

Blue Coat[®] Systems ProxySG[™]

SGOS 4.x Upgrade Guide



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Chapter 1: *Upgrading—Overview*

Blue Coat® strongly recommends that you read this document before attempting to upgrade to SGOS 4.x from previous ProxySG operating systems.

Existing features and policies might not perform as with previous versions, and upgrading to this version might require some additional configuration tuning. This SGOS version provides high security for the network, so when downgrading to previous versions, not all configurations and policies are retained.

Changes Between SGOS 3.x and SGOS 4.x

Unlike SGOS 3.x, SGOS 4.x does not permit upgrades from SGOS 2.x or CacheOS 4.x. All systems must be upgraded to SGOS 3.2.4 before being upgraded to SGOS 4.x. For information on the correct upgrade path, see Table 2.1, “Upgrade Paths” on page 7.

If you attempt to download the next major release and you receive an error message saying that the download failed due to policy deprecations, your policy uses constructs that are no longer supported in SGOS 4.x. You must correct any policy syntax problems before upgrading. For information on checking on policy deprecation, see “Policy Deprecation” on page 22.

If the upgrade path is followed, most of the current settings on the ProxySG are maintained after the upgrade. New or transformed settings in SGOS 4.x are taken from the original settings wherever possible.

About the Document Organization

This document is organized for easy reference, and is divided into the following sections and chapters:

Table 1.1: Document Organization

Chapter Title	Description
Chapter 1 – <i>Introducing the Upgrade/Downgrade Guide</i>	Upgrade differences between SGOS 3.2.x and SGOS 4.x. Blue Coat documentation and documentation conventions are also discussed.
Chapter 2 – <i>Upgrade Behavior, General</i>	This chapter discusses general upgrade issues, including the required upgrade path and licensing.
Chapter 3 – <i>Upgrade Behavior, Specifics</i>	This chapter identifies new features in SGOS 4.x and discusses any upgrade/downgrade issues.

Related Blue Coat Documentation

- *Blue Coat 6000 and 7000 Installation Guide*
- *Blue Coat 400 Series Installation Guide*
- *Blue Coat 800 Series Installation Guide*
- *Blue Coat 8000 Series Installation Guide*

- *Blue Coat ProxySG Configuration and Management Guide*
- *Blue Coat ProxySG Content Policy Language Guide*
- *Blue Coat ProxySG Command Line Interface Reference*

Document Conventions

The following section lists the typographical and Command Line Interface (CLI) syntax conventions used in this manual.

Table 1.2: Typographic Conventions

Conventions	Definition
<i>Italics</i>	The first use of a new or Blue Coat-proprietary term.
<code>Courier font</code>	Command line text that appears on your administrator workstation.
<code><i>Courier Italics</i></code>	A command line variable that is to be substituted with a literal name or value pertaining to the appropriate facet of your network system.
Courier Boldface	A ProxySG literal to be entered as shown.
{ }	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.

Chapter 2: Upgrade Behavior, General

Upgrading

When upgrading to SGOS 4.x from SGOS 3.2.4 or higher, the ProxySG saves a copy of the original configurations. These configurations remain unaffected when configuring features going forward. If you downgrade to the previous SGOS version, the saved configuration is used and the ProxySG is restored to that state.

Following the upgrade path provided maintains most of the current settings, the exceptions being those features that were substantially enhanced in SGOS 4.x.

The only supported direct upgrade is from SGOS 3.2.4 and later. CacheOS 4.x and SGOS 2.x systems must first be upgraded to the SGOS 3.2.4 release. The following table provides the upgrade paths for these earlier version.

Table 2.1: Upgrade Paths

Current OS	Direct Upgrade to SGOS 3.2.4?	Next OS version required	Comments
CA 1.0.00-CA3.1.15	No	CA 3.1.16	
CA 3.1.16	No	CA 4.1.10	
CA 3.5.00-CA3.5.07	No	CA 3.5.08	
CA 3.5.08	No	CA 4.1.10	
CA 4.0.00-CA4.1.09	No	CA 4.1.10	
CA 4.1.10 or greater	No	SG 2.1.07	
CA 4.2.00	No	CA 4.2.01	
CA 4.2.01 or greater	Yes	None	Can directly upgrade to SGOS 3.2.4
SA 1.0.00-SA2.0.x	No	SA 2.0.x	
SA 2.0.x	No	SA 4.1.10	
SA 4.0.00-SA4.1.09	No	SA 4.1.10	
SA 4.1.10 or greater	Yes	None	Can directly upgrade to SGOS 3.2.4.
SG 2.0.00-SG 2.1.06	No	SG 2.1.07	
SG 2.1.07 or greater	Yes	None	Can directly upgrade to SGOS 3.2.4.

In SGOS 3.2.4 or greater, deprecation warnings are issued for CPL syntax that is abandoned in SGOS 4.x. Use of abandoned syntax causes CPL compiler errors, the policy will fail to install and the ProxySG will use the default policy of ALLOW or DENY for all traffic. Following the recommended upgrade process ensures that policy integrity and therefore network security, are maintained.

Summary of Changes to the Upgrade Process

- The upgrade path must include a system that shows all possible deprecation warnings, so that these can be corrected in advance of the upgrade, to avoid policy compilation failures after upgrading. Migrating through SGOS 3.2.4 or greater satisfies this requirement.
- If the currently installed policy issued deprecation warnings when compiled, downloads of systems in which that syntax has been abandoned will fail with the error " ". Which error message you see depends on whether you were using the Management Console or the CLI.

From the Management Console:

```
Policy deprecation warnings exist. Please resolve them prior to upgrading to the next major release of system software
```

From the CLI:

```
WARNING: The installed policy contains deprecation warnings. Please fix these warnings prior to upgrading to the next major release, or use load upgrade ignore-warnings at your own risk. Upgrading to the next major release with deprecation warnings will cause the policy compilation to fail on boot.
```

This means that you cannot download major version upgrades while policy contains deprecated syntax.

Generally, the deprecation warnings indicate the appropriate corrective action. See "Policy Deprecation" on page 22 for instructions on how to view the deprecation warnings that indicate the syntax to be corrected.

