSH)—Also known as Secure Socket Shell. SSH is an interface and protocol that provides strong authentication and enables you to securely access a remote computer. Three utilities—login, ssh, and scp—comprise SSH. Security via SSH is accomplished using a digital certificate and password encryption. Remember that the Blue Coat ProxySG requires SSH1. A ProxySG supports a combined maximum of 16 Telnet and SSH sessions.

serial console—A third-party device that can be connected to one or more Blue Coat appliances. Once connected, you can access and configure the appliance through the serial console, even when you cannot access the appliance directly.

server certificate categories—The hostname in a server certificate can be categorized by BCWF or another content filtering vendor to fit into categories such as banking, finance, sports.

server portals—Doorways that provide controlled access to a Web server or a collection of Web servers. You can configure Blue Coat appliances to be server portals by mapping a set of external URLs onto a set of internal URLs.

server-side transparency—The ability for the server to see client IP addresses, which enables accurate client-access records to be kept. When server-side transparency is enabled, the appliance retains client IP addresses for all port 80 traffic to and from the ProxySG. In this scheme, the client IP address is always revealed to the server.

service attributes—Define the parameters, such as explicit or transparent, cipher suite, and certificate verification, that the ProxySG uses for a particular service.

sibling class (bandwidth gain)—A bandwidth class with the same parent class as another class.

signed system image—Cryptographically signed with a key known only to Blue Coat, and the signature is verified when the image is downloaded to the system.

simple network management protocol (SNMP)—The standard operations and maintenance protocol for the Internet. It consists of a set of standards for network management, including an application layer protocol, a database schema, and a set of data objects. In SNMP, the available information is defined by management information bases (MIBs), which describe the structure of the management data.

simulated live—Used in streaming. Defines playback of one or more video-on-demand files as a scheduled live event, which begins at a specified time. The content can be looped multiple times, or scheduled to start at multiple start times throughout the day.

SmartReporter log type—A proprietary ELFF log type that is compatible with the SmartFilter SmartReporter tool.

SOCKS—A proxy protocol for TCP/IP-based networking applications that allows users transparent access across the firewall. If you are using a SOCKS server for the primary or alternate forwarding gateway, you must specify the appliance's ID for the identification protocol used by the SOCKS gateway. The machine ID should be configured to be the same as the appliance's name.

SOCKS proxy—A generic way to proxy TCP and UDP protocols. The ProxySG supports both SOCKSv4/4a and SOCKSv5; however, because of increased username and password authentication capabilities and compression support, Blue Coat recommends that you use SOCKS v5.

splash page—The custom message page that displays the first time you start the client browser.

split proxy—Employs co-operative processing at the branch and the core to implement functionality that is not possible in a standalone proxy. Examples of split proxies include:

- Mapi Proxy
- SSL Proxy

SQUID-compatible format—A log type that was designed for cache statistics and is compatible with Blue Coat products.

squid-native log format—The Squid-compatible format contains one line for each request.

SSL authentication—Ensures that communication is with “trusted” sites only. Requires a certificate issued by a trusted third party (Certificate Authority).

SSL client—See SSL device profile.

SSL device profile—Used to determine various SSL parameters for outgoing HTTPS connections. Specifically, its role is to:

- Identify the SSL protocol version that the ProxySG uses in negotiations with origin servers.
- Identify the cipher suites used.
- Determine which certificate can be presented to origin servers by associating a keyring with the profile.

SSL interception—Decrypting SSL connections.

SSL proxy—A proxy that can be used for any SSL traffic (HTTPS or not), in either forward or reverse proxy mode.

static route—A manually-configured route that specifies the transmission path a packet must follow, based on the packet's destination address. A static route specifies a transmission path to another network.

statistics—Every Blue Coat appliance keeps statistics of the appliance hardware and the objects it stores. You can review the general summary, the volume, resources allocated, cache efficiency, cached contents, and custom URLs generated by the appliance for various kinds of logs. You can also check the event viewer for every event that occurred since the appliance booted.

stream—A flow of a single type of data, measured in kilobits per second (Kbps). A stream could be the sound track to a music video, for example.

SurfControl log type—A proprietary log type that is compatible with the SurfControl reporter tool. The SurfControl log format includes fully-qualified usernames when an NTLM realm provides authentication. The simple name is used for all other realm types.

syslog—An event-monitoring scheme that is especially popular in Unix environments. Most clients using Syslog have multiple devices sending messages to a single Syslog daemon. This allows viewing a single chronological event log of all of the devices assigned to the Syslog daemon. The Syslog format is: "Date Time Hostname Event."

system cache—The software cache on the appliance. When you clear the cache, all objects in the cache are set to expired. The objects are not immediately removed from memory or disk, but a subsequent request for any object requested is retrieved from the origin content server before it is served.

T

TCP window size—The number of bytes that can be buffered before the sending host must wait for an acknowledgement from the receiving host.

time-to-live (TTL) value—Used in any situation where an expiration time is needed. For example, you do not want authentication to last beyond the current session and also want a failed command to time out instead of hanging the box forever.

traffic flow (bandwidth gain)—Also referred to as *flow*. A set of packets belonging to the same TCP/UDP connection that terminate at, originate at, or flow through the ProxySG. A single request from a client involves two separate connections. One of

them is from the client to the ProxySG, and the other is from the ProxySG to the OCS. Within each of these connections, traffic flows in two directions—in one direction, packets flow out of the ProxySG (outbound traffic), and in the other direction, packets flow into the ProxySG (inbound traffic). Connections can come from the client or the server. Thus, traffic can be classified into one of four types:

- Server inbound
- Server outbound
- Client inbound
- Client outbound

These four traffic flows represent each of the four combinations described above. Each flow represents a single direction from a single connection.

transmission control protocol (TCP)—TCP, when used in conjunction with IP (Internet Protocol) enables users to send data, in the form of message units called packets, between computers over the Internet. TCP is responsible for tracking and handling, and reassembly of the packets; IP is responsible for packet delivery.

transparent proxy—A configuration in which traffic is redirected to the ProxySG without the knowledge of the client browser. No configuration is required on the browser, but network configuration, such as an L4 switch or a WCCP-compliant router, is required.

trial period—Starting with the first boot, the trial period provides 60 days of free operation. All features are enabled during this time.

U

unicast alias—Defines an name on the appliance for a streaming URL. When a client requests the alias content on the appliance, the appliance uses the URL specified in the unicast-alias command to request the content from the origin streaming server.

universal time coordinates (UTC)—A ProxySG must know the current UTC time. By default, the appliance attempts to connect to a Network Time Protocol (NTP) server to acquire the UTC time. If the ProxySG cannot access any NTP servers, you must manually set the UTC time.

URL filtering—*See* content filtering.

URL rewrite rules—Rewrite the URLs of client requests to acquire the streaming content using the new URL. For example, when a client tries to access content on `www.mycompany.com`, the ProxySG is actually receiving the content from the server on `10.253.123.123`. The client is unaware that `mycompany.com` is not serving the content; however, the ProxySG access logs indicate the actual server that provides the content.

W

WCCP—Web Cache Communication Protocol. Allows you to establish redirection of the traffic that flows through routers.

Web FTP—Web FTP is used when a client connects in explicit mode using HTTP and accesses an ftp:// URL. The ProxySG translates the HTTP request into an FTP request for the OCS (if the content is not already cached), and then translates the FTP response with the file contents into an HTTP response for the client.

Websense log type—A Blue Coat proprietary log type that is compatible with the Websense reporter tool.

X

XML responder—HTTP XML service that runs on an external server.

XML requestor—XML realm.

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