BLUE COAT

Reporter

Reporter 10.x Administrator Guide

Security Empowers Business

Reporter 10.1.2 ~ Guide Revision 11/02/15

Blue Coat Reporter 10.x Administrator Guide

This document describes the functionality of Blue Coat® Reporter 10.x.

This document provides the following.

- Describes the Reporter network footprint.
- How to manage Reporter user access.
- How to monitor Reporter operations.
- How to solve problems.

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About Reporter Licensing

The Blue Coat Reporter limits the maximum disk space the product uses. Blue Coat provides the following Reporter 10.x license options.

Reporter RP-S500 Appliance

The license matches the total disk space (original specification). Check the current **System Resources** consumption on the **Admin** link **> System Overview > System Diagnostics** page.

Reporter VA

Blue Coat offers licenses, which allows up to the total usable disk space.

- RP-V50
- RP-V100
- RP-V200

Each versions specifies CPU and RAM sizing. For a complete sizing schematic, see "Reporter Resource Sizing" on page 17.

Reporter VA–About the Phone-Home Service

The following information applies to Reporter VA only.

To ensure license integrity, Reporter VA periodically communicates with Blue Coat license portal to validate the issued licenses. This requires continuous successful network connectivity with the Blue Coat network. To allow for temporary WAN outages, this operation continues for 12 hours or until a successful license validation occurs. After 12 hours, the Reporter license state changes to *invalid*. Until this license issue is resolved, you can continue to use all Reporter functionality except for new database and log source creation; furthermore, Reporter halts the processing of all *new* data in existing databases.

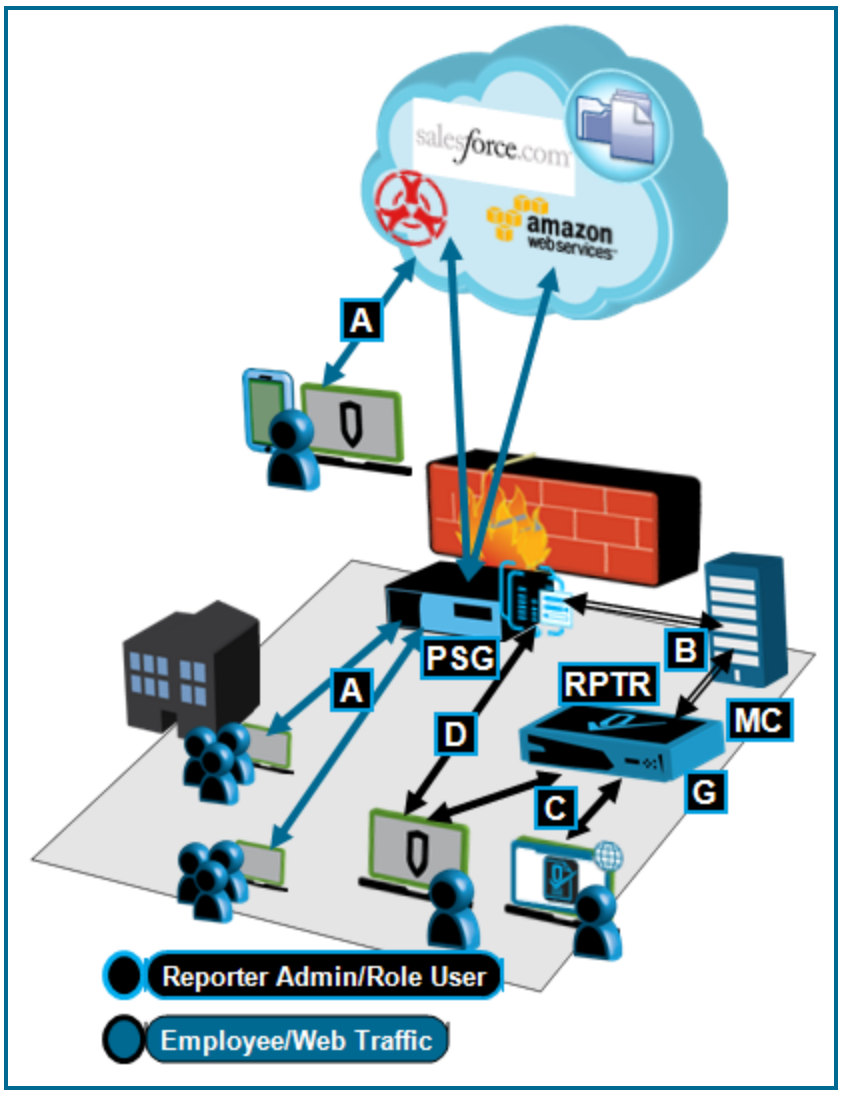
Because of the Phone-Home Service, Reporter VA is not supported in closed networks. For that deployment scenario, consider the Reporter appliance (RP-S500), which employs a licensing scheme based on unique hardware serial numbers. Blue Coat expects to release this platform in early Fall, 2015.

About Reporter Architecture

Blue Coat Reporter is a key component in the Secure Web Gateway solution. Reporter generates and displays reports based on web traffic access log data that is sent from one or more gateway ProxySG appliances. Analyzing reports gives insight regarding the integrity of the network and user web browsing habits and policy compliance.

This allows you to:

- Identify possible security threats (such as malware/spyware).
- View user activity by user, group, URLs, or other aspect.
- View blocked web traffic (such as categories and URLs).
- Identify which users consume how much network bandwidth from web use.



A–Employees perform web content requests.

B–The gateway ProxySG appliance records transactions and uploads access logs to a dedicated FTP server.

C–The Reporter device (appliance or VA), retrieves the data from the FTP server–the defined *log source*–and populates the defined *database*. More than one log source can feed a database (for example, multiple locations). Reporter users (admins and users with role-based access) generate and view reports.

The initial Reporter release, 10.1.2, is only available on the VA platform. Furthermore, Reporter VA is not supported in closed networks. If you require more information, see About Reporter Licensing on page 9.

D–Based on trends viewed in the reports, admins adjust the web-use and security polices on the gateway Proxy appliance.

Reporter performs the following major tasks.

- Processes raw log data received from ProxySG appliances and populates databases.
- Manages the databases and generates reports.
- Manages the Reporter appliance/VA functions.

Related Conceptual Information

- "About Log Processing" on page 12
- "About the Page View Combiner" on page 15
- About the Default Browse Time Calculations

About Log Processing

Overview

Log processing involves the following components.

- **Log Reader**—Reads access log data into Reporter memory.
- **Page View Combiner (PVC)**—This sub-component of the log reader attempts to provide more realistic user browsing statistics by combining the initial request and its secondary referral requests as one page count. For detailed information about the PVC, see About the Page View Combiner on page 15.
- **Log Processor**—Populates the databases with the log data.

About Optimizing Log Processing Configurations

This section describes some conditions that affect log processing efficiency.

About Access Log Naming Conventions

This section provides suggestions for ProxySG appliance access log naming conventions, especially for deployments that require processing a large number of log files over a longer duration of time.

For optimal Reporter performance, configure your access logs to use the following filename format:

```
xxxxxxxxxxxxxxxNddddddddddd.log.gz
```

where:

- `x` represents any valid character that can be used in naming a log file (letters, digits, underscore, dash).
- `N` represents a non-decimal-digit character.
- `d` represents a decimal digit. This number, preceding the log file extension, determines the order in which the log files are processed. The log file ordering is performed identically for FTP and local disk log sources. A date string representing the log line dates within the file is preferred. If you mix cloud files with on-premise files, use the 12-digit cloud date syntax described above.
- `.log.gz` is the extension of the (compressed) log file.

About the Decimal Digits

The decimal digit number is the key part of the format.

- If this number does not provide a complete ordering on the set of log files, then the log processing speed suffers because of internal log table thrashing.
- A filename format of `MMDDhhmmss` is inadequate because the files process chronologically, except at year-end when they temporarily process out-of-order because of the December (`MM` = `12`) rollover into January (`MM` = `01`) where January files sort before December.

- A filename format of `hhmmss` is more problematic because log files are processed out-of-order whenever one day rolls into the next.
- Given these constraints, to ensure the most efficient log file ordering, format this eleven-digit number as: `YYJJJhhmmss`, where:
  - `YY` = two-digit year (00 - 99)
  - `JJJ` = three-digit Julian day of the year (001 - 366)
  - `hh` = two-digit hour of the day (00 - 23)
  - `mm` = two-digit minute of the hour (00 - 59)
  - `ss` = two-digit second of the minute (00 - 59)

    Using this format allows Reporter to properly order log files through the year 2021.
- The default filename format used for log files on the ProxySG appliance has the following text and specifiers: `SG_%f_%c_%l%m%d%H%M%S.log.gz`.
  - `%f` = log name (facility)
  - `%c` = name of the external certificate used for encryption, if any
  - `%l` = the fourth parameter of the ProxySG appliance IP address (101.102.103.104)
  - `%m` = two-digit month (01 - 12)
  - `%d` = two-digit day (01 - 31)
  - `%H` = two-digit hour (00 - 23)
  - `%M` = two-digit minute (00 - 59)
  - `%S` = two-digit second (00 - 59)
  - `.log.gz` = extension

  The suggested filename format for log files on the ProxySG appliance slightly alters the default and has the following text and specifiers: `SG_%f_%c_%l%m%d_%y%j%H%M%S.log.gz`.
  - `%y` = two-digit year, without century (00 - 99)
  - `%j` = three-digit Julian day within year (001 - 366)

  The value of this naming convention for log files is very evident when processing large numbers of log files (spanning multiple days and months) occurs. The value is less evident when log file generation and processing occurs regularly (daily or more frequently) so that out-of-order files occur infrequently. However, when re-processing large sets of log files, the naming convention is essential.

About Chronological Ordering

Each database creates and manages its own memory resident Log Table. Each Log Table is comprised of hour-tables containing data for each hour the database Log Processors spend reading log files. These tables constitute some of the most active memory in Reporter, and therefore have a significant impact on overall log processing performance. If all log files were processed in chronological order, there would never be more than one hour-table necessary in memory. It is common for the log processing process to encounter batches of log files spanning multiple hours between them. If they are processed out of chronological order, performance significantly improves by allowing the number of hour-tables to grow,

provided there is sufficient process memory. Conversely, during low memory conditions, reducing the number of hour-tables prevents unnecessary memory starvation and subsequent disk operations (swapping files in and out of memory).

Reporter orders log files based on a numeric field in the filename, when it is present. The default filenames created by the ProxySG contain a `Month/Day/Hour/Minute/Second` timestamp immediately preceding the `.log` or `.log.gz` suffix; for example: `SG_Main_HQ-1_1102081500.log.gz`. If the filename ends with `.log` or `.log.gz`, the Log Processor parses it for any purely numeric sequence immediately preceding the required suffix. If one is found, it is then used to sequentially order that batch of log files. You can significantly improve Log Processor performance by naming the log files with any ordered numeric values that comply with this format. For example: `anyfilenameprefix123.log` or `some-other-prefix-84757.-log.gz`.

