

# **ADMINISTRATOR HELP**

Websense® TRITON® AP-EMAIL

©1996 - 2015, Websense Inc.

All rights reserved. 10900 Stonelake Blvd, 3rd Floor, Austin, TX 78759, USA

Published October 2015

Printed in the United States of America and Ireland.

The products and/or methods of use described in this document are covered by U.S. Patent Numbers 6,606,659 and 6,947,985 and other patents pending.

This document may not, in whole or in part, be copied, photocopied, reproduced, translated, or reduced to any electronic medium or machine-readable form without prior consent in writing from Websense Inc.

Every effort has been made to ensure the accuracy of this manual. However, Websense Inc., makes no warranties with respect to this documentation and disclaims any implied warranties of merchantability and fitness for a particular purpose. Websense Inc. shall not be liable for any error or for incidental or consequential damages in connection with the furnishing, performance, or use of this manual or the examples herein. The information in this documentation is subject to change without notice.

#### **Trademarks**

Websense, the Websense Logo, ThreatSeeker, and TRITON are registered trademarks of Websense, Inc. in the United States and/or other countries. Websense has numerous other unregistered trademarks in the United States and internationally. All other trademarks are the property of their respective owners.

# **Contents**

Topic 1	Overview	. 1
	Administrator help overview	. 2
	Embedded help	. 3
	Find Answers portal	. 3
	Websense Technical Support	
Topic 2	Getting Started	. 5
	Using the First-time Configuration Wizard	. 5
	Fully qualified domain name (FQDN)	
	Domain-based route	
	Trusted IP addresses for inbound mail	
	Email Log Server information.	
	System notification email address	. 7
	Entering and viewing information	. 8
	Navigating the TRITON Manager Email module	. 8
	The dashboard	
	Value dashboard	11
	Inbound dashboard	12
	Outbound dashboard	12
	Adding elements to a dashboard tab	13
	Available dashboard charts	14
	Viewing system alerts	16
	Websense health alerts	16
	Viewing and searching logs	17
	Message Log	18
	Connection Log	
	Audit Log.	
	Personal Email Manager Audit Log	
	Console Log.	
	Email Hybrid Service Log.	
	Real-time monitor	
	Security Information and Event Management (SIEM) integration	33
	Email hybrid service configuration	
	Registering the Email Hybrid Module	
	Enter customer information	35

	Configure your DNS	
	Set up your firewall	
	Configure your MX records	
	Configuring the Email Hybrid Service Log	
	Registering the Email DLP Module	
	Email filtering database updates.	
	Configuring system alerts.	
	Enabling system alerts	
	Email alerts	
	Pop-up alerts	
	SNMP alerts	
	Alert events	43
	URL analysis with Websense Web protection solutions	45
	Using a proxy server	46
	Using the Common Tasks pane	
Topic 3	Configuring System Settings	
	Managing administrator accounts.	
	Administrator accounts	
	Add role	
	Setting system preferences	
	Entering the fully qualified domain name	
	Setting the SMTP greeting message	
	Setting the SWTT greeting message	
	Configuring administrator console preferences	
	Managing appliances	
	Appliances overview	
	Editing appliance settings from the appliances list	
	Configuring an appliance cluster	
	Designating a primary appliance in a cluster	
	Managing user directories	
	Adding and configuring a user directory	
	Microsoft Active Directory	
	IBM LDAP Server Directory	
	Generic LDAP Server Directory	
	Recipient List	
	ESMTP Server Directory	
	Managing domain and IP address groups	
	Protected Domain group	
	Trusted IP Address group	
	Adding a domain group	65

	Editing a domain group
	Adding an IP address group
	Editing an IP address group
	Managing user validation/authentication options 67
	Adding user authentication settings
	Editing user authentication settings
	Managing Transport Layer Security (TLS) certificates 69
	Importing a TLS certificate
	Exporting a TLS certificate
	Importing a trusted CA certificate
	Backing up and restoring manager settings
	Backing up settings
	Restoring the settings
Topic 4	Managing Messages
	Configuring message properties
	Setting size properties
	Setting volume properties
	Configuring invalid recipient settings
	Enabling archive message options
	Enabling message sender verification
	Enabling bounce address tag validation (BATV)
	Managing connection options
	Using a real-time blacklist (RBL)
	Using reverse DNS verification
	Using the reputation service
	Delaying the SMTP greeting
	Enabling the SMTP VRFY command
	Changing the SMTP port
	Using access lists
	DomainKeys Identified Mail (DKIM) integration
	Configuring a DKIM signing key
	Adding a key
	Importing or exporting a key
	Creating a DKIM signing rule
	Adding a signing rule
	Generating a DNS text record (public key)
	Testing a rule
	Enabling DKIM verification
	Domain-based Message Authentication, Reporting and Conformance (DMAR validation integration
	True source IP detection 86

	Enforced TLS connections	. 87
	Controlling directory harvest attacks	. 89
	Configuring relay control options	. 89
	Configuring delivery routes	. 90
	Copying a route	. 91
	Removing a route	. 91
	User directory-based routes	. 91
	Adding a user directory-based route	. 91
	Domain-based routes	. 93
	Adding a domain-based route	. 93
	Rewriting email and domain addresses	. 94
	Adding recipient address rewrite entries	. 95
	Adding message header address rewrite entries	. 95
	URL Sandbox	. 96
	Phishing detection and education	. 97
	Adding a phishing detection rule	. 98
	Creating a phishing education page	. 98
	Managing message queues	. 99
	Message queues list	100
	Creating a message queue	100
	Viewing a message queue	101
	Managing the blocked message queue	
	Managing the delayed message queue	106
	Viewing a message in a queue	
	Configuring message exception settings	108
	Handling undelivered messages	109
	Traffic shaping options	110
	Handling encrypted messages	111
	Secure Message Delivery	112
	Mandatory Transport Layer Security (TLS) encryption	114
	Advanced email encryption	115
	Third-party encryption application	115
Topic 5	Working with Filters and Policies	119
	Managing filters	119
	Copying a filter	
	Deleting a filter	
	Creating and configuring a filter	
	Custom Content	
	URL Analysis	
	Antivirus	
	Antispam	
	Commercial Dulk Email	123

	File Sandbox	
	Managing filter actions.	
	Creating and configuring a filter action	
	Deliver message	
	Resume processing.	
	Drop message	
	Drop attachment	
	Send notification	132
	Editing an existing filter action	133
	Managing policies	133
	Enabling data loss protection policies	135
	Editing a policy	136
	Adding Sender/Recipient Conditions	137
	Deleting Sender/Recipient Conditions	
	Adding a rule	
	Editing rules	
	Editing an existing policy	
	Managing global Always Block and Always Permit lists	139
	Managing the Always Block List	140
	Adding an IP address to the Always Block List	
	Adding an email address to the Always Block List	140
	Managing the Always Permit List	141
	Adding an IP address to the Always Permit List	
	Adding an email address to the Always Permit List	
	Enabling the Dynamic Always Permit List	
Topic 6	Working with Reports	143
	Configuring Log Database options.	143
	Configuring maintenance options	145
	Creating database partitions	146
	Enabling database partitions	147
	Viewing log activity	148
	Changing the Log Database	148
	Viewing Log Server settings	149
	Configuring reporting preferences	149
	Working with presentation reports	150
	Copying a custom presentation report	151
	Defining the report filter	152
	Setting general report options	153
	Selecting email senders for the report	154
	Selecting email recipients for the report	
	Selecting message analysis results for the report	
	Saving the report filter definition	
	Working with Favorites	155

	Running a presentation report	156
	Scheduling a presentation report	158
	Setting the schedule	159
	Selecting reports to schedule	
	Setting the date range	
	Selecting output options	
	Viewing the scheduled jobs list	
	Viewing job history	
	Reviewing scheduled presentation reports	163
Topic 7	Configuring Personal Email Manager End User Options	165
	Managing a Secure Sockets Layer (SSL) certificate	165
	Importing a certificate	165
	Restoring the default certificate	166
	Creating the quarantine mail notification message	166
	Specifying Personal Email Manager access	167
	Scheduling the notification message	167
	Using the notification message template	
	Creating the notification message recipient list	
	Setting user account options	169
	Authorizing use of block and permit lists	170
	Adding authorized users	170
	Removing authorized users	170
	Enabling user account management	170
	Customizing the Personal Email Manager end-user portal	170
	Choosing a logo display	171
	Enabling blocked message delivery	171
	Enabling end-user action auditing	171
	Activating quarantined message list caching	
	Choosing quarantine message queue display	
	Enabling quarantine message delivery	
	Third Darty Tradamarka	

1

# **Overview**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Welcome to Websense® TRITON® AP-EMAIL, which provides maximum protection for email systems to prevent malicious threats from entering an organization's network. This email solution provides comprehensive on-premises email security hosted on a Websense appliance (V- or X-Series). Each message is processed by a robust set of antivirus and antispam analytics to prevent infected email from entering the network. Domain and IP address based message routing ensures reliable, accurate delivery of email.

TRITON AP-EMAIL may also be deployed as a virtual appliance using a VMware platform (ESXi v4.0 or later). A TRITON Manager (or console) installed on a separate Windows machine is required for administration functions. The virtual appliance security mode is email only. Dual security mode functions are not supported. See the virtual appliance Quick Start Guide for complete information about deploying and configuring the virtual appliance.

A subscription to the Email Hybrid Module adds support for an email hybrid service pre-filtering capability "in the cloud," which analyzes incoming email against a database of known spam. This feature can save network bandwidth and maintenance costs by dropping malicious email before it ever reaches an organization's network.

Enhance your security by adding the Email Sandbox Module, which includes a set of cloud-based functions, to your product subscription:

- ♦ URL sandbox
- ◆ File sandbox

The URL sandbox provides real-time analysis of uncategorized URLs that are embedded in inbound email. The file sandbox inspects email attachment file types that commonly contain security threats (including .exe, .pdf, .xls, .xlsx, .doc, .docx, .ppt, .pptx, and archive files). See *URL Sandbox*, page 96, and *File Sandbox*, page 126, for details about these features.

Integration with the Email DLP Module provides valuable protection for an organization's most sensitive data and facilitates message encryption. Configure a data loss prevention policy in the TRITON console Data module to enable message encryption options that are configured in the **Settings** > **Inbound/Outbound** > **Encryption** page.

If your network includes Websense web protection, you can also use its URL analysis function. Your email protection software queries the Websense URL category master database and determines the risk level of a URL found in an email message. See *URL analysis with Websense Web protection solutions*, page 45, for information.

Logging and reporting capabilities allow a company to view system status and generate reports of system and email traffic activity.

A Personal Email Manager facility allows authorized end users to manage email messages that an email policy has blocked but that may be safe to deliver. End users can maintain individual Always Block and Always Permit lists of email addresses to simplify message delivery.

#### Topics:

- ◆ Administrator help overview, page 2
- Embedded help, page 3
- Find Answers portal, page 3
- Websense Technical Support, page 4

# Administrator help overview

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Administrator Help includes the following topics:

Topic	Title	Description
1	Overview	Includes a brief introduction to your email software, manager Help contents, and Websense Technical Support contact information
2	Getting Started	Provides an overview of the first-time Configuration Wizard, navigation descriptions and tips, dashboard customization, filtering database update information, and registration directions for the Email Hybrid and Email DLP modules
3	Configuring System Settings	Includes details for configuring administrator roles, user directories, domain and IP address groups, and appliance clusters, as well as backup and restore functions
4	Managing Messages	Contains information for setting message properties and directory harvest attack and relay control options, creating message routes and queues, and handling exception messages and encryption
5	Working with Filters and Policies	Provides descriptions of filters, filter actions, policies, and global Always Block and Always Permit lists

Topic	Title	Description
6	Working with Reports	Includes an overview of reporting preference options, presentation report generation and management, and log database settings
7	Configuring End User Options for Personal Email Manager	Provides information about setting Personal Email Manager end-user options, including the contents of notification messages and whether an end user can manage personal block and permit lists; also contains details regarding end-user portal appearance

# **Embedded help**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Access embedded Administrator Help from the **Help** button at the top right area of the screen, in the TRITON console module tray.

Click **Help > Explain This Page** to open context-sensitive help for the active Email module screen.



#### **Important**

Default Microsoft Internet Explorer settings may block operation of the Help system. If a security alert appears, select **Allow Blocked Content** to display Help.

If your organization's security standards permit, you can permanently disable the warning message on the Advanced tab of the Tools > Internet Options interface. (Check Allow active content to run in files on My Computer under Security options.)

Click **Help > Help Contents** to display the complete embedded Administrator Help. To find a Help topic in the Help viewer, select one of the following tabs:

#### **◆** Contents

Double-click a book icon to expand that book's topics. Click a table of contents entry to display the corresponding topic.

#### Search

Enter a word or phrase and click **Go**.

Click an entry of the results list to display the corresponding topic.

# **Find Answers portal**

The right pane of the TRITON console Email module contains a Find Answers portal that may include the following components:

- A Top Picks section containing external links to information related to the screen content
- A Show Me How section with links to on-screen step-by-step instructions for performing a task on or related to the current screen
- ◆ A Search field that you can use to find topics of interest in the Websense eSupport site

# **Websense Technical Support**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Click **Help > Support Portal** in the TRITON console module tray to access Websense online Support site. Technical information about Websense software and services is available 24 hours a day, including:

- the searchable Websense Knowledge Base (Solution Center, Technical Library, and customer forums)
- Webinars, and show-me videos
- product documents and in-depth technical papers
- answers to frequently asked questions

For additional questions, click the **Contact Support** tab at the top of the page.

The contact page includes information for finding solutions, opening an online support case, and calling Websense Technical Support.

For faster phone response, please use your **Support Account ID**, which you can find in the Profile section at <u>MyWebsense</u>.

For telephone requests, please have ready:

- Websense subscription key
- Access to the management console for your solutions (for example, the TRITON console or Appliance manager)
- ◆ Access to the machine running reporting tools and the database server (Microsoft SQL Server or SQL Server Express)
- Familiarity with your network's architecture, or access to a specialist

# 2

# **Getting Started**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

#### Topics:

- Using the First-time Configuration Wizard, page 5
- Entering and viewing information, page 8
- Navigating the TRITON Manager Email module, page 8
- *The dashboard*, page 9
- ◆ Viewing and searching logs, page 17
- *Real-time monitor*, page 32
- ◆ Security Information and Event Management (SIEM) integration, page 33
- Email hybrid service configuration, page 34
- Registering the Email DLP Module, page 40
- Email filtering database updates, page 41
- ◆ Configuring system alerts, page 42
- ◆ URL analysis with Websense Web protection solutions, page 45
- ◆ *Using a proxy server*, page 46
- ◆ *Using the Common Tasks pane*, page 46

# **Using the First-time Configuration Wizard**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The Configuration Wizard is available the first time you open your email product after installation. The wizard lets you quickly and easily enter some critical configuration settings before you open the Email module user interface.

Click the Email module in the TRITON console to display a pop-up box that allows you to enter your subscription key. You can enter your key here, or skip this step and

enter your subscription key later in the **Settings > General > Subscription** page (see *Entering and viewing information*, page 8).

After you click **OK** in the subscription key pop-up box, a subsequent message box offers a choice of opening the Configuration Wizard or the email dashboard.



#### Note

If you open the dashboard instead of the wizard, you are presented with an option to open a document containing some helpful configuration settings information.

If you decide to skip the Configuration Wizard, you cannot access it later for this appliance.

You can enter the following information in the first-time Configuration Wizard:

- ◆ Fully qualified domain name (FQDN), page 6
- ◆ *Domain-based route*, page 7
- ◆ Trusted IP addresses for inbound mail, page 7
- ◆ Email Log Server information, page 7
- ◆ System notification email address, page 7

In order to save your settings, you must review them in the wizard's Confirmation page and click **Complete**.

Note that if you click **Cancel** at any time while you are in the Configuration Wizard, any settings you entered up to that point are lost.

A **Confirmation** page at the end of the wizard lets you review all your settings and modify any of them if desired. Click **Edit** next to the item you want to change to view the appropriate wizard page. Click **OK** on the edited page to return to the Confirmation page.

Click **Complete** when you are finished with your configuration settings to open the email dashboard.

# Fully qualified domain name (FQDN)

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The FQDN page of the Configuration Wizard lets you specify the appliance fully qualified domain name (FQDN). This setting is important for proper email security software operation. An incorrect fully qualified domain name may cause disruptions in email traffic flow.

Enter the appliance FQDN in the **Fully Qualified Domain Name** field (FQDN format is appliancehostname.parentdomain.com).

This FQDN appears as the default entry on the **Settings > General > System Settings** page.

#### **Domain-based route**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The **Domain-based Route** page of the Configuration Wizard lets you identify a domain that you want protected and designate the SMTP server to which mail to this domain should be sent. You can add more protected domains in the **Settings** > **Inbound/Outbound** > **Mail Routing** page. See *Protected Domain group*, page 63, for information about protected domains.

Use the following steps in the wizard to designate a protected domain:

- 1. Enter a name for your route in the **Route name** entry field.
- 2. Designate a protected domain in the **Protected Domain Name** field.
- 3. Enter the SMTP server IP address or hostname and port number for the protected domain in the appropriate fields.
- 4. If you want email routing to use Transport Layer Security (TLS) to encrypt the transmission, mark the **Use Transport Layer Security** check box.
- 5. Mark the **Require Authentication** check box to force a user to enter username and password credentials. Enter the username and password that must be used.

## Trusted IP addresses for inbound mail

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

In the Trusted Inbound Mail page, you can create a list of trusted IP addresses for which some inbound email filtering is not performed. Trusted IP addresses may include your internal mail servers or a trusted partner mail server.

Enter an IP address in the **Trusted IP address** field, and then click the right arrow button to add it to the **Trusted IP address list**.

Delete an address from the Trusted IP addresses list by selecting the address and clicking **Remove**.

See *Managing domain and IP address groups*, page 63, for detailed information about how trusted IP addresses are handled in the email system.

# **Email Log Server information**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The Email Log Server receives records of system event and email analysis activity, which the Log Database uses to generate reports. Enter the Log Server IP address and port number on the **Log Server** page. Click **Check Status** to receive Log Server availability information.

# System notification email address

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

You can identify an email address to which you want system notification messages sent in the **Notifications** wizard page. Typically, this is an administrator address. Enter the desired address in the **Notification email address** field.

# **Entering and viewing information**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

You should receive a subscription key after you purchase TRITON AP-EMAIL. If you did not enter the subscription key the first time you opened the Email module, enter it in the **Settings > General > Subscription** page. This subscription key can be entered in 1 appliance and is applied to all the appliances controlled by the Email module.

After you enter a valid subscription key, the expiration date and number of subscribed users are displayed. Purchased subscription features appear in the Subscribed Features list.

Use the **Subscription key** field to enter a new key any time you receive one. If your subscription includes the Email Hybrid Module, you must register with the email hybrid service every time you enter a new subscription key to establish the connection.

# Navigating the TRITON Manager Email module

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The Email module user interface can be divided into 6 main areas:

- Banner
- Module tray
- Email module toolbar
- Left navigation pane
- Right shortcut pane
- ◆ Content pane

The TRITON Manager banner shows:

- Your current logon account
- A Log Off button, for when you want to end your administrative session

The content displayed in the Email module varies based on the privileges granted to the logged on user. A user who is a reporting administrator, for example, does not see server configuration settings or policy administration tools.

This section describes the options available to users with Super Administrator privileges.

The module tray lets you launch other modules of the TRITON Manager. For Websense web or data protection customers, click **Web** or **Data** to open the Web or Data modules.

An Appliances button in the module tray opens a Manage Appliances window, which lets you add and remove an appliance in your system.

A TRITON Settings button lets you:

- Manage your administrator account.
- Add other TRITON administrators and assign them appropriate permissions.
- Specify and configure the desired directory service for TRITON administrators.
- Configure administrator account notification message details.
- ◆ Enable and configure two-factor authentication for administrator log on to the TRITON console.
- Audit administrator logon attempts and changes to TRITON Settings.

See the TRITON Manager Help for more details.

The module tray also provides access to Explain This Page context-sensitive Help, complete Help system contents, helpful initial configuration setting information, and the Websense Support Portal.

The Email module toolbar, just under the module tray, lets you switch between the Main and Settings tabs of the left navigation pane. Use the Main tab to access email software status, reporting, and policy management features and functions. Use the Settings tab to perform system administration tasks. The toolbar also includes a drop-down list of system appliances.

The right shortcut pane contains a Find Answers portal that may include links to topics related to the active screen and step-by-step tutorials for specific tasks. A search function lets you find relevant information in the Websense eSupport web site. The right pane also includes links to common administrative tasks. Click an item in the list to jump to the page where the task is performed.

Both the left and right navigation panes can be minimized by clicking the double arrow (<< or >>) icon at the top of the pane. Click the reverse icon (>> or <<) to view the pane. Click a shortcut icon on the minimized left navigation pane to access various groups of email security functions without maximizing the pane.

# The dashboard

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The **Value** tab of the **Status > Dashboard** page appears first when you log on to the TRITON console and connect to the Email module. It shows information about the value of TRITON AP-EMAIL in your network, along with a summary of system health alerts.

The type of information and level of detail shown depends on your subscription level. The Email Hybrid Module is required, for example, to display information about the email hybrid service and how it safeguards your system. You must have purchased the Email Sandbox Module to view metrics on URL or file sandbox functions.

Dashboard elements are visible to Super Administrators and those delegated administrators with permission to view reports on the email dashboard (see *Managing administrator accounts*, page 49).

The **Save** button in the upper right area of the dashboard activates when an administrator makes dashboard changes, for example when charts are added, removed, edited, or moved to another location on the dashboard. Renaming a tab also activates the **Save** button. Ensure that you save any changes before you navigate away from the dashboard.

The dashboard includes 2 other default tabs, in addition to the *Value dashboard* tab:

- ◆ *Inbound dashboard* shows graphical charts that display top domains and message recipients for inbound email. Top domain and recipient information is sorted by message size or volume.
- Outbound dashboard shows graphical charts that display top senders for outbound email, sorted by message size or volume. Other default charts for this tab show an overall outbound message summary and a summary of outbound messages that contained embedded URLs.

Add a new custom tab by clicking the tab that displays the "plus" sign icon (+). Enter a name in the Add Tab dialog box (maximum of 10 alphanumeric characters, including underscores). Click **Add Charts** to add elements to your new tab. You may add up to 4 custom tabs.

Click the edit icon for an active tab to open the Edit Tab dialog box, where you can change the tab name. You can also remove the tab by clicking **Delete Tab**. You can rename the default tabs if desired, but these tabs cannot be removed.

The default Value, Inbound, and Outbound dashboards can each display up to 12 charts at a time. Most dashboard charts can be customized to change their time period (for example, today, last 7 days, last 30 days) and their display format (for example, stacked column, stacked area, multi-series line). You can include multiple versions of the same chart on a tab (for example, showing different time periods). See *Available dashboard charts*, page 14, for a list of charts for dashboard display.

- ◆ Most dashboard elements are updated every 2 minutes. The Health Alert Summary is updated every 30 seconds.
  - All elements on a tab are also updated when any element on the tab is modified. For example, if the time period for one chart is changed, data is refreshed in all of the charts on the page.
- ◆ The available set of dashboard elements depends on your subscription type. Charts related to the email hybrid service, for example, are available only for deployments that include the Email Hybrid Module.
- ◆ To add an element to the tab, click **Add Charts**, then see *Adding elements to a dashboard tab*, page 13, for instructions.

- Use a drag-and-drop function to move an element from one location on a tab to a
  different location on the same tab. Click the chart title area and drag the chart to
  its new location.
- To remove an element from the tab, click the Options icon in the element title bar, then select **Remove**.
- ◆ To access all editing options for an element, click the Options icon in the element title bar, then select **Edit**. Drill-down capabilities are available as well. You can perform the following edit operations:
  - Change:
    - Chart name
    - Chart type
    - Time period
    - Top numerical designation
  - Restore default chart settings
  - Copy chart (adds chart to the active tab with "(1)" at the end of the title; select **Edit** to change the chart name)
- To print a chart, click the Options icon and select **Print**. You can also right-click a chart and select the print option.
- ◆ To view a larger version of a chart, click the Enlarge icon in the element title bar. You can access some editing options in this view (for example, chart type, time period, top numerical designation), as well as drill-down capabilities. Click **Print Chart** to print the current chart. When you click **Close**, any changes you have made to the chart in this view are not retained in the dashboard.
- Clicking a pie, bar, or line chart typically allows the display of drill-down data with more details. For example, clicking a chart element that represents data for a 24-hour period can display the same data in 1-hour increments. These capabilities are available in the Edit, Enlarge, and Preview chart views.

Two buttons appear in the dashboard toolbar:

- ◆ Add Charts allows administrators to customize their view of the selected dashboard tab by adding elements to the page. See *Adding elements to a dashboard tab*, page 13.
- **Print** opens a secondary window with a printer-friendly version of the charts displayed on the page. Use browser options to print the page.

## Value dashboard

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The Value dashboard displays alert messages and graphical charts that show the current state of your email protection system, focusing on email traffic activity in your network. Default tab elements include the following:

◆ The **Health Alert Summary** shows the status of your Websense software. Click an error or warning alert message to open the Alerts page, where more detailed alert information is available (see *Viewing system alerts*, page 16).

- ◆ In the 24-Hour Business Value chart, view statistics showing how your email security software has protected your network during the past 24 hours by blocking suspicious email traffic. Data includes total numbers of blocked connections and messages listed by analysis result, the numbers of false positive and missed spam results from email analysis, and the number totals for various types of messages handled by the email system.
- ◆ The 30-Day Blocked Message Estimated Savings chart provides an estimate of savings afforded by your email protection system, which can stop unwanted mail and threats (including at the connection level), protect network resources, and save an organization time and money. With the addition of the Email Hybrid Module, infected traffic is stopped before it enters the network, increasing the savings.
  - Hover over the estimated savings item for the approximate cost savings from the email hybrid service and on-premises email analysis. Default value of cost per MB includes the estimated cost saving from preventing threats and unwanted mail, and the resulting bandwidth saved. Click the Options icon in the element's title bar and select **Edit** to set the cost savings per MB of blocked mail.
- ◆ In **30-Day Blocked Message Value**, view metrics similar to the 24-hour value chart demonstrating email system protection for the previous 30 days. This chart illustrates the total numbers and percentages of blocked connections and messages, including false positive and missed spam results from email analysis.

You can rename a default tab, but you cannot remove it. You can remove any chart that appears on the tab, and click **Add Charts** to add a different chart to the tab.

# Inbound dashboard

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The Inbound dashboard provides summary data on inbound message traffic. Default charts include the following:

- The Top Inbound Domains by Message Size chart displays the message domains that are the source of the majority of inbound messages, plotted by message size.
- ◆ A **Top Inbound Domains by Message Volume** chart shows the message domains that account for the majority of all inbound messages.
- ◆ The **Top Inbound Recipients by Message Size** chart displays the recipient addresses that receive the majority of inbound email, plotted by message size.
- ◆ The **Top Inbound Recipients by Message Volume** chart shows the recipient addresses that receive the majority of all inbound email.

You can rename a default tab, but you cannot remove it. You can remove any chart that appears on the tab, and click **Add Charts** to add a different chart to the tab.

## **Outbound dashboard**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The Outbound dashboard provides summary data on outbound message traffic. Default charts include the following:

- The Top Outbound Senders by Message Size chart displays the sender addresses that account for the majority of outbound email, plotted by message size.
- ◆ A **Top Outbound Senders by Message Volume** chart shows the sender addresses that represent the majority of all outbound messages.
- ◆ The **Outbound Messages Summary** chart displays the total number of outbound messages processed by your email protection software, sorted by message analysis result (clean, virus, spam, and so on).
- ◆ An **Outbound Message Embedded URL Summary** chart shows the percentage of analyzed outbound messages that contain at least 1 embedded URL, displayed by message analysis result. For example, if 50 outbound messages are determined to be spam, and 40 of those messages contain an embedded URL, then the percentage shown in this chart for the spam message type is 80% (40/50).

You can rename a default tab, but you cannot remove it. You can remove any chart that appears on the tab, and click **Add Charts** to add a different chart to the tab.

# Adding elements to a dashboard tab

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Use the **Status > Dashboard > Add Charts** page to add elements to the Value, Inbound, Outbound, or any custom dashboard tab.

To start, use the **Add elements to tab** drop-down list to select a tab, then select the element that you want to add from the **Dashboard Elements** list. A **Restore Tab Defaults** button is available in the Available Tabs section only for the default tabs, not for custom tabs.

- You can add an element to any tab.
- Each tab can show a maximum of 12 elements.
- Elements currently displayed on the selected tab are marked by a blue circle icon.
- You can add multiple copies of the same element to a tab (for example, each might show a different time period).

When you select an element in the list, a sample is displayed in the **Preview** pane. You can use the preview pane to make changes to the chart **Name** and, if applicable, **Chart type**, **Time period**, and **Top** value (for example, top 1-5 categories, or top 16-20 users). The chart name may be up to 47 alphanumeric characters and include spaces and underscores.

- Chart type: Many charts can be displayed as a multi-series bar, column, or line chart, or as a stacked area or column chart. Some can be displayed as bar, column, line, or pie charts. Which types are available depends on the data being displayed.
- ◆ **Time period**: Most charts can display a variable time period: Today (the period since midnight of the current day), the last 7 days, or last 30 days.

◆ Top: Charts displaying information about the top users, categories, URLs, and so on can display up to 5 values. Select whether to show the top 5 values, 6-10 values, 11-15 values, or 16-20 values.

When you are finished making changes, click **Add**. The dashboard tab is updated immediately.

If you have been editing a chart and would like to start over, click **Restore Defaults** to reset the chart to is default time period, type, and top value (if any).

## Available dashboard charts

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The dashboard charts in the following table are available in the Add Charts page Dashboard Elements list.

Some charts show potentially sensitive information, such as usernames or IP addresses. Be sure that the charts you select are appropriate for all of the administrators who may view them.

#### **Chart Name**

Shart Hamo
30-Day Blocked Message Value
30-Day Blocked Message Estimated Savings
24-Hour Business Value
Connections Summary
Inbound Messages Summary
Outbound Messages Summary
Average Message Volume in Work Queue
Data Loss Protection Violations by Severity
Top Data Loss Protection Violations
Top Outbound Senders by Message Size
Top Outbound Senders by Message Volume
Top Blocked Protected Domain Addresses
Top Inbound Domains by Message Size
Top Inbound Domains by Message Volume
Top Inbound Recipients by Message Size
Top Inbound Recipients by Message Volume
Inbound Message Embedded URL Summary
Outbound Message Embedded URL Summary
Inbound Message Embedded URL Categories
Outbound Message Embedded URL Categories

#### **Chart Name**

Onart Name
Top Inbound Targeted Phishing Attacks
Top Inbound Phishing Attack Victims
Inbound Message Throughput
Outbound Message Throughput
Outbound Encrypted Messages Summary
Message Volume by Direction
Top Inbound Senders
Inbound Spam Volume
Inbound Spam Percentage
Inbound Virus Volume
Inbound Virus Percentage
Inbound Commercial Bulk Volume
Inbound Commercial Bulk Percentage
Outbound Spam Volume
Outbound Spam Percentage
Outbound Virus Volume
Outbound Virus Percentage
Inbound Volume by Message Type
Outbound Volume by Message Type
Opportunistic TLS Usage Volume
Top Recipient Domains Via Mandatory TLS Channel
Top Mandatory TLS Usage Failures
Inbound File Sandbox Analysis Volume (requires Email Sandbox Module)
Top File Sandbox-Detected Attachments Received (requires Email Sandbox Module)
File Sandbox-Detected Attachments by File Type (requires Email Sandbox Module)
Top File Sandbox-Protected Recipients (requires Email Sandbox Module)
Email Hybrid Service Message Size Summary (requires Email Hybrid Module)
Email Hybrid Service Message Volume Summary (requires Email Hybrid Module)

# Viewing system alerts

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The **Health Alert Summary** on the dashboard shows the status of your email protection software. Click an error or warning message to open the **Status > Alerts** page, where more detailed alert information is available.

The Alerts page displays information about problems affecting the health of your email software, provides links to troubleshooting help, and documents the details of recent real-time analytic database updates.

The Active Alerts list shows the status of monitored Websense software components. For detailed information about which components are monitored, click **What is monitored?** above the list of alert messages.

To troubleshoot a problem, click **Solutions** next to an error or warning message. Click **Learn More** to find more details about an informational alert

## Websense health alerts

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The Health Alert Summary lists any potential concerns encountered by monitored components of your Websense software. Alerts will be generated for the following conditions:

- Subscription expiration issues or subscription key problems
- Email services unavailable or not running
- Email software configuration problems
- Master Database server connection problems
- Filtering database engine and download problems
- URL analysis server problems
- Log Server unavailable, not running, or having performance problems
- Email module, Log Server, or Log Database version mismatches
- Log Database unavailable or having performance problems
- Low disk space problems
- Old system log or message queue files
- Unavailable system logs or message queues
- Third-party encryption application problems
- Appliance cluster connection and synchronization problems
- User directory server unavailable or not running
- Invalid user directory credentials
- SIEM server configuration problems
- Personal Email Manager server connection problems
- Undelivered email accumulation problems

• Work and exception queue capacity problems

If you have subscribed to the Email Hybrid Module, or if your subscription includes both email and data security components, Websense software monitors interoperability components to provide alerts about the following conditions:

- TRITON Manager Data module registration, configuration, and connection status
- Email Hybrid Module registration, authentication, and email hybrid service connection status

See *Configuring system alerts*, page 42, for information about system alert delivery options.

