

Blue Coat® Systems ProxySG® Appliance

*Configuration and Management Suite
Volume 9: Managing the Blue Coat ProxySG Appliance*

SGOS Version 5.3.1



Contact Information

Blue Coat Systems Inc.

420 North Mary Ave

Sunnyvale, CA 94085-4121

<http://www.bluecoat.com/support/contactsupport>

<http://www.bluecoat.com>

For concerns or feedback about the documentation: documentation@bluecoat.com

Copyright© 1999-2008 Blue Coat Systems, Inc. All rights reserved worldwide. No part of this document may be reproduced by any means nor modified, decompiled, disassembled, published or distributed, in whole or in part, or translated to any electronic medium or other means without the written consent of Blue Coat Systems, Inc. All right, title and interest in and to the Software and documentation are and shall remain the exclusive property of Blue Coat Systems, Inc. and its licensors. ProxyAV™, CacheOS™, SGOS™, SG™, Spyware Interceptor™, Scope™, ProxyRA Connector™, ProxyRA Manager™, Remote Access™ and MACH5™ are trademarks of Blue Coat Systems, Inc. and CacheFlow®, Blue Coat®, Accelerating The Internet®, ProxySG®, WinProxy®, AccessNow®, Ositis®, Powering Internet Management®, The Ultimate Internet Sharing Solution®, Cerberian®, Permeo®, Permeo Technologies, Inc.®, and the Cerberian and Permeo logos are registered trademarks of Blue Coat Systems, Inc. All other trademarks contained in this document and in the Software are the property of their respective owners.

BLUE COAT SYSTEMS, INC. DISCLAIMS ALL WARRANTIES, CONDITIONS OR OTHER TERMS, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE, ON SOFTWARE AND DOCUMENTATION FURNISHED HEREUNDER INCLUDING WITHOUT LIMITATION THE WARRANTIES OF DESIGN, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL BLUE COAT SYSTEMS, INC., ITS SUPPLIERS OR ITS LICENSORS BE LIABLE FOR ANY DAMAGES, WHETHER ARISING IN TORT, CONTRACT OR ANY OTHER LEGAL THEORY EVEN IF BLUE COAT SYSTEMS, INC. HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Document Number: 231-03018

Document Revision: SGOS 5.3.1—08/2008

Contents

Contact Information

Chapter 1: About Managing the ProxySG

Document Conventions	7
About Procedures.....	7
Illustrations.....	8

Chapter 2: Monitoring the ProxySG

Section A: Using Director to Manage ProxySG Systems

Automatically Registering the ProxySG with Director	10
Director Registration Requirements	10
Setting Up Director and ProxySG Communication.....	11

Section B: Monitoring the System and Disks

System Summary	13
Viewing System Environment Sensors.....	14
Viewing Disk Status	15
Viewing SSL Accelerator Card Information	16

Section C: Setting Up Event Logging and Notification

Configuring Which Events to Log.....	17
Setting Event Log Size.....	18
Enabling Event Notification	18
Syslog Event Monitoring.....	19
Viewing Event Log Configuration and Content	20
Viewing the Event Log Contents	21

Section D: Configuring SNMP

Typical Scenarios for Configuring and Using SNMP.....	23
Single Network Management System (NMS)	23
Multiple User NMS	23
Notification Only	24
About SNMP Traps and Informs.....	24
About Management Information Bases (MIBs)	25
Obtaining the MIB Files.....	25
Adding and Enabling an SNMP Service and SNMP Listeners	26
Modifying SNMP Services and Listeners	28
Configuring SNMP	30

Configuring SNMP for SNMPv1 and SNMPv2c	32
Configuring Community Strings for SNMPv1 and SNMPv2c.....	32
Configuring SNMP Traps for SNMPv1 and SNMPv2c.....	35
Configuring SNMP for SNMPv3.....	36
About Passphrases and Localized Keys	36
Configuring SNMP Users for SNMPv3	37
Configuring SNMP Traps and Informs for SNMPv3	40

Section E: Configuring Health Monitoring

About Health Monitoring.....	42
Planning Considerations for Using Health Monitoring.....	45
About the Health Monitoring Metric Types.....	45
About the General Metrics.....	47
About the Licensing Metrics.....	47
About the Status Metrics.....	48
Snapshot of the Default Threshold Values and States.....	50
Changing Threshold and Notification Properties	52
Viewing Health Monitoring Statistics	54
Interpreting Health Monitoring Alerts	56

Chapter 3: Maintaining the ProxySG

Restarting the ProxySG.....	59
Hardware and Software Restart Options	59
Restoring System Defaults	60
Restore-Defaults	61
Factory-Defaults	61
Keep-Console.....	61
Clearing the DNS Cache	63
Clearing the Object Cache	63
Clearing the Byte Cache.....	63
Troubleshooting Tip	64
Clearing Trend Statistics.....	64
Upgrading the ProxySG.....	64
Using SGOS Signed System Images	64
Upgrading the ProxySG Appliance.....	65
Troubleshooting Tip	67
Managing ProxySG Systems	67
Setting the Default Boot System.....	69
Locking and Unlocking ProxySG Systems.....	69
Replacing a ProxySG System.....	70
Deleting a ProxySG System	70
Disk Reinitialization	70

About Reinitialization	70
Hot Swapping Disk Drives in 810 and 8100 ProxySG Appliances	71
Hot Swapping Disk Drives in 800 and 8000 ProxySG Appliances	71
Single-Disk ProxySG Appliance	72
Deleting Objects from the ProxySG Appliance	72

Chapter 4: Diagnostics

Diagnostic Reporting (Service Information).....	74
Sending Service Information Automatically	74
Managing the Bandwidth for Service Information	75
Configure Service Information Settings.....	76
Creating and Editing Snapshot Jobs.....	79
Packet Capturing (the Job Utility)	81
PCAP File Name Format.....	81
Common PCAP Filter Expressions.....	82
Configuring Packet Capturing.....	83
Core Image Restart Options	87
Diagnostic Reporting (Heartbeats).....	88
Diagnostic Reporting (CPU Monitoring)	89

Chapter 5: Statistics

Selecting the Graph Scale	92
Viewing Traffic Distribution Statistics	92
Understanding Chart Data	94
Detailed Values.....	94
Refreshing the Data.....	95
About Bypassed Bytes	96
About the Default Service Statistics	96
Viewing Bandwidth Usage or Gain.....	97
Viewing Client Byte and Server Byte Traffic Distribution.....	97
Viewing Traffic History	97
Understanding Chart Data	99
Refreshing the Data.....	100
About Bypassed Bytes	100
Viewing Bandwidth Usage or Gain or Client Byte and Server Byte Traffic History	100
Viewing ADN History	101
Viewing Bandwidth Management Statistics.....	101
Viewing ProxyClient Statistics	101
Viewing Network Interface History Statistics	101
Viewing Protocol Statistics.....	101
Viewing System Statistics.....	103

Resources Statistics	103
Contents Statistics	107
Event Logging Statistics	108
Failover Statistics.....	109
Active Sessions—Viewing Per-Connection Statistics.....	110
Example Scenarios Using Active Sessions for Troubleshooting	110
Analyzing Proxied Sessions.....	110
Analyzing Bypassed Connections Statistics.....	120
Viewing Errored Sessions and Connections	122
Viewing Health Monitoring Statistics	124
Viewing Health Check Statistics.....	124
Viewing the Access Log.....	124
Using the CLI show Command to View Statistics.....	124
Viewing Advanced Statistics	125

Glossary

Index

Chapter 1: About Managing the ProxySG

Volume 9: Managing the Blue Coat ProxySG Appliance describes how to monitor the ProxySG appliance with SNMP (a brief introduction to Director is provided), event logging, or health monitoring. It also describes common maintenance and troubleshooting tasks.

Discussed in this volume:

- ❑ Chapter 2: "Monitoring the ProxySG"
- ❑ Chapter 3: "Maintaining the ProxySG"
- ❑ Chapter 4: "Diagnostics"
- ❑ Chapter 5: "Statistics"

Document Conventions

The following section 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).
<i>Courier Italics</i>	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.
	Either the parameter before or after the pipe character can or must be selected, but not both.

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.

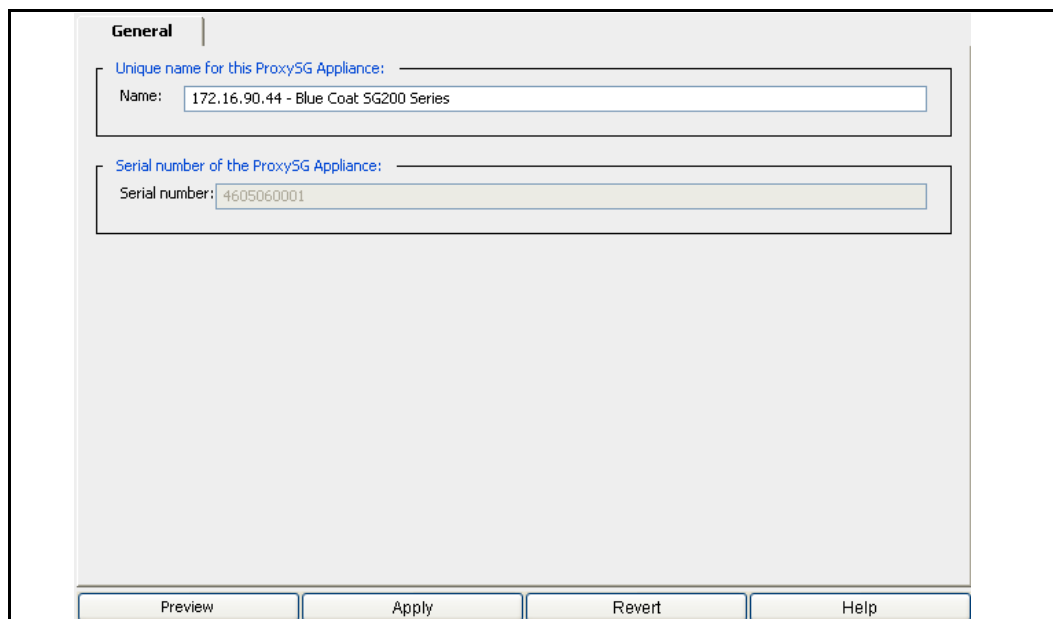


Figure 1–1 Configuration > General Tab with Bottom Buttons

- ❑ **Preview:** Click 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:** Click this button to apply unsaved configuration changes to the ProxySG.
- ❑ **Revert:** Click this button to revert any unapplied changes to the ProxySG configuration. Changes that previously have been applied to the ProxySG are not affected.
- ❑ **Help:** Click this button to view conceptual and procedural documentation about the tab's topic.

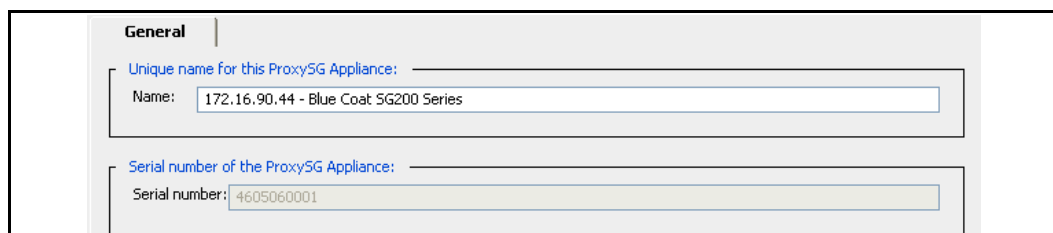


Figure 1–2 Configuration > General Tab with Bottom Buttons Removed

Chapter 2: Monitoring the ProxySG

This chapter describes the methods you can use to monitor your ProxySG appliances, including event logging, SNMP, and health monitoring. A brief introduction to Director is also provided.

Topics in this Chapter:

- ❑ [Section A: "Using Director to Manage ProxySG Systems"](#) on page 10
- ❑ [Section B: "Monitoring the System and Disks"](#) on page 13
- ❑ [Section C: "Setting Up Event Logging and Notification"](#) on page 17
- ❑ [Section D: "Configuring SNMP"](#) on page 23
- ❑ [Section E: "Configuring Health Monitoring"](#) on page 42

Section A: Using Director to Manage ProxySG Systems

Section A: Using Director to Manage ProxySG Systems

Blue Coat Director allows you to manage multiple ProxySG appliances, eliminating the need to configure and control the appliances individually.

Director allows you to configure a ProxySG and then push that configuration out to as many appliances as required. Director also allows you to delegate network and content control to multiple administrators and distribute user and content policy across a Content Delivery Network (CDN). With Director, you can:

- ❑ Reduce management costs by centrally managing all Blue Coat appliances.
- ❑ Eliminate the need to manually configure each remote ProxySG.
- ❑ Recover from system problems with configuration snapshots and recovery.

Automatically Registering the ProxySG with Director

You can use the Blue Coat Director registration feature to automatically register the ProxySG with a Blue Coat Director, thus enabling that Director to establish a secure administrative session with the appliance. During the registration process, Director can *lock out* all other administrative access to the appliance so that all configuration changes are controlled and initiated by Director. This is useful if you want to control access to the appliance or if you want to ensure that appliances receive the same configuration.

The registration process is fully authenticated; the devices use their Blue Coat appliance certificate or a *shared secret* (a registration password configured on Director) to confirm identities before exchanging public keys. If the ProxySG has an appliance certificate, that certificate is used to authenticate the ProxySG to Director as an SSL client. If the appliance does not have an appliance certificate, you must configure a registration secret on Director and specify that secret on the ProxySG. Refer to the *Blue Coat Director Configuration and Management Guide* for more information about specifying the shared secret.

Note: The Blue Coat appliance certificate is an X.509 certificate that contains the hardware serial number of a specific ProxySG as the Common Name (CN) in the subject field. Refer to the device authentication information in *Volume 5: Advanced Networking* for more information about appliance certificates.

Director Registration Requirements

To register the appliance with Director, the SSH Console management service on the ProxySG must be enabled. Director registration will fail if the SSH Console has been disabled or deleted or if the SSHv2 host key has been deleted.

Ports 8085 and 8086 are used for registration from the ProxySG to Director. If Director is already in the network, you do not need to open these ports. If you have a firewall between the ProxySG and Director and you want to use the registration feature, you must open ports 8085 and 8086.

Section A: Using Director to Manage ProxySG Systems

Registering the SG Appliance with Director

Though usually initiated at startup (with the serial console setup), you can also configure Director registration from the Management Console, as described in the following procedure.

To register the appliance with a Director:

1. Select **Maintenance > Director Registration**.

2. In the **Director IP address** field, enter the Director IP address.
3. In the **Director serial number** field, enter the Director serial number or click **Retrieve S/N from Director**. If you retrieve the serial number from the Director, verify that the serial number matches the one specified for your Director.
4. Optional—In the **Appliance name** field, enter the ProxySG name.
5. If your appliance does not have an appliance certificate, enter the Director shared secret in the **Registration password** field.

Note: Refer to the *Blue Coat Director Configuration and Management Guide* for more information about configuring the shared secret. For information about appliance certificates, refer to *Volume 5: Advanced Networking*.

6. Click **Register**.

Related CLI Commands for Director Registration

```
SGOS# register-with-director dir_ip_address [appliance_name
dir_serial_number]
```

Setting Up Director and ProxySG Communication

Director and the ProxySG use SSHv2 as the default communication mode. SSHv1 is not supported.

For Director to successfully manage multiple appliances, it must be able to communicate with an appliance using SSH/RSA and the Director's public key must be configured on each system that Director manages.

Section A: Using Director to Manage ProxySG Systems

When doing initial setup of the ProxySG from Director, Director connects to the appliance using the authentication method established on the device: SSH with simple authentication or SSH/RSA. SSH/RSA is preferred, and must also be set up on Director before connecting to the ProxySG.

Director can create an RSA keypair for a ProxySG to allow connections. However, for full functionality, Director's public key must be configured on each appliance. You can configure the key on the system using the following two methods:

- ❑ Use Director to create and push the key.
- ❑ Use the `import-director-client-key` CLI command from the ProxySG.

Using Director to create and push client keys is the recommended method. The CLI command is provided for reference.

Complete the following steps to put Director's public key on the ProxySG using the CLI of the appliance. You must complete this procedure from the CLI. The Management Console is not available.

Note: For information on creating and pushing a SSH keypair on Director, refer to the *Blue Coat Director Installation Guide*.

Log in to the ProxySG you want to manage from Director.

1. From the `(config)` prompt, enter the `ssh-console` submode:

```
SGOS#(config) ssh-console
SGOS#(config ssh-console)
```

2. Import Director's key that was previously created on Director and copied to the clipboard.

Important: You must add the Director identification at the end of the client key. The example shows the username, IP address, and MAC address of Director. **Director** must be the username, allowing you access to passwords in clear text.

```
SGOS#(config services ssh-console) inline director-client-key
Paste client key here, end with "..." (three periods)
ssh-rsa AAAAB3NzaC1yc2EAAAABIwAAAIEAvJIXt1ZausE9qrcXem2IK/mC4dY8Cxxo1/
B8th4KvedFY33OByO/pvwucuhPZz+b1LETTY/zc3SL7jdVffq00KBN/
ir4zu7L2XT68ML20RWa9tXFedNmKl/iagI3/QZJ8T8zQM6o7WnBzTvMC/
ZE1MZddAE3yPCv9+s2TR/IpK=director@10.25.36.47-2.00e0.8105.d46b
...
ok
```

To view the fingerprint of the key:

```
SGOS#(config sshd) view director-client-key clientID
jsmith@granite.example.com
83:C0:0D:57:CC:24:36:09:C3:42:B7:86:35:AC:D6:47
```

To delete a key:

```
SGOS#(config sshd) delete director-client-key clientID
```

Section B: Monitoring the System and Disks

Section B: Monitoring the System and Disks

The **System and disks** page in the Management Console has the following tabs:

❑ **Summary**

Provides configuration information and a general status information about the device.

❑ **Tasks**

Enables you to perform systems tasks, such as restarting the system and clearing the DNS or object cache. See [Chapter 3: "Maintaining the ProxySG"](#) for information about these tasks.

❑ **Environment**

Displays hardware statistics.

❑ **Disks**

Displays details about the installed disks and enables you take them offline.

❑ **SSL Cards**

Displays details about any installed SSL cards.

These statistics are also available in the CLI.

Note: The SG400 appliances do not have an Environment tab.

System Summary

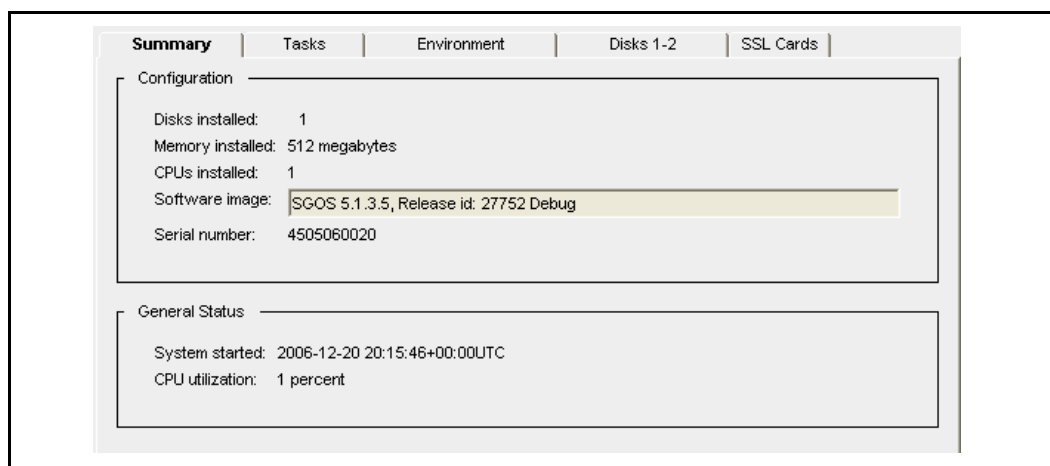
The device provides a variety of information on its status. The fields on the Summary tab are described below:

- ❑ **Disks Installed**—the number of disk drives installed in the device. The Disks tab displays the status of each drive.
- ❑ **Memory installed**—the amount of RAM installed in the device.
- ❑ **CPUs installed**—the number of CPUs installed in the device.
- ❑ **Software image**—the version and release number of the device image.
- ❑ **Serial number**—the serial number of the machine, if available.
- ❑ **System started**—the time and date the device was started.
- ❑ **CPU utilization**—the current percent utilization of the device CPU.

To view the system summary statistics:

Select **Maintenance > System and disks > Summary**.

Section B: Monitoring the System and Disks



Viewing System Environment Sensors

The icons on the Environment tab are green when the related hardware environment is within acceptable parameters, and red when an out-of-tolerance condition exists. If an icon is red, click **View Sensors** to view detailed sensor statistics to learn more about the out-of-tolerance condition.

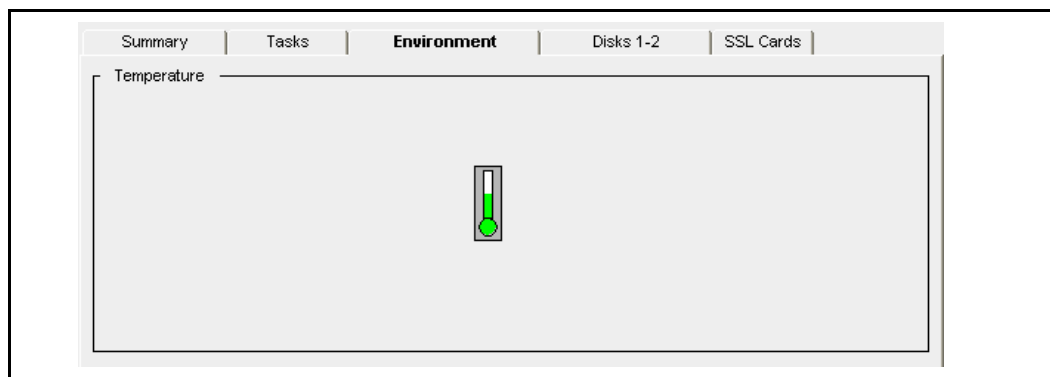
Note: The health monitoring metrics on the **Statistics > Health** page also show the state of environmental sensors. See [Section E: "Configuring Health Monitoring"](#) on page 42 for more information.

You cannot view environment statistics on an SG400 appliance.

To view the system environment statistics:

1. Select **Maintenance > System and disks > Environment**.

Note: This tab varies depending on the type of ProxySG that you are using.



2. Click **View Sensors** to see detailed sensor values; close the window when you are finished.

Section B: Monitoring the System and Disks

Sensor statistics		
Sensor Name	Reading	Status
MB Temperature	31.0 C	OK
CPU Temperature	31.0 C	OK

Viewing Disk Status

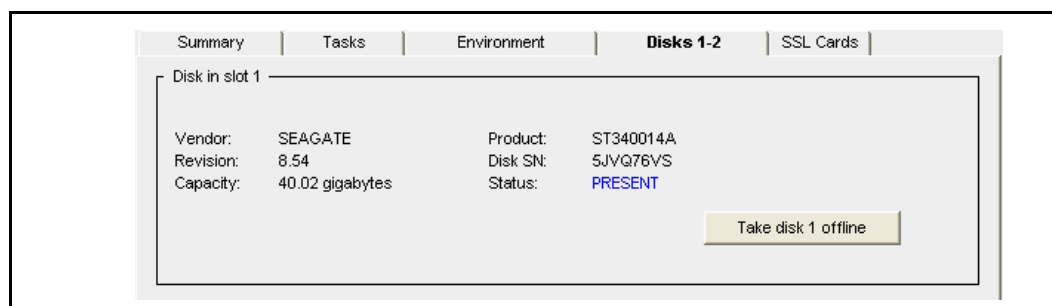
You can view the status of each of the disks in the system and take a disk offline if needed.

To view disk status or take a disk offline:

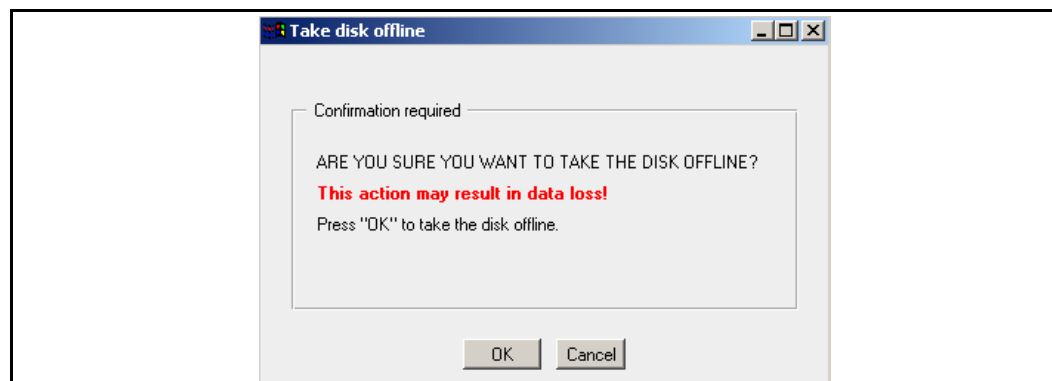
1. Select **Maintenance > System and disks > Disks 1-2**.

The default view provides information about the disk in slot 1.

Note: The name and appearance of this tab differs, depending on the range of disks available to the ProxySG model you use.



2. Select the disk to view or to take offline by clicking the appropriate disk icon.
3. (Optional) To take the selected disk offline, click the **Take disk X offline** button (where **X** is the number of the disk you have selected); click **OK** in the Take disk offline dialog that displays.



Section B: Monitoring the System and Disks

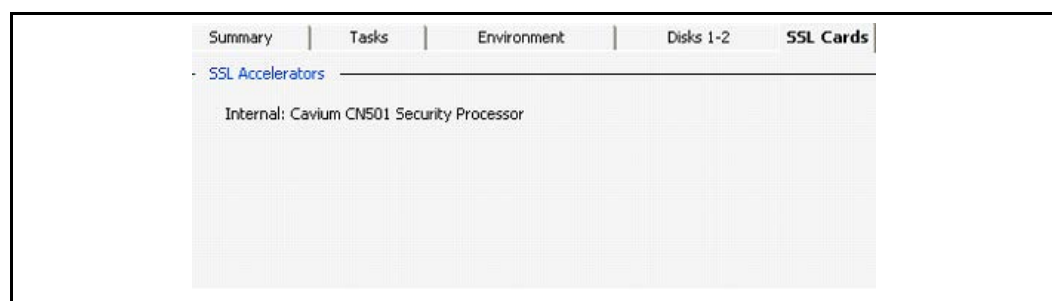
Viewing SSL Accelerator Card Information

Selecting the **Maintenance > System and disks > SSL Cards** tab allows you to view information about any SSL accelerator cards in the system. If no accelerator cards are installed, that information is stated on the pane.

To view SSL accelerator cards:

Note: You cannot view statistics about SSL accelerator cards through the CLI.

- ❑ Select **Maintenance > System and disks > SSL Cards**.



Section C: Setting Up Event Logging and Notification

Section C: Setting Up Event Logging and Notification

You can configure the ProxySG to log system events as they occur. *Event logging* allows you to specify the types of system events logged, the size of the event log, and to configure Syslog monitoring. The appliance can also notify you by e-mail if an event is logged.

Configuring Which Events to Log

The event level options are listed from the most to least important events. Because each event requires some disk space, setting the event logging to log all events fills the event log more quickly.

To set the event logging level:

1. Select **Maintenance > Event Logging > Level**.

2. Select the events you want to log.

When you select an event level, all levels above the selection are included. For example, if you select **Verbose**, all event levels are included.

3. Click **Apply**.

Related CLI Commands for Setting the Event Logging Level

```
SGOS#(config event-log) level {severe | configuration | policy |
informational | verbose}
```

Table 2–1 Event Logging Level Options

severe	Writes only severe error messages to the event log.
configuration	Writes severe and configuration change error messages to the event log.
policy	Writes severe, configuration change, and policy event error messages to the event log.
informational	Writes severe, configuration change, policy event, and information error messages to the event log.
verbose	Writes all error messages to the event log.

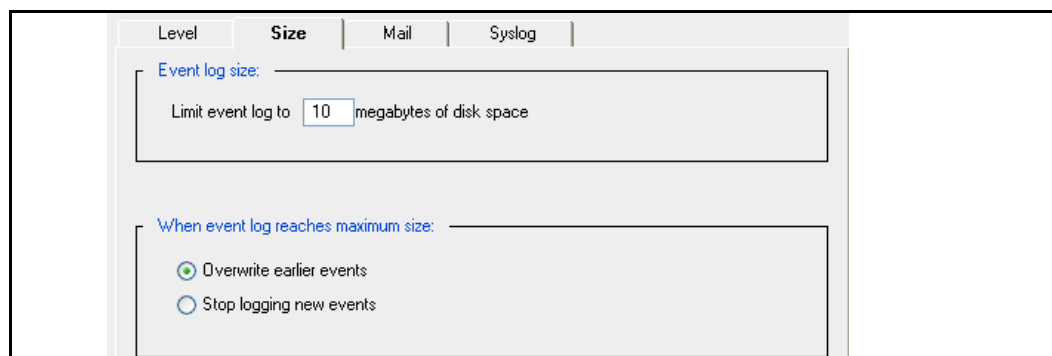
Section C: Setting Up Event Logging and Notification

Setting Event Log Size

You can limit the size of the appliances's event log and specify what the appliance should do if the log size limit is reached.

To set event log size:

1. Select **Maintenance > Event Logging > Size**.



The screenshot shows the 'Event log size' configuration page in the ProxySG web interface. The 'Size' tab is selected. The 'Event log size' section shows 'Limit event log to' set to '10 megabytes of disk space'. The 'When event log reaches maximum size:' section has two radio buttons: 'Overwrite earlier events' (selected) and 'Stop logging new events'.

2. In the **Event log size** field, enter the maximum size of the event log in megabytes.
3. Select either **Overwrite earlier events** or **Stop logging new events** to specify the desired behavior when the event log reaches maximum size.
4. Click **Apply**.

Related CLI Commands to Set the Event Log Size

```
SSGOS#(config event-log) log-size megabytes
SSGOS#(config event-log) when-full {overwrite | stop}
```

Enabling Event Notification

The ProxySG can send event notifications to Internet e-mail addresses using SMTP. You can also send event notifications directly to Blue Coat for support purposes. For information on configuring diagnostic reporting, see [Chapter 4: "Diagnostics"](#).

Note: The ProxySG must know the host name or IP address of your SMTP mail gateway to mail event messages to the e-mail address(es) you have entered. If you do not have access to an SMTP gateway, you can use the Blue Coat default SMTP gateway to send event messages directly to Blue Coat.

The Blue Coat SMTP gateway only sends mail to Blue Coat. It will not forward mail to other domains.

To enable event notifications:

1. Select **Maintenance > Event Logging > Mail**.

Section C: Setting Up Event Logging and Notification

2. Click **New** to add a new e-mail address; click **OK** in the Add list item dialog that appears.
3. In the **SMTP gateway name** field, enter the host name of your mail server; or in the **SMTP gateway IP** field, enter the IP address of your mail server.
4. (Optional) If you want to clear one of the above settings, select the radio button of the setting you want to clear. You can clear only one setting at a time.
5. Click **Apply**.