About Database Purging

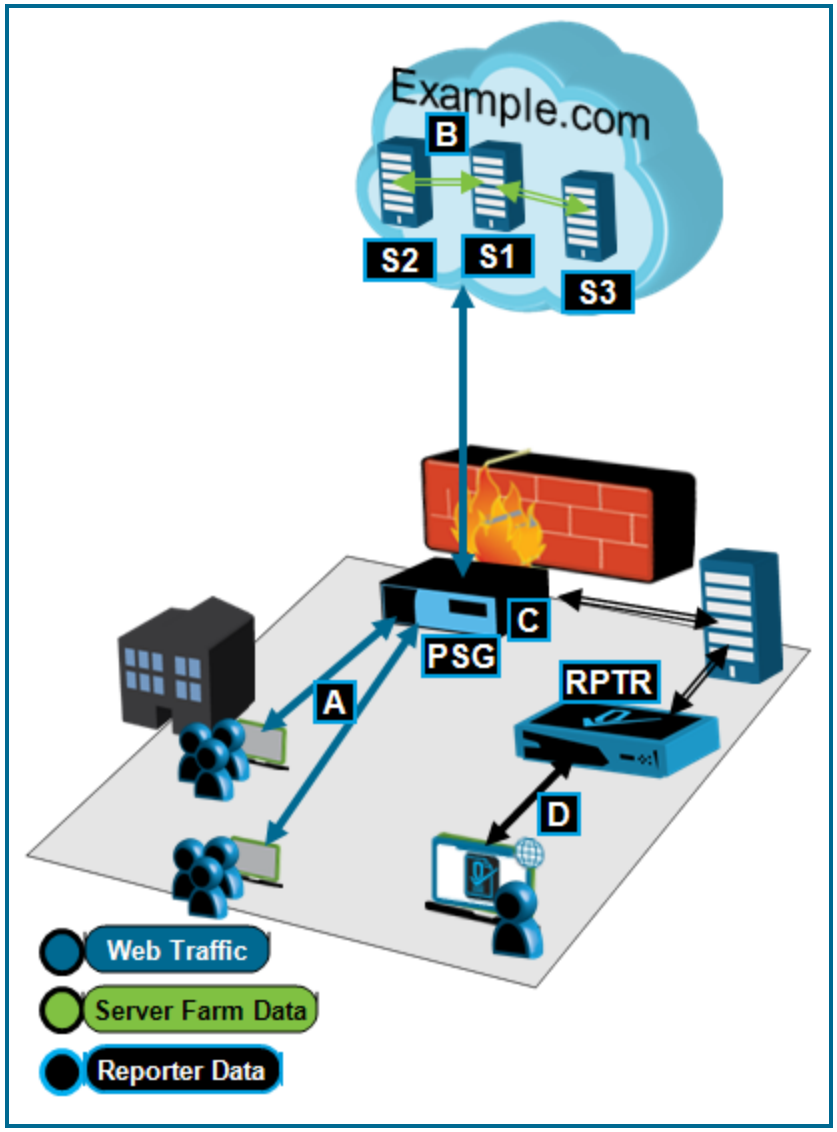
Most of the database is kept in memory. If the entire database is not occasionally purged, it would continue to consume more of the process memory as new log files are processed. As the database grows, configuration settings that were previously beneficial might become detrimental.

As a general guideline, Blue Coat recommends that databases contain a maximum of 30 days of log data. However, the amount of log data is more relevant than the number of days in the data sets.

Reporter also allows the administrator to purge the database based on the number of log lines. Purge the log lines by expiration, automatically (scheduled), or manually.

About the Page View Combiner

The Page View Combiner (PVC) is called during Blue Coat Reporter log processing. The PVC combines multiple HTTP requests that are associated with a single web page into a single log line. When a user browses to a web page, most often that page triggers requests for more content, either from the same web server or another server (for example, a media server that stores video or image content). Rather than regard each of these as separate requests, the PVC combines all of the bytes into the original request.



The goals of the PVC are to:

- Reduce the number of database entries from the original log file, which improves report generation performance.
- More closely represent user browsing activity, as each object (requested by the first page from content servers) is not counted as a separate entry.

A–An Employee performs web content request from `www.example.com`.

B–The `example.com` server S1 sends additional requests to other servers in its farm for advertisements and video content and receives four data objects.

- `example.com/main.html`
- `i.example.com/ads/sponsor1.gif`
- `example.com/news/story1.html`
- `example.com/news/video1`

C–The gateway ProxySG appliance adds access log entries for all of these content elements.

D–The Reporter PVC combines the log lines into one page view and saves that in the database. The Reporter users generates and views a report that contains one page view entry for the original request to `www.example.com`.

It is possible that a web request that would normally be combined to represent one page view might be split into two page views. This occurs when, as a result of internal processing, the log sources are halted or restarted or the request is recorded across two log files.

If this occurs, no data is lost, but the database contains two page views. Continuing with the example in the previous illustration:

```
8:40:20 cnn.com/html
8:40:20 i.cnn.com/ads/sponsor1.gif
[------end of log file------------]
[----beginning of new log file----]
8:40:21 cnn.com/news/story1.html
8:40:21 cnn.com/news/video1.asf
```

The first two entries are shown as one page view; the second two as another within the database. However, they represent a single page view requested by a user.

Requirements

The PVC requires the following fields in the logs:

- `cs-referer`
- `sc-status`
- `rs(Content-Type)`

The Blue Coat-recommended log formats contain these fields (see also Reference: Log Fields on page 49).

If these log fields are not present, no page-view combining occurs, and report data represents each and every web request.

HTTPS logs do not contain the `sc-status` field; therefore, PVC calculations cannot occur. The field is not included because it would expose personal user data (such as bank account information).

Additional Reference

- See Reference: Log Fields on page 49.

Reporter Resource Sizing

This section provides the supported server information required to operate Reporter.

FTP Servers

Blue Coat Reporter requires a ProxySG appliance to send its `bcreportermain` format access logs to a dedicated FTP server.

These are the FTP server types with which Blue Coat has tested Reporter. Other FTP servers might function correctly, but they are not officially supported by Blue Coat.

- Windows FTP (through IIS)
- Linux: VSFTPD

RP-S500 Appliances

- 24TB
- RAID 10
- 262144 RAM
- 40 CPU

Virtual Appliances

Blue Coat Reporter is supported on ESXi 5.5 Update 2 (minimum build: 2068190) virtual appliances with ESX Enterprise or Enterprise Plus licenses (the Basic license does not allow enough processing resource). The purchased license determines how many CPUs and how much RAM are required to ensure that Reporter processes run efficiently. Use this data to understand how much resource to dedicate.

VA License	CPUs	Minimum Memory	Maximum Drive Space
RP-V50	8 cores	65536 MB	2200
RP-V100	16 cores	131072 MB	4400
RP-V200	32 cores	196608 MB	8800

For more information about licensing, including product behavior when a license is not valid, see "About Reporter Licensing" on page 9.

Manage Access

Reporter classifies three types of users who can access the Management Console.

About Users

Admins

- **Default Administrator**–This is the Reporter administrator account that is created when Reporter is installed. The default administrator has access to all Reporter functions, including administration options and all reports. This user can be deleted by another administrator, but a user cannot delete themselves, and the last administrator on the system cannot be deleted.
- **Administrator**–The default administrator can create additional administrator users. Like the default administrator, these users have access to all Reporter functions, including administration options and all reports.

Standard User

A standard user who logs into Reporter has access to the report databases to which they are assigned. Standard users do not have access to the **Administration** link, but they can change their Reporter access password and e-mail identity.

Proceed to "Create a New Reporter User" on page 22.

About Roles

Reporter allows you to create role-based access control. You can manually assign users to a role or integrate your LDAP active directory.

Proceed to one of the following to learn more.

- "About Role-Based Access" on the next page.
- "About LDAP Integration" on page 25.

About Role-Based Access

Roles allow you, the Reporter administrator, to restrict non-admin Reporter user access to a limited report set. Typically, non-admin Reporter users are IT or HR professionals within an enterprise. IT specialists likely monitor network health and performance, while HR personnel monitor employee acceptable web use. When you give such users access to Reporter, you might elect to limit them to report types that fit their roles.

A role is defined as access to database fields. Your Reporter deployment contains at least one database and likely has multiple. Access logs from a gateway ProxySG appliance populate databases from which Reporter generates the reports. The report data is defined by database fields. For example, the `Content Type` field indicates the type of media served in the transaction. Therefore, you define a role by assigning which database fields are viewable.

To define roles, you must understand what database field provides what data type.

Field	Description	Suggested Role
`Action`	Protocol communication action between client and server (`tcp_miss`, `tcp_hit`).	IT
`Category`	Browsed web content category.	HR
`Cert Svr Domain`	The name of the entity that was authenticated. For example, `www.example.com`.	IT
`Certificate Category`	The authentication category to which a certificate belongs.	IT
`Certificate Error`	The type of error that caused a problem with a certificate or the server's use of the certificate.	IT
`Cipher Strength`	The code for the number of bits used to encrypt web traffic (HTTPS).	IT
`Client IP`	The IP address of the user's system.	IT
`Content Type`	The type of web media served; for example, PDF file.	IT
`Group`	The (enterprise-defined) group to which the user belongs; for example, `Finance` or `Engineering`.	HR, IT
`Log Source`	The IP address of the ProxySG appliance that sent the log files.	IT
`Malware`	The name of any type of malware, spyware, or other malicious code encountered by users	IT
`Method`	Limit set of browser methods, such as `GET`, `POST`, and `HEAD`.	IT
`Port`	The port over which web content arrived.	IT
`Protocol`	The transport protocol used to deliver web content; for example, HTTP or RTSP.	IT
`Site`	The name of the browsed website.	HR, IT
`Status`	Status response from server; for example: `200/success`, `404/not found`, `503/not available`.	IT
`User`	The user name (requires authenticated usernames in the access logs).	HR

Field	Description	Suggested Role
User Agent	The application that requested the web content; for example, Mozilla Firefox or QuickTime.	IT
Verdict	The policy verdict; for example, allowed or denied.	HR

Plan the Roles

Blue Coat recommends planning the roles before attempting to define them in Reporter. Based on the information in the previous table, you can create a matrix and follow that when you configure Reporter.

Example

User	Group/Department	Location	Admin	Role Name	Database	DB Fields
hub.porter	IT (Admin)	Corporate	Yes	Admin	All	All
jimmy.bond	IT; Malware & Security	Corporate	No	IT Security	All	Client IP, Malware, Cert fields
maya.santos	HR; Site B HR	Site B	No	HR	San Jose	User, Category, Verdict

Planning Form

User	Group/Department	Location	Admin	Role Name	Database	DB Fields

LDAP Group-Based Option

You have the option to integrate your existing LDAP active directory with Reporter, which allows you to assign Group names to roles. See "About LDAP Integration" on page 25.

Define a Role

- Proceed to "Define a User or Group Role" on page 23.

Create a New Reporter User

Any Reporter user who has administrative credentials can create new administrative and standard users. For optimal security, Blue Coat strongly recommends limiting the number of users who have administrative credentials. You can create new administrator users and standard users anytime.

If you plan to employ role-based access, consider creating new standard users after you define the roles. This is not required, however, as you can edit an existing user and assign the role.

1. On the **Administration > General Settings** page, select **Access Control > Local Users**.
2. Click **New**. Reporter displays the Create New User wizard.
    a. Enter the **Username** that the user enters to access Reporter. If you have a planning sheet with names, be sure to enter them exactly as printed. Click **Next** to move to the next page: Set Password.
    b. Enter a **New Password**, which is the access credential password for this user; repeat in the **Validate Password** field. Again, if you are following a planning sheet, enter the password exactly as printed. If you are creating the passwords, record them accurately. Click **Next** to move to the next page: Set Permissions.
    c. Select the user type.
        - **Administrator**—The user has full access to Reporter and all roles.
        - **User**—The user has limited access to Reporter. If you select this option, select the role(s) to which this user belongs (if Reporter contains defined roles).
    d. Click **Done**. The new user displays on the **Local Users** page.

Created users can now access Reporter when you give them the network address and their credentials.

Specify the Connection Duration

By default, the Reporter Management Console remains indefinitely connected for all users. For more security control, you can set a time value after which the Management Console disconnects and forces users to re-log in with their access credentials.

1. On the **Administration > General Settings** page, select **System Settings > Server Settings**.
2. In the **Web Server Settings > Session Timeout** area, slide the time duration bar to set the session time limit.
3. Click **Save**.

Related Step

Reporter allows you to define roles based on users or groups (LDAP).