The icon next to the alert message indicates the potential impact of the related condition.



The message is informational, and does not reflect a problem with your installation (for example, a successful database download or cluster synchronization).



The alert condition has the potential to cause a problem, but does not immediately prevent filtering or reporting (for example, email hybrid service data is not available or the subscription key is about to expire).



A Websense software component is not functioning (has not been configured or is not running), which may impair email analysis or reporting, or your subscription has expired.

Click an alert message in the Health Alerts Summary to go to the Alerts page, which provides additional information about current alert conditions. Click **Learn More** (for informational alerts) or **Solutions** (for errors or warnings) for details and troubleshooting tips.

# Viewing and searching logs

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Several logs are available to help you monitor system and email message status. These logs are searchable by predefined time periods, or you can customize the time period you want searched. The Message Log also allows you to refine your search for messages, using search conditions like email address, message analysis result, or message status.

You can export any log's search results to a comma-separated value (CSV) or HTML file. Note that the maximum number of log entries exported cannot be greater than 100,000.

The following logs are accessed from the **Main > Status > Logs** page:

- ◆ *Message Log*, page 18
- ◆ Connection Log, page 22
- ♦ Audit Log, page 24

- Personal Email Manager Audit Log, page 26
- ◆ *System Log*, page 28
- ◆ Console Log, page 29
- Email Hybrid Service Log, page 30

## Message Log

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The Message Log records information about each email message (inbound, outbound, and internal) processed by the email system. Access the Message Log on the **Main** > **Status** > **Logs** page.

You can configure the number of entries per log page, between 25 and 200, in the **Per page** drop-down list in the log table banner. At the top and bottom of the page, scroll through Message Log pages by clicking the back and next arrows, or enter a specific page number in the **Page** field and click **Go**.

The length of time message records are saved in the database depends on your message volume and database partition capacity. To preserve message records, use the Export option to export the log on a regular basis. Exporting does not remove records from the Message Log. It transfers log data to a CSV or HTML file.

When the Message Log page appears, the most recent records are shown. Use the **View from/to** fields to specify the date/time range for the log entries you want to see. The calendar includes the following options:

- Change the month and year by using the back and next arrows around the month and year at the top of the calendar.
- Set the calendar to the current date by clicking the date in the lower left corner of the calendar.
- Click Clean to clear the current date/time calendar selection.
- Click **Today** to set the calendar date to today's date.

Set the time range in hours and minutes in the entry fields to the right of the calendar.

#### Message Log data

The following message data is collected and displayed in table format:

Message Data Item	Description
Message Log ID	A database-generated message identifier
Received Date/Time	The date and time a message was received
Subject	The message subject
Sender Address	Message sender email address
Sender IP	Message sender IP address
Recipient Address	Message recipient email address. If the message has multiple recipients, the first recipient address is displayed.

Message Data Item	Description
Analysis Result	Message filtering results (Clean, Virus, Spam, Data Loss Protection, Exception, Commercial Bulk, Phishing, or Custom Content). When a data loss protection (DLP) policy is indicated, a <b>View Incident</b> link in this column opens the incident details in the TRITON console Data module.
Message Status	Current message status (Delivered, Delayed, Dropped, Exception, Failed, Waiting for delivery, or Waiting for message analysis). A message with multiple recipients may have multiple status entries based on the policy applied.

## Message recipient details

When you click an individual message log identifier, details about that message are displayed. The following message detail items appear in table format:

Detail Item	Description
Recipient Address	Message recipient email address. If the message has multiple recipients, this column has multiple entries.
Recipient IP	Message recipient IP address
Direction	Message direction (Inbound, Outbound, or Internal). If the message has multiple recipients, this column may have multiple entries.
Delivered Date/Time	The date and time a message was delivered
Policy	Name of the policy applied to the message. If the message has multiple recipients, this column may have multiple entries.
Rule	Name of the policy rule applied to the message. If the message has multiple recipients, this column may have multiple entries for a single message.
	This item is blank for a message with a scanning result of Clean.
Analysis Result	Message analysis results (Clean, Virus, Spam, Data Loss Protection, Exception, Commercial Bulk, Phishing, or Custom Content)
Message Status	Current message status (Delivered, Delayed, Dropped, Exception, Failed)
Quarantined?	Indicator of whether message is quarantined (Yes or No). A <b>View Incident</b> link appears for a message isolated by a DLP policy.

#### **Message Log details**

After you click a message in the Message Log ID column to view recipient details, a new **View Log Details** button is available at the bottom of the page. Message Log details appear in a table, with columns for the date and time of receipt, and the source of the message details. Detail sources can include message and connection control data, email policy data, and delivery data.

The log details appear in a third column, which can contain information about

- Message size, sender, and recipients
- Connection type, sender IP address, and the email appliance that received the connection request
- Email policies and actions applied, including policy and rule names (filter and action), email direction (inbound, outbound, or internal), name of the virus or spam encountered, and the action taken as a result of filtering
- Email hybrid service analysis results, including a DKIM validation, if applicable
- Message delivery dispositions, including recipient email and IP address, and delivery status

#### **Message Log search options**

The Message Log includes several search options, including date range or keyword searches. Determine the date/time range for a search by selecting dates in the **View from/to** field calendar controls. Default value for the **from** or **to** field is the date and time that you open the log.

You can perform a keyword search by selecting the log elements on which you want the search done from the **Keyword search** drop-down list and then entering a term in the field to the right of the list.

You can search for a keyword in 1 of the following Message Log components:

<b>Keyword Search Option</b>	Supported Keyword
Message Log ID	Enter the complete Message Log ID number. Wildcards (*) and non-numeric characters are not supported.
Subject	Enter any part of a message subject. Wildcards (*) are supported only at the beginning or end of a Subject keyword (e.g., *subject, subject*, *subject*).
Sender Address	Enter a complete email address (e.g., sender@domain.com). Wildcards (*) are supported only at the beginning or end of an address (e.g., *@domain.com, sender@*, *sender@domain*).
Sender IP	Enter a complete sender IP address. Wildcards (*) are supported only at the end of a partial IP address and only after a period (e.g., 10.*, 10.20.*, 10.20.30.*). Non-numeric characters are not supported.
Recipient Address	Enter a complete email address (e.g., sender@domain.com). Wildcards (*) are supported only at the beginning or end of an address (e.g., *@domain.com, recipient@*, *recipient@domain*).
Analysis Result	Enter any part of the message analysis result. Wildcards (*) are supported only at the beginning or end of an analysis result keyword (e.g., *result, result*, *result*).
Message Status	Enter any part of the message status. Wildcards (*) are supported only at the beginning or end of a message status keyword (e.g., *status, status*, *status*).

Use the **All** keyword search option to search using a combination of the following Message Log elements:

- Subject
- Sender Address
- Recipient Address
- ◆ Sender IP

Alphanumeric characters are supported in the keyword search entry field.

Click **Set to Default** to return the keyword search options to the default settings (all Message Log components and keyword field blank).

View advanced search options for narrowing your message search by clicking **Advanced Options** to the right of the Keyword search box. Refine your search by selecting options in 1 or more of the following categories:

Category	Description
By Email Address	Click <b>Specify Email Addresses</b> to open the Specify Email Addresses dialog box. Specify your matching conditions, including email addresses and whether the address can be a sender, a recipient, or both. The search results include matches for any address you enter in the Condition Details box. Wildcard entries are not supported.  Separate email address entries by a semicolon (;).
By Analysis Result	Search by message analysis results (Clean, Virus, Spam, Commercial Bulk, Data Loss Protection, Custom Content, Exception, Block List, Phishing, or File Sandbox)  The Block List type applies to a message that is blocked by a Personal Email Manager Always Block List.
By Message Status	Search by current message status (Delivered, Delayed, Dropped, Exception, Expired, or Failed)

Click **Search** to generate search results.

Click **Set to Default** to return all your search option settings to their default state.

## **Message Log export options**

To export Message Log search results:

- 1. Click **Export** to open the Export Log dialog box.
- 2. Select the desired output file type (CSV or HTML).
  - If you select **CSV**, a dialog box opens to let you open or save a text file in comma-separated value format.
  - If you select **HTML**, a dialog box opens to let you open or save an HTML file containing the log data.
- 3. Indicate the pages you want to export (All, Current Page, or a page range).

#### 4. Click OK.

## **Connection Log**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The Connection Log is a record of incoming connection requests and the results of connection analysis. Access the Connection Log on the **Main > Status > Logs** page by clicking the **Connection** tab.

You can configure the number of entries per log page, between 25 and 200, in the **Per page** drop-down list in the log table banner. At the top and bottom of the page, scroll through Connection Log pages by clicking the back and next arrows in the banner, or enter a specific page number in the **Page** field and click **Go**.

The length of time connection records are saved in the database depends on your connection volume and database partition capacity. To preserve connection records, use the Export option to export log data on a regular basis. Exporting does not remove records from the Connection Log. It copies log data to a CSV or HTML file.

When the Connection Log page appears, the most recent records are shown. Use the **View from/to** fields to specify the date/time range for the log entries you want to see. The calendar includes the following options:

- Change the month and year by using the back and next arrows around the month and year at the top of the calendar.
- Set the calendar to the current date by clicking the date in the lower left corner of the calendar.
- Click Clean to clear the current date/time calendar selection.
- Click **Today** to set the calendar date to today's date.

Set the time range in hours and minutes in the entry fields to the right of the calendar.

#### **Connection Log data**

The following connection data is collected and displayed in table format:

Connection Data Item	Description
Sender IP Address	The connection's sender IP address
Date/Time	The date and time a connection was received
Number of Messages	The number of messages in the connection

Connection Data Item	Description
Security Level	Encrypted or Not Encrypted
	•
	<ul> <li>Open relay from <sender name=""> blocked.</sender></li> <li>Possible Accepted status details are as follows:</li> <li>Email Hybrid Service IP Group entry match</li> <li>Trusted IP group entry match</li> <li>Access list entry match</li> <li>Global Always Permit List entry match</li> <li>BATV bypass entry match</li> <li>True source IP address matched a Trusted IP group entry</li> <li>True source IP address matched an access list entry</li> <li>True source IP address matched an Email Hybrid Service IP Group entry</li> <li>True source IP address matched a global Always Permit List entry</li> <li>True source IP address matched a BATV bypass e</li> </ul>

When you click an individual sender IP address link in the Connection Log, the Message Log opens and displays details about the message or messages associated with the selected connection. See Message Log data, page 18, for details.

#### **Connection Log search options**

The Connection Log includes several search options, including date range or keyword searches. Determine the date/time range for a search by selecting dates in the **View from/to** field calendar controls. Default value for the **from** or **to** field is the date and time that you open the log.

You can perform a keyword search by selecting the log elements on which you want the search done from the **Keyword search** drop-down list and then entering a term in the field to the right of the list. Search for a keyword in all Connection Log elements, or in 1 of the following components:

- Sender IP address (wildcards and special characters are not supported in the keyword)
- ♦ Security Level
- ◆ Connection Status

Click Search to generate search results.

Click **Set to Default** to return the keyword search options to the default settings (**All** Connection Log components with the keyword field blank).

#### **Connection Log export options**

To export Connection Log search results:

- 1. Click **Export** to open the Export Log dialog box.
- 2. Select the desired output file type (CSV or HTML).
  - If you select **CSV**, a dialog box opens to let you open or save a text file in comma-separated value format.
  - If you select **HTML**, a dialog box opens to let you open or save an HTML file containing the log data.
- 3. Indicate the pages you want to export (All, Current Page, or a page range).
- 4. Click OK.

# **Audit Log**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The email protection system provides an audit trail showing which administrators have accessed the TRITON console Email module, as well as any changes made to policies and settings. This information is available only to Super Administrators. Monitoring administrator changes through the Audit Log enables you to ensure that system control is handled responsibly and in accordance with your organization's acceptable use policies.

Click the Audit Log tab on the **Main > Status > Logs** page to view the Audit Log, and to export selected portions of it to a CSV or an HTML file, if desired.

Audit records are saved for 30 days. To preserve audit records longer than 30 days, use the Export option to export the log on a regular basis. Exporting does not remove records from the Audit Log. It transfers log data to a CSV or HTML file.

When the Audit Log page opens, the most recent records are shown. Use the **View** drop-down list options located above the log to select the range of log entries you want to see: All, One Day, One Week, One Month, or Custom. When you select **Custom**, use the **View from/to** fields to specify the desired date/time range for the log entries you want to see. The calendar includes the following options:

- Change the month and year by using the back and next arrows around the month and year at the top of the calendar.
- Set the calendar to the current date by clicking the date in the lower left corner of the calendar.
- Click **Clean** to clear the current date/time calendar selection.
- Click Today to set the calendar date to today's date.

Set the time range in hours and minutes in the entry fields to the right of the calendar.

Below the View options, choose the number of log entries you want to view per log page from the **Per page** drop-down list (from 25 to 200). Default is 25. At the top and bottom of the page, scroll through the log using the back and next arrow buttons, or identify the page you want to see in the **Page** field and click **Go**.

#### **Audit Log data**

The log displays the following system audit information in table format:

Column	Description
Date	Date and time of the change, adjusted for time zones.
	To ensure consistent data in the Audit Log, be sure all machines running Websense components have their date and time settings synchronized.
User	Username of the administrator who made the change
Server	IP address of the appliance affected by the change
Client	IP address of the administrator machine that made the change
Role	Administrator role (Super Administrator, Auditor, Quarantine Administrator, Reporting Administrator, Security Administrator, Policy Administrator, or Group Reporting Administrator)
Туре	The location of the change in the Email module interface (for example, if you enter a new subscription key, this column displays <b>General Settings</b>   <b>Subscription</b> )
Element	Identifier for the specific dynamic object changed, if any
Action	Type of change made (for example, add, delete, update, import, export, move, auth, sync, or reset)
Action Detail	A link that opens a Details message box with information about the change made

#### **Audit Log export options**

To export Audit Log records:

- 1. Select a time period from the **Export range** drop-down list (Current page, Last 24 hours, Last 7 days, or Last 30 days).
  - Choose Last 30 days to export the entire Audit Log file.
- 2. Click Go.
- 3. Select the desired output file type in the **Export Log** dialog box.
  - If you select **CSV**, a dialog box opens to let you open or save a text file in comma-separated value format.
  - If you select **HTML**, a dialog box opens to let you open or save an HTML file containing the log data.
- 4. Click OK.

## Personal Email Manager Audit Log

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The Personal Email Manager Audit Log records end-user email management activities performed from either the Personal Email Manager notification message or Quarantined Messages List. Click the Personal Email Manager tab to access the Personal Email Manager Audit Log on the **Main > Status > Logs** page.

You can configure the number of entries per log page, between 25 and 200, in the **Per page** drop-down list in the log table banner. At the top and bottom of the page, scroll through Personal Email Manager Audit Log pages by clicking the back and next arrows, or enter a specific page number in the **Page** field and click **Go**.

The length of time message records are saved in the database depends on your message volume and database partition capacity. To preserve message records, use the Export option to export the log on a regular basis. Exporting does not remove records from the Personal Email Manager Audit Log. It transfers log data to a CSV or HTML file.

When the Personal Email Manager Audit Log page appears, the most recent records are shown. Use the **View** drop-down list options located above the log to select the range of log entries you want to see: All, One Day, One Week, One Month, or Custom. When you select **Custom**, use the **View from/to** fields to specify the date/time range for the log entries you want to see. The calendar includes the following options:

- Change the month and year by using the back and next arrows around the month and year at the top of the calendar.
- Set the calendar to the current date by clicking the date in the lower left corner of the calendar.
- Click Clean to clear the current date/time calendar selection.
- Click **Today** to set the calendar date to today's date.

Set the time range in hours and minutes in the entry fields to the right of the calendar.

#### **Personal Email Manager Audit Log data**

The following data is collected and displayed in table format:

Message Data Item	Description
Date	The date and time an action was performed on a message in Personal Email Manager
User Name	The email address of the Personal Email Manager user who performed the message action
End-user Action	The action performed on the message in Personal Email Manager (Deliver, Delete, and Reprocess; does not include the Add to Always Block list, Add to Always Permit list, or Download actions)
Message ID	A database-generated message identifier. The Message ID for a message with multiple recipients may appear multiple times in the log.
End-user Action Status	An indicator of whether the Personal Email Manager end-user action was completed successfully (Success or Failure)

#### **Personal Email Manager Audit Log search options**

You can perform a keyword search by selecting the log elements on which you want the search done from the **Keyword search** drop-down list and then entering a term in the field to the right of the list. Search for a keyword in 1 of the following Personal Email Manager Audit Log components:

- Message ID
- User Name

Specify the appliance on which you want to perform your search in the **Appliance** drop-down list. The default entry is the active appliance.

Click **Set to Default** to return the keyword search options to the default settings (keyword field blank).

#### **Personal Email Manager Audit Log export options**

To export Personal Email Manager Audit Log records:

- 1. Select a time period from the **Export range** drop-down list (Current page, Last 24) hours, or Last 3 days).
- 2 Click Go
- 3. Select the desired output file type in the **Export Log** dialog box.
  - If you select CSV, a dialog box opens to let you open or save a text file in comma-separated value format.
  - If you select **HTML**, a dialog box opens to let you open or save an HTML file containing the log data.
- 4. Click **OK**.

## System Log

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

System Log records reflect the current state of the email system, along with any errors or warnings produced. Click the System Log tab on the **Main > Status > Logs** page to view the System Log, and to export selected portions of it to a CSV or HTML file, if desired.

System Log records are saved for 30 days. To preserve System Log records longer than 30 days, use the Export option to export the log on a regular basis. Exporting does not remove records from the System Log. It transfers log data to a CSV or HTML file.

When the System Log page opens, the most recent records are shown. Use the **View** drop-down list options located above the log to select the range of log entries you want to see: All, One Day, One Week, One Month, or Custom. When you select **Custom**, use the **View from/to** fields to specify the desired date/time range for the log entries you want to see. The calendar includes the following options:

- Change the month and year by using the back and next arrows around the month and year at the top of the calendar.
- Set the calendar to the current date by clicking the date in the lower left corner of the calendar.
- Click Clean to clear the current date/time calendar selection.
- Click **Today** to set the calendar date to today's date.

Set the time range in hours and minutes in the entry fields to the right of the calendar.

You can also view log entries by type of system event by selecting an event type in the View by type drop-down list.

Below the View options, choose the number of log entries you want to view per log page from the **Per page** drop-down list (from 25 to 200). Default is 25. At the top and bottom of the page, scroll through the log using the back and next arrow buttons, or identify the page you want to see in the **Page** field and click **Go**.

#### System Log data

The log displays the following information:

Column	Description
Date	Date and time of the system event, adjusted for time zones.
	To ensure consistent data in the System Log, be sure all machines running Websense components have their date and time settings synchronized.
Server	IP address of the machine affected by the system event
Туре	The type of system event (update, config exception, email hybrid service, cluster, log, quarantine, scan engine, data loss protection, patch and hotfix, watchdog, system maintenance, or alert)
Message	A link that opens a Details message box with information about the system event

## **System Log export options**

To export System Log records:

- 1. Select a time period from the **Export range** drop-down list (Current page, Last 24 hours, Last 7 days, or Last 30 days).
  - Choose Last 30 days to export the entire System Log file.
- 2. Click Go.
- 3. Select the desired output file type in the **Export Log** dialog box.
  - If you select **CSV**, a dialog box opens to let you open or save a text file in comma-separated value format.
  - If you select **HTML**, a dialog box opens to let you open or save an HTML file containing the log data.
- 4. Click **OK**.

## **Console Log**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The Console Log is a record of any administrator activities or changes made to the Email module of the TRITON Manager. Click the Console Log tab on the **Main** > **Status** > **Logs** page to view the Console Log, and to export selected portions of it to a CSV or HTML file, if desired.

The length of time Console Log records are saved in the database depends on your database partition capacity. To preserve Console Log records, use the Export option to export the log on a regular basis. Exporting does not remove records from the Console Log. It transfers log data to a CSV or HTML file.

When the Console Log page opens, the most recent records are shown. Use the **View** drop-down list options located above the log to select the range of log entries you want to see: All, One Day, One Week, One Month, or Custom. When you select **Custom**, use the **View from/to** fields to specify the desired date/time range for the log entries you want to see. The calendar includes the following options:

- Change the month and year by using the back and next arrows around the month and year at the top of the calendar.
- Set the calendar to the current date by clicking the date in the lower left corner of the calendar.
- Click **Clean** to clear the current date/time calendar selection.
- Click **Today** to set the calendar date to today's date.

Set the time range in hours and minutes in the entry fields to the right of the calendar.

Below the View options, choose the number of log entries you want to view per log page from the **Per page** drop-down list (from 25 to 200). Default is 25. At the top and bottom of the page, scroll through the log using the back and next arrow buttons, or identify the page you want to see in the **Page** field and click **Go**.

## **Console Log data**

The log displays the following information:

Column	Description
Date	Date and time of the change, adjusted for time zones.
	To ensure consistent data in the Console Log, be sure all machines running Websense components have their date and time settings synchronized.
User	Username of the administrator who made the change
Client	IP address of administrator machine that made the change
Role	Administrator role that made the change, in this case, Super Administrator
Action	Type of change made (for example, entries indicating administrator login or logoff, an administrator role change, or the addition of a new user)
Action Detail	A link that opens a Details message box with information about the change made

## **Console Log export options**

To export Console Log records:

- 1. Select a time period from the **Export range** drop-down list (Current page, Last 24 hours, Last 7 days, or Last 30 days).
  - Choose Last 30 days to export the entire Console Log file.
- 2. Click Go.
- 3. Select the desired output file type in the **Export Log** dialog box.
  - If you select **CSV**, a dialog box opens to let you open or save a text file in comma-separated value format.
  - If you select **HTML**, a dialog box opens to let you open or save an HTML file containing the log data.
- 4. Click OK.

# **Email Hybrid Service Log**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The Email Hybrid Service Log contains records of email messages that are blocked by the email hybrid service before they reach the network. You must have entered a valid subscription key for the Email Hybrid Module and successfully registered with the module for the Email Hybrid Service Log to be available (see *Registering the Email Hybrid Module*, page 34, for information).

After you register with the email hybrid service, you can enable the Email Hybrid Service Log and set data delivery options on the **Settings > Hybrid Service > Hybrid** 

**Service Log Options** page. See *Configuring the Email Hybrid Service Log*, page 39, for information.

Access the Email Hybrid Service Log on the **Main > Status > Logs** page by clicking the Email Hybrid Service tab.

You can configure the number of entries per log page, between 25 and 200 (default is 25), in the **Per page** drop-down list in the log table banner. At the top and bottom of the page, scroll through Email Hybrid Service Log pages by clicking the back and next arrows, or enter a specific page number in the **Page** field and click **Go**.

The length of time message records are saved in the database depends on your message volume and database partition capacity. To preserve message records, use the Export option to export log contents on a regular basis. Exporting does not remove records from the Email Hybrid Service Log. It copies log data to a CSV or HTML file.

When the Email Hybrid Service Log page appears, the most recent records are shown. Use the **View from/to** fields to specify the date/time range for the log entries you want to see. The calendar includes the following options:

- Change the month and year by using the back and next arrows around the month and year at the top of the calendar.
- Set the calendar to the current date by clicking the date in the lower left corner of the calendar.
- Click Clean to clear the current date/time calendar selection.
- Click **Today** to set the calendar date to today's date.

Set the time range in hours and minutes in the entry fields to the right of the calendar.

## **Email Hybrid Service Log data**

The following message data is collected and displayed in table format:

Message Data Item	Description
Hybrid Service Log ID	A database-generated message identifier
Date/Time	The date and time a message was received
Subject	The message subject
Sender Address	Message sender email address
Recipient Address	Message recipient email address. If the message has multiple recipients, the first recipient address is displayed.
Sender IP	Message sender IP address
Message Status	Current message status (e.g., discarded or bounced)
Reason	Supplied by the email hybrid service, the analysis result that determines message disposition

## **Email Hybrid Service Log search options**

The Email Hybrid Service Log has several search options, including date range or keyword searches. Determine the date/time range for a search by selecting dates in the **View from/to** field calendar controls. Default value for the **from** or **to** field is the date and time that you open the log.

You can perform a keyword search by selecting the log elements on which you want the search done from the **Keyword search** drop-down list and then entering a term in the field to the right of the list. Click **Search** to initiate the search function.

Search for a keyword in all Email Hybrid Service Log elements, or in 1 of the following Email Hybrid Service Log components:

- ◆ Email Hybrid Service Log ID
- Subject
- Sender Address
- Recipient Address
- Sender IP
- Message Status

Click **Set to Default** to return the keyword search options to the default settings (all Email Hybrid Service Log components and keyword field blank).

### **Email Hybrid Service Log export options**

To export Email Hybrid Service Log search results:

- 1. Click **Export** to open the Export Log dialog box.
- 2. Select the desired output file type (CSV or HTML).
  - If you select **CSV**, a dialog box opens to let you open or save a text file in comma-separated value format.
  - If you select **HTML**, a dialog box opens to let you open or save an HTML file containing the log data.
- 3. Indicate the pages you want to export (All, Current Page, or a page range).
- 4. Click OK.

## Real-time monitor

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Real-time log information for email traffic is available on the **Main > Status > Real-Time Monitor** page for selected appliances. This information can be valuable for troubleshooting purposes.

Specify any or all of the following types of log information for display by marking the associated check box:

Message status (default selection)

- Connection status
- Message delivery status
- Message analysis result

By default, the current appliance is monitored. To monitor multiple appliances in cluster mode, click Select and mark the appropriate check boxes in the Select **Appliance** list. Ensure that the primary cluster appliance is selected.

The monitor starts automatically when a user opens the Real-Time Monitor screen. Use the following buttons to control the monitor runtime:

Pause to temporarily halt the real-time log stream





Start to open a running log of email traffic data for specified appliances

Perform a keyword search of individual log entries by entering a term in the **Search** filter field.

Click **Advanced Search** to open other search filter options. You can search log entries and display records by message subject, IP address (source, destination, or both), or email address (sender, recipient, or both).

# **Security Information and Event Management (SIEM)** integration

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Third-party security information and event management (SIEM) tools allow the logging and analysis of internal alerts generated by network devices and software. Integration with SIEM technology allows the transfer of message activity events to a SIEM server for analysis and reporting.

Access SIEM integration settings on the **Settings > General > SIEM Integration** page. Mark the Enable SIEM integration check box to activate SIEM integration functions.

After you enable SIEM integration, use the following steps to configure the SIEM server and transport protocol:

- 1. Enter the IP address or hostname for the SIEM integration server in the IP address or hostname entry field.
- 2. Enter the port number for the SIEM integration server in the **Port** field. Default is 514.

- 3. Select the protocol used for data transport, either **UDP** or **TCP**. User datagram protocol (UDP) is a transport layer protocol in the Internet protocol suite. UDP is stateless and therefore faster than transmission control protocol (TCP), but it can be unreliable. Like UDP, TCP is a transport layer protocol, but it provides reliable, ordered data delivery at the expense of transport speed.
- 4. Click **Send Test Message** to confirm that the SIEM product is properly configured and can receive messages from your email software.

# **Email hybrid service configuration**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Websense TRITON AP-EMAIL combined with the Email Hybrid Module offers a flexible, comprehensive email security solution that lets you combine on-premises and hybrid (in-the-cloud) analysis as needed to manage inbound and outbound email for your organization.

The email hybrid service provides an extra layer of email analysis, stopping spam, virus, phishing, and other malware attacks before they reach the network and considerably reducing email bandwidth and storage requirements. You can also use the email hybrid service to encrypt outbound email before delivery to its recipient (your subscription must also include the Email Encryption Module for this feature).

You can create policies for on-premises and hybrid analysis in the same user interface—the Email module—and configuration, reporting, and management are centralized.

Before you can use the email hybrid service to examine email for your organization, you must enter a valid subscription key that includes the Email Hybrid Module and configure a number of settings in the Email module and in your Domain Name System (DNS). This creates a connection between the on-premises and cloud portions of your email protection system. See *Registering the Email Hybrid Module*, page 34, for details.

The Email Hybrid Service Log contains records of the email messages that are blocked by the email hybrid service before they reach the network. See *Email Hybrid Service Log*, page 30, for information about the contents of this log. See *Configuring the Email Hybrid Service Log*, page 39, for details about enabling and scheduling Email Hybrid Service Log updates.

## Registering the Email Hybrid Module

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Select **Settings > Hybrid Service > Hybrid Configuration** to activate your Email Hybrid Module account. When you click **Register**, a registration wizard opens. Work through the pages in the wizard as follows:

1. Enter customer information, page 35

- 2. Define delivery routes, page 36
- 3. Configure your DNS, page 37
- 4. Set up your firewall, page 38
- 5. Configure your MX records, page 38
- 6. Modifying email hybrid service configuration, page 39



### **Important**

Multiple appliances controlled by a single email management server share the same email hybrid service configuration settings, regardless of appliance mode (cluster or standalone).

If you need to register more than 1 appliance with the email hybrid service from the same email management server, you should:

- Add all your appliances to the TRITON Manager Email module (Settings > General > Email Appliances).
- 2. Create an appliance cluster, if desired (**Settings** > **General** > **Cluster Mode**).
- 3. Enter your subscription key (**Settings > General > Subscription**).
- Register the Email Hybrid Module (Settings > Hybrid Service > Hybrid Configuration). If your appliances are operating in standalone mode, register from the appliance on which you entered the subscription key.

You may need to add an appliance after you have registered with the email hybrid service (for example, after a new appliance purchase). In this situation, you should add the new appliance to the Email module then register your existing appliance with the email hybrid service again without changing any configuration settings. Hybrid service configuration is synchronized across all appliances after you re-register.

### **Enter customer information**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Use the Basic Information page under **Settings > Hybrid Service > Hybrid Configuration** to provide the contact email address, phone number, and country for your Websense filtering administrators.

The email address is typically an alias monitored by the group responsible for managing your Websense software. This very important email sent to your account should be acted upon promptly when it is received.

- Websense Technical Support uses this address to send notifications about urgent issues affecting hybrid filtering.
- ◆ If there is a configuration problem with your account, failure to respond to an email message from Technical Support in a timely fashion could lead to service interruptions.
- Should certain rare problems occur, the email address is used to send information that allows Sync Service to resume contact with the hybrid service.
- ◆ This email address is **not** used to send marketing, sales, or other, general information.

The country you enter provides the system with time zone information.

Click **Next** to continue with hybrid configuration.

## **Define delivery routes**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Use the Delivery Route page under **Settings > Hybrid Service > Hybrid Configuration** to define the domains for which email traffic will be routed to and from the email hybrid service, and the SMTP server addresses that receive mail from and send mail to the hybrid service. Each group of one or more domains and one or more SMTP server addresses comprises a delivery route.



### **Important**

Email hybrid service checks the connection to your SMTP server by sending commands to a "postmaster" address. If your SMTP server does not have a postmaster or administrator address (e.g., postmaster@mydomain.com), you should add it manually before completing this step.

To add a delivery route:

- 1. On the Delivery Route page, click **Add**.
- 2. Enter a **Delivery route name**.
- 3. To add domains to your delivery route, click **Add** under Protected Domains.
- 4. Enter the **Domain Address** (for example, mydomain.com).
- 5. Define whether the delivery route should apply to all subdomains in the domain.
- 6. To add another domain, repeat steps 3 5.



### Note

Protected domains added here must already be entered in the Protected Domain group on the **Settings** > **Users** > **Domain Groups** page. See *Managing domain and IP address groups*, page 63, for information.

7. To add inbound SMTP servers to your delivery route, click **Add** under SMTP Inbound Server Addresses.

8. Enter the IP address or name of your email management server. This must be the external IP address or name, visible from outside your network.

To add more servers, click **Add** again. Each new server is given the next available ID number and added to the end of the list. The lowest ID number has the highest preference. Mail will always be received by the server with the highest preference; if that server fails, the server with the next highest preference for that delivery route is used.

To change the preference order, check the box next to a server name, then click Move up or Move down.

- 9. To add outbound SMTP servers to your delivery route, click **Add** under SMTP Outbound Server Addresses. The email system uses these IP addresses to send email to the hybrid service for encryption. See Advanced email encryption, page 115, for information about this encryption function.
- 10. Enter the IP address or name of your email management server. This must be the external IP address or name, visible from outside your network.

To add more servers, click Add again. Each new server is added to the end of the list. If an outbound server connection fails, email in this delivery route that needs to be encrypted is sent to a delayed messages queue for a later delivery attempt.

11. Click **OK**.

The delivery route appears in the Route List on the Delivery Route page.

Click **Next** to continue with hybrid configuration.

## **Configure your DNS**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Use the information on the CNAME Records page under **Settings > Hybrid Service > Hybrid Configuration** to configure your DNS.

Before a delivery route is accepted by the email hybrid service, it must first be checked to ensure that the service can deliver mail for each protected domain to your mail server and that each domain belongs to your company.