Note: The Visual Policy Manager (VPM) automatically generates up-to-date CPL syntax. If the deprecations warnings are issued from the VPM policy file, you should start VPM and reload the policy to get the latest version of the generated CPL.

You can force an upgrade while deprecation warnings are present using the CLI command `load upgrade ignore-warnings`; however, policy compilation will fail after the upgrade and the ProxySG reverts to the default policy of ALLOW or DENY. Corrective action is required to restore normal operation.

- Any CPL local policy that performs operations such as ALLOW, DENY, Authenticate, or Redirect, or that modifies Cookie/Set-Cookie headers, might interfere with the Notify User policy. Before using the VPM Notify User policy, remove all coaching/splash/notify policy from the CPL local policy file.

Restoring to Previous Versions

When upgrading from the SGOS 3.2.4 or higher release, a copy of the settings is saved prior to any transformations by SGOS 4.x so that the original settings are available if the ProxySG is downgraded to SGOS 3.2.4.

Keep in mind that changes made after upgrade are not preserved on a downgrade. After an upgrade and a downgrade, the state is exactly what it was before the upgrade.

Redoing an Upgrade from SGOS 3.2.4

When the initial SGOS 4.x upgrade occurs, any compatible configurations are converted. This only happens the first time you upgrade; if you later downgrade to a pre-SGOS 4.x version by selecting an earlier image on your system, make configuration changes, and re-install SGOS 4.x, the new SGOS 3.2.4 changes are not propagated to SGOS 4.x.

To force the new system's configuration to be regenerated after changes are made to the older system's configuration, you will need to force the upgrade conversion to occur again. Use the `restore-sgos3-config` command, which converts the current SGOS 3.x configuration to the SGOS 4.x configuration.

Note: Previous force commands, `restore-sgos2-config` and `restore-cacheos4-config`, are not available in SGOS 4.x; they can only be run from earlier versions.

The `restore-sgos3-config` command first checks if there are saved SGOS 3.2.4 settings on the ProxySG. If not, the CLI command warns the administrator and exits.

If saved SGOS 3 settings exist, the `restore-sgos3-config` command warns the administrator that all the current SGOS 4.x settings will be lost and that a restart will be initiated, waiting for positive confirmation before clearing all the current SGOS 4.x settings, and then initiating a restart. The restart (similar to a `restart regular`) triggers the upgrade process, which copies over the SGOS 3 settings and transforms them to the SGOS 4.x settings.

Redoing an Upgrade from SGOS 2.x or CacheOS 4.x

To downgrade to capture changes to the older version's configuration, you must first launch the SGOS 3.x image, then select the SGOS 2.x or CacheOS 4.x version to launch. After you make the desired changes, you must follow the upgrade path back to SGOS 3.2.4, using the `restore-sgos2-config` or `restore-cacheos4-config` commands. (See Table 2.1 on page 7 for information on upgrade paths.)

The `restore-sgos2-config` or `restore-cacheos4-config` command first checks if there are saved SGOS 2.x or CacheOS 4.x settings on the ProxySG. If not, the CLI command warns the administrator and exits.

Important: Check for deprecation warnings after upgrading to 3.2.4 and before proceeding to SGOS 4.x.

If saved settings exist, the command warns the administrator that all the current next version settings will be lost and that a restart will be initiated, waiting for positive confirmation before clearing all the current next version settings, and then initiates a restart. The restart (similar to a `restart regular`) triggers the upgrade process, which copies over the settings and transform them to the next version settings.

Changing Between SGOS 4.x Versions

When moving from one SGOS 4.x release to another SGOS 4.x release, the system maintains all settings. Changes made after an upgrade continue to be available after a subsequent downgrade as long as the setting is relevant to the downgraded release.

Note: When upgrading or downgrading between versions of SGOS 4.x, copies of version-specific configurations are not retained. Instead, all configurations created in an upgrade are retained if the configuration is relevant to the downgrade version.

Care should be taken when using policy features introduced in a minor release. These cause compilation errors if you fall back to a previous version of the same major release in which those features were unsupported.

To prevent accidental fallbacks, you should remove unused system images (using the `installed_systems delete number`, from the `(config installed-systems)` prompt).

Licensing

In SGOS 4.x, a base license is issued for SGOS 4.x functionality, regardless of whether those features existed before SGOS 4.x or are new in SGOS 4.x.

If you upgrade from SGOS 3.x with a valid SGOS 4.x component license, the ProxySG lists the licensed components with their expiry dates; those components that are not licensed enter a 60-day trial period.

If you upgrade from SGOS 3.x without a valid SGOS 4.x component license, all licensable components enter a trial period; the ProxySG attempts to download a license from the Blue Coat license download site once a day for the duration of the SGOS 4.x trial period.

There are three types of licensable components:

- **Required**—The SGOS base.
- **Included**—Additional features provided by Blue Coat.
- **Optional**— If applicable, any additional purchased features.

When the license key file is created, it consists of all three components. The SGOS base is a required component of the license key file. The following table lists the ProxySG licensable components, categorized by type.

Table 2.2: Licensable Components

Type	Component	Description
Required	SGOS 4 Base	The ProxySG operating system, plus base features: HTTP, FTP, TCP-Tunnel, SOCKS, and DNS proxy. The following additional features are also included in the base license:
Included	3rd Party Onbox Content Filtering	Allows use with third-party vendor databases: Intersafe, Optenet, Proventia, SmartFilter, SurfControl, Websense, and Webwasher.