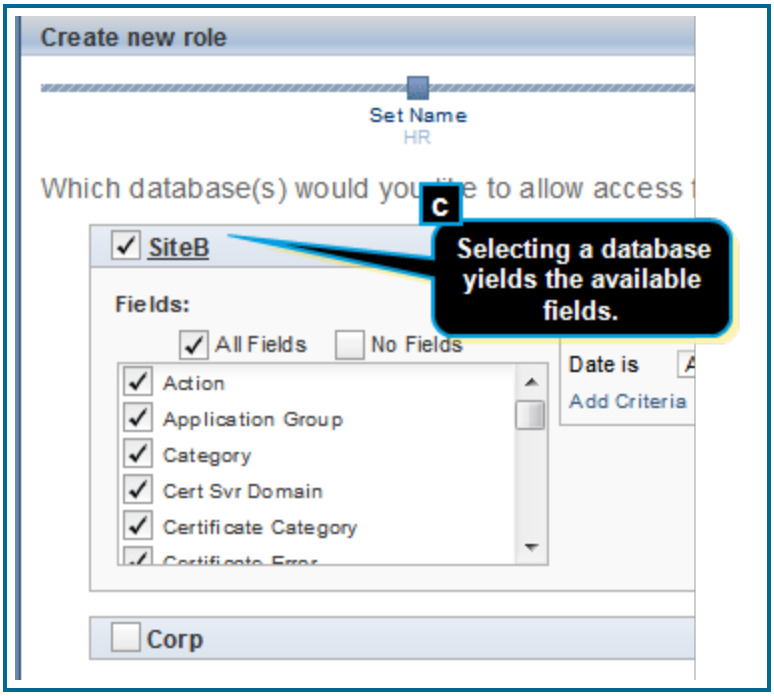
- About Role-Based Access on page 19.
- "About LDAP Integration" on page 25.
- "Define a User or Group Role" on the next page.

Define a User or Group Role

Blue Coat Reporter allows you to restrict user access to all but the reports they require for their positions within the enterprise. In Reporter, a role is defined by access permissions to which non-admin users are assigned. These permissions can be as broad as access to an entire database or as granular as access to specific data fields within generated reports.

Defining user roles requires planning. Before creating roles, Blue Coat recommends creating a list of roles within your enterprise and a list of users who requires access to specific report data. See "About Role-Based Access" on page 19 for planning information.

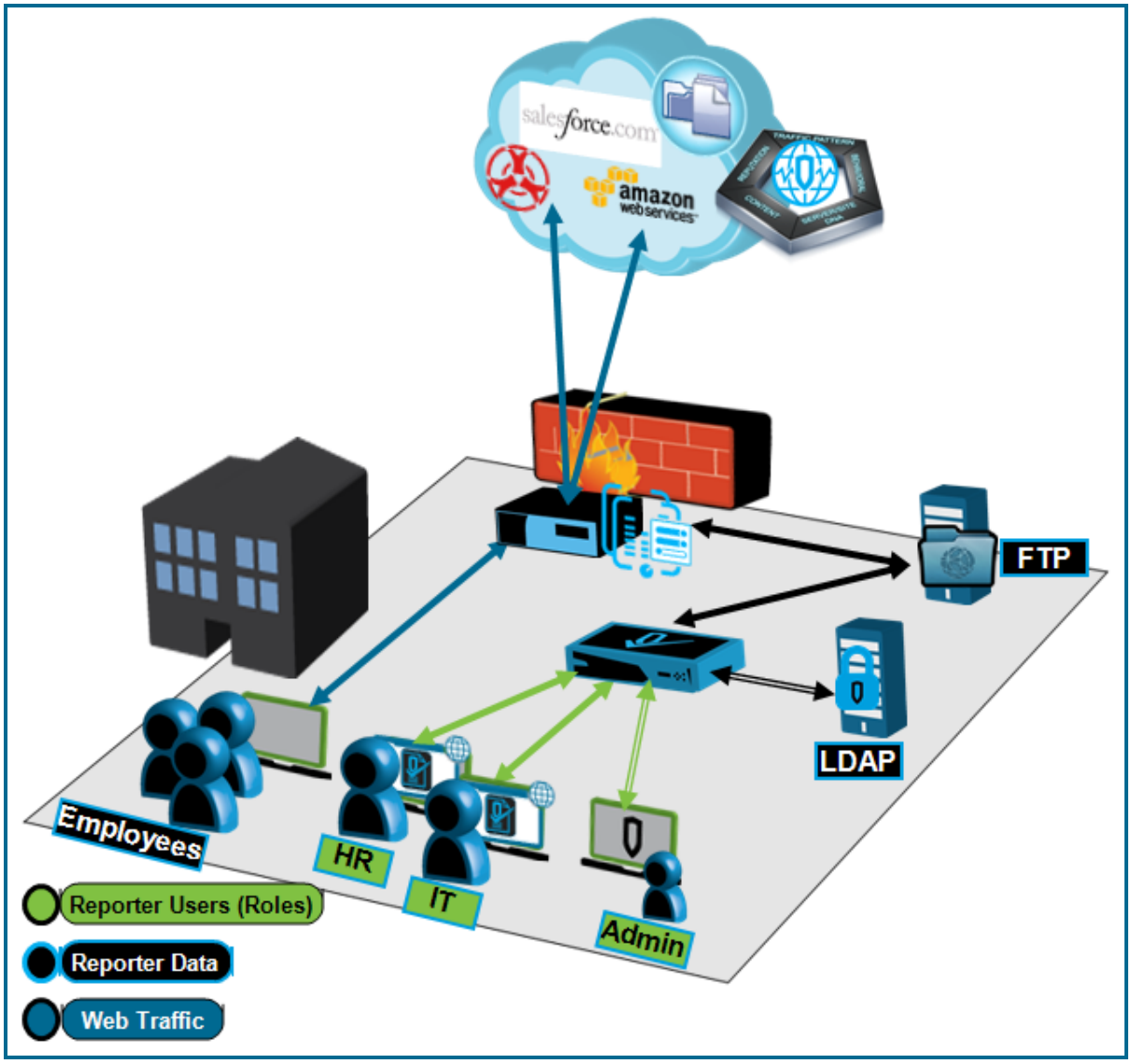
1. From the Reporter Management Console (logged in with administrator credentials), select **General Settings > Reporter Settings > Access Control > Roles**.
2. Click **New**; Reporter displays the Create New Role dialog.
3. Specify the role parameters.
   a. **Name** the role; the more specific the name, the easier it will be to assign your users to their correct roles. Click **Next** to move to the next page of the wizard: Permissions.
   b. Select the databases that users in this role can access.



   c. By default, the role has access to all database fields. To limit the fields that reports in this role display, clear the unnecessary field options (or select **No Fields** to clear all options, then select the required options).
   d. (Optional) To further limit report data, apply a filter to the role. For example, you want a role that is limited to report data indicating which users experienced content filtering and policy denials.
   e. Click **Done**. Reporter displays the new role on the **Roles** page.

About LDAP Integration

If your enterprise uses Lightweight Directory Access Protocol (LDAP) compatible database, you can assign LDAP groups to specific Reporter roles. This allows the security network administrator to maintain a single-source authentication directory. For example, if the LDAP database has a user group named HR, you assign the HR LDAP group to the HR role you created in Reporter. When a user from the HR group enters their username and password into Reporter, they are authenticated and allowed access to the reports you assigned to that role.



About Nested Groups

Some LDAP directories, such as Active Directory, allow a group to contain members that are also groups. When a group is a member of another group, it is called a nested group. With nested groups, the groups a user is associated with are:

- Any group that the user is a member of;
- Any groups those groups are a member of; and
- Any groups those groups are a member of and any groups those groups are a member of.

The nesting continues for as many layers of groups exist. For example, the enterprise contains a group called **Engineering**, which contains members **Engineering A**, **Engineering B**, and **Engineering C**, all of which are also groups containing members (users). With nested groups, a member of **Engineering A** essentially becomes a member of **Engineering**. When nesting is enabled on Reporter, all members of **Engineering A**, **Engineering B**, and **Engineering C** have access to the role assigned to **Engineering**. Reporter supports nested groups; when nesting is enabled and a group is assigned to a role, users in all groups in the nest have access to the role. Enable nested group support when configuring access control.

Begin Walkthrough?

- Proceed to "Connect to LDAP Server" on the facing page.

Connect to LDAP Server

Specify the Lightweight Directory Access Protocol (LDAP) that Reporter uses to authenticate users. Reporter supports Microsoft Active Directory and Novell eDirectory, with pre-configured settings. You can also create your a custom LDAP server connection.

Reporter supports multiple trees, but you must add multiple realms (each realm is used in order). If a tree contains multiple servers, no one server contains all users, and the base DNs are configured at a level in the tree higher than where the servers diverge, add an additional base DN for each unique partition in the tree. Reporter requires a base DN for each partition that is not globally replicated.

Prerequisites

To configure these options, you must know:

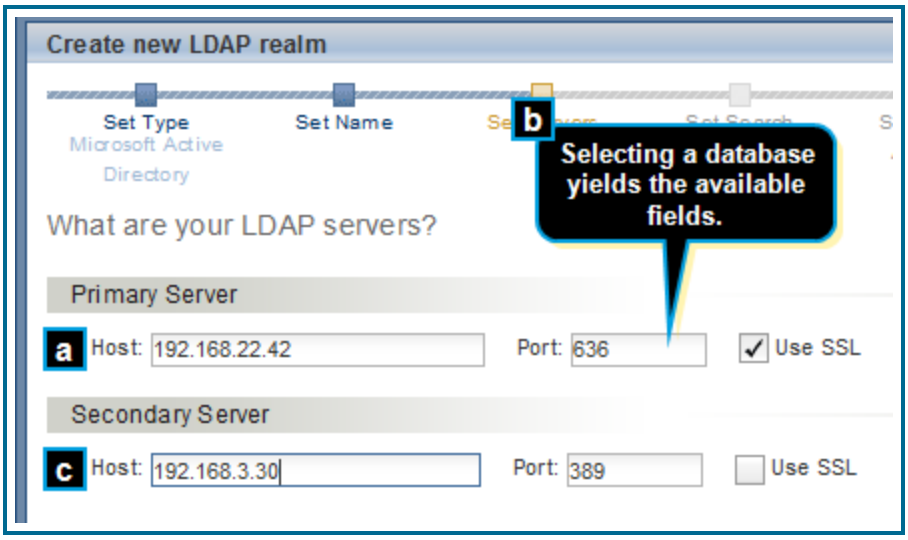
- The IP address of the primary LDAP server (secondary optional, but recommended).
- LDAP searching access credentials (if required).
- Naming attributes.
- Base DN information.

Procedure

In Reporter on the **Admin** portal.

1. Select **General Settings > System Settings > External Servers > LDAP/Directory**. Reporter displays the Create New LDAP Realm wizard.
2. Select the LDAP directory system that your enterprise employs.
   - **Microsoft Active Directory**
   - **Novell eDirectory**
   - **Other LDAP**

   Click **Next** to move to the next wizard screen: Set Name.
3. **Name** the Realm that contains the list of users who will have access to the roles. By default, Reporter allows *disconnected logins*, which means that users are able to log in when Reporter is not able to connect to LDAP servers. For the highest security level, clear the **Allow Disconnected Login** option. Click **Next** to move to the next wizard screen: Set Servers.
4. Enter the LDAP server information.



a. For the **Primary** LDAP server, enter the **Host** IP address.

b. The default **Port** is **389**. If you select **Use SSL**, which secures the connection from the Reporter server to the LDAP server, the default port changes to **636**. If you have configured your LDAP servers to use a different port, enter it.

c. (Optional) Enter **Secondary Server** information. Reporter attempts to connect this server should the Primary become unavailable.

d. Click **Next** to move to the next wizard screen: Set Search Credentials.

5. Specify whether or not user **Credentials** are required to search the LDAP directory

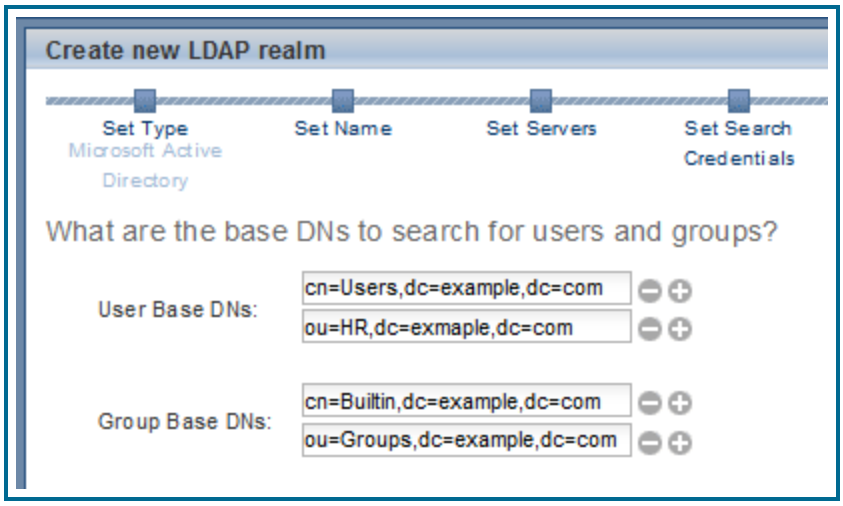
   - **No Credentials Required**–The LDAP server does not require a password for search access.
   - **Use Credentials**–Selecting this displays more fields. Enter the LDAP server **User Name** (Fully Qualified Domain Name (**FQDN**) and the password required for search access.