Related CLI Commands to Enable Event Notifications

```
SGOS#(config event-log) mail add email_address
```

Syslog Event Monitoring

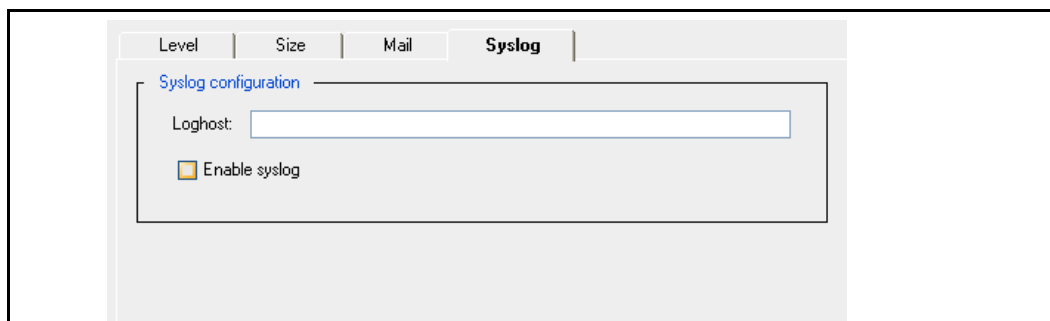
Syslog is an event-monitoring scheme that is especially popular in UNIX environments. Sites that use syslog typically have a log host node, which acts as a sink (repository) for several devices on the network. You must have a syslog daemon operating in your network to use syslog monitoring. The syslog format is: Date Time Hostname Event.

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. An event on one network device might trigger an event on other network devices, which, on occasion, can point out faulty equipment.

To enable syslog monitoring:

1. Select **Maintenance > Event Logging > Syslog**.

Section C: Setting Up Event Logging and Notification



2. In the **Loghost** field, enter the domain name or IP address of your loghost server.
3. Select **Enable Syslog**.
4. Click **Apply**.

Related CLI Commands to Enable Syslog Monitoring

```
SGOS#(config event-log) syslog {disable | enable}
```

Viewing Event Log Configuration and Content

You can view the system event log, either in its entirety or selected portions of it.

Viewing the Event Log Configuration

You can view the event log configuration, from `show` or from `view` in the event-log configuration mode.

To view the event log configuration:

At the prompt, enter the following command:

- ❑ From anywhere in the CLI

```
SGOS> show event-log configuration
Settings:
  Event level: severe + configuration + policy + informational
  Event log size: 10 megabytes
  If log reaches maximum size, overwrite earlier events
  Syslog loghost: <none>
  Syslog notification: disabled
  Syslog facility: daemon
Event recipients:
SMTP gateway:
  mail.heartbeat.bluecoat.com
```

-OR-

- ❑ From the (config) prompt:

```
SGOS#(config) event-log
SGOS#(config event-log) view configuration
Settings:
  Event level: severe + configuration + policy + informational
  Event log size: 10 megabytes
```

Section C: Setting Up Event Logging and Notification

```
If log reaches maximum size, overwrite earlier events
Syslog loghost: <none>
Syslog notification: disabled
Syslog facility: daemon
Event recipients:
SMTP gateway:
mail.heartbeat.bluecoat.com
```

Viewing the Event Log Contents

Again, you can view the event log contents from the `show` command or from the event-log configuration mode.

The syntax for viewing the event log contents is

```
SGOS# show event-log
-or-

SGOS# (config event-log) view
[start [YYYY-mm-dd] [HH:MM:SS]] [end [YYYY-mm-dd] [HH:MM:SS]] [regex
regex | substring string]
```

Pressing <Enter> shows the entire event log without filters.

The order of the filters is unimportant. If `start` is omitted, the start of the recorded event log is used. If `end` is omitted, the end of the recorded event log is used.

If the date is omitted in either `start` or `end`, it must be omitted in the other one (that is, if you supply just times, you must supply just times for both `start` and `end`, and all times refer to today). The time is interpreted in the current time zone of the appliance.

Understanding the Time Filter

The entire event log can be displayed, or either a starting date/time or ending date/time can be specified. A date/time value is specified using the notation ([YYYY-MM-DD] [HH:MM:SS]). Parts of this string can be omitted as follows:

- ❑ If the date is omitted, today's date is used.
- ❑ If the time is omitted for the starting time, it is 00:00:00.
- ❑ If the time is omitted for the ending time, it is 23:59:59.

At least one of the date or the time must be provided. The date/time range is inclusive of events that occur at the start time as well as dates that occur at the end time.

Note: If the notation includes a space, such as between the start date and the start time, the argument in the CLI should be quoted.

Section C: Setting Up Event Logging and Notification

Understanding the Regex and Substring Filters

A regular expression can be supplied, and only event log records that match the regular expression are considered for display. The regular expression is applied to the text of the event log record not including the date and time. It is case-sensitive and not anchored. You should quote the regular expression.

Since regular expressions can be difficult to write properly, you can use a substring filter instead to search the text of the event log record, not including the date and time. The search is case sensitive.

Regular expressions use the standard regular expression syntax as defined by policy. If both regex and substring are omitted, then all records are assumed to match.

Example

```
SGOS# show event-log start "2004-10-22 9:00:00" end "2004-10-22
9:15:00"
2004-10-22 09:00:02+00:00UTC "Snapshot sysinfo_stats has fetched /
sysinfo-stats " 0 2D0006:96 ../Snapshot_worker.cpp:183
2004-10-22 09:05:49+00:00UTC "NTP: Periodic query of server
ntp.bluecoat.com, system clock is 0 seconds 682 ms fast compared to NTP
time. Updated system clock. " 0 90000:1 ../ntp.cpp:631
```

Section D: Configuring SNMP

Section D: Configuring SNMP

Simple Network Management Protocol (SNMP) is used in network management systems to monitor network devices for health or status conditions that require administrative attention. The ProxySG supports SNMPv1, SNMPv2c, and SNMPv3.

An SNMP managed network consists of the following:

- ❑ Managed devices—Network nodes that contain an SNMP agent and reside on a managed network.
- ❑ Agents—Software processes that respond to queries using SNMP to provide status and statistics about a network node.
- ❑ Network Management Systems (NMSs)—Each NMS consists of a combination of hardware and software used to monitor and administer a network. An NMS executes applications that monitor and control managed devices. You can have one or more NMSs on any managed network.

Some typical uses of SNMP include:

- ❑ Monitoring device uptimes
- ❑ Providing information about OS versions
- ❑ Collecting interface information
- ❑ Measuring network interface throughput

Typical Scenarios for Configuring and Using SNMP

The ProxySG provides the capability to configure SNMP for single network management systems, a multiple user NMS, and for notification only.

Single Network Management System (NMS)

You can select the SNMP versions the ProxySG supports to match the configuration of your SNMP manager, as well as select the ports on which SNMP listens. In addition, you can use TCP connections instead of UDP connections if your management tool supports that.

Multiple User NMS

You can configure the ProxySG to work with a sophisticated network environment with NMS users that have different access requirements for using SNMP than in a single NMS environment. For example, some users might have access to particular network components and not to others, due to their areas of responsibility. Some users might have access based on gathering statistics, while others are interested in network operations.

Section D: Configuring SNMP

Notification Only

If you are not using a network manager to interrogate the state of the ProxySG, you can configure the ProxySG to provide required traps without any SNMP read-write operations. As a result, no ports are defined as listeners for SNMP. If any or all SNMP listeners in the services are deleted or disabled, you can still configure traps and informs to go out.

About SNMP Traps and Informs

SNMP agents (software running on a network-connected device) not only listen for queries for data, but also can be configured to send traps or informs (alert messages) to a network-monitoring device that is configured to receive SNMP traps. The only difference between a trap and an inform is that the SNMP manager that receives an inform request acknowledges the message with an SNMP response; no response is sent for regular traps.

SNMP traps work with SNMPv1, SNMPv2c, and SNMPv3. SNMP informs work with SNMPv2c and SNMPv3 only.

When you have traps enabled, events that can trigger a trap to be sent include such things as hardware failures and elevations or decreases in component thresholds. The default SNMP traps and informs include the following standard SNMP traps:

- ❑ `coldStart`—signifies that the SNMP entity, supporting a notification originator application, is reinitializing itself and that its configuration might have been altered. This MIB is described in `SNMPv2-MIB.txt`.
- ❑ `warmStart`—signifies that the SNMP entity, supporting a notification originator application, is reinitializing itself such that its configuration is unaltered. This MIB is described in `SNMPv2-MIB.txt`.
- ❑ `linkUp`—signifies that the SNMP entity, acting in an agent role, has detected that the `ifOperStatus` object for one of its communication links left the down state and transitioned into some other state (but not into the `notPresent` state). This other state is indicated by the included value of `ifOperStatus`. This MIB is described in `IF-MIB.txt`.
- ❑ `linkDown`—signifies that the SNMP entity, acting in an agent role, has detected that the `ifOperStatus` object for one of its communication links is about to enter the downstate from some other state (but not from the `notPresentstate`). This other state is indicated by the included value of `ifOperStatus`. This MIB is described in `IF-MIB.txt`.

The following traps require additional configuration:

- ❑ Authentication failure traps first must be enabled. See ["Configuring SNMP"](#) on page 30.
- ❑ The attack trap occurs if attack detection is set up. See *Volume 5, Advanced Networking*, Chapter 3: Attack Detection.

Section D: Configuring SNMP

- ❑ The disk/sensor traps are driven by the health monitoring settings (as is the health monitoring trap). See ["Changing Threshold and Notification Properties"](#) on page 52.
- ❑ The health check trap occurs if it is set up in the health check configuration. See *Volume 5, Advanced Networking*, Chapter 1: Verifying the Health of Services Configured on the ProxySG, "Configuring Health Check Notifications" on page 17.
- ❑ The policy trap goes off if there is policy to trigger it. See *Volume 6: The Visual Policy Manager and Advanced Policy Tasks* or *Volume 10: Content Policy Language Guide*. Many of the feature descriptions throughout the volumes also include information about setting policy.

See Also

- ❑ ["Configuring SNMP"](#) on page 30
- ❑ ["Changing Threshold and Notification Properties"](#) on page 52
- ❑ ["Configuring Community Strings for SNMPv1 and SNMPv2c"](#)
- ❑ ["Configuring SNMP Traps for SNMPv1 and SNMPv2c"](#)
- ❑ ["Configuring SNMP Users for SNMPv3"](#)
- ❑ ["Configuring SNMP Traps and Informs for SNMPv3"](#)

About Management Information Bases (MIBs)

A Management Information Base (MIB) is a text file (written in the ASN.1 data description language) that contains the description of a managed object. SNMP uses a specified set of commands and queries, and the MIBs contain information about these commands and the target objects.

One of the many uses for MIBs is to monitor system variables to ensure that the system is performing adequately. For example, a specific MIB can monitor variables such as temperatures and voltages for system components and send traps when something goes above or below a set threshold.

The Blue Coat MIB specifications adhere to RFC1155 (v1-SMI), RFC1902 (v2-SMI), RFC1903 (v2-TC), and RFC1904 (v2-CONF.)

Note: Some common MIB types, such as 64-bit counters, are not supported by SNMPv1. We recommend using either SNMPv2c or, for best security, SNMPv3.

Obtaining the MIB Files

The ProxySG uses both public MIBs and Blue Coat proprietary MIBs. You can download the MIB files from the Blue Coat Web site.

Section D: Configuring SNMP

To download the MIBs:

1. Go to <http://download.bluecoat.com>.
2. Click the link for the SGOS version you have. The page displays for the software release you specified.
3. In the right frame of the Web page, click SG 5.x MIBs. A file download dialog displays.
4. Click **Save** to navigate to the location to save the zip file of MIBs.

Note: To load the Blue Coat MIBs on an SNMP network manager, be sure to load the dependent MIBs, as well. Most commercial SNMP-based products load these MIBs when the software starts.

Adding and Enabling an SNMP Service and SNMP Listeners

There is one disabled SNMP listener defined by default on the ProxySG, which you can delete or enable, as needed. You can also add additional SNMP services and listeners. Although you can configure traps and informs to go out if all the SNMP listeners are deleted or disabled, configuring SNMP listeners sets up the UDP and TCP ports the ProxySG uses to listen for SNMP commands. The service ports set up for *listening* to SNMP requests are independent of the trap or inform addresses and ports specified for *sending* traps.

Note: For information about editing or deleting SNMP services and listeners, see "[Modifying SNMP Services and Listeners](#)" on page 28.

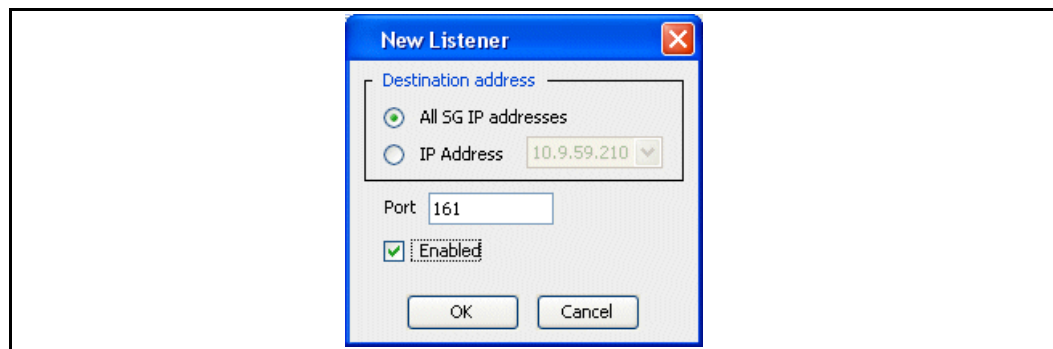
To add and enable an SNMP service and listeners:

1. Select **Configuration > Services > Management Services**. The Management Services tab displays.
2. Click **Add**. The New Service dialog displays.

Section D: Configuring SNMP



3. Enter a name for the SNMP Service.
4. In the **Services** drop-down list, select **SNMP**.
5. Click **New**. The New Listener dialog displays.



6. In the **Destination addresses** section, select **All SG IP addresses** or select **IP Address** and select a specific IP address in the drop-down list.
7. Enter the port for this listener.
8. Select **Enabled** to enable this listener.
9. Click **OK** to close the New Listener dialog, then click **OK** again to close the New Service dialog.
10. Click **Apply**.

Related Syntax to Add SNMP Services

```
#(config) management-services
#(config management-services) create snmp service_name
```

Section D: Configuring SNMP

Related Syntax to Add SNMP Listeners

```
#(config) management-services
#(config management-services) edit snmp service_name
#(config snmp_service_name) add {all | proxy_ip port}
```

All selects all IP addresses on the proxy. Alternatively, you can select a specific proxy's IP address. You must always choose a port. By default, the listener is enabled.

See Also

- ❑ ["Modifying SNMP Services and Listeners"](#)
- ❑ Chapter 3: About Proxy Services and Proxies in *Volume 2, Proxies and Proxy Services*

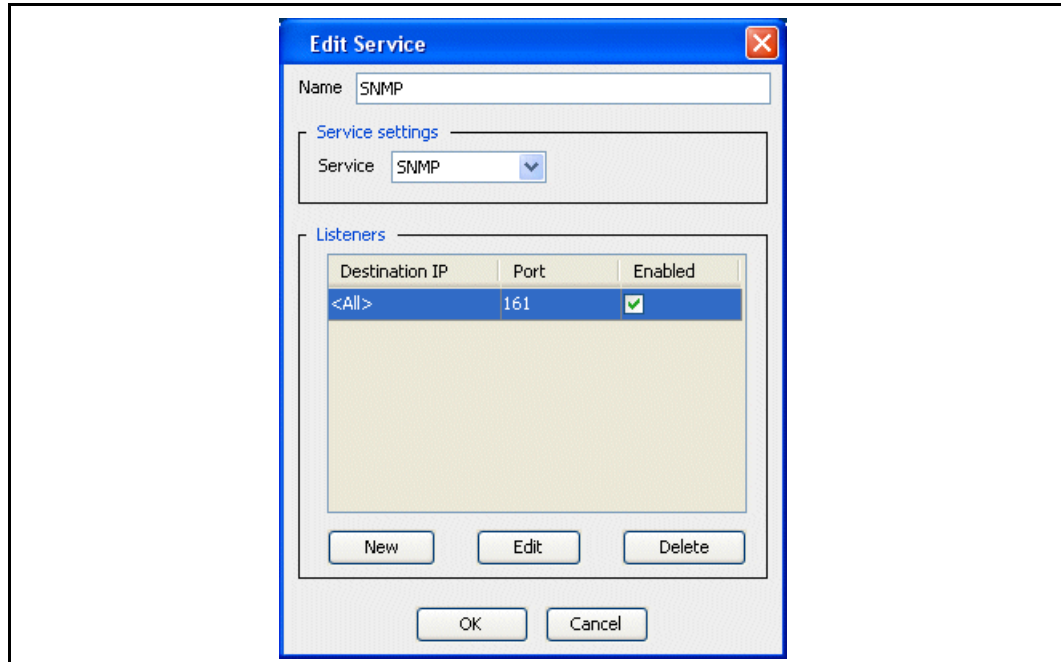
Modifying SNMP Services and Listeners

After you create and enable SNMP services and listeners, you can edit the settings and disable, enable, or delete them according to your current business needs.

To edit an SNMP service and listeners:

1. Select **Configuration > Services > Management Services**. The Management Services tab displays.
2. Click **Edit**. The Edit Service dialog displays.

Section D: Configuring SNMP



3. Select a listener in the list and click **Edit**. The Edit Listener dialog displays.
4. Edit the listener settings as required, then click **OK** to close the Edit Listeners dialog.
5. Click **OK** to close the Edit Service dialog, then click **Apply**.

Related Syntax to Enable SNMP Listeners

```
#(config) snmp
#(config snmp) enable {all | proxy_ip port}
```

Enable all SNMP listeners or a specific SNMP listener.

Related Syntax to Disable SNMP Listeners

```
#(config) snmp
#(config snmp) disable {all | proxy_ip port}
```

Disable all SNMP listeners or a specific SNMP listener.

To delete an SNMP service:

1. Select **Configuration > Services > Management Services**. The Management Services tab displays.
2. Select the SNMP service to delete and click **Delete**. A dialog box prompts you to confirm the deletion.
3. Click **OK** to delete the SNMP service, then click **Apply**.

Related Syntax to Delete an SNMP Service

```
#(config) management-services
#(config management-services) delete service_name
```

Section D: Configuring SNMP

To delete an SNMP listener:

1. Select **Configuration > Services > Management Services**. The Management Services tab displays.
2. Select an SNMP service in the list and click **Edit**. The Edit Service dialog displays.
3. Select the listener to delete and click **Delete**. A dialog box prompts you for confirmation.
4. Click **OK** to delete the listener, then click **OK** again to close the Edit Service dialog.
5. Click **Apply**.

Related Syntax to Delete an SNMP Listener

```
#(config snmp_service_name) remove {all | proxy_ip port}
```

Remove all SNMP listeners or a specific SNMP listener.

See Also

- ["Adding and Enabling an SNMP Service and SNMP Listeners"](#)
- Chapter 3: About Proxy Services and Proxies in *Volume 2, Proxies and Proxy Services*

Configuring SNMP

After you add and enable at least one SNMP service, you are ready to configure SNMP communities and users and enable traps and informs. However, to enable the ProxySG to listen for SNMP commands, be sure to enable at least one SNMP listener. See ["Adding and Enabling an SNMP Service and SNMP Listeners"](#) on page 26.

To configure SNMP:

1. Select **Maintenance > SNMP**.

Section D: Configuring SNMP

2. Set the SNMP protocols:
 - a. By default, SNMPv1, SNMPv2, and SNMPv3 are all enabled. Select the specific versions that match the configuration of your SNMP manager.

Note: Only SNMPv3 uses the Engine ID, which is required to be unique among SNMP agents and systems that are expected to work together.

The Engine ID is set by default to a value that is derived from the ProxySG serial number and the Blue Coat SNMP enterprise code. This is a unique hexadecimal identifier that is associated with the ProxySG. It appears in each SNMP packet to identify the source of the packet. The configured bytes must *not* all be equal to zero or to 0FFH (255).

- b. (Optional) If you reset the engine ID and want to return it to the default, click **Set to Default**. You do not need to reboot the system after making configuration changes to SNMP.
3. Enable traps and informs, as required.
 - a. Select **Enable use of traps and informs** to enable SNMP traps (for SNMPv1, SNMPv2c, and SNMPv3) or informs (for SNMPv2c and SNMPv3 only).
 - b. Select **Enable SNMP authentication failure traps** to have an SNMP authentication failure trap sent when the SNMP protocol has an authentication failure.

Section D: Configuring SNMP

Note: For SNMPv1 and SNMPv2c, this happens when the community string in the SNMP packet is not correct (does not match one that is supported). For SNMPv3, this happens when the authentication hash of an SNMP packet is not correct for the specified user.

- c. To perform a test trap, click **Perform test trap**, enter the trap data (string) to be sent, and click **Execute Trap**. This sends a policy notification, as defined in the BLUECOAT-SG-POLICY-MIB, to all configured trap and inform recipients, and it is intended as a communications test.
4. In the **sysContact** field, enter a string that identifies the person responsible for administering the appliance.
5. In the **sysLocation** field, enter a string that describes the physical location of the appliance.
6. Click **Apply**.

Related Syntax to Configure SNMP

```
#(config snmp) protocol snmpv1 {disable | enable}
#(config snmp) protocol snmpv2c {disable | enable}
#(config snmp) protocol snmpv3 {disable | enable}
#(config snmp) traps {disable | enable}
#(config snmp) authentication-failure-traps {enable | disable}
#(config snmp) test-trap string
#(config snmp) sys-contact string
#(config snmp) sys-location string
```

See Also

- ❑ ["Adding and Enabling an SNMP Service and SNMP Listeners"](#)
- ❑ ["Configuring SNMP for SNMPv1 and SNMPv2c"](#)
- ❑ ["Configuring SNMP Traps for SNMPv1 and SNMPv2c"](#)
- ❑ ["Configuring SNMP for SNMPv3"](#)
- ❑ ["Configuring SNMP Traps and Informs for SNMPv3"](#)

Configuring SNMP for SNMPv1 and SNMPv2c

Community strings are used for SNMPv1 and SNMPv2c only. SNMPv3 replaces the use of a community string with the ability to define a set of users. See ["Configuring SNMP for SNMPv3"](#) on page 36.

Configuring Community Strings for SNMPv1 and SNMPv2c

Community strings restrict access to SNMP data. After you define a community string, you set an authorization mode of either *read* or *read-write* to allow access using that community string. The mode *none* allows you to use a community string for traps and informs only.

Section D: Configuring SNMP

To add a community string:

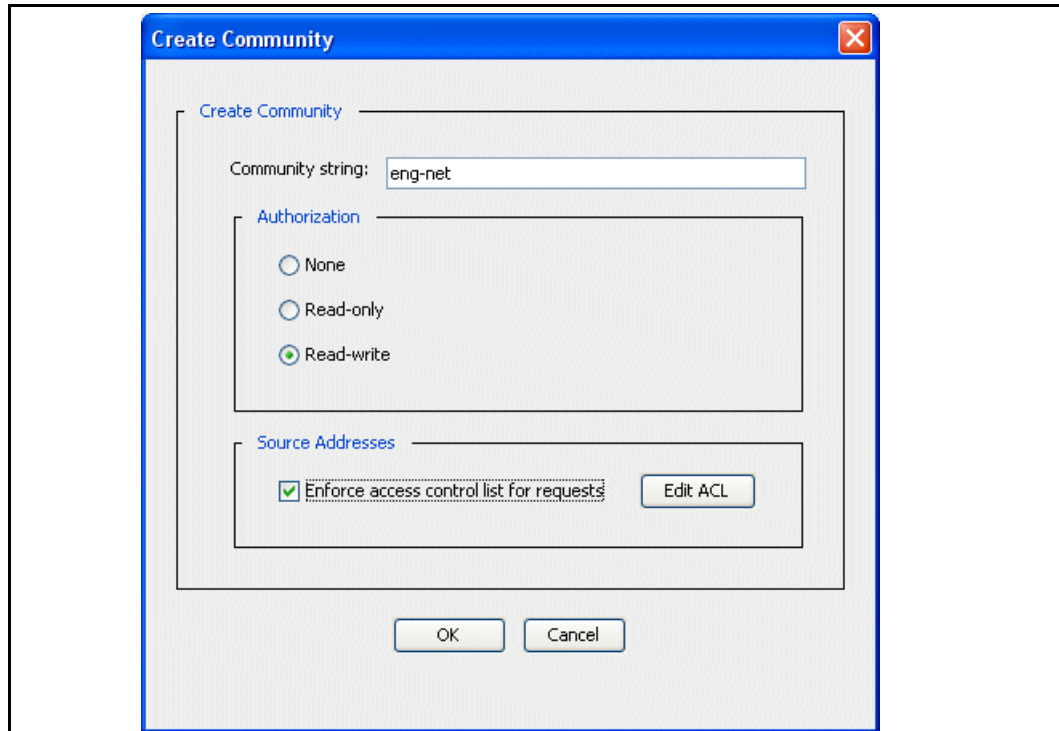
1. Select **Maintenance > SNMP > SNMPv1-v2c Communities**.

Community String	Authorization	Source Addresses
it-net	Read-only	<All>
monitor	Read-write	192.168.1.128/25

New Edit Delete

2. Click **New**. The Create Community dialog displays.

Section D: Configuring SNMP



3. Enter the community string and select the authorization level (None, Read-only, or Read-write).
4. To use all available source addresses, click **OK** and proceed to Step 4.
5. To configure an access control list, select **Enforce access control list for requests** and click **Edit ACL**. The Source Addresses dialog displays.
 - a. Click **Add**. The Add IP/Subnet dialog displays.
 - b. Enter the IP/Subnet Prefix and the Subnet Mask, then click **OK** in all open dialogs until you return to the SNMPv1-v2c Communities tab.
6. Click **Apply**.

To edit a community string:

1. Select **Maintenance > SNMP > SNMPv1-v2c Communities**.
2. Select the community string to edit and click **Edit**. The Edit (*community name*) dialog displays.
3. Edit the parameters as required, then click **OK**.
4. Click **Apply**.

Related Syntax to Add and Edit Community Strings

```
#(config snmp) create community community_string
#(config snmp) edit community community_string
```

Section D: Configuring SNMP

See Also

- ❑ ["Configuring SNMP"](#)
- ❑ ["Configuring SNMP for SNMPv1 and SNMPv2c"](#)
- ❑ ["Configuring SNMP Users for SNMPv3"](#)

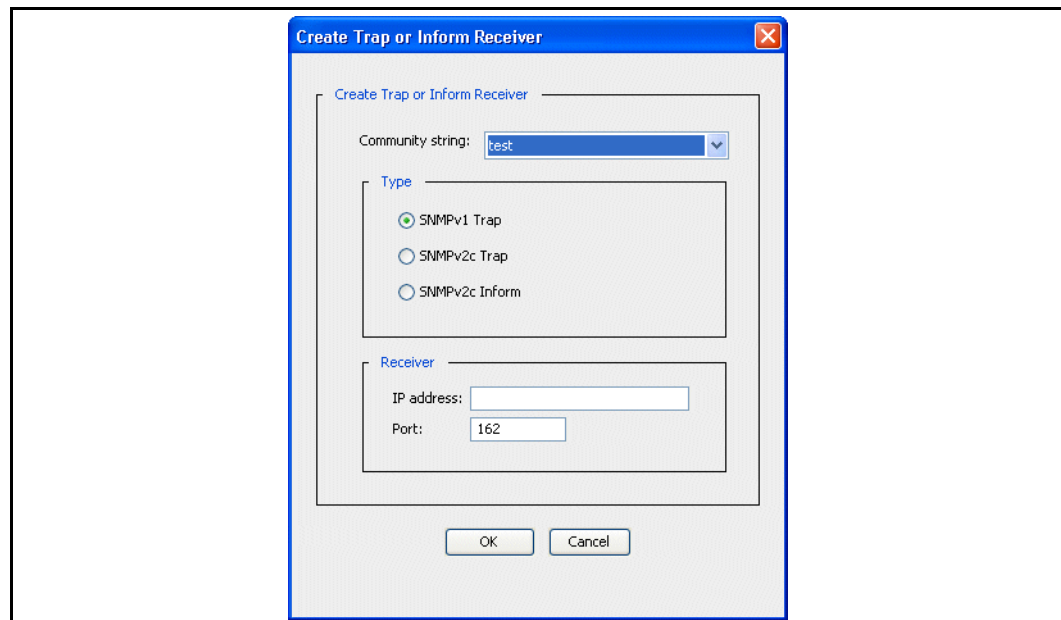
Configuring SNMP Traps for SNMPv1 and SNMPv2c

The ProxySG can send SNMP traps (for SNMPv1 and SNMP v2c) and informs (for SNMPv2c) to a management station as they occur. Each SNMP notification is sent to all defined trap and inform receivers (of all protocols). You can also enable authorization traps to send notification of attempts to access the Management Console.

If the system reboots for any reason, a *cold start trap* is sent. A *warm start trap* is sent if a you perform a software-only reboot without a hardware reset. No configuration is required.

To add SNMP traps:

1. Select **Maintenance > SNMP > SNMP v1-v2c Traps**.
2. Click **New**. The Create Trap or Inform Receiver dialog displays.



3. From the drop-down list, select a community string.
4. Select the type of trap. The difference between a trap and an inform is that the SNMP manager that receives an inform request acknowledges the message with an SNMP response. No response is sent for regular traps.
5. In the **Receiver** section, enter the IP address and port number.
6. Click **OK**, then click **Apply**.

Section D: Configuring SNMP

To edit a trap or inform:

1. Select **Maintenance > SNMP > SNMP v1-v2c Traps**.
2. Select a trap or inform in the list and click **Edit**. The Edit (*trap name*) Trap or Inform Receiver dialog displays.
3. Edit the settings as desired and click **OK**.
4. Click **Apply**.

Related Syntax to Add SNMP Traps for SNMPv1 and SNMPv2c

```
#(config snmp community community_string) add {inform | trap}
#(config snmp community community_string) add inform udp IP[:port]
#(config snmp community community_string) add trap {snmpv1 | snmpv2c}
#(config snmp community community_string) add trap snmpv1 udp
IP[:port]}
#(config snmp community community_string) add trap snmpv2c udp
IP[:port]
```

See Also

- ❑ ["About SNMP Traps and Informs"](#)
- ❑ ["Configuring SNMP"](#)
- ❑ ["Configuring SNMP for SNMPv1 and SNMPv2c"](#)
- ❑ ["Configuring Community Strings for SNMPv1 and SNMPv2c"](#)
- ❑ ["Configuring SNMP for SNMPv3"](#)
- ❑ ["Configuring SNMP Users for SNMPv3"](#)
- ❑ ["Configuring SNMP Traps and Informs for SNMPv3"](#)

Configuring SNMP for SNMPv3

For SNMPv v3, you configure users instead of community strings. You then configure the traps and informs by user rather than by community string.

About Passphrases and Localized Keys

Although it is optional to use passphrases or localized keys, using one or the other provides the increased security of SNMPv3. For most deployments, passphrases provide adequate security. For environments in which there are increased security concerns, you have the option of setting localized keys instead of passphrases. In the configuration, if you set a passphrase, any localized keys are immediately deleted and only the passphrase remains. If you set a localized key, any passphrase is deleted and the localized key is used.

If you need to use localized keys, you can enter one for the ProxySG and add keys for other specified Engine IDs. Since the ProxySG acts as an agent, its localized key is all that is needed to conduct all SNMP communications, with the single exception of SNMP informs. For informs, you need to provide the localized key that corresponds to each engine ID that is going to receive your informs.

Section D: Configuring SNMP

Configuring SNMP Users for SNMPv3

Before you can configure SNMPv3 traps and informs, you must set up users and their associated access control settings. When you set up users, you configure authentication and privacy settings, as required.