CNAME records are used to assign an alias to an existing host name in DNS. Contact your DNS manager (usually your Internet service provider) and ask them to set up a CNAME record for each of your protected domains, using the alias and associated domain information on the DNS page.

A CNAME record has the following format:

abcdefgh.mydomain.com CNAME autodomain.mailcontrol.com.

### Where:

- abcdefgh is the Alias displayed on the DNS page
- mydomain.com is the Protected Domain
- CNAME indicates that you are specifying a CNAME record
- autodomain.mailcontrol.com is the Associated domain displayed with the above alias and protected domain

Make sure the trailing period is included in the associated domain name.

The above example indicates that the alias **abcdefgh.mydomain.com** is assigned to **autodomain.mailcontrol.com**. This enables the email hybrid service to confirm that you own **mydomain.com**.

After you have created your CNAME records, click **Check Status** to verify that your entries are correctly set in your DNS. Resolve any error situations if necessary. If the **Check Status** button does not appear on the page, simply click **Next** to continue. If the registration process stalls or fails at this point, see this <u>Websense Knowledge Base</u> article.



### Note

The validation performed by clicking **Check Status** occurs in your local system. Because the propagation of DNS changes across all Internet servers can take between a few minutes to several hours, the verification process for the email hybrid service may take longer.

Click **Next** to continue with hybrid configuration.

## Set up your firewall

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Use the information on the Network Access page under **Settings > Hybrid Service > Hybrid Configuration** to configure your firewall.

Because the email hybrid service is a managed service, Websense is responsible for managing system capacity. For this reason, the route of your email may occasionally alter within the service. To enable this to happen seamlessly without requiring you to make further changes, you must allow SMTP access requests from all the IP ranges listed on the Network Access page to port 25.

Click **Next** to continue with hybrid configuration.

## Configure your MX records

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Use the information on the MX Records page under **Settings > Hybrid Service > Hybrid Configuration** to configure your Mail eXchange (MX) records.

An MX record is an entry in a DNS database that defines the host willing to accept mail for a given machine. Your MX records must route inbound email through the email hybrid service to your email protection system.

Your MX records, which end in **in.mailcontrol.com**, are listed on the MX Records page. Contact your DNS manager (usually your Internet service provider) and ask them to set up or replace your current MX records for each protected domain you have

specified with the customer-specific records provided by the email hybrid service on the MX Records page. For example, they might change:

Change	From	То
MX Preference 1	mydomain.com. IN MX 50 mail.mydomain.com.	mydomain.com. IN MX 5 cust0000-1.in.mailcontrol.com.
MX Preference 2	mydomain.com. IN MX 51 mail.mydomain.com.	mydomain.com. IN MX 5 cust0000-2.in.mailcontrol.com.

Make sure they include the trailing period, and ask them to set each of these records to an equal preference value.

Check the entries on your Internet service provider's DNS management site to ensure they match the MX records provided by the email hybrid service. After you validate your entries, click **Check Status** to verify that the update is successful.

It can take up to 24 hours to propagate changes to your MX records across the Internet. During this time, you should keep your previous mail routing active to ensure all your mail is delivered: while your MX records are changing over, some mail will be delivered using your old MX information, and some mail will be delivered using your new MX information.

Click **Finish** to complete your hybrid configuration.

## Modifying email hybrid service configuration

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

After you complete the registration wizard, you can review and modify your email hybrid service configuration settings in the **Settings > Hybrid Service > Hybrid Configuration** edit page.



## Note

The **Check Status** button may not appear in the CNAME records area if the hybrid service has already verified domain ownership.

You should ensure that email is properly routed through the hybrid service by sending email through your mail system from outside your protected domains.

## Configuring the Email Hybrid Service Log

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Email Hybrid Service Log options are set on the **Settings > Hybrid Service > Hybrid Service Log Options** page. You can enable the Email Hybrid Service Log and determine the log's data transfer schedule on this page.

These options are available only if you have already entered a subscription key that includes the Email Hybrid Module, and you have successfully registered the module.

Configure Email Hybrid Service Log options as follows:

- 1. Enable the Email Hybrid Service Log by marking the **Enable the Email Hybrid Service Log** check box.
- 2. Specify the time interval for retrieving the most recent Email Hybrid Service Log information in the **Retrieve Email Hybrid Service Log data every** drop-down box, from 15 minutes to 24 hours. Default is 15 minutes.
- 3. Specify the time interval for sending Email Hybrid Service Log information to the log database in the **Send the Email Hybrid Service Log data to the database every** drop-down box, from 15 minutes to 24 hours. Default is 15 minutes.
- 4 Click **OK**

# Registering the Email DLP Module

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

With the Email DLP module, you can have your email analyzed for regulatory compliance and acceptable use and protect sensitive data loss via email by enabling DLP policies in the **Main > Policy Management > Policies** page. Data loss prevention policies are enabled by default.

See *Enabling data loss protection policies*, page 135, for more information about activating DLP policies.

Email Data Loss Prevention policy options are configured in the TRITON Manager Data module (Main > Policy Management > DLP Policies > Manage Policies). A new policy wizard provides the steps for creating a new email DLP policy. See *Data Security Manager Help* for details.

If you plan to use email encryption functions, you must configure an email DLP policy with an action plan that includes message encryption. See *Data Security Manager Help* for details.

You can also create filter actions for use in a DLP policy action plan. See *Creating and configuring a filter action*, page 129, for information.

You must register email appliances with the Email DLP Module in order to take advantage of its acceptable use, data loss prevention, and message encryption features. Registration is automatic when you enter a valid subscription key. Subsequent appliances are registered when you add them to the TRITON Manager from the Email module interface.

If the Status field in the Email module **Settings > General > Data Loss Protection** page displays **Unregistered**, you must register with the Email DLP Module manually.

Use the following steps in the Email module **Settings** > **General** > **Data Loss Protection** page to register a standalone appliance manually with the Email DLP Module:

1. Enter a valid subscription key in the **Settings > General > Subscription** page.

2. Specify the IP address used for communication with the email protection system in the **Communication IP address** drop-down list.



#### Note

The appliance C interface IP address is selected by default. This setting is recommended for Email DLP Module registration.

- 3. Select the **Manual** registration method to enable the Properties entry fields.
- 4. Specify the following data management server properties:
  - IP address
  - User name
  - Password
- 5. Click Register.
- 6. You must deploy DLP policies in the Data module to complete the process. Click the Data module and then click **Deploy**.



### **Important**

You should wait until DLP policies are completely deployed before you register another standalone appliance.

The following issues apply if you are deploying TRITON AP-EMAIL in an appliance cluster:

- Register all the primary and secondary machines with the Email DLP Module before you deploy any data loss prevention policies. If you deploy DLP policies on the primary appliance while you are registering a secondary machine, the registration process for the secondary machine may not complete.
- Ensure that all machines in a cluster use the same physical appliance interface (the C, E1, or E2 IP address) to register with the Email DLP Module.

# **Email filtering database updates**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Regular email analytics database updates offer maximum protection from email-borne attacks. Use the **Settings > General > Database Downloads** page to manage database updates for antispam and antivirus filters.

The Antivirus and Antispam filters tables list the set of filtering databases included in your product subscription. If the current appliance is a primary machine, these tables also include update information for any secondary appliances associated with the primary appliance. A default update schedule of once every hour is included for each filter with your first database download.

To edit the update schedule for an individual filter, click **Edit** next to the database you want to change. In the Reschedule Filter Update dialog box, configure the following settings, as desired:

Frequency	How often you want the update to occur, from every 15 minutes to once every week
Day of week	This field is enabled only when the frequency selected is <b>Every week</b> . Choose the day of the week for the update.
Time	This field is enabled only when the frequency selected is <b>Every day</b> or <b>Every week</b> . Choose the time of day for the update.

Use **Update Now** to perform an immediate update of all Websense databases.

# **Configuring system alerts**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

In addition to displaying system alerts in the dashboard Health Alert Summary, your email protection system can use other methods to notify administrators that various system events have occurred. For example, notifications can be sent for updates to database download categories and subscription issues, as well as encryption and user directory issues.

Use the **Settings > Alerts > Enable Alerts** page to enable and configure the desired notification methods. Then, use the **Settings > Alerts > Alert Events** page to enable the types of alerts for which you want notifications sent.

## **Enabling system alerts**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

You can determine how alerts are distributed using 1 or more of the following delivery methods:

- To a specified individual via an email message
- ◆ To specified computers as a pop-up message on the Main > Status > Alerts page
- ◆ To a specified community via an SNMP Trap system

Use the **Settings > Alerts > Enable Alerts** page to configure alert delivery methods.

When you are finished enabling alert methods, click **OK**.

### **Email alerts**

Mark the **Enable email alerts** check box to have alerts and notifications delivered to administrators by email. Then, configure the following email settings:

Field	Description
From email address	Email address to use as the sender for email alerts
Administrator email address (To)	Email address of the primary recipient of email alerts. Each address must be separated by a semicolon.
Email addresses for completed report notification	Email addresses for completed report notification recipients. Each address must be separated by a semicolon.

## Pop-up alerts

Mark the **Enable pop-up alerts** check box to have alerts delivered via pop-up messages on the **Main > Status > Alerts** page for specific computers. Then, enter the IP address or machine name for the desired computers, each entry separated by a semicolon.

## **SNMP** alerts

Mark the **Enable SNMP alerts** check box to deliver alert messages through an SNMP Trap system installed in your network. Provide the following information about your SNMP Trap system:

Field	Description
Community name	Name of the trap community on your SNMP Trap server
Server IP or name	IP address or name of the SNMP Trap server
Port	Port number SNMP messages use

Click **Check Status** to send a test message to your SNMP server and verify that the specified SNMP port is open.

## **Alert events**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

To ensure that administrators are notified of system events, like a database download failure or a subscription that is about to expire, you can configure system alerts to be distributed by email, pop-up message, or through your SNMP Trap system.

Use the **Settings > Alerts > Enable Alerts** page to select the method used to send these alerts to Websense administrators. See *Enabling system alerts*, page 42, for information

Use the **Settings > Alerts > Alert Events** page to select categories of alerts to be delivered. Indicate how you want the alerts delivered (email, pop-up, or SNMP).

Alerts in the following event categories can be sent:

- Subscription expiration
- Email system events
- ◆ Log Server and Log Database events
- Mail queue events
- Email analysis events
- Encryption and decryption events
- Appliance cluster configuration events
- User directory server events
- Email hybrid service operation events
- Signature update events
- SIEM server events
- Personal Email Manager server events

For each event type in the Alerts list, mark the check boxes for the desired delivery methods. Marking the check box in the column heading for each alert delivery method selects all the event types in that column. You must have enabled a delivery method in the Enable Alerts page in order to select that method for an event type.

In some cases, you can configure threshold values to trigger the delivery of an alert. The following alert events allow you to set such values:

- Inbound undelivered email event notifications
- Work queue growth rate notifications
- Exception queue event notifications

Alerts are sent at 30-minute intervals when the configured threshold is exceeded.

### Inbound undelivered email event notifications

You can set a frequency threshold for the inbound undelivered email events alert type. This setting triggers an alert notification after a specified number of inbound connection errors occurs on the mail server. Outbound traffic is not monitored for this alert

Use the following steps to set thresholds for sending inbound undelivered email alerts:

- 1. Click the **Configure alert thresholds** link to open a configuration dialog box.
- 2. Enter the number of connection errors you want to trigger an alert notification (default is 1). The notification is sent at 30-minute intervals after the connections threshold is exceeded.
- 3. Click the Configure backup destination address to send alerts when the mail server is down check box.

- 4. Enter up to 3 email addresses different from your mail server address as backup alert email destinations.
- 5. Click OK.

### Work queue growth rate notifications

The work queue includes the following message types:

- Incoming messages waiting for analysis
- Messages waiting for delivery
- Deferred messages waiting for subsequent delivery attempts

Use the following steps to set thresholds for sending alerts when the work queue growth rate threatens to exceed the queue size limit in a specified period of time:

- 1. Click the **Configure alert thresholds** link to open a configuration dialog box.
- 2. Select the alert sensitivity level, based on how much warning you want regarding the queue growth rate and the probability of reaching the work queue size limit:
  - **High**. Work queue capacity reached in less than 4 days (default)
  - **Medium**. Work queue capacity reached in less than 2 days
  - Low. Work queue capacity reached in less than 1 day
- 3. Click OK.

### **Exception queue event notifications**

The exception queue includes any message that currently cannot be delivered because it encountered an exception during message analysis. Use the following steps to set thresholds for sending alerts when exception queue capacity reaches a specified percentage:

- 1. Click the **Configure alert thresholds** link to open a configuration dialog box.
- 2. Select the percentage of queue capacity at which you want to be warned about exception queue size (50% to 90%; default is 90%).
- 3. Click OK.

When you are finished enabling all alert types and notifications, click **OK**.

# **URL** analysis with Websense Web protection solutions

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

TRITON AP-EMAIL can use Websense Web protection solution URL analysis for accurate and efficient spam detection. The Web management server maintains an updated URL master database from the Websense download server. The email protection system queries the Websense URL category master database and determines the risk level of a URL found in an email message. Note that the Web module version must be supported by Email module for this function to be available.

Specify the location of the master database in the **Settings > General > URL Analysis** page:

- Use the Local option if the Web and Email modules are installed on the same Websense appliance.
- Use the **Remote** option to use a remote database. Enter the IP address or host name of the remote database.

Activate URL analysis in the Main > Policy Management > Filters > Add URL Analysis Filter page by marking the URL analysis check box in the Filter Properties section and selecting the URL categories to analysis. See *URL Analysis*, page 122, for details.

# Using a proxy server

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

You can configure a proxy server for email filtering database updates or for email traffic between the email hybrid service and the Internet. Note that you can use the same proxy server for both functions.

Mark the **Enable filtering database update proxy server** check box if the proxy is used for database updates. Mark the **Enable email hybrid service proxy server** check box if the proxy is used for email hybrid service communication.



### **Note**

The email software does not support the use of a Secure Sockets Layer (SSL) proxy for filtering database updates. An SSL server may be used as an email hybrid service proxy.

If you have TRITON AP-EMAIL and TRITON AP-WEB running on the same Websense appliance, the Web system can be set as the proxy server.

Use the **Settings > General > Proxy Server** page to enter proxy server information as follows:

- 1. Enter the IP address or hostname of the proxy server in the **Server IP address or hostname** field.
- 2. Enter the port number of the proxy server in the **Port** field.
- 3. Enter the username and password for the proxy server in the **User name** and **Password** fields

# **Using the Common Tasks pane**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The right shortcut Common Tasks pane provides shortcuts to frequently performed administrative tasks like running a report, creating a policy, or searching a log. Click an item in the list to jump to the page where the task is performed.

# 3

# Configuring System Settings

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

### Topics:

- ◆ Managing administrator accounts, page 49
- Setting system preferences, page 53
- Managing appliances, page 54
- Configuring an appliance cluster, page 56
- ◆ Managing user directories, page 58
- ◆ Managing domain and IP address groups, page 63
- Managing user validation/authentication options, page 67
- ◆ Managing Transport Layer Security (TLS) certificates, page 69
- Backing up and restoring manager settings, page 70
- ◆ Importing a trusted CA certificate, page 70

# Managing administrator accounts

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Email module administrator accounts are created in the TRITON Manager. Only a Super Administrator can add, edit, or delete an administrator account in the TRITON Settings page. Click **TRITON Settings** in the module tray to access the **TRITON Settings** > **Administrators** page.

A Super Administrator can create 2 types of accounts: local and network. A local account is stored in the local TRITON Manager database and contains a single user. A network account can contain a single user or a group of users and is stored on a network server. Details about managing TRITON console administrators on this page can be found in *TRITON Manager Help*.

Administrator account settings and role assignments that are configured on 1 appliance are applied to all the appliances in your network.

## **Administrator accounts**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The **Settings > Administrators > Delegated Administrators** page lists all defined Email module administrators, their email address, account type, roles, and the administrator's current status (online or offline).

A new administrator is created with the role of Auditor. An Email module Super Administrator can assign a default role to a new administrator account or create a new role for that administrator. Click the administrator name to open the Edit Administrator page.

Assign this administrator to a default role by selecting it in the **Role** drop-down list. You can also click **New Role** if you want to create a new role with different permissions for this administrator. See *Administrator roles*, page 50, for information about adding a new role and defining permissions.

The following default roles are available for selection:

Default Role	Description
Super Administrator	Administrators with this role have full access; they can add and remove administrators and edit the profiles and permissions of all other administrators.
Auditor	Administrators with this role can view all configuration settings but not change them.
Reporting Administrator	Administrators with this role can edit, run, and schedule reports only.
Security Administrator	Administrators with this role have access to all general settings and can add domains and set up routes and preferences. Permissions are identical to a Super Administrator, except they cannot manage other administrators.
Policy Administrator	Administrators with this role can create and manage policies only for the specific users or groups managed by this role. Permissions include reporting and quarantine management for these users and groups.
Quarantine Administrator	Administrators with this role can manage specific queues, troubleshoot from logs, and release messages to users from assigned queues.
Group Reporting Administrator	Administrators with this role can edit, run, and schedule reports only for users in specified groups.

Click **View Permission** on the Edit Administrator page to see a read-only screen showing that administrator's current role and permissions.

## **Administrator roles**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

A Super Administrator can create several delegated administrators with a variety of roles and permissions. When you create roles for delegated administrators, you specify the users or groups managed by the role along with the permissions associated with the role. Then assign an administrator to that role. An administrator may be assigned to only 1 role at a time.



### Note

Managed users and user groups settings are used only for the following permissions:

- Policies
- Reports
- Queues and quarantined messages

A user's view of the Email module interface is different, depending on that user's specific administrator role. For example, a user with an Auditor role can view the entire Email module interface, but that user cannot modify any settings.

By default, a new Email module-specific administrator account is an Auditor account. A Super Administrator can use the following steps to change an administrator's role:



### Note

Only 1 Super Administrator may access an email appliance at a time. Subsequent Super Administrators are assigned an Auditor (or read-only) role when they access the appliance.

### Add role

Click **Add** and use the following steps to create a new administrator role:

- 1. Enter a name for the new role, along with a brief, clear description of the role.
- 2. Define the users or user groups to be managed by this role:
  - a. Click **Add** under the Managed Users and Groups table to open the Add Managed Users and Groups dialog box.
  - b. Enter the email addresses of managed users or groups in 1 of the following ways:
    - Browse to an email address file, a text file that contains 1 email address per line and is no larger than 10 MB.
    - Enter the desired email addresses in the User email address box, separating addresses by a semicolon.

3. Define the permissions you want for this role in the Permissions table. The following options are available:

Module	Permission Options
Policy	Read-only access to all policies Management Policies for users managed by this role All policies
System Settings and Status (includes access to the System Log, the Alerts page, the Message Queues page, and all Settings tab menu items except Administrators)	None Read-only access Management
Real-Time Monitor	None Read-only access
Message Logs (includes access to the Message, Connection, and Email Hybrid Service logs)	None Read-only access to all message logs Manage message logs for users managed by this role Manage all message logs
Audit and Console Logs (includes access to the Audit, Console, and Personal Email Manager logs)	None Access to logs
Administrators	None Read-only access Management
Reports	None Reports for users managed by this role Access to all reports
Queues and quarantined messages	Queue access (None, Access to all queues, Access to selected queues)  Manage all quarantined messages  Manage messages for users managed by this role  Read-only access to all quarantined messages

- 4. Click **Assign Role** to open the Assign Role dialog box.
- 5. Select the administrator to which you want to assign this role. This role replaces the administrator's current role.
- 6. Click **OK**.

# Setting system preferences

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

You can accomplish the following email system preferences on the **Settings** > **General > System Settings** page:

- Entering the fully qualified domain name
- Setting the SMTP greeting message
- Setting system notification email addresses
- Configuring administrator console preferences

## Entering the fully qualified domain name

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The SMTP protocol requires the use of fully qualified domain names (FQDN) for message transfer. If you completed the First-Time Configuration Wizard, the FQDN you entered there appears on this page as the default entry.

If you did not complete the wizard, enter the appliance fully qualified domain name in the Fully Qualified Domain Name field (format is appliancehostname.parentdomain.com).



### **Important**

This setting is important for proper email security system operation. You must replace the default fully qualified domain name entry with the correct appliance name.

An incorrect fully qualified domain name may cause disruptions in email traffic flow.

## Setting the SMTP greeting message

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The SMTP greeting message is the response to a connection attempt by a remote server. It can also be used to indicate that the system is working properly. For example, the default SMTP greeting is

Websense email security service is ready.

Change the default message by entering text in the **SMTP greeting** field.

## Setting system notification email addresses

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The email system can automatically send notifications of system events like a stopped service to a predefined address, often an administrator address. Enter the desired recipient address in the **Administrator email address** field.

If you want notification messages sent to or from an administrator email address for other than system events, you must enter an address in this field as well. For example, configuring a notification to be sent to or from an administrator address when a message triggers a filter (in **Main > Policy Management > Actions**) requires that this field on the System Settings page contain an administrator address.

User notification messages may be sent from a predefined address. Enter the desired sender address in the **Default sender email address** field.

## Configuring administrator console preferences

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The Administrator Console Preferences section lets you configure your desired character set encoding and console language.

Select a character set for encoding messages from the **Preferred character encoding** drop-down list. The preferred character encoding setting is used to decode email attachments, including those for which no character encoding information is available.

Set the language you want the appliance to use in the **Administrator console language** drop-down list.

# Managing appliances

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Before you add an appliance to the Email module, you should have already executed the Websense® appliance firstboot script to activate email security functions on the appliance and configured network interfaces in the V-Series Appliance manager or X-Series command-line interface (CLI). Interface information includes IP address, subnet mask, default gateway, and up to 3 DNS server IP addresses. See Websense V-Series Appliance *Getting Started* or the X-Series Appliance *Getting Started* for more details about setting up and configuring an appliance.

TRITON AP-EMAIL may also be deployed as a virtual appliance using a VMware platform (ESXi v4.0 or later). See the virtual appliance <u>Quick Start Guide</u> for complete information about deploying and configuring a virtual appliance.



### **Note**

The Appliance manager allows you to configure a primary, secondary, and tertiary DNS server, with the secondary and tertiary servers being optional entries.

When it starts, the email appliance polls each DNS server to determine which has the lowest latency level. That server is selected as the "primary" server for DNS queries, regardless of its designation in the Appliance Manager. The other servers may be used for subsequent queries based on the network connection status of the primary server.

If you change either the appliance hostname or communication IP address on the appliance, you must make the same change in the Settings > General > Email **Appliances** page. The Email module does not detect this change automatically.

Email traffic is usually routed through dedicated appliance interfaces (E1/E2). However, if you want to route traffic through the C interface (for example, to transfer log data to a SIEM server), you need to define a route on the V-Series Appliance Manager Configuration > Routing page or use the X-Series CLI. You should note that you need to stop and restart email security services on the appliance each time you add or delete a route on the appliance.

## **Appliances overview**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

You can manage multiple email appliances from the Settings > General > Email Appliances page without having to log on to each machine separately. Managed appliances share a single Log Database, from which email log entries, presentation reports, and the dashboard statistics and charts are generated. The Email module and all appliances must share supported versions and subscription key for successful communication among the appliances.

An appliance may operate in standalone mode, which is the default mode when an appliance is added to the Email module. You can also create appliance clusters by designating an appliance as a primary machine or as a secondary machine associated with a primary machine. See *Designating a primary appliance in a cluster*, page 57, for more information about appliance clusters.

The Email Appliances page lists all current system appliances in a table that shows the appliance hostname, platform, system communication IP address, system connection status, and mode. It also contains an Action column, with links that allow you to switch to a different appliance (Launch) that is in standalone mode or remove an unconnected primary appliance from a cluster (Remove). When a primary appliance is removed, all its secondary appliances change to standalone mode. The current appliance and all secondary appliances have an Action entry of N/A.

To add an appliance to the appliances list in the **Settings > General > Email Appliances** page:

- 1. Click Add.
- 2. In the Add Appliance dialog box, enter the IP address used for communication with the Email module in the **System Communication IP Address** field.
- 3. Click **OK**.



### **Important**

Changing the system communication IP address of an appliance terminates the appliance connection with the Email module. In order to re-establish the connection, the IP address must also be changed in the Email module **Settings > General > Email Appliances** page.

You should also change the address for the Personal Email Manager notification message (Settings > Personal Email > Notification Message).

For subscriptions that include the Email Hybrid Module, the email hybrid service must be re-registered after you change the IP address.

When you add an appliance, it is automatically registered with the Data module for data loss prevention (DLP). To complete the registration process and deploy DLP policies, click the Data module on the TRITON console toolbar and then click **Deploy**.

You can remove an appliance from the appliances list by selecting the appliance and clicking **Delete**. Note that you cannot delete an appliance that is being accessed by another user. Once you remove an appliance from the list, you cannot manage it from the Email Appliances page.

# Editing appliance settings from the appliances list

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

You can edit the appliance communication IP address by clicking the appliance name in the appliances list. Note that the system connection status and mode cannot be changed on this page.

# Configuring an appliance cluster

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

An email appliance operates in standalone mode by default, but it can be configured in a cluster of appliances to manage a large volume of email traffic. After you have added an appliance to the appliances list on the Email Appliances page, you can

change its mode from the default standalone to either primary or secondary in the **Settings > General > Cluster Mode** page.

Some platform limitations apply to appliances in a cluster. A V10000 G2 or V10000 G3 appliance cannot be configured in a cluster with a V5000 G2 appliance. However, a V10000 G2 appliance may be deployed in a cluster with a V10000 G3 appliance. A virtual appliance may be clustered with other virtual appliances, but not with a physical appliance. See the <u>Websense Technical Library</u> for more information.

Platform versions must match in a cluster.

Deployed applications on appliances in a cluster must be the same. For example, all appliances in a cluster are email security only appliances, or they all have TRITON AP-WEB in addition to email.



### Note

An appliance running TRITON AP-EMAIL and TRITON AP-WEB cannot be deployed in the same appliance cluster as an appliance running the email security product and Websense Web Filter & Security.

Appliances in a cluster should also have the same message queue configurations. Messages in a secondary appliance queue may be lost if that queue is not configured on the primary machine before the cluster is created.



### **Important**

If you are deploying email protection in an appliance cluster and want to use DLP policies, be sure to register all the primary and secondary cluster machines with the Data module before you deploy DLP policies.

If you deploy DLP policies on the primary appliance while you are registering a secondary machine with the Data module, the registration process for the secondary machine may not complete.

# Designating a primary appliance in a cluster

A primary appliance maintains and displays the configuration settings for all the appliances in its cluster. Use the following steps to specify a primary appliance in a cluster:

1. In the **Settings > General > Cluster Mode** page, select **Cluster (Primary)** as the appliance mode. A Cluster Properties box opens with the primary appliance IP address displayed in the **Cluster communication IP address** field. Secondary appliances use this IP address for cluster communications.



#### Note

Use of the C appliance interface IP address is recommended. If you use this interface, you need to define a route on the V-Series Appliance Manager **Configuration > Routing** page or in the X-Series CLI.

You need to stop and restart email services on the appliance each time you add or delete a route on the appliance.

- 2. Click **Add** to open the **Add Secondary Appliance** page, where you can designate the secondary appliances in this cluster.
- 3. Select the secondary appliances that you want to add to this cluster from the list of standalone appliances on the left (up to 7 appliances).
  - If you want to add a new appliance that is not already on the list, click **Add New Appliance** to open the Add Appliance page.
- 4. Click the arrow button to add the appliances to the Secondary Appliances list.
- 5. Click **OK**. The appliance is added to the Secondary Appliances list along with its status.
- 6. Click **OK** in the main Cluster Mode page to complete the addition of the appliance to the cluster.

Click the appliance name in the Secondary Appliances list to open an Appliance Properties message box that contains all the details about the appliance.

You can remove a secondary appliance from a cluster by selecting the appliance in the Secondary Appliances list and clicking **Remove**.

# Managing user directories

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

A user directory is an important component of email traffic analysis, when it is used to set sender/recipient conditions for a policy. It can also provide recipient validation capabilities and be the basis of user logon authentication settings. See *Managing user validation/authentication options*, page 67, for information regarding user authentication settings.

You can add a user directory from the **Settings > Users > User Directories** page.

Perform a keyword search of a user directory by clicking the **View** link in the Cache Size column on the **Settings > Users > User Directories** page for the appropriate directory. Enter a keyword in the search field (up to 100 characters) and click **Submit** 

**Query** to complete the search. Click **Clear** to empty the search field and display the complete user directory.

You can delete a user directory by selecting it in the user directories list and clicking **Delete**. You may delete a user directory only if that directory is not currently being used by an email function. For example, if the directory is being used as part of a policy or as part of user authentication settings, it cannot be removed.

# Adding and configuring a user directory

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Click **Add** on the **Settings > Users > User Directories** page to open the Add User Directory page. After you name your user directory, select a user directory type from the drop-down list. Note that a new user directory has a status of **Not referenced**, because it is not yet being used by an email function. User directory creation entries are different depending on the type of user directory you want.

Create a user directory by following the steps for the desired directory type:

- ◆ *Microsoft Active Directory*
- ◆ *IBM LDAP Server Directory*
- ◆ Generic LDAP Server Directory
- ♦ Recipient List
- ◆ ESMTP Server Directory

## **Microsoft Active Directory**

Microsoft Active Directory provides user information management in a Windows environment. Use the following procedures to configure a Microsoft Active Directory in the User Directory Properties section:

- 1. Enter the IP address or hostname of your LDAP server in the **Server IP address** or hostname field.
- 2. Enter the port number in the **Port** field (default is 389).
- 3. Select the **Enable secure LDAP** check box if you want to enable secure LDAP, a nonstandard protocol also known as LDAP over SSL.
  - Note that marking this check box changes the default port number to 636.
- 4. Enter the username and password for this appliance in the **Username** and **Password** fields. The Username field can contain the user's username, email address, or distinguished name.
- 5. Enter the LDAP server's search domain name in the **Search domain** field. This value is used when the search filter is applied.
- 6. The **Search filter** field should contain a standard LDAP query that can use validation variables, for example:

```
(|(mail=%email%) (userPrincipalName=%email%)
(proxyAddresses=smtp:%email%))
```

- 7. Select either Mirror or Cache address as your cache setting.
  - The Mirror setting means that valid addresses are cached all at once by synchronizing the cache with all the addresses stored on the LDAP server. You can manually synchronize the cache with the LDAP server any time after that by clicking the Synchronize action for this directory on the User Directories page.
  - The Cache address setting means the cache is updated dynamically. A new, valid address is cached after it is verified with the LDAP server. Remove all addresses from the cache by clicking Clear cache.
- 8. Enter a value in the cache timeout field. The timeout is the amount of time that a valid address remains in the memory cache. If an email message is sent from a previously validated address during this timeout period, the email is delivered without contacting the validation server. However, if another message is sent from this address after the timeout has expired, the server will be contacted to validate the address. Default value is 60 minutes.

## **IBM LDAP Server Directory**

An IBM LDAP Server Directory provides user information management on an IBM server. Use the following procedures to configure an IBM LDAP Server Directory in the User Directory Properties section:

- 1. Enter the IP address or hostname of your LDAP server in the **Server IP address** or hostname field.
- 2. Enter the port number in the **Port** field (default is 389).
- 3. Select the **Enable secure LDAP** check box if you want to enable secure LDAP, a nonstandard protocol also known as LDAP over SSL.
  - Note that marking this check box changes the default port number to 636.
- 4. Enter the username and password for this appliance in the **Username** and **Password** fields. The Username field can contain the user's username or distinguished name.
- 5. Select either **Mirror** or **Cache address** as your cache setting.
  - The Mirror setting means that valid addresses are cached all at once by synchronizing the cache with all the addresses stored on the LDAP server. You can manually synchronize the cache with the LDAP server any time after that by clicking the Synchronize action for this directory on the User Directories page.
  - The Cache address setting means the cache is updated dynamically. A new, valid address is cached after it is verified with the LDAP server. Remove all addresses from the cache by clicking Clear cache.
- 6. Enter a value in the cache timeout field. The timeout is the amount of time that a valid address remains in the memory cache. If an email message is sent from a previously validated address during this timeout period, the email is delivered without contacting the validation server. However, if another message is sent from this address after the timeout has expired, the server will be contacted to validate the address. Default value is 60 minutes.

## **Generic LDAP Server Directory**

A generic LDAP directory provides user information management that is supported on any LDAP server. Use the following procedures to configure a generic LDAP Server Directory in the User Directory Properties section:

- 1. Enter the IP address or hostname of your LDAP server in the **Server IP address** or hostname field.
- 2. Enter the port number in the **Port** field (default is 389).
- 3. Select the **Enable secure LDAP** check box if you want to enable secure LDAP, a nonstandard protocol also known as LDAP over SSL.
  - Note that marking this check box changes the default port number to 636.
- 4. Enter the username and password for this appliance in the **Username** and **Password** fields. The Username field can contain the user's username or distinguished name.
- 5. Enter the LDAP server's search domain name in the **Search domain** field. This value is used when the search filter is applied.
- 6. The **Search filter** field should contain a standard LDAP query that can use validation variables, for example:

```
(mail=%email%)
(| (mail=%email%) (uid=%email%))
```

- 7. Enter any optional email addresses to import in the **Mail field** text box.
- 8. Select either **Mirror** or **Cache address** as your cache setting.
  - The **Mirror** setting means that valid addresses are cached all at once by synchronizing the cache with all the addresses stored on the LDAP server. You can manually synchronize the cache with the LDAP server any time after that by clicking the **Synchronize** action for this directory on the User Directories page.
  - The **Cache address** setting means the cache is updated dynamically. A new, valid address is cached after it is verified with the LDAP server. Remove all addresses from the cache by clicking Clear cache.
- 9. Enter a value in the cache timeout field. The timeout is the amount of time that a valid address remains in the memory cache. If an email message is sent from a previously validated address during this timeout period, the email is delivered without contacting the validation server. However, if another message is sent from this address after the timeout has expired, the server will be contacted to validate the address. Default value is 60 minutes.