   Click **Next** to move to the next wizard screen: Set Naming Attributes.

6. Verify or enter the user attribute.

   - If you selected **Microsoft Active Directory** or **Novell eDirectory**, Reporter populates the naming attributes with default LDAP realm values. If your realm information differs, enter the correct attributes. Otherwise, click **Next** to move to the next wizard screen: Set Base DNs.
   - If you selected **Other LDAP**, you must enter the naming conventions that match your custom LDAP configuration, then click **Next** to move to the next wizard screen: Set Base DNs.

7. Enter all **User Base DNs** and **Group Base DNs** that are searchable. Show screen...



- In this example, the first **User Base DN** is the default location for users in Active Directory for the `example.com` company. The first **Group Base DN**, **Builtin**, is also the default for Active Directory.
- `dc=` represents DNS naming in the directory. The DNS name `example.com` becomes `dc=example,dc=com` in the DC naming convention. This is the format that Active Directory uses. Typically, Base DNs are not set at a `dc=` level in the directory.

Click **Next** to move to the next wizard screen: Test Connection.

8. Testing the LDAP server connection is optional but recommended to verify functionality before entering into production. Click **Test LDAP Settings**. If any errors occur, click **Previous** to return to the problematic setting screen and correct the information.

   Following a successful test, click **Done**.

Next Step

- Proceed to "Assign Roles From LDAP" on the next page.

Assign Roles From LDAP

If your enterprise uses Lightweight Directory Access Protocol (LDAP) compatible database, you can assign LDAP groups to specific Reporter roles. This allows the security network administrator to maintain a single-source authentication directory. For example, if the LDAP database has a user group named HR, you assign the HR LDAP group to the HR role you created in Reporter . When a user from the HR group enters their username and password to access Reporter, they are authenticated and allowed access to the reports that are assigned to that role.

For more information about roles, including planning information, see "About Role-Based Access" on page 19.

Prerequisite

You must configure Reporter to communicate with your LDAP servers. See "Connect to LDAP Server" on page 27.

Procedure

In Reporter on the **Admin** portal.

1. On the **Administration > General Settings** page, select **Access Control > LDAP Groups**.
2. Click **New**. Reporter displays the Create New Item wizard.
3. Reporter detects the present LDAP groups.
    a. Select an available configured LDAP group that will have permissions to access this role.
    b. (Optional) Selecting **Include nested groups** allows all members in the group tree to have access to this role; if this option is not selected, only members in the specified group have access to this role. For more information about nested LDAP groups, see About LDAP Integration on page 25.
    c. Click **Next** to move to the next wizard screen: Set Permissions.
4. Select a Permissions option.
    - Select **LDAP Group** and select the roles to which this group has access; or
    - Select **Administrator** to give this group full access to Reporter.
5. Click **Done**. The **LDAP Groups** page contains the new group.

Administrative Tasks

After completing the Reporter initial configuration process, consider completing other configuration tasks, depending on your network and business requirements.

Recommended Tasks

Prevent Denial-Of-Service Attacks

Relating to a Blue Coat Security Advisory (https://bto.bluecoat.com/security-advisory/sa74), malicious remote clients might perform a DoS attack against OpenSSL-based servers by repeatedly renegotiating the connection. The longer connections exist, the more susceptible are they to man-in-the-middle attacks. You can configure Reporter to renegotiate SSL sessions, which prevents these attacks..

Reporter provides an option called **Force Secure Negotiation**, which is located on the **General Settings > Reporter Settings > System Settings > Server Settings** page.

Be advised that after this option is enabled, Reporter only supports clients that support secure renegotiation. To support older clients that do not support the secure renegotiation option, clear this option.

Setup Email for Admin Alerts and User Reports

Two Reporter functions require you to setup email communication with your SMTP server.

- Admin Receives Alerts–Receive alerts from Reporter when Warning or Critical thresholds are breached.
- User Emails Report–Reporter users are able to email reports to other relevant personnel in the company.

Proceed to "Connect Reporter to Email Server" on page 33.

Manage Databases

After you create databases and manage begin generating and managing reports (filters, emailing, and so on), you might find a need to modify existing configurations.

For a series of tasks, proceed to "Manage Existing Databases" on page 38.

CLI

Some tasks are only available through the Reporter CLI. See "Reference: CLI" on page 46.

Other Tasks

- Change the Reporter Interface Language on page 42
- "Change an Admin Password" on page 44
- License Reporter

- "Set Reporter Email From Value" on page 45
- Back Up and Restore CLI Configuration
- "Reference: Web API Parameter Syntax" on page 56

Connect Reporter to Email Server

To enable Reporter to send administrators alerts when system resources reach specified use levels and to allow users to email reports to others, you must establish a connection between Reporter and your SMTP server.

Specify the primary and backup SMTP servers to which Reporter connects.

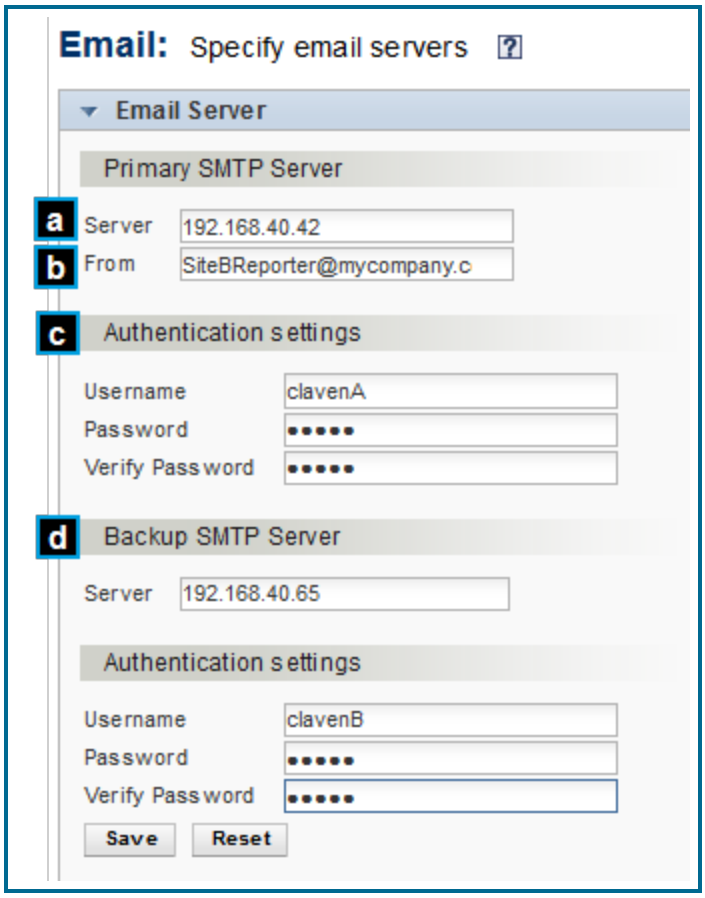
Prerequisite

To configure these options, you must know the following.

- The IP address of the primary and backup SMTP servers.
- The authentication credentials to these servers.

Procedure

1. On the **Administration > General Settings** page, select **Reporter Settings > System Settings > External Servers > Email**.



a. Enter the **Primary SMTP Server** IP address or hostname.

b. Specify the **From** address used in e-mails. For example: `SiteBReporter@mycompany.com`. This email address displays in From field of the sent email and *must* be a valid address. You can use an existing generic IT address if you have one or add a new address to your email database.

c. If they are required by the server, enter the SMTP server access credentials.

d. (Optional) Enter the information for a backup SMTP server if available.

2. Click **Save**.

Email Alerts to Administrator

Configure Reporter to send an alert e-mail to specified recipients when report processing breaches a system resource threshold setting. Reporter monitors the following resources:

- Disk Storage: The current amount of filled disk space (GBs) and total capacity on the system.
- Physical Memory: The current amount of GBs used by physical memory, the percent used, and total capacity of the Reporter process.

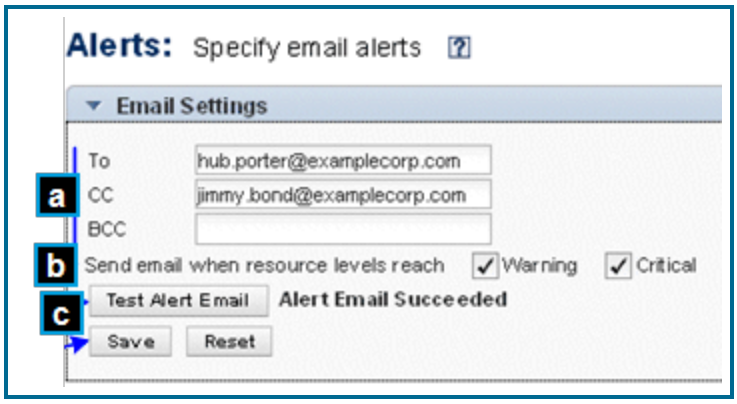
Use this data to adjust system resources. For example, if the same system consistently sends disk space alert messages, reconsider your Reporter sizing requirements.

Prerequisite

Configure Reporter to connect to one of your enterprise's SMTP (mail) servers. See "Connect Reporter to Email Server" on page 33.

Procedure

1. On the **Administration > General Settings** page, select **Reporter Settings > System Settings > Alerts**.
2. Specify who receives the alerts. Show screen...



   a. Enter the e-mail addresses of the alert recipients. Typically, this is an IT member who is responsible for managing Reporter and/or network efficiency.
   b. By default, Reporter sends notifications when either the **Warning** or **Critical** thresholds are breached. You have the option to clear one or both (clear both prevents any notification).
   c. (Optional, recommended) To verify that Reporter sends notifications to the correct addresses, click **Test Alert Email**.
   d. After you verify that the recipients received the test message, click **Save**.

Monitor Reporter Operations

Reporter provides features that enable you to monitor events and current operations.

The following information describes links on the **Administration > System Overview > Reporter System Information** left-side menu. In same cases, you are able to perform executive actions.

View Current Reporter System Overview

The **System Diagnostics** link provides several metrics. If you are in communication with Blue Coat Technical Support, you might be asked to provide information that Reporter displays in this area.

System Overview

- **Reporter Version**–The current version of Reporter that is installed on the appliance or VA.
- **Number of CPUs**–The number of CPUs honored by Reporter.
- **SSL**–By default,Reporter is accessed over a secure connection and this setting is **enable**.
- **Operating System**–The current operating system that is currently running on the Reporter system.
- **Web Server Port**–By default, the Reporter access URL requires port number `8082`. For example: `https://192.168.0.1:8082`.
- **Current Log Lines**–The total number of log lines in *loaded* databases.

The **Licensing Information** area provides the state and expiration date of the current license.

VA version–Reporter monitors the system resource configurations against the specifications in the installed license. If Reporter detects significant differences between them, it generates an alert event indicating the appliance is running with an unsupported license configuration.

For the **Upload Diagnostics** feature, see "Diagnose Reporter " on page 68.

System Resources

This area displays how much system resource that Reporter is currently consuming. This includes physical memory. If the **Used** levels consistently approach the **Capacity** levels, re-evaluate your sizing requirements.

Database Overview

This area provides a table of database and log processing statistics. The **History** links provide much more granular information.

View Current Users and Active Reports

The **Active Users/Reports** link provides the following information.