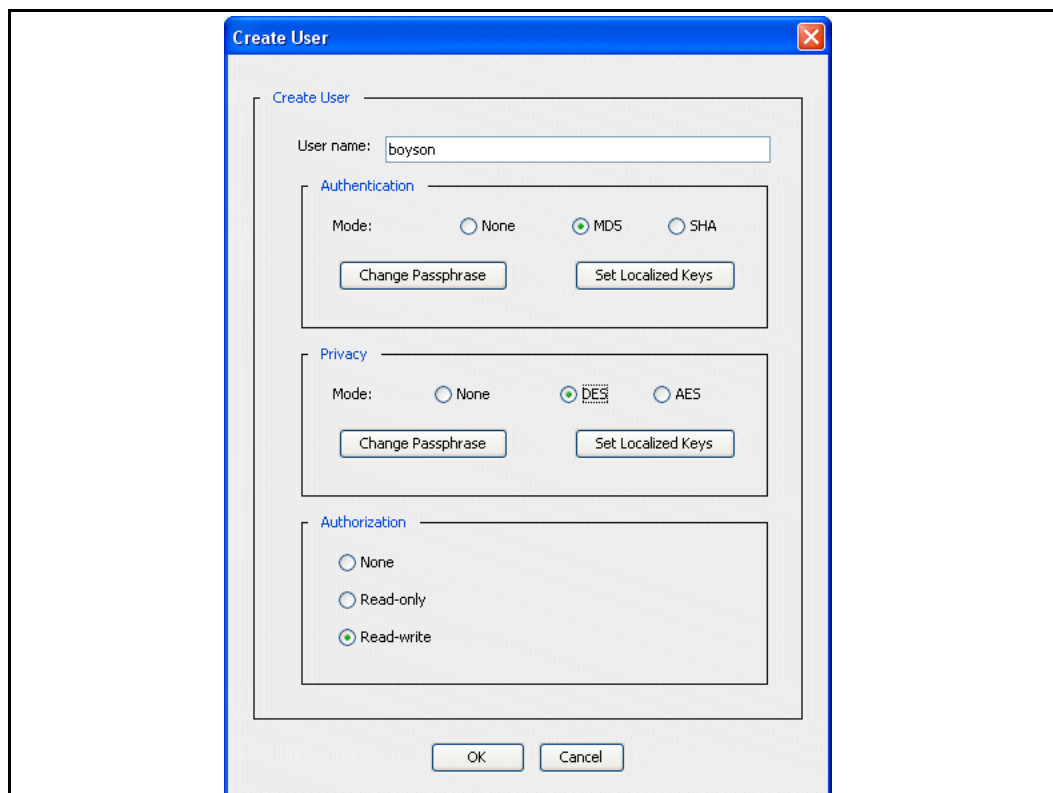
Note: The enhanced security of SNMPv3 is based on each user having an authentication passphrase and a privacy passphrase. For environments in which there are increased security concerns, you have the option of setting up localized keys instead of passphrases.

You can enable authentication without enabling privacy, however, you cannot enable privacy without enabling authentication. In an authentication-only scenario, a secure hash is done so the protocol can validate the integrity of the packet. Privacy adds the encryption of the packet data.

To configure SNMP users:

1. Select **Maintenance > SNMP > SNMPv3 Users**.
2. Click **New**. The Create User dialog displays.

Section D: Configuring SNMP



3. Enter the name of the user.
4. Set up authentication.
 - a. Select the authentication mode: **MD5** (Message Digest Version 5) or **SHA** (Secure Hash Algorithm).
 - b. Click **Change Passphrase** to set or change the authentication passphrase. If your environment requires a higher level of security, you have the option of setting up localized keys instead of passphrases. See Step c.
 - Enter and confirm the passphrase, then click **OK**.
 - c. (Optional) To set up localized keys for authentication instead of using an authentication passphrase, click **Set Localized Keys**. The Localized Keys dialog displays. When you set up localized keys, any password is deleted and the localized keys are used instead.
 - Click **New**. The Set Localized Key dialog displays.
 - If the Engine ID is Self, enter and confirm the localized key (hexadecimal), then click **OK**.

Section D: Configuring SNMP

- To add additional localized keys, enter the Engine ID (hexadecimal) and the localized key, then click **OK**.
5. Set up privacy.
 - a. To set up the privacy mode, select **DES** (Data Encryption Standard) or **AES** (Advanced Encryption Standard).
 - b. Click **Change Passphrase** to set or change the privacy passphrase. If your environment requires a higher level of security, you have the option of setting up localized keys instead of passphrases. See Step c.
 - Enter and confirm the passphrase, then click **OK**.
 - c. (Optional) To set up localized keys for privacy instead of using a privacy passphrase, click **Set Localized Keys**. The Localized Keys dialog displays. If you have set up a privacy passphrase, you will not be able to set up localized keys.
 - Click **New**. The Set Localized Key dialog displays.
 - If the Engine ID is Self, enter and confirm the localized key (hexadecimal), then click **OK**.
 - To add additional localized keys, enter the Engine ID (hexadecimal) and the localized key, then click **OK**.
 6. Select the Authorization mode for this user: **None**, **Read-only**, or **Read-write**.
 7. Click **OK** to close the Create User dialog.
 8. Click **Apply**.

To edit a user:

1. Select **Maintenance > SNMP > SNMPv3 Users**.
2. Select the user to edit and click **Edit**. The Edit (*user name*) dialog displays.
3. Edit the parameters as required, then click **OK**.
4. Click **Apply**.

Related Syntax to Add a User for SNMPv3

```
#(config snmp) create user username
```

Related Syntax to Edit a User for SNMPv3

```
#(config snmp) edit user username
```

This changes the prompt to:

```
#(config snmp user username)
```

For a complete list of the commands to edit an SNMPv3 user, see Chapter 3 “Privileged Mode Commands” in *Volume 11: Command Line Interface Reference*.

See Also

- ["Configuring SNMP"](#)

Section D: Configuring SNMP

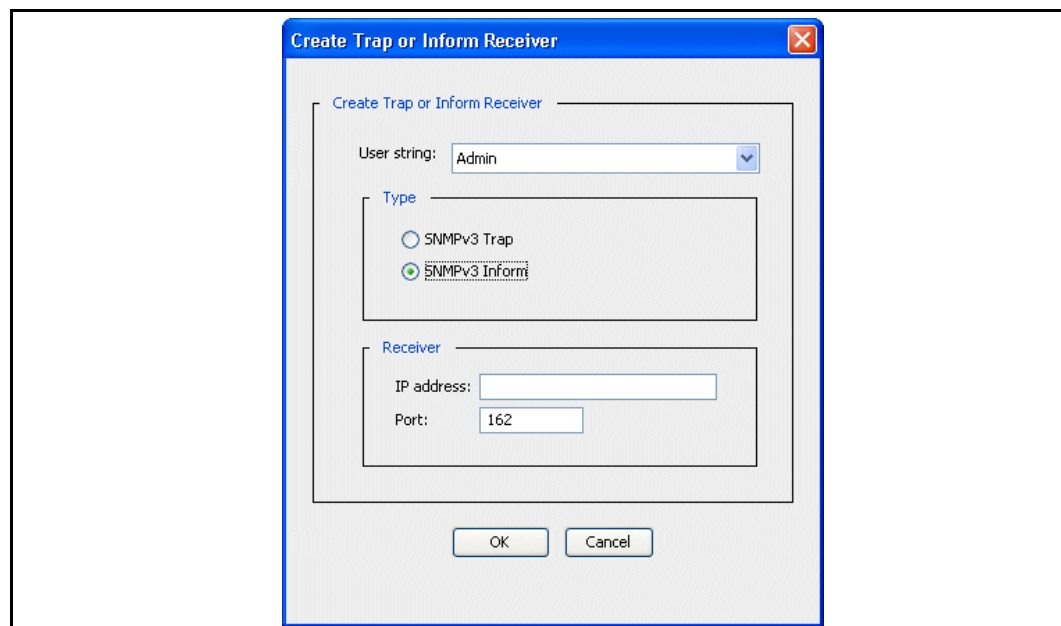
- ❑ "Configuring Community Strings for SNMPv1 and SNMPv2c"
- ❑ "Configuring SNMP Traps for SNMPv1 and SNMPv2c"
- ❑ "Configuring SNMP Traps and Informs for SNMPv3"

Configuring SNMP Traps and Informs for SNMPv3

Traps and informs are both available for SNMPv3. The difference between a trap and an inform is that the SNMP manager that receives an inform request acknowledges the message with an SNMP response; no response is sent for regular traps.

To configure SNMP traps for SNMPv3:

1. Select **Maintenance > SNMP > SNMPv3 Traps**.
2. Click **New**. The Create Trap or Inform Receiver dialog displays.



3. Select the user from the drop-down list.
4. Select **SNMPv3 Trap** or **SNMPv3 Inform**.
5. In the **Receiver** section, enter the IP address and port number.
6. Click **OK**, then click **Apply**.

To edit a trap or inform:

1. Select **Maintenance > SNMP > SNMPv3 Traps**.
2. Select a trap or inform in the list and click **Edit**. The Edit (*trap name*) Trap or Inform Receiver dialog displays.
3. Edit the settings as desired and click **OK**.
4. Click **Apply**.

Section D: Configuring SNMP

Related Syntax to Add and Edit Traps and Informs for SNMPv3

```
#(config snmp) edit user username
```

This changes the prompt to:

```
#(config snmp user username)
#(config snmp user username) add {inform | trap}
#(config snmp user username) add inform udp IP[:port]
#(config snmp user username) add trap udp IP[:port]
```

For the full list of subcommands to edit traps and informs for SNMPv3 users, see Chapter 3 “Privileged Mode Commands” in *Volume 11: Command Line Interface Reference*.

See Also

- ❑ ["About SNMP Traps and Informs"](#)
- ❑ ["Configuring SNMP"](#)
- ❑ ["Configuring SNMP for SNMPv1 and SNMPv2c"](#)
- ❑ ["Configuring SNMP Traps for SNMPv1 and SNMPv2c"](#)

Section E: Configuring Health Monitoring

Section E: Configuring Health Monitoring

The health monitor records the aggregate health of the ProxySG, by tracking status information and statistics for select resources, and aids in focusing attention when a change in health state occurs. On the ProxySG, the health monitor tracks the status of key hardware components (such as the thermal sensors, and CPU use), and the health status for configured services (such as ADN). When the health monitor detects deviations in the normal operating conditions of the device, the health status changes.

A change in health status does not always indicate a problem that requires corrective action; it indicates that a monitored metric has deviated from the normal operating parameters. The health monitor aids in focusing attention to the possible cause(s) for the change in health status.

In Figure 2-1 below, the **Health:** monitor displays the overall health of the ProxySG in one of three states, **OK**, **Warning**, or **Critical**. Click the link to view the **Statistics > Health Monitoring** page, which lists the status of the system's health monitoring metrics.

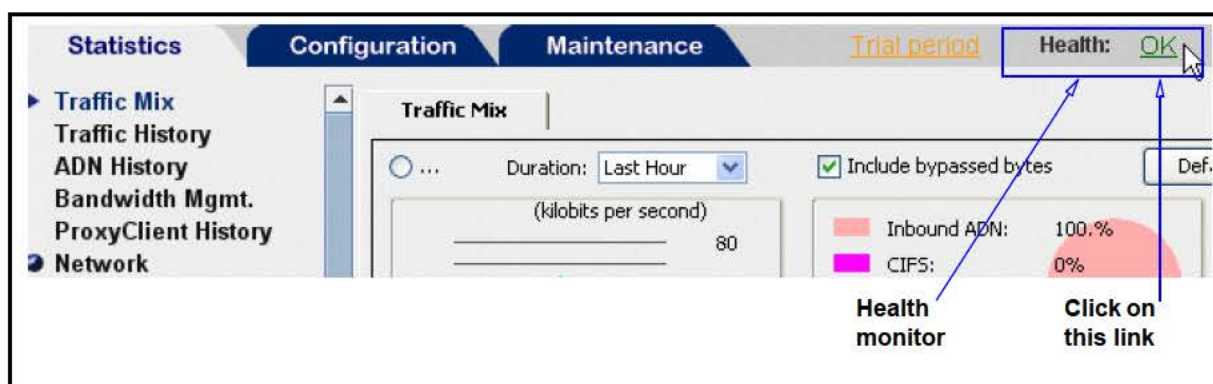


Figure 2-1 Health Monitor as displayed on the Management Console

About Health Monitoring

Health Monitoring allows you to set notification thresholds on various internal metrics that track the health of a monitored system or device. Each metric has a *value* and a *state*.

The *value* is obtained by periodically measuring the monitored system or device. In some cases, the value is a percentage or a temperature measurement; in other cases, it is a status like "Disk Present" or "Awaiting Approval".

The *state* indicates the condition of the monitored system or device:

- ❑ **OK**—The monitored system or device is behaving within normal operating parameters.
- ❑ **WARNING**—The monitored system or device is outside typical operating parameters and may require attention.
- ❑ **CRITICAL**—The monitored system or device is failing, or is far outside normal parameters, and requires immediate attention.

Section E: Configuring Health Monitoring

The current state of a metric is determined by the relationship between the value and its monitoring *thresholds*. The Warning and Critical states have thresholds, and each threshold has a corresponding *interval*.

All metrics begin in the OK state. If the value crosses the Warning threshold and remains there for the threshold's specified interval, the metric transitions to the Warning state. Similarly, if the Critical threshold is exceeded for the specified interval, the metric transitions to the Critical state. Later (for example, if the problem is resolved), the value will drop back down below the Warning threshold. If the value stays below the Warning threshold longer than the specified interval, the state returns to OK.

Every time the state changes, a notification occurs. If the value fluctuates above and below a threshold, no state change occurs until the value stays above or below the threshold for the specified interval of time.

This behavior helps to ensure that unwarranted notifications are avoided when values vary widely without having any definite trend. You can experiment with the thresholds and intervals until you are comfortable with the sensitivity of the notification settings.

Health Monitoring Example

[Figure 2–2](#) shows an example of health monitoring. Note that the graph is divided into horizontal bands associated with each of the three possible states. The lower horizontal line represents the Warning threshold and the upper horizontal line is the Critical threshold. The vertical bands represent 5 second time intervals.

Assume both thresholds have intervals of 20 seconds, and that the metric is currently in the OK state.

1. At time 0, the monitored value crosses the Warning threshold. No transition occurs yet. Later, at time 10, it crosses the critical threshold. Still, no state change occurs, because the threshold interval has not elapsed.
2. At time 20, the value has been above the warning threshold for 20 seconds--the specified interval. The state of the metric now changes to Warning, and a notification is sent. Note that even though the metric is currently in the critical range, the State is still Warning, because the value has not exceeded the Critical threshold long enough to trigger a transition to Critical.
3. At time 25, the value drops below the Critical threshold, having been above it for only 15 seconds. The state remains at Warning.
4. At time 30, it drops below the Warning threshold. Again the state does not change. If the value remains below the warning threshold until time 50, then the state will change to OK.
5. At time 50, the state transitions to OK. This transition occurs because the monitored value has remained below the Warning threshold for the configured interval of 20 seconds.

Section E: Configuring Health Monitoring

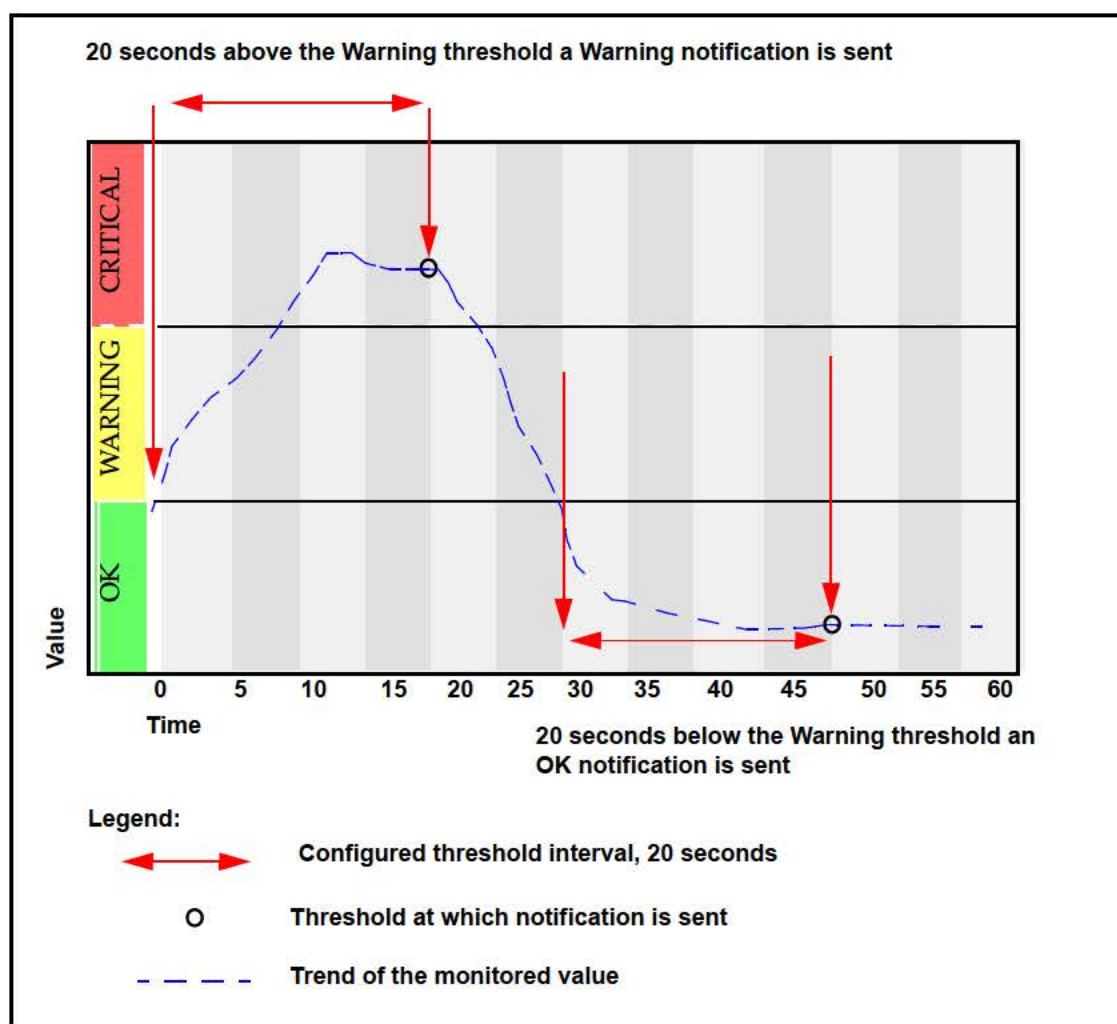


Figure 2-2 Relationship between the threshold value and threshold interval

Health Monitoring Cycle

The health monitoring process is a cycle that begins with the health state at OK. When the health monitor detects a change in the value of a monitored metric, the health state changes. The **Health:** indicator reflects the change in status.

Note: A change in health status does not always indicate a problem that requires corrective action; it indicates that a monitored metric has deviated from the normal operating parameters.

The **Health:** indicator is always visible in the Management Console, and the color and text reflect the most severe health state for all metrics— red for **Critical**, yellow for **Warning**, and green for **OK**. In the **Health Monitoring > Statistics** panel, the tabs for **General**, **License**, and **Status** metrics change color to reflect the most severe state of the metrics they contain. You might click the tabs to view the problem and assess

Section E: Configuring Health Monitoring

the information. Based on the cause for the alert, the administrator might take diagnostic action or redefine the “normal” operating parameters for the metric and restore the health state of the ProxySG.

For example, if the revolutions per minute for **Fan 1 Speed** falls below the warning threshold, the appliance’s health transitions to **Warning**. Since **Fan 1 Speed** is a metric in the status tab, the **Statistics > Health Monitoring > Status** tab turns yellow. By clicking the **Health:** link and navigating to the yellow tab, you can view the alert. You might then examine the fan to determine whether it needs to be replaced (due to wear and tear) or if something is obstructing its movement.

To facilitate prompt attention for a change in the health state, you can configure notifications on the appliance.

Planning Considerations for Using Health Monitoring

The health monitor indicates whether the ProxySG is operating within the default parameters set on the appliance. Blue Coat recommends that you review these settings and adjust them to reflect the normal operating parameters for your environment. You can configure:

- ❑ Thresholds, to define what measurements generate warnings or critical alerts. See [“Changing Threshold and Notification Properties”](#) on page 52.
- ❑ Time intervals, that determine whether a threshold has been crossed and whether an alert should be sent. See [“Changing Threshold and Notification Properties”](#) on page 52.
- ❑ The means by which alerts are delivered, any combination of e-mail, SNMP trap, event log, or none. See [“Setting Up Event Logging and Notification”](#) on page 17 for more information.

About the Health Monitoring Metric Types

The ProxySG monitors the status of the following metrics:

- ❑ Hardware — Disk, Voltage, Temperature, Fan speed, Power supply
- ❑ System Resources — CPU, Memory, and Network usage
- ❑ ADN Status
- ❑ License Expiration and Utilization
- ❑ Health Check Status — health status of external services used by the appliance

These health monitoring metrics are grouped as General, Licensing, or Status metrics.

The system resources and licensing thresholds are user-configurable, meaning that you can specify the threshold levels that will trigger an alert.

The hardware and ADN status metrics are *not* configurable and are preset to optimal values. For example, on some platforms, a Warning is triggered when the CPU temperature reaches 55 degrees Celsius.

Section E: Configuring Health Monitoring

The health check status metric is also *not* configurable. It takes into account the most acute value amongst the configured health checks and the *severity* component for each health check.

Severity of a health check indicates how the value of a failed health check affects the overall health of the ProxySG, as indicated by the health monitor.

If, for example, three health checks are configured on the ProxySG:

- ❑ `dns.192.0.2.4` with severity *No-effect*
- ❑ `fwd.test` with severity *Warning*
- ❑ `auth.service` with severity *Critical*

The value of the health check status metric adjusts in accordance with the success or failure of each health check and its configured severity as shown below:

If all three health checks report healthy, the health check status metric is OK.

If `dns.192.0.2.4` reports unhealthy, the health check status remains OK. The health check status metric does not change because its severity is set to no-effect.

If `fwd.test` reports unhealthy, the health check status transitions to Warning. This transition occurs because the severity for this health check is set to warning.

If `auth.service` reports unhealthy, the health check status becomes Critical because its severity is set to critical.

Subsequently, even if `fwd.test` reports healthy, the health check status remains critical as `auth.service` reports unhealthy.

The health check status will transition to OK only if both `fwd.test` and `auth.service` report healthy.

Table 2–2 Health Check Status Metric — Combines the Health Check Result and the Severity Option

Configured Health Checks	Reporting as...						
<code>dns.192.0.2.4</code> severity: no-effect	Healthy	Unhealthy	Unhealthy	Healthy	Healthy	Healthy	Healthy
<code>fwd.test</code> severity: warning	Healthy	Healthy	Unhealthy	Unhealthy	Unhealthy	Healthy	Healthy
<code>auth.service</code> severity: critical	Healthy	Healthy	Healthy	Healthy	Unhealthy	Unhealthy	Healthy
Health Check Status	OK	OK	Warning	Warning	Critical	Critical	OK

You can configure the default **Severity** for all health checks in the **Configuration > Health Checks > General > Default Notifications** tab. For more information on configuring the severity option for health checks, refer to *Volume 5: Advanced Networking*.

Section E: Configuring Health Monitoring

About the General Metrics

The following table lists the metrics displayed in the **Maintenance > Health Monitoring > General** page. The thresholds and intervals for these metrics are user-configurable.

To view the statistics on CPU utilization and memory utilization on the ProxySG, see ["Viewing System Statistics"](#) on page 103.

To view the statistics on interface utilization, refer to Chapter 10 in *Volume 1: Getting Started*.

Table 2–3 General Health Monitoring Metrics

Metric	Default Values		Notes
	Critical Threshold / Interval	Warning Threshold / Interval	
CPU Utilization	95% / 120 seconds	80% / 120 seconds	Measures the value of the primary CPU on multi-processor systems — <i>not</i> the average of all CPU activity.
Memory Utilization	95% / 120 seconds	90% / 120 seconds	Measures memory use and tracks when memory resources become limited, causing new connections to be delayed.
Interface Utilization	90% / 120 seconds	60% / 120 seconds	Measures the traffic (in and out) on the interface to determine if it is approaching the maximum capacity. (bandwidth maximum)

See Also:

- ❑ ["Changing Threshold and Notification Properties"](#) on page 52
- ❑ ["Snapshot of the Default Threshold Values and States"](#) on page 50
- ❑ ["Health Monitoring Cycle"](#) on page 44
- ❑ ["Health Monitoring Example"](#) on page 43

About the Licensing Metrics

The following table lists the metrics displayed in the **Maintenance > Health Monitoring > Licensing** page. On the license page, you can monitor the utilization of user-limited licenses and the expiration of time-limited licenses. Licenses that do not expire or do not have a user limit are not displayed because there is no need to monitor them for a change in state that could affect the ProxySG appliance's health.

Section E: Configuring Health Monitoring

About License Expiration Metrics

The threshold values for license expiration metrics are set in days until expiration. In this context, a critical threshold indicates that license expiration is imminent. Thus, the Critical threshold value should be smaller than the Warning threshold value. For example, if you set the Warning threshold to 45, an alert is sent when there are 45 days remaining in the license period. The Critical threshold would be less than 45 days, for example 5 days.

For license expiration metrics, the threshold interval is irrelevant and is set to 0.

Note: For new ProxySG appliances running SGOS 5.3, the default Warning threshold for license expiration is 15 days.

For ProxySG appliances upgrading from earlier versions to SGOS 5.3, the default Warning threshold remains at the same value prior to the upgrade. For example, if the Warning threshold was 30 days prior to the upgrade, the Warning threshold will remain at 30 days after the upgrade.

Refer to the most current *Release Notes* for SGOS upgrade information.

Table 2–4 Licensing Health Monitoring Metrics

Metric	Default Values		Notes
	Critical Threshold / Interval	Warning Threshold / Interval	
License Utilization	90% / 120 seconds	80% / 120 seconds	Monitors the number of users using the ProxySG.
License Expiration	0 days / 0	15 days / 0 (For new ProxySG appliances running SGOS 5.3, see note above)	Warns of impending license expiration.
		30 days / 0 (For non-new ProxySG appliances upgrading from earlier versions of the SGOS)	

About the Status Metrics

The following table lists the metrics displayed in the **Maintenance > Health Monitoring > Status** page. The thresholds for these metrics are *not* user-configurable.

Section E: Configuring Health Monitoring

Table 2–5 Status Health Monitoring Metrics

Metric	Threshold States and Corresponding Values
Disk Status	Critical: Bad Warning: Removed Offline OK: Not Present Present
Temperature — Motherboard and CPU	Threshold states and values vary by ProxySG models
Fan Speed	Threshold states and values vary by ProxySG models
Voltage — Bus Voltage, CPU Voltage, Power Supply Voltage	Threshold states and values vary by ProxySG models
ADN Connection Status	OK: Connected Connecting Connection Approved Disabled Not Operational Warning: Approval Pending Mismatching Approval Status Partially Connected Critical: Disconnected Connection Denied <i>See Volume 5: Advanced Networking for more information about the ADN metrics.</i>
ADN Manager Status	OK: Not a Manager No Approvals Pending Warning: Approvals Pending

Section E: Configuring Health Monitoring

Table 2–5 Status Health Monitoring Metrics (Continued)

Health Check Status	<p>OK:</p> <p>No health checks with <i>Severity: Warning</i> or <i>Critical</i> are failing. A health check with <i>Severity: No-effect</i> might be failing.</p> <p>Warning:</p> <p>One or more health checks with <i>Severity: Warning</i> has failed.</p> <p>Critical:</p> <p>One or more health checks with <i>Severity: Critical</i> has failed.</p>
---------------------	---

Snapshot of the Default Threshold Values and States

See the table below for a quick glance at the health states and their corresponding threshold values:

Table 2–6 Health States and the Default Values for the Health Monitoring Metrics

General	Health States and Corresponding Default Values		
Metric	OK	Warning	Critical
CPU Utilization	less than 80%	80%	95%
Memory Utilization	less than 90%	90%	95%
Interface Utilization	less than 60%	60%	90%

Licensing	States and Corresponding Values		
Metric	OK	Warning	Critical
License Utilization	less than 80%	80%	90%
License Expiration	more than 15 days* more than 30 days **	15 days* 30 days**	0 days 0 days

*For new ProxySG appliances running SGOS 5.3

** For non-new ProxySG appliances upgrading from earlier versions of the SGOS

Status	States and Corresponding Values		
Metric	OK	Warning	Critical
Disk status	Present/Not Present	Removed	Error
Temperature	Vary by ProxySG models		
Fan Speed	Vary by ProxySG models		
Voltage	Vary by ProxySG models		

Section E: Configuring Health Monitoring

Status	States and Corresponding Values		
ADN Connection Status	Connected Connecting Connection Approved Disabled Not Operational	Approval Pending Mismatching Approval Status Partially Connected	Disconnected Connection Denied
ADN Manager	Not a Manager No Approvals Pending	Approval Pending	
Health Check Status	No health checks with <i>Severity: Warning</i> or <i>Critical</i> are failing. A health check with <i>Severity: No-effect</i> might be failing.	One or more health checks with <i>Severity: Warning</i> has failed.	One or more health checks with <i>Severity: Critical</i> has failed.

Section E: Configuring Health Monitoring

Changing Threshold and Notification Properties

You can change the thresholds for the metrics in the **General** and **Licensing** tab to suit your network requirements. For the defaults, see "[About the Health Monitoring Metric Types](#)" on page 45.

For health monitoring notifications, by default, all alerts are written to the event log. Any combination of the following types of notification can be set:

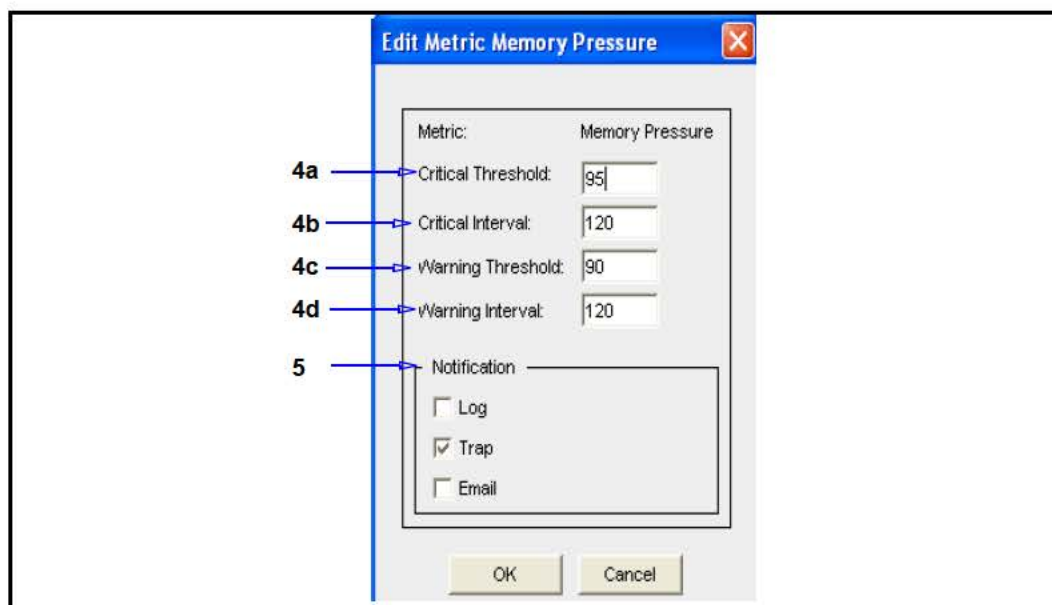
- ❑ Log: Inserts an entry into the Event log. See "[Setting Up Event Logging and Notification](#)" on page 17 for more information.
- ❑ SNMP trap: Sends an SNMP trap to all configured management stations. See [Section D: "Configuring SNMP"](#) on page 23 for more information
- ❑ E-mail: Sends e-mail to all persons listed in the Event log properties.

Use the following procedure to modify the current settings.

To change the threshold and notification properties:

1. Select **Maintenance > Health Monitoring**.
2. Select the tab for the metric you wish to modify.
 - To change the system resource metrics, select **General**.
 - To change the hardware, ADN status and health check status metrics, select **Status**.
 - To change the licensing metrics, select **Licensing**.
3. Click **Edit** to modify the threshold and notification settings. The **Edit Health Monitor Setting** dialog displays. Hardware, health check, and ADN thresholds cannot be modified.