## **Recipient List**

A recipient list is a text file that contains a list of email addresses and their associated passwords, 1 set per line. This file can be used for user recipient validation.

You can perform a keyword search on a recipient list by using the keyword entry field and Search button at the top of the Recipient List table. When your search results appear, a View All option allows you to view the entire recipient list.

If you have an existing recipient list and you choose to enable the strong password policy, the email protection system evaluates current passwords in the list against the policy. When this evaluation is complete, a **Strength** column appears in the Recipient List box indicating any weak passwords that should be changed. You cannot save a recipient list that contains weak passwords if you have chosen to use the strong password policy.

Use the following procedures to configure a recipient list in the User Directory Properties section:

- 1. Enable a strong password policy by marking the Enforce strong password policy check box. With this policy in force, a password must meet the following requirements:
  - Between 8 and 15 characters
  - At least 1 uppercase letter
  - At least 1 lowercase letter
  - At least 1 number
  - At least 1 special character (supported characters include:

2. Add a predefined recipient list file by clicking **Browse** next to the **Recipient** information file entry field and navigating to the desired text file. The file format should be 1 email address and password per line, up to a maximum of 1000 entries.



### **Note**

If you add a new recipient list file when you already have an active recipient list, the new file will overwrite the current file.

- 3. You can also create a recipient list by entering an individual email address and associated password in the **Enter Recipient Information** box and clicking the arrow button to add the information to the **Recipient List** box on the right.
- 4. Click **Search** if you want to perform a keyword search on your recipient list.
- 5. Click OK.

You cannot save a recipient list that contains weak passwords if you have chosen to use the strong password policy.

After you finish your recipient list entries, you can export the list to your local drive as a text file by clicking **Export**.

Remove an individual entry by selecting it in the **Recipient List** box and clicking **Delete**.

## **ESMTP Server Directory**

An ESMTP Server Directory provides user authentication and recipient validation using the features in extended SMTP. Use the following procedures to configure an ESMTP Server Directory in the User Directory Properties section:

- Determine your desired email verification method. Select Use the return status
  of the VRFY command to verify the email user name. Select Use the return
  status of the RCPT command to verify the email recipient.
- 2. Enter an email address for the user directory in the **Sender email address** field.
- 3. Enter a value in the cache timeout field. The cache timeout is the amount of time that a valid address remains in the memory cache. If an email message is sent from a previously validated address during this timeout period, the email is delivered without contacting the validation server. However, if another message is sent from this address after the timeout has expired, the server will be contacted to validate the address. Default value is 60 minutes.

Remove all addresses from the cache by clicking **Clear cache**.

# Managing domain and IP address groups

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

A collection of domain names or IP addresses can be defined in a single group for use in email functions. For example, you can define a domain name group to establish domain-based delivery options, or you can define an IP address group for which Reputation Service, Real-time Blacklist (RBL), or directory attack prevention analysis is not performed. IP address groups can also be used for the email encryption functions.

You can perform the following operations on domain or IP address groups:

- ♦ Adding a domain group
- ◆ Editing a domain group
- ◆ Adding an IP address group
- ◆ Editing an IP address group

You may delete a domain or IP address group from its respective list by selecting the check box to the right of the name and clicking **Delete**.

You should note the following two special default groups of domain or IP addresses:

- Protected Domain group
- ◆ Trusted IP Address group

See *Advanced email encryption*, page 115, for information about using the Encryption Gateway default IP address group. Default groups cannot be deleted.

# **Protected Domain group**

The Protected Domain group should contain all the domains that an organization owns and needs the email system to protect. Message direction in the system is determined on the basis of an organization's protected domains:

- ◆ Inbound The sender address is not from a protected domain, and the recipient address is in a protected domain
- Outbound The sender address is from a protected domain, and the recipient address is not in a protected domain
- Internal Both the sender and recipient addresses are in a protected domain.

An open relay results when both the sender and recipient addresses are not in a protected domain.

Unless you entered a protected domain name in the Domain-based Route page of the First-time Configuration Wizard, the default Protected Domain group is empty after product installation. Domains may be added to or deleted from the Protected Domain group, but you cannot delete the Protected Domain group itself.



### **Important**

Ensure that the Protected Domain group contains all the domains you want your email system to protect.

An open relay is created when mail from an unprotected domain is sent to an unprotected domain within your organization. As a result, all mail from any domain that is not protected may be rejected. Mail from an external trusted IP address to an unprotected domain within your organization bypasses analysis and is delivered.

The email hybrid service uses the Protected Domain group during Email Hybrid Module registration to verify that the domains specified in its delivery routes are all from this group. The Protected Domain group should not be used to configure email delivery routes (in the **Settings > Inbound/Outbound > Mail Routing** page) if you need to define domain-based delivery routes via multiple SMTP servers. See *User directory-based routes*, page 91, for information.

## **Trusted IP Address group**

Like the Protected Domain group, the Trusted IP Addresses default group is empty after product installation. IP addresses may be added to or deleted from the Trusted IP Addresses group, but you cannot delete the Trusted IP Addresses group itself. The Trusted IP Addresses group may include up to 1024 addresses.

Trusted IP addresses may include your internal mail servers or a trusted partner mail server.

Mail from an address in the Trusted IP Addresses group can bypass some inbound email analysis. Use of the Trusted IP Addresses group can result in improved email processing time.

Specifically, mail from trusted IP addresses bypasses the following email analysis:

 Global Always Block List (Main > Policy Management > Always Block/Permit)

- ◆ All message controls except message size, invalid recipient, and internal sender verification settings (Settings > Inbound/Outbound > Message Control)
- ◆ Recipient validation (Settings > Users > User Authentication)
- All connection controls except the connection control timeout (Settings > Inbound/Outbound > Connection Control)
- ◆ Directory harvest attack (Settings > Inbound/Outbound > Directory Attacks)
- ♦ Relay controls (Settings > Inbound/Outbound > Relay Control)
- Personal Email Manager Always Block List



#### **Note**

Mail from trusted IP addresses does not bypass policy and rule application, and it is always subject to antispam and antivirus analysis.

## Adding a domain group

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Click **Add** on the **Settings > Users > Domain Groups** page to open the Add Domain Group page. Use the following procedures to add a domain group:

- 1. Enter a name for the new domain group in the **Domain Group Name** field.
- 2. Enter a brief description of your domain group.

In the Domain Group Details section, add a predefined domain group by clicking **Browse** next to the **Domain address file** field and navigating to the desired text file. The file format should be 1 domain address per line, and its maximum size is 10 MB. If a file contains any invalid entries, only valid entries are accepted. Invalid entries are rejected.

- 1. You can also create a domain group by entering an individual domain address in the **Domain Address** field and clicking the arrow button to add the information to the **Added Domains** box on the right. Use wildcards to include subdomain entries (e.g., \*.domain.com).
- 2. Click OK.

After you finish adding your domain address entries, you can export the list to your local drive as a text file by clicking the Added Domains **Export** button.

Remove an individual entry by selecting it in the **Added Domains** box and clicking **Delete**.

## Editing a domain group

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

You can edit a domain group by clicking the domain group name in the **Settings** > **Users** > **Domain Groups** page Domain Groups List to open the Edit Domain Group page. Add or remove individual domains on this page. You can also edit the domain group description.

Note that if a domain is in use, you will be asked to confirm any changes that involve that domain

## Adding an IP address group

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Click **Add** on the **Settings > Inbound/Outbound > IP Groups** page to open the Add IP Address Group page. Use the following procedures to add an IP address group:

- 1. Enter a name for the new IP address group in the **IP Address Group Name** field.
- 2. Enter a brief description of your IP address group.
- 3. Add a predefined IP address group by clicking **Browse** next to the **IP address file** field and navigating to the desired text file. The file format should be 1 IP address per line, and its maximum size is 10 MB.



#### Note

The default Encryption Gateway IP address group supports only the entry of individual IP addresses. Subnet address entries are considered invalid and are not accepted for this IP address group.

Subnet addresses may be entered for other default and custom IP address groups.

- 4. You can also create an IP address group by entering an individual IP address in the IP Address box and clicking the arrow button to add the information to the Added IP Addresses box on the right.
- 5. Click OK.

After you finish adding your IP address entries, you can export the list to your local drive as a text file by clicking the Added IP Addresses **Export** button.

Remove an individual entry by selecting it in the **Added IP Addresses** box and clicking **Remove**.

# Editing an IP address group

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

You can edit an IP address group by clicking the IP address group name in the IP Address Groups List to open the Edit IP Address Group page. Add or remove individual IP addresses on this page. You can also edit the IP address group description.

Note that if an IP address is in use, you will be asked to confirm any changes that involve that address.

# Managing user validation/authentication options

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

After you define your domain groups, you can determine recipient validation and user authentication settings for users in the user directories you create. See *Managing domain and IP address groups*, page 63, for information about creating domain groups.

The following types of user validation/authentication are available:

- ◆ Recipient validation, in which a message recipient is validated before a message is received
- ◆ **SMTP authentication**, in which a message sender is authenticated before a message is received
- Personal Email authentication, in which a user is authenticated before accessing
  the Personal Email Manager facility for managing blocked email. See
   Configuring Personal Email Manager End User Options, page 165, for details
  about the Personal Email Manager end-user tool.
- ◆ **Distribution list validation**, in which individual members of an email distribution list are validated

Users in a domain group are verified against the corresponding user directory, and specified authentication settings are applied. Ensure you include group email addresses in your user directories if you want to use the distribution list validation option.



#### **Important**

You may create multiple Personal Email Manager user authentication groups. However, any protected domain group (as defined in **Settings > Users > Domain Groups**) may be included in only 1 Personal Email Manager user authentication group.

Including a protected domain group in more than 1 Personal Email Manager user authentication group may result in that domain group's users being denied access to the Personal Email Manager facility.

Be sure that you add all the user directories that contain the users in this protected domain group to the associated Personal Email Manager authentication group.

Click **Add** to create new recipient validation/authentication settings.

Click the name of existing authentication settings to modify the settings.

Remove a set of authentication settings by selecting it on the User Authentication page. Mark the check box next to the name of the settings. Click **Delete**.

## Adding user authentication settings

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Use the **Settings > Users > User Authentication** page to add new user validation/authentication settings for domain/user directory groups.

- 1. Click **Add** to open the Add User Authentication page.
- 2. Give this set of authentication settings a name.
- 3. Select the types of user validation/authentication settings that you want to apply: recipient validation, SMTP authentication, Personal Email authentication, or distribution list validation
  - If you specify recipient validation, you can mark the associated check box to allow the system to continue a recipient search in the next user directory listed in the User Directories section Recipients box if the current user directory cannot be accessed (e.g., server is down or not connected).
  - If you specify SMTP authentication, you must ensure that the Allow relays only for senders from trusted IP addresses option is selected for both outbound and internal relays (Settings > Inbound/Outbound > Relay Control).
- 4. Select the domain group you want to target with your authentication settings. You can add or remove domain names from your domain group by clicking **Edit** in the Domains area of the User Authentication page to open the Edit Domain Group page. Changes you make here are also reflected in the **Settings > Users > Domain Groups** page.
- 5. Select the corresponding user directories to which you want these authentication settings to apply by marking the check box next to the directory name and clicking the arrow button to add it to the Recipients box.
  - Click **Add user directory** if you want to create a new user directory for these authentication settings. The Add User Directory page opens for you to create a new directory. See *Adding and configuring a user directory*, page 59, for user directory creation instructions.

You can move selected user directories up or down in the Recipients box via the **Move up** and **Move down** buttons.

You can delete a user directory reference from the Recipients box by selecting it and clicking **Delete**. This action removes the user directory from the Recipients list, but does not delete it from the **Settings > Users > User Directories** page.

# **Editing user authentication settings**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Edit existing authentication settings by clicking the name of the settings in the User Authentication page. Change any settings on the Edit User Authentication page. See

Adding user authentication settings, page 68, for information about authentication settings.

Note that a user directory may be added or deleted from user validation/authentication settings. User directory entries are modified in the **Settings > Users > User** Directories page.

# Managing Transport Layer Security (TLS) certificates

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Transport Layer Security (TLS) is a protocol that provides an extra layer of security for email communications. Use of this protocol helps prevent devices such as non-trusted routers from allowing a third party to monitor or alter the communications between a server and client. The email security system can receive messages transferred over TLS and can also send messages via this protocol to particular domains

A default TLS certificate is supplied with TRITON AP-EMAIL for incoming connections. The email system presents this certificate during TLS communications.

After email product installation, default TLS certificate information appears in the **Settings > Inbound/Outbound > TLS Certificate** page, in the TLS Certificate for Incoming Connection section. Details include the certificate version, serial number, issuer, and expiration date.

You can generate a new certificate when that default one expires. On the **Settings** > **Inbound/Outbound > TLS Certificate** page, click **Generate** to create the new certificate. You should note that generating a new certificate overwrites any certificate that currently exists.

Import and export capabilities for TLS certificates are available.

You can also manage trusted Certificate Authority (CA) certificates for outgoing connections. TRITON AP-EMAIL uses CA-issued root and intermediate certificates (along with the default CA certificate bundle) to verify a server certificate presented by a third-party mail server during TLS communications.

A table on the TLS Certificate page displays information about the certificate, including common name, issuer, and expiration date. An import function lets you browse to the location of a trusted certificate and add it to the Trusted CA Certificate for Outgoing Connection table. A search function allows you to perform a keyword search of all your trusted CA certificates.

See the following sections for details on importing and exporting TLS and CA certificates:

- *Importing a TLS certificate*, page 70
- Exporting a TLS certificate, page 70
- Importing a trusted CA certificate, page 70

## Importing a TLS certificate

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

You may want to import a certificate rather than generate a new one. You should note that importing a certificate overwrites any certificate that currently exists.

Import a certificate that is already located on your network as follows:

- 1. On the **Settings > Inbound/Outbound > TLS Certificate** page, click **Import**.
- 2. Click **Yes** in the confirmation dialog box. An Import Certificate area appears below the Import button.
- 3. Use **Browse** to navigate to the certificate file. When you select a file, its filename appears in the **Certificate file** field. File format must be .p12 or .pfx.
- 4. Enter a password in the **Password** field (maximum length is 100 characters).
- 5. Click **OK**.

## **Exporting a TLS certificate**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

If you want to export a TLS certificate and password to a location on your network, click **Export**. In the Save box, browse to the location where you want the certificate and password to be stored.

## Importing a trusted CA certificate

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Import a trusted CA certificate as follows:

- 1. In the Trusted CA Certificate for Outgoing Connection section, click **Import**.
- 2. In the Import Trusted CA Certificate dialog box, enter the desired certificate file name or browse to its location in your network.
- 3. Click **OK**.

The certificate is added to the trusted CA certificate table. Select a CA certificate and click **Delete** to remove a CA certificate from the table.

# Backing up and restoring manager settings

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The email management server maintains several important configuration setting files, including

- Database configuration
- Appliances list

- Administrator settings
- Presentation report templates and data

You may want to retain a backup copy of these settings to use if a system recovery operation is necessary. A backup and restore utility is included with the Email module.

The Backup/Restore function includes a Backup and Restore Log, which displays time-stamped backup and restore activities for the manager.



#### Note

Because the Backup/Restore utility stops the Email module service, backup and restore activities are recorded only in the Backup and Restore log.

Backup and restore functions for an appliance cluster work properly only when cluster settings have not changed between the backup and restore operations. You may have unexpected results if any of the following settings have been changed between the backup and restore.

- Appliance mode (cluster or standalone)
- IP address or hostname

You may need to rebuild a cluster if a restore operation encounters problems.



#### Note

If you specify your backup file location for a remote server, ensure that your restore operation is configured to restore configuration files from that remote server location.

## Backing up settings

Backup and restore functions are available on the **Settings > General > Backup/Restore** page. Backup and restore settings made on 1 appliance are applied to all the appliances in your network.

To back up your Email module configuration settings, click **Backup** to activate the utility and specify a local folder for the backup file. That folder location appears in the File Location field in the Restore Settings section of the page.

If you want to save your backup settings on the Log Database server, mark the check box next to that option in the Backup Settings section. When you make this selection, the Remote Log Database Server Access box is enabled for you to enter the following server information:

- ◆ **Domain/Hostname.** Enter the domain if a domain account is used; otherwise, enter the hostname of the SQL Server machine.
- User name. Enter a user with SQL Server log-in permission.
- **Password.** The password may not contain more than 1 double quotation mark.

◆ **Backup/Restore file path.** Enter the shared folder path on the remote SQL Server machine (for example, \\10.1.1.2\shared\).



#### Note

The version of the backed up settings must match the version of the currently installed product.

The backup settings file size may not exceed 10 MB.

Click Check Status to ensure that the remote log database server is accessible.

## Restoring the settings

Click **Restore** to use the backup/restore utility to return your settings to their original, backed up state on the Log Database server. The restore function retrieves the location of the backed up settings and applies them to the Email module configuration files. The Email module service restarts automatically after configuration settings are restored.

# Managing Messages

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

#### **Topics**

- Configuring message properties, page 73
- Managing connection options, page 76
- DomainKeys Identified Mail (DKIM) integration, page 80
- Domain-based Message Authentication, Reporting and Conformance (DMARC) validation integration, page 85
- True source IP detection, page 86
- Enforced TLS connections, page 87
- Controlling directory harvest attacks, page 89
- Configuring relay control options, page 89
- Configuring delivery routes, page 90
- Rewriting email and domain addresses, page 94
- ◆ *URL Sandbox*, page 96
- Phishing detection and education, page 97,
- ♦ *Managing message queues*, page 99
- Managing the blocked message queue, page 103
- Managing the delayed message queue, page 106
- Configuring message exception settings, page 108
- Traffic shaping options, page 110
- Handling encrypted messages, page 111

# **Configuring message properties**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Email message control properties allow you to set message size and volume limits, and determine how invalid recipients are handled. Select **Settings** > **Inbound/Outbound** > **Message Control** to configure the following settings:

- Setting size properties, page 74
- ◆ Setting volume properties, page 74
- Configuring invalid recipient settings, page 74
- Enabling archive message options, page 75
- ◆ Enabling message sender verification, page 75
- ◆ Enabling bounce address tag validation (BATV), page 75

Click **OK** when you finish setting message properties.

## **Setting size properties**

Use the Message Size Options to configure message size properties:

- 1. Select **Limit message size** (default setting) if you want to set a maximum message size.
- 2. Enter a maximum message size in the corresponding **Maximum message size** (**KB**) field, from 1 102400 (default is 10240). This setting can prevent very large messages from using valuable bandwidth.
- 3. Select **Limit data size per connection** if you want to set a maximum message size per connection.
- 4. Enter a maximum data size in the corresponding **Maximum data size (KB)** field, from 1 204800 (default is 20480). This setting can help limit the receipt of messages with very large attachments, which can take up valuable bandwidth.

## **Setting volume properties**

Use the Message Volume Options to configure message volume properties:

- 1. Select **Limit number of messages per connection** to enable that option.
- 2. Enter a maximum number of messages per connection in the associated **Maximum number of messages** field, from 1 65535 (default is 30).
- 3. Select **Limit number of recipients per message** to enable that option.
- 4. Enter a maximum number of recipients in the corresponding **Maximum number** of recipients field, from 1 4096 (default is 20). This can save bandwidth by preventing one message from being sent to hundreds of users.

## Configuring invalid recipient settings

Use the Invalid Recipient Options to configure invalid recipient settings:

- 1. Mark the **Allow invalid recipients** check box if you want to permit mail containing invalid recipients into your system. This option is available only when the recipient validation is used (see Settings > Users > User Authentication).
- 2. Enter a value for the percentage of invalid recipients that determines if a message is blocked (default is 100).
- 3. Mark the appropriate check box to enable the system to send a non-delivery report (NDR) notification only if a message is not blocked.

## **Enabling archive message options**

Mark the **Enable archive queue storage** check box if you want all incoming messages saved to an archive message queue before they are scanned. You should note that enabling this feature can impact storage capacity and system performance. This option is disabled by default.

View the archive queue by clicking **archive** in the queue list on the **Main > Message** Management > Message Queues page.

## **Enabling message sender verification**

Ensure that an internal email sender is an authenticated user by enabling the internal sender verification function. This operation performs a check to confirm that an email sender from an internal domain is also an authenticated user. For email to pass this check function, a mail sender's address must match the sender's log in authentication entry.

Mark the **Enable internal sender verification** check box in the Internal Sender Verification section to activate this function. By default, this function is disabled.

## **Enabling bounce address tag validation (BATV)**

Bounce address tag validation (BATV) is a method for determining whether a bounce message to an address in your protected domain is valid. This method helps to prevent backscatter spam, in which a bounce message to your organization contains a forged recipient address.

With BATV enabled, the sender address of outbound email is marked with a unique tag. A bounce message addressed to that sender is examined for the presence of that unique tag. If the tag is detected, the bounce message is cleared for delivery. A bounce message without the tag is blocked.

Enable BATV in the **Settings > Inbound/Outbound > Message Control** page. Mark the Enable Bounce Address Tag Validation check box in the Bounce Address Tag Validation section.

You may want mail from some user and IP address groups to bypass the BATV function. These groups can be defined in the Bounce Address Tag Validation section. Select a group from among the following drop-down lists:

Inbound IP address group

- ◆ Inbound domain group
- ♦ Outbound domain group

Note that a domain group selected for outbound bypass must also be selected for inbound bypass.

The default setting for each group is **None**. Only user-defined domain and IP address groups are available in the drop-down lists. See *Managing domain and IP address groups*, page 63, for information about creating domain and IP address groups.

# Managing connection options

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

You can improve system performance by limiting the number of simultaneous connections. In the **Settings > Inbound/Outbound > Connection Control** page, Connection Options section, enter the maximum number of allowed simultaneous connections per IP address, from 1 - 500 (default is 10). Specify the maximum number of seconds of inactivity allowed before a connection is dropped, from 1 - 43200 (default is 300).

You can also configure the following settings in the Connection Control page:

- Using a real-time blacklist (RBL), page 77
- ◆ Using reverse DNS verification, page 77
- Using the reputation service, page 78
- Delaying the SMTP greeting, page 78
- ◆ Enabling the SMTP VRFY command, page 78
- Changing the SMTP port, page 79
- ◆ Using access lists, page 79

If you want to collect and view detailed information about some connections, you can allow connection control functions to save these details in the mail processing log, accessed via a Websense® appliance. When the function is activated, the log collects detailed data regardless of whether the connection control itself is enabled. This function is available for the following connection control options:

- ◆ Real-time blacklist (RBL)
- Reverse DNS lookup
- Reputation service
- SMTP greeting delay

Click **OK** when you finish configuring connection control settings.

#### Using a real-time blacklist (RBL)

A Real-Time Blacklist (RBL) is a third-party published list of IP addresses that are known sources of spam. When RBL checking is enabled, messages from a sender listed on an RBL are prevented from entering your system. The Email module supports the use of the Spamhaus Datafeed server or the entry of up to 3 third-party RBLs for RBL lookups.

In the Real-time Blacklist (RBL) Options section, mark the **Perform RBL check** box to enable RBL checking. Select 1 of the following RBL lookup methods:

- Spamhaus service. Use the Spamhaus server for RBL lookups
- ◆ **Domain address.** Enter up to 3 domain addresses of the RBL services you want to use. Separate multiple addresses with a semicolon (;).

This feature is not enabled by default.

Mark the **Save connection details in the mail processing log** check box to save detailed connection information in the appliance mail processing log. If you enable this option, ensure that at least 1 third-party RBL is entered in the **Domain address** field.

## **Using reverse DNS verification**

Reverse DNS lookup uses a pointer (PTR) record to determine the domain name that is associated with an individual sender IP address. The reverse DNS lookup function can determine whether email sent to your system is from a legitimate domain. Use of this option can enhance the detection of commercial bulk email. See *Commercial Bulk Email*, page 125, for information about this type of email.

Note, however, that if you enable Reverse DNS, server performance may be affected, or legitimate users may be rejected. This function is not enabled by default.

Mark the **Enable reverse DNS lookup** check box in the Reverse DNS Lookup Options section to activate the reverse DNS function. You can then determine the response to a reverse DNS lookup by selecting 1 or more of the following options:

- ♦ Disconnect if the PTR record does not exist.
- Disconnect if the PTR record does not match the A record.
- Disconnect if a soft failure occurs during a reverse DNS lookup.

If you select this option, a connection is terminated when the following events occur:

- Named DNS lookup cache service is down.
- Your DNS server is down.
- A timeout occurs during a DNS lookup.
- **◆** Disconnect if the PTR record does not match the SMTP EHLO/HELO greeting.

Mark the **Save connection details in the mail processing log** check box to save detailed connection information in the appliance mail processing log.

## Using the reputation service

The email protection system can check an email sender's IP address against the reputation service, which classifies email senders based on past behavior. With this function, the email system can block mail from known spam senders.

To use the reputation service, mark the **Enable Reputation Service** check box (the default setting) in the Reputation Service Options section. Then select 1 of the following analysis levels to specify the threshold for blocking mail:

- Conservative, which blocks mail from addresses that send spam 100% of the time
- Medium, which blocks mail from addresses that send spam 99% of the time
- Aggressive, which blocks mail from addresses that send spam 97% of the time
- Custom, which you can use to enter a custom spam percentage. The email system blocks mail from addresses that send spam the specified percentage of time.

Mark the **Save connection details in the mail processing log** check box to save detailed connection information in the appliance mail processing log.

## **Delaying the SMTP greeting**

You can specify that an SMTP greeting message be delayed for a specified time interval, so that a connection from a client will be dropped if the client tries to send data during this time interval. This option can help prevent mail from spam-sending applications that send a high volume of messages very quickly. The connection is dropped as soon as a message is sent to the SMTP server before it is ready.

Enable the SMTP greeting delay by marking the **Enable SMTP greeting delay** check box in the SMTP Greeting Delay Options section. Specify the delay time, in seconds, from 1 - 60 (default is 3).

This feature is not enabled by default.

Mark the **Save connection details in the mail processing log** check box to save detailed connection information in the appliance mail processing log.

## **Enabling the SMTP VRFY command**

The SMTP VRFY command can be used to verify an email username. When asked to validate a username, a receiving mail server responds with the user's login name. Enable this command by marking the **Enable SMTP VRFY command** check box

(the default setting) on the **Settings > Inbound/Outbound > Connection Control** page in the SMTP VRFY Command Option section.



#### **Important**

Use this command with care. Although helpful in validating a user, this command can also create a network security issue if the user information is retrieved by someone with malicious intent.

## Changing the SMTP port

The default SMTP port number is 25. Proper communication with the email hybrid service requires the use of port 25 for SMTP.

However, if you need to customize this port number for any reason, you can change it on the **Settings > Inbound/Outbound > Connection Control** page in the SMTP Port Option section. Valid values are from 25 to 5000.



#### Note

Changing this port setting causes Email module services to restart.

## **Using access lists**

An access list enables you to specify an IP address group for which certain email analysis is not performed. The Allow Access List Options in the Settings > **Inbound/Outbound > Connection Control** page let you identify these IP addresses. Mail from these addresses bypasses the following email analysis:

- Connections per IP address
- RBL checks
- Reverse DNS lookup
- Reputation service
- SMTP greeting delay
- Directory harvest attack prevention
- Inbound relay control
- True Source IP detection

Because mail from the Trusted IP Addresses group bypasses additional email analysis, that group should not be entered in the Allow Access List. See Managing domain and *IP address groups*, page 63, for details.

You define IP address groups in **Settings > Inbound/Outbound > IP Groups**. The groups you have defined on that page appear in the Connection Control Allow Access List Options section, in the **IP group** drop-down list.

To create and modify an access list:

- 1. Select an IP group name in the **IP group** drop-down to display the addresses in the **IP addresses** list and enable the **Edit** button.
- 2. Click **Edit** to modify the access list in the Edit IP Groups page.
- 3. Add a predefined IP address group by clicking **Browse** next to the **IP address file** field and navigating to the desired text file. The file format should be 1 IP address per line.
- 4. You can also enter an individual IP address in the **IP Address** box and click the arrow button to add the information to the **Added IP Addresses** box on the right.



#### Note

Any changes made here to an IP address group are reflected in the **Settings > Inbound/Outbound > IP Groups** page.

#### 5. Click **OK**.

When you have finished your access list, you can export the list to a location in your network. Click **Export** to save the access list file to another location.

You can delete an IP address from the Added IP Addresses list by selecting it and clicking **Remove**.

# DomainKeys Identified Mail (DKIM) integration

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The DomainKeys Identified Mail (DKIM) functionality provides an email authentication method to help ensure that a message is not modified while it is in transit from an organization's protected domains. The implementation depends on a set of keys (private and public), which a recipient domain can use to verify the sender domain.

A DKIM integration has the following components:

- Email signing
- ◆ Email verification

For the signing element, a private key resides in the mail transfer agent, providing a digital signature that is added to the header of each message sent from a protected domain. A public key is generated and published in the DNS as a text record that is used by a recipient mail system in the verification process.

A signing rule associates specified sender domains with a private and public key set.

## Configuring a DKIM signing key

A signing key provides a digital signature for email sent from your protected domains. You may create a signing (private) key, import a key from a local directory, or export a key to a local directory.

You may also delete an existing key, unless it is currently in use by a signing rule. Select the desired key by marking its associated check box and click **Delete**.

The DKIM Signing Keys section contains a table of key information. You can configure the number of signing key entries per page, between 25 and 100, in the **Per page** drop-down list at the top of the table.

You can perform a keyword search by entering a term in the entry field at the top right of the table and clicking **Search**. Click **Show all keys** to clear the Search field and refresh the signing keys list.

The signing keys table includes the following information about each key:

Signing Key Item	Description	
Key Name	Name of the signing key; link that opens the Edit Signing Key page	
Key Size (bits)	Number of bits in the signing key. Currently, the only key size supported is 1024 bits.	
Rule Name	Name of the rule with which the signing key is associated	
Public Key	Link that opens a View Public Key box, which displays the public key text record	

#### Adding a key

Use the following steps to create a DKIM signing key in the **Settings** > **Inbound/Outbound** > **DKIM Settings** page:

- 1. Click **Add** in the DKIM Signing Keys section to open the Add Signing Key page.
- 2. Enter a name for your key in the **Key name** entry field.
- 3. Select one of the following options for creating your key:
  - **Generate key** (default) to create the private key. Only 1024-bit keys are supported.
  - **Private key** to enter a key you have already created. Paste the key in the entry box.
- 4. Click **OK**.

## Importing or exporting a key

To import a DKIM signing key in the **Settings > Inbound/Outbound > DKIM Settings** page, click **Import** to open a browser window. Navigate to the desired key file and click **Open**. You cannot import a duplicate key file.

To export a key, select the desired key in the signing keys table by marking its associated check box and click **Export** to open a browser window. Navigate to the desired directory location and click **Save**.

## Creating a DKIM signing rule

A DKIM signing rule associates a private/public key pair with a set of domains and email addresses. Signing rule options let you determine which message headers to sign, how much of the message body to sign, and whether to attach additional signature tags for such items as signature date/time or expiration time.

You may create a signing rule, import an existing rule from a local directory, or export a rule to a local directory on the **Settings > Inbound/Outbound > DKIM Settings** page.

You may also delete a signing rule. Select the desired rule by marking its associated check box and click **Delete**.

The DKIM Signing Rules section contains a table of rule information. You can configure the number of signing rule entries per page, between 25 and 100, in the **Per page** drop-down list at the top of the table.

You can perform a keyword search by entering a term in the entry field at the top right of the table and clicking **Search**. Click **Show all rules** to clear the Search field and refresh the signing rules list.

The signing rules table includes the following information about each rule:

Signing Rule Item	Description
Rule Name	Name of the signing rule; link that opens the Edit Signing Rule page
Domain	Domain name to which the signing rule applies
Selector	Name component in addition to the domain name used in the DNS query. A given domain may have multiple selectors (e.g., for location or organization division).
Signing Key Name	Name of the signing key associated with this rule
DNS Text Record	Link that opens a Generate DNS Text Record dialog box. See <i>Generating a DNS text record (public key)</i> , page 84, for information about creating a text record.
Test Rule	Link to test whether the signing rule is valid. A successful test must be performed before a rule can be enabled.
Enabled	Indicator of signing rule status (i.e., enabled or disabled). A rule must be enabled in order to take effect.