- **Active Users**–Who is logged into this Reporter instance right now, including details such as access privilege (admin or user) and log in time. If you do not recognize a user access, you have to option to select **Actions > Force User Logout** and investigate.

- **Active Reports**–Provides all of the metrics for a given report that is active right now, including the log source and database used to generate the report; the output type (such as PDF); the accessing user and their role; and the current report state. You might need to perform a maintenance task that cannot wait for off-peak hours, which might require the halt report **Action**. This information allows you notify the users.

View the System Event Log

The **System Event Log** is a record of all Reporter transactions, which can assist you with troubleshooting. See Diagnose Reporter on page 68.

View User-Initiated Information

View Archived Reports

Reporter users can archive (save) a report on the Reporter instance. They might do this to ensure the report remains accessible while an investigation occurs. An admin has the ability to remove these reports. For example, the local disk storage requires more space and some reports are from a lengthy amount of time ago. The page provides the report owner information for contacting.

View Scheduled Tasks

Reporter users can schedule various report tasks, such as setting specific generation times. The **Scheduled Tasks** page displays pending tasks. This page also displays failed tasks, which allows you to monitor task efficiency. The **Run Status** field indicates upcoming scheduled tasks (**Not Run**). If the status is **Failed**, there was a problem with the report generation task. Notify the person listed in the **User** field so they can investigate and re-configure the task. You also have the ability to alter tasks. For example, an employee who schedules Reporter tasks might no longer be with the company.

Manage Existing Databases

After you create databases and assign log sources, you might have a requirement to alter database parameters, change default values, halt processing actions, or delete obsolete databases.

Expire Now

This feature allows you to purge the database based on the number of log lines. You can also perform this task on demand as this task does not need to be scheduled. However, you can set a custom purge limit.

1. Select **General Settings > Reporter Settings > Data Settings > Databases**.
2. In the row of the database to change, select **Expire Database** from the drop-down list in the **Actions** column.
3. Set the amount of log lines to expire and click **Expire Now**.

Unload a Database to Conserve Resources

Unloading the database takes it offline. You might encounter a scenario where a database is not currently necessary, but you are not ready to completely remove it from the system because it might be required at a later time. You cannot view reports for this database (and scheduled events for that database will not run) while it is unloaded.

1. Select **General Settings > Reporter Settings > Data Settings > Databases**.
2. In the row of the database to change, select **Unload Database** from the drop-down list in the **Actions** column.
3. The **Status** column changes from **Loaded** to **Unloaded** (depending on the size of the database, this process might require several minutes to complete).
4. To reload the database, repeat the procedure and select **Load Database** (if the database is currently unloading, this option is not available).

Change Database and Log Source Parameters

When you created databases and assigned log file sources, you followed steps in a wizard. For any database, you can access each of those wizard pages individually and change a parameter.

Database

- Database name
- Log sources
- Database data expiration

1. Select **General Settings > Reporter Settings > Data Settings > Databases**.
2. In the row of the database to change, select the drop-down list in the **Actions** column.
3. Select an option to change.
    - Set **Name** – Change the name of the database.
    - Set **Log Sources** – Add or delete the location of folders that feed log data into the database.

- Set **Expiration** – Change the expiration time frame of access log data.

4. Change the parameter.
5. Click **Save**.

Clicking **Reset** reverts the parameters to their previously saved values.

Log Source

- Description (name)
- Folder location
- Post-processing actions

Changing log source options requires halting the log source processing.

1. Select **General Settings > Reporter Settings > Data Settings > Log Sources**.
2. You cannot change log source parameters while the log source is operating. In the row of the log source to change, select the drop-down list in the Actions column.

   Select **Stop Log Source**. Notice that the status column displays unloaded. If the log source is processing a log file when you select **Stop Log Source** or unload its database, it immediately stops processing the current log file. If you later reload the database or restart the log source, the log source locates the unfinished log file and completes its processing first, then resumes normal operation.
3. Re-select the drop-down list in the **Actions** column and select an option to change.
   - **Set Description**–Change the description of the log source.
   - **Set Location for Local/FTP File Source**–Change the location of this specific log source.
   - **Set Processing Action**–Change what happens to log files after Reporter processes them.
4. Click Save.

   Clicking **Reset** reverts the parameters to their previously saved values.
5. Select the drop-down list in the **Actions** column again and select **Start Log Source**. Reporter beings processing logs from the new or additional locations.

Match Access Log Formats for Filtering

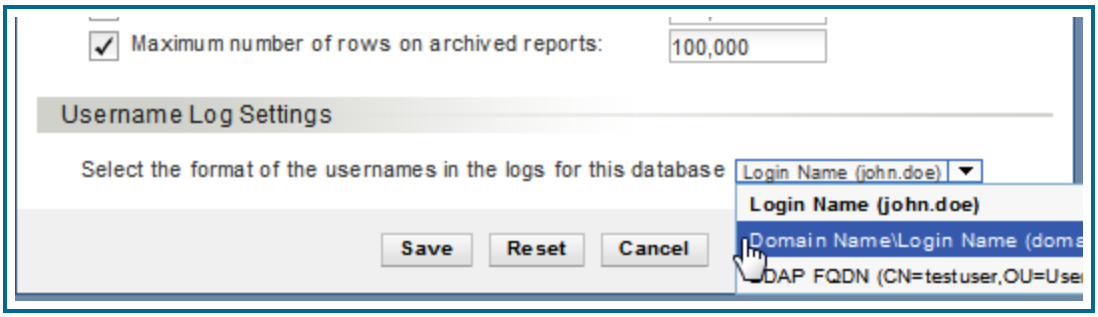
In generated reports, the **Reports To**, **Self**, and **Live Group** filter criteria requires Reporter to match the username format used in the log files sent from the ProxySG appliance. If the formats do not match, these filters return no results.

The username format can be one of the following.

- **Login Name**–Example: `ellen.ripley`
- **Domain Name\Login Name**–Example: `EX-LV426\ellen.ripley`
- **LDAP FQDN**–Example: `"cn=ellen.ripley,ou=users,dc=bravo,dc=examplecorp,dc=com"`

Login Name is the default ProxySG appliance access log and Reporter setting. If the ProxySG username format differs from the Reporter configuration, perform the following steps.

1. Select **General Settings > Reporter Settings > Data Settings > Databases**.
2. In the row of the database to change, select **Actions > Other Options**.
3. In the **Username Log Settings** area, select the matching format.

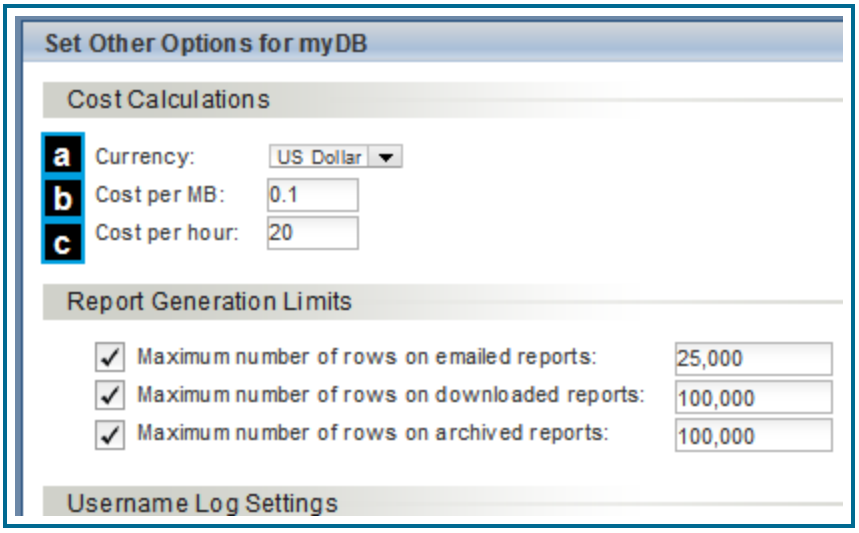


4. Click **Save**.

Change Cost Calculators

Some reports display data that estimates how much user browsing activity translates to costs. By default, Reporter estimates the costs at **.1** United States dollar per **MB** and **20** United States dollars per hour. If you do not believe that these values accurately represent your enterprise costs, you can change the calculation rates. For localization, you can also change the type of currency.

1. Select **General Settings > Reporter Settings > Data Settings > Databases**.
2. In the row of the database to change, select **Actions > Other Options**.
3. In the **Cost Calculation** area, enter new value.



a. From the **Currency** drop-down list, select the monetary value for your country.

b. **Cost per MB** field–Reporter uses this value to calculate the cost based on the amount of downloaded content by each user.

c. **Cost per Hour** field–Reporter uses this value and estimated user browse time to calculate how money each user cost the company.

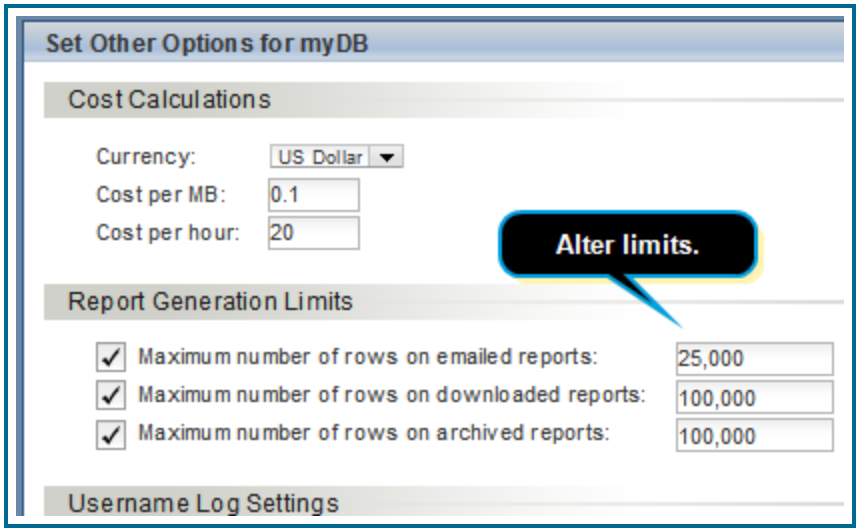
4. Click **Save**.

   Clicking **Reset** reverts the values to their previously saved values.

Change Default Report Row Limits

Reporter enables users to e-mail reports to others, download reports to local systems, and store archived versions on the Reporter server. In some enterprises, access log databases can grow very large, which means performing any of the afore-mentioned actions can clog exceed system capabilities and storage capacities. You can impose limits on how much of a report is sent or stored.

1. Select **General Settings > Reporter Settings > Data Settings > Databases**.
2. In the row of the database to change, select **Actions > Other Options**.
3. In the **Report Generation Limits** area, enter new value.



4. Click **Save**.

Clearing an option removes the limit for that parameter; do so with caution and understanding of resource impact.

Change the Reporter Interface Language

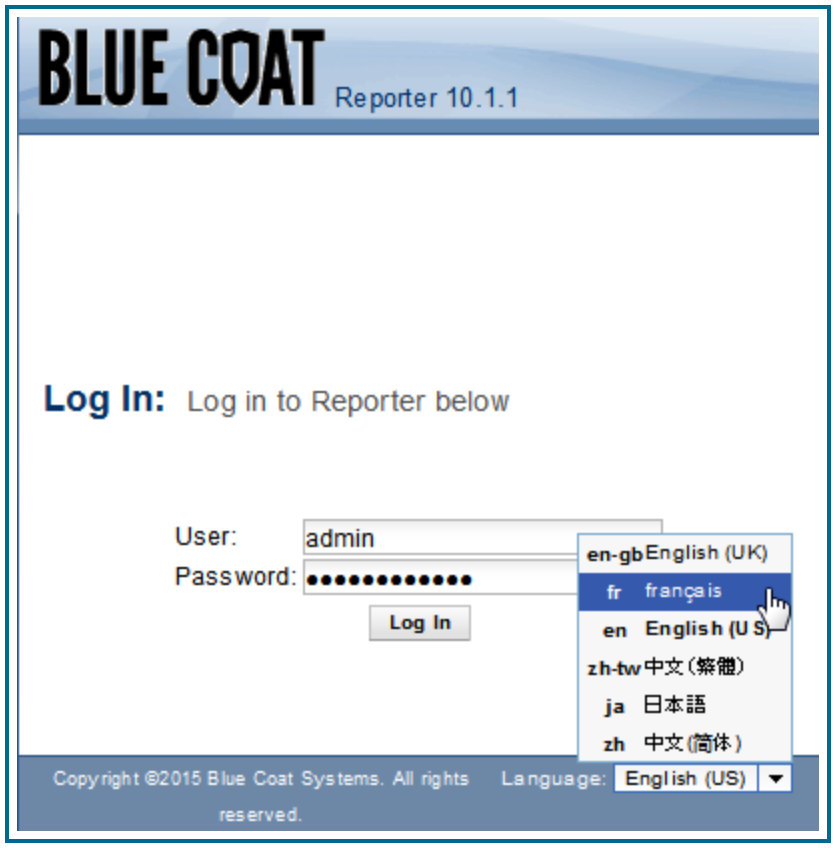
If your access log data was generated in a supported language, you can change the language of the Reporter Management Console.