Section E: Configuring Health Monitoring



4. Modify the threshold values:
 - a. To change the critical threshold, enter a new value in the Critical Threshold field.
 - b. To change the critical interval, enter a new value in the Critical Interval field.
 - c. To change the warning threshold, enter a new value in the Warning Threshold field.
 - d. To change the warning interval, enter a new value in the Warning Interval field.
5. Modify the notification settings.
 - **Log** adds an entry to the Event log.
 - **Trap** sends an SNMP trap to all configured management stations.
 - **Email** sends an e-mail to the addresses listed in the Event log properties. See ["Setting Up Event Logging and Notification"](#) on page 17 for more information.
6. Click **OK** to close the Edit Metric dialog.
7. Click **Apply**.

Related CLI Syntax to Modify Threshold and Notification Properties

```
#(config) alert threshold cpu-utilization warning_threshold
warning_interval critical_threshold critical_interval
#(config) alert threshold license-utilization users warning_threshold
warning_interval critical_threshold critical_interval
#(config) alert threshold license-expiration {sgos | ssl}
warning_threshold critical_threshold
```

Section E: Configuring Health Monitoring

```
#(config) alert threshold memory-utilization warning_threshold
warning_interval critical_threshold critical_interval
#(config) alert threshold network-utilization adapter:interface
warning_threshold warning_interval critical_threshold
critical_interval
#(config) alert notification adn {connection | manager } {email | log |
trap | none }
#(config) alert notification cpu-utilization {email | log | trap |
none}
#(config) alert notification disk-status {email | log | trap | none}
#(config) alert notification health-check {email | log | trap | none}
#(config) alert notification license-utilization users {email | log |
trap | none}
#(config) alert notification license-expiration {sgos | ssl} {email |
log | trap | none}
#(config) alert notification memory-utilization {email | log | trap |
none}
#(config) alert notification network-utilization adapter:interface
{email | log | trap | none}
#(config) alert notification sensor fan {email | log | trap | none}
#(config) alert notification sensor power-supply {email | log | trap |
none}
#(config) alert notification sensor temperature {email | log | trap |
none}
#(config) alert notification sensor voltage {email | log | trap | none}
```

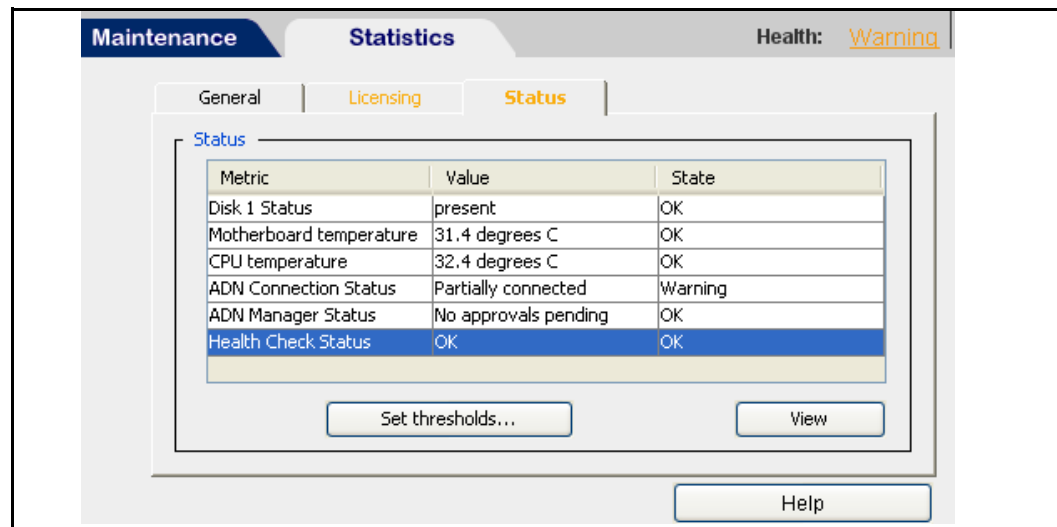
Viewing Health Monitoring Statistics

While the **Health:** indicator presents a quick view of the appliance's health, the **Statistics > Health Monitoring** page provides more information about the current state of the health monitoring metrics.

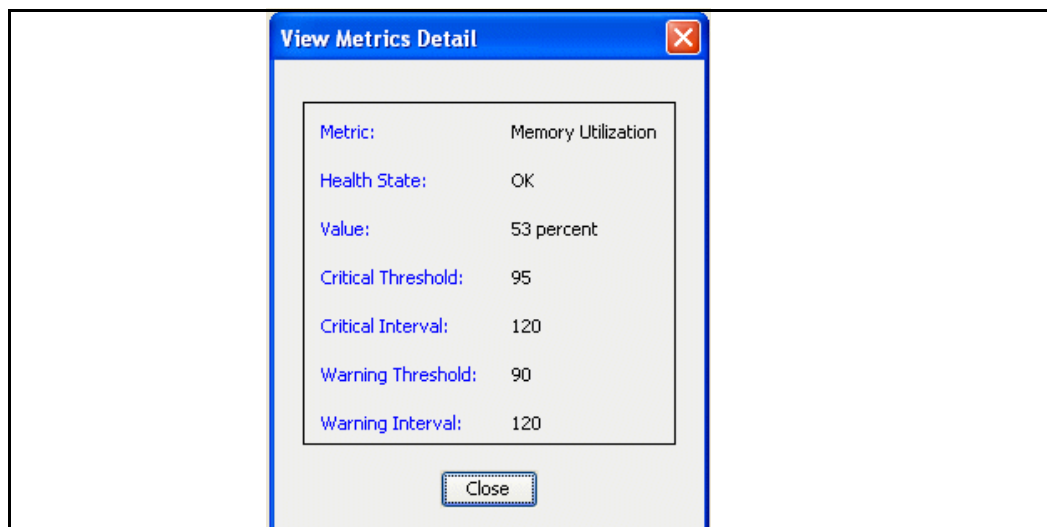
To review the health monitoring statistics:

1. From the Management Console, select **Statistics > Health Monitoring**.

Section E: Configuring Health Monitoring



2. Select a health monitoring statistics tab:
 - **General:** Lists the current state of CPU utilization, interface utilization, memory utilization.
 - **Licensing:** Lists the current state of license utilization and license expiration.
 - **Status:** Lists the current state of ADN status, hardware (including disk status, temperature, fan speed, power supply) and health check status.
3. To get more details about a metric, highlight the metric and click **View**. The **View Metrics Detail** dialog displays.



4. Click **Close** to close the **View Metrics Detail** dialog.
5. Optional—To modify a metric, highlight the metric and click **Set Thresholds**. The **Maintenance > Health Monitoring** page displays. To modify the metric, follow the procedure describe in “[Changing Threshold and Notification Properties](#)” on page 52.

Related CLI Syntax to View Health Monitoring Statistics

```
SGOS#(config) show system-resource-metrics
```

The show system-resource-metrics command lists the state of the current system resource metrics.

Interpreting Health Monitoring Alerts

If you need assistance with interpreting the health monitoring alerts you receive, please contact Blue Coat Technical Support. For non-technical questions such as licensing or entitlements, contact Blue Coat Support Services.

Blue Coat recommends the following guidelines to meet your support needs:

1. Try Blue Coat Systems’ self-help knowledge base at <http://www.bluecoat.com/support/instant-support>
2. If your request is non-urgent, open a Service Request using our WebPower customer support portal at <http://www.bluecoat.com/support/webpower>
3. If your request is urgent, give us a call. The contact details and service hours are listed at <http://www.bluecoat.com/support/contact-support>

Table 2–7 Technical Support and Support Services Contact Information

Blue Coat Technical Support	http://www.bluecoat.com/support/contact-support
Blue Coat Support Services	Email: support.services@bluecoat.com

See Also:

- ❑ [“About Health Monitoring”](#) on page 42
- ❑ [“Planning Considerations for Using Health Monitoring”](#) on page 45
- ❑ [“About the Health Monitoring Metric Types”](#) on page 45
- ❑ [“About License Expiration Metrics”](#) on page 48
- ❑ [“Snapshot of the Default Threshold Values and States”](#) on page 50
- ❑ [“Changing Threshold and Notification Properties”](#) on page 52
- ❑ [“Setting Up Event Logging and Notification”](#) on page 17
- ❑ [“Viewing Health Monitoring Statistics”](#) on page 54
- ❑ [“Interpreting Health Monitoring Alerts”](#) on page 56
- ❑ [“Health Monitoring Example”](#) on page 43
- ❑ [“Health Monitoring Cycle”](#) on page 44

Chapter 3: Maintaining the ProxySG

This chapter describes how to maintain the ProxySG; for example, restarting the appliance, restoring system defaults, upgrading the appliance, and reinitializing disks.

Topics in this Chapter

This chapter includes information about the following topics:

- ❑ ["Restarting the ProxySG"](#) on page 59
- ❑ ["Restoring System Defaults"](#) on page 60
- ❑ ["Clearing the DNS Cache"](#) on page 63
- ❑ ["Clearing the Object Cache"](#) on page 63
- ❑ ["Clearing the Byte Cache"](#) on page 63
- ❑ ["Clearing Trend Statistics"](#) on page 64
- ❑ ["Upgrading the ProxySG"](#) on page 64
- ❑ ["Managing ProxySG Systems"](#) on page 67
- ❑ ["Disk Reinitialization"](#) on page 70
- ❑ ["Deleting Objects from the ProxySG Appliance"](#) on page 72

Restarting the ProxySG

The restart options control the restart attributes of the ProxySG if a restart is required because of a system fault.

Important: The default settings of the Restart option suits most systems. Changing them without assistance from Blue Coat Systems Technical Support is not recommended.

Hardware and Software Restart Options

The Restart settings determine if the ProxySG does a faster software-only restart, or a more comprehensive hardware and software restart. The latter can take several minutes longer, depending upon the amount of memory and number of disk drives in the appliance.

The default setting of **Software only** suits most situations. Restarting both the hardware and software is recommended in situations where a hardware fault is suspected.

For information about the Core Image settings, see ["Core Image Restart Options"](#) on page 87.

Note: If you change restart option settings and you want them to apply to the next ProxySG restart, click **Apply**.

To restart the ProxySG appliance:

1. Select **Maintenance > System and disks > Tasks**.

The screenshot shows the 'Tasks' tab in the ProxySG web interface. Under the 'Restart' section, the 'Software only' option is selected. The 'System to run:' dropdown is set to '2'. A 'Restart now' button is present. The 'Tasks' section below lists several actions with buttons: 'Restore the configuration to defaults.', 'Clear the DNS cache.', 'Clear the object cache.', 'Clear the byte cache.', and 'Clear the trend statistics.'

2. In the **Restart** field, select either **Software only** or **Hardware and software**.
3. If you select the **Hardware and software** option, select a system from the **System to run** drop-down list.
The default system is pre-selected.
4. Click **Apply**.
5. Click **Restart now**.
6. Click **OK** to confirm and restart the ProxySG.

Related CLI Syntax to Configure the Hardware/Software Restart Settings

```
SGOS#(config) restart mode {hardware | software}
SGOS# restart abrupt
SGOS# restart regular
SGOS# restart upgrade
```

Restoring System Defaults

SGOS allows you to restore some or all of the system defaults. Use these commands with caution. The `restore-defaults` command deletes most, but not all, system defaults:

- ❑ The `restore-defaults` command with the `factory-defaults` option reinitializes the ProxySG to the original settings it had when it was shipped from the factory.

- ❑ The `restore-defaults` command with the `keep-console` option allows you to restore default settings without losing all IP addresses on the system.

Restore-Defaults

Settings that are deleted when you use the `restore-defaults` command include:

- ❑ All IP addresses (these must be restored before you can access the Management Console again).
- ❑ DNS server addresses (these must be restored through the CLI before you can access the Management Console again).
- ❑ Installable lists.
- ❑ All customized configurations.
- ❑ Third-party vendor licenses, such as SmartFilter or Websense. If you use the `restore-defaults` command after you have installed licenses, and the serial number of your system is configurable (older boxes only), the licenses fails to install and the ProxySG returns to the trial period (if any time is left). To correct the problem, you must configure your serial number and install your license-key again.
- ❑ Blue Coat trusted certificates.
- ❑ Original SSH (v1 and v2) host keys (new host keys are regenerated).

You can use the `force` option to restore defaults without confirmation.

Factory-Defaults

All system settings are deleted when you use the `restore-defaults` command with the `factory-defaults` option.

The only settings that are kept when you use the `restore-defaults` command with the `factory-defaults` option are:

- ❑ Trial period information.
- ❑ The last five installed appliance systems, from which you can pick one for rebooting.

The Setup Console password is also deleted if you use `restore-defaults` `factory-defaults`. For information on the Setup Console password, refer to *Volume 4: Securing the Blue Coat ProxySG Appliance*.

You can use the `force` option to restore defaults without confirmation.

Keep-Console

Settings that are retained when you use the `restore-defaults` command with the `keep-console` option include:

- ❑ IP interface settings, including VLAN configuration.
- ❑ Default gateway and static routing configuration.
- ❑ Virtual IP address configuration.

- ❑ Bridging settings.
- ❑ Failover group settings.

Using the `keep-console` option retains the settings for all consoles (Telnet, SSH, HTTP, and HTTPS), whether they are enabled, disabled, or deleted.

Administrative access settings retained using the `restore-defaults` command with the `keep-console` option include:

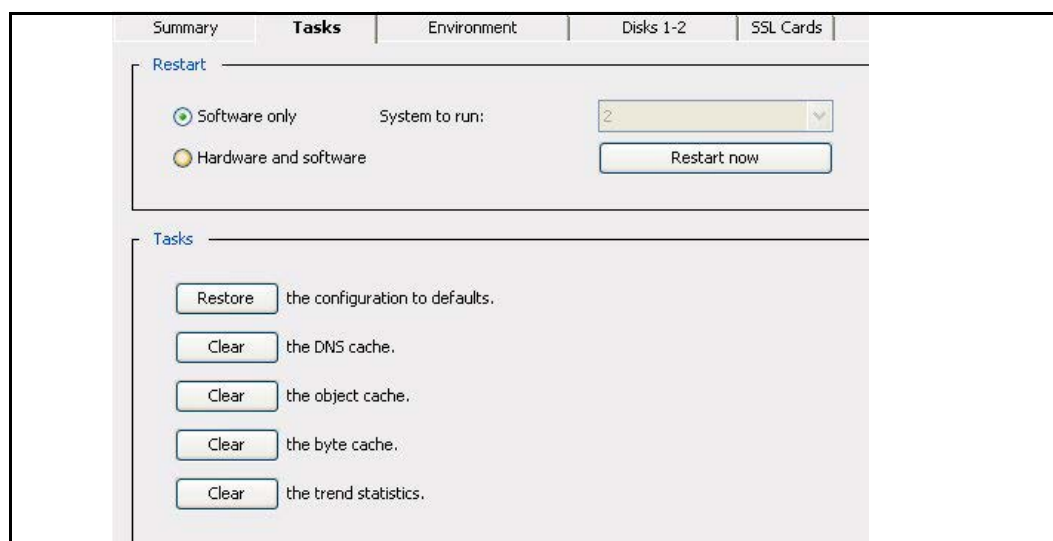
- ❑ Console username and password.
- ❑ Front panel pin number.
- ❑ Console enable password.
- ❑ SSH (v1 and v2) host keys.
- ❑ Keyrings used by secure console services.
- ❑ RIP configurations.

You can also use the `force` option to restore defaults without confirmation.

To restore system defaults:

Note: The `keep-console` and `factory-defaults` options are not available through the Management Console.

1. Select **Maintenance > System and disks > Tasks**.



2. From the **Tasks** field, click **Restore the configuration to defaults**. If you restore the configuration from the Management Console, most settings are lost because you cannot use the `keep-console` option.

The Restore Configuration dialog appears.

3. Click **OK**.

Related CLI Syntax to Restore System Defaults

```
SGOS# restore-defaults [keep-console]
```

```
SGOS# restore-defaults [keep-console] force
SGOS# restore-defaults factory-defaults
```

Clearing the DNS Cache

You can clear the DNS cache at any time. You might need to do so if you have experienced a problem with your DNS server or if you have changed your DNS configuration.

To clear the DNS cache:

1. Select **Maintenance > System and disks > Tasks**.
2. In the **Tasks** field, click **Clear** next to the **DNS cache**.
3. Click **OK** to confirm in the Clear System DNS Cache dialog that displays.

Related CLI Syntax to Clear the DNS Cache

```
SGOS# clear-cache dns-cache
```

Clearing the Object Cache

You can clear the object cache at any time.

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 source before it is served.

To clear the object cache:

1. Select **Maintenance > System and disks > Tasks**.
2. In the **Tasks** field, click **Clear** next to the **object cache**.
3. Click **OK** to confirm in the Clear Cache dialog that displays.

Related CLI Syntax to Clear the Object Cache

```
SGOS# clear-cache object-cache
```

Clearing the Byte Cache

You can clear the byte cache at any time. You might want to do this for testing purposes.

To clear the byte cache:

1. Select **Maintenance > System and disks > Tasks**.
2. In the **Tasks** field, click **Clear** next to the **byte cache**.
3. Click **OK** to confirm in the **Clear Byte Cache** dialog that displays.

Related CLI Syntax to Clear the Byte Cache

```
SGOS# clear-cache byte-cache
```

Troubleshooting Tip

Occasionally, the Management Console might behave incorrectly because of browser caching, particularly if the browser was used to run different versions of the Management Console. This problem might be resolved by clearing the browser cache.

Clearing Trend Statistics

You can clear all trend statistics at any time.

To clear all trend statistics:

1. Select **Maintenance > System and disks > Tasks**.
2. In the **Tasks** field, click **Clear** next to **the trend statistics**.
3. Click **OK** to confirm in the Clear Trend Statistics dialog that appears.

Related CLI Syntax to Clear Trend Statistics

```
SGOS# clear-statistics persistent
```

Upgrading the ProxySG

When an upgrade to the SGOS software becomes available, you can download it through the Internet and install it. You can also download it to your PC and install it from there if the ProxySG does not have Internet access.

Using SGOS Signed System Images

You can use either an unsigned system image or a signed system image when upgrading the ProxySG from SGOS 5.3 or higher. No configuration is required.

Note: Only unsigned images were available prior to SGOS 5.3. This section discusses signed system images, available in SGOS 5.3 and higher.

A *signed system image* is one that is cryptographically signed with a key known only to Blue Coat, and the signature is verified when the image is downloaded to the system. The integrity of the Blue Coat ProxySG depends upon the appliance running only SGOS code; a signed system image prevents an attacker from modifying a valid system image.

Note: The first and most important security measure for a ProxySG is to restrict physical access to authorized individuals only.

By convention, a signed system image has a `.bcsi` extension, as compared to an unsigned system image that has a `.chk` extension. Note, however, that since the signature is embedded in the image, renaming an unsigned image with a `.bcsi` extension does not change the fact that it is unsigned.

For maximum security, you can prevent unsigned system images from being downloaded through either the Management Console and the CLI.

Upgrading the ProxySG Appliance

The appliance must be running version SGOS 4.2.3.x or later to upgrade to SGOS 5.x. You cannot directly upgrade from any previous version. If you are upgrading from a version prior to SGOS 5.3.x and want to use signed images, you must install an unsigned SGOS 5.3 image before you can install a signed image. SGOS versions prior to SGOS 5.3.x do not recognize signed images.

Note: At least one other system must be unlocked to do the upgrade. If all systems are locked, or all systems except the running system are locked, the **Download** button in the Management Console is disabled. Similarly, the `load upgrade` command in the CLI generates an error.

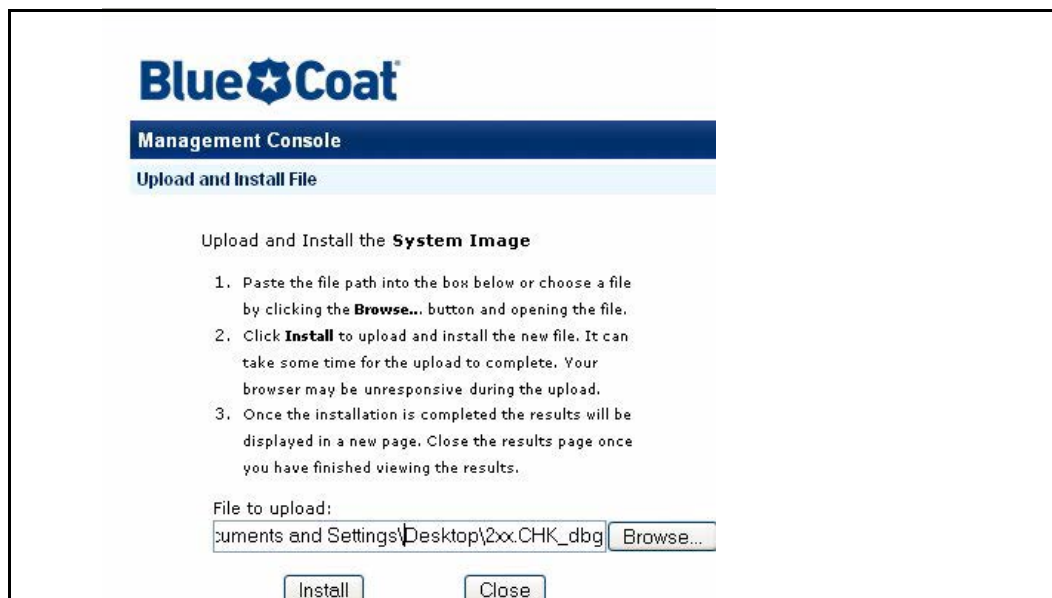
To upgrade the ProxySG appliance:

1. Select **Maintenance > Upgrade > Upgrade**.

2. (Optional) To prevent unsigned system images from being downloaded on this system, select the **Enforce installation of signed images** option. (This option is only available when an SGOS 5.3 or higher image is on the system.)
3. Click **Show me** to connect to the Blue Coat download page; follow the instructions and note the URL of the SGOS system upgrade for your model. Then enter the URL in the **Download new system software from this URL** field and click **Download**.

-or-

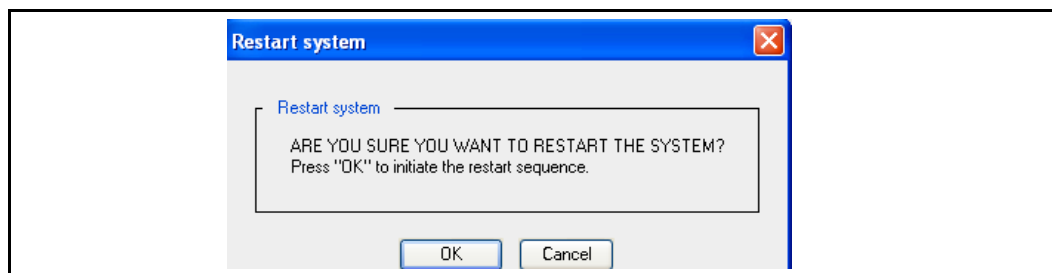
(Only if you previously downloaded a system image to your PC) Click **Upload** and **Browse** to the file location, then click **Install**. The upload might take several minutes.



4. (Optional) Select the system to replace in the **Replace** drop-down list. If you uploaded an image from your PC, refresh the Systems pane to see the new system image.

5. Click **Restart**.

The **Restart system** dialog displays.



6. Click **OK** to reboot the ProxySG appliance to the default system.

Related CLI Syntax to Upgrade the SGOS Software

- ❑ To allow only signed system images on this system (optional):

```
SGOS#(config) installed-systems
```

```
SGOS#(config installed-systems) enforce-signed enable
```

Note: For more information on signed system images, see ["Using SGOS Signed System Images"](#) on page 64.

- ❑ To identify the location where the system image is located:

```
SGOS#(config) upgrade-path url
```

where *url* is the location of the SGOS upgrade image. Note that if you previously downloaded an image and the path has not changed, you do not need to set the upgrade path again.

```
SGOS#(config) exit
```

- ❑ To upload the image:

```
SGOS# load upgrade [ignore-warnings]
```

where *ignore-warnings* forces the installation to occur even if warnings exist.

```
SGOS# restart upgrade
```

Troubleshooting Tip

If the ProxySG does not come up after rebooting and the serial port is connected to a terminal server (terminal concentrator), try the following:

- ❑ Have an active session open on the terminal server, noting any traffic (characters) being output.
- ❑ Unplug the terminal server from the appliance in case it is causing a problem (such as bad cabling).

Managing ProxySG Systems

The ProxySG **Systems** tab displays the five available systems. Empty systems are indicated by the word **Empty**.

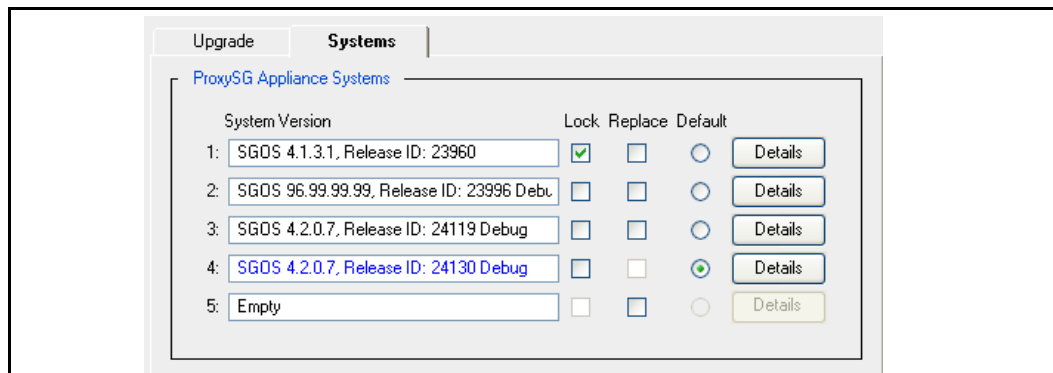
The system currently running is highlighted in blue and cannot be replaced or deleted.

From this screen, you can:

- ❑ Select the SGOS system version to boot.
- ❑ Lock one or more of the available SGOS system versions.
- ❑ Select the SGOS system version to be replaced.
- ❑ Delete one or more of the available SGOS system versions (CLI only).
- ❑ View details of the available SGOS system versions.

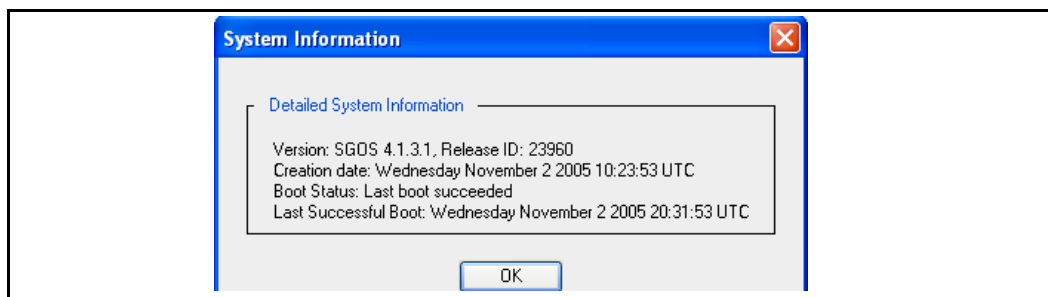
To view SGOS system replacement options:

Select **Maintenance > Upgrade > Systems**.



To view details for an SGOS system version:

1. Select **Maintenance > Upgrade > Systems**.
2. Click **Details** next to the system for which you want to view detailed information; click **OK** when you are finished.



To view details for an SGOS system version:

At the command prompt:

```
SGOS> show installed-systems
```

Example Session

```
SGOS> show installed-systems
ProxySG Appliance Systems
1. Version: SGOS 4.2.1.1, Release ID: 25460
   Thursday April 6 2006 08:49:55 UTC, Lock Status: Locked
   Boot Status: Last boot succeeded, Last Successful Boot: Thursday
   April 6 2006 17:33:19 UTC
2. Version: SGOS 4.2.1.1, Release ID: 25552 Debug
   Friday April 14 2006 08:56:55 UTC, Lock Status: Unlocked
   Boot Status: Last boot succeeded, Last Successful Boot: Friday April
   14 2006 16:57:18 UTC
3. Version: N/A, Release ID: N/A ( EMPTY )
   No Timestamp, Lock Status: Unlocked
   Boot Status: Unknown, Last Successful Boot: Unknown
4. Version: N/A, Release ID: N/A ( EMPTY )
   No Timestamp, Lock Status: Unlocked
   Boot Status: Unknown, Last Successful Boot: Unknown
5. Version: N/A, Release ID: N/A ( EMPTY )
```

```
No Timestamp, Lock Status: Unlocked
Boot Status: Unknown, Last Successful Boot: Unknown
Default system to run on next hardware restart: 2
Default replacement being used. (oldest unlocked system)
Current running system: 2
```

When a new system is loaded, only the system number that was replaced is changed.

The ordering of the rest of the systems remains unchanged.

Setting the Default Boot System

This setting allows you to select the system to be booted on the next hardware restart. If a system starts successfully, it is set as the default boot system. If a system fails to boot, the next most recent system that booted successfully becomes the default boot system.

To set the ProxySG appliance to run on the next hardware restart:

1. Select **Maintenance > Upgrade > Systems**.
2. Select the preferred System version in the **Default** column.
3. Click **Apply**.

Note: An empty system cannot be specified as default, and only one system can be specified as the default system.

Related CLI Syntax to Set the Default Boot System

```
SGOS#(config) installed-systems
SGOS#(config installed-systems) default system_number
```

Locking and Unlocking ProxySG Systems

Any system can be locked, except a system that has been selected for replacement. If all systems, or all systems except the current system, are locked, the ProxySG cannot load a new system.

If a system is locked, it cannot be replaced or deleted.

To lock a system:

1. Select **Maintenance > Upgrade > Systems**.
2. Select the system(s) to lock in the **Lock** column.
3. Click **Apply**.

To unlock a system:

1. Select **Maintenance > Upgrade > Systems**.
2. Deselect the system(s) to unlock in the **Lock** column.
3. Click **Apply**.

Related CLI Syntax for Locking A System

```
SGOS#(config) installed-systems  
SGOS#(config installed-systems) lock system_number
```

To unlock:

```
SGOS#(config) installed-systems  
SGOS#(config installed-systems) no lock system_number
```

Replacing a ProxySG System

You can specify the system to be replaced when a new system is downloaded. If no system is specified, the oldest unlocked system is replaced by default. You cannot specify a locked system for replacement.

To specify the system to replace:

1. Select **Maintenance > Upgrade > Systems**.
2. Select the system to replace in the **Replace** column.
3. Click **Apply**.

Related CLI Syntax to Specify the System to Replace

```
SGOS#(config) installed-systems  
SGOS#(config installed-systems) replace system_number
```

Deleting a ProxySG System

You can delete any of the system versions except the current running system. A locked system must be unlocked before it can be deleted. If the system you want to delete is the default boot system, you need to select a new default boot system before the system can be deleted.

You cannot delete a system version through the Management Console; you must use the CLI.

To delete a system:

At the (config) command prompt:

```
SGOS#(config) installed-systems  
SGOS#(config installed-systems) delete system_number
```

where *system_number* is the system you want to delete.

Disk Reinitialization

You can reinitialize disks on a multi-disk ProxySG. You cannot reinitialize the disk on a single-disk ProxySG. If you suspect a disk fault in a single-disk system, contact Blue Coat Technical Support for assistance.

About Reinitialization

Reinitialization is done online without rebooting the system. (For more information, refer to the #disk command in the *Volume 11: Command Line Interface Reference*.)

Important: Do not reinitialize disks while the system is proxying traffic.

SGOS operations, in turn, are not affected, although during the time the disk is being reinitialized, that disk is not available for caching. Only the master disk reinitialization restarts the ProxySG.