## Adding a signing rule

Use the following steps to create a DKIM signing rule in the **Settings > Inbound/Outbound > DKIM Settings** page:

- 1. Click **Add** in the DKIM Signing Rules section to open the Add Signing Rule page.
- 2. Enter a name for your rule in the **Rule name** entry field.
- 3. Enter the name of the domain to which this signing rule applies.
- 4. If desired, mark the **Include user identifier** check box to include the identity of the user or agent for whom the message is signed.
- 5. Enter the user identifier in the **User identifier** entry field (optional). This field is not enabled if the **Include user identifier** check box is not marked.
- 6. Enter the domain name selector in the **Selector** entry field. A selector is a name component provided in addition to the domain name used in the DNS public key query. A given domain may have multiple selectors.
- 7. Select the signing key you want to associate with this rule from the **Signing key** drop-down list of existing keys.
- 8. Click **Advanced Options** to open a box with additional optional rule settings:
  - Select an encryption algorithm from the **Algorithm** drop-down list. Options include RSA-SHA-1 (default) or RSA-SHA-256.
  - Specify a canonicalization method for message header and body in the Canonicalization section. The canonicalization process prepares a message header and body before email is signed. Canonicalization is required because email processing may introduce minor changes to a message.

The following header and body changes are made, based on the selection of **Simple** or **Relaxed**:

	Simple (default)	Relaxed
Message Header	No header changes made	<ul> <li>Header names changed to lowercase</li> <li>Header line breaks removed</li> <li>Linear white spaces (including tabs and carriage returns) reduced to a single space</li> <li>Leading and trailing spaces stripped</li> </ul>
Message Body	Empty lines at end of body stripped;	<ul> <li>Empty lines at end of message body stripped</li> <li>Linear white spaces (including tabs and carriage returns) reduced to a single space</li> <li>Trailing spaces stripped</li> </ul>

- Indicate the message headers you want to sign from the list of standard headers. You can include other headers as a comma-separated list in the Additional headers field.
- Specify whether you want the entire message body signed or only a portion of it signed. For the latter selection, enter the maximum number of Kbytes you want signed (default is 1024).
- Select any optional signature tags for the signing rule:

- t lets you add a signature creation timestamp
- x lets you specify a signature expiration time in seconds (default is 3600)
- z adds the list of signed header fields to the signature
- From the Signing rule options drop-down list, select either Sign email messages
  or Do not sign email messages. Then create a list of email addresses to which this
  option applies.

For example, if you select **Sign email messages**, then email from the addresses in the list are signed. Email from other addresses is not signed.

If you select **Do not sign email messages**, then email from the addresses in the list are not signed, and email from all other users is signed.

You may search the email address list by entering a keyword in the search entry field and clicking **Search**.

You may remove an email address from the list by selecting it and clicking **Remove**.

10. Click OK.

#### Importing or exporting a rule

To import a DKIM signing rule in the **Settings > Inbound/Outbound > DKIM Settings** page, click **Import** to open a browser window. Navigate to the desired rule file and click **Open**. You cannot import a duplicate key rule.

To export a rule, select the desired rule in the signing rules table by marking its associated check box and click **Export** to open a browser window. Navigate to the desired directory location and click **Save**.

## Generating a DNS text record (public key)

Generate a public key for a rule from the DKIM Signing Rules table by clicking the link for the desired rule in the DNS Text Record column. A Generate DNS Text Record box that contains the new public key appears.

You can view a public key by clicking **View** for a particular private key in the DKIM Signing Keys table Public Key column.

## Testing a rule

Ensure that you have created a valid rule by clicking the **Test** link in the **Test Rule** column of the DKIM Signing Rules table for the desired signing rule. The test performs a DNS lookup query. You receive confirmation of success or failure when the test is complete.

You must have performed a successful rule test before a rule can be enabled.

# **Enabling DKIM verification**

The DKIM validation method uses the message header digital signature to associate a domain name with the email. The DKIM signature verification function retrieves

signer information, including the public key, from the DNS. This signer information is analyzed and verified to determine message legitimacy.

You can enable DKIM verification in the **Settings > Inbound/Outbound > DKIM Settings** page, in the DomainKeys Identified Mail (DKIM) Verification section. Mark any of the following check boxes to activate DKIM verification:

- Enable DomainKeys Identified Mail (DKIM) verification for inbound messages
- ◆ Enable DomainKeys Identified Mail (DKIM) verification for outbound messages
- **◆** Enable DomainKeys Identified Mail (DKIM) verification for internal messages

By default, these check boxes are not marked.

You can configure a custom content policy filter to scan for a DKIM signature in the message header, along with a filter action to take when a message header triggers the filter. See *Custom Content*, page 120, for information about creating this filter.

# Domain-based Message Authentication, Reporting and Conformance (DMARC) validation integration

Domain-based Message Authentication, Reporting and Conformance (DMARC) uses the results of its Sender Policy Framework (SPF) and DomainKeys Identified Mail (DKIM) validation processes, along with the sender domain's DMARC policy to determine message disposition. Published in the sender's DNS record, a DMARC policy includes the sender's affirmation that its email is protected by SPF and DKIM validation, and provides instructions for handling mail that does not pass either of those checks on the recipient's end. A mechanism for reporting DMARC results is also provided.

SPF and DKIM analyses enabled and configured in the Email module are independent of DMARC verification. SPF checks are configured in **Settings** > **Inbound/Outbound** > **Relay Control**, whereas DKIM validation is configured on the **Settings** > **Inbound/Outbound** > **DKIM Settings** page. If either SPF or DKIM analysis is enabled in the TRITON Manager, DMARC can use the results in its own verification analysis.

Assuming a message is not dropped for failing either the SPF or DKIM check, DMARC validation comprises the following steps:

- 1. Extract the sender domain in the email header "From" field.
- 2. Query the DNS to determine if a DMARC policy exists for this domain.
  - Retrieve the policy if one is found and continue with step 3.
  - End the DMARC process if a policy is not found.
- 3. Perform DKIM validation checks.

- 4. Perform SPF validation checks.
- 5. Perform DMARC identifier checks to determine if the sender information in the message aligns with what the recipient knows about that sender as a result of the SPF and DKIM analyses.
- 6. After completing the DMARC analysis, apply the DMARC policy to the message.

When you enable DMARC validation, a reporting mechanism is also included to provide the sender with information about the number of messages received from that sender domain and the results of the recipient's validation checks. Reports are sent to the email address specified in the sender domain's DNS text record via the RUA (reporting URL of aggregate reports) tag.

If SPF and DKIM are not enabled in the Email module, DMARC performs these checks. In this case, message disposition is determined only by the DMARC policy. A message is not rejected based on the individual SPF or DKIM analysis results.

For optimal protection, both SPF and DKIM validation settings should be configured and enabled on your email protection system, along with DMARC. See *Configuring relay control options*, page 89, and *DomainKeys Identified Mail (DKIM) integration*, page 80, for information about these settings.

Configure DMARC verification on the **Settings > Inbound/Outbound > DMARC Settings** page. Mark the check box for any of the following options:

- **♦** Enable DMARC verification for inbound messages
- Enable DMARC verification for outbound messages
- **♦** Enable DMARC verification for internal messages

#### True source IP detection

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

True Source IP detection uses message header information and the number of network hops to an email appliance to determine the IP address of the first sender outside the network perimeter. This feature allows Connection Control techniques (such as real-time blacklists and reputation checks) to be applied effectively to sender information, even when the appliance is downstream from a firewall or an internal mail relay.

You define direct relays and network edge locations to determine whether True Source IP detection is performed. A direct relay is the network device that connects directly to the email appliance. All mail from a direct relay device is subject to True Source IP Detection. A network edge is the network device that connects directly to the Internet (e.g., a firewall).

If your subscription includes the Email Hybrid Module, you can use True Source IP detection with email hybrid service analysis. An Email Hybrid Service IP Group is created based on information entered during a successful Email Hybrid Module registration. The IP group appears in the direct relay IP address list on the **Settings** >

**Inbound/Outbound > True Source IP** page. Although this IP group cannot be edited directly, its content is modified whenever you change an email hybrid service IP address (**Settings > Hybrid Service > Hybrid Configuration**).



#### Note

If Email Hybrid Module registration is not successful, the Email Hybrid Service IP Group is empty.

Mark the **Use True Source IP Detection with email hybrid service analysis** check box to enable True Source IP detection with hybrid service and display the Email Hybrid Service IP Group in the direct relay IP address list. The Email Hybrid Service IP Group does not appear if the check box is not marked.

Configure your direct relay and all network edge devices in the **Settings > Inbound/Outbound > True Source IP** page as follows:

- 1. Click **Add** to open the Add Direct Relay IP Address/IP Group page.
- 2. Enter the IP address for the direct relay device to the email appliance, or specify the IP group you would like to use for your direct relay.

By default, the direct relay hop number is 1, because it is the closest network device to the email appliance.



#### **Important**

The IP address or group that you enter here must not already be defined in the Trusted IP Addresses group (Settings > Inbound/Outbound > IP Groups) or appear in the connection control Allow Access List (Settings > Inbound/Outbound > Connection Control).

- 3. Enter header text you want to match for true source IP detection in the **Check header** entry field.
  - If this field is empty, the message Received field is analyzed for the true source IP.
- 4. Click **Add Network Edge** to add the network edge device IP address and hop number to the email appliance.

# **Enforced TLS connections**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

You can specify that connections to or from a specific IP or domain group use mandatory Transport Layer Security (TLS) and determine the security level used by that connection. Use the **Settings > Inbound/Outbound > Enforced TLS Connections** page to specify the IP addresses or domain groups for which TLS connections are forced.

You define connection directions relative to the email SMTP server. Incoming connections are those from a protected or external domain or IP address group to the

email protection system. Outgoing connections are those from the email system to a protected or external domain or IP address group.

After you define a group, you can change its order in the incoming or outgoing direction list. Select the group by marking its associated check box and use the **Move Up** or **Move Down** button to modify list order.

Delete a group by marking the check box and clicking **Delete**.

You may configure up to 32 incoming or outgoing connections.

Use the following steps to add an incoming or outgoing connection for which you want to use TLS:

- 1. Click Add.
- 2. Enter a name for your enforced TLS connection.
- 3. Select a priority order for the connection in the **Priority order** drop-down list.
- 4. Specify the security level for that connection. Security level options include the following:
  - Encrypt, the minimum enforcement level, used in all security levels

    This security level is the only option available for incoming connections.
  - Encrypt and check CN, validation of a certificate's common name
  - Verify, validation that the certificate is from a trusted CA
  - Verify and check CN, validation of the certificate's common name and that the certificate is from a trusted CA



#### **Important**

To use the 2 "verify" options, you must have imported a trusted CA certificate. See *Managing Transport Layer Security (TLS) certificates*, page 69, for information about trusted certificates.

- 5. Select 1 of the following connection encryption strength options:
  - Medium, which involves the use of cipher suites that use 128-bit encryption
  - High, which includes most cipher suites with key lengths larger than 128 bits
- 6. Define the IP address or domain group subject to forced TLS connection. Select 1 of the following options:
  - **Any (for all connections).** This option applies to any connection, regardless of IP or domain address.
  - IP address group. Select an existing IP address group in the drop-down list or create a new group using Add New IP Group.
  - **Domain address group.** Select an existing domain address group in the drop-down list or create a new group using **Add New Domain Group**.

# **Controlling directory harvest attacks**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

A directory harvest attack is used by questionable sources to gain access to an organization's internal email accounts. A directory attack not only consumes large amounts of system resource but also, through the acquisition of email accounts, creates spam problems for email end users. With directory attack prevention settings, you can limit the maximum number of messages and connections coming from an IP address over a given time period.

To configure directory attack control:

- 1. Select Settings > Inbound/Outbound > Directory Attacks.
- 2. Select the **Limit the number of messages/connections per IP every** check box to enable the directory harvest attack prevention function.
- 3. Set the time period, from 1 second to 60 minutes, in the drop-down list (default is 60 seconds).
- 4. Set the maximum number of messages allowed from an individual IP address during the specified time period (default is 30).
- 5. Set the maximum number of connections allowed from an individual IP address during the specified time period (default is 30).
- 6. If you have enabled the directory attack prevention option, you can also enable settings to block an IP address when a specific set of recipient conditions occurs. Mark the **Block the IP address for** check box, and enter the time interval during which you want an IP address blocked (default is 3 hours).
- 7. Enter the conditions for blocking the IP address:
  - Maximum number of message recipients (default is 5)
  - Maximum percentage of invalid addresses among the recipients (default is 50%)

When these recipient limitations are exceeded, the connection is dropped automatically.

This option is available only when the recipient validation option is used (see *Adding user authentication settings*, page 68).

# Configuring relay control options

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

You can prevent the unauthorized use of your mail system as an open relay by limiting the domains and IP address groups for which your server is allowed to relay mail. Protected domains are defined in the **Settings > Users > Domain Groups** page. Trusted IP address groups are defined in the **Settings > Inbound/Outbound > IP Groups** page.

Configure relay control settings in the **Settings > Inbound/Outbound > Relay Control** page as follows:

- 1. In the Inbound Relay Options section, set any desired option that is based on the Sender Policy Framework (SPF) of the sender domain:
  - Reject mail if no SPF record exists.
  - Reject mail if the SPF record does not match the sender's domain or a soft fail occurs.

A "soft fail" result means the result of the check is inconclusive regarding the sender domain.

Reject mail if an SPF error occurs.

By default, these options are not enabled.

- 2. In the Bypass SPF Option box, you can specify a sender domain group for which SPF settings are bypassed.
  - a. Mark the Bypass SPF validation for senders in the following domain group check box.
  - b. Select a sender domain from the **Domain group** drop-down list.
- 3. In the Outbound Relay Options section, select the relay setting for senders in protected domains when SMTP authentication is not required. Default setting is **Allow relays only for senders from trusted IP addresses**.

You must use the default setting if you use SMTP authentication.

Note that allowing all outbound relays may create a security vulnerability in your system.

4. In the Internal Relay Options section, select the relay setting for mail between protected domains when SMTP authentication is not required. Default setting is **Allow relays only for senders from trusted IP addresses**.

You must use the default setting if you use SMTP authentication.

Note that allowing all outbound relays may create a security vulnerability in your system.

# **Configuring delivery routes**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Configure delivery routes in the **Settings > Inbound/Outbound > Mail Routing** page. You can create the following types of message routes:

- ◆ *User directory-based routes*, page 91
- ◆ Domain-based routes, page 93

Change the order of a user directory- or domain-based route by marking its associated check box and using the **Move Up** or **Move Down** buttons.

## Copying a route

Use the following steps to copy a route in the **Settings > Inbound/Outbound > Mail Routing** page:

- 1. Select a route in the route list by marking the check box next to its name.
- 2. Click **Copy**. A new route appears in the route list, using the original route name followed by a number in parentheses. The number added indicates the order that copies of the original route are created (1, 2, 3, etc.).
- 3. Click the new route name to edit route properties as desired.

## Removing a route

If you want to remove a route, select the route by marking the check box next to its name and click **Delete**.

Note that the default domain-based route cannot be deleted.

# **User directory-based routes**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Delivery routes based on user directory entries are examined first for a match with an email message recipient. Domain group entries are validated against the selected user directory to determine whether email will be delivered via a specified route.

## Adding a user directory-based route

Use the following steps to add a user directory-based delivery route on the **Settings** > **Inbound/Outbound** > **Mail Routing** page:

- 1. Click **Add** to open the Add User Directory-based Route page.
- 2. Enter a name for your new route in the **Name** field (length between 4 50 characters).
- 3. Select an order number from the **Route order** drop-down list to determine the route's scanning order.
- 4. Select a destination domain from the pre-defined domains in the **Domain group** drop-down list. Default is Protected Domain. Information about the domain group appears in the Domain details box.

If you want to edit your selected domain group, click Edit to open the Edit Domain Group page. See *Editing a domain group*, page 65, for details.

5. Select the user directories you want to use to define your route in the User Directories section. Select from the list of currently defined user directories and click the arrow button to move them to the Selected User Directories box.



#### Note

ESMTP user directories are not included in the directory list. ESMTP user directories cannot be used for user directory-based routes.

If you want to add a new user directory, click **Add user directory** to open the Add User Directory page. See *Adding and configuring a user directory*, page 59, for information.

If you want to remove a user directory from the Recipients list, select it and click **Delete**.

- 6. Select the delivery method:
  - Based on the recipient's domain (using the Domain Name System [DNS])
  - Based on SMTP server IP address designation (using smart host). If you select this option, an SMTP Server List opens.
    - a. Click **Add** to open the Add SMTP Server dialog box.
    - b. Enter the SMTP server IP address or hostname and port.
    - c. Mark the **Enable MX lookup** check box to enable the MX lookup function.



#### **Important**

If you entered an IP address in the previous step, the MX lookup option is not available.

If you entered a hostname in the previous step, this option is available.

- ◆ Mark the **Enable MX lookup** check box for message delivery based on the hostname MX record.
- If you do not mark this check box, message delivery is based on the hostname A record.
- d. Enter a preference number for this server (from 1 65535; default value is 5).

If a single route has multiple defined server addresses, mail is delivered in order of server preference. When multiple routes have the same preference, round robin delivery is used.

You may enter no more than 16 addresses in the SMTP Server List.

- 7. Select any desired security delivery options.
  - a. Select **Use Transport Layer Security (TLS)** if you want email traffic to use opportunistic TLS protocol.

b. Select **Require authentication** when you want users to supply credentials. Enter the appropriate user name and password in the Authentication Information box. You must use the SMTP server IP address delivery method when you want users to authenticate.

#### **Domain-based routes**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Delivery routes based on domain groups are examined after defined user directory-based routes for a match with an email message recipient. If a match is made with a user directory-based route, domain-based routes are not examined for matches.



#### **Important**

The Protected Domain group defined in the **Settings** > **Users** > **Domain Groups** page should not be used to configure delivery routes if you need to define domain-based delivery routes via multiple SMTP servers.

Create domain groups that contain subsets of the Protected Domain group for mail routing purposes.

#### Adding a domain-based route

Use the following steps to add a domain-based delivery route on the **Settings > Inbound/Outbound > Mail Routing** page:

- 1. Click **Add** to open the Add Domain-based Route page.
- 2. Enter a name for your new route in the **Name** field.
- 3. Select an order number from the **Route order** drop-down list to determine the route's scanning order.
- 4. Select a destination domain from the pre-defined domains in the **Domain group** drop-down list. Default is Protected Domain. Information about the domain group appears in the Domain details box.
  - If you want to edit your selected domain group, click Edit to open the Edit Domain Group page. See *Editing a domain group*, page 65, for details.
- 5. Select the delivery method:
  - Based on the recipient's domain (using the Domain Name System [DNS])
  - Based on SMTP server IP address designation (using smart host). If you select this option, an SMTP Server List opens.
    - a. Click **Add** to open the Add SMTP Server dialog box.
    - b. Enter the SMTP server IP address or hostname and port.

c. Mark the **Enable MX lookup** check box to enable the MX lookup function.



#### **Important**

If you entered an IP address in the previous step, the MX lookup option is not available.

If you entered a hostname in the previous step, this option is available.

- Mark the Enable MX lookup check box for message delivery based on the hostname MX record.
- If you do not mark this check box, message delivery is based on the hostname A record.
- d. Enter a preference number for this server (from 1 65535; default value is 5).

If a single route has multiple defined server addresses, mail is delivered in order of server preference. When multiple routes have the same preference, round robin delivery is used.

You may enter no more than 16 addresses in the SMTP Server List.

- 6. Select any desired security delivery options.
  - a. Select **Use Transport Layer Security (TLS)** if you want email traffic to use opportunistic TLS protocol.
  - b. Select Require authentication when you want users to supply credentials. Enter the appropriate user name and password in the Authentication Information box. You must use the SMTP server IP address delivery method when you want users to authenticate.

# Rewriting email and domain addresses

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

An email envelope recipient address can be rewritten to redirect message delivery to a different address. Envelope sender and message header addresses can also be rewritten to mask address details from message recipients. You can configure address rewriting for inbound, outbound, and internal email on the **Settings** > **Inbound/Outbound** > **Address Rewriting** page.

You can export all the email or domain addresses in an address rewrite list to a text file by clicking **Export** when that list is displayed.

Remove an email or domain address from one of your address rewrite lists by selecting it and clicking **Delete**.

## Adding recipient address rewrite entries

Use the Inbound Messages tab to specify recipient address rewrite entries for inbound messages and the Outbound and Internal Messages tab for outbound or internal message redirection. The email envelope recipient address is rewritten based on the entries in the Envelope Recipient Address Rewrite List.

Use the following steps to add recipient rewrite entries:

- 1. Click **Add** in the Envelope Recipient Address Rewrite List to open the Add Recipient Email or Domain Address page.
- 2. Enter your addresses in 1 of 2 ways:
  - Mark the Individual email address or domain rewrite entry check box and enter the original recipient address and the rewrite address in the appropriate entry fields.
    - An email address entry may have multiple rewrite entries, with each entry separated by a space. A domain address may have only 1 rewrite entry.
  - If you have an existing email or domain address rewrite entry file, mark the Email address or domain rewrite entry file check box and browse to the file. File size may not exceed 10 MB.
- 3. Click **OK**. Your entries appear in the Envelope Recipient Address Rewrite List.

## Adding message header address rewrite entries

Use the Inbound Messages tab to add message header address rewrite entries for inbound messages and the Outbound and Internal Messages tab for outbound or internal message address masking. The email envelope sender address and message header addresses are rewritten based on the entries in the Envelope Sender and Message Header Rewrite List.

Use the following steps to add address rewrite entries:

- 1. Click **Add** in the Envelope Sender and Message Header Rewrite List to open the Add Sender Email or Domain Address page.
- 2. Enter your addresses in 1 of 2 ways:
  - Mark the **Individual email address or domain rewrite entry** check box and enter the original sender address and the rewrite address in the appropriate entry fields.
    - Each email or domain address entry may have only 1 rewrite entry.
  - If you have an existing email or domain address rewrite entry file, mark the Email address or domain rewrite entry file check box and browse to the file. File size may not exceed 10 MB.
- 3. Click **OK**. Your entries appear in the Envelope Sender and Message Header Rewrite List.

#### **URL Sandbox**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The URL sandbox function provides real-time analysis of uncategorized URLs that are embedded in inbound email. When a user clicks an uncategorized URL, a landing page prompts the user to initiate URL analysis. If the analysis determines that the link is malicious, the site is blocked. If the link is not malicious, the user receives notification that they may proceed to the site.

Your subscription must include the Email Sandbox Module and Email Hybrid Module. URL sandbox capability is available only after the email hybrid service is successfully registered and enabled.

The URL sandbox configuration settings include 3 components:

- Default settings that apply to any recipient not covered by specific settings
- Recipient-specific settings that apply to an individual domain or email address
- List of domains to which sandbox settings do not apply

Use the **Settings > Inbound/Outbound > URL Sandbox** page to configure the URL sandbox feature:

- 1. In the Default Settings section, specify the settings that apply to any recipient not covered by recipient-specific settings.
  - a. Mark the **Analyze suspicious URLs** check box to activate the URL sandbox function. By default, the check box is not marked.
  - b. If the URL sandbox is enabled, mark the **Allow the recipient to follow links to unclassified URLs** check box to allow users to click unclassified URL links. By default, the check box is not marked.
  - c. Mark the **Allow the recipient to follow links with an unsupported protocol** check box to allow users to click a link that may redirect to a site with an unsupported protocol (e.g., HTTPS).
  - d. If you want the original URL replaced by other text, enter the string in the entry field below the check box. Leave this field blank if you want the original URL to appear.
- 2. Use the Recipient-specific Settings area to add custom sandbox settings for individual domain or email addresses.
  - a. Click **Add** to create sandbox settings for a particular group of addresses.
  - b. In the Recipient Email/Domain Address List, enter comma-separated email or domain addresses to which you want the settings to apply. No wildcards are permitted.
  - c. Mark the **Analyze suspicious URLs** check box to activate the URL sandbox function for these addresses. By default, the check box is not marked.
  - d. If the URL sandbox is enabled, mark the **Allow the recipient to follow links to unclassified URLs** check box to allow the specified users to click unclassified URL links. By default, the check box is not marked.

- e. Mark the **Allow the recipient to follow links with an unsupported protocol** check box to allow users to click a link that may redirect to a site with an unsupported protocol (e.g., HTTPS).
- f. If you want the original URL replaced by other text, enter the string in the entry field below the check box. Leave this field blank if you want the original URL to appear.
- 3. At the bottom of the URL Sandbox section, mark the **Analyze suspicious URLs** that appear in digitally signed email check box if you want the sandbox to examine URLs even if they appear in a message that contains the digital signature of a trusted sender. By default, the check box is not marked.
- 4. In the entry field below the check box, enter the URL domains that you want to bypass the URL sandbox. Do not use wildcards, and separate multiple entries with a comma.

If you want to delete a set of recipient-specific settings, mark the check box next to the address list and click **Delete** 

# Phishing detection and education

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Phishing involves an attempt to obtain personal information like passwords or credit card numbers via email while pretending to be a trusted entity. For example, an email message that purports to be from a known financial institution or popular web site may actually be an attempt to steal personal information.

The phishing detection and education function provides cloud-based analysis of an inbound message for phishing email characteristics. In order to use the phishing detection and education feature, your subscription must include the Email Hybrid Module. You must have successfully registered with the email hybrid service before you configure phishing detection and education capabilities.

You define the rules that determine which sender domains are analyzed and how a suspected phishing email is handled. Suspect email may be treated the same as spam (blocked and saved to a spam queue) or be replaced by a message that educates the recipient about phishing attack email.

Dashboard charts and presentation reports can be configured to display suspected phishing attack data.

The **Settings > Inbound/Outbound > Phishing Detection** page includes the following tabs for configuring phishing detection:

◆ **Phishing Rules**, which contains a list of all your phishing rules. A default rule applies to domains that are not included in any other defined rule. See *Adding a phishing detection rule*, page 98, for information.

The default rule cannot be deleted. You can delete any other phishing rule from the list by marking its associated check box and clicking **Delete** and then clicking **Save to Cloud Service**.

◆ **Phishing Education Pages**, which contains a list of all the education pages you have defined. A default page applies when a custom page is not specified for a phishing rule. See *Creating a phishing education page*, page 98, for information.

You can delete any phishing education page (except the default page) from the list by marking its associated check box and clicking **Delete**. You may not delete a page that is being used by a phishing rule.

Click **Save to Cloud Service** only if you receive an error message regarding a synchronization issue with the cloud service.

## Adding a phishing detection rule

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Use the following steps to configure a phishing detection rule:

- 1. Click **Add Rule** on the Phishing Rules tab to open the Add Rule page.
- 2. Enter a name for the rule in the **Phishing rule name** entry field.
- 3. Specify the domains to which this phishing rule applies in the **Domain names** entry field. Separate multiple domains with a semicolon.
- 4. Select a phishing action option for this phishing rule:
  - **Treat as spam.** Quarantine the suspected phishing message.
  - Educate: Replace the URL with a link to the selected phishing education page and deliver the message.
- 5. Configure individual user exceptions to the phishing rule. For example, you may want to select a different action for a particular user or group or present a different phishing education page for that user or group.
  - a. Click **Add User Exception** to open the Add User Exception dialog box.
  - b. Enter a brief description of this exception in the **Description** entry field.
  - c. Specify the email addresses for the users or groups to whom this exception applies in the **Email addresses** entry field.
  - d. Select a phishing action option for this user exception:
    - Treat as spam. Quarantine the suspected phishing message.
    - Educate: Replace the URL with a link to the selected phishing education page and deliver the message.
  - e. Click Add.
- 6. Click **OK** to save your phishing rule.
- 7. Click **Save to Cloud Service** in the Phishing Rules tab to send your phishing detection settings to the email hybrid service.

# Creating a phishing education page

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

You can create a new phishing education page by copying an existing page and renaming it. You can also customize the default message template to suit your needs. A default page is used when a custom page is not specified for a phishing rule.

Use the following steps to copy an existing phishing education page:

- 1. Click Copy Page in the Phishing Education Pages tab.
- 2. Enter a name for the phishing education page copy in the **Page name** entry field.
- 3 Click **OK**

Use the following steps to create a custom phishing education page:

- 1. Click **Add Page** in the Phishing Education Pages tab to open the Add Phishing Education Page screen.
- 2. Enter a name and description for the phishing education page.
- 3. Specify a title for the page in the **Page title** field. This title appears as the browser window name.
- 4. Specify the desired text and images in the **Phishing Education Page Editor**.
- 5. Click **OK**.



#### **Note**

If you receive an error message regarding a synchronization issue with the cloud service, you should click **Save to Cloud Service** in the Phishing Education Pages tab to send your phishing education page settings to the email hybrid service.

# Managing message queues

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

You can view, create, and configure message queues on the Main > Message Management > Message Queues page. You can also modify the following default queues:

- virus
- spam
- exception
- encryption-fail
- decryption-fail
- archive
- ◆ secure-encryption

All blocked messages across all queues are accessed in the Main > Message

Management > Blocked Messages page (see Managing the blocked message queue

for details). Temporarily delayed messages can be viewed in the **Main > Message Management > Delayed Messages** page (see *Managing the delayed message queue* for information).

## Message queues list

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The Queue List on the Message Queues page contains the following information about each queue:

- Queue name. Click a queue name in the Queue List to view and manage the messages in the queue. See *Viewing a message queue*, page 101, for details.
- Queue status, indicating whether the queue is in use or not. Click the Referenced link in this column to see a list of the email functions that use the queue. During a queue move operation, an icon in this column indicates whether the move is in progress or has failed.
- Message volume, indicating the total number of messages in that queue. The number of messages a delegated administrator sees may be less than the total displayed in this column, depending on the permissions granted to that administrator.
- Size/Total, indicating the queue's current size as a portion of its maximum configured size
- ◆ Storage location, showing the location of queue storage (Local, via Network File System [NFS], or via Samba). Icons in this column indicate storage status, such as low disk space or a lost connection.
- ◆ The Properties column contains a link to a page displaying the queue's current settings. Click this **Edit** link to change any queue settings.

You can remove a user-created queue by marking the check box next to the queue name in the Queue List and clicking **Delete**. You cannot delete a default queue.

#### Related topics:

- Creating a message queue, page 100
- ♦ *Viewing a message queue*, page 101
- Managing the blocked message queue, page 103
- Managing the delayed message queue, page 106
- ♦ Viewing a message in a queue, page 107

#### Creating a message queue

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Use the following steps to create a new message queue on the **Main > Message Management > Message Queues** page:

1. Click **Add** below the Queue List to open the Add Queue page.

- 2. Enter a name for the new queue in the **Queue name** field.
- 3. Select the location for this queue's storage.
  - Use **Local** to store the queue locally.
  - Select Via Network File System (NFS) to use the NFS protocol for file storage. Enter the IP address or hostname of the storage location, along with its shared path.



#### Note

NFS version 3 or later is supported.

- Select Via Samba to use Samba to facilitate file storage. Enter the following information for Samba:
  - IP address or hostname of the storage location
  - Its shared path
  - Username
  - Password
- 4. Configure the maximum number of days a message is retained in the queue, from 1 to 180 days, in the **Maximum message retention** field. Default is 180 for default queues, 30 for administrator-created queues.
- 5. Configure the maximum queue size, from 1 to 51200 MB (default is 1024).
- 6. For an appliance in a cluster, specify the maximum storage size (in MB) assigned to each cluster machine.

## **Changing message queue properties**

To change a message queue's properties, click **Edit** in the Queue List Properties column for that queue to open the Edit Queue page.

## Viewing a message queue

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Click a queue name in the Message Queues page Queue List to open that queue. Use the **View from/to** fields to specify the desired date/time range for the entries you want to see. The calendar includes the following options:

- Change the month and year by using the back and next arrows around the month and year at the top of the calendar.
- Set the calendar to the current date by clicking the date in the lower left corner of the calendar.
- Click Clean to clear the current date/time calendar selection.
- Click **Today** to set the calendar date to today's date.

Set the time range in hours and minutes in the entry fields to the right of the calendar. Click the arrow to the right of the **View** date/time range to display the desired queue items.

You can also perform a keyword search of the message queue, or refine the search by specifying that only senders, recipients, subjects, or policies applied are searched. You can also search on the name of the appliance that processed the messages (Processed By category). Enter a keyword and click **Search**.

Configure how many messages you want to view on each page of the queue in the **per page** drop-down list (25 [the default], 50, or 100).

Information displayed in the list of messages includes the following items:

- Sender email address
- Recipient email address
- Message subject. You can view message information and message contents by clicking the link in the Subject column to open the View Message page. See Viewing a message in a queue, page 107.
- Message size
- Date/time of message receipt
- ◆ The policy and rule applied to the message. If a data loss protection (DLP) policy is applied to a message, a **View Incident** link opens the DLP incident information in the Data module, where the processing of this message occurs.
  - This column does not appear in the archive queue.
- Message type (for example, spam, virus, exception, commercial bulk, file sandbox, encryption error, or decryption error)
- ◆ The name of the appliance that processed the message is included in the **Processed By** column.
- ◆ The **Reason for Quarantine** column contains an entry indicating why a message has been sent to a quarantine queue:
  - Antivirus filter
  - Email hybrid service
  - URL analysis filter
  - Bounce address tag validation
  - Digital fingerprinting antispam tool
  - LexiRules antispam tool
  - Heuristics antispam tool
  - Commercial bulk email filter
  - Custom content filter
  - Block List (Personal Email Manager Always Block List entry)
  - Archive feature (a Settings > Inbound/Outbound > Message Control setting)
  - Data loss protection
  - Exception (message exception)

You can select a message in the queue and perform the following actions:

Action	Description
Deliver	Deliver the message to its recipient(s).
Delete	Delete the message from the queue.
Reprocess	Delete the message from the queue and restart the email processing function as if the email system were receiving it for the first time. For the archive queue, this action is called <b>Process</b> .
Not Spam	Report that the message should not be classified as spam and release the message for delivery. This option is available only when spam messages are selected.
Refresh	Refresh the queue contents list to view up-to-date queue contents.