Table 2.2: Licensable Components (Continued)

Type	Component	Description
Included	Websense Offbox Content Filtering	For Websense off-box support only.
Included	ICAP Services	External virus and content scanning with ICAP servers.
Included	Bandwidth Management	Allows you to classify, control, and, if required, limit the amount of bandwidth used by different classes of network traffic flowing into or out of the ProxySG.
Included	Windows Media Standard	MMS proxy; no caching or splitting; content pass-through. Full policy control over MMS.
Included	Real Media Standard	RTSP proxy; no caching or splitting; content pass-through. Full policy control over RTSP.
Included	Apple QuickTime Basic	RTSP proxy; no caching or splitting; content pass-through. Full policy control over RTSP.
Included	Netegrity SiteMinder	Allows realm initialization and user authentication to SiteMinder servers.
Included	Obliv COREid	Allows realm initialization and user authentication to COREid servers.
Included	Peer-to-Peer	Allows you to recognize and manage peer-to-peer P2P activity relating to P2P file sharing applications.
Included	Compression	Allows reduction to file sizes without losing any data.
Optional	SSL	SSL Termination; includes an SSL termination card to be installed on the appliance.
Optional	IM	<ul style="list-style-type: none"> • AOL Instant Messaging: AIM proxy with policy support for AOL Instant Messenger. • MSN Instant Messaging: MSN proxy with policy support for MSN Instant Messenger. • Yahoo Instant Messaging: Yahoo proxy with policy support for Yahoo Instant Messenger.
Optional	Windows Media Premium	<ul style="list-style-type: none"> • MMS proxy; content caching and splitting. • Full policy control over MMS. • When the maximum concurrent streams is reached, all further streams are denied and the client receives a message.
Optional	Real Media Premium	<ul style="list-style-type: none"> • RTSP proxy; content caching and splitting. • Full policy control over RTSP. • When the maximum concurrent streams is reached, all further streams are denied and the client receives a message.

Hardware Supported

With SGOS v4.x, support for the ProxySG Series 600 and 700 systems has been dropped. Users with these systems must either upgrade their hardware or stay with SGOS v3.x. Blue Coat supports the following hardware:

- ProxySG Series 200
- ProxySG Series 400
- ProxySG Series 800
- ProxySG Series 6000
- ProxySG Series 7000
- ProxySG Series 8000

Documentation References

- Chapter 2, “Licensing,” in the *Blue Coat ProxySG Configuration and Management Guide*
- To do an upgrade for the ProxySG through the Management Console, refer to Chapter 21, “Maintenance,” *Blue Coat ProxySG Configuration and Management Guide*.
- *Blue Coat ProxySG Command Line Reference*

Chapter 3: *Feature-Specific Upgrade Behavior*

This chapter provides critical information concerning how specific features are affected by upgrading to SGOS 4.x (and if relevant downgrading from) and provides actions administrators must or are recommended to take as a result of upgrading.

This chapter contains the following sections:

- "Access Logging"—Discusses the new global enable/disable switch, the Peer-to-Peer (P2P) format and log, and the new substitutions.
- "Authentication"—Discusses Policy Substitution, Oblix COREid, and RADIUS realms.
- "Bandwidth Management"—Discusses bandwidth management features.
- "Compression"—Discusses ProxySG behavior when using HTTP compression.
- "Content Filtering"—Discusses downgrade behavior for new third-party vendors.
- "CPU Monitoring"—Allows you to see the percentage of CPU being used by specific functional groups.
- "Endpoint Mapper and SOCKS Compression"—Discusses Endpoint Mapper proxy and SOCKS compression.
- "ICAP Patience Page"—Discusses new and changed commands for Patience Page settings.
- "Policy"—Lists new VPM objects and CPL syntax, abandoned substitutions, new exception pages, and new object naming and UTF-8 encoding in VPM.
- "Securing the Serial Port"—Describes the upgrade/downgrade behavior if you secure the serial port.
- "SmartFilter Version 4"—The SmartFilter license key is now required if you use SmartFilter, version 4.
- "SSL Key Management"—Discusses new non-interactive commands to enhance SSL key management available through Director.

Note: If a topic is not discussed, it means no upgrade or downgrade issues exist for that feature: for example, event logging has no changed functionality from previous versions and will not be discussed in this document.

Access Logging

Access Logging has added new features in SGOS 4.x:

- A global enable/disable switch: See below.
- A P2P format and log: See "Peer-to-Peer" on page 15.
- New substitutions: See "New Access Logging Substitutions" on page 15. (For a list of deprecated substitutions, see Table 3.11, "Abandoned Substitution Tokens" on page 25.)

Global Enable/Disable Switch

In SGOS 4.x, you can enable or disable access logging on a global basis, both through the Management Console (Access Logging>General>Global Settings) and the CLI.

When logging is disabled, that setting overrides both policy and logging configuration. When access logging is enabled, policy settings override the access logging configuration.

Note: Access-log uploads are not affected by the global enable/disable switch; disabling access logging does not disable the ability to upload existing log files.

On new systems, by default, access logging is disabled, but certain protocols are configured to use specific logs. When access logging is enabled, logging begins immediately for all configured protocols.

If you are upgrading your system, your existing protocol configurations are preserved and access logging is enabled by default so that logging will continue as previously configured. Protocols new in SGOS 4.x are set to have a default log of `none` in this case.

Note: If you do not have a license for bandwidth management, access log uploads will not be bandwidth limited, even if they were bandwidth-limited in SGOS 3.x.

Certain protocols now have logs assigned to them by default. The defaults can be changed.

Note: Protocols are not associated with a log by default upon an upgrade. They are only associated with a default on new SGOS 4.x systems.:

Table 3.1: Default Logs and Protocols

Protocol	Log
Endpoint Mapper	main
FTP	main
HTTP/HTTPS	main
ICP	none
Instant Messaging	im
Peer to Peer	p2p
Real Media/QuickTime	streaming
SOCKS	none
TCP Tunneling	main
Telnet	none
Windows Media	streaming

New CLI Commands

```
SGOS#(config access-log) enable
SGOS#(config access-log) disable
```

Document References

Chapter 20, "Access Logging," in the *Blue Coat ProxySG Configuration and Management Guide*

Peer-to-Peer

The ProxySG recognizes peer-to-peer (P2P) activity relating to P2P file sharing applications. By constructing policy, you can control, block, and log P2P activity and limit the bandwidth consumed by P2P traffic.

Upgrade Behavior

- A new default format and a log called `p2p` is created.
- The default `p2p` format is associated with the `p2p` log.
- If a format called `p2p` already exists, the format is renamed to `p2p_user`. Any log referencing the old `p2p` format will, after the upgrade, start referencing `p2p_user`. If both `p2p` and `p2p_user` exist prior to the upgrade, then format `p2p` is renamed to `p2p_user1` so the new default format `p2p` can be created.
- If a log called `p2p` already exists, a new log is not created.