Only persistent objects are copied to a newly-reinitialized disk. This is usually not a problem because most of these objects are replicated or mirrored. If the reinitialized disk contained one copy of these objects (which is lost), another disk contains another copy.

You cannot reinitialize all of the ProxySG disks over a very short period of time. Attempting to reinitialize the last disk in a system before critical components can be replicated to other disks in the system causes a warning message to appear.

Immediately after reinitialization is complete, the ProxySG automatically starts using the reinitialized disk for caching.

Note: If a disk containing an unmirrored event or access log is reinitialized, the logs are lost. Similarly, if two disks containing mirrored copies of the logs are reinitialized, both copies of the logs are lost.

Hot Swapping Disk Drives in 810 and 8100 ProxySG Appliances

On multi-disk 810 and 8100 ProxySG appliances, you can hot swap any disk (including the left-most disk, which on earlier appliances was known as the master disk—the newer platforms do not have this concept) as long as there is one operational disk drive. When you hot swap a disk drive, the data on the existing disk is transferred to the new disk and vice versa. Because the data from each disk is copied back and forth, you might need to change the default boot version. This is because the ProxySG always boots the newest OS—if the disk drive had a newer OS, the ProxySG tries to boot it—even if you had previously set a different default boot version. Thus, you should reset your default boot version after hot swapping a disk drive. See "[Setting the Default Boot System](#)" on page 69 for more information.

Hot Swapping Disk Drives in 800 and 8000 ProxySG Appliances

On a multi-disk ProxySG, the master disk is the leftmost valid disk. *Valid* means that the disk is online, has been properly initialized, and is not marked as invalid or unusable.

If the current master disk is taken offline, reinitialized, or declared invalid or unusable, the leftmost valid disk that has not been reinitialized since restart becomes the master disk. Thus, as disks are reinitialized in sequence, a point is reached where no disk can be chosen as the master. At this point, the current master disk is the last disk. If this disk is taken offline, reinitialized, or declared invalid or unusable, the ProxySG is restarted.

On a multi-disk ProxySG, a disk is reinitialized by setting it to empty and copying pre-boot programs, boot programs, and starter programs, and system images from the master disk to the reinitialized disk.

Single-Disk ProxySG Appliance

The disk on a single-disk ProxySG cannot be reinitialized by the customer. If you suspect a disk fault in a single-disk ProxySG, contact Blue Coat Technical Support for assistance.

Deleting Objects from the ProxySG Appliance

The ability to delete either individual or multiple objects from the ProxySG makes it easy to delete stale or unused data and make the best use of the storage in your system.

Note: The maximum number of objects that can be stored in a ProxySG is affected by a number of factors, including the SGOS version it is running and the hardware platform series.

This feature is not available in the Management Console. Use the CLI instead.

To delete a single object from the ProxySG:

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

```
SGOS#(config) content delete url url
```

To delete multiple objects from the ProxySG:

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

```
SGOS#(config) content delete regex regex
```


Chapter 4: Diagnostics

This chapter describes the various resources that provide diagnostic information:

- ❑ Heartbeats: Enabled by default, Heartbeats (statistics) are a diagnostic tool used by Blue Coat, allowing them to proactively monitor the health of appliances.
- ❑ Core images: Created when there is an unexpected system restart. This stores the system state at the time of the restart, enhancing the ability for Blue Coat to determine the root cause of the restart.
- ❑ SysInfo (System Information): SysInfo provides a snapshot of statistics and events on the ProxySG.
- ❑ PCAP: An onboard packet capture utility that captures packets of Ethernet frames going in or out of an ProxySG.
- ❑ Policy trace: A policy trace can provide debugging information on policy transactions. This is helpful, even when policy is not the issue. For information on using policy tracing, refer to *Volume 10: Content Policy Language Guide*.
- ❑ Event Logging: The event log files contain messages generated by software or hardware events encountered by the appliance. For information on configuring event logging, see "[Setting Up Event Logging and Notification](#)" on page 17.
- ❑ Access Logging: Access logs allow for analysis of Quality of Service, content retrieved, and other troubleshooting. For information on Access Logging, refer to *Volume 8: Access Logging*.
- ❑ CPU Monitoring: With CPU monitoring enabled, you can determine what types of functions are taking up the majority of the CPU.

To test connectivity, use the following commands from the enable prompt:

- ❑ `ping`: Verifies that a particular IP address exists and is responding to requests.
- ❑ `tracert`: Traces the route from the current host to the specified destination host.
- ❑ `test http get path_to_URL`: Makes a request through the same code paths as a proxied client.
- ❑ `display path_to_URL`: Makes a direct request (bypassing the cache).
- ❑ `show services`: Verifies the port of the Management Console configuration.
- ❑ `show policy`: Verifies if policy is controlling the Management Console.

For information on using these commands, refer to Chapter 2: “Standard and Privileged Mode Commands” in the *Volume 11: Command Line Interface Reference*.

Note: If you cannot access the Management Console at all, be sure that you are using HTTPS (`https://ProxySG_IP_address:8082`). If you want to use HTTP, you must explicitly enable it before you can access the Management Console.

Topics in this Chapter

This chapter includes information about the following topics:

- ❑ ["Diagnostic Reporting \(Service Information\)"](#) on page 74 (This includes taking snapshots of the system.)
- ❑ ["Packet Capturing \(the Job Utility\)"](#) on page 81
- ❑ ["Core Image Restart Options"](#) on page 87
- ❑ ["Diagnostic Reporting \(Heartbeats\)"](#) on page 88
- ❑ ["Diagnostic Reporting \(CPU Monitoring\)"](#) on page 89

If the ProxySG does not appear to work correctly and you are unable to diagnose the problem, contact Blue Coat Technical Support.

Diagnostic Reporting (Service Information)

The service information options allow you to send service information to Blue Coat using either the Management Console or the CLI. You can select the information to send, send the information, view the status of current transactions, and cancel current transactions. You can also send service information automatically in case of a crash.

Sending Service Information Automatically

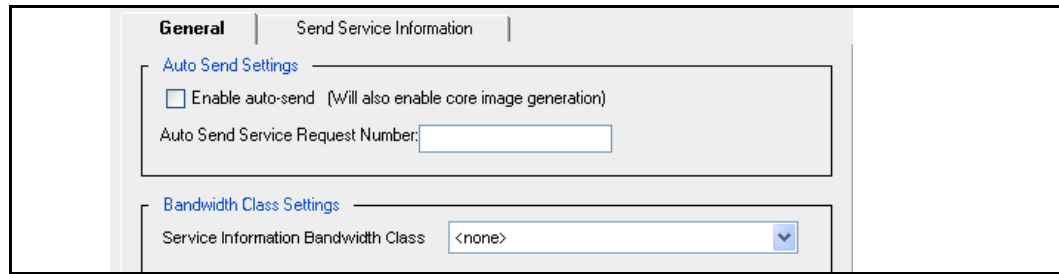
Enabling automatic service information allows you to enable the transfer of relevant service information automatically whenever a crash occurs. This saves you from initiating the transfer, and increases the amount of service information that Blue Coat can use to solve the problem. The core image, system configuration, and event log are system-use statistics that are sent for analysis. If a packet capture exists, it is also sent.

The auto-send feature requires that a valid Service Request is entered. If you do not have a Service Request open you must first contact Blue Coat Technical Support.

Important: A core image and packet capture can contain sensitive information—for example, parts of an HTTP request or response. The transfer to Blue Coat is encrypted, and therefore secure; however, if you do not want potentially sensitive information to be sent to Blue Coat automatically, do not enable the automatic service information feature.

To send service information automatically:

1. Select **Maintenance > Service Information > Send Information > General**.



2. To send core image service information to Blue Coat automatically, select **Enable auto-send**.
3. Enter the service-request number that you received from a Technical Support representative into the **Auto Send Service Request Number** field (the service-request number is in the form `xx-xxxxxxx` or `x-xxxxxxx`).
4. Click **Apply**.
5. (Optional) To clear the service-request number, clear the **Auto Send Service Request Number** field and click **Apply**.

Related CLI Syntax to Send Service Information**To send service information automatically:**

1. To enable (or disable) the automatic service information feature, enter the following commands at the `(config)` command prompt:

```
SGOS#(config) diagnostics
SGOS#(config diagnostics) service-info
SGOS#(diagnostics service-info) auto {enable | disable}
SGOS#(diagnostics service-info) auto sr-number sr_number
```
2. (Optional) To clear the service-request number, enter the following command:

```
SGOS#(diagnostics service-info) auto no sr-number
```

Managing the Bandwidth for Service Information

You can control the allocation of available bandwidth for sending service information. Some service information items are large, and you might want to limit the bandwidth used by the transfer. Changing to a new bandwidth management class does not affect service information transfers already in progress. However, changing the details of the bandwidth management class used for service information, such as changing the minimum or maximum bandwidth settings, affects transfers already in progress if that class was selected prior to initiating the transfer.

Note: Before you can manage the bandwidth for the automatic service information feature, you must first create an appropriate bandwidth-management class. Refer to *Volume 5: Advanced Networking* for information about creating and configuring bandwidth classes.

To manage bandwidth for service information:

1. Select **Maintenance > Service Information > Send Information > General**.
2. To manage the bandwidth of automatic service information, select a bandwidth class from the **Service Information Bandwidth Class** drop-down menu.
3. Click **Apply**.
4. (Optional) To disable the bandwidth-management of service information, select **none** from the **Service Information Bandwidth Class** drop-down menu; click **Apply**.

Related CLI Syntax to Manage Bandwidth for Service Information

```
SGOS#(diagnostics service-info) bandwidth-class bw_class_name
```

Configure Service Information Settings

The service information options allow you to send service information to Blue Coat using either the Management Console or the CLI. You can select the information to send, send the information, view the status of current transactions, and cancel current transactions using either the Management Console or the CLI. For information about sending service information automatically, see “[Sending Service Information Automatically](#)” on page 74.

Important: You must specify a service-request number before you can send service information. See Blue Coat Technical Support at: <http://www.bluecoat.com/support/index.html> for details on opening a service request ticket.

The following list details information that you can send:

- ☐ Packet Capture
- ☐ Event Log
- ☐ Memory Core
- ☐ Policy Trace File
- ☐ SYSInfo
- ☐ Access Logs (can specify multiple)
- ☐ Snapshots (can specify multiple)
- ☐ Contexts (can specify multiple)

To send service information:

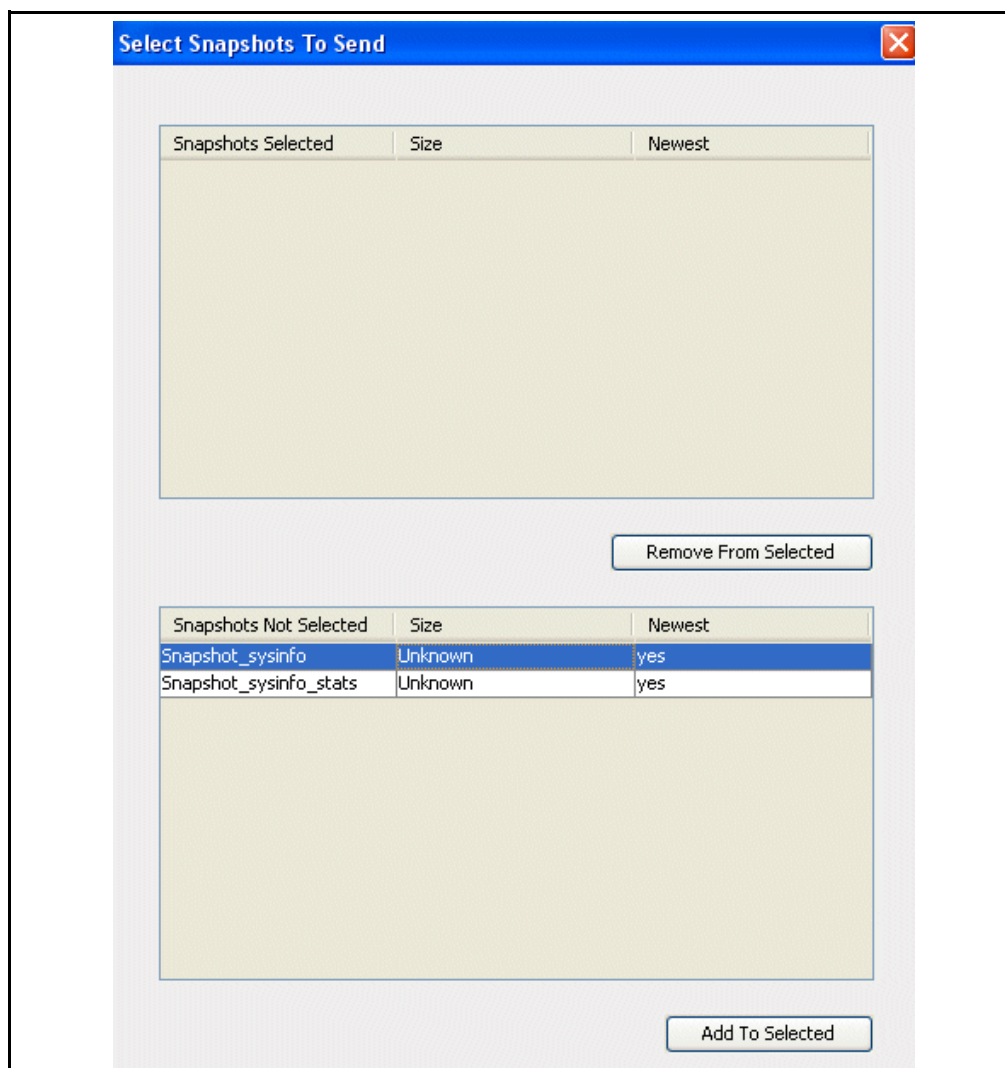
1. Select **Maintenance > Service Information > Send Information > Send Service Information**.

2. Select options as required:

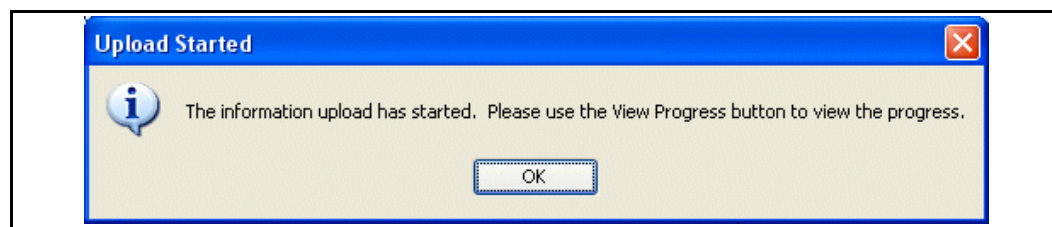
- a. Enter the service-request number that you received from a Technical Support representative (the service-request number is in the form xx-xxxxxxx or x-xxxxxxx).
- b. Select the appropriate options (as indicated by a Technical Support representative) in the **Information to send** area.

Note: Options for items that you do not have on your system are grayed out and cannot be selected.

- c. (Optional) If you select **Access Logs**, **Snapshots**, or **Contexts**, you must also click **Select access logs to send**, **Select snapshots to send**, or **Select contexts to send** and complete the following steps in the corresponding dialog that displays:



- d. To select information to send, highlight the appropriate selection in the **Access Logs/Snapshots/Contexts Not Selected** field and click **Add to Selected**.
 - e. To remove information from the **Access Logs/Snapshots/Contexts Selected** field, highlight the appropriate selection and click **Remove from Selected**.
 - f. Click **Ok** to close the dialog.
3. Click **Send**.



4. Click **Ok** in the Information upload started dialog that appears.

Related CLI Syntax to Send Service Information

```
SGOS#(diagnostics service-info) [subcommands]
```

Creating and Editing Snapshot Jobs

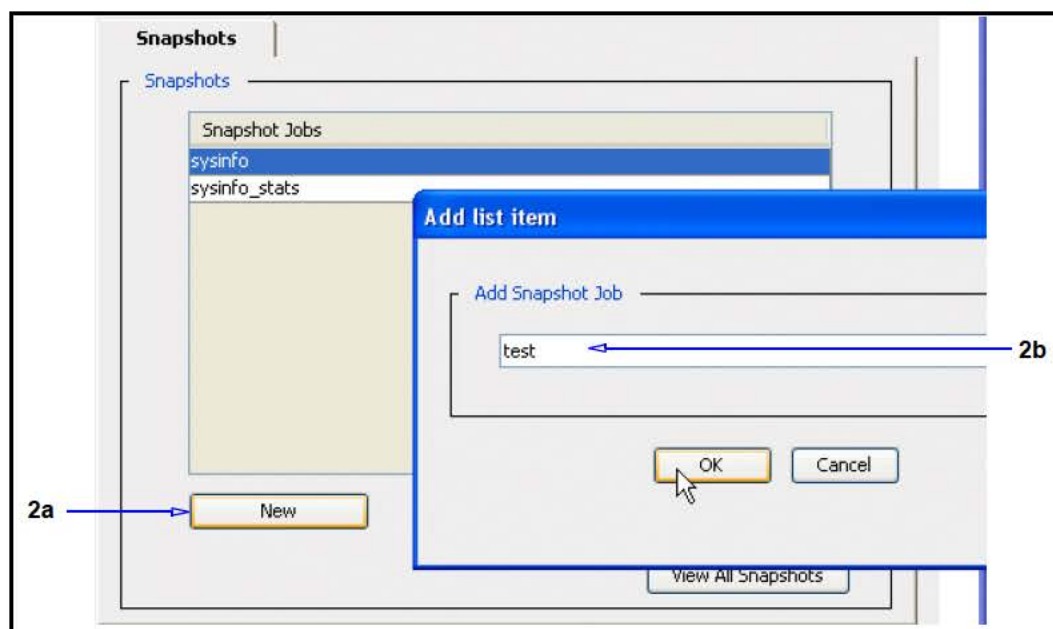
The snapshot subsystem periodically pulls a specified console URL and stores it in a repository, offering valuable resources for Blue Coat customer support in diagnosing problems.

By default, two snapshots are defined. The first takes a snapshot of the system information URL once every 24 hours. The second snapshot takes an hourly snapshot of the system information statistics. Both of these snapshot jobs keep the last 30 snapshots.

Determining which console URL to poll, the time period between snapshots, and how many snapshots to keep are all configurable options for each snapshot job.

To create a new snapshot job:

1. Select **Maintenance > Service Information > Snapshots**.



2. Perform the following steps:
 - a. Click **New**.
 - b. Enter a snapshot job into the Add list item dialog that displays; click **Ok**.
3. Click **Apply**.
4. (Optional) To view snapshot job information, click **View All Snapshots**. Close the window that opens when you are finished viewing.

Related CLI Syntax to Send Service Information

```
SGOS#(config diagnostics) snapshot create snapshot_name
```

To edit an existing snapshot job:

1. Select **Maintenance > Service Information > Snapshots**.
2. Select the snapshot job you want to edit (highlight it).
3. Click **Edit**.

The Edit Snapshot dialog displays.

Edit Snapshot

Edit Snapshot Job test

4a Target: /sysinfo View URL List

4b Interval (minutes): 1440

4c Total Number To Take: [] ☒ infinite

4d Maximum Number To Store: 30

4e ☒ Enabled

Status: Enabled Disabled

View Snapshots

Clear Snapshots

OK Cancel

4. Enter the following information into the Edit Snapshot fields:
 - a. **Target:** Enter the object to snapshot.
 - b. **Interval (minutes):** Enter the interval between snapshot reports.
 - c. **Total Number To Take:** Enter the total number of snapshots to take or select **Infinite** to take an infinite number of snapshots.
 - d. **Maximum Number To Store:** Enter the maximum number of snapshots to store.
 - e. **Enabled:** Select this to enable this snapshot job or deselect it to disable this snapshot job.
5. (Optional) Click **View URL List** to open a window displaying a list of URLs; close the window when you are finished viewing.
6. (Optional) Click **View Snapshots** to open a window displaying snapshot information; close the window when you are finished viewing.
7. (Optional) Click **Clear Snapshots** to clear all stored snapshot reports.

Related CLI Syntax to Edit an Existing Snapshot Job

- ❑ To enter configuration mode:

```
SGOS#(config) diagnostics
```

- ❑ The following subcommands are available:

```
SGOS#(config diagnostics) snapshot edit snapshot_name  
SGOS#(config snapshot snapshot_name) {disable | enable}  
SGOS#(config snapshot snapshot_name) interval minutes  
SGOS#(config snapshot snapshot_name) keep number_to_keep (from 1 -  
100)  
SGOS#(config snapshot snapshot_name) take {infinite | number_to_take}  
SGOS#(config snapshot snapshot_name) target object_to_fetch
```

Packet Capturing (the Job Utility)

You can capture packets of Ethernet frames going into or leaving a ProxySG. Packet capturing allows filtering on various attributes of the frame to limit the amount of data collected. The maximum PCAP size allowed is 100MB. Any packet filters must be defined before a capture is initiated, and the current packet filter can only be modified if no capture is in progress.

The `pcap` utility captures all received packets that are either directly addressed to the ProxySG through an interface's MAC address or through an interface's broadcast address. The utility also captures transmitted packets that are sent from the appliance. The collected data can then be transferred to the desktop or to Blue Coat for analysis.

Note: Packet capturing increases the amount of processor usage performed in TCP/IP.

To analyze captured packet data, you must have a tool that reads Packet Sniffer Pro 1.1 files (for example, Ethereal or Packet Sniffer Pro 3.0).

PCAP File Name Format

The name of a downloaded packet capture file has the format:

`bluecoat_date_filter-expression.cap`, revealing the date and time (UTC) of the packet capture and any filter expressions used. Because the filter expression can contain characters that are not supported by a file system, a translation can occur. The following characters are not translated:

- ❑ Alphanumeric characters (a-z, A-Z, 0-9)
- ❑ Periods (.)

Characters that are translated are:

- ❑ Space (replaced by an underscore)
- ❑ All other characters (including the underscore and dash) are replaced by a dash followed by the ASCII equivalent; for example, a dash is translated to `-2D` and an ampersand (&) to `-26`.

Common PCAP Filter Expressions

Packet capturing allows filtering on various attributes of the frame to limit the amount of data collected. PCAP filter expressions can be defined in the Management Console or the CLI. Below are examples of filter expressions; for PCAP configuration instructions, see ["Configuring Packet Capturing"](#) on page 83.

Some common filter expressions for the Management Console and CLI are listed below. The filter uses the Berkeley Packet Filter format (BPF), which is also used by the `tcpdump` program. A few simple examples are provided below. If filters with greater complexity are required, you can find many resources on the Internet and in books that describe the BPF filter syntax.

Note: Some qualifiers must be escaped with a backslash because their identifiers are also keywords within the filter expression parser.

- ❑ `ip proto protocol`
where *protocol* is a number or name (`icmp`, `udp`, `tcp`).
- ❑ `ether proto protocol`
where *protocol* can be a number or name (`ip`, `arp`, `rarp`).

Table 4–1 PCAP Filter Expressions

Filter Expression	Packets Captured
<code>ip host 10.25.36.47</code>	Captures packets from a specific host with IP address 10.25.36.47.
<code>not ip host 10.25.36.47</code>	Captures packets from all IP addresses except 10.25.36.47.
<code>ip host 10.25.36.47 and ip host 10.25.36.48</code>	Captures packets sent between two IP addresses: 10.25.36.47 and 10.25.36.48. Packets sent from one of these addresses to other IP addresses are not filtered.
<code>ether host 00:e0:81:01:f8:fc</code>	Captures packets to or from MAC address 00:e0:81:01:f8:fc.
<code>port 80</code>	Captures packets to or from port 80.
<code>ip sr www.bluecoat.com and ether broadcast</code>	Captures packets that have IP source of www.bluecoat.com and ethernet broadcast destination.

Using Filter Expressions in the CLI

To add a filter to the CLI, use the command:

```
SGOS# pcap filter expr parameters
```

To remove a filter, use the command:

```
SGOS# pcap filter <enter>
```

Important: Define CLI `filter expr` parameters with double-quotes to avoid confusion with special characters. For example, a space is interpreted by the CLI as an additional parameter, but the CLI accepts only one parameter for the filter expression. Enclosing the entire filter expression in quotations allows multiple spaces in the filter expression.

Configuring Packet Capturing

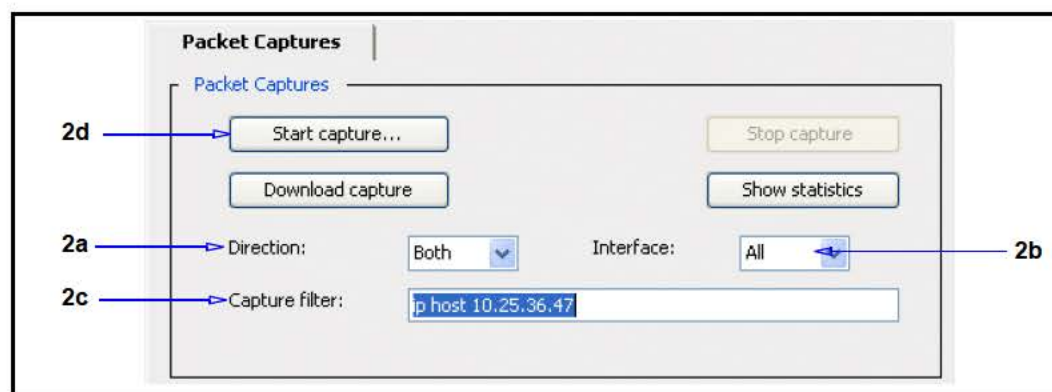
Use the following procedures to configure packet capturing. If a download of the captured packets is requested, packet capturing is implicitly stopped. In addition to starting and stopping packet capture, a filter expression can be configured to control which packets are captured. For information on configuring a PCAP filter, see "[Common PCAP Filter Expressions](#)" on page 82.

Note: Requesting a packet capture download stops packet capturing.

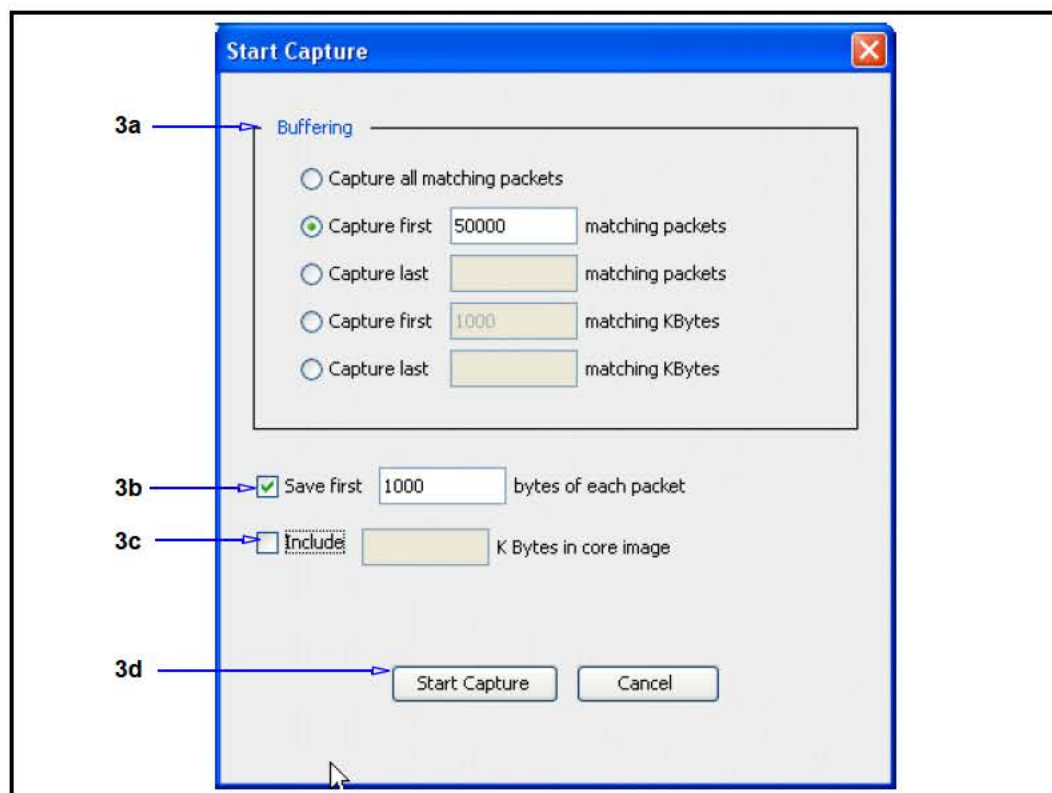
To analyze captured packet data, you must have a tool that reads Packet Sniffer Pro 1.1 files (for example, Ethereal or Packet Sniffer Pro 3.0).

To enable, stop, and download packet captures:

1. Select **Maintenance > Service Information > Packet Captures**.



2. Perform the following steps:
 - a. In the **Direction** drop-down list, select the capture direction: **in**, **out**, or **both**.
 - b. In the **Interface** drop-down list, select the interface on which to capture.
 - c. To define or change the PCAP filter expression, enter the filter information into the **Capture filter** field. (See "[Common PCAP Filter Expressions](#)" on page 82 for information about PCAP filter expressions for this field.) To remove the filter, clear this field.
 - d. Click **Start Capture**. The Start Capture dialog displays.



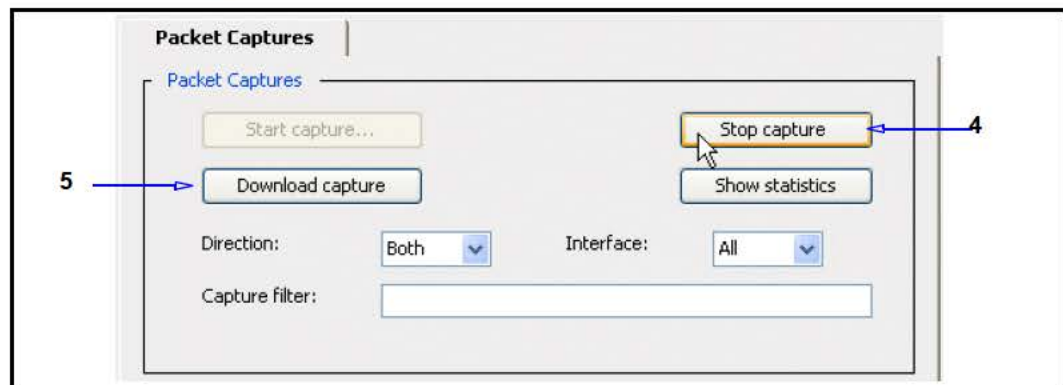
3. Select options, as required:

a. Select a buffer size:

- Capture all matching packets.
- Capture first n matching packets. Enter the number of matching packets (n) to capture. If the number of packets reaches this limit, packet capturing stops automatically. The value must be between 1 and 1000000.
- Capture last n matching packets. Enter the number of matching packets (n) to capture. Any packet received after the memory limit is reached results in the discarding of the oldest saved packet prior to saving the new packet. The saved packets in memory are written to disk when the capture is stopped. The value must be between 1 and 1000000.
- Capture first n matching Kilobytes. Enter the number of kilobytes (n) to capture. If the buffer reaches this limit, packet capturing stops automatically. The value must be between 1 and 102400.

- Capture last n matching Kilobytes. Enter the number of kilobytes (n) to capture. Any packet received after the memory limit is reached results in the discarding of the oldest saved packet prior to saving the new packet. The saved packets in memory are written to disk when the capture is stopped. The value must be between 1 and 102400.
- b. Optional—To truncate the number of bytes saved in each frame, enter a number in the **Save first n bytes of each packet** field. When configured, `pcap` collects, at most, n bytes of packets from each frame when writing to disk. The range is 1 to 65535.
- c. Optional—To specify the number of kilobytes of packets kept in a core image, enter a value in the **Include n K Bytes in core image** field. You can capture packets and include them along with a core image. This is extremely useful if a certain pattern of packets causes the unit to restart unexpectedly. The core image size must be between 0 and 102400. By default, no packets are kept in the core image.
- d. To start the capture, click **Start Capture**. The Start Capture dialog closes. The **Start captures** button in the **Packet Captures** tab is now grayed out because packet capturing is already started.