The More Actions drop-down list includes the following operations:

Action	Description
Resume Processing	A message that has both spam and virus characteristics may be isolated by 1 type of filter before it has been processed by the other type. If the original quarantine is a false positive, use this action to make sure the message is processed by all relevant filters rather than delivered after only the first analysis.
Add to Always Block List	Add the message sender to the Always Block List.
Add to Always Permit List	Add the message sender to the Always Permit List.
Forward	Forward the message to 1 or more recipients. The forwarded message is added as an attachment to the forwarding message.
Download	Download the message in .eml format. Downloaded email is saved in a zip file.
Clear message queue	Delete all the messages in the queue.
Reprocess all messages	Reprocess all the messages in your search result. Only the first 5000 entries in your search result are reprocessed.
Delete all messages	Delete all the messages in your search result. Only the first 5000 entries in your search result are deleted.

# Managing the blocked message queue

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The Main > Message Management > Blocked Messages page lists all blocked messages from most queues across all appliances together in a single table, with a column entry that indicates the name of the queue in which a message is stored. Messages in the archive and Delayed Messages queues are not included on this page.

Use the **View from/to** fields to specify the desired date/time range for the entries you want to see. The calendar includes the following options:

- Change the month and year by using the back and next arrows around the month and year at the top of the calendar.
- Set the calendar to the current date by clicking the date in the lower left corner of the calendar.
- Click **Clean** to clear the current date/time calendar selection.
- Click **Today** to set the calendar date to today's date.

Set the time range in hours and minutes in the entry fields to the right of the calendar. Click the arrow to the right of the **View** date/time range to display the desired queue items.

You can also perform a keyword search of all blocked messages, or refine the search by specifying that only senders, recipients, subjects, or policies applied are searched. You can also search on an individual queue or on the name of the appliance that processed the messages (Processed By category). Enter a keyword and click **Search**.

Configure how many messages you want to view on each page of the queue in the **per page** drop-down list (25 [the default], 50, or 100).

Information displayed in the list of messages includes the following items:

- ◆ Sender email address
- Recipient email address
- Message subject. You can view message information and message contents by clicking the link in the Subject column to open the View Message page. See Viewing a message in a queue, page 107.
- ♦ Message size
- ◆ Date/time of message receipt
- ◆ The policy and rule applied to the message. If a DLP policy is applied to a message, a **View Incident** link opens DLP incident information in the Data module, where processing of this message occurs.
- Queue name (for example, spam, virus, exception, encryption-fail, or decryption-fail)
- Message type (for example, spam, virus, exception, commercial bulk, encryption error, or decryption error)
- ◆ The name of the appliance that processed the message is included in the **Processed By** column.
- ◆ The **Reason for Quarantine** column contains an entry indicating why a message has been sent to a quarantine queue:
  - Antivirus filter
  - Email hybrid service
  - URL analysis filter
  - Bounce address tag validation
  - Digital fingerprinting antispam tool

- LexiRules antispam tool
- Heuristics antispam tool
- Commercial bulk email filter
- Custom content filter
- Block List (Personal Email Manager Always Block List entry)
- Archive feature (a Settings > Inbound/Outbound > Message Control setting)
- Data loss protection
- Exception (message exception)

You can select a message in the blocked messages queue and perform the following actions:

Action	Description
Deliver	Deliver the message to its recipient(s).
Delete	Delete the message from the queue.
Reprocess	Delete the message from the queue and restart the email processing function as if the email system were receiving it for the first time.
Not Spam	Report that the message should not be classified as spam and release the message for delivery. This option is available only when spam messages are selected.
Refresh	Refresh the queue contents list to view up-to-date queue contents.

The More Actions drop-down list includes the following operations:

Action	Description
Resume Processing	A message that has both spam and virus characteristics may be isolated by 1 type of filter before it has been processed by the other type. If the original quarantine is a false positive, use this action to make sure the message is processed by all relevant filters rather than delivered after only the first analysis.
Add to Always Block List	Add the message sender to the Always Block List.
Add to Always Permit List	Add the message sender to the Always Permit List.
Forward	Forward the message to 1 or more recipients. The forwarded message is added as an attachment to the forwarding message.
Download	Download the message in .eml format. Downloaded email is saved in a zip file.
Reprocess all messages	Reprocess all the messages in your search result. Only the first 5000 entries in your search result are reprocessed.
Delete all messages	Delete all the messages in your search result. Only the first 5000 entries in your search result are deleted.

## Managing the delayed message queue

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Email that is temporarily undeliverable as a result of various connection issues is sent to the delayed messages queue. Delayed messages may be automatically resent by the system. See *Handling undelivered messages*, page 109, for information about setting the delayed messages delivery retry interval and configuring a notification message to be sent for undelivered email.

Delayed message delivery may also be scheduled for a future date using a custom content filter action. See *Custom Content*, page 120, for information about custom content filters and *Creating and configuring a filter action*, page 129, for details about scheduling a delayed message delivery.

You may view the messages in this queue and perform any necessary processing activities manually on the **Main > Message Management > Delayed Messages** page. When the Delayed Messages page appears, the most recent messages are shown. Use the **View from/to** fields to specify the desired date/time range for the messages you want to see. The calendar includes the following options:

- Change the month and year by using the back and next arrows around the month and year at the top of the calendar.
- Set the calendar to the current date by clicking the date in the lower left corner of the calendar.
- Click Clean to clear the current date/time calendar selection.
- Click **Today** to set the calendar date to today's date.

Set the time range in hours and minutes in the entry fields to the right of the calendar. Click the arrow to the right of the **View** date/time range to display the desired queue items.

You can also perform a keyword search of the message queue, or refine the search by specifying that only senders, recipients, or subjects are searched. If appliances are configured in a cluster, you can also search on the name of the appliance that processed the messages. Enter a keyword and click **Search**.

You can configure the number of messages per page, between 25 and 100, in the **Per page** drop-down list in the queue list banner (25 [the default], 50, or 100).

Information displayed in the list of messages includes the following items:

- Sender email address
- Recipient email address
- Message subject. You can view message information and message contents by clicking the link in the Subject column to open the View Message page. See Viewing a message in a queue, page 107.
- Message size
- Date/time of message receipt

- ◆ The policy and rule applied to the message. If a DLP policy is applied to a message, a **View Incident** link opens DLP incident information in the Data module, where processing of this message occurs.
- Date of the next scheduled message delivery attempt
- The reason a message is delayed. Entries in this column may be 1 of the following:
  - Temporary connection issue delay n. A temporary delay due to connection issues; n is the number of retry attempts remaining for the message.
  - Scheduled delay. An intentional delay that is scheduled via a custom content filter action (see *Creating and configuring a filter action*, page 129, for information).
  - File sandbox analysis delay. A temporary delay due to in-progress file sandbox analysis.
- ◆ The name of the appliance that processed the message is included in the **Processed By** column.

You can select a message in the queue and perform the following actions:

Action	Description
Release	Attempt the message delivery immediately.
Delete	Delete the message from the queue.
Refresh	Refresh the queue contents list to view up-to-date queue contents.

The More Actions drop-down list includes the following operations:

Action	Description
Forward	Forward the message to 1 or more recipients. The forwarded message is added as an attachment to the forwarding message.
Download	Download the message in .eml format. Downloaded email is saved in a zip file.
Release all messages	Attempt to deliver all the messages in the queue.
Delete all messages	Delete all the messages in your search result. Only the first 5000 entries in your search result are deleted.

# Viewing a message in a queue

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Click the link for a message in the Subject column of a queue to open the View Message page, which contains details about the message as well as the message contents. The **Back** link at the top of the page returns you to the View Queue page. The **Previous** and **Next** links let you navigate to the previous or next message in the queue messages list.

The following information about a selected message is displayed on the View Message page:

Field Name	Description
Sender	Sender's email address
Recipient	Recipient's email address
From	Name of the sender
То	Name of the recipient
Date	Date the message was received
Policy	Name of the policy applied to the message
Message type	Message type, indicating message analysis results (Clean, Virus, Spam, Data Loss Protection, Exception, Commercial Bulk, Phishing, or Custom Content)
Processed by	Name of the appliance that processed the message
Header	Click the link to view the message header
Attachment	If the message contains an attachment, a link allows you to open it.
Subject	Message subject

The message actions available to you on any View Queue page are also available on the View Message page, except Clear All Messages or Release All Messages. See *Viewing a message queue*, page 101, for descriptions of these actions. You can also choose to view message contents in either text or HTML format or to **Clear message queue**, options in the More Actions drop-down list.

# Configuring message exception settings

Administrator Help | TRITON AP-EMAIL| Version 8.1.x

The **Settings > Inbound/Outbound > Exceptions** page specifies how messages that cannot be processed for some reason are handled. Configure message exception settings as follows:

- 1. Specify the action to perform on a message that cannot be processed:
  - Deliver the message when an exception is caused by an antivirus filter.
  - Deliver the message when an exception is caused by an antispam filter (default setting).
  - Deliver the message when an exception is caused by the file sandbox filter (default setting).
  - Deliver the message when an exception is caused by the commercial bulk email filter.

- Deliver the message when an exception is caused by a data loss prevention policy (default setting).
- Deliver messages when an exception is caused by any other system operation.
- Save exception messages to a queue (default setting).

  Select the desired folder from the drop-down list (default is **exception**). The list includes all the default queue names and any administrator-created queues. If you want to add a new queue, select **Add Folder** from the drop-down list to open the Add Queue screen.



### Warning

You must have the save option selected in order to save undelivered messages to a queue. If this option is not selected, messages may be dropped

- 2. If you want a notification sent regarding the unprocessed message, mark the **Send notification** check box to enable the Notification Properties section.
- 3. Specify the notification message sender from the following choices:
  - Original email sender (the default)
  - Administrator. If you use this option, you must configure a valid administrator email address in the Settings > General > System Settings page (see Setting system notification email addresses, page 53).
  - Custom. Specify a single email address in this field.
- 4. Specify 1 or more notification message recipients from among the following choices:
  - Original email sender
  - Original email recipient
  - Administrator (the default). If you use this option, you must configure a valid administrator email address in the Settings > General > System Settings page (see Setting system notification email addresses, page 53).
  - User specified. Enter 1 or more email addresses, separated by semicolons, in this field.
- 5. Specify the subject line of your notification message in the **Subject** field.
- 6. Enter the body of your notification message in the **Content** field.
- 7. If you want the original message to be attached to the notification message, mark the **Attach original message** check box.

# Handling undelivered messages

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Message delivery options help you control how undeliverable mail is handled. Options for these operations appear on the **Settings > Inbound/Outbound > Message Non-Delivery Options** page.

Use the following steps to determine how to handle messages that are temporarily undeliverable due to error situations:

1. In the Undelivered Message Options section, enter the time (in minutes) for the message retry interval in the **Retry interval** field.



## **Important**

Message delivery retry intervals are calculated exponentially. For example, using the default entry of 15, retry attempts are made in 15, 30, 60, 120, 240, etc., minutes.

- 2. Enter the time (in minutes) for the maximum period for retrying message delivery in the **Maximum retry period** field (default is 1440).
- 3. In the **Notification email address** field, enter an email address to which you want to send notifications that a non-delivery report (NDR) cannot be delivered to the original sender at the end of the retry period.

Mark the **Use Administrator email address** check box to send these messages to the administrator. You must configure the administrator address in the **Settings** > **General** > **System Settings** page (see *Setting system notification email addresses*, page 53).

# **Traffic shaping options**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The **Settings > Inbound/Outbound > Traffic Shaping** screen lets you determine the rate of traffic delivery for a specified source or destination group based on domain group or user directory settings. For example, these settings allow you to send large volumes of email at a rate that prevents possible blacklisting of the domain.

Change the order of a traffic shaping group by marking its associated check box and using the **Move Up** and **Move Down** buttons. Copy an existing traffic shaping group by marking its associated check box and clicking **Copy**. You can delete a traffic shaping group by marking its associated check box and clicking **Delete**.

In addition to specifying source and destination user groups, the following message delivery settings may be modified as part of traffic shaping:

- Maximum number of concurrent connections
- Maximum number of messages per connection within a designated time period
- Maximum number of recipients per message
- ◆ Use of the SMTP session cache, for which the maximum number of messages per session and the session duration are specified

The default traffic shaping group contains no traffic source or destination user groups.

Click **Add** and use the following steps to establish message traffic shaping controls in your system:

- 1. Name your traffic shaping group.
- 2. Specify the location in which you want this group to appear in the traffic shaping group list by selecting it in the **Order** drop-down list.
- 3. Select the status of your traffic shaping group: **Active** or **Disabled**.
- 4. Configure an email source traffic shaping group, if desired. Designate 1 of the following source types:
  - All sources
  - Domain group (default selection). Select the domain group from the drop-down list. Modify the selected domain group by clicking Edit.
  - User directory. Select a user directory from the list, or create a new user directory by clicking Add user directory.
- 5. Configure an email destination traffic shaping group, if desired. Designate 1 of the following destination types:
  - All destinations
  - Domain group (default selection). Select the domain group from the drop-down list. Modify the selected domain group by clicking Edit.
  - User directory. Select a user directory from the list, or create a new user directory by clicking Add user directory.
- 6. Enter the maximum number of simultaneous message deliveries to an individual routing address in the Maximum number of concurrent connections field. Range of values is 5 - 50; default value is 20.
- 7. Enter the maximum number of messages per connection within a defined time period in the Maximum number of messages per connection field. Number of messages range is 1 - 10000; default value is 10000. Time range is 60 seconds to 30 minutes: default value is 60 seconds.
- 8. Enter the maximum number of message recipients per message delivery in the Maximum number of recipients field. Range of values is 5 - 100; default value is 50.
- 9. If you want to use an SMTP session cache, mark the **Enable SMTP session cache** check box (default setting).
  - a. Specify the maximum number of messages allowed per SMTP session. Range of values is 5 - 100; default is 10. You can enter zero (0) to specify an unlimited number of messages per session.
  - b. Specify the duration of the SMTP session, in seconds. Range of values is 60 - 600 seconds; default value is 300 seconds.

# Handling encrypted messages

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

An email content policy configured in the Data module may specify that a message should be encrypted for delivery. If you want to encrypt specific outbound messages, you must create an email DLP policy that includes an encryption action plan in the Data module (Main > Policy Management > DLP Policies).

The following types of message encryption are supported:

- ◆ Secure Message Delivery
- ◆ Mandatory Transport Layer Security (TLS) encryption
- ◆ Advanced email encryption
- ◆ Third-party encryption application

Use the **Settings > Inbound/Outbound > Encryption** page to specify the type of encryption you want to use.

# **Secure Message Delivery**

Secure Message Delivery is an on-premises encryption method that lets you configure delivery options for a secure portal in which your organization's customers may view, send, and manage encrypted email. For example, you may wish to include sensitive personal financial information in a message to a client. The portal provides a secure location for the transmission of this data.

Users within your organization who send and receive secure messages handle these messages via their local email clients, not the secure portal.

Secure messages are stored in a default secure-encryption queue (Main > Message Management > Message Queues). You can search for and delete messages in the secure-encryption queue view. Message details may not be viewed. The maximum queue size and number of days a message is retained are configured on the Edit Queue page.

Select **Secure Message Delivery** from the **Encryption method** drop-down list to display secure messaging options, including a template for the notification that users receive to alert them to encrypted mail. Other email encryption methods are not available when you choose this option.

Use the following steps to configure Secure Message Delivery encryption:

1. Enter the IP address or hostname for the appliance that hosts the secure message delivery portal (maximum length for hostname is 64 characters).

Entering a hostname rather than an IP address is recommended in order to avoid potential Microsoft Outlook warning messages generated in an end user's inbox by the notification message.



## **Important**

The entry in this field should be mapped to the E1 interface (for a V10000 G2/G3 appliance) or the P1 interface (for a V5000 G2 appliance). Ensure that the interface you use is visible from outside your internal network.

If you have an appliance cluster, enter the IP address or hostname for 1 cluster appliance (primary or secondary). The cluster load balancing function directs traffic appropriately.



#### Note

Secure messaging uses the same port configured for the Personal Email Manager portal (Settings > Personal Email > Notification Message).

- 2. Specify the actions that your customers are allowed to perform in the secure portal, along with the types of recipients to whom these users can send secure messages:
  - **Enforce strong password policy.** With this policy in force, an end-user password must meet the following requirements:
    - Between 8 and 15 characters
    - At least 1 uppercase letter
    - At least 1 lowercase letter
    - At least 1 number
    - At least 1 special character; supported characters include:

End users are prompted to create strong passwords in the Secure Messaging portal.

- **Maximum message size.** Customer message size includes any attachments. Default value is 50 MB; maximum value is 100 MB.
- Reply all to secure messages received in the portal. Customer may reply to all message recipients. However, if the Internal domain email addresses only option is selected for Allowed Recipients, user may reply only to recipients inside your organization.

The recipient list cannot be modified for this type of message.

- Forward secure messages received in the portal. Customer may forward to allowed recipients any secure message received.
- Compose new secure messages within the portal. Customer may compose and send a new secure message to allowed recipients.
- Attach files to secure messages sent from the portal. Customer may send an attachment in a secure message

These options are all selected by default.

The Allowed Recipients box offers options for the types of recipients to whom your customer may reply, forward, or send new secure messages. For security purposes, the recipient list must include at least 1 email address within your organization.

■ Internal domain email addresses only. Only email addresses within your organization's protected domains may be specified as recipients.

■ Internal and external domain email addresses (at least one internal email address required). Email addresses outside your organization's protected domains may be specified as recipients, but at least 1 address within your domains must be entered (default selection).

See *Protected Domain group*, page 63, for more information about determining your protected domains.

The Secure Email End-User Notification area contains a message template for the email that users receive when secure messages sent to them have been delivered to the portal for viewing. Use the default template, or customize it to suit your needs. You must include the \$URL\$ field in your notification, because that creates the link your customer clicks to access the secure email portal.

Enter 1 sender address for the notification in the **Sender** field, and specify an email subject in the **Subject** field. The sender address must belong to your internal protected domain. Because you do not want responses to the notification, ensure that the sender address is configured to drop any direct replies to the notification.

After you have configured your notification message, click **Preview Message** to view it

The portal can be displayed in 1 of 9 languages, which the user selects during the registration process. The <u>Websense Secure Messaging User Help</u> is available in the Websense Technical Library, also in 9 languages. It describes the user registration process and how to use the secure message portal.

# **Mandatory Transport Layer Security (TLS) encryption**

TLS is an Internet protocol that provides security for all email transmissions—inbound, outbound, and internal. The client and server negotiate a secure "handshake" connection for the transmission to occur, provided both the client and the server support the same version of TLS.

In the Email module, if you select only TLS for message encryption and the client and server cannot negotiate a secure TLS connection, the message is sent to a delayed message queue for a later delivery attempt. Select **Transport Layer Security (TLS)** in the **Encryption method** drop-down list and the **Use TLS only (no backup encryption method; message is queued for later delivery attempt)** option to use only TLS for message encryption.

If you select TLS for message encryption, you can designate either advanced email encryption or a third-party application as a backup method, in case the TLS connection fails. Specifying a backup option allows you a second opportunity for message encryption in the event of an unsuccessful TLS connection. If both the TLS and backup connections fail, the message is sent to a delayed message queue for a later connection attempt.

Select the **Transport Layer Security (TLS)** option in the **Encryption method** drop-down list to enable TLS encryption. Then mark 1 of the following options to enable a backup encryption method:

- ◆ Use Advanced Email Encryption as backup encryption method. This option is available only if your subscription includes the Email Hybrid Module.
- ♦ Use third-party application as backup encryption method

See *Advanced email encryption*, page 115, and *Third-party encryption application*, page 115, for information about those encryption methods.

## **Advanced email encryption**

If you want the email hybrid service to perform message encryption on outbound messages, select the **Advanced Email Encryption** option in the **Encryption method** drop-down list. Advanced email encryption is available only if your subscription includes the Email Hybrid Module and the Email Encryption Module, and the email hybrid service is registered and enabled.

You can also specify advanced email encryption as a backup encryption method if mandatory TLS encryption is selected. See *Mandatory Transport Layer Security (TLS) encryption*, page 114, for details.

When an email DLP policy identifies an outbound message for encryption, the message is sent to the email hybrid service via a TLS connection. If the secure connection is not made, the message is placed in a delayed message queue for a later delivery attempt.

The SMTP server addresses used to route email to the email hybrid service for encryption are configured in the Email Hybrid Module registration process. Use the Delivery Route page under **Settings > Hybrid Service > Hybrid Configuration** to add outbound SMTP server addresses (see *Define delivery routes*, page 36).

If the email hybrid service detects spam or a virus in an encrypted outbound message, the mail is returned to the message sender.

The email hybrid service attempts to decrypt inbound encrypted mail, and adds an x-header to the message to indicate whether the decryption operation succeeded. Message analysis is performed regardless of whether message decryption is successful.

The hybrid service does not encrypt inbound or internal mail. A DLP policy must be modified to designate only outbound messages for encryption when the email hybrid service is used.

Find more information about advanced email encryption in <u>Websense Email</u> <u>Encryption</u> in the Websense Technical Library.

## Third-party encryption application

The email protection system supports the use of third-party software for email encryption. The third-party application used must support the use of x-headers for communication with the email system.

You can also specify third-party application encryption as a backup encryption method if mandatory TLS encryption is selected. See *Mandatory Transport Layer* 

Security (TLS) encryption, page 114, for details.

The email protection system can be configured to add an x-header to a message that triggers a DLP encryption policy. Other x-headers indicate encryption success or failure. These x-headers facilitate communication between the email system and the encryption software. You must ensure that the x-header settings made in the Encryption page match the corresponding settings in the third-party software configuration.

X-header settings are entered on the **Settings > Inbound/Outbound > Encryption** page. Select **Third-party application** in the **Encryption method** drop-down list to configure the use of external encryption software. Use the following steps to configure third-party application encryption:

- 1. Add encryption servers (up to 32) to the Encryption Server List:
  - a. Enter each server's IP address or hostname and port number.
  - b. If you want to use the MX lookup feature, mark the **Enable MX lookup** check box.
  - c. Click the arrow to the right of the Add Encryption Server box to add the server to the Encryption Server List.

If you want to delete a server from the list, select it and click **Remove**.

- 2. In the **Encrypted IP address group** drop-down list, specify an IP address group if decryption is enabled or if encrypted email is configured to route back to the email software. Default is Encryption Gateway.
- 3. If you want users to present credentials to view encrypted mail, mark the **Require authentication** check box and supply the desired user name and password in the appropriate fields. Authentication must be supported and configured on your encryption server to use this function.
- 4. In the **Encryption X-Header** field, specify an x-header to be added to a message that should be encrypted. This x-header value must also be set and enabled on your encryption server.
- 5. In the **Encryption Success X-Header** field, specify an x-header to be added to a message that has been successfully encrypted. This x-header value must also be set and enabled on your encryption server.
- 6. In the **Encryption Failure X-Header** field, specify an x-header to be added to a message for which encryption has failed. This x-header value must also be set and enabled on your encryption server.
- 7. Select any desired encryption failure options:
  - Mark the Isolate messages to queue check box if you want to enable that option. Select a queue for isolated messages from the drop-down list (default is the virus queue).
  - Mark the Send notification to original sender check box if you want to enable that option.
    - In the Notification Details section, enter the notification message subject and content in the appropriate fields. Mark the **Attach original message** check box if you want the original message included as an attachment to the notification message.

- Select **Deliver message** (default) if you want the message that failed the encryption operation delivered.
- Select **Drop message** if you do not want the message that failed the encryption operation delivered.
- 8. Mark the **Enable decryption** check box if you want to decrypt encrypted messages.
- 9. Select any desired decryption options:
  - In the Content type field, enter the message content types to decrypt, separated by semicolons. Maximum length is 49 characters. Default entries include multipart/signed, multipart/encrypted, and application/pkcs7-mime.
  - In the **X-Header** field, specify a message x-header that identifies a message to decrypt. This x-header value must also be set and enabled on your encryption server.
  - In the **Decryption X-Header** field, specify an x-header to be added to a message that should be decrypted. This x-header value must also be set and enabled on your encryption server.
  - In the **Decryption Success X-Header** field, specify an x-header to be added to a message that has been successfully decrypted. This x-header value must also be set and enabled on your encryption server.
  - In the **Decryption Failure X-Header** field, specify an x-header to be added to a message for which decryption has failed. This x-header value must also be set and enabled on your encryption server.
  - If you want to forward a message that has failed decryption to a specific queue, mark the **On decryption failure** check box, and select a queue for these messages from the drop-down list (default is the virus queue).

# 5

# Working with Filters and Policies

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

## Topics:

- ◆ *Managing filters*, page 119
- ♦ Managing filter actions, page 128
- Managing policies, page 133
- ♦ Managing global Always Block and Always Permit lists, page 139

# **Managing filters**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The following predefined default filter types can be used in email analysis: virus, URL analysis, spam, commercial bulk email, file sandbox, and disclaimer. The virus filter analyzes an email message and its attachments for the presence of viruses and other threats. URL analysis examines email content for embedded URLs and classifies them according to a database of known spam URLs. The spam filter analyzes email content and compares it against a database of known spam characteristics. You can select from a variety of antispam tools, including digital fingerprinting, LexiRules, and heuristics analysis tools. The commercial bulk email filter analyzes a message to determine whether it was sent from a business for advertising purposes. The file sandbox filter inspects email attachment file types that commonly contain security threats (including exe, .pdf, .xls, .xlsx, .doc, .docx, .ppt, .pptx, and archive files). If you want to add text at the beginning or end of a message, use the disclaimer filter.

You can also create a custom content filter to scan a message based on message component conditions you configure. The Email module does not provide a default custom content filter.

Filters are created and managed via the **Main > Policy Management > Filters** page. Click **Add** to open the Add Filter page and set the properties of your new filter (see *Creating and configuring a filter*, page 120).

You can also copy a filter whether or not it is in use by a policy. A filter can be deleted, as long as it is not in use by any policy. However, you cannot copy or delete any default filter.

# Copying a filter

Copy an existing filter by marking the check box to the left of the filter name to select it and clicking **Copy**. Enter a new filter name in the Copy Filter dialog box, and click **OK**. Click the new filter name in the Filters list to open the Edit Filter page and modify filter attributes.

## **Deleting a filter**

Delete a filter from the Filters list by marking the check box to the left of the filter name and clicking **Delete**. You can delete a filter only if it is not being used by a policy.

# Creating and configuring a filter

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

To create a new filter, click **Add** on the **Main > Policy Management > Filters** page. Enter a filter name and description, then select the filter type you want to use. The filter type you choose determines the filter settings you can configure. Select from the following types:

- Custom Content, page 120
- ◆ URL Analysis, page 122
- Antivirus, page 123
- ◆ Antispam, page 124
- ◆ Commercial Bulk Email, page 125
- ◆ File Sandbox, page 126
- ◆ *Disclaimer*, page 128

## **Custom Content**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Use a custom content filter to allow message analysis based on conditions you configure. Add or modify a custom content filter on the **Main > Policy Management > Filters > Add** (or **Edit**) **Filter** page. The Email module does not provide a default custom content filter.

You can choose to trigger your filter on the match of a single condition or the match of all defined conditions by selecting 1 of the following options in the Filter Properties section:

#### **♦** Match all conditions

## ♦ Match any condition

Specify the conditions of your custom filter from a selection of criteria, including message attributes and operators, by clicking **Add** in the Filter Conditions box. In the Add Condition dialog box, select from among the following message attributes and operators to configure your custom filter (all message attributes except DKIM verification include a user-configurable **Filtering criteria** entry field):

Message Attribute	Operator Options	<b>Additional Options</b>
Sender IP address	Is, Is not	None
Envelope sender	Contains, Does not contain, Matches regular expression, Does not match regular expression	None
Envelope recipient	Contains, Does not contain, Matches regular expression, Does not match regular expression	None
Number of envelope recipients	Equals, Does not equal, Is less than, Is greater than	None
From field address	Contains, Does not contain, Matches regular expression, Does not match regular expression	None
To field address	Contains, Does not contain, Matches regular expression, Does not match regular expression	None
Cc field address	Contains, Does not contain, Matches regular expression, Does not match regular expression	None
Message subject	Contains, Does not contain, Matches regular expression, Does not match regular expression	Match case
Message header: partial	Contains, Does not contain, Matches regular expression, Does not match regular expression	Message attribute text (user configured), Match case
Message header: complete	Contains, Does not contain, Matches regular expression, Does not match regular expression	Match case
Message body text	Contains, Does not contain, Matches regular expression, Does not match regular expression	Match case

Message Attribute	<b>Operator Options</b>	Additional Options
Message size	Equals, Does not equal, Is less than, Is greater than	Filtering criteria is in KB
DKIM verification result	DKIM verification is successful, DKIM verification failed	None
True Source IP	Is, Is not	None
Digital Fingerprinting analysis result	Is spam, Is clean	None
LexiRules analysis result	Is spam, Is clean	None
Heuristics analysis result	Equals, Is less than, Is greater than	Enter a floating-point value from 0 - 25. For example, the value 6 corresponds to a heuristics analysis level of Medium.
Email hybrid service analysis result (available only when your subscription includes the Email Hybrid Module)	Equals, Is less than, Is greater than	Enter a floating-point value from 0 - 25. For example, the email hybrid service uses a threshold value of 6 to designate a message as spam.

You can change the order of your filter conditions by marking the check box next to the filter in the Filter Conditions list and clicking **Move Up** or **Move Down**.

Delete a set of filter conditions from the list by marking the check box next to the filter and clicking **Remove**.



## **Note**

You can use the Add (or Edit) Rule page to add a rule for a custom content filter. You must have already defined a custom content filter before you attempt to add a custom content rule. See *Adding a rule*, page 137, for information.

## **URL** Analysis

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

URL analysis analyzes email content for embedded URLs and classifies them according to a Websense database of known spam URLs. When you select the URL analysis filter type in the Main > Policy Management > Filters > Add (or Edit) Filter page, mark the URL analysis check box to display a list of URL categories in the Filter Properties area. Select the URL categories that you want to detect. When the filter detects a URL in a message from a selected category, it applies any configured filter response.

This filter is available only when your system includes a Websense Web protection solution and a download server is configured. See *URL analysis with Websense Web* 

*protection solutions*, page 45, for more information about integrating with Websense Web solutions to use this filter.



#### Note

A filter action option of "Resume message analysis" is available so that message analysis can continue after a URL match is detected. See *Creating and configuring a filter action*, page 129, for information.

Select the URL categories you want the filter to detect in the URL Categories list by marking the appropriate check boxes. Mark the All check box to select all URL categories in the list.

Configure any of the following filter responses:

• Replace matching URLs with. Mark this check box to enable the filter to replace a URL in a message from a target category with a text string. Enter the replacement text in the entry field to the right of the check box (maximum length is 128 characters).



#### Note

When a matching URL is detected during message analysis, the rest of the message is not examined by the URL filter and a subsequent URL may not be replaced. For example, if a URL is detected in a message header, the message body is not analyzed, and the URL in the message body will not be detected and replaced.

◆ Bypass URL analysis if message size exceeds. If you want message size to determine whether URL analysis is bypassed, mark this check box and enter a message size in KB (default is 128).

Dashboard charts summarize the instances of embedded URLs that are detected. See *Available dashboard charts*, page 14, for the names of these charts.

## **Antivirus**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Antivirus analysis checks email and any attachments for the presence of email-borne viruses and threats.

Configure how you want the filter to examine messages for viruses from among the **Filter analysis** options:

- ◆ Treat errors as infected. If antivirus analysis encounters errors, the email is handled as if it is infected. The default setting is on.
- ◆ Treat encrypted files as infected. A message that is encrypted in a way that the antivirus engine does not understand is treated as infected. The default setting is on.

- ◆ Treat suspicious document as infected. If antivirus analysis encounters a PDF document that contains active content, including exploits and malicious scripts, the message is handled as if it is infected. Default setting is off.
- ◆ Treat malicious embedded iFrame as infected. If antivirus analysis detects an HTML page that contains a hidden malicious iFrame, the message is treated as infected. Default setting is off.
- ◆ Scan message body for viruses. Message content is analyzed for embedded malicious scripts or attachments that cannot be examined properly. If message format problems cause attachments to be seen as part of the message body, the attachments are analyzed and viruses are detected. Default setting is off.

Configure 1 of the 4 levels of heuristics analysis you want performed in the **Heuristic level** section, from least restrictive (heuristics analysis disabled) to most restrictive. The **Enable normal level of heuristics** is the default setting.