CLI Compatibility Issues

None.

Documentation References

- Chapter 15, “Advanced Policy,” in the *Blue Coat ProxySG Configuration and Management Guide*
- Chapter 14, “VPM,” in the *Blue Coat ProxySG Configuration and Management Guide*
- The *Blue Coat Content Policy Language Guide*

New Access Logging Substitutions

The following substitutions can be used in access logging and policy:

Note: The access log ignores any ELFF or custom format fields it doesn’t understand. In a downgrade, the format still contains all the fields used in the upgraded version, but only the valid fields for the downgraded version display any information.

Table 3.2: New Substitutions

ELFF	CPL	Description
x-exception-category -review-url	\$(exception.category_ review_url)	Used for categorization review for certain Content Filtering vendors. The substitution contains only the categorization review URL which is composed of the originally requested URL and the standard prefix. The values are empty if the selected content filter provider does not support review messages, or if the provider was not consulted for categorization, or if the categorization process failed due to an error.

Table 3.2: New Substitutions (Continued)

ELFF	CPL	Description
x-exception-category-review-message	\$(exception.category_review_message)	An HTML-formatted message suitable for inclusion in an exception page. The values are empty if the selected content filter provider does not support review messages, or if the provider was not consulted for categorization, or if the categorization process failed due to an error.
x-p2p-client-type	\$(p2p.client)	The name of the P2P network the client application is connected to. In case of non-P2P traffic, this substitution variable does not have a value.
x-cs-netbios-computer-name	\$(netbios.computer-name)	The NetBIOS name of the computer. This is an empty string if the query fails or the name is not reported.
x-cs-netbios-computer-domain	\$(netbios.computer-domain)	The name of the domain to which the computer belongs. This is an empty string if the query fails or the name is not reported.
x-cs-netbios-messenger-username	\$(netbios.messenger-username)	The name of the logged-in user. This is an empty string if the query fails or the name is not reported. It is also empty if there is more than one logged-in user.
x-cs-netbios-messenger-usernames	\$(netbios.messenger-usernames)	A comma-separated list of the all the messenger usernames reported by the target computer. This is an empty string if the query fails, or no names are reported.
x-cs-socks-compression		Compresses data on the client connection.
x-sr-socks-compression		Compresses data on the server connection.
x-virus-details	\$(icap_virus_details)	Details of a virus if one was detected.
x-icap-error-code	\$(icap_error_code)	ICAP error code.
x-icap-error-details	\$(icap_error_details)	ICAP error details.
cs(Content-Encoding)	\$(request.header.Content-Encoding)	Client Response header: Content-Encoding. This substitution allows you to monitor the effect of the new HTTP compression features.
rs(Accept-Encoding)	\$(response.header.Accept-Encoding)	Server Request header: Accept-Encoding. This substitution allows you to monitor the effect of the new HTTP compression features.

A new substitution modifier—`label(N)`—has been added. It is used in conjunction with the `client.host` substitution variable in defining Policy Substitution Realms. For example, `$(client.host:label(2))` could be used in the definition of a Policy Substitution Realm to set the user name from the results of a reverse DNS Lookup. For more information on the `:label()` modifier, refer to Appendix D “Substitutions,” in the *Blue Coat Content Policy Language Guide*.

Authentication

Two new realms—policy substitution and Oblix COREid—have been added in SGOS 4.x.

- **COREid Realm**—The ProxySG can be configured to consult an Oblix COREid (formerly known as Oblix NetPoint) Access Server for authentication and session management decisions. This requires that a COREid realm be configured on the ProxySG and policy written to use that realm for authentication.
- **Policy Substitution Realm**—A Policy Substitution realm provides a mechanism for identifying and authorizing users based on information in the request. The realm uses information in the request and about the client to identify the user. The realm is configured to construct user identity information by using policy substitutions. See Table 3.2 on page 15 for useful substitutions added in support of this feature.

In addition, RADIUS realms now support one-time passwords, and Netegrity realms now allow you to enable or disable client IP validation.

Upgrade Behavior

COREid and Policy Substitution realms: These new realms have no upgrade issues. On a downgrade, the realms will not be recognized and could cause policy compilation to fail if they are referenced by policy.

Netegrity: On an upgrade, the new realm option for client IP validation is added to existing realms with the default value of `enabled` so that the behavior remains as it was. On a downgrade, the value is ignored and all SiteMinder realms do client IP validation.

Administrator Actions

You must upgrade to the latest version of the Blue Coat Authorization and Authentication Agent (BCAAA) before you can use the new COREid realm.

Documentation References

- Chapter 9, “Using Authentication Services,” in the *Blue Coat ProxySG Configuration and Management Guide*

Bandwidth Management

Bandwidth management allows you to classify, control, and, if required, limit the amount of bandwidth used by different classes of network traffic flowing into or out of the ProxySG. Network resource sharing (or link sharing) is done using a bandwidth-management hierarchy where multiple traffic classes share available bandwidth in a controlled manner.

Bandwidth management provides the following features:

- Guarantees that certain traffic classes receive a specified minimum amount of available bandwidth.
- Limits certain traffic classes to a specified maximum amount of bandwidth.
- Prioritizes certain traffic classes to determine which classes have priority over available bandwidth.

Upgrade Behavior

As BWM is a new feature, upgrade issues are restricted to previously existing bandwidth configuration that will now be subsumed into the BWM configuration.

BWM does not replace the older bandwidth limiting features currently available in Streaming (max streaming, max Real and max MMS). It complements it.

BWM replaces the bandwidth-limiting configuration in Access Logging. Related BWM classes are automatically created based on the older Access Log bandwidth configuration and placed under the class "access-log-logname," where *logname* is the name of the log.

Downgrade Behavior

If downgraded, the access log behaves as previously configured.

Documentation References

Chapter 10, "Bandwidth Management," in the *Blue Coat ProxySG Configuration and Management Guide*.

Compression

In SGOS 4.x, Blue Coat offers both HTTP compression and SOCKS compress.