You do not have to click **Apply** because all changes are applied when you start the packet capture.



4. To stop the capture, click the **Stop capture** button. This button is grayed out if a packet capture is already stopped.
5. To download the capture, click the **Download capture** button. This button is grayed out if no file is available for downloading.

Related CLI Syntax to Define Packet Capturing Settings

```
SGOS# pcap filter parameters
SGOS# pcap start [subcommands]
```

To start, stop, and download packet captures through a browser:

1. Start your Web browser.
2. Enter the URL: `https://appliance_IP_address:8082/PCAP/Statistics` and log on to the appliance as needed.

The Packet Capture browser displays.

Packet Capture

Packet capture Statistics

Current state: Stopped

Filtering: Off

Packet capture information:

Packets captured : 181

Bytes captured : 19,549

Packets written : 181

Bytes written : 24,745

Coreimage ram used : 0 B

Packets filtered through : 0

[Start](#) packet capture

[Stop](#) packet capture

[Download](#) packet capture file

3. Select the desired action: **Start packet capture**, **Stop packet capture**, **Download packet capture file**.

You can also use the following URLs to configure these individually:

- ❑ To start packet capturing, use this URL:
`https://ProxySG_IP_address:8082/PCAP/start`
- ❑ To stop packet capturing, use this URL:
`https://ProxySG_IP_address:8082/PCAP/stop`
- ❑ To download packet capturing data, use this URL:
`https://ProxySG_IP_address:8082/PCAP/bluecoat.cap`

Viewing Current Packet Capture Data

Use the following procedures to display current capture information from the ProxySG.

To view current packet capture statistics:

1. Select **Maintenance > Service Information > Packet Captures**.
2. To view the packet capture statistics, click the **Show statistics** button.

A window opens displaying the statistics on the current packet capture settings. Close the window when you are finished viewing the statistics.

Related CLI Syntax to View Packet Capture Data

```
SGOS# pcap info
```

Uploading Packet Capture Data

Use the following command to transfer packet capture data from the ProxySG to an FTP site. You cannot use the Management Console. After uploading is complete, you can analyze the packet capture data.

```
SGOS# pcap transfer ftp://url/path/filename.cap username password
```

Specify a username and password, if the FTP server requires these. The username and password must be recognized by the FTP server.

Core Image Restart Options

This option specifies how much detail is logged to disk when a system is restarted. Although this information is not visible to the user, Blue Coat Technical Support uses it in resolving system problems. The more detail logged, the longer it takes the ProxySG to restart. There are three options:

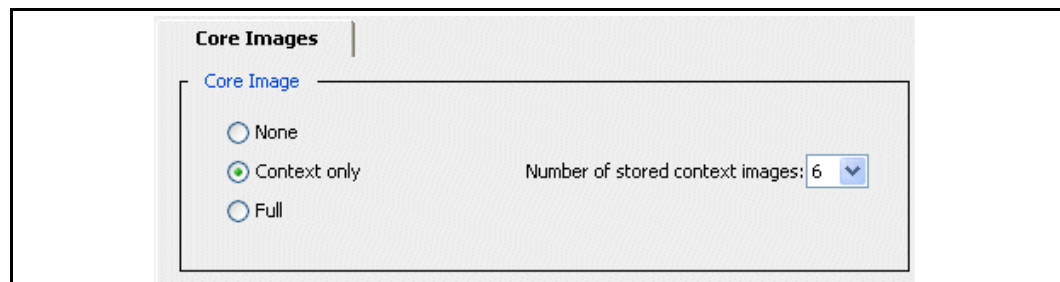
- ❑ **None**—no system state information is logged. Not recommended.
- ❑ **Context only**—the state of active processes is logged to disk. This is the default.
- ❑ **Full**—A complete dump is logged to disk. Use only when asked to do so by Blue Coat Technical Support.

The default setting of Context only is the optimum balance between restart speed and the information needs of Blue Coat Technical Support in helping to resolve a system problem.

You can also select the number of core images that are retained. The default value is 2; the range is between 1 and 10.

To configure core image restart options:

1. Select **Maintenance > Core Images**.



2. Select a core image restart option.
3. (Optional) Select the number of core images that are retained from the **Number of stored images** drop-down list.
4. Click **Apply**.

Related CLI Syntax for Configuring Core Image Restart Options

```
SGOS#(config) restart core-image {context | full | keep number | none}
```

Diagnostic Reporting (Heartbeats)

The ProxySG diagnostic reporting configurations are located in the Management Console (under the **Maintenance > Heartbeats** tab), and in the CLI (under the configuration diagnostics submenu).

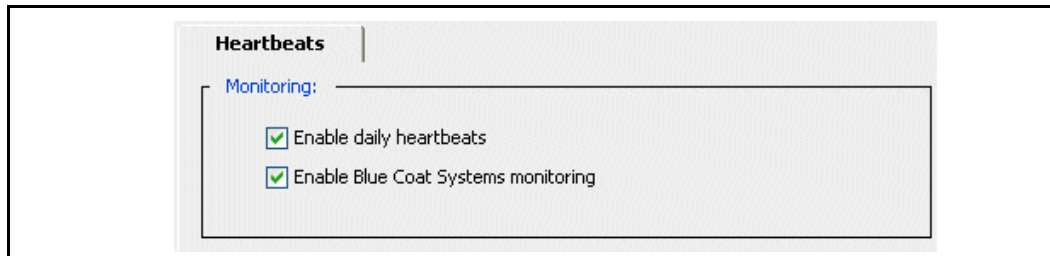
The daily heartbeat is a periodic message that is sent every 24 hours and contains ProxySG statistical data. Besides telling the recipient that the device is alive, heartbeats also are an indicator of the appliance's health. Heartbeats do not contain any private information; they contain only aggregate statistics that can be used to preemptively diagnose support issues. The daily heartbeat is encrypted and transferred to Blue Coat using HTTPS. Administrators can have the daily heartbeat messages e-mailed to them by configuring event log notification. The content that is e-mailed to the administrator is the same content sent to Blue Coat.

If monitoring is enabled, Blue Coat receives encrypted information over HTTPS whenever the appliance is rebooted. The data sent does not contain any private information; it contains restart summaries and daily heartbeats. This allows the tracking of ProxySG unexpected restarts due to system issues, and allows Blue Coat to address system issues preemptively.

If the daily heartbeats setting is disabled, you can still send a heartbeat message by using the `send-heartbeat` command through the CLI (this feature is not available through the Management Console).

To set daily heartbeats and/or Blue Coat monitoring:

1. Select **Maintenance > Heartbeats**.



2. Select or deselect **Enable daily heartbeats** or **Enable Blue Coat monitoring**.
3. Click **Apply**.

Related CLI Syntax to Manage Heartbeats and Monitoring

- ❑ To enter configuration mode:

```
SGOS#(config) diagnostics [Command_Modes]
```

- ❑ The following subcommands are available:

```
SGOS#(config diagnostics) heartbeat enable
```

```
SGOS#(config diagnostics) monitor enable
```

```
SGOS#(config diagnostics) send-heartbeat
```

Note: This option is not available through the Management Console.

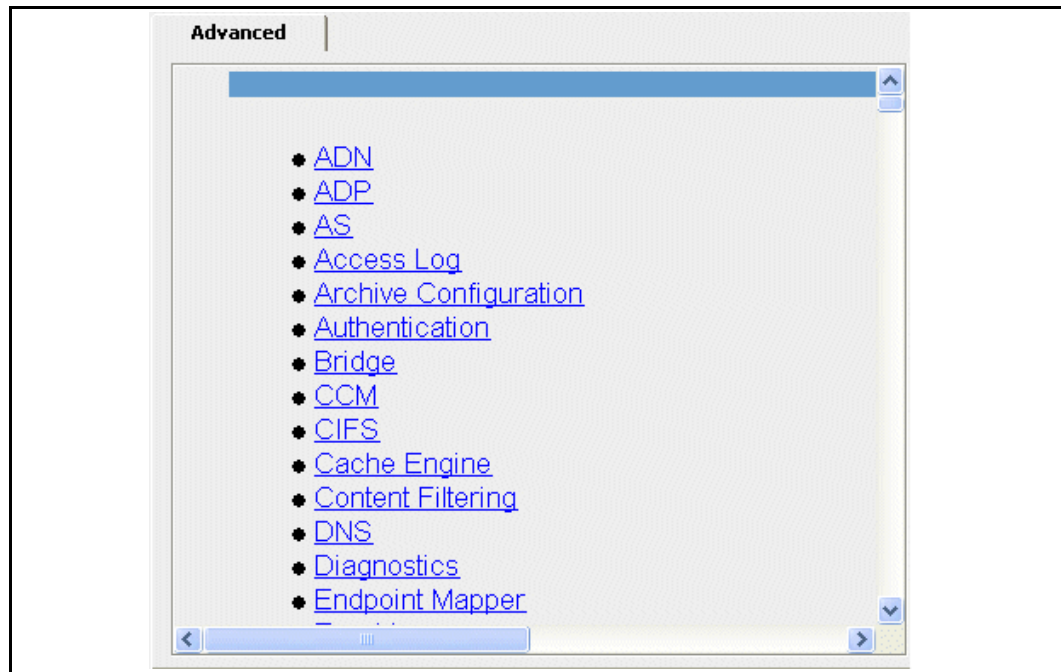
Diagnostic Reporting (CPU Monitoring)

You can enable CPU monitoring whenever you want to see the percentage of CPU being used by specific functional groups. For example, if you look at the CPU consumption and notice that compression/decompression is consuming most of the CPU, you can change your policy to compress/decompress more selectively.

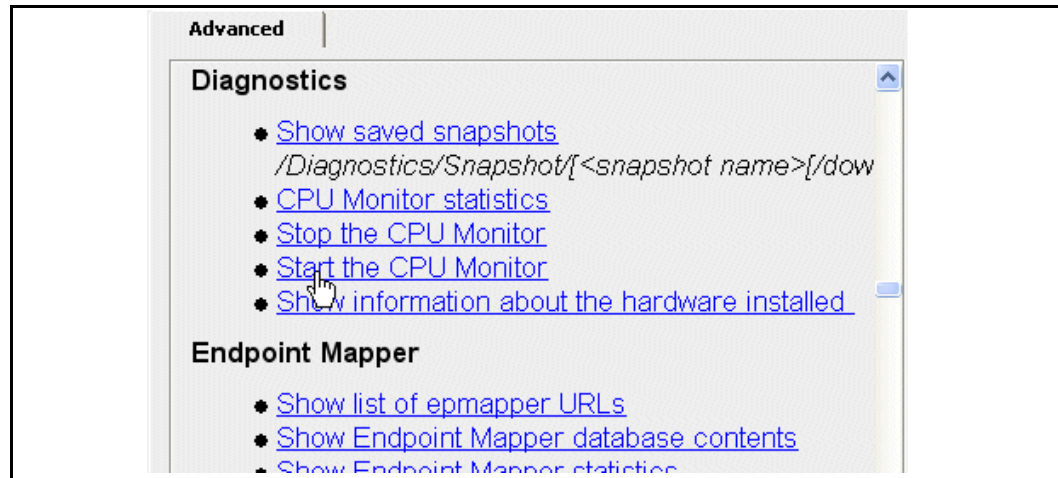
Note: CPU monitoring uses about 2-3% CPU when enabled, and so is disabled by default.

To configure and view CPU monitoring:

1. Select **Statistics > Advanced**.



2. Click the **Diagnostics** link. A list of links to Diagnostic URLs displays.



3. To enable CPU monitoring, click the **Start the CPU Monitor** link; to disable it, click the **Stop the CPU Monitor** link.
4. To view CPU monitoring statistics, click the CPU Monitor statistics link. You can also click this link from either of the windows described in Step 3.

Related CLI Syntax to Configure and View CPU Monitoring

```
SGOS#(config) diagnostics
SGOS#(config diagnostics) cpu-monitor {disable | enable}
SGOS#(config diagnostics) cpu-monitor interval seconds
```

Notes

- ❑ The total percentages do not always add up because the display only shows those functional groups that are using 1% or more of the CPU processing cycles.
- ❑ The commands `SGOS#(config) show cpu` and `SGOS#(config diagnostics) view cpu-monitor` can sometimes display CPU statistics that differ by about 2-3%. This occurs because different measurement techniques are used for the two displays.

Chapter 5: Statistics

This chapter describes the statistics displayed in the Management Console. Statistics present a graphical view of the status for many system operations.

Topics in this Chapter

This chapter includes information about the following topics:

- ❑ ["Selecting the Graph Scale" on page 92](#)
- ❑ ["Viewing Traffic Distribution Statistics" on page 92](#)
- ❑ ["Viewing Traffic History" on page 97](#)
- ❑ ["Viewing ADN History" on page 101](#)
- ❑ ["Viewing Bandwidth Management Statistics" on page 101](#)
- ❑ ["Viewing ProxyClient Statistics" on page 101](#)
- ❑ ["Viewing Network Interface History Statistics" on page 101](#)
- ❑ ["Viewing System Statistics" on page 103](#)
- ❑ ["Viewing Traffic Distribution Statistics" on page 92](#)
- ❑ ["Active Sessions—Viewing Per-Connection Statistics" on page 110](#)
- ❑ ["Viewing the Access Log" on page 124](#)
- ❑ ["Using the CLI show Command to View Statistics" on page 124](#)

Selecting the Graph Scale

Altering the graph scale allows you to view the details on a filtered section of the values. For example, if you select **clip 25% of peaks**, the top 25% of the values are allowed to exceed the scale for the graph, showing greater detail for the remaining 75% of the values. To set the graph scale, select a value from the **Graph scale should** drop-down list.

The graphs in the **Statistics > ProxyClient History**, **Statistics > Protocol Details**, and **Statistics > System > Resources** allow you to select a scale.

Some of the graphs also offer the option of viewing statistics in bytes or objects. On these pages, you can switch among viewing modes by selecting the desired value from the drop-down list. You can also move your cursor over the bar graphs to dynamically display color-coded statistical information.

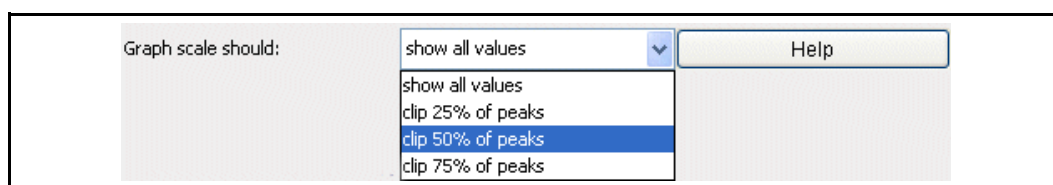


Figure 5–1 Graph Scale Drop-Down Example

Viewing Traffic Distribution Statistics

Use the **Statistics > Traffic Mix** page to display traffic distribution and bandwidth statistics for traffic running through the ProxySG. You can display statistics for proxy types, or for services, and for various time periods.

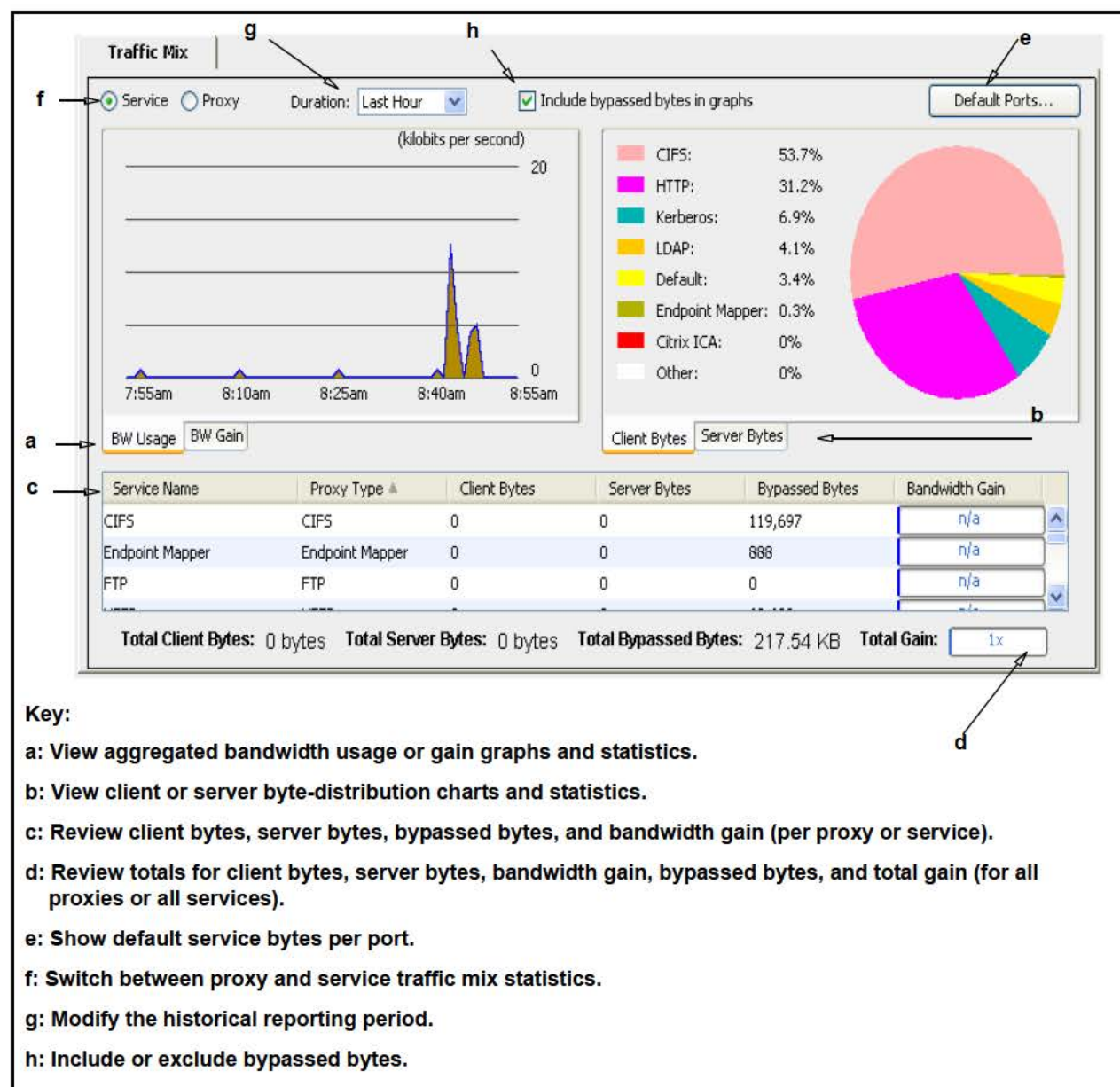


Figure 5–2 Traffic Mix Page

Note: Bypassed bytes are bytes that are not intercepted by a service or proxy. When you include or exclude bypassed bytes, only the graph data and totals are affected. The table data in the lower half of the page is not altered.

For a list of supported proxies, see "[Supported Proxy Types](#)" on page 98.

Note: Endpoint Mapper proxy bytes are the result of Microsoft Remote Procedure Call (MSRPC) communication for MAPI traffic.

Clearing the statistics

To reset traffic mix statistics, select **Maintenance > System and Disks > Tasks**, click **Clear the trend statistics**.

Related CLI Syntax to Clear Traffic Mix Statistics

```
SGOS# clear-statistics persistent
```

Understanding Chart Data

The chart data updates automatically every 60 seconds. The units for the X and Y axis change according to the selected duration. For example, if you select **Last Week**, the X-axis displays the days of the week (the most current day is to the far right).

The word "Hit" can display at the top of the BW Gain graph if the gain was the result of a cache hit.

The colors in the bandwidth usage and bandwidth gain charts represent the following information:

- ❑ Green—Client bytes
- ❑ Blue—Server bytes
- ❑ Brown—Bypassed bytes
- ❑ Dark Blue—Bandwidth Gain (which includes bypassed bytes, if selected)

In the tool tips (as shown in Figure 5-3), bandwidth gain and bandwidth savings are represented in black text.

Hover the mouse cursor over the chart data to view detailed values.

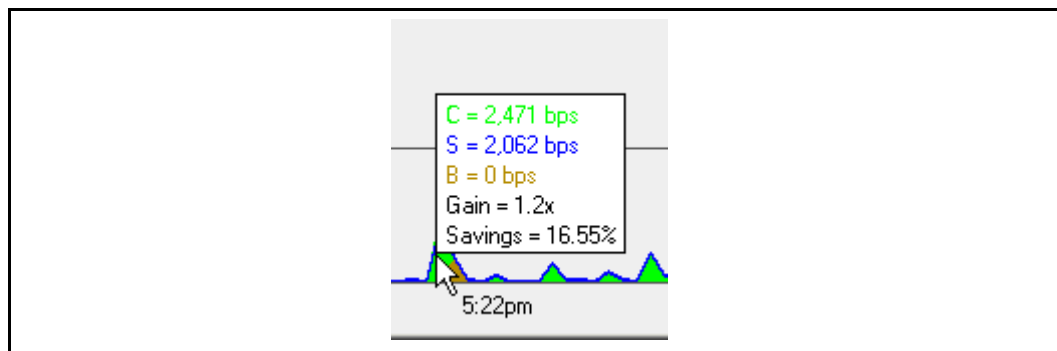


Figure 5-3 Traffic Mix Statistics— displayed when the cursor hovers over chart data

Detailed Values

The values that display when you hover the mouse cursor over the chart data, are called tool tips. These values can include:

- ❑ **C** = Client-side traffic data rate. This statistic represents the data rate calculated (to and from the client) on the client-side connection. Data rate is represented by units of bits per second (bps) from measurements that are sampled at one-minute intervals. All application protocol-level bytes are counted, including application-protocol overhead such as HTTP and CIFS headers.
- ❑ **S** = Server-side traffic data rate. This statistic represents the data rate calculated (to and from the server) on the server-side connection. The data rate is represented by units of bits per second (bps) from measurements that are sampled at one-minute intervals. All application-level bytes are counted, including application overhead such as HTTP and CIFS headers.
- ❑ **Unopt** = Unoptimized traffic data rate. This statistic reflects the data rate of original traffic served to/from the client or server prior to or subsequent to ADN optimization. The data rate is represented by units of bits per second (bps).
- ❑ **Opt** = Optimized traffic data rate. This statistic reflects the data rate of ADN-optimized traffic. Data rate is represented by units of bits per second (bps).
- ❑ **B** = Bypassed traffic data rate. This statistic reflects that data rate of bypassed traffic (traffic that is not intercepted by ProxySG services). The data rate is represented by units of bits per second (bps).
- ❑ **Gain** = Bandwidth Gain. This statistic, representing the overall bandwidth benefit achieved by object and byte caching, compression, protocol optimization, and object caching, is computed by the ratio:

$$\text{client bytes} / \text{server bytes}$$

and represented as a unit-less multiplication factor. Bandwidth-gain values are computed at one-minute intervals to correspond to the one-minute sampling of client and server bytes. For example, if server bytes displayed as 10kbps and client bytes was 90kbps, the bandwidth gain is represented as 9x.

- ❑ **Savings** = Bandwidth Savings. This statistic, representing the overall bandwidth savings achieved over the WAN by utilizing object and byte caching, protocol optimization, and compression, is computed by

$$(\text{client bytes} - \text{server bytes}) / \text{client bytes}$$

and presented as a percentage. The Savings value provides a relative percentage of bandwidth savings on the WAN link, with 100% indicating no WAN traffic at all (no server bytes) and 0% indicating that no savings were achieved by client bytes equaling server bytes. Utilizing the numbers from the above example, the equivalent savings would be $8/9 = 0.89 = 89\%$.

Refreshing the Data

The data in the **Traffic Mix** page refreshes whenever you switch views or change the duration of the sample. If there is no activity, the data refreshes every 60 seconds.

About Bypassed Bytes

Bypassed bytes are bytes that are not intercepted by a service or proxy. By default, bypassed bytes are included in the traffic mix views. When evaluating traffic statistics for potential optimization, it can be useful to include or exclude the bypassed byte statistics.

If you include bypassed bytes in traffic mix views, it depicts the actual bandwidth gain achieved between the client and the server by representing the total number of optimized and unoptimized bytes exchanged on the link. Bandwidth gain statistics are lower in this view because bypassed bytes are unoptimized, using bandwidth with no corresponding caching or protocol optimization benefits.

Exclude bypassed bytes statistics in the traffic mix view, by clearing the **Include bypassed bytes in graphs** check box. This view depicts bandwidth gain on the protocols that the ProxySG intercepts and their corresponding values.

When you include or exclude bypassed bytes, only the graph data and totals are affected. The table data in the lower half of the page is not altered.

About the Default Service Statistics

The default service statistics represent bytes for traffic that has been bypassed because it did not match:

- ❑ An existing service listener
- ❑ Other rules, such as static or dynamic bypass

To view the default service bytes, click **Default Ports...** in the upper-right section of the **Statistics > Traffic Mix** page.

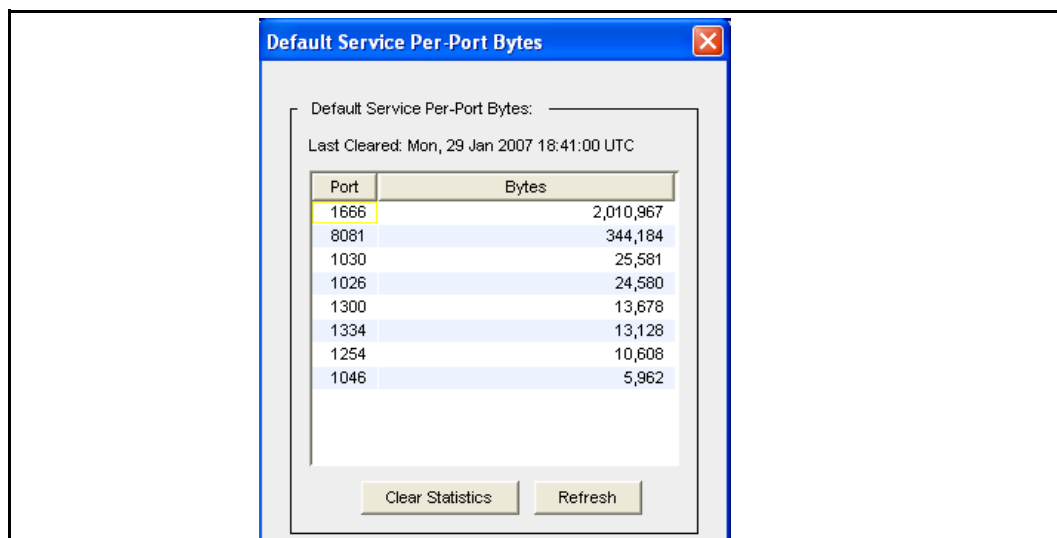


Figure 5–4 Default Service Per Port Bytes Dialog

Refer to *Volume 2: Proxies and Proxy Services* for more information about the default service.

Viewing Bandwidth Usage or Gain

Select the **BW Usage** or **BW Gain** tab in the **Statistics > Traffic Mix** page to view bandwidth usage and bandwidth gain statistics for the ProxySG over the last hour, day, week, month, and year. To view per-service or per-proxy bandwidth usage statistics, go to the **Traffic History (Statistics > Traffic History)** page.

In the **BW Usage** graph, the green display represents client data; the blue display represents server data; the brown represents bypassed bytes data. Hover your cursor over the graph to see the bandwidth usage and gain data.

To view bandwidth usage or gain statistics:

1. Select **Statistics > Traffic Mix > BW Usage** or **BW Gain**.
2. Select a time period from the **Duration** drop-down list.
3. (Optional) Select **Include bypassed bytes in graphs** to include statistics for bytes not intercepted by a proxy or service.
4. Select the **Service** option to display the bandwidth usage statistics for all configured services.
5. Select the **Proxy** option to display the bandwidth usage statistics for all supported proxies.

Viewing Client Byte and Server Byte Traffic Distribution

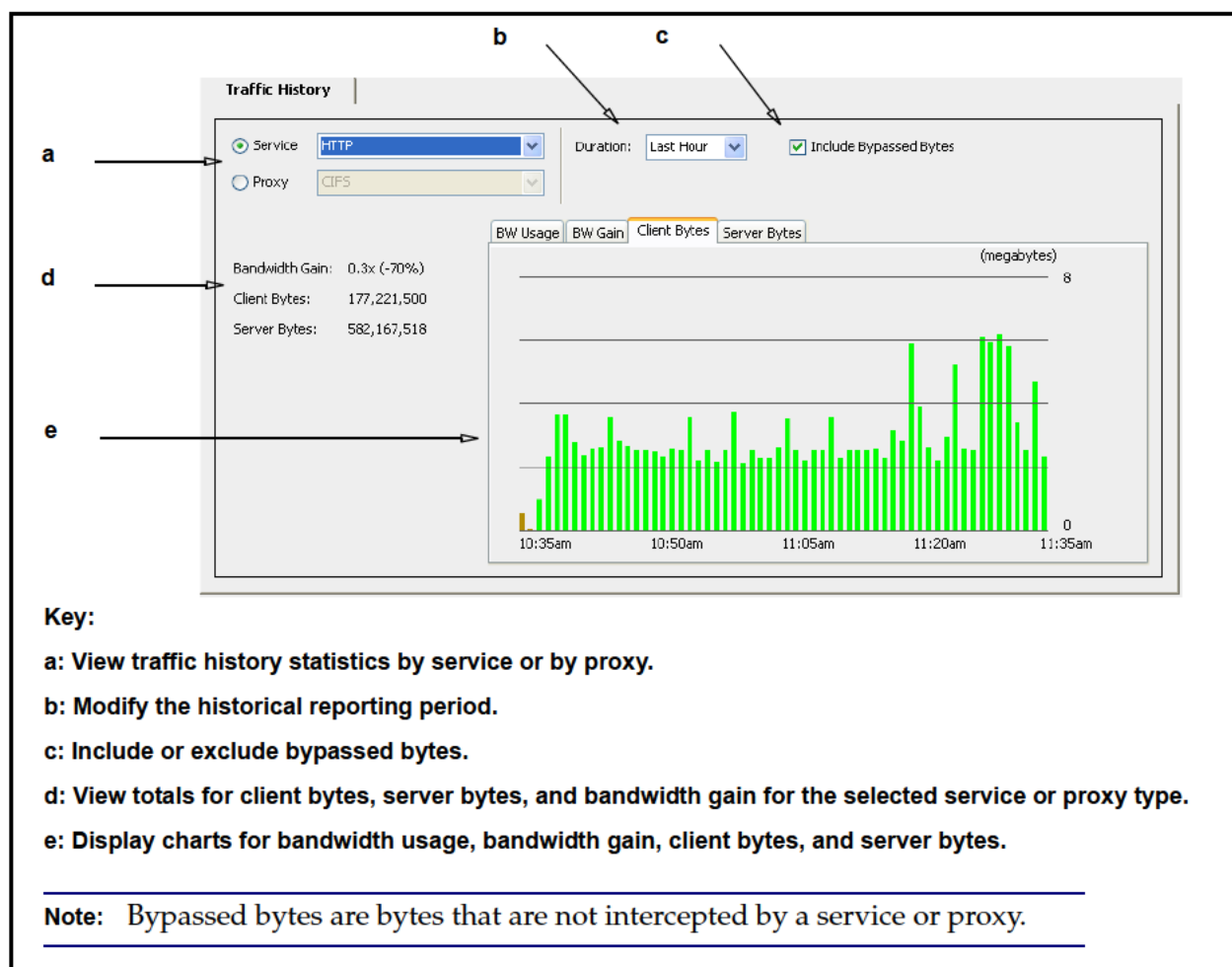
Select the **Client Bytes** or **Server Bytes** tabs in the **Statistics > Traffic Mix** page to view a pie chart of client byte or server byte statistics for the ProxySG over the last hour, day, week, month, or year. The pie charts display data for the top seven services or proxies; all other proxy and service statistics are categorized in the **Other** category. These items are arranged in a sorted order—the item that has highest percentage is displayed at the top of the list.