Support Languages

- Chinese (Simple and Traditional)
- English (UK)
- English (US)
- French
- Japanese

How Do I?

You must change the language before logging in (you can log out and change the language at any time). The list is located on the bottom-right corner of the log in screen.



Convert International Domain Names

An Internationalized Domain Name (IDM) is one that contains non-ASCII characters; for example, Asian-language characters. If the Access Logs contains this type of data, you can configure Reporter to convert this characters to Punycode.

1. On the **Administration > General Settings** page, select **System Settings > Server Settings**.
2. In the **Report Generation** area, select **Enable Internationalized Domain Names**.
3. Click **Save**.

Change an Admin Password

Any Reporter Admin can change their access password.

Notes

- You are not allowed to change your password if you accessed Reporter using your LDAP access credentials. If you are unsure about this, contact your network security IT representative.
- The initial Reporter admin has the ability to remove other admin users.

Procedure

1. On the **Administration > General Settings** page, select **Personal Settings > Change Password**.
2. Enter your initial password, followed by your new password twice.
3. Click **Save**.

Set Reporter Email From Value

Reporter enables you to email generated reports to other people. The first time you perform this action, the email address you enter in the **From** address becomes your default Reporter e-mail address. You can change it on a per-report e-mailing action basis without changing the default, or you can change the default.

1. On the **Administration > General Settings** page, select **Personal Settings > Email**.
2. Enter the new e-mail address.
3. Click **Save**.

Reference: CLI

The Reporter CLI provides a set commands that allows you to manage and change networking settings (IP, Mask, Gateway, DNS) , configure / change username / password, and generate SSL self-signed certificate.

```
--------------------MENU--------------------
1) Command Line Interface
2) Setup
--------------------------------------------
Enter option:
```

Option **2** begins the guided setup, as described in Install Reporter on a Virtual Appliance.

Option **1** enters basic CLI mode.

Basic Commands

Command	Description
`enable`	Enter privileged command mode. See `enable` mode commands in next section.
`exit`	Exit the CLI/mode.
`help` (or `?`)	Displays help.
`ping`	Ping utility.
`show`	Show the subordinate command structure/options.
`tracepath`	Trace path utility.

Enable Mode Commands

```
Reporter> enable
```

Command	Sub-Commands	Description
`backup`	IMPORTANT: This command does *not* back up databases or configuration. At this time, Blue Coat does not have a use case for this command, but functionality might be available in future releases.	
	`create`	Creates a backup of a small subset of configurations set in the CLI.
	`delete`	Deletes a backup.
	`export`	Exports a backup to a local server.
	`import`	Imports a backup from a local server.
	`restore`	Restores a backup.
	`view`	View available backups.
`disable`		Turn off privileged commands.
`exit`		Exit current CLI mode.

Command	Sub-Commands	Description
`http-proxy`	`configure`	Modifies the explicit HTTP proxy configuration.
	`disable`	Disables use of explicit HTTP proxy configuration.
	`enable`	Enables use of explicit HTTP proxy configuration.
`installed-systems`	`add`	Downloads and installs a new system image.
	`default`	Sets the default system image.
	`delete`	Deletes a system image.
	`lock`	Locks a system image.
	`unlock`	Unlocks a system image.
	`view`	View the list of installed system images.
	`view-downloads`	View the progress of systems being downloaded and installed.
`license`	`download`	Updates license from Blue Coat server.
	`download-from` *`url`*	Download license from server at specified URL.
	`view`	View license information and status of the last license download.
`ping`		Ping utility.
`raid`	`status`	View the current RAID array status. This output assists with troubleshooting drive issues.
`restart`	`reboot`	Reboots the appliance.
	`graceful`	Allows Reporter to unload its databases and stop all log processing before terminating the process and restarting the appliance.
	`forceful`	Reboots the appliance but does *not* unload databases or stop processing beforehand. Use with caution, as this might result in database corruption. Considered a *last resort* method.
`restore-defaults`	`factory-defaults`	Restores the system to factory defaults and reboot.
	`factory-defaults-halt`	Restores the system to factory defaults and halt.
	`factory-defaults-shut-down`	Restores the system to factory defaults and shutdown.
`security`	`enable-password`	Enables password for enable commands.
	`generate-ssl-certificate`	Generate a default self-signed SSL Certificate. For scenario information, see Diagnose Reporter on page 68.
	`password`	Specifies console account password.
	`unset-enable-password`	Disables password for enable commands.
`service`	`disable-verbose-logging`	Disables verbose logging.
	`enable-verbose-logging`	Enables verbose logging to assist with troubleshooting.
	`upload-diagnostics`	Uploads diagnostic information to Blue Coat or local server.

Command	Sub-Commands	Description
show	http-proxy	Shows HTTP proxy status and configuration.
	installed-systems	View the list of installed system images.
	interface	Shows interface status and configuration.
	license	View license information and status of the last license download.
	setupinfo	Shows system configuration.
	snmp	View SNMP settings.
	status	Shows system status.
	version	Displays the system version.
shutdown		Shuts the system down.
	graceful	Allows Reporter to unload its databases and stop all log processing before terminating the process and powering down the appliance.
	forceful	Powers down the appliance but does *not* unload databases or stop processing beforehand. Use with caution, as this might result in database corruption. Considered a *last resort* method.
snmp	disable-remote-read-access	Disallows remote read access.
	enable-remote-read-access	Allows read-only remote access.
	set-community	Sets the community string.
	view	View SNMP settings.
tracepath		Trace path utility.
verify-hardware		Verifies the hardware configuration.

Reference: Log Fields

This section provides a reference table that lists the report field to log field association. Report fields are what comprise various reports, based on the information contained in the access log. The contents of an access log are determined by the log field names (which determine what data types are captured during the ProxySG appliance logging process). Some log field names correlate to absolute data (such as URLs), others derive information from access log variables (such as browsing duration).

Log Field Best Practices

Certain access log fields are critical to proper Reporter operation. To prevent Reporter from disregarding some log lines, the databases require the following fields.

- `cs-host`, `cs-uri-host`, or `cs-uri-hostname`
- `sc-status`
- `cs-uri-scheme`
- `c-ip`, `x-client-ip`, `x-client-address`, `c-dns` or `x-cs-username-or-ip`
- `rs(Content-Type)`
- `sc-filter-result` or `x-exception-id`
- `x-virus-id`

For the Page View Combiner (PVC) to operate correctly, Reporter requires the following additional fields.

See About the Page View Combiner on page 15.

- `cs(Referer)` or `x-cs(Referer)-uri`
- `x-exception-id` or `sc-filter-result` (`x-exception-id` preferred)
- `sc-filter-category`, `cs-category`, or `cs-categories`

For the PVC to operate correctly for video reports, Reporter requires the following additional fields.

- `cs-host`, `cs-uri-host`, or `cs-uri-hostname`
- `cs-uri-scheme`
- `c-ip`, `x-client-ip`, `x-client-address` or `c-dns`, `x-cs-username-or-ip`
- `sc-status`
- `sc-filter-result` or `x-exception-id`
- `x-virus-id`
- `cs-method`
- `time-taken`

- cs-uri-scheme
- s-session-id

To properly populate all default Dashboard reports, Reporter requires the following fields in addition to those above.

- cs-username, x-cache-user, cs-userdn, x-radius-splash-username, x-cs-session-username, or x-ldap-attribute(displayName)
- cs-category, sc-filter-category, or cs-categories
- sc-filter-result or x-exception-id
- cs-host, cs-uri-host, or cs-uri-hostname
- x-bluecoat-application-name
- x-bluecoat-application-operation

To populate all default video reports, Reporter requires the following fields.

- cs-host, cs-uri-host, or cs-uri-hostname
- c-ip, x-client-ip, x-client-address, c-dns, or x-cs-username-or-ip
- x-cache-info
- cs-auth-group or cs-auth-groups
- x-rs-streaming-content

Main Log Field Names

The following table provides what log field provides data for what report field. *ilalicized* report field text indicates that the resulting data is *derived* (sometimes combined with data from other fields).

Report Field Name	Log Field Name	Report Field Name	Log Field Name
cs(Referer)	cs(Referer)	*browse_time*	*Calculated at run-time from user session and stored as database field.*
c_ip	c-ip	cs_auth_group	cs-auth-group
cs_bytes	cs-bytes	cs_host	cs-host
cs_method	cs-method	cs_uri_extension	cs-uri-extension
cs_uri_path	cs-uri-path	cs_url_query	cs-url-query
cs_url_scheme	cs-url-scheme	cs_user_agent	cs(User-Agent)
cs_username	cs-username	date	date
date_time	date + time	day_of_week	*Derived from* date.
hour_of_day	*Derived from* time.	month	*Derived from* date.

Report Field Name	Log Field Name	Report Field Name	Log Field Name
requests (same as page views or hits)	*Calculated during database generation and stored as database field.*	rs_content_type	rs(Content-Type)
s_action	sc-bytes	sc_filter_category	cs-categories (or cs-category or sc-filter-category)
sc_status	sc-status	time	time
total_bytes	cs-bytes + sc-bytes	url	*Combined from* (uri-scheme://cs-host/cs-url-path [cs-url-query]).
verdict	x-exception-id (sc-filter-result if x-exception-id is not present).	week	*Derived from* date.
x_virus_id	x-virus-id	year	*Derived from* date.

Reports/Log Fields Matrix

This section provides a table that lists which main-format access log fields are required to populate each pre-defined report in the **User Behavior**, **Security**, and **Bandwidth Usage** groups on the **Reports** tab. Use this reference to understand how log fields relate to report data and aid in your customization of reports.

Report Field Name	Log Field Name
date + time	YYYY-MM-DD + HH:MM:SS (GMT/UTC)
gmttime	DD/MM/YYYY:hh:mm:ss GMT
localtime	DD/MMM/YYYY:hh:mm:ss +nnnn
timestamp	seconds since epoch in UTC/GMT
x_timestamp_unix_utc	seconds since epoch in UTC/GMT
x_timestamp_unix	seconds since epoch in local time

Main Log Required Field Matrix

These reports are URL-centric; they display reports that reflect browsing activity.

Report Group	Report Name	Required Fields
User Behavior	Blocked Web Browsing per User	sc-filter-result, cs-username, cs-bytes, sc-bytes
	Web Browsing per Category	{cs-categories -or- sc-filter-category}, cs-bytes, sc-bytes
	Web Browsing per Day	date, sc-bytes, cs-bytes
	Web Browsing per Day of Week	date, cs-bytes, sc-bytes, time, time-taken
	Web Browsing per Group	cs-auth-group, cs-bytes, sc-bytes
	Web Browsing per Hour of Day	time, cs-bytes, sc-bytes, time-taken
	Web Browsing per Month	date, cs-bytes, sc-bytes, time, time-taken
	Web Browsing per Site	cs-host, {cs-categories -or- sc-filter-category}, cs-bytes, sc-bytes, time_taken
	Web Browsing per User	cs-username, cs-bytes, sc-bytes
	Web Browsing per User and Category	cs-username, sc-filter-category or cs-categories, sc-bytes, cs-bytes
	Web Searches	cs-uri-query (Also requires Blue Coat Web Filter (BCWF) enabled.)