- HTTP Compression is an algorithm that reduces a file size but does not lose any data. When you use compression depends upon three resources: server-side bandwidth, client-side bandwidth, and ProxySG CPU. If server-side bandwidth is more expensive in your environment than CPU, then you should always request compressed content from the origin content server (OCS). However, if CPU is comparatively expensive, the ProxySG should instead be configured to ask the OCS for the same HTTP compressions that the client asked for and to forward whatever the server returns.

The default configuration assumes that CPU is costlier than bandwidth. If this is not the case, you can change the ProxySG behavior.

- SOCKS compression is supported for TCP/IP tunnels, which can compress the data transferred between the branch (downstream proxy) and main office (upstream proxy), reducing bandwidth consumption and improving latency.

When SOCKS compression is used in conjunction with the new Blue Coat Endpoint Mapper (EPMapper) proxy, the Endpoint Mapper proxy accelerates Microsoft RPC traffic (applications that use dynamic port numbers) between branch and main offices, automatically creating TCP tunnels to ports where RPC services are running.

Upgrade Behavior

Prior to SGOS 4.x, the HTTP proxy did not cache objects if the server sent compressed content. With HTTP compression and variant object support, objects are now cached regardless of its encoding (if all other conditions allows caching).

With variant object support, multiple copies of the same object (*variants*) might exist in the cache, and that might affect object carrying capacity of the disk.

On-box compression and decompression can significantly affect CPU and RAM usage. This will directly affect the capacity of the box.

On an upgrade, cached HTTP objects are usable. On a downgrade, cached HTTP objects fetched after the upgrade are re-fetched.

Documentation References

- Chapter 6, “Configuring Proxies,” in the *Blue Coat ProxySG Configuration and Management Guide*
- The *Blue Coat Content Policy Language Guide*

Content Filtering

- Cerberian content filtering has changed its name to Blue Coat Web Filter (BCWF). No upgrade issues exist. On a downgrade, the vendor `none` is selected instead of any unsupported choice.

Note: During the 60-day SGOS trial period, no username or password is required to use Blue Coat Web Filter. For more information, refer to “Configuring Blue Coat Web Filter” in Chapter 18 of the *Blue Coat ProxySG Configuration and Management Guide*.

- Three new content filtering third-party vendors —InterSafe, Optenet, and Webwasher—have been added in SGOS 4.x. These new vendors cause no upgrade issues. On a downgrade, the vendor `none` is selected instead of any unsupported choice.
- The Websense log protocol changed from version 1 to version 3 in SGOS 3.2.x.

Documentation References

Chapter 18, “Content Filtering,” in the *Blue Coat ProxySG Configuration and Management Guide*

CPU Monitoring

You can enable CPU monitoring whenever you want to see the percentage of CPU being used by specific functional groups. CPU monitoring is disabled by default.

You can also view CPU monitoring statistics through Statistics>Advanced>Diagnostics.

CLI Commands

The following commands allow you to enable and manage CPU monitoring:

Table 3.3: New CLI Commands for CPU Monitor

Command	Description
SGOS#(config diagnostics) cpu-monitor {enable disable}	Enables or disables the CPU monitor.
SGOS#(config diagnostics) cpu-monitor interval <i>seconds</i>	Sets the interval between CPU monitoring.
SGOS#(config diagnostics) view cpu-monitor	View CPU monitor statistics.

Documentation References

Appendix E, “Diagnostics,” in the *Blue Coat ProxySG Configuration and Management Guide*.

Endpoint Mapper and SOCKS Compression

The Endpoint Mapper proxy accelerates Microsoft RPC traffic between branch and main offices, automatically creating TCP tunnels to ports where RPC services are running. The Endpoint Mapper proxy can be used in both explicit and transparent mode.

Using SOCKS compression for TCP/IP tunnels reduces bandwidth consumption and improves latency.

No configuration is required on the main office ProxySG to support SOCKS compression. However, configuration is required on the branch ProxySG to forward data through the SOCKS gateway. You can use policy or the `socks-gateway` CLI options to enable SOCKS compression globally. Using policy, you can enable or disable compression on a per-connection basis on either the client side or the server side.

You must also configure the branch ProxySG for the Endpoint Mapper proxy.

Upgrade/Downgrade Behavior

- On new or upgraded systems, compression on the SOCKS proxy is enabled by default. SOCKS compression is disabled by default on the SOCKS forwarding host.
- On new or upgraded systems, the Endpoint Mapper proxy service is created, but not enabled, on port 135.
- If you downgrade the main office ProxySG but not the branch ProxySG, the branch office might still attempt compression, but compression will fail.
- On an upgraded system, the SOCKS proxy settings and policy is unchanged from the downgraded version.

Documentation References

- Chapter 5, “Managing Port Services,” in the *Blue Coat ProxySG Configuration and Management Guide*
- Chapter 6, “Configuring Proxies,” in the *Blue Coat ProxySG Configuration and Management Guide*

ICAP Patience Page

Patience pages display regardless of any pop-up blocking policy that is in effect.

CLI Changes and Additions

The following CLI commands have been modified:

Table 3.4: Changed CLI Syntax

Abandoned Syntax	Current Syntax
<code>inline http icap-patience-details eof</code>	<code>inline http icap-patience details eof</code>
<code>inline http icap-patience-header eof</code>	<code>inline http icap-patience header eof</code>
<code>inline http icap-patience-help eof</code>	<code>inline http icap-patience help eof</code>
<code>inline http icap-patience-summary eof</code>	<code>inline http icap-patience summary eof</code>

New commands created to view Patience Page settings are:

- `SGOS#(config external-services) view http icap-patience details`
- `SGOS#(config external-services) view http icap-patience header`
- `SGOS#(config external-services) view http icap-patience help`
- `SGOS#(config external-services) view http icap-patience summary`

Documentation References

Chapter 11, “External Services,” in the *Blue Coat ProxySG Configuration and Management Guide*

Policy

In SGOS 4.x, the following properties and objects have been added:

- Actions and Properties (Action objects)
 - ❑ `category.dynamic.mode` (used with dynamic categorization in VPM)
 - ❑ `detect_protocol` (not available in VPM)
 - ❑ `force_protocol` (not available in VPM)
 - ❑ `http.allow_compression` (used with client compression in VPM)
 - ❑ `http.allow_decompression` (used with client compression in VPM)
 - ❑ `http.client.allow_encoding` (not available in VPM)
 - ❑ `http.server.accept_encoding` (used with server compression in VPM)
 - ❑ `http.server.accept_encoding.allow_unknown` (used with server compression in VPM)
 - ❑ `limit_bandwidth` (used with bandwidth management in VPM)
 - ❑ Notify User object (not available in CPL)
 - ❑ `SOCKS.allow_compression` (Used with SOCKS compression in VPM)
 - ❑ `SOCKS.gateway.request_compression` (Used with SOCKS compression in VPM)
- Conditions (Source objects)
 - ❑ `http.connect` (not available in VPM)
 - ❑ `p2p.client` (used with P2P client object in VPM)
- Properties (Service objects)
 - ❑ `icap_error_code` (used with ICAP in VPM)
 - ❑ `virus_detected` (used with ICAP in VPM)

In addition, the following conditions can now be used in the <Forward> layer:

- `attribute.<name>=`
- `authenticated=`
- `group=`
- `realm=`

- user=
- user.domain=
- user.x509.issuer=
- user.x509.serialNumber=
- user.x509.subject=

The authenticated= condition can be used to test whether or not the user information is available. Forward layer rules containing the other new authentication conditions will fail to match if there is no associated user, regardless of the value specified in the test.

Two new named definitions have been added—define policy and define strong. (A named definition is one that is explicitly referenced by policy.) Since a copy of the files of the original operating system version has been saved, later-version changes, such as new named definitions, are not available in the downgrade.

Policy Deprecation

Syntax that was deprecated in SGOS 3.2.4 has been abandoned in SGOS 4.x, and this syntax must be corrected before an upgrade can be successfully completed. For information on replacement syntax, see "CPL", below.

To check for policy deprecation warnings:

- In the Management Console:
Configuration > Policy > Policy Files
From the View File:dropdown list, select Results of Policy Load, and press View.
-or-
Statistics>Advanced>Policy>Results of policy load
- From a browser:
https://ProxySG_IP:port /policy_import_listing.html
- At the CLI command prompt:
SGOS >show policy listing

To check for deprecation warnings in exception pages:

- In the Management Console:
Configuration > Policy > Exceptions
From the View File:dropdown list, select Results of Exceptions Load, and press View
-or-
Statistics>Advanced>Exceptions>View last installation status
- From a browser:
https://ProxySG_IP:port/exceptions_listing.html

Note: You cannot check for warnings in exception pages through the CLI.

Documentation References

- Chapter 14, "VPM," in the *Blue Coat ProxySG Configuration and Management Guide*
- The *Blue Coat Content Policy Language Guide*

CPL

Syntax that was deprecated in SGOS 3.x has been abandoned in SGOS 4.x. Policy that includes abandoned syntax should be corrected before you attempt to upgrade the system. The standard upgrade path and process are designed to ensure the integrity of policy and the security of your network. Blue Coat strongly recommends that you follow the approved upgrade path and correct any policy deprecation warnings prior to upgrading to SGOS 4.x.

Policy that has been abandoned is listed in the tables below.

Table 3.5: Abandoned Definition Syntax

Abandoned Syntax	Replacement Syntax
<code>define acl</code>	<code>define subnet</code>
<code>define_actions</code>	None. Actions can be defined anywhere in the policy .
<code>domain</code> (as a condition definition type)	<code>url.domain</code>
<code>prefix</code> (as a condition definition type)	<code>url</code>
<code>caseless</code>	None. All response-side URL rewrites are now case insensitive by default.
<code>subst_embedded</code> (in a <code>url_rewrite</code> transform definition)	<code>rewrite_url_substring</code>
<code>subst_prefix</code> (in a <code>url_rewrite</code> transform definition)	<code>rewrite_url_prefix</code>

Table 3.6: Abandoned Section Syntax

Abandoned Syntax	Replacement Syntax
[Domain] section heading	[url.domain]
[Domain-Suffix] section heading	[url.domain]
[Prefix] section heading	[url]
[Regex] section heading	[url.regex]
[Regular-expression] section heading	[url.regex]

Table 3.7: Abandoned Substitution Syntax

Abandoned Syntax	Replacement Syntax
<code>'(1)</code>	<code>\$(1)</code>
<code>'1</code>	<code>\$(1)</code>
<code>\$1</code>	<code>\$(1)</code>

Table 3.8: Abandoned Policy Conditions

Abandoned Syntax	Replacement Syntax
<code>acl=</code>	<code>client.address=</code>
<code>category.unavailable=</code>	<code>category=unavailable</code>
<code>client_address=</code>	<code>client.address=</code>
<code>client_protocol=</code>	<code>client.protocol=</code>
<code>method=</code> (in <code><admin></code> layers)	<code>admin.access=READ WRITE</code>
<code>method=</code>	See Method Tests

Table 3.8: Abandoned Policy Conditions (Continued) (Continued)

protocol=	url.scheme=
proxy_address=	proxy.address
proxy_card=	proxy.card
proxy_port=	proxy.port
release_id=	release.id=
release_version=	release.version=
request_header.<name>=	request.header.<name>=
request_header_address.<name>=	request.header.<name>.address=
request_x_header.<name>=	request.x_header.<name>=
request_x_header_address.<name>=	request.x_header.<name>.address=
response_header.<name>=	response.header.<name>=
response_x_header.<name>=	response.x_header.<name>=
url_address=	url.address=
url_domain=	url.domain=
url_extension=	url.extension=
url_host=	url.host=
url_host_is_numeric=	url.host.is_numeric=
url_host_no_name=	url.host.no_name=
url_host_regex=	url.host.regex=
url_host_suffix=	url.host.suffix=
url_path=	url.path=
url_path_regex=	url.path.regex=
url_port=	url.port=
url_prefix=	url=
url_query_regex=	url.query.regex=
url_regex=	url.regex=
url_scheme=	url.scheme=
user_domain=	user.domain=
virus_pattern_update_url=	None. All supported ICAP versions provide automatic notification of pattern file updates.