To view client and server byte statistics:

1. Select **Statistics > Traffic Mix > Client Bytes** or **Server Bytes**.
2. Select a time period from the **Duration** drop-down list.
3. (Optional) Select **Include bypassed bytes in graphs** to include statistics for bytes not intercepted by a proxy or service.
4. Select the **Service** option to display the traffic distribution statistics for all services.
5. Select the **Proxy** option to display the traffic distribution statistics for all supported proxies.

Viewing Traffic History

Use the **Statistics > Traffic History** page to monitor the traffic statistics for all traffic running through the ProxySG. You can display statistics for all proxy types or all services.



Supported Proxy Types

The **Traffic History** (and **Traffic Mix**) page displays data for the following proxy types (and services of these proxy types):

- | | | |
|---|-----------------------|------------------------------|
| • CIFS | • Endpoint Mapper | • FTP |
| • HTTP | • HTTPS Forward Proxy | • HTTPS Reverse Proxy |
| • Inbound ADN (Only in Traffic History) | • MAPI | • MSRPC |
| • Quicktime | • Real Media | • RTSP (Only in Traffic Mix) |
| • SSL | • TCP Tunnel | • Windows Media |

Supported Services

- | | | |
|------------------------|--------------|---|
| • CIFS | • Citrix ICA | • Endpoint Mapper |
| • FTP | • HTTP | • HTTPS |
| • IMAP | • IMAPS | • Inbound ADN (Only in Traffic History) |
| • Kerberos | • LDP | • LDAP |
| • Lotus Notes | • MMS | • MS SQL Server |
| • MS Terminal Services | • MySQL | • NFS |
| • Novell GroupWise | • Novell NCP | • Oracle |
| • POP3 | • POP3S | • RTSP (Only in Traffic Mix) |
| • SMTP | • SSH | • SSH Tunnel |
| • Shell | • SnapMirror | • Sybase SQL |
| • VNC | • X Windows | |
-

Note: Endpoint Mapper proxy bytes are the result of Remote Procedure Call (RPC) communication for MAPI traffic.

Unsupported Proxy Types

The **Traffic History** does not display data for the following proxy types:

- | | | |
|---------|----------|-------|
| • DNS | • IM | • P2P |
| • SOCKS | • Telnet | |
-

Understanding Chart Data

The **Traffic History** chart data updates automatically every 60 seconds. The colors in the chart represent the following information:

- ❑ Bandwidth Usage chart:
 - Green—Client bytes
 - Blue—Server bytes
 - Brown—Bypassed bytes
 - Dark Blue—Bandwidth gain
- ❑ Bandwidth Gain chart
 - Dark Blue—Bandwidth gain
- ❑ Client and Server Byte charts:
 - Green—Intercepted client bytes

- Blue—Intercepted server bytes
- Brown—Bypassed bytes

Hover the mouse cursor over the chart data to view detailed values.

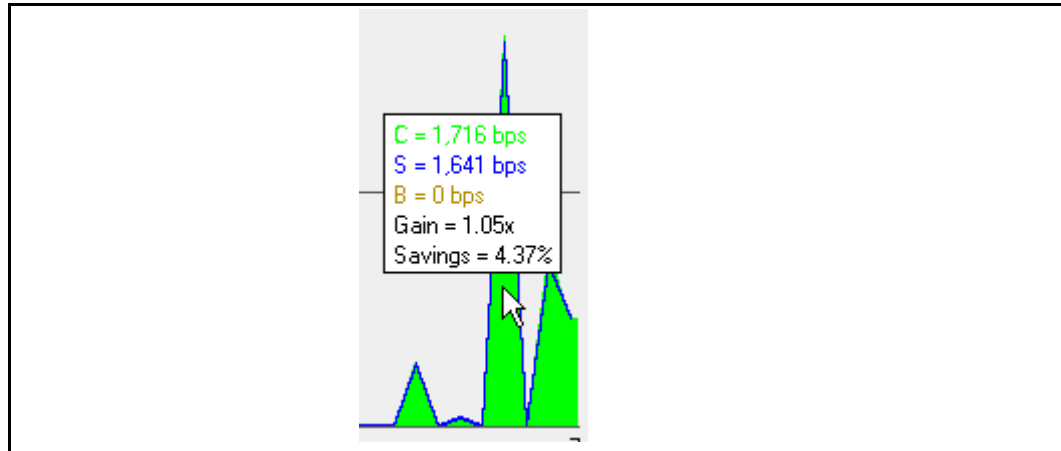


Figure 5-5 Traffic History Statistics — displayed when the cursor hovers over chart data

Refreshing the Data

The data in the **Traffic History** page refreshes whenever you switch views or change the duration of the sample. If there is no activity, the data refreshes every minute.

About Bypassed Bytes

Bypassed bytes are bytes that are not intercepted by a service or proxy. By default, bypassed bytes are included in the traffic mix views. When evaluating traffic statistics for potential optimization, it can be useful to include or exclude the bypassed byte statistics. Include or exclude bypassed bytes in the charts and graphs by selecting or clearing **Include bypassed bytes**.

Viewing Bandwidth Usage or Gain or Client Byte and Server Byte Traffic History

To view client and server byte or bandwidth gain statistics:

1. Select **Statistics > Traffic History > BW Usage, BW Gain, Client Bytes, or Server Bytes**.
2. Generate history data for a service or proxy:
Service history:
 - a. Select the **Service** option.
 - b. Select a service from the drop-down list.

Proxy history:

- a. Select the **Proxy** option.
- b. Select a proxy from the drop-down list.
3. Select a time period from the **Duration** drop-down list
4. (Optional) Select **Include bypassed bytes in graphs** to include statistics for bytes not intercepted by a proxy or service.

Viewing ADN History

The **Statistics > ADN History** pages allow you to view either usage statistics or gain statistics and either unoptimized bytes or optimized bytes through the ADN History tab. For configuring the Application Delivery Network, refer to *Volume 5: Advanced Networking*.

Viewing Bandwidth Management Statistics

The **Statistics > Bandwidth Mgmt** pages display the current class and total class statistics. Refer to the bandwidth management information in *Volume 5: Advanced Networking* for more information about these statistics.

Viewing ProxyClient Statistics

The **Statistics > ProxyClient History** pages display the ProxyClient Manager statistics. Refer to accelerating and controlling micro branch and mobile connections (ProxyClient) in *Volume 5: Advanced Networking* for more information.

Viewing Network Interface History Statistics

The **Statistics > Network > Interface History** page displays the traffic to and from each interface, including VLAN traffic, on the ProxySG. Refer to the Configuring Adapters and Virtual LANS chapter in *Volume 1: Getting Started* for more information.

Viewing Protocol Statistics

The **Statistics > Protocol Details** pages provide statistics for the protocols serviced by the ProxySG. These statistics should be used to compliment the statistics in the **Traffic History** and **Traffic Mix** pages.

The descriptions of these statistics are located in the proxy services to which they pertain. The following list provides a listing of these statistics and describes where to find additional information.

❑ CIFS History

The **Statistics > Protocol Details > CIFS History** pages enable you view statistics for CIFS objects, CIFS bytes read, CIFS bytes written, and CIFS clients. Refer to the CIFS chapter in *Volume 2: Proxies and Proxy Services* for more information about these statistics.

❑ HTTP/FTP History

The **Statistics > Protocol Details > HTTP/FTP History** pages enable you view statistics for HTTP/HTTPS/FTP objects, HTTP/HTTPS/FTP bytes, HTTP/HTTPS/FTP clients, client compression gain, and server compression gain. Refer to the HTTP and FTP chapters in *Volume 2: Proxies and Proxy Services* for more information about these statistics.

For HTTP/FTP bandwidth usage statistics, see the **Traffic Mix** and **Traffic History** pages.

- ❑ IM History

The **Statistics > Protocol Details > IM History** pages enable you view statistics for IM connection data, IM activity data, and IM clients. Refer to the IM chapter in *Volume 3: Web Communication Proxies* for more information about these statistics.

- ❑ MAPI History

The **Statistics > Protocol Details > MAPI History** pages enable you view statistics for MAPI client bytes read, MAPI client bytes written, and MAPI clients. Refer to the MAPI chapter in *Volume 2: Proxies and Proxy Services* for more information about these statistics.

For MAPI bandwidth usage statistics, see the **Traffic Mix** and **Traffic History** pages.

- ❑ P2P History

The **Statistics > Protocol Details > P2P History** pages enable you view statistics for P2P data, P2P clients, and P2P bytes. Refer to the P2P information in *Volume 6: The Visual Policy Manager and Advanced Policy* for more information about these statistics.

- ❑ Shell History

The **Statistics > Protocol Details > Shell History** pages enable you view statistics for shell clients. Refer to the shell proxy information in *Volume 2: Proxies and Proxy Services* for more information about these statistics.

- ❑ SOCKS History

The **Statistics > Protocol Details > SOCKS History** pages enable you view statistics for SOCKS clients, SOCKS connections, client compression gain, and server compression gain. Refer to the SOCKS chapter in *Volume 2: Proxies and Proxy Services* for more information about these statistics.

- ❑ SSL History

The **Statistics > Protocol Details > SSL History** pages enable you view statistics for unintercepted SSL data, unintercepted SSL clients, and unintercepted SSL bytes. Refer to the SSL chapter in *Volume 2: Proxies and Proxy Services* for more information about these statistics.

- ❑ Streaming History

The **Statistics > Protocol Details > Streaming History** pages enable you view statistics for Windows Media, Real Media, QuickTime, current streaming data, total streaming data, and bandwidth gain. Refer to the streaming chapter in *Volume 3: Web Communication Proxies* for more information about these statistics.

For MMS bandwidth usage statistics, see the **Traffic Mix** and **Traffic History** pages.

Viewing System Statistics

The **Statistics > System** pages enable you to view:

- ❑ ["Resources Statistics"](#) on page 103
- ❑ ["Contents Statistics"](#) on page 107
- ❑ ["Event Logging Statistics"](#) on page 108
- ❑ ["Failover Statistics"](#) on page 109

Resources Statistics

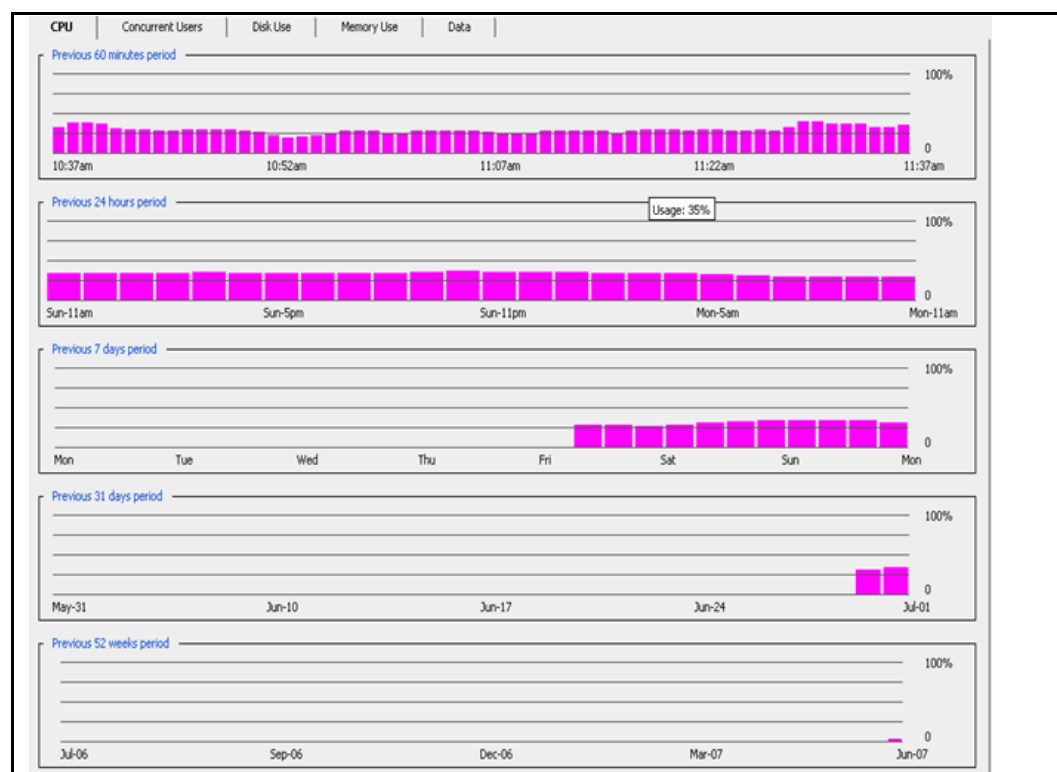
The **Resources** tabs (**CPU**, **Disk Use**, **Memory Use**, and **Data**) allow you to view information about how the CPU, disk space and memory are being used, and how disk and memory space are allocated for cache data. You can view data allocation statistics through both the Management Console and the CLI, but disk and memory use statistics are available only through the Management Console.

Viewing CPU Utilization

Through the Management Console, you can view the average CPU utilization percentages for the ProxySG over the last 60 minutes, 24 hours, and 30 days. You can see the current CPU utilization statistic in the CLI.

To view CPU utilization:

1. Select **Statistics > System > Resources > CPU**.

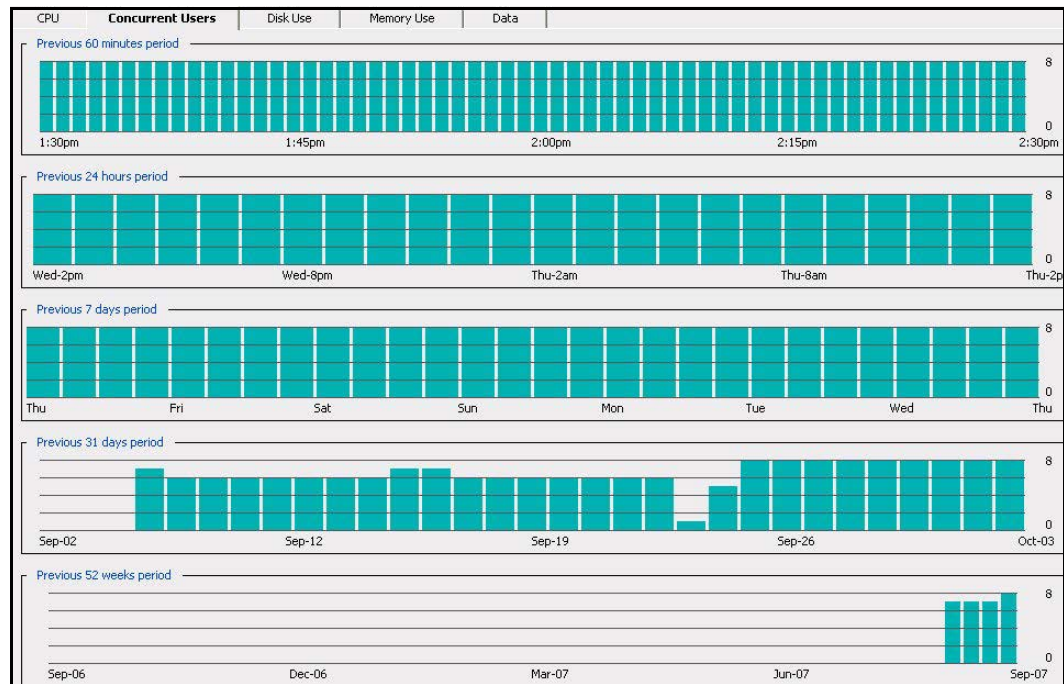


Viewing Concurrent Users

The **Concurrent Users** tab shows users (IP addresses) that are being intercepted by the ProxySG. The duration intervals that you can view concurrent use are for the last hour, day, week, month, and year. Only unique IP addresses of connections intercepted by proxy services are counted toward the user limit.

To view concurrent users:

Click **Statistics > System > Resources > Concurrent Users**.



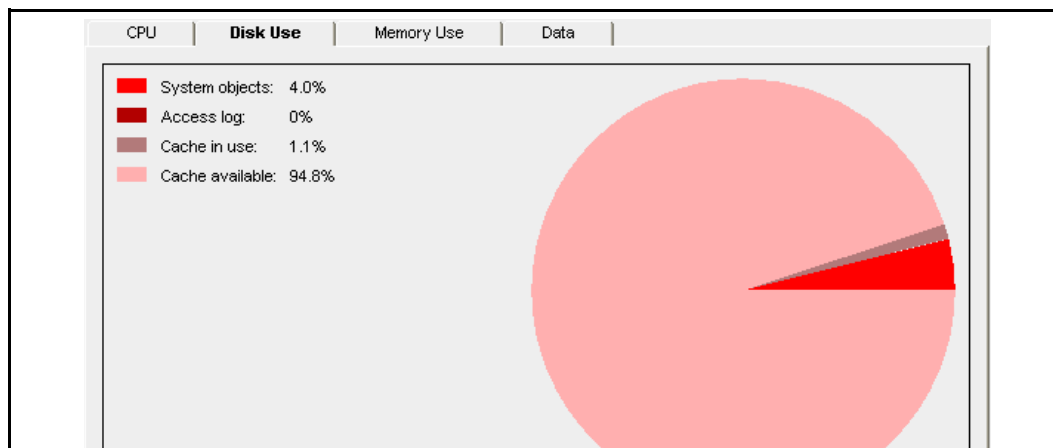
Viewing Disk Use Statistics

The **Disk Use** tab shows the ProxySG disk usage. The fields on the tab are:

- ❑ **System Objects**—the percentage of storage resources currently used for non-access-log system objects
- ❑ **Access log**—the percentage of storage resources currently used for the access log
- ❑ **Cache in Use**—the percentage of non-system, non-access-log resources currently in use for cached objects
- ❑ **Cache available**—the percentage of non-system, non-access-log resources still available for caching objects

To view disk use statistics:

Select **Statistics > System > Resources > Disk Use**.



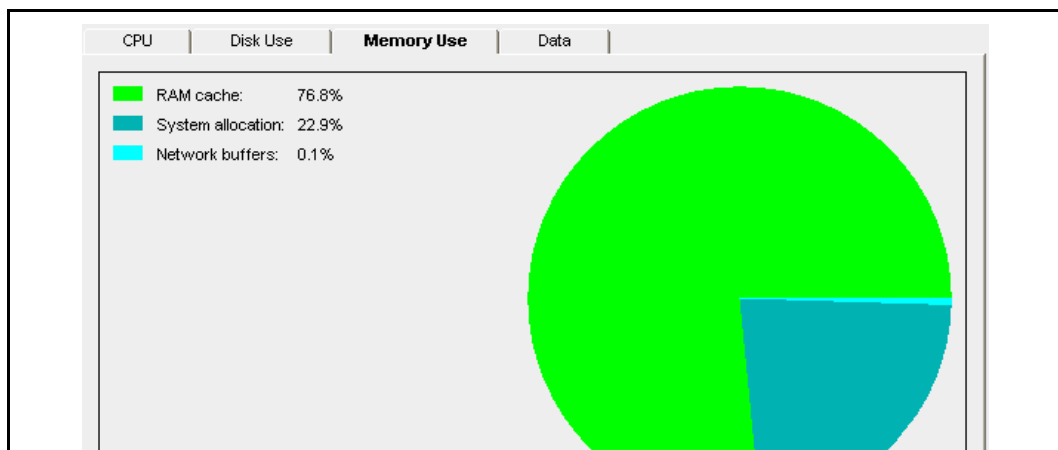
Viewing Memory Use Statistics

The **Memory Use** tab shows the amount of memory used for RAM, the ProxySG itself, and for network buffers. The fields on the Memory Use tab are:

- ❑ **RAM Cache**—the amount of RAM that is used for caching
- ❑ **System allocation**—the amount of RAM allocated for the device system
- ❑ **Network buffers**—the amount of RAM currently allocated for network buffers

To view memory use statistics:

Select **Statistics > System > Resources > Memory Use**.



Viewing Data Allocation Statistics in RAM and on Disk

The **Data** tab shows the total and available disk space and RAM, and how they are currently allocated. The fields on the Data tab are described below. You can also view this information in the CLI.

- ❑ **Maximum objects supported**—The maximum number of objects that can be supported
- ❑ **Cached objects**—The number of objects that are currently cached

- ❑ **Disk used by system objects**—The amount of disk space used by the system objects
- ❑ **Disk used by access log**—The amount of disk space used for access logs
- ❑ **Total disk installed**—The total amount of disk space installed on the device
- ❑ **RAM used by cache**—The amount of RAM allocated for caching
- ❑ **RAM used by system**—The amount of RAM allocated for system use
- ❑ **RAM used by network**—The amount of RAM allocated for network use
- ❑ **Total RAM installed**—The total amount of RAM installed

To view data allocation statistics:

Select **Statistics > System > Resources > Data**.

CPU	Disk Use	Memory Use	Data																				
<table><tr><td>Maximum objects supported:</td><td>2,292,607 objects</td></tr><tr><td>Cached Objects:</td><td>27,797 objects</td></tr><tr><td>Disk used by system objects:</td><td>1.5 gigabytes</td></tr><tr><td>Disk used by access log:</td><td>0 bytes</td></tr><tr><td>Total disk installed:</td><td>37.27 gigabytes</td></tr><tr><td colspan="2"> </td></tr><tr><td>RAM used by cache:</td><td>374.61 megabytes</td></tr><tr><td>RAM used by system:</td><td>112.13 megabytes</td></tr><tr><td>RAM used by network:</td><td>864.03 kilobytes</td></tr><tr><td>Total RAM installed:</td><td>487.59 megabytes</td></tr></table>				Maximum objects supported:	2,292,607 objects	Cached Objects:	27,797 objects	Disk used by system objects:	1.5 gigabytes	Disk used by access log:	0 bytes	Total disk installed:	37.27 gigabytes			RAM used by cache:	374.61 megabytes	RAM used by system:	112.13 megabytes	RAM used by network:	864.03 kilobytes	Total RAM installed:	487.59 megabytes
Maximum objects supported:	2,292,607 objects																						
Cached Objects:	27,797 objects																						
Disk used by system objects:	1.5 gigabytes																						
Disk used by access log:	0 bytes																						
Total disk installed:	37.27 gigabytes																						
RAM used by cache:	374.61 megabytes																						
RAM used by system:	112.13 megabytes																						
RAM used by network:	864.03 kilobytes																						
Total RAM installed:	487.59 megabytes																						

Contents Statistics

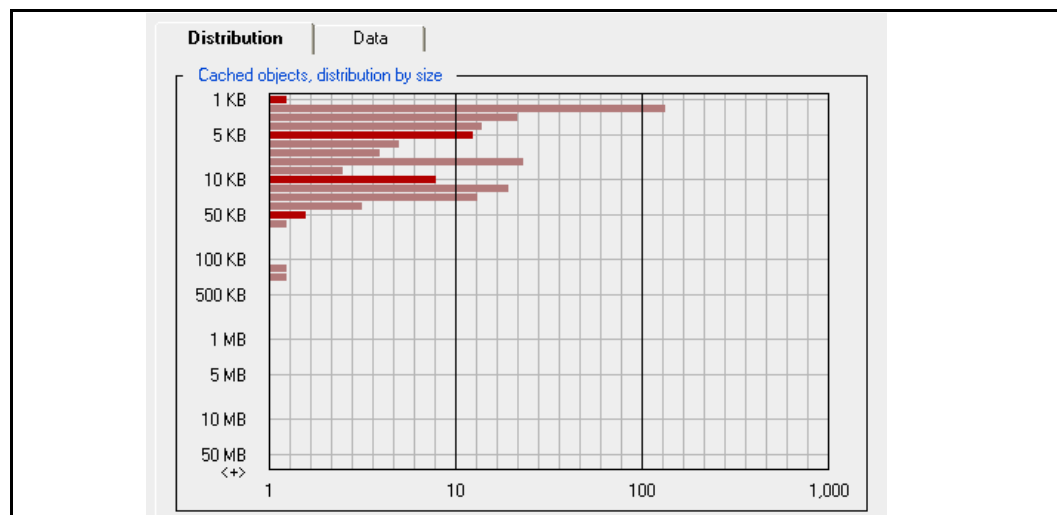
The **Contents** tabs (**Distribution** and **Data**) allow you to see information about objects currently stored or served organized by size. The cache contents include all objects currently stored by the ProxySG. The cache contents are not cleared when the appliance is powered off.

Viewing Cached Objects by Size

The **Distribution** tab shows the objects currently stored by the ProxySG, ordered by size.

To view the distribution of cache contents:

Select **Statistics > System > Contents > Distribution**.



Viewing the Number of Objects Served by Size

The Data tab displays the number of objects served by the ProxySG, organized by size. This chart shows you how many objects of various sizes have been served.

To view the number of objects served:

Select **Statistics > System > Contents > Data**.

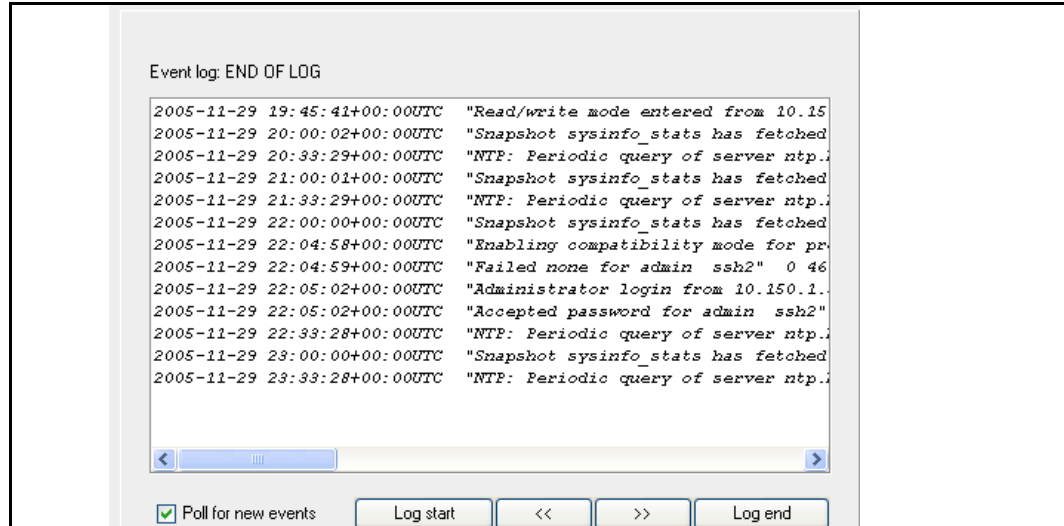
Distribution	Data	
0-1 KB: 1	9-10 KB: 9	90-100 KB: 0
1-2 KB: 130	10-20 KB: 29	100-200 KB: 1
2-3 KB: 34	20-30 KB: 12	200-300 KB: 1
3-4 KB: 15	30-40 KB: 5	300-400 KB: 0
4-5 KB: 10	40-50 KB: 2	400-500 KB: 0
5-6 KB: 7	50-60 KB: 1	500-600 KB: 0
6-7 KB: 6	60-70 KB: 0	600-700 KB: 0
7-8 KB: 37	70-80 KB: 0	700-800 KB: 0
8-9 KB: 4	80-90 KB: 0	800-900 KB: 0
9-1 MB: 0	9-10 MB: 0	over 50 MB: 0
1-2 MB: 0	10-20 MB: 0	
2-3 MB: 0	20-30 MB: 0	
3-4 MB: 0	30-40 MB: 0	
4-5 MB: 0	40-50 MB: 0	
5-6 MB: 0		
6-7 MB: 0		
7-8 MB: 0		
8-9 MB: 0		
	Objects in cache:	304

Event Logging Statistics

The event log contains all events that have occurred on the ProxySG. Configure the level of detail available by selecting **Maintenance > Event Logging > Level** (For details, see ["Configuring Which Events to Log"](#) on page 17).

To view the event log:

1. Select **Statistics > System > Event Logging**.



2. Click **Log start** or **Log end** or the forward and back arrow buttons to move through the event list.
3. (Optional) Click the **Poll for new events** check box to poll for new events that occurred while the log was being displayed.

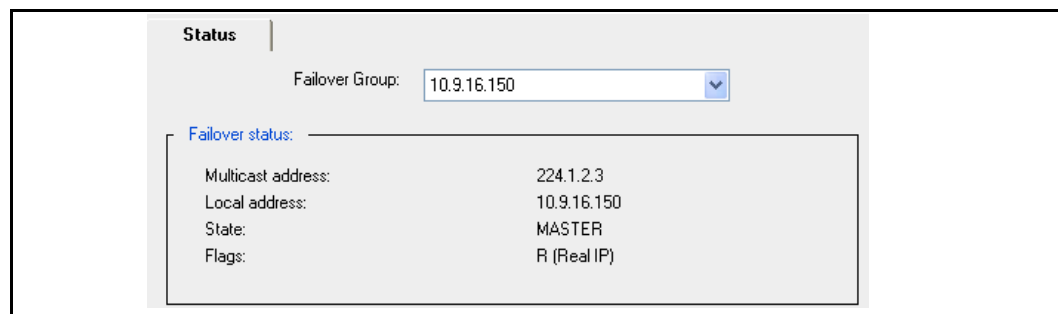
Note: The Event Log cannot be cleared.

Failover Statistics

At any time, you can view statistics for any failover group you have configured on your system.

To view failover statistics:

1. Select **Statistics > System > Failover**.



2. From the **Failover Group** drop-down list, select the group to view.

The information displayed includes the multicast address, the local address, the state, and any flags, where **V** indicates that the group name is a virtual IP address, **R** indicates that the group name is a physical IP address, and **M** indicates that this machine can be configured to be the master if it is available.

Active Sessions—Viewing Per-Connection Statistics

Viewing active sessions enables you to view detailed statistics about proxied sessions, errored sessions, and bypassed connections.

Viewing the proxied sessions provides information for diagnostic purposes. Viewing bypassed connections helps identify new types of traffic flowing through the ProxySG, as well as traffic flows that would benefit from optimization. Viewing errored sessions enables you to track details for troubleshooting.

For specific information, see ["Analyzing Proxied Sessions"](#) on page 110, ["Analyzing Bypassed Connections Statistics"](#) on page 120, and ["Viewing Errored Sessions and Connections"](#) on page 122.

Note: You can also view session statistics for ADN inbound connections, which is described in *Volume 5, Advanced Networking*, Chapter 2: "Configuring an Application Delivery Network."

Example Scenarios Using Active Sessions for Troubleshooting

An administrator is setting up a Common Internet File System (CIFS) over ADN and the CIFS does not appear to be working. The administrator can use the Active Sessions feature on the ProxySG to filter for any CIFS sessions that produced an error. If the ProxySG did not report an error, the administrator still has some information about the session that can help diagnose the failure without the use of a packet capture.

The following list describes two other examples when using active sessions can help with troubleshooting problems.

- ❑ A site-wide problem is occurring and the administrator uses active sessions to diagnose the failure. If it is a problem with DNS, for example, there will be a large number of sessions with DNS errors.
- ❑ In protocols where errors might not be communicated another way (such as CIFS, TCP, or tunnels), active sessions record the actual error.

Analyzing Proxied Sessions

The **Statistics > Active Sessions > Proxied Sessions** page provides an immediate picture of the sessions and the protocol types, services, bytes, savings, and other statistics. These statistics are derived from WAN optimization and object caching and are associated with client traffic.

The first time you view the **Proxied Sessions** page, no data is displayed. To display proxied sessions data, click **Show**. The statistics displayed in the window are not automatically updated. To update the statistics, click **Show** again.