Configure 1 of the following filter responses:

- Remove infected attachments. Deletes the attachment that triggers the antivirus filter.
- ◆ **Take no action.** This is the default action. The attachment and virus are stored in a predefined location (see *Creating and configuring a filter action*, page 129, for information). If required, a message may be sent to the administrator stating that a virus has been found.

You may also add a notification to a suspected virus email, to alert a recipient that the message may be infected. Use the **Advanced** settings to configure the notification function:

- 1. Mark the **Notify recipient** check box to enable the notification function.
- 2. Enter the desired notification text in the entry field below the check box (maximum length of 8192 characters total, up to 990 characters per line; a line break is 2 characters).
- 3. Specify whether the notification should appear at the top of the message or at the bottom. Default location is at the top of the message.

## **Antispam**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The antispam analysis function checks email for various characteristics of spam. If the email hybrid service is enabled and configured as a pre-filter, it performs antispam analysis as well. (Email Hybrid Module is required.) If email hybrid service is not configured or available, a combination of other on-premises tools are used for effective antispam analysis.

The email hybrid service analyzes incoming email and blocks any message that it recognizes as spam. Mail that the hybrid service allows into the system for processing includes a header that contains an analysis result score. The email system uses this score to determine how to handle the message. If that score exceeds a specified spam threshold, the email system treats the message as spam and handles it according to

applicable policy. In this case, the on-premises email protection software does not perform its own, separate antispam analysis.

Email hybrid service must be configured and running for this option to be displayed. In the **Email Hybrid Service Analysis** box, mark the **Use email hybrid service analysis with a threshold score for spam of** check box to enable email hybrid service spam scoring. Select a spam score from the drop-down list (floating point number between 0 and 20; default is 6).

If this check box is not marked (the default) or email hybrid service is not enabled, the on-premises software performs a complete antispam examination using any or all of the following tools in the Filter Properties Tools list.

- ◆ **Digital Fingerprinting analysis.** When enabled, digital fingerprint analysis checks content for any digital fingerprint of known spam.
- ◆ LexiRules analysis. When enabled, the LexiRules tool analyzes email content for word patterns commonly found in spam.
- ◆ **Heuristics analysis.** When enabled, heuristics analysis checks the message header or content for spam characteristics.
  - Set the heuristics analysis sensitivity level, from lowest to highest (default is Medium).

If you want message size to determine whether antispam analysis is bypassed, mark the **Bypass antispam analysis if message size exceeds** check box and enter a message size in KB (default is 1024).

## Commercial Bulk Email

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Unlike spam email, commercial bulk email is often solicited by its recipients, sometimes inadvertently. For example, a user might neglect to clear a check box to "Share my personal information with selected partners" on a typical "opt out" privacy rights form. The commercial bulk email filter can analyze a message to determine whether it was sent from a third-party bulk email management company or directly from a business.

If your subscription includes the Email Hybrid Module, you can activate commercial bulk email analysis as part of the email hybrid service pre-filtering process. The results of pre-filtering are added in the message header passed to on-premises email protection software, which uses the hybrid service score to determine how the message is processed. Mark the **Use email hybrid service analysis result to determine the type of on-premises analysis to perform** option to enable this function.

After you select the commercial bulk email filter type, choose the sensitivity level for the filter:

◆ Normal: Analyze email source. Use this option if you want the filter to detect email only from indirect (third-party) sources of bulk email (default).

◆ **High:** Analyze email source and content. Use this option if you want the filter to detect both direct and indirect sources of bulk email.

If you want message size to determine whether commercial bulk email analysis is bypassed, mark the **Bypass commercial bulk email detection if message size exceeds** check box and enter a message size in KB (default is 1024).

A commercial bulk default filter action can be used along with this filter. See *Managing filter actions*, page 128, for information.

## File Sandbox

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The file sandbox is a cloud-hosted sandbox for deep content inspection of types of files that are common threat vectors (including .exe, .pdf, .xls, .xlsx, .doc, .docx, .ppt, .pptx, and archive files). Use the file sandbox filter to configure file type analysis for your network. This capability is available only if your subscription includes the Email Sandbox Module.

The filter can be used in either monitor or enforce mode, with an option for sending a notification message when the enforce mode is active, the filter is triggered, and the attachment is sent to the file sandbox for analysis. You can define conditions that, when met, allow a message to bypass the file sandbox filter.

After you select the file sandbox filter type and enter a name and description, specify 1 of the following operational modes for the filter:

- Monitor (default). Message is delivered to its recipient, and a copy is sent to the file sandbox for analysis. If analysis determines that the attachment is clean, no report is returned. If analysis determines the attachment is malicious, the message is copied to a specified queue. A notification email regarding the analysis result can be sent.
  - The corresponding filter action should be configured to ensure that the email message that triggered the filter is dropped and saved to a specified queue (Main > Policy Management > Actions). Default queue is the virus queue.
- ◆ Enforce. Message is held in a queue until the file sandbox analysis is performed. If analysis determines that the attachment is clean, message processing is resumed. If analysis determines the attachment is malicious, the email is quarantined. A notification email regarding the analysis result can be sent.
  - The corresponding filter action should be configured to ensure that the email message that triggered the filter is dropped and saved to a specified queue (Main > Policy Management > Actions). Default queue is the virus queue.
- Enforce and notify. Message is held in a queue until the file sandbox analysis is performed, and an email notifying the recipient that analysis is underway can be sent. Mark the Send enforcement notification check box to configure this message, which contains the original message as an attachment. The message attachment is handled as follows:
  - Some file types are converted to plain text (.pdf, .doc/.docx, .xls/.xlsx, and .ppt/.pptx).

• Files of other types are removed and only the filename appears in the message (.exe and archive files).

The corresponding filter action should be configured to ensure that the email message that triggered the filter is dropped and saved to a specified queue (Main > Policy Management > Actions). Default queue is the virus queue.

The email notification contains the following components:

- **Sender.** Identify the notification message sender, from among the following options:
  - Original email sender
  - Administrator (default). If you use this option, you must configure a valid administrator email address in the Settings > General > System Settings page (see Setting system notification email addresses, page 53).
  - Custom. If you choose this option, you can designate only 1 sender address.
- **Recipient.** Identify the notification message recipient, from among the following options:
  - Original email recipient
  - Administrator. If you use this option, you must configure a valid administrator email address in the Settings > General > System Settings page (see Setting system notification email addresses, page 53).
  - Custom. If you choose this option, you can designate 1 or more recipient addresses, separated by semicolons.
- **Subject.** Enter the subject that you want to be displayed when the notification is received.
- **Content.** Enter the text that you want to be displayed in the notification message body.
- ◆ **Attachment.** Specify whether you want to include the original message as an attachment to the notification message. Select from among the following:
  - Do not attach message (default)
  - Attach filtered message

See *Creating and configuring a filter action*, page 129, for information about configuring an action for the file sandbox filter.

Select the file types you want the file sandbox to find and analyze by marking the appropriate check boxes.

You can configure bypass options for messages that you want to skip file sandbox analysis. Click **Add** in the bypass conditions section and specify the following information:

- Condition name. Specify a name for each set of bypass conditions.
- ◆ Sender email address/domain. Enter an individual email address or domain. Use an asterisk (\*) for wildcard entries, and separate multiple entries with a semicolon (;).

◆ Attachment filename keyword. Enter a character string that is included in the attachment filename.

Edit an existing bypass condition set by clicking the condition name in the bypass conditions table.

If you want message size to determine whether file sandbox analysis is bypassed, mark the **Bypass file sandbox analysis if message size exceeds** check box and enter the target file size (default is 32 MB).

## Disclaimer

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The disclaimer filter automatically adds defined text to the beginning or end of a message. Specify the desired text in the Filter Properties section of the Add Filter or Edit Filter page for the Disclaimer filter.

A primary disclaimer may be written in any language, as long as the email message supports the same character set.

The secondary disclaimer must be written in English, to be used when the email does not support the primary disclaimer character set.

Disclaimer text may be between 4 and 8192 characters in length. A line break uses 2 characters

Specify where the disclaimer should appear in the email:

- **♦** Beginning of message
- **♦** End of message

Mark the **Enable Report Spam feature** check box to allow message recipients to report a message as spam. The link in the disclaimer text sends the recipient to the Personal Email Manager, where the message can be reported from the quarantined message list to Websense as spam.

# Managing filter actions

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

A filter action determines a message's final disposition. The email protection software analyzes messages and their attachments, and then performs an action based on applicable policy settings. Actions are created in the **Main > Policy Management > Actions** page. You can add a defined action to a policy rule when you configure your email policies.

In addition to defining an action used in an email policy, you can create an action for use in an email DLP action plan in the Data module. See *Data Security Manager Help* for information about DLP action plans.

For most network configurations (i.e., single standalone appliance or single appliance cluster), the property settings available for creating an action for an email DLP policy are the same as those for a policy action configured for the email protection software. However, if your network includes multiple standalone appliances or multiple clusters, the DLP policy action settings available when an action is initially created are limited. Unless otherwise noted, the following procedures apply to both email and DLP policy actions.

Create a new filter action by clicking **Add** and selecting action properties (see *Creating and configuring a filter action*, page 129).

You can remove a filter action by marking the check box to the left of the filter name to select it and clicking **Delete**. You can delete a filter action only if its current status is **Not referenced**, which means that the action is not currently used in a policy rule or action plan. A filter action that is currently referenced by a filter or action plan does not have a check box for selection. You cannot remove a default email filter action.

The following default actions are available:

- ◆ Virus. Drop the filtered message and save the original message to the virus queue. Allow a Personal Email Manager end user to view and manage the message.
- URL Analysis. Drop the analyzed message and save the original message to the spam queue. Allow a Personal Email Manager end user to view and manage the message.
- Spam. Drop the analyzed message and save the original message to the spam queue. Allow a Personal Email Manager end user to view and manage the message.
- ◆ Commercial Bulk. Deliver the analyzed message and add "COMMERCIAL:" to the message subject. Allow a Personal Email Manager end user to view and manage the message.
- ◆ File Sandbox. Drop the analyzed message and save the original message to the virus queue. Send a notification message without attaching the original email to the original email sender.

# Creating and configuring a filter action

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

You can add a filter action and configure its properties on the Main > Policy Management > Actions page. Click Add to open the Add Action page and enter an action name.

In the **Used by** drop-down list, select the policy type for which this action can be used: **Email** or **Data**. Your selection here determines which action properties are available when you create the action.

Email policy action options include:

- Deliver message (default)
- Resume processing

◆ Drop message

DLP policy action options include:

- ◆ Deliver message (default)
- Drop message

The deliver message option includes the same action properties for both email and DLP actions. However, in some cases, their behavior for an email policy action and a DLP policy action in a single appliance/single cluster network is different from that for a DLP policy action that is created in a multiple appliance/multiple cluster environment.

## Deliver message

Select **Deliver message** when you want an email message delivered to its intended recipient. This option is the default selection for both an email policy action and a DLP action.

If you choose this option, you can also define the following message delivery options:

◆ Enable header modification. Mark this check box to open a set of header modification condition entry fields. Options include the following:

Condition	Parameters
Add or rewrite header value	Header name, To value
Remove header	Header name
Remove header if condition matches	Header name, If header contains the value
Find and replace header value	Header name, Find, Replace with
Add or append to header value	Header name, Add/append value
Add or prepend to header value	Header name, Add/prepend value

Click the icons at the end of each condition line to delete the current header modification condition or to add a new condition below the current condition.

- ◆ Bcc the original unanalyzed message to. Enter at least 1 email address to which you want a blind copy of the unanalyzed message sent, for example, the email system administrator. Separate multiple email addresses with a semicolon.
- Delay message delivery until. Specify a day and time for a delayed message delivery. You may select this option if you want to delay the delivery of a message for some reason. This action option is recommended for use with a Custom Content filter in a policy rule. See Custom Content, page 120, for information about a custom content filter.

• Use IP address. Specify an appliance IP address from the drop-down list for message delivery. Only standalone appliances are included in the IP address list.



#### Note

This option is available for a DLP action being created in a multiple standalone appliance environment. The default setting is the appliance E1 or P1 interface.

This setting may be customized for each standalone appliance.

The IP addresses in the list are configured in the Websense appliance. (See the *Websense Appliance Manager Help* or *Using the X-Series Command Line Interface (CLI)* for information.)

This feature is useful if you want to route a large volume of outbound email. This action option is recommended for use with a Custom Content filter in a policy rule. See *Custom Content*, page 120, for information about a custom content filter.

◆ Deliver email messages based on domain-based route. Specify message delivery via a defined domain-based route. Select the desired route from the drop-down list. You can also modify the selected route by clicking Edit Route.



#### Note

This option is available for a DLP action being created in a multiple appliance/multiple cluster environment. The default setting is the domain-based route (Settings > Inbound/Outbound > Mail Routing). Change the default setting by selecting Add Domain Based Route in the drop-down list.

This setting may be customized for each appliance.

◆ Save the original message to a queue. Send the message to a specified message queue for further processing. Select the Add Queue option to add a new queue for this filter action.



#### Note

This option is available for a DLP action being created in a multiple appliance/multiple cluster environment. The default setting is **data-security**. Change the default setting by selecting **Add Queue**.

This setting may be customized for each appliance.

- **Personal Email Manager portal options.** This option is enabled only when the **Save the original message to a queue** option is marked. Specify how the queued message is handled in the Personal Email Manager end-user facility by selecting 1 of the following:
  - **View and manage message.** Allow the end user to view the message and perform any action available in the Personal Email Manager end-user tool.

- **Do not show.** Ensure the message does not appear in the Personal Email Manager end-user portal.
- Message log only. Pertinent information about the message appears in the Personal Email Manager end-user portal, but the end user has only limited access. The user cannot view message content; deliver, download, or forward the message; or add the address to the personal Always Block or Always Permit lists.

## Resume processing

Select **Resume processing** when you want to continue message analysis using the next filter in sequence if the current filter is triggered (for example, after a URL match is detected in a message). If this option is the final triggered filter's action, the message is delivered.

Additional message action options are the same as for message delivery.

## **Drop message**

Select **Drop message** when you want to delete a message without delivering it to its intended recipient. This option is available for both email and DLP policy actions.

You can forward a dropped message by marking the **Forward to** option and entering at least 1 email address.

You can also configure the **Save the original message to a queue** option to send the message to a specified message queue for further processing. Marking this check box enables the **Personal Email Manager portal options** described for the message delivery filter action.



#### Note

This option is available for a DLP action being created in a multiple appliance/multiple cluster environment. The default setting is **data-security**. Change the default setting by selecting **Add Queue**.

This setting may be customized for each appliance.

## **Drop attachment**

Select **Drop attachment** if you want to remove an attachment from an email message as part of the policy action. This option is available only for DLP policy actions.

## Send notification

The **Send notification** option is available for configuring a predefined notification about an email sent to specified recipients. The notification contains the following components:

• **Sender.** Identify the notification message sender, from among the following options:

- Original email sender
- Administrator (default). If you use this option, you must configure a valid administrator email address in the Settings > General > System Settings page (see Setting system notification email addresses, page 53).
- Custom. If you choose this option, you can designate only 1 sender address.
- **Recipient.** Identify the notification message recipient, from among the following options:
  - Original email sender
  - Original email recipient
  - Administrator. If you use this option, you must configure a valid administrator email address in the Settings > General > System Settings page (see Setting system notification email addresses, page 53).
  - Custom. If you choose this option, you can designate 1 or more recipient addresses, separated by semicolons.
- ◆ **Subject.** Enter the subject that you want to be displayed when the notification is received. The default subject is "WARNING: Message may contain malicious content."
- ◆ **Content.** Enter the text that you want to be displayed in the notification message body.
- ◆ **Attachment.** Specify whether you want to include the original message as an attachment to the notification message. Select from among the following:
  - Do not attach message (default)
  - Attach original unanalyzed message
  - Attach analyzed message

# Editing an existing filter action

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

You can edit an existing filter action by clicking the action name on the **Main > Policy Management > Actions** page. The Edit Action page opens, displaying the current action properties. Modify any of the options listed in *Creating and configuring a filter action*, page 129.

You can also use this operation to change any default property configured when you created a data action. See *Resume processing*, page 132, for default setting details.

# Managing policies

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

An email policy is applied based on defined sender/recipient conditions and the direction of the email. You can apply a different policy to different groups of senders and recipients. For example, you might apply a policy to a marketing department

group in your organization and a different policy to a human resources group. After you define a set of senders and recipients in a policy, you can add the policy rules to apply when the sender/recipient conditions of the email match the policy.

Policy rules comprise the filters and filter actions that determine how a message that matches a policy's sender/recipient conditions is handled. Filters provide the basis for email analysis, and filter actions determine the final disposition of a message when it triggers a particular filter. After you have created and configured filters and filter actions, they are available for inclusion in your policies. See *Managing filters*, page 119, and *Managing filter actions*, page 128, for information about configuring filters and filter actions.

Three types of policies are available, depending on the direction of the email—inbound, outbound, or internal. Message direction is determined on the basis of an organization's protected domains:

- ◆ Inbound The sender address is not from a protected domain, and the recipient address is in a protected domain
- Outbound The sender address is from a protected domain, and the recipient address is not in a protected domain
- Internal Both the sender and recipient addresses are in a protected domain.

One predefined default policy is available for each email direction, along with a default data loss protection (DLP) policy for each direction.

Data loss protection policies may be applied to email in any direction. These policies are configured in the Data module of the TRITON Manager and can only be enabled or disabled in the Email module. You need to register the Email module with the Data module and click **Deploy** in the Data module for the policies to be active. See *Enabling data loss protection policies*, page 135 for details.

## Changing policy order

After you add a policy, you can select it and use the **Move Up** and **Move Down** buttons to move it up or down in the policy list in order to specify when the policy is applied. When message conditions match a policy, subsequent policies in the list are not applied.

You cannot change the order of default policies. They are applied last when a message matches no other policy.

## **Deleting a policy**

You can remove a policy by marking the check box next to the policy name on the Policies page and clicking **Delete**. Note that a default policy cannot be deleted.

## Related topics:

- Enabling data loss protection policies, page 135
- ◆ Editing a policy, page 136
- ◆ Adding Sender/Recipient Conditions, page 137
- ◆ *Adding a rule*, page 137
- Editing rules, page 138

# **Enabling data loss protection policies**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

In addition to creating and enabling policies that protect your email system from email threats, you can enable DLP policies that can detect the presence of sensitive data in your organization's email and execute appropriate actions to prevent data loss. You can use DLP policies for inbound, outbound, and internal email.

Email DLP policies must be configured in the TRITON Manager Data module (Main > Policy Management > DLP Policies > Manage Policies). A new policy wizard provides the steps for creating a new email DLP policy. See *Data Security Manager Help* for detailed information.

You should create a DLP policy in the Data module if you want to use message encryption. Ensure the policy has an action plan of "encrypt." See *Handling encrypted messages*, page 111, for information about email encryption options.

You can also create filter actions for use in a DLP action plan. See *Creating and configuring a filter action*, page 129, for information about configuring a DLP filter action.

Data loss protection policies are enabled by default in the Email module. However, the Email module must be registered with the Data module before the policies are applied to email. See *The dashboard*, page 9, for instructions on how to register with the Data module.

If you need to enable DLP policies for some reason, click the DLP policy name on the **Main > Policy Management > Policies** page for inbound, outbound, or internal email, and set the following options in the Edit Policy page:

- Status: Enabled or Disabled. Enable or disable the DLP policy. Data loss protection policies are enabled by default.
- ◆ Mode: Monitor or Enforce. Select Monitor if you want the data loss protection function to simply monitor your email, and select Enforce if you want to apply DLP policies to your email.
- **Notification.** Add a notification to a message when an email attachment to that message has been dropped as a result of a DLP policy.

- 1. Mark the **Send notification when attachment of the message is dropped** check box to enable the sending of notifications.
- 2. Enter the notification message text.
- 3. Determine whether the notification text appears above or below the message body of the mail whose attachment was dropped.



#### Note

A message that triggers a DLP policy whose action is Quarantine is isolated in the Data module quarantine queue, not in an Email module queue. The message can be released for delivery by the Data module.

## **Editing a policy**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Use the **Main > Policy Management > Policies** page to create a new inbound, outbound, or internal policy.

1. Click **Add** to open the Add Policy page and enter a unique **Policy name**. The policy name must be between 4 and 50 characters long. Use of the following special characters in the policy name is not recommended:

Policy names can include spaces, dashes, and apostrophes.

2. Enter a clear and concise **Description** of the policy.

The special character recommendations that apply to policy names also apply to descriptions.

3. Define the order in which this policy is applied in the **Order** field.

By default the new policy is placed at the top of the list. You cannot have multiple policies with the same order number. If you select a number that is already in use, the policy that currently has that number and all those below it move down 1 place in the list.

4. Define your Sender/Recipient Conditions.

By default, each new policy contains a sender/recipient condition that applies the policy to all email senders and recipients. To add more conditions click **Add**, and then see *Adding Sender/Recipient Conditions*, page 137.



#### Note

You must define at least 1 sender/recipient condition. A policy that does not contain a sender/recipient condition will not be applied.

- 5. Edit the available **Rules** to tailor the filters and actions to this policy. Click a rule name, and then see *Editing rules*, page 138.
- 6. Click **OK** to save your policy.

#### **Adding Sender/Recipient Conditions**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Use the **Add Policy > Add Sender/Recipient Condition** page to specify the sender(s) and recipient(s) to which this policy applies. You can make the policy as wide-ranging as required, for example applying it to all users, or all users receiving mail in a particular domain, or specific email addresses only.

For each sender/recipient condition, you must select a **Sender Source** and **Recipient Source**:

- ◆ If you select **Local Address**, enter the sender or recipient email addresses to use with the policy. You can use the asterisk wildcard to specify combinations, for example:
  - \*.mycompany.com applies the policy to all users with a mycompany.com email address
  - \*sales@mycompany.com applies the policy to a subset of all email addresses in mycompany.com, such as us\_sales@mycompany.com and uk\_sales@mycompany.com
  - john.doe@mycompany.com applies the policy to a specific user.

To apply the policy to all email addresses, enter an asterisk (\*).

- If you select **User directory**, select the directory source from the drop-down list. You must set up a user directory to connect to before selecting this option. Select **Add User Directory** to create a new directory source.
- ◆ If you select **Domain group**, select the domain source from the drop-down list of existing domain groups or add a new domain group by selecting **Add Domain Group**.

Once you have made your selections, click **OK** to return to the Add or Edit Policy page.

# **Deleting Sender/Recipient Conditions**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

To delete a sender/recipient condition, on the Add or Edit Policy page check the box next to the condition ID and then click **Delete**.

A policy should contain at least 1 sender/recipient condition.

# Adding a rule

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

A policy rule comprises the filter applied to a message that matches a policy's sender/recipient conditions and the action taken when that message triggers the filter. The following default rules are available:

• Antivirus. Rule is enabled and uses the default virus filter and filter action.

- URL Analysis. Rule is enabled and uses the default URL analysis filter and filter action.
- Antispam. Rule is enabled and uses the default spam filter and filter action.
- ◆ Commercial Bulk. Rule is enabled and uses the default commercial bulk filter and filter action
- File Sandbox. Rule is enabled and uses the default File Sandbox filter and filter action
- **Disclaimer.** Rule is disabled, but when enabled, uses the default disclaimer filter.

You may create a new rule only in combination with a custom content filter.

Use the following steps to add a policy rule with a custom content filter:

- 1. Click **Add** in the Rules section to open the Add Rule page.
- 2. Enter a name for your rule in the **Rule Name** entry field.
- 3. Select the desired policy status, **Enabled** (the default) or **Disabled**.
- 4. Select the order in which you want your rule applied. By default, a new custom content rule is created in the first position. Use the **Move Up** and **Move Down** buttons to adjust custom content rule order. The Disclaimer rule is always applied last.
- 5. Select a custom content filter from the **Filter name** drop-down list. If you have not created a custom content filter, this list contains only the entry **Add filter**. Choose this entry to open the Add Filter page to define a new custom content filter. The filter type is always **Custom Content**. See *Creating and configuring a filter*, page 120, for information.
- 6. Configure a filter action in 1 of the following ways:
  - Select a default filter action from the **Action name** drop-down list. If you want to change the default action settings, click **Edit**.
  - You can also create a new action for your rule by selecting Add Action from the drop-down list.

See *Creating and configuring a filter action*, page 129, for information.

# **Editing rules**

Click a rule name, and use the **Add Policy** > **Edit Rule** page to define what happens to an email message that matches the sender/recipient conditions and triggers the policy. This page contains the filter and filter action that currently define the rule that you clicked. You can also define message sender/recipient conditions that, when met, allow a message to bypass the filter.

#### **Editing the filter**

To edit the filter, click **Edit** in the Filter section to open the Edit Filter page. Modify filter characteristics as described in *Creating and configuring a filter*, page 120.

#### **Editing the filter action**

To edit the filter action, click **Edit** in the Action section to open the Edit Action page. Modify action options as described in *Creating and configuring a filter action*, page 129.



#### Note

Any change you make to existing rule components will be reflected in the filter and action definitions you configured in the **Main > Filters** and **Main > Actions** pages. The changes are not unique to the individual policy.

#### **Adding filter bypass conditions**

To add filter bypass conditions, click **Add** in the Filter Bypass Condition section to open the Add Filter Bypass Conditions page. You can create filter bypass entries in both the Sender Email Addresses and Recipient Email Addresses sections in 1 of the following ways:

- ◆ Add a predefined email address list by clicking **Browse** next to the Email Address File field and navigating to the desired text file. The file format should be 1 email address per line, up to a maximum of 8 addresses.
- Enter an individual email address in the **Email address** field. Click the right arrow button to add the individual entry to the **Email Address List** on the right.

An asterisk (\*) may be used in an address as a wildcard.

Click **OK** to save your bypass entries.

You can delete an entry in an Email Address List by selecting it and clicking **Remove**. Export and save an address list as a text file by clicking **Export All**.

You cannot use these settings to bypass a custom content filter.

# Editing an existing policy

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

You can edit an existing policy by clicking its name on the Policies page to open the Edit Policy page. Edit the Description, Status, Sender/Recipient Conditions, and Rules as described in *Editing a policy*, page 136. You will not be able to edit the policy name.

You can edit policy order only for a policy you have created. You cannot edit policy order for a default policy.

# Managing global Always Block and Always Permit lists

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Maintaining lists of IP and email addresses that are either always blocked or always permitted can contribute to the efficiency of your email protection system. Bandwidth and time can be saved when trusted mail can bypass some analysis features (including antispam, commercial bulk, and URL analysis).



#### **Note**

Mail from addresses in the global Always Permit list is subject to other email analysis, including antivirus analysis, message control, connection control, directory harvest attack, and relay control.

# Managing the Always Block List

You can add an IP or email address directly into the Always Block List from the **Main > Policy Management > Always Block/Permit** page. You can also add a predefined IP or email address list, remove individual entries from a list, export a list to your desktop as a text file, and search a list.

Messages from an email address that appears in both the Always Block and Always Permit lists will be permitted. Messages from an IP address that appears in both lists will be blocked.

After you finish adding your address entries, you can export the list as a text file by clicking the **Export All** button and opening your text file or saving it to a desired location.

Remove an individual entry by selecting it in the IP or Email Address List and clicking **Remove**. You can also search your list for entries by entering keywords in the search field and clicking **Search**.

# Adding an IP address to the Always Block List

Use the following procedures to add IP addresses to the Always Block list:

- 1. Click the **Always Block** tab.
- 2. In the IP Address Block List section of the page, add a predefined IP address list by clicking **Browse** and navigating to the desired text file. The file format should be 1 IP address per line, and its maximum size is 10 MB.
- 3. You can also enter an individual IP/subnet address in the **IP/Subnet address** field. Click the right arrow button to add the individual entry to the **IP Address List** on the right.
- 4. Click OK.

# Adding an email address to the Always Block List

Use the following procedures to add email addresses to the Always Block list:

1. Click the **Always Block** tab.

- 2. In the Email Address Block List section, add a predefined email address list by clicking **Browse** and navigating to the desired text file. The file format should be 1 email address per line, and its maximum size is 10 MB.
- 3. You can also enter an individual email address in the **Email address** field. Click the right arrow button to add the individual entry to the **Email Address List** on the right.
- 4. Click **OK**.

# **Managing the Always Permit List**

You can add an IP or email address directly into the Always Permit List from the **Main > Policy Management > Always Block/Permit** page. You can also add a predefined IP or email address list, remove individual entries from a list, export a list to your desktop as a text file, and search a list.

Email from an address that appears in both the Always Block and Always Permit lists will be permitted. Messages from an IP address that appears in both lists will be blocked.

After you finish adding your address entries, you can export the list as a text file by clicking the **Export All** button and opening your text file or saving it to a desired location.

Remove an individual entry by selecting it in the IP or Email Address List and clicking **Remove**. You can also search your list for entries by entering keywords in the search field and clicking **Search**.

#### Adding an IP address to the Always Permit List

Use the following procedures to add IP addresses to the Always Permit List:

- 1. Click the Always Permit tab.
- 2. In the IP Address Permit List section of the page, add a predefined IP address list by clicking **Browse** and navigating to the desired text file. The file format should be 1 IP address per line, and its maximum size is 10 MB.
- 3. You can also enter an individual IP/subnet address in the IP/Subnet address field. Click the right arrow button to add the individual entry to the IP Address List on the right.
- 4. Click **OK**.

# Adding an email address to the Always Permit List

Use the following procedures to add email addresses to the Always Permit list:

- 1. Click the **Always Permit** tab.
- 2. In the Email Address Permit List section, add a predefined email address list by clicking **Browse** and navigating to the desired text file. The file format should be 1 email address per line, and its maximum size is 10 MB.

- 3. You can also enter an individual email address in the **Email address** field. Click the right arrow button to add the individual entry to the **Email Address List** on the right.
- 4. Click **OK**.

#### **Enabling the Dynamic Always Permit List**

Enabling the Dynamic Always Permit List function allows some mail exchanged between a sender/recipient address pair to bypass antispam filtering. When mail between a sender to a recipient does not trigger an antispam filter a specified number of times, that sender/recipient address pair is added to the Dynamic Always Permit List. Antispam analysis is not performed on mail between this sender/recipient address pair. When a specified timeout period has elapsed, the address pair is removed from the list.

The **Enable Dynamic Always Permit list** check box is enabled by default in the Dynamic Always Permit List section. The following settings can be modified:

- 1. In the **Occurrence** field, specify the number of spam-free email exchanges (from 1 to 5) required before a sender/recipient pair is added to the list. Default is 1.
- 2. In the **Timeout** field, enter a value for the timeout interval in hours (from 1 to 720). Default is 720.

Clear the list manually by clicking the **Clear Dynamic Always Permit List** button. Note that if you disable this function, the list is automatically cleared.

# 6

# **Working with Reports**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

#### Topics:

- ◆ Configuring Log Database options, page 143
- Changing the Log Database, page 148
- Configuring reporting preferences, page 149
- Working with presentation reports, page 150

# **Configuring Log Database options**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The Log Database stores the records of email traffic activity and the associated email analysis on that traffic. These data records are used to generate presentation reports of email activity, including size and volume of email messages and identification of senders and recipients. They are also used to generate the status charts on the dashboard.

Administering the Log Database involves controlling many aspects of database operations, including the timing of maintenance tasks, the conditions for creating new database partitions, and which partitions are available for reporting. Use the **Settings > Reporting > Log Database** page to manage Log Database operations.

Click the **OK** button within each section of the Log Database page to save and implement the changes in that section.

Making changes to Log Database settings on 1 appliance applies those changes to all the appliances in your network.

A Log Database Location section at the top of the page lets you enter the IP address\instance or hostname\instance of your Log Database server. By default, the Log Database created at installation is entered. If you chose to encrypt the database connection at product installation, the **Encrypt connection** check box is marked. If

you did not select the encryption option during installation, you can encrypt the database connection by marking the check box here.



#### **Important**

You must have imported a trusted SSL certificate to the Log Server machine in order to use SSL for the encryption option. See your database documentation for information about importing a trusted certificate.

Other settings created at installation and displayed here include the designated authentication method (Windows or SQL Server), user name, and password.

Click **Check Status** to determine the availability of the server.

The top of the Log Database Options section displays the name of the active Log Database and a Refresh link. Click **Refresh** to update the information shown on the Log Database page. Be sure you save your settings before you click **Refresh**, because any unsaved changes on the page will be cleared.

Use the Database Rollover Options section of the **Settings > Reporting > Log Database** page to specify when you want the Log Database to create a new database partition, a process called a rollover.

Use the **Roll over every** option to indicate whether database partitions should roll over based on size (MB) or date (weeks or months).

- For size-based rollovers, select MB and specify the number of megabytes the database must reach for the rollover to begin, from 100 10240 MB (default is 5120).
- ◆ For date-based rollovers, select either weeks or months as the unit of measure, and specify how many full calendar weeks (from 1 52) or months (from 1 12) to keep in a database partition before a new one is created.



#### Note

If the rollover begins during a busy part of the day, performance may slow during the rollover process.

To avoid this possibility, some environments choose to set the automatic rollover to a long time period or large maximum size. Then, they perform regular manual rollovers to prevent the automatic rollover from occurring.

See *Creating database partitions*, page 146, for information on manual rollovers.

Keep in mind that extremely large individual partitions are not recommended. Reporting performance can slow if data is not divided into multiple, smaller partitions.