Table 3.9: Abandoned Policy Properties

Abandoned Syntax	Replacement Syntax
property=value syntax	property(value)
authenticate() (in cache layer)	Move to proxy layer
authenticate([,display_realm])	the optional "display_realm" property value is abandoned in favor of specification in the realm configuration.
block_category()	category= in conjunction with exception()
content_filter_override()	request.filter_service()
label()	action()
max_bitrate(0)	max_bitrate(no)

Table 3.9: Abandoned Policy Properties (Continued)

prefetch()	pipeline()
proxy_authentication()	authenticate()
reflect_vip()	reflect_ip()
service()	allow or deny
trace_destination()	trace.destination()
trace_level()	trace.level()
trace_request()	trace.request()
trace_rules()	trace.rules()

Table 3.10: Abandoned Policy Actions

Abandoned Syntax	Replacement Syntax
replace()	rewrite()
virus_check()	response.icap_service() (a property)

Table 3.11: Abandoned Substitution Tokens

Abandoned CPL	Current CPL
appliance_name	appliance.name
appliance_primary_address	appliance.primary_address
client_address	client.address
client_protocol	client.protocol
proxy_address	proxy.address
proxy_card	proxy.card
proxy_name	proxy.name
proxy_port	proxy.port
proxy_primary_address	proxy.primary_address
proxy_via_http_version	proxy.via_http_version
release_id	release.id
request_header.Accept	request.header.Accept
request_header.Accept-Charset	request.header.Accept-Charset
request_header.Accept-Encoding	request.header.Accept-Encoding
request_header.Accept-Language	request.header.Accept-Language
request_header.Accept-Ranges	request.header.Accept-Ranges
request_header.Age	request.header.Age
request_header.Allow	request.header.Allow
request_header.Authentication-Info	request.header.Authentication-Info
request_header.Authorization	request.header.Authorization
request_header.Cache-Control	request.header.Cache-Control
request_header.Client-IP	request.header.Client-IP
request_header.Connection	request.header.Connection
request_header.Content-Encoding	request.header.Content-Encoding

Table 3.11: Abandoned Substitution Tokens (Continued)

Abandoned CPL	Current CPL
request_header.Content-Language	request.header.Content-Language
request_header.Content-Length	request.header.Content-Length
request_header.Content-Location	request.header.Content-Location
request_header.Content-MD5	request.header.Content-MD5
request_header.Content-Range	request.header.Content-Range
request_header.Content-Type	request.header.Content-Type
request_header.Cookie	request.header.Cookie
request_header.Cookie2	request.header.Cookie2
request_header.Date	request.header.Date
request_header.Etag	request.header.Etag
request_header.Expect	request.header.Expect
request_header.Expires	request.header.Expires
request_header.From	request.header.From
request_header.Front-End-HTTPS	request.header.Front-End-HTTPS
request_header.Host	request.header.Host
request_header.If-Match	request.header.If-Match
request_header.If-Modified-Since	request.header.If-Modified-Since
request_header.If-None-Match	request.header.If-None-Match
request_header.If-Range	request.header.If-Range
request_header.If-Unmodified-Since	request.header.If-Unmodified-Since
request_header.Last-Modified	request.header.Last-Modified
request_header.Location	request.header.Location
request_header.Max-Forwards	request.header.Max-Forwards
request_header.Meter	request.header.Meter
request_header.P3P	request.header.P3P
request_header.Pragma	request.header.Pragma
request_header.Proxy-Authenticate	request.header.Proxy-Authenticate
request_header.Proxy-Authorization	request.header.Proxy-Authorization
request_header.Proxy-Connection	request.header.Proxy-Connection
request_header.Range	request.header.Range
request_header.Referer	request.header.Referer
request_header.Refresh	request.header.Refresh
request_header.Retry-After	request.header.Retry-After
request_header.Server	request.header.Server
request_header.Set-Cookie	request.header.Set-Cookie
request_header.Set-Cookie2	request.header.Set-Cookie2
request_header.TE	request.header.TE
request_header.Trailer	request.header.Trailer
request_header.Transfer-Encoding	request.header.Transfer-Encoding
request_header.Upgrade	request.header.Upgrade

Table 3.11: Abandoned Substitution Tokens (Continued)

Abandoned CPL	Current CPL
request_header.User-Agent	request.header.User-Agent
request_header.Vary	request.header.Vary
request_header.Via	request.header.Via
request_header.WWW-Authenticate	request.header.WWW-Authenticate
request_header.Warning	request.header.Warning
request_header.X-BlueCoat-Error	request.header.X-BlueCoat-Error
request_header.X-BlueCoat-MC-Client-IP	request.header.X-BlueCoat-MC-Client-IP
request_header.X-BlueCoat-Via	request.header.X-BlueCoat-Via
request_header.X-Forwarded-For	request.header.X-Forwarded-For
response_header.Accept	response.header.Accept
response_header.Accept-Charset	response.header.Accept-Charset
response_header.Accept-Encoding	response.header.Accept-Encoding
response_header.Accept-Language	response.header.Accept-Language
response_header.Accept-Ranges	response.header.Accept-Ranges
response_header.Age	response.header.Age
response_header.Allow	response.header.Allow
response_header.Authentication-Info	response.header.Authentication-Info
response_header.Authorization	response.header.Authorization
response_header.Cache-Control	response.header.Cache-Control
response_header.Client-IP	response.header.Client-IP
response_header.Connection	response.header.Connection
response_header.Content-Encoding	response.header.Content-Encoding
response_header.Content-Language	response.header.Content-Language
response_header.Content-Length	response.header.Content-Length
response_header.Content-Location	response.header.Content-Location
response_header.Content-MD5	response.header.Content-MD5
response_header.Content-Range	response.header.Content-Range
response_header.Content-Type	response.header.Content-Type
response_header.Cookie	response.header.Cookie
response_header.Cookie2	response.header.Cookie2
response_header.If-Modified-Since	response.header.If-Modified-Since
response_header.If-None-Match	response.header.If-None-Match
response_header.If-Range	response.header.If-Range
response_header.If-Unmodified-Since	response.header.If-Unmodified-Since
response_header.Last-Modified	response.header.Last-Modified
response_header.Location	response.header.Location
response_header.Max-Forwards	response.header.Max-Forwards
response_header.Meter	response.header.Meter
response_header.P3P	response.header.P3P
response_header.Pragma	response.header.Pragma