Proxied Sessions | Bypassed Connections | ADN Inbound Connections

Filter: None Show

☐ Limit Display to results

☐ Show errored sessions only

Proxied Sessions

Client	Server	A	S	FW	Duration	Client Bytes	Server Bytes	Savings ▼
▶ 10.2.15.93:2110	catalog.video.msn.com:80				15 sec	4,562	4,502	0.99%
▶ 10.2.15.93:2107	i.l.cnn.net:80				49 sec	6,905	6,802	1.96%
▶ 10.2.15.93:2105	catalog.video.msn.com:80				55 sec	10,286	10,054	1.96%
▶ 10.2.15.93:2048	i.l.cnn.net:80				2.7 min	31,795,478	31,779,420	0%

Terminate Selection Download

Total displayed sessions: 4 Total displayed connections: 17

Important: Use the statistics on the **Proxied Sessions** pages as a diagnostic tool only. The **Proxied Sessions** pages do not display every connection running through the ProxySG. This feature displays only the *active* sessions—one client connection (or several), together with the relevant information collected from other connections associated with that client connection. Because it displays only *open* connections, you cannot use the data for reporting purposes.

The **Proxied Sessions** page displays statistics for the following proxies:

- CIFS
- Endpoint Mapper
- FTP
- HTTP
- HTTPS Forward Proxy
- HTTPS Reverse Proxy
- MAPI
- MSRPC
- QuickTime
- Real Media
- SSL
- TCP Tunnel
- Windows Media

Viewing Proxied Sessions

Client connections are available for viewing as soon as the connection request is received. However, if delayed intercept is enabled, the connection is not shown until the three-way handshake completes. Server connections are registered and shown in the table after the `connect` call completes.

To view proxied sessions:

1. Select **Sessions > Active Sessions > Proxied Sessions**.
2. Select a filter from the **Filter** drop-down list, enter the appropriate information (for client address/port or sever address/port) or make a selection from the drop-down list (for proxy or services).

Important: It is important to select a filter before clicking **Show** to minimize the time it might take for a busy ProxySG to download the list of active sessions.

3. (Optional) To limit the number of sessions to view, select **Limit Display to** and enter a number in the results field. This helps optimize performance when there is a large number of connections.
4. (Optional) To view the current errored proxied sessions, select **Show errored sessions only**. For more details, see "[Viewing Errored Sessions and Connections](#)" on page 122.
5. Click **Show**.

Downloading Proxied Session Statistics

To save and share session statistics data for diagnostic purposes, you can download the current proxied sessions statistics and save them in an Excel file.

To download proxied session statistics:

1. Click **Download**. The Save dialog displays.
2. Navigate to the location to save the text file and click **Save**. The text file contains all the statistics for the current proxied sessions.
3. (Optional) Save the data in an Excel file by copying the contents of the text file, opening Excel, and selecting **Edit > Paste Special**.

Terminating a Proxied Session

Terminating an active session causes any operation in progress on the session to be interrupted, so it is not advised to do so unless there is a specific condition that needs to be remedied. When you terminate a proxied session, the ProxySG terminates both the client-side and server-side connections.

For example, a CIFS session might report an error that was preventing it from being accelerated. The administrator would then reconfigure some settings on the client or server to fix the problem. After that, the administrator could terminate the session on the ProxySG, which would force the client to connect again and allow the new connection to be accelerated.

To terminate a proxied session:

Select the session in the list and click **Terminate Session**.

About the Proxied Sessions Statistics

When reviewing the proxied session statistics, note that:

- ❑ Active client and server connections are displayed in black.
- ❑ Inactive connections are displayed in gray.
- ❑ Errored connections are displayed in red (when you select the **Show errored sessions only** check box).
- ❑ Session and connection totals are displayed on the bottom left side of the page.

The following table describes the per-column statistics and the various icons on the **Proxied Sessions** page.

Table 5–1 Column and Icon Descriptions on the Proxied Sessions Page

Column or Icon	Description
Client	<p>IP address and port of the client PC (or other downstream host).</p> <p>When the client connection is inactive, the contents of this column are unavailable (gray). A client connection can become inactive if, for example, a client requests a large object and then aborts the download before the ProxySG has finished downloading it into its cache.</p> <p>When the session has multiple client connections, a tree view is provided. See "Viewing Sessions with Multiple Connections" on page 117 for more information.</p>
Server	<p>Final destination of the request.</p> <p>By default, the hostname is displayed. However, if a user entered an IP address in the URL, the IP address is displayed. When you hold the cursor over the hostname or IP address, the following information displays:</p> <ul style="list-style-type: none"> • Client-supplied destination IP • Destination server address (the final server address to which the proxy is connecting) <p>The following information displays only when it is available:</p> <ul style="list-style-type: none"> • Address of the upstream forwarding host, if any • Address of the upstream SOCKS gateway, if any <p>The contents of this column are unavailable if the server connection is inactive. This can occur when a download has completed (and the server connection is closed or returned to the idle pool), but the object is still being served to the client.</p> <p>If a server connection was never made (a pure cache hit case), the Server column displays the hostname (or IP address) of the requested server.</p> <p>Active server connections are shown in black; inactive connections are gray.</p>

Table 5–1 Column and Icon Descriptions on the Proxied Sessions Page (Continued)






Column or Icon	Description
<p>A</p>  	<p>ADN. Indicates that the server connection is flowing over an ADN tunnel. If the icon does not display, it indicates that an ADN tunnel is not in use.</p> <p>Encrypted ADN tunnel.</p>
<p>S</p> 	<p>SOCKS. Indicates that the upstream connection is being sent through a SOCKS gateway. If the icon does not display, it indicates that a SOCKS gateway is not in use.</p>
<p>FW</p> 	<p>Forwarding. Indicates that the upstream connection is being sent through a forwarding host. If the icon does not display, it indicates that forwarding is not in use.</p>
Duration	Displays the amount of time the session has been established.
Client Bytes	<p>Represents the number of bytes (to and from the client) at the socket level on the client connection. All application-level bytes are counted, including application overhead such as HTTP headers, CIFS headers, and so on.</p> <p>TCP and IP headers, packet retransmissions, and duplicate packets are not counted.</p> <p>See "About the Byte Totals" on page 118 for more information.</p>
Server Bytes	<p>Represents the number of bytes (to and from the server) at the socket level on the server connection. All application-level bytes are counted, including application overhead such as HTTP headers, CIFS headers, and so on.</p> <p>If the traffic is flowing through an ADN tunnel, the bytes are counted after ADN optimization, meaning that compressed byte counts are displayed.</p> <p>TCP and IP headers, packet retransmissions, and duplicate packets are not counted.</p> <p>See "About the Byte Totals" on page 118 for more information.</p>
Savings	<p>Displays the bandwidth gain for the session and the savings in bandwidth.</p> <p>When the request results in a pure cache hit, this column displays 100%.</p>
<p>C</p> 	<p>Compression. When displayed in color, this icon indicates that an ADN Tunnel is in use and <code>gzip</code> compression is active in either direction on that tunnel.</p> <p>This icon has three states:</p> <ul style="list-style-type: none"> • Active (color icon) • Inactive (gray icon) • Not possible (not displayed)

Table 5–1 Column and Icon Descriptions on the Proxied Sessions Page (Continued)






Column or Icon	Description
BC 	<p>Byte Caching. When displayed in color, this icon indicates that an ADN Tunnel is in use and byte-caching is active in either direction on that tunnel.</p> <p>This icon has three states:</p> <ul style="list-style-type: none"> • Active (color icon) • Inactive (gray icon) • Not possible (not displayed)
OC 	<p>Object Caching. When displayed in color, this icon indicates that an HTTP, HTTPS, CIFS, Streaming, or FTP proxy is in use and the content is cacheable.</p> <p>This icon has three states:</p> <ul style="list-style-type: none"> • Active (color icon) • Inactive (gray icon) • Not possible (not displayed) <p>The icon:</p> <ul style="list-style-type: none"> • Is unavailable if the content is non-cacheable (or for CIFS, when the entire connection is non-cacheable—not on an object-by-object basis). • Is not displayed for MAPI and TCP-Tunnel traffic. • Does not indicate a cache hit; it indicates only that the object is cacheable.
P 	<p>Protocol Optimization. When displayed in color, this icon indicates that a proxy is in use that is capable of performing latency optimizations. These proxies include HTTP, HTTPS, CIFS, and MAPI.</p> <p>This icon has three states:</p> <ul style="list-style-type: none"> • Active (color icon) • Inactive (gray icon) • Not possible (not displayed)
BM 	<p>Bandwidth Management. When displayed in color, this icon indicates that either the client or server connection has been assigned to a bandwidth class.</p> <p>This icon has two states:</p> <ul style="list-style-type: none"> • Active (color icon) • Inactive (gray icon)
E 	<p>Encryption. When displayed in color, this icon indicates that an ADN Tunnel is in use and encryption is active in either direction on that tunnel.</p> <p>This icon has three states:</p> <ul style="list-style-type: none"> • Active (color icon) • Inactive (gray icon) • Not possible (not displayed)

Table 5–1 Column and Icon Descriptions on the Proxied Sessions Page (Continued)

Column or Icon	Description
Service Name	Displays the service used by the session. Even if a client connection is handed off to a different application proxy, this column shows the service name of the original service that intercepted the client connection.
Protocol	Displays the protocol used by the session.
Detail	Provides additional information. For example, it can indicate that a CIFS connection is "pass-through" due to SMB signing. The Detail column also displays the following errors: <ul style="list-style-type: none"> • Errors connecting upstream (TCP errors, ADN network errors) • Unexpected network errors after connecting (e.g., read errors) • Request-handling errors (parse errors, unknown method or protocol, unsupported feature) • Response-handling errors (parse errors, unknown method or protocol, unsupported feature, unexpected responses such as HTTP 500 errors from OCS) • Unexpected internal errors • DNS errors and DNS resolve failures • External service errors such as ICAP, BCAA, and so on See " Viewing Errored Sessions and Connections " on page 122.

Viewing Additional Information

Place the cursor over the following components or fields to get more information:

- ❑ Table column headers—Displays the full name of the column header.
- ❑ Row values.
- ❑ Acceleration icons (**C**, **BC**, **OC**, **P**, **BM**)—Displays the icon identity.
- ❑ ADN, SOCKS, and FW icons—Displays the upstream host of that type being communicated with, if any.
- ❑ Client and Server—Displays the full hostname or IP address.


About MMS Streaming Connections

The Active Sessions feature displays connection statistics for MMS streams over HTTP, TCP, or UDP only. Multicast connections are not displayed. When an MMS stream is displayed, the service name is listed as **HTTP** or **MMS** (depending on the transport used) and the protocol indicates Windows Media.

10.9.59.48:2597	msent.wmod.llnwd.net:80	14 sec	494.885	166.012
-----------------	-------------------------	--------	---------	---------

Figure 5–6 MMS Streaming Connection Example

Viewing Sessions with Multiple Connections

When multiple client or server connections are associated with a single session, the **Client** column provides a tree-view that allows you to expand the row to view more details about the associated connections. The tree view is represented by the  icon.

The following figure shows an HTTP example of this tree view.



Client IP	Server	Duration	Client Bytes	Server Bytes	Savings	Icons	Protocol	Protocol
10.9.59.48:3579	anch.questionmarket.co...	1 sec	13,760	4,496	206%	[Icons]	HTTP	HTTP
10.9.59.48:3579	anch.questionmarket.co...	1 sec	13,760	1,638	740%	[Icons]	HTTP	HTTP
10.9.59.48:3579	conn.net/	0 sec	0	0		[Icons]	HTTP	HTTP
10.9.59.48:3579	ads.cnn.com:80	0 sec	0	1,508		[Icons]	HTTP	HTTP
10.9.59.48:3579	view.atdmt.com:80	0 sec	0	700		[Icons]	HTTP	HTTP
10.9.59.48:3579	ad.doubleclick.net:80	0 sec	0	650		[Icons]	HTTP	HTTP

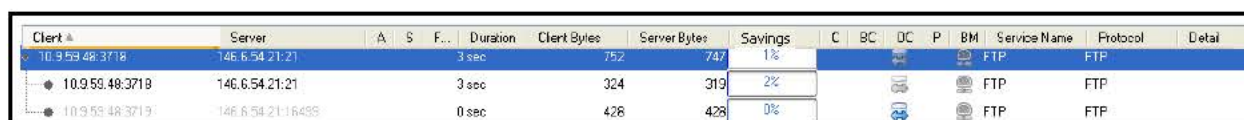
Figure 5-7 Multiple Server Connections Example

HTTP

The tree view displays (as shown above) for HTTP if multiple hosts are contacted during a session or if pipelining is used.

FTP

FTP uses multiple, concurrent connections. These are represented as separate rows in the tree view, as shown in the following figure.



Client IP	Server	A	S	F...	Duration	Client Bytes	Server Bytes	Savings	C	BC	DC	P	BM	Service Name	Protocol	Detail
10.9.59.48:3718	146.6.54.21:21				3 sec	752	747	1%						FTP	FTP	
10.9.59.48:3718	146.6.54.21:21				3 sec	324	319	2%						FTP	FTP	
10.9.59.48:3719	146.6.54.21:16455				0 sec	428	428	0%						FTP	FTP	

Figure 5-8 FTP Connections Example

CIFS, MAPI, and Endpoint Mapper do not display multiple connections.

MMS

The active sessions feature displays MMS streams that have a client associated with them. MMS streams that do not have a client associated with them (multicast, content management requests, and so on) are not displayed. MMS streams are displayed as follows:

- ❑ MMS UDP streams have two connections, one for data and one for control.
- ❑ MMS TCP streams have a single connection.
- ❑ MMS HTTP streams have a single connection.

For additional information about streaming connections, see ["About MMS Streaming Connections"](#) on page 116.

Expanding the Active Sessions Tree View

When expanded, the tree view displays per-connection statistics for the session, as shown in the following example. To expand the results for a connection, click the arrow to the left of the client IP address.

Client	Server	A	S	FW	Duration	Client Bytes	Server Bytes	Savings
10.2.15.216:3501	stc.msn.com:80				0 sec	23,008	21,053	8.26%
10.2.15.216:3501	stc.msn.com:80				0 sec	7,111	7,405	0%
:0	stb.msn.com:80				0 sec	1,281	938	27.01%
:0	stb.msn.com:80				0 sec	7,890	7,498	4.76%
:0	stc.msn.com:80				0 sec	4,679	4,262	9.09%
:0	stc.msn.com:80				0 sec	2,047	950	53.43%

Figure 5-9 Active Sessions Tree View (Expanded)

The **Savings** column result differs according to the server or client byte totals:

- ❑ Zero client bytes: displays no savings.
- ❑ Zero client and server bytes: displays no savings.
- ❑ Client and server are greater than zero: displays the calculated savings.

About the Byte Totals

The client and server byte total is the sum of all bytes going to and from the client or server. All application-level bytes are counted, including application overhead such as HTTP headers, CIFS headers, and so on. TCP and IP headers, packet retransmissions, and duplicate packets are not counted.

The following sections describe some of the factors that can affect the byte totals.

ADN Tunnels

If the traffic is flowing through an ADN tunnel, the bytes are counted after ADN optimization, meaning that compressed byte counts are displayed.

Multiple Server Connections

A single client connection can use many server connections. The server byte counts include the total bytes transferred over all server connections accessed over the lifetime of a client connection. Even though a server connection can serve many clients, the same server byte is never included in more than one client connection total.

Aborted Downloads

In some cases, you might see the server bytes increasing even after the client has closed the connection. This can occur when a client requests a large object and aborts the download before receiving the entire object. The server bytes continue to increase because the ProxySG is retrieving the object for caching. You can change this behavior by enabling the bandwidth gain mode.

To enable the bandwidth gain mode:

1. Select **Configuration > Proxy Settings > HTTP Proxy > Acceleration Profile**.
2. Select **Enable bandwidth gain mode**.
3. Click **Apply**.

An alternative way to do this is to add the following to policy:

```
<cache>
delete_on_abandonment (yes)
```

Explicit Proxying and Pipelining

If clients are explicitly proxied and the session has multiple connections or is pipelined, no client bytes are displayed and the expanded server connections display no savings when the tree view is shown. This is because the ProxySG is downloading the content before serving it to the client.

What Is Not Displayed

The **Proxied Sessions** page does not display statistics for:

- ❑ IM (Yahoo, AOL, MSN), DNS, SOCKS, and Telnet
- ❑ Inbound ADN connections (These display on the **ADN Inbound Connections** page.)
- ❑ Bridged connections
- ❑ Administrative connections (Management Console, SSH console, SNMP, DSAT, access-logging, Director, and so on)
- ❑ Off-box processing connections (ICAP, DRTR, and so on)

Note: In some cases, an administrative or off-box connection might correspond to a specific client connection, for example, an ICAP AV scanning connection associated with a specific HTTP client connection. However, the byte counts collected from administrative or off-box connections are not included in the Active Sessions display.

Filtering the Session Statistics

Use the **Filter** drop-down list to filter the proxied session statistics. When you select a filter, a text field or drop-down list displays for you to enter or select the filtering criteria.


The image shows a web-based filter interface. At the top, there is a label 'Filter:' followed by a dropdown menu currently showing 'Server Address'. To the right of the dropdown is a text input field containing 'msn.com'. Further right is a 'Show' button. Below these elements are two checkboxes. The first checkbox is labeled 'Limit Display to' followed by a small text input field and the word 'results'. The second checkbox is labeled 'Show errored sessions only'.

Figure 5–10 Filter List

Note: Select **Show errored sessions only** to view errored sessions. See ["Viewing Errored Sessions and Connections"](#) on page 122.

The following filters are available:

- ❑ Client Address: Filter by IP address only or IP address and subnet mask.
- ❑ Client Port: Filter by the client port number.

- ❑ **Server Address:** Filter by IP address or hostname. Hostname filters automatically search for suffix matches. For example, if you filter for example.com, test.example.com is included in the results.
- ❑ **Server Port:** Filter by the server port number.
- ❑ **Proxy:** Select the proxy type from the drop-down list. The proxy types are listed on page 110.
- ❑ **Service:** Select an enabled service from the drop-down list. If you filter for a service that is not supported for active sessions (see ["What Is Not Displayed"](#) on page 119), the resulting filtering list will be empty.

Viewing HTML and XML Views of Proxied Sessions Data

Access the following URLs to get HTML and XML views of active session statistics:

- ❑ **HTML:** `https://ProxySG_IP:8082/AS/Sessions/`
- ❑ **XML:** `https://ProxySG_IP:8082/AS/ProxiedConnections/xml`

See Also

- ❑ ["Analyzing Bypassed Connections Statistics"](#)
- ❑ ["Viewing Errored Sessions and Connections"](#)

Analyzing Bypassed Connections Statistics

The **Statistics > Sessions > Active Sessions > Bypassed Connections** page displays data for all unintercepted TCP traffic.

When the appliance is first installed in an inline deployment, all services are bypassed by default. By analyzing the connection data in the **Bypassed Connections** page, you can review the types of traffic flowing through the appliance to identify traffic flows that would benefit from optimization. The **Bypassed Connections** page is also useful for identifying new types of traffic flowing through the appliance.

Viewing, Downloading, and Terminating Bypassed Connections

The **Bypassed Connections** page displays data for connections that were not intercepted due to one of the following:

- ❑ A service has not been configured to intercept the traffic.
- ❑ A static or dynamic bypass rule caused the traffic to be bypassed.
- ❑ The interface transparent interception setting is disabled.
- ❑ Restrict intercept is configured.

To view bypassed connections:

1. Select **Statistics > Sessions > Active Sessions > Bypassed Connections**.
2. Select a filter from the **Filter** drop-down list and click **Show**.

Important: It is important to select a filter before clicking **Show** to minimize the time it might take for a busy ProxySG to download the list of active sessions.

3. (Optional) To limit the number of sessions to view, select **Limit Display to** and enter a number in the results field. This helps optimize performance when there is a large number of connections.
4. (Optional) To view the current errored bypassed connections, select **Show errored sessions only**. For more details, see ["Viewing Errored Sessions and Connections"](#) on page 122.
5. Click **Show**.

Note: See ["Filtering the Session Statistics"](#) on page 119 for more information about using the filters.

Note the following:

- ❑ Unavailable connections (gray) indicate connections that are now closed.
- ❑ Previously-established connections displayed with (<--?-->) text indicate that the direction of these connections is unknown.
- ❑ One-way connections are displayed in color.

To download bypassed connections statistics:

1. Click **Download**. The Save dialog displays.
2. Navigate to the location to save the text file and click **Save**. The text file contains all the statistics for the current bypassed connections.
3. (Optional) Save the data in an Excel file by copying the contents of the text file, opening Excel, and selecting **Edit > Paste Special**.

To terminate a bypassed connection:

Select a connection in the list and click **Terminate Connection**.

About Bypassed Connection Statistics

The following table describes the column headings on the **Bypassed Connections** page.

Table 5–2 Table Column Heading Descriptions on the Bypassed Connections Page

Column Heading	Description
Client	IP address and port of the client PC (or other downstream host).
Server	Server IP address and port number.
Duration	Displays the amount of time the connection has been established.

Table 5–2 Table Column Heading Descriptions on the Bypassed Connections Page (Continued)

Column Heading	Description
Bypassed Bytes	Displays the total number of bypassed bytes for the connection.
Service Name	Displays the service used by the connection.
Details	Provides additional information. For example: <ul style="list-style-type: none"> • One-way traffic (forward) • One-way traffic (reverse) • Previously established • Bypassed because of network interface setting

Note: ProxySG 5.3 bypasses CIFS sessions that require message signing or server signatures. Object caching and protocol optimization are inactive for these CIFS sessions, and the message in the Details field is **Server requires security signatures**.

Viewing HTML and XML Views of Bypassed Connections Data

Access the following URLs to get HTML and XML views of active session statistics:

- ❑ HTML: https://ProxySG_IP:8082/AS/BypassedConnections/
- ❑ XML: https://ProxySG_IP:8082/AS/BypassedConnections/xml

See Also

- ❑ ["Active Sessions—Viewing Per-Connection Statistics"](#)
- ❑ ["Example Scenarios Using Active Sessions for Troubleshooting"](#)
- ❑ ["About the Proxied Sessions Statistics"](#)
- ❑ ["Analyzing Proxied Sessions"](#)
- ❑ ["Viewing Errored Sessions and Connections"](#)

Viewing Errored Sessions and Connections

Although you can view current errored sessions on the **Proxied Sessions** and **Bypassed Connections** pages by selecting a check box, you can also view both current and historical errored sessions on the **Statistics > Sessions > Errored Sessions** pages. There are two pages: one for errored proxied sessions and one for errored bypassed connections.

The **Detail** column displays the type of error received. For example, if you open a browser and enter a URL for which the hostname cannot be resolved, the information that displays in the Detail column **DNS error: unresolved hostname (Network Error)**.

To view errored sessions or connections:

1. Select **Statistics > Sessions > Errored Sessions**. Select the **Proxied Sessions** page or the **Bypassed Connections** page, depending on the type of Errored sessions you want to view.
2. (Optional) To limit the number of sessions to view, select **Limit Display to** and enter a number in the results field.
3. Select a filter from the **Filter** drop-down list and click **Show**. The errored connections display in red.
4. Scroll to the right to display the **Detail** column and view error details. To sort by error type, click the **Detail** column header. The **Age** column displays how long it has been since that session ended.

BC	OC	P	BM	Service Name	Protocol	Detail	Age
				HTTP	HTTP	DNS error: server failure (Network Error)	0 sec
				HTTP	HTTP	DNS error: server failure (Network Error)	0 sec
				HTTP	HTTP	DNS error: server failure (Network Error)	0 sec
				HTTP	HTTP	Invalid request (Request Error)	0 sec
				HTTP	HTTP	TCP error: operation failed (Network Error)	1.46 Days

Figure 5–11 Errored Connections Details

See "[About the Proxied Sessions Statistics](#)" on page 113 for descriptions of each column and icon in the Errored Sessions pages.

To terminate an errored session or connection:

Select an errored session or connection in the list and click **Terminate Session** (for proxied Errored sessions) or **Terminate Connection** (for bypassed errored connections).

Related Syntax to Clear Errored Connections

```
#clear-errored-connections bypassed
#clear-errored-connections proxied
```

Downloading Errored Sessions or Connections Statistics

For troubleshooting purposes, you can download errored session (proxied) or errored connection (bypassed) statistics and save the data in an Excel file.

To download errored sessions or connections statistics:

1. Click **Download**. The Save dialog displays.
2. Navigate to the location to save the text file and click **Save**. The text file contains all the statistics for the errored sessions.
3. (Optional) Save the data in an Excel file by copying the contents of the text file, opening Excel, and selecting **Edit > Paste Special**.

See Also

- ❑ ["Active Sessions—Viewing Per-Connection Statistics"](#)
- ❑ ["Example Scenarios Using Active Sessions for Troubleshooting"](#)
- ❑ ["Analyzing Proxied Sessions"](#)
- ❑ ["About the Proxied Sessions Statistics"](#)
- ❑ ["Analyzing Bypassed Connections Statistics"](#)

Viewing Health Monitoring Statistics

The **Statistics > Health Monitoring** page enables you to get more details about the current state of the health monitoring metrics. Health monitoring tracks the aggregate health of the ProxySG and aids in focusing attention, if the health state changes. See [Chapter 2: "Monitoring the ProxySG"](#) on page 9 for information about health monitoring.

Viewing Health Check Statistics

Use the **Statistics > Health Checks** page to view the state of various health checks: whether the health check is enabled or disabled, if it is reporting the device or service to be healthy or sick, or if errors are being reported. Refer to the health check information in *Volume 5: Advanced Networking* for more information.

Viewing the Access Log

The **Statistics > Access Logging** pages enable you to view the log tail, log size, and upload status of the access log. Refer to *Volume 8: Access Logging* for more information.

Using the CLI show Command to View Statistics

You can use the `show` command to view a variety of different statistics. The following output lists the `show` options pertaining to topics in this chapter.

```
SGOS# show ?
access-log           Access log settings
bandwidth-gain       Bandwidth gain settings
bandwidth-management Bandwidth management settings
cifs                 CIFS information
content-distribution Sizes of objects in cache
cpu                  CPU usage summary
disk                 Disk status and information
efficiency            Efficiency statistics
epmapper             EndPoint Mapper information
event-log            Event log settings
failover             Failover settings
health-checks        Health Checks statistics
http                 HTTP settings
http-stats           HTTP statistics
im                   IM information
ip-stats             TCP/IP statistics
p2p                  Peer-to-peer information
```

proxy-services	Information about proxy services
proxy-client	ProxyClient settings
rip	Routing Information Protocol settings
resources	Allocation of system resources
session-monitor	Session monitor
service-groups	Proxy service groups
snmp	SNMP statistics
streaming	Streaming information
system-resource-metrics	System Resource Metrics

Viewing Advanced Statistics

A variety of system statistics are located in the Advanced tab of the Management Console.

To view system-wide advanced statistics:

1. Select **Statistics > Advanced**.
2. Click the appropriate link for the service you want to view.
A list of categories for that service displays.
3. To view the statistics for a particular category, click that category's link.
A window opens, detailing the relevant statistics.

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 file 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.

Index

A

- access logging 124
- active sessions 110
 - about byte totals 118
 - bypassed connections 120
 - about statistics 121
 - downloading 121
 - terminating 121
 - viewing 120
 - viewing HTML and XML data 122
- enable bandwidth gain mode 118
- errored connections
 - downloading 123
 - terminating 123
 - viewing 122
- example scenario 110
- filtering 119
- proxied sessions 110
 - downloading 112
 - statistics 111, 113
 - terminating 112
 - viewing 111
 - viewing HTML and XML data 120
- ADN history 101
- appliance certificate 10
- automatic service information, enabling 74

B

- bandwidth gain 97
- bandwidth management 101
- bandwidth usage 97
- Blue Coat monitoring, enabling 88
- bypassed bytes 96
- bypassed connections 120
 - about 120
 - downloading 121
 - terminating 121
 - viewing 120
- byte distribution 97

C

- cache contents 107
- caching
 - clearing the system cache 63
 - objects by size 107
 - purging the DNS cache 63
 - restarting the ProxySG 59
- capturing packets, *see* packet capturing
- community strings 32
- concurrent users, viewing 104
- core image
 - restart options 87
- CPU
 - utilization 103
- CPU monitoring
 - configuring 89
- CPU utilization 103
- cpu utilization 103

D

- data allocation 106
- default service 96
- defaults, restoring system defaults 60
- deleting objects from the ProxySG 72
- diagnostics
 - Blue Coat monitoring 88
 - core image restart options 87
 - CPU monitoring 89
 - heartbeats 88
 - packet capturing 81
 - sending service information 76
 - sending service information automatically 74
 - snapshot jobs 79
- Director
 - communicating with 11
- disk
 - multi-disk Blue Coat SG 71
 - multi-disk ProxySG 71
 - reinitialization 70
 - single-disk ProxySG 72
- disk use 103, 105

disks 103

DNS

cache, purging 63

document

conventions 7

E

empty system 67

Engine ID 31

errored connections 122

downloading 123

terminating 123

viewing 122

event logging

configuration, viewing 20

contents, viewing 21

event notification 18

log levels 17

log size 18

overview 17

event logging statistics 108

F

failover statistics 109

filter expressions for packet capturing 82

G

graph scale 92

H

health monitoring

configuring 42

cycle 44

example 43

general metrics 47

health check status 46

interpreting alerts 56

license expiration 48

licensing metrics 47

properties, modifying 52

status metrics 48

viewing statistics 54

health monitoring statistics 124

heartbeats, configuring 88

I

image, deleting 70

L

licensing

restore-default deletions 61

localized keys 36

locking and unlocking ProxySG systems 69

logging

see access logging and event logging

syslog event monitoring 19

M

Management Console, troubleshooting, browser

troubleshooting 64

management information base 25

downloading 25

memory use 103, 106

MIBs 25

BLUECOAT-SG-POLICY-MIB 32

downloading 25

O

objects

deleting from ProxySG 72

served by size 108

P

packet capturing

about 81

capturing 83

common filter expressions 82

file name format 81

uploading data 87

viewing current data 86

passphrases 36

policy trace

diagnostics, sending 76

protocol details 101

proxied sessions

MMS connections 116

multiple connections 117

statistics 111

ProxySG

active sessions 110

bypassed bytes 96

- bypassed connections 120
- byte distribution 97
- deleting image 70
- deleting objects from 72
- locking and unlocking a system 69
- managing 67
- replacing a system 67, 70
- restarting 59
- setting the default system to boot 69
- single-disk 72
- system defaults 60
- traffic history 97
- traffic mix 92
- upgrading 64, 65
- viewing details 68
- purging the DNS cache 63

R

- rebooting, *see* restarting 59
- replacing a ProxySG system 70
- reporting
 - event logging 17
 - syslog event monitoring 19
- resources
 - concurrent users, viewing 104
- restart
 - core image 87
- restarting the ProxySG
 - restart options 59
 - setting the default system to boot 69
- restoring system defaults 60

S

- service information
 - enabling automatic 74
 - sending 76
- snapshot jobs
 - creating and editing 79
- SNMP
 - community strings 32
 - adding 32
 - editing 34
 - configuring 30
 - SNMPv1 and SNMPv2c 32
 - informs 24
 - listeners

- adding 26
 - modifying 28
- managed network 23
- MIBs 25
- passphrases 36
- services
 - adding 26
 - modifying 28
- SNMPv3
 - configuring 36
 - engine ID 31
 - users, configuring 37
- traps 24
 - editing 36
- traps and informs
 - configuring 40
- traps, configuring 35
- typical scenarios 23
- versions 24
- SSH-Console service 10
- SSHv2 host key 10
- SSL accelerator cards, statistics, viewing 16
- statistics
 - cached objects by size 107
 - CPU utilization 103
 - data allocation 106
 - graph scale 92
 - objects served by size 108
 - system summary 13
- syslog event monitoring 19
- system cache
 - clearing 63
- system cache,
 - troubleshooting 64
- system defaults, restoring 60
- system summary 13

T

- traffic history 97
 - supported proxies and services 98
- traffic mix 92
 - supported proxies and services 98
- troubleshooting
 - browsers 64
 - licenses disappear after restore-defaults command 61

U

upgrading
overview 64

system image from PC 65
through Management Console 65