Report Group	Report Name	Required Fields
Security	Blocked Web Browsing by User Agent	sc-filter-result, cs(User-Agent), cs-bytes, sc-bytes
	Blocked Web Sites	sc-filter-result, cs-host, {sc-filter-category -or- cs-categories}, cs-bytes, sc-bytes
	Filtering Verdict Trend by Day	date, sc-filter-result
	Malware Requests Blocked by Site	cs-bytes, cs-host, sc-bytes, sc-filter-category, time-taken
	Potential Malware Infected Clients	c-ip, cs-bytes, cs-host, sc-bytes, sc-filter-category, time-taken
	Potential Threats	x-virus-id, sc-filter-category
	ProxyAV Malware Detected: Client IP	c-ip, cs-bytes, sc-bytes, time-taken, x-virus-id
	ProxyAV Malware Detected: Names	cs-bytes, sc-bytes, time-taken, x-virus-id
	ProxyAV Malware Detected: Sites	cs-bytes, cs-uri-path, cs-uri-query, cs-uri-scheme, sc_bytes, time-taken, x-virus-id
	Risk Groups	sc-filter-category
	SSL Certificate Categories	{cs-username -or- c-ip}, s-action, x-rs-certificate-hostname, sc-bytes, cs-uri-port
	SSL Certificate Errors	x-rs-certificate-observed-errors, x-rs-certificate-hostname, sc-bytes, cs-uri-port
	Trend of Potential Threats	x-virus-id, sc-filter-category

Report Group	Report Name	Required Fields
Bandwidth Usage	Bandwidth Cost per User	date, cs-username, sc-bytes, cs-bytes
	Bandwidth Cost per User and Site	cs-username, cs-host, sc-filter-category or cs-categories, cs-bytes, sc-bytes
	Bandwidth Used per Day	date, sc-bytes, cs-bytes
	Bandwidth Used per Day of Week	date, sc-bytes, cs-bytes
	Bandwidth Used per Hour of Day	date, sc-bytes, cs-bytes
	Bandwidth Used per Month	date, sc-bytes, cs-bytes
	Requests per Content Type	rs(Content-Type), cs-bytes, sc-bytes
	Requests per Protocol	cs-uri-scheme, cs-bytes, sc-bytes
	Web Requests per Client IP	c-ip, cs-bytes, sc-bytes

Web Application Reports

Report Field Name	Required Fields
Web Application Name	x-bluecoat-application-name, hits, page-views, browse-time, cost-time, total-bytes, cost-bytes, sc-bytes, cs-bytes, cache-bytes, rs-bytes
Web Application Operation	x-bluecoat-application-operation, hits, page-views, browse-time, cost-time, total-bytes, cost-bytes, sc-bytes, cs-bytes, cache-bytes, rs-bytes
Web Application Detailed Report	x-bluecoat-application-name, x-bluecoat-application-operation, c-ip, total-bytes, cost-bytes, hits, sc-bytes, cs-bytes, page-views, browse-time, cost-time, cache-bytes
Web Browsing per Web Application Name and Client IP	x-bluecoat-application-name, c-ip, total-bytes, cost-bytes, sc-bytes, cs-bytes, hits, page-views, browse-time, cost-time, cache-bytes
Web Browsing per Web Application Name and User	x-bluecoat-application-name, cs-username, total-bytes, cost-bytes, sc-bytes, cs-bytes, hits, page-views, browse-time, cost-time, cache-bytes

Video Usage Reports

Report Field Name	Required Fields
Client IP Video	c-ip, total-bytes, cost-bytes, sc-bytes, cs-bytes, hits, page-views, browse-time, cost-time, cache-bytes
Flash Streaming Bandwidth Cost per Day	date, page-views, browse-time, sc-bytes, rs-bytes, total-bytes, cs-bytes, cache-bytes
Group Video	cs-auth-group, total-bytes, cost-bytes, sc-bytes, cs-bytes, hits, page-views, browse-time, cost-time, cache-bytes
Video Application Delivery Method	x-rs-streaming-content, total-bytes, cost-bytes, sc-bytes, cs-bytes, hits, page-views, browse-time, cost-time, cache-bytes
Video Application Type	x-cache-info, total-bytes, cost-bytes, sc-bytes, cs-bytes, hits, page-views, browse-time, cost-time, cache-bytes
Video Applications	x-rs-streaming-content, cs-host, total-bytes, sc-bytes, cs-bytes, hits, page-views, browse-time, cost-time, cache-bytes, cost-bytes
Video Page Detail	cs-host, filename, c-ip, sc-bytes, cs-bytes, hits, page-views, browse-time, cost-time, cache-bytes, total-bytes
Video Site	cs-host, total-bytes, sc-bytes, cs-bytes, hits, page-views, browse-time, cost-time, cache-bytes

Reference: Web API Parameter Syntax

The following reference sections describe all parameters to each Web API endpoint. As a general rule, complex parameter values are pipe (|) separated lists; for example: `abc|def|123`.

Common Parameters

The following parameters are used by all HTTP endpoints (`create`, `cancel`, `status`, and `download`).

Parameter: username

Description

The same username that could be used to login to the Reporter user interface. Just like the web interface, the Web API enforces access control based on identity and roles. Also like the web interface, the Web API supports both local users and LDAP users.

Example

```
username=bcrepuser
```

Parameter: password

Description

The same password that could be used to login to the Reporter user interface.

Example

```
password=bluepass
```

Parameter: reportId

Description

The `reportId` that is contained in the response to the `/webapi/create` request. This parameter is required for all requests except the `/webapi/create` request.

Example

```
reportId=14329
```

Parameter: responseFormat

Description

The HTTP response type (not the output format of the report). Valid values are `xml`, `html`, and `plain` (the default). The response format applies to the `create`, `cancel`, and `status` endpoints (not to `download`).

Example 1

Request:

```
responseFormat=plain
```

Response:

```
reportId:5111890
state:2
percent_done:97
user:user_admin
role:_admin
reportName:Date_Data_12
database:database_5a541ee0aa0e11debf01f18168b313eb
```

Example 2

Request:

```
responseFormat=xml
```

Response:

```
result
<reportId>327774</reportId>
<reportName>test adf asdf</reportName>
<state>2</state>
<percentDone>0</percentDone>
<user>user_9d2f2430aa0e11debf01f18168b313eb</user>
<role>role_866df230aa0e11debf01f18168b313eb</role>
<database>database_42587110aa0e11debf01f18168b313eb</database>
</result>
```

End Point: /api/create

Creates a new report definition and begins generation of the report.

Required Parameters

- `username`
- `password`
- `database`
- `role`
- `label`
- `summarizeBy` and/or columns (must have `summarizeBy`, `columns`, or both)

Optional Parameters

- `format`

- sort
- action
- filterN
- graphType
- graphColumns
- dateStart
- dateEnd
- dateRelativeUnit
- emailTo
- emailCC
- emailBCC
- emailSubject
- emailBody

Example—One-level summary report; archived to server

```
https://localhost:8082/api/create?
username=test&
password=test&
database=mydb&
role=myrole&
label=myreport1&
summarizeBy=sc_filter_category
```

Example—Two-level summary report; sorted, filtered, and archived to server

```
https://localhost:8082/api/create?
username=test&
password=test&
database=mydb&
role=myrole&
label=myreport2&
summarizeBy=sc_filter_category | c_ip
columns=hits|page_views&
sort=c_ip:desc&
filter0=sc_filter_category|IS|Adult/Mature%20Content|Alcohol/Tobacco&action=download
```

Parameter: database

Description

Reporter database for report.

Example

```
database=secdb1
```

Parameter: role

Description

User's role that will be used for access control.

Example

```
role=repgenerator
```

Reporter administrators can use a hidden role named: `_admin`. This role has access to all fields and all databases and can be used as the role parameter the same as a user defined role.

Parameter: format

Description

The output format of the generated report. Valid values are `csv`, `pdf`, or `json`.

Example

```
format=pdf
```

The default is `pdf`.

Parameter: label

Description

Report name.

Example

```
label=bobreport
```

Parameter: summarizeBy

Description

List of database fields that provide summary information (similar to `SQL GROUP BY`). Reports can have up to three `summarizeBy` fields. If there are no `summarizeBy` fields, the report is a **Full Log Detail** report.

Value Syntax

```
summarizeBy=option
```

Examples

One-level report

```
summarizeBy=c_ip
```

Two-level report

```
summarizeBy=cs_username|c_ip
```

Three-level report

```
summarizeBy=cs_username|c_ip|cs_host
```

Two-level report with maximum of five and ten rows respectively for each level

```
summarizeBy=cs_username|cs_host&rows=5|10
```

Parameter: columns

Description

List of database fields to display (in addition to the `summarizeBy` fields).

Examples

```
columns=hits
columns=hits|page_views
```

Parameter: rows

Description

Configures the number of rows returned for each level of the report. Up to three values can be configured (for three-level summary reports). Values are pipe (|) separated.

Examples

```
rows=1000
rows=10|10|10
```

Parameter: sort

Description

Field name that Reporter uses to sort the data. Only one field is allowed.

Examples

```
sort=hits
```

If specified, the default is to sort by order of `summarizeBy` fields.

Parameter: action

Description

Action to perform with the generated report. Valid actions are `archive`, `email`, and `download`. The email and archive actions are the most simple to use. A single HTTP request to `/webapi/create` generates the report and performs the specified action. Downloading a report is more complicated and requires a sequence of requests to generate the report, verify the report is complete, and download the result. Downloading is discussed in a later section. The default action is `archive`.

Examples

```
action=email
```

If the action is `email`, the `emailTo` parameter is also required; other parameters are also available. See the subsequent `emailXX` parameters..

Parameter: emailTo

Description

This parameter is required if the action is specified as `email`. It specifies the primary recipient(s) of the report in RFC822 format.

Examples

```
emailTo=rptadmin@example.com
```

Parameter: emailCC

Description

This parameter is required if the action is specified as `email`. It specifies the carbon copy (CC) recipient(s) of the report in RFC822 format.

Example

```
emailCC=ITwatchlist@example.com
```

Parameter: emailBCC

Description

This parameter is required if the action is specified as `email`. It specifies the blind carbon copy (BCC) recipient(s) of the report in RFC822 format.

Examples

```
emailCC=ITwatchlist@example.com
```

Parameter: emailSubject

Description

This parameter is only relevant if the action is email. It specifies the text to be included in the email subject line.

Example

```
emailSubject=Monday+web+use+reports
```

To be properly processed by command shells, the API might require plus signs (+) instead of spaces.

Parameter: emailBody

Description

This parameter is only relevant if the action is email. specifies the text to be included in the email message body.

Examples

```
emailBody=This+report+provides+weekly+web+use+data+for+the+
west+coast+office
```

To be properly processed by command shells, the API might require plus signs (+) instead of spaces.

Parameter: filterN

Description

Reports can contain multiple filters (analogous to the `WHERE` clause of a SQL query). Each filter is composed of three components separated by a pipe (|) character: `field`, `operator`, and `values`. If a report includes multiple filter parameters, the filters are anded together. However, if a single filter contains multiple values, the values are ored together. By default, no filters are applied.

Examples

```
filter0=sc_filter_category|IS|*spyware*|*suspicious*
```

Parameter: graphType

Description

The type of graph to be rendered into the report. This parameter is only applicable when `format=pdf`. Graphs are currently not supported for two and three-level reports. The valid graph types are `Pie`, `Column`, `Line`, `Area`, `Scatter`, `Bar`, and `Stackbar`.

Examples

```
graphType=Pie
```

If `graphType` is specified, you must also specify `graphColumns`. The default is no graph or report.

Parameter: graphColumns

Description

Indices of the columns to be graphed.

Examples

```
graphColumns=1
graphColumns=1|2|3
```

If `graphType` is specified, you must also specify `graphType`. The default is no graph or report.