Table 3.11: Abandoned Substitution Tokens (Continued)

Abandoned CPL	Current CPL
response_header.Proxy-Authenticate	response.header.Proxy-Authenticate
response_header.Proxy-Authorization	response.header.Proxy-Authorization
response_header.Proxy-Connection	response.header.Proxy-Connection
response_header.Range	response.header.Range
response_header.Referer	response.header.Referer
response_header.Refresh	response.header.Refresh
response_header.Retry-After	response.header.Retry-After
response_header.Server	response.header.Server
response_header.Set-Cookie	response.header.Set-Cookie
response_header.Set-Cookie2	response.header.Set-Cookie2
response_header.TE	response.header.TE
response_header.Trailer	response.header.Trailer
response_header.Transfer-Encoding	response.header.Transfer-Encoding
response_header.Upgrade	response.header.Upgrade
response_header.User-Agent	response.header.User-Agent
response_header.Vary	response.header.Vary
response_header.Via	response.header.Via
response_header.WWW-Authenticate	response.header.WWW-Authenticate
response_header.Warning	response.header.Warning
response_header.X-BlueCoat-Error	response.header.X-BlueCoat-Error
response_header.X-BlueCoat-MC-Client-Ip	response.header.X-BlueCoat-MC-Client-Ip
response_header.X-BlueCoat-Via	response.header.X-BlueCoat-Via
response_header.X-Forwarded-For	response.header.X-Forwarded-For
transaction_id	transaction.id
url_address	url.address
url_extension	url.extension
url_host	url.host
url_host_name	url.hostname
url_path	url.pathquery
url_port	url.port
url_query	url.query
url_scheme	url.scheme

Documentation References

Appendix D, “Substitutions,” in the *Blue Coat Content Policy Language Guide*

Exception Pages

A number of built-in exception pages have been added to SGOS 4.x to send information back to the user under operational contexts that are known to occur. New exception pages include:

- HTML Notification
 - notify
 - notify_missing_cookie
- Compression
 - transformation_error
 - unsupported_encoding
 - invalid_response
- ICAP
 - icap_error (should be used in place of the existing icap_communications_error exception page)

On a downgrade to SGOS 3.2.4, the ProxySG reverts to using the SGOS 3.x policy that was in use the last time that SGOS 3.x was running.

Documentation References

- Chapter 15, “Advanced Policy,” in the *Blue Coat ProxySG Configuration and Management Guide*
- The *Blue Coat Content Policy Language Guide*

VPM

In SGOS 4.x, VPM now uses UTF-8 encoding format for fetching and installing policy.

UTF-8 Encoding

As of SGOS 4.x, VPM policy (XML) stored in the ProxySG is read using the UTF-8 encoding format. Any international characters present in this policy must be encoded using UTF-8. Policy (XML) created through VPM prior to SGOS 4.x does not contain international characters and so it should continue to load correctly after the upgrade.

If you created or edited the policy (XML) file outside VPM and loaded it into the ProxySG prior to upgrading, it might contain international characters. If these characters are not encoded in UTF-8 format, VPM is unable to load the policy. In this case, it begins with an empty policy after displaying an error message.

Object Naming

Objects that can be named by the user no longer start with "_" (underscore character). The underscore character is now used internally to prevent name collisions between objects that can be named by the user and internally generated names.

If obsoleted objects are upgraded, such as File/MIME Types in SGOS 2.x that get translated into combined condition objects, these objects are prefixed with `__Upgraded_`. Policy compiles correctly even if the underscore character is not removed. However, if you want to edit these objects, you must remove any underscore characters from the beginning of the object name before the object setting can be saved successfully.

On an upgrade, objects that cannot be named by the user are automatically updated to have the underscore character prefix the object name.

Documentation Reference

Chapter 14, “VPM,” in the *Blue Coat ProxySG Configuration and Management Guide*

Securing the Serial Port

When the secure serial port is enabled (recommended):

Once the secure serial port is enabled:

- The Setup Console password is required to access the Setup Console.
- An authentication challenge (username and password) is issued to access the CLI through the serial port.

Upgrade/Downgrade Behavior

- If you are upgrading, the secure serial port functionality is unchanged by default. If you never secured the serial port, the secure serial port functionality is disabled. If you subsequently use the Setup Console, you are asked if you want to enable secure the serial port at that time.
- On new installations, you are asked if you want to enable the secure serial port.
- Downgrades ignore the secure serial port setting. If older systems are present on the machine, it might be possible for an attacker to force the downgrade and then access the serial port. For maximum security, older systems should be deleted.

SmartFilter Version 4

SGOS 4.1 uses a new database download system for SmartFilter, version 4. A license key, which was sent to you by Secure Computing by e-mail when you ordered the database, is required to download the new version. In the e-mail, this key is listed as the Serial Number and is in the alpha-numeric format of: SFxx-xxxx-xxxx-xxxx.

Note: If you use SmartFilter, version 3, the user name/password assigned to you is still valid (for version 3 only).

Documentation Reference

Chapter 18, “Content Filtering,” in the *Blue Coat ProxySG Configuration and Management Guide*.

SSL Key Management

SSL key management, in SGOS 4.x, has been modified to allow Director to better manage ProxySG appliances.

Abandoned Syntax

The following syntax is abandoned as of SGOS 4.x, replaced by the equivalent `inline` commands.

```
SGOS#(config ssl)import keyring show|no-show keyring_id
SGOS#(config ssl)import certificate keyring_id
SGOS#(config ssl)import signing-request keyring_id
SGOS#(config ssl)import ca-certificate keyring_id
SGOS#(config ssl)import external-certificate keyring_id
```

Documentation References

Chapter 7, “Using Secure Services,” in the *Blue Coat ProxySG Configuration and Management Guide*

Chapter 21, “Maintenance,” in the *Blue Coat ProxySG Configuration and Management Guide*

Appendix F, “Using Director to Manage Appliances,” in the *Blue Coat ProxySG Configuration and Management Guide*.

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