When a new database partition is created, reporting is automatically enabled for the partition (see *Enabling database partitions*, page 147).

Click **OK** to activate changes to the database rollover options.

# **Configuring maintenance options**

Use the Maintenance Configuration section of the **Settings > Reporting > Log Database** page to control certain aspects of database processing, such as the time for running the database maintenance job, some of the maintenance tasks performed, and deletion of database partitions and error logs.

- 1. For **Maintenance start time**, select the time of day for running the database maintenance job. Default value is 1:00.
  - The time and system resources required by this job vary depending on the tasks you select in this area. To minimize any impact on other activities and systems, it is best to run this job during a slow email traffic period.
- 2. Mark the **Automatically delete a partition with an end date older than** check box, and then specify the number of days (from 1 to 365) after which partitions should be deleted (default is 365).



#### Warning

After a partition has been deleted, the data cannot be recovered. See *Enabling database partitions*, page 147, for an alternative way to delete partitions.

3. Mark the **Enable automatic reindexing of partitions on** check box, and then select a day of the week to have this processing performed automatically (default is Saturday).

Reindexing the database is important to maintain database integrity and to optimize reporting speed.



#### **Important**

It is best to perform this processing during a quiet time for email traffic. Reindexing database partitions is resource intensive and time consuming. Reports should not be run during the reindexing process.

4. Mark the **Delete failed batches after** check box and then enter a number of days (from 1 to 365) after which to delete any failed batches. Default value is 20.

If this option is not checked, failed batches are retained indefinitely for future processing.

If there is insufficient disk space or inadequate database permissions to insert log records into the database, the records are marked as a failed batch. Typically, these batches are successfully reprocessed and inserted into the database during the nightly database maintenance job.

However, this reprocessing cannot be successful if the disk space or permission problem is not resolved. Additionally, if the **Process any unprocessed batches** option is not selected, failed batches are never reprocessed. They are deleted after the time specified here.

- 5. Mark the **Process any unprocessed batches** check box to have the nightly database maintenance job reprocess any failed batches.
  - If this option is not checked, failed batches are never reprocessed. They are deleted after the time specified in step 4, if any.
- Mark the **Delete the log after** check box, and then enter a number of days (1 to 120) after which to delete database error records. Default value is 45.
   If this option is not checked, error logs are retained indefinitely.
- 7. Click **OK** to activate changes to the maintenance configuration options.

# **Creating database partitions**

Database partitions store the individual log records of email traffic activity. Microsoft SQL Server users can configure the Log Database to start a new partition based on partition size or a date interval (see *Configuring Log Database options*, page 143, for more information).

When partitions are based on size, all incoming log records are inserted into the most recent active partition that satisfies the size rule. When the partition reaches the designated maximum size, a new partition is created for inserting new log records.

When the partitions are based on date, new partitions are created according to the established cycle. For example, if the rollover option is monthly, a new partition is created as soon as any records are received for the new month. Incoming log records are inserted into the appropriate partition based on date.

Database partitions provide flexibility and performance advantages. For example, you can generate reports from a single partition to limit the scope of data that must be analyzed to locate the requested information.

Use the Database Partition Creation section of the **Settings > Reporting > Log Database** page to define characteristics for new database partitions, such as location and size options. This area also lets you create a new partition right away, rather than waiting for a planned rollover (see *Configuring Log Database options*, page 143).

- 1. Enter the file path for creating both the data and log files for new database partitions.
- 2. Under **Initial Size (MB)**, set the initial file size (from 100 to 2048 MB) for both the Data and Log files for new database partitions.



#### **Note**

Best practice recommends calculating the average partition size over a period of time. Then, update the initial size to that value. This approach minimizes the number of times the partition must be expanded, and frees resources to process data into the partitions.

- 3. Under **Growth (MB)**, set the increment by which to increase the size (from 8 512 MB) of a partition's data and log files when additional space is required.
- 4. Click **OK** to implement the path, size, and growth changes entered.

Database partitions created after these changes use the new settings.

5. Click **Create** to create a new partition immediately, regardless of the automatic rollover settings.

To have the new partition use the changes made in this section, be sure to click **OK** before you click **Create**.

Click the **Refresh** link in the content pane periodically. The Available Partitions area will show the new partition when the creation process is complete.

If you later change the partition file path, you should be sure that the new database folder exists with write privileges.

# **Enabling database partitions**

The Available Partitions section of the **Settings > Reporting > Log Database** page lists all the database partitions available for reporting. The list shows the dates covered by the partition, as well as the size and name of each partition.

Use this list to control what database partitions are included in reports, and to select individual partitions to be deleted.

1. Mark the check box in the **Enable** column next to each partition you want included in reports.

Use the **Select all** and **Select none** options above the list, as appropriate.

You must enable at least 1 partition for reporting. Use the **Select none** option to disable all partitions at 1 time so that you can enable just a few.

Use these options to manage how much data must be analyzed when generating reports and speed report processing. For example, if you plan to generate a series of reports for June, select only partitions with dates in June.



#### **Important**

This selection affects scheduled reports as well as reports that are run interactively. To avoid generating reports with no data, make sure the relevant partitions are enabled when reports are scheduled to run.

2. Click the **Delete** option beside a partition name if that partition is no longer needed. The partition is actually deleted the next time the nightly database maintenance job runs.



#### Warning

Use this option with care. You cannot recover data from deleted partitions.

Deleting obsolete partitions minimizes the number of partitions in the Log Database, which improves database and reporting performance. Use this Delete option to delete individual partitions as needed. See *Configuring maintenance options*, page 145, if you prefer to delete older partitions according to a schedule.

3. Click **OK** to activate changes to the available partitions options.

# Viewing log activity

Use the Log Activity section of the **Settings > Reporting > Log Database** page to review database maintenance status and event and error messages recorded during the jobs run on the Log Database. Use the **View** drop-down list to select the maximum number of messages to display.

# **Changing the Log Database**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The Log Database may need to be changed when 1 of the following situations occurs:

- The database IP address changes.
- The database username and password change.
- The user wants to change authentication settings.
- The user wants to use a named instance.

This type of change must be made in 2 locations: in the **Settings > Reporting > Log Database** page and in the Email Log Server Configuration wizard.

Use the following steps to change the Log Database configuration:

- 1. Enter the IP address for the new Log Database in the **Settings > Reporting > Log Database** page, in the **Log database** field.
- 2. Open the Email Log Server Configuration wizard for the Windows machine on which Log Server is installed (Start > All Programs > Websense > Email Log Server Configuration).
- 3. In the Database tab, click **Connection** to open the Select Data Source dialog box.
- 4. Select the Machine Data Source tab and click **New** to open the Create New Data Source dialog box.
- 5. Select System Data Source (Applies to this machine only), and click Next.
- 6. Select SQL Server and click Next.
- 7. Click Finish.
- 8. In the Create a New Data Source to SQL Server dialog box, enter the server name, description, and IP address of the new SQL Server database in the **Name**, **Description**, and **Server** entry fields and click **Next**.
- 9. Select With SQL Server authentication using a login ID and password entered by the user.
- 10. Enter the username (sa) and a password and click Next.
- 11. In the Change the default database to drop-down list, select the esglogdb76 database and click Next.
- 12. Click Finish.

- 13. In the ODBC Microsoft SQL Server Setup dialog box, click **Test Data Source** to test the server connection.
- 14. Click OK.
- 15. Enter the new username and password in the SQL Server Login dialog box.
- 16. In the Email Log Server Configuration wizard Database tab, notice that the ODBC Data Source Name (DSN) field contains the new server name, and click **Apply** to confirm the new configuration.
- 17. Click **OK** in the warning message. The Log Server must be stopped and restarted for the new settings to take effect.
- 18. In the Email Log Server Configuration wizard Connection tab, click **Stop** to stop the Log Server service.
- 19. In the same tab, click **Start** to restart the Log Server service. The new database settings are in effect.

# **Viewing Log Server settings**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Use the **Settings > Reporting > Log Server** page to view the Log Server IP address or hostname and port number. Click **Check Status** to determine the availability of the server.

# **Configuring reporting preferences**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Reporting preference settings determine how a scheduled report is distributed for review. You can also specify how long to retain a scheduled report and how much warning administrators receive before a report is deleted.

When reporting preferences settings are made on 1 appliance, they are applied to all the appliances in your network.

Use the **Settings > Reporting > Preferences** page to provide information used to distribute completed scheduled reports via email. Also define how long scheduled presentation reports are stored before they are deleted automatically, and how far in advance to warn administrators that reports are due to be deleted.

- 1. Enter the email address to appear in the From field when scheduled reports are distributed via email.
- 2. Enter the SMTP server IP address or name for the email server used to distribute scheduled reports via email.
- 3. Use the **Store reports for** drop-down list to indicate how long scheduled reports are stored on the email management server (default is 5 days).

Note that as you increase the length of time that reports are stored, you affect the amount of disk space required on the email management server. This machine is not an appropriate location for a long-term reporting archive.



#### Note

If you reduce the report storage time after you have started to generate reports, stored reports that exceed this interval will be automatically deleted.

- 4. Use the **Give administrators this much warning before a scheduled report is deleted** drop-down list to indicate how much warning (from 1 5 days) an administrator should have before a report is deleted (default is 3 days).
  - The warning is intended to give administrators time to archive important reports in an appropriate location before they are deleted from the email management server.
- 5. Click **OK** to implement your changes.

# Working with presentation reports

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Presentation reports include a set of predefined charts and tabular report templates with which you can generate graphical reports of email message traffic activities. You can run a report, customize a report template, or mark a frequently used report as a Favorite. You can run any presentation report immediately, or schedule it to run at a particular time or on a repeating cycle.

Not all report templates can be customized. Report templates that can be customized display a different icon from reports that cannot be customized. If the **Save As** button is enabled when you select a report name, then you can save and edit that report to suit your needs. The **Save As** button is not enabled if you select a report that cannot be customized.

Use the **Main > Status > Presentation Reports** page to generate charts and tabular reports based on templates in the Report Catalog.

The Report Catalog organizes a list of predefined report templates and custom reports into groups. Expand a group to see its corresponding templates and custom reports. Click on a template or report title to see a brief description of what it includes.

To run a presentation report, select the desired report template in the Report Catalog, click **Run**, and then follow the instructions given in *Running a presentation report*, page 156.

To use an existing report as a starting point for creating a report variation, select a custom report, and then click **Save As**, if this button is enabled. If the Save As button is not enabled when you select the report, you cannot edit the template. See *Copying a custom presentation report*, page 151, for detailed instructions.

To make changes to the report filter applied to any custom report you have created, select the report title in the Report Catalog, and then click **Edit**. You cannot modify or delete predefined report templates.

Reports that are used frequently can be marked as Favorites to help you find them more quickly. Just click the report title in the Report Catalog, and then click **Favorite** (see *Working with Favorites*, page 155). Mark **Show Only Favorites** to display only templates that you have marked as Favorites in the Report Catalog.

To delete a custom report you have created, click **Delete**. If a deleted report appears in any scheduled jobs, it will continue to be generated with that job. See *Viewing the scheduled jobs list*, page 161, for information on editing and deleting scheduled jobs.



#### Note

Changes to report settings made on 1 appliance are applied to all network appliances.

Use the buttons at the top of the page to schedule reports to run later, view scheduled report jobs, and view and manage reports created by the scheduler.

- Click **Job Queue** to see and manage a list of existing scheduled jobs, along with the status of each job. See *Viewing the scheduled jobs list*, page 161.
- Click **Scheduler** to define a job containing 1 or more reports to be run at a specific time or on a repeating schedule. See *Scheduling a presentation report*, page 158.
- Click **Review Reports** to see and manage a list of reports that were successfully scheduled and run. See *Reviewing scheduled presentation reports*, page 163.

#### Related topics:

- Copying a custom presentation report, page 151
- Defining the report filter, page 152
- Working with Favorites, page 155
- Running a presentation report, page 156
- Scheduling a presentation report, page 158
- ◆ Viewing the scheduled jobs list, page 161
- Reviewing scheduled presentation reports, page 163

# Copying a custom presentation report

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Use the **Save As New Report** page to create an editable copy of a custom report template. Not all templates can be used to create a new custom report. Use the following steps to copy a custom presentation report:

1. Select the custom report in the Report Catalog and, if it is enabled, click **Save As**. If the **Save As** button is not enabled, you cannot copy and customize the selected report.

- 2. In the **Presentation Reports > Save As New Report** page, replace the report catalog name with a name that will make it easy to identify the new report. (The default name is the name of the original report template, with a number appended to indicate that it is a copy.) The name must be unique and can have up to 85 characters.
- 3. Click either Save or Save and Edit.
  - If you click **Save**, you are returned to the Presentation Reports page, where the new report appears in the Report Catalog. To customize the report at any time, select its name, and then click **Edit**.
  - If you click **Save and Edit**, you are taken directly to the Edit Report Filter page. The new report is also added to the Report Catalog.
- 4. Edit the report filter to modify the report. The report filter controls elements such as which email senders or recipients are included in your custom report.
  - For instructions, see *Defining the report filter*, page 152.

# **Defining the report filter**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Report filters let you control what information is included in a report. For example, you might choose to limit a report to selected email senders, email recipients, or message scanning results (such as clean, virus, spam, commercial bulk, or data loss protection). You can also give a new name and description for the entry in the Report Catalog, change the report title, specify a custom logo to appear, and designate the new report as a Favorite.



#### Note

Using a custom logo requires some preparation before you define the report filter. You must create the desired graphic in a supported graphic format and place the file in the appropriate location. See *Customizing the report logo*, page 153.

The filter for predefined report templates cannot be changed. You can edit the filter for a custom report when you create it by choosing **Save and Edit** on the Save As New Report page, or select the report in the Report Catalog at any time and click **Edit**.

The Edit Report Filter page has separate tabs for managing different elements of the report. Select the items you want on each tab, then click **Next** to move to the next tab. For detailed instructions on completing each tab, see:

- Setting general report options, page 153
- Selecting email senders for the report, page 154
- Selecting email recipients for the report, page 154
- Selecting message analysis results for the report, page 155

On the Save tab, choose whether to run or schedule the report, and save the report filter. See *Saving the report filter definition*, page 155.

#### Setting general report options

Use the General tab of the **Presentation Reports > Edit Report** page to configure general report characteristics, as follows:

- 1. Modify the name that appears in the Report Catalog for this report by entering a new name in the **Report catalog name** entry field. The name can have up to 76 characters.
  - This name does not appear on the report itself; it is used only for identifying the unique combination of report format and filter in the Report Catalog.
- 2. Modify the title that actually appears on the report in the **Report title** entry field. The title can have up to 85 characters.
- 3. Use the **Description** field to modify the brief report description that appears in the Report Catalog. The description can have up to 336 characters.
  - The description should help you identify this unique combination of report format and filter in the Report Catalog.
- 4. Use the **Logo** drop-down list to specify a logo for your report. The default entry is **Websense Logo**. Select **No Logo** if you do not want a logo displayed on this report.
  - The list also contains filenames for custom logo image files if you have created and stored supported image files in the appropriate directory. See *Customizing the report logo*, page 153.
- 5. Mark the **Save as Favorite** check box to have the report selected as a Favorite. The Report Catalog shows a star symbol beside Favorite reports. You can select Show only Favorites on the Report Catalog page to reduce the number of reports listed, which enables you to move more quickly to a particular report.
- 6. After all entries and selections are complete, click **Next** to open the Senders tab.

#### **Customizing the report logo**

By default, presentation reports display the Websense logo in the upper left corner. When you create a custom report and edit its report filter, you can choose a different logo, which you have already prepared and copied to the appropriate directory, as follows:

- 1. Create an image file in one of the following formats:
  - .bmp, .gif, .jfif, .jpe, .jpeg, .jpg, .png, .ttf
  - Use a maximum of 25 characters for the image file name, including the file extension.
- 2. Copy the image file to the following default installation directory (or to your own installation directory):

# C:\Program Files (x86)\Websense\Email Security\ESG Manager\tomcat\PRTemplate\jasperreports\images

All supported image files in this directory automatically appear in the **Logo** drop-down list on the General tab of the Edit Report Filter page. The image is

automatically scaled to fit within the space allocated for the logo. (See *Setting general report options*, page 153.)

#### Selecting email senders for the report

The Senders tab of the **Presentation Reports > Edit Report** page lets you control which senders are included in the report data. You can select only 1 type of sender for each report.

No selections are required on this tab if you want to report on all senders.

- 1. Select a sender type from the drop-down list.
- 2. Set the maximum number of search results from the **Search limits** drop-down list (from 10 1000). Default value is 10.
  - Depending on the email traffic in your organization, there may be large numbers of users, groups, or domains in the Log Database. This option manages the length of the results list, and the time required to display the search results.
- 3. Enter 1 or more characters for searching, and then click **Search**.
  - Use an asterisk (\*) as a wildcard to signify missing characters. For example, J\*n might return Jackson, Jan, Jason, Jon, Joan, and so forth.
  - Define your search string carefully, to ensure that all desired results are included within the number selected for limiting the search.
- 4. Highlight 1 or more entries in the results list, and click the right arrow button (>) to move them to the Selected Senders List.
- 5. Repeat steps 2 4 as needed to conduct additional searches and add more senders to the Selected Senders List.
- 6. To delete an entry from the Selected Senders List, select the entry and click **Remove**.
- 7. After you are finished making selections or deletions, click **Next** to open the Recipients tab.

# Selecting email recipients for the report

The Recipients tab of the **Presentation Reports > Edit Report** page lets you control which recipients are included in the report data. You can select only 1 type of recipient for each report.

No selections are required on this tab if you want to report on all recipients.

- 1. Select a recipient type from the drop-down list.
- 2. Set the maximum number of search results from the **Search limits** drop-down list (from 10 1000). Default value is 10.
  - Depending on the email traffic in your organization, there may be large numbers of users, groups, or domains in the Log Database. This option manages the length of the results list, and the time required to display the search results.
- 3. Enter 1 or more characters for searching, and then click **Search**.

Use an asterisk (\*) as a wildcard to signify missing characters. For example, J\*n might return Jackson, Jan, Jason, Jon, Joan, and so forth.

Define your search string carefully, to ensure that all desired results are included within the number selected for limiting the search.

- 4. Highlight 1 or more entries in the results list, and click the right arrow button (>) to move them to the Selected Recipients List.
- 5. Repeat steps 2 4 as needed to conduct additional searches and add more recipients to the Selected Recipients List.
- 6. To delete an entry from the Selected Recipients List, select the entry and click **Remove**.
- 7. After you are finished making selections or deletions, click **Next** to open the Message Analysis Results tab.

#### Selecting message analysis results for the report

The Message Analysis Result tab of the **Presentation Reports > Edit Report** page lets you determine which results of email analysis are included in the report. Selections are **Clean**, **Virus**, **Spam**, **Data Loss Protection**, **Commercial Bulk**, **Custom Content**, **Block List**, **Phishing**, and **File Sandbox**. The Block List type applies to a message that is blocked by a Personal Email Manager Always Block List. By default, all available analysis result types are selected. You must select at least 1 type.

Click **Next** to open the Save tab.

#### Saving the report filter definition

The Save tab of the **Presentation Reports > Edit Report** page displays the name and description that will appear in the Report Catalog, and lets you choose how to proceed.

- 1. Review the Name and Description text.
  - If any changes are needed, click **Back** to return to the General tab, where you can make those changes. You cannot edit the name or description text in the Save tab. (See *Setting general report options*, page 153.)
- 2. Indicate how you want to proceed:
  - Select Save to save the report filter and return to the Report Catalog.
  - Select Save and run to save the report filter and open the Run Report page. See Running a presentation report, page 156.
  - Select Save and schedule to save the report filter and open the Scheduler page. See Scheduling a presentation report, page 158.
- 3. Click **Finish** to save the report name and description and implement the selection made in step 2.

# **Working with Favorites**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

You can mark any presentation report, either template or custom, as a Favorite. Use this option to identify the reports you generate most frequently and want to be able to locate quickly in the Report Catalog.

To mark a report as a Favorite:

- 1. On the Presentation Reports page, select a report in the Report Catalog that you generate frequently, or want to be able to locate quickly.
- 2. Click Favorite.

A star symbol appears beside any Favorite report name in the list, letting you quickly identify it when the Report Catalog is displayed.

3. Mark the **Show Only Favorites** check box above the Report Catalog to limit the list to those marked as Favorites. Clear this check box to restore the full list of reports.

If your needs change and a favorite report is no longer being used as frequently, you can remove the Favorite designation as follows:

- 1. Select a report that shows the Favorite star symbol.
- 2. Click Favorite.

The star symbol is removed from that report name in the Report Catalog. The report is now omitted from the list if you choose **Show Only Favorites**.

#### Running a presentation report

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Use the **Presentation Reports > Run Report** page to generate a single report immediately. You can also create jobs with 1 or more reports and schedule them to run once or on a repeating cycle (see *Scheduling a presentation report*, page 158).



#### Note

Before generating a report in PDF format, make sure that Adobe Reader v7.0 or later is installed on the machine from which you are accessing the email management server.

Before generating a report in XLS format, make sure that Microsoft Excel 2003 or later is installed on the machine from which you are accessing the email management server.

If the appropriate software is not installed, you have the option to save the file.

#### To run a report:

- 1. Select the report you want to run in the Report Catalog and click **Run** to open the Run Report page.
- 2. Select the **Report date range** to define the time period covered in the report.

If you select **Custom**, specify the **Report start date** and **Report end date** for the report.

3. Select a **Report output format** for the report.

XLS	Excel spreadsheet. XLS files are formatted for reuse, and can be opened in Microsoft Excel.
PDF	Portable Document Format. PDF files are formatted for viewing, and can be opened in Adobe Reader.
HTML	HyperText Markup Language. HTML files are formatted for viewing, and can be opened in a Web browser.

- 4. If you selected a Top N report type, choose the number of items to be reported.
- 5. Specify how you want the report to be generated:
  - Select **Run the report in the background** (default) to have the report run immediately as a scheduled job. Optionally, you can provide an email address to receive a notification message when the report is complete or cannot be generated. (You can also monitor the job queue for report status.)

    If you run the report in the background, a copy of the completed report is automatically saved, and a link to the report appears on the Review Reports page.
  - Deselect Run the report in the background to have the report run in the foreground. In this case, the report is not scheduled, and does not appear on the Review Reports page.

If you run the report in the foreground, the report is not automatically saved when you close the application used to view the report (Microsoft Excel, Adobe Reader, or a Web browser, for example). You must save the report manually.



#### **Note**

If you plan to run multiple reports in the foreground, make sure that you use the embedded **Close** button to close the pop-up window used to display the "generating report" and "report complete" messages. If you use the browser's close (X) button, subsequent attempts to run reports in the foreground may fail until you navigate away from the Presentation Reports page, come back, and run the report again.

#### 6 Click Run

- If you scheduled the report to run immediately, the completed report is added to the Review Reports list. To view, save, or delete the report, click **Review Reports** at the top of the Presentation Reports page.
- If you ran the report in the foreground, a new browser window appears, displaying report progress. HTML reports appear in the browser window when complete; with PDF or XLS formats, you have a choice of whether to open the report or save it to disk.

7. To print a report, use the print option offered by the application used to display the report.

For best results, generate PDF output for printing. Then, use the print options in Adobe Reader.

# Scheduling a presentation report

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

You can run presentation reports as they are needed, or you can use the **Presentation Reports > Scheduler** page to create jobs that define a schedule for running 1 or more reports. In an appliance cluster, only the primary machine can schedule a report.

Reports generated by scheduled jobs are distributed to 1 or more recipients via email. As you create scheduled jobs, consider whether your email server will be able to handle the size and quantity of the attached report files.

The completed reports are also added to the **Presentation Reports > Review Reports** page (see *Reviewing scheduled presentation reports*, page 163).

You can access the Scheduler in one of the following ways:

- ◆ Click **Scheduler** at the top of the Presentation Reports page (above the Report Catalog).
- ◆ When editing a report filter, choose **Save and schedule** in the Save tab, and then click **Finish** (see *Defining the report filter*, page 152).
- Click the job name link on the Job Queue page to edit a job.
- Click **Add Job** on the Job Queue page to create a new job.

The Scheduler page contains several tabs for selecting the reports to run and the schedule for running them. For detailed instructions on completing each tab, see:

- Setting the schedule, page 159
- Selecting reports to schedule, page 160
- Setting the date range, page 161
- ◆ Selecting output options, page 161

After creating jobs, use the Job Queue to review job status and find other helpful information (see *Viewing the scheduled jobs list*, page 161).

When a scheduled presentation report has run, the report file is sent to recipients as an email attachment. The name of the attachment is the report name. For example, for a report with an output format of PDF, an attachment file may be named Hybrid Service Messages.pdf.

Scheduled reports are also automatically saved to a report output directory on the email management server (C:\Program Files (x86)\Websense\Email Security\ESG Manager\tomcat\temp\report\output, by default). Note that the name of the attachment sent via email does not match the name of the file stored in the output directory. The best way to find a specific report is to use the Review Reports page, which can be searched by date or job name, as well as report name.

Reports are automatically deleted from the Review Reports page and the report output directory after the period specified on the **Settings** > **Reporting** > **Preferences** page (5 days, by default). If you want to retain the reports for a longer time, include them in your backup routine or save them in a location that permits long-term storage.

An alert is displayed on the Review Reports page for a period of time before the report is deleted (3 days, by default). Use the **Settings > Reporting > Preferences** page to change this warning period.

Depending on the number of reports you generate daily, report files can occupy considerable amounts of disk space. Be sure adequate disk space is available on the email management server. If the report output directory grows too large before the files are automatically deleted, you can delete the files manually.

Websense software generates the report in the format you choose: XLS (Microsoft Excel), PDF (Adobe Reader), or HTML. If you choose HTML format, the report may display in the Email module content pane. Reports displayed in the content pane cannot be printed or saved to a file. To print or save a report to file, choose the PDF or XLS output format.



#### **Important**

To display presentation reports in PDF format, Adobe Reader v7.0 or later must be installed on the machine from which you are accessing the email management server.

To display presentation reports in XLS format, Microsoft Excel 2003 or later must be installed on the machine from which you are accessing the email management server.

#### Setting the schedule

Schedule a reporting job to occur once or on a repeating cycle on the Schedule Report tab of the **Presentation Reports** > **Scheduler** page.



#### Note

It is advisable to schedule report jobs on different days or at different times, to avoid overloading the Log Database and slowing performance for logging and interactive reporting.

- 1. Enter a name that uniquely identifies this scheduled job in the **Job name** field.
- 2. Select Recurrence Options for the job based on the Recurrence Pattern you want, as follows:

Recurrence Pattern	Recurrence Options
Once	Enter the exact date on which to run the job, or click the icon to select from a calendar.
Daily	No additional recurrence options are available.

Recurrence Pattern	Recurrence Options
Weekly	Mark the check box for each day of the week the job is to run.
Monthly	Enter the dates during the month for running the job. Dates must be a number between 1 and 31, and must be separated by commas (1,10,20).
	To run the job on consecutive dates each month, enter a start and end date separated by a hyphen (3-5).

3. In the Schedule Time box, set the start time for running the job. The job begins according to the time on the email appliance.



#### **Note**

To start generating the scheduled reports today, select a time late enough that you can complete the job definition before the start time.

4. In the Schedule Period box, select a date for starting the job. Options for ending the job are as follows:

No end date	The job continues to run indefinitely, according to the established schedule.
	To discontinue the job at some time in the future, either edit or delete the job. See <i>Viewing the scheduled jobs list</i> , page 161.
End after	Select the number of times to run the job. After that number of occurrences, the job does not run again, but it stays in the Job Queue until you delete it. See <i>Viewing the scheduled jobs list</i> , page 161.
End by	Set the date when the job stops running. It does not run on or after this date.

5. Click **Next** to open the Select Report tab.

# Selecting reports to schedule

Use the Select Report tab of the **Presentation Reports > Scheduler** page to choose reports for the job.

- 1. Highlight a report for this job in the Report Catalog tree.
- 2. Click the right arrow (>) button to move that report to the Selected Reports list.
- 3. Repeat steps 1 and 2 until all reports for this job appear in the Selected Reports list.
- 4. Click **Next** to open the Date Range tab.

#### Setting the date range

Use the Date Range tab of the **Presentation Reports > Scheduler** page to set the date range for the job. If you selected **Once** in the Schedule Report tab, the **Specific dates** field displays the report date specified on that tab.

If you selected a recurring report schedule, you can specify the number of periods to report in the **Relative dates** field (Current, Last, Last 2, and so forth), along with the type of period (Days, Weeks, or Months). For example, the job might cover the Last 2 Weeks or Current Month.

Week represents a calendar week, Sunday through Saturday. Month represents a calendar month. For example, Current Week produces a report from Sunday through today; This Month produces a report from the first of the month through today; Last Week produces a report for the preceding Sunday through Saturday; and so forth.

After setting the date range for the job, click **Next** to display the Output tab.

#### Selecting output options

After you select the reports for a job, use the Output tab to select the output format and distribution options.

1. Select the file format for the finished report.

XLS	Excel Spreadsheet. Recipients must have Microsoft Excel 2003 or later to view the XLS reports.
PDF	Portable Document Format. Recipients must have Adobe Reader v7.0 or later to view the PDF reports.
HTML	HyperText Markup Language. Recipients must have a Web browser.

- 2. Select the number of items you want to appear in a Top format report from the **Top N** drop-down list. The value range is from 1 to 200; default value is 10.
- 3. Enter recipient email addresses for report distribution. Each address should be separated by a semicolon.
- 4. Optionally, you can also enter email addresses to notify recipients that report generation failed.
- 5. Mark the **Customize subject and message body of notification email** check box, if desired. Then, enter the custom subject and body text for this job's distribution email.
- 6. Click **Save Job** to save and implement the job definition, and display the Job Queue page.
- 7. Review this job and any other scheduled jobs. See *Viewing the scheduled jobs list*, page 161.

# Viewing the scheduled jobs list

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The **Presentation Reports > Job Queue** page lists the scheduled jobs created for presentation reports. The list gives the status for each job, as well as basic information about the job, such as how frequently it runs. From this page, you can add and delete scheduled jobs, temporarily suspend a job, and more.

You can search for a particular job by entering a search term in the **Job name** entry field at the top of the page. Click **Go** to begin the search.

Click **Clear** to remove the current search term, and then either perform a different search or click **Refresh** at the bottom of the page to display the complete list of reports.

The list provides the following information for each job:

Data Item	Description
Job Name	The name assigned when the job was created.
Status	Indicates whether the job is     running     scheduled (waiting for the next scheduled run time)     completed successfully     failed     misfired (did not run at the last scheduled time due to a problem such as low memory or server shutdown)
State	One of the following:  • Enabled indicates a job that runs according to the established recurrence pattern.  • Disabled indicates a job that is inactive, and does not run.
Recurrence	The recurrence pattern (Once, Daily, Weekly, or Monthly) set for this job.
History	Click the Details link to open the Job History page for the selected job. See <i>Viewing job history</i> , page 163.
Next Scheduled	Date and time for the next run.
Owner	The user name of the administrator who scheduled the job.

Use the options on the Job Queue page to manage the jobs. Some of the buttons require that you first mark the check box beside the name of each job to be included.

Action	Description
Job name link	Opens the Scheduler page, where you can edit the job definition. See <i>Scheduling a presentation report</i> , page 158.
Run Now	Starts running any job that has been selected in the list immediately. This is in addition to regularly scheduled job runs.
Add Job	Opens the Scheduler page where you can define a new job. See <i>Scheduling a presentation report</i> , page 158.

Action	Description
Delete	Deletes from the Job Queue any job that has been selected in the list. After a job has been deleted, it cannot be restored.
	To temporarily stop running a particular job, use the <b>Disable</b> button.
Enable	Reactivates a disabled job that has been selected in the list. The job begins running according to the established schedule.
Disable	Discontinues running an enabled job that is selected in the list. Use this option to temporarily suspend a job that you may want to restore in the future.
Refresh	Updates the page with the latest data

#### Viewing job history

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Click the **Details** link in the History column and use the **Presentation Reports > Job Queue > Job History** page to view information about recent attempts to run the selected job. The page lists each report separately, providing the following information:

Data Item	Description
Report Name	Title printed on the report
Start Date	Date and time the report started running
End Date	Date and time the report was completed
Status	Indicator of whether the report completed or failed
Message	Relevant information about the job, such as whether the report was successfully distributed

# Reviewing scheduled presentation reports

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Use the **Presentation Reports > Review Reports** page to find, access, and delete scheduled reports. By default, reports are listed from newest to oldest.

To view any report in the list, click the report name.

- If the report is a single PDF or XLS file, you may be given the option to save or open the report. This depends on your browser security settings and the plug-ins installed on your machine.
- If the report is very large, it may have been saved as multiple PDF or XLS files and stored in a ZIP file. The file is compressed using ZIP format. Save the ZIP file, then extract the PDF or XLS files it contains to view the report content.
- ◆ Hover the mouse pointer over the report icon next to the report name to see if the report is 1 or multiple files.

To limit the list to reports that will be deleted soon, mark the **Show only reports due to be purged** check box. When this option is selected, the report search functions are not available. The length of time that reports are stored is configured on the **Settings** > **Reporting** > **Preferences** page