Parameter: dateRelativeUnit

Description

Allows specifying a date filter using relative dates instead of an absolute start and end time. Valid values are `hour`, `date`, `week`, `month`, and `year`. If `dateRelativeUnit` is set, `dateStart` and `dateEnd` must be the number of relative units (not Unix time or an ISO 8601 string).

Examples

- `dateRelativeUnit=week&dateStart=0` // Current week
- `dateRelativeUnit=week&dateStart=5&edateEnd=0` // Previous 5 weeks (does not include current week)
- `dateRelativeUnit=week& dateStart=5` // Previous 5 weeks (includes current week)

Parameter: dateStart

Description

Configures a beginning date filter. There are three different syntaxes for the date:

- Unix Time (number of seconds since January 1, 1970 UTC)
- ISO 8601 formatted string (for example: 2016-12-31T13:00:00-00:00).
- If `dateRelativeUnit` is set, it is the number of those units relative to the current time (for example: `5`).
- Default—The beginning date is that of the oldest data.

Examples

- `dateStart=2007-12-31T13:00:00-00:00`
- `dateStart=1254299093`
- `dateStart=5`

Parameter: dateEnd

Description

Configures an ending date filter. There are three different syntaxes for the date:

- Default—The end date is that of the newest data.

Examples

- `dateEnd=2007-12-31T13:00:00-00:00`
- `dateEnd=1254299093`
- `dateEnd=5`

Parameter: showLast

Description

Only applicable for trend reports (must be summarized by date field); `true` or `false`.

End Point: /api/status

Checks the status of a report. Returns the running time and the percent complete.

Required Parameters

- `username`
- `password`
- `reportId`

End Point: /api/cancel

Cancels a running report.

Required Parameters

- `username`
- `password`
- `reportId`

End Point: /api/download

Downloads the report. Only valid if `action=download` during the create request. The response is the generated report (CSV, PDF, or JSON).

Required Parameters

- `username`
- `password`
- `reportId`

End Point: /api/listDatabases

Returns a list of databases that the given role can access.

Required Parameters

- `username`
- `password`
- `role`

End Point: /api/listFields

Returns a list of databases that the given role can access.

Required Parameters

- username
- password
- role
- database

Sample Output

```
Valid values for summarizeBy parameter:
==================================================
year
month
week
...
Valid values for summarizeBy (in Trend Reports):
==================================================
year
month
week
...
Valid values for columns parameter (in a Summary Report):
==================================================
hits
page_views
browse_time
...
Valid values for columns parameter (in a Detail Report):
==================================================
year
month
week
...
Valid values for filter parameter:
==================================================
day_of_week
hour_of_day
c_ip
sc_status
...
```

Debugging

f you receive an HTTP status code of 400 to 499, it means that the request sent to Reporter was invalid. There are several reasons for invalid requests, such as invalid field, username, password, and so on. In addition to the generic status code (for example: 400), Reporter returns a more detailed error message in the body of the HTTP response that explains which part of the request is invalid and why. Some HTTP tools (such as wget) do not provide access to the response body for non-200

responses. To debug the issue, enter the URL into the browser address bar (Firefox, Internet Explorer) and press Enter. The browser displays the detailed error message. For example, the following request:

```
https://localhost:8082/api/create?username=test&password=test1test&database=draper&role=test
&label=report1 &columns=date|url|hits|page_views|bogus
```

Generates the following error message:

```
httpStatusCode: 400
httpMessage: Bad Request
detailedMessage: Invalid column bogus
```

Relative Dates

When creating a report (`/api/create`), you can specify a date filter using absolute units or relative units. Absolute dates can be specified in Unix time or as an ISO 8601 string. Relative dates are powerful, but are slightly more complex. Relative dates specify date filters in one of the following categories: `Current`, `Previous`, and `Current` and `Previous`.

If the `dateRelativeUnit` parameter is set, the dateStart and dateEnd define the number of units into the past. The following are valid units: `year`, `month`, `week`, `day`, and `hour`.

It is important to understand that `dateStart` and `dateEnd` always represent a point in time that is on a boundary of a whole unit (year, month, week). A value of zero for `dateStart` or `dateEnd` represents the nearest whole unit in the past. Therefore, if `dateStart` is set to zero and `dateRelativeUnit` is set to year, the `dateStart` represents January 1, of the current year. If `dateStart` is set to zero and `dateRelativeUnit` is set to week, the `dateStart` represents Sunday of the current week.

Examples

In the following examples, `dateRelativeUnit=year`. and today's date is `2009-10-01` (`YYYY-MM-DD`). Thus, values for `dateStart` or `dateEnd` have the following absolute values:

```
0 = 2009-01-01 12:00:00 PM GMT
1 = 2008-01-01 12:00:00 PM GMT
2 = 2007-01-01 12:00:00 PM GMT
…
```

Current Year: (2009-01-01 - today)

```
dateRelativeUnit=year&dateStart=0
```

Previous Year (2008-01-01 to 2009-01-01)

```
dateRelativeUnit=year&dateStart=1&dateEnd=0
```

Previous Two Years (2007-01-01 to 2009-01-01)

```
dateRelativeUnit=year&dateStart=2&dateEnd=0
```

Current and Previous Year (2008-01-01 to today)

```
dateRelativeUnit=year&dateStart=1
```

Trend Reports

To create trend reports:

1. Summarize by a time based field. See "End Point: /api/listFields" on page 64 to view a list of `summarizeBy` fields that are usable used in trend reports.
2. Set `showLast` parameter to `true`.

Diagnose Reporter

If Reporter is experiencing a type of connection or other error, the review the **System Event Log**. With serious problems, you might work with Blue Coat Technical Support to upload diagnostic information for analysis.

Shutdown Information (RP-S500)

Do not shut down the appliance using the switch or by removing the power cables. Abruptly removing power can result in irreparable data loss. Always use the shutdown command from the CLI to power down the appliance.

For the Reporter appliance (RP-S500), the CLI provides a command to shutdown the appliance.

```
#enable
#shutdown graceful
```

Allows Reporter to unload its databases and stop all log processing before terminating the process and powering down the appliance.

When Proxied Through a ProxySG Appliance

If the Reporter connection proxies through a ProxySG appliance that has SSL Interception enabled, you experience a certificate issue when attempting to access Reporter. You must use the browser to export the certificate and add it to the ProxySG appliance.

Symptom

Users receive a certificate error in the browser.

Scenarios

You must repeat this procedure any time a new Reporter certificate is generated, which most likely occurs from one of the following actions.

- You use the `generate-ssl-certificate` command to generate a new certificate (see "Reference: CLI" on page 46).
- The Reporter appliance is restored to factory defaults.

Workaround

1. Obtain the browser certificate.
    a. Access the Reporter Management Console (`https://`*`ip_address`*`:8082`).
    b. When Reporter displays the certificate error, click **Information**.
    c. Export the certificate–open it in Notepad.
    d. Copy the PEM.
2. Add to the ProxySG appliance.

a. From the ProxySG appliance Management Console, select **Configuration > SSL > Certificates**.

b. Click **Import**.

c. Paste the PEM.

d. Click **Apply**.

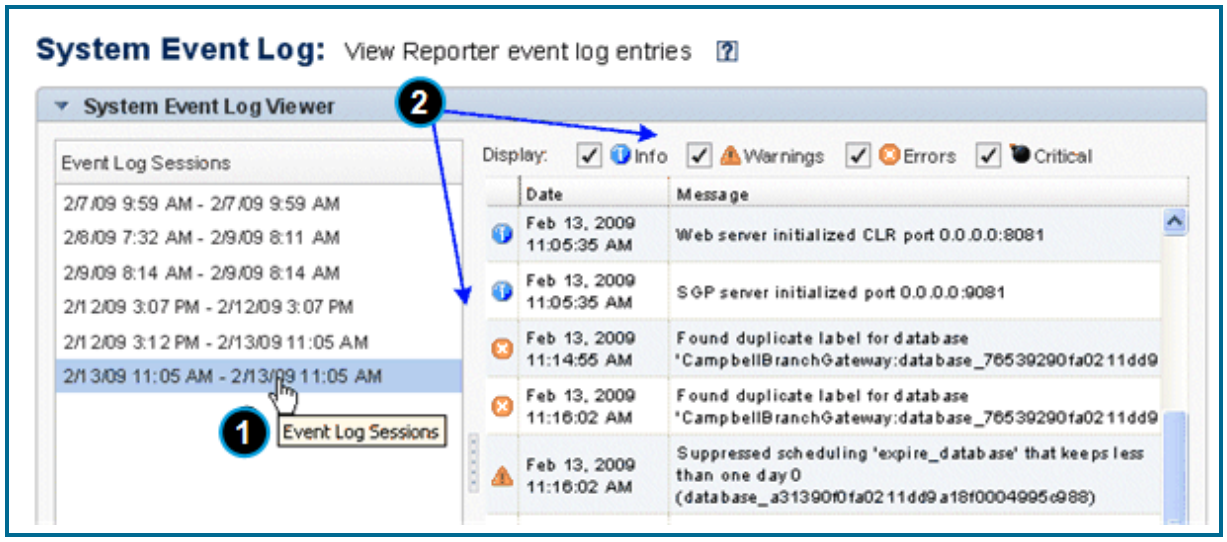
e. Click the **Certificate Lists** tab.

f. Add the same certificate to the **Browser Trusted List of Certificates**.

Analyze the Reporter System Event Log

The event log is a record of all Reporter transactions. These logs are accessible on the **Admin > System Overview > Reporter System Information > System Event Log** page and reviewing them might assist you with troubleshooting.

When you select a session event log, Reporter displays the **Warnings**, **Errors**, and **Critical** levels of transaction data .



1. Select an even log session.
2. In the options header, select which details to display. In the data area, the symbols indicate to the type of journal entry.

   The header displays icons, which enables you customize which types of data are displayed:

   - **Info**–Not selected by default in some modes. This options toggles the most verbose event log records, as every type of Reporter transaction displays.
   - **Warnings**–A light event that Reporter can often overcome by re-attempting later. For example, Reporter is not able to contact the SMTP server when attempting to send an e-mail.
   - **Errors**–Errors are messages indicate something went wrong, possibly resulting in data loss. Continuing the SMTP example, Reporter reached the maximum retry attempts for a non-responsive SMTP server. That message is not sent and Reporter logs an error.
   - **Critical**–Critical errors messages should be rare. They occur when a Reporter system crash is eminent. An example of this type of message is if your databases directory does not have write permissions, Reporter cannot continue and shuts down. Critical messages provide valuable information to a support person.

Upload Diagnostics to Blue Coat

If you call Blue Coat Technical Support to report a serious issue with Reporter, you might be assigned a Service Request (SR) number by the Blue Coat support person, asked to enter that number, and upload system diagnostics.

The **Administration > System Overview > Reporter System Information** page contains the SR Number field. When you enter the number and click **Upload**, Reporter sends comprehensive diagnostic data to Blue Coat for problem analysis.

If your network firewall is configured to block unproxied traffic, see the Connect to an Explicit Proxy for External Communication section in "Administrative Tasks" on page 31.

Reporter creates a **.zip** file named **reporterdiags**, which contains the diagnostic information.

If you cannot access the Reporter Management Console, you must run the `bcrdiagnostics.exe` application from a command line and answer the prompts.

RAID Array (RP-S500)

For the Reporter appliance (RP-S500), the CLI provides a RAID command that displays the current status of the RAID array. With this, you can view the current hard drive status.

```
#enable
#raid status
.....
Update Time : Mon Jul 27 20:56:38 2015
State : clean
Active Devices : 24
Working Devices : 24
Failed Devices : 0
Spare Devices : 0
.....
```

In the above output excerpt, the `State` is `clean`. The possible values are the following.

- `Clean`–RAID rebuild is completed and there are no pending writes to mirror disks.
- `Clean, degraded`–RAID rebuild is completed and there are no pending writes to mirror disks; however, an array contains faulty disks.
- `Active, resyncing`–RAID rebuild is completed and there are pending/ongoing writes to primary/mirror disks.
- `Active, degraded`–RAID rebuild is completed and there are pending/ongoing writes to primary/mirror disks; an array contains faulty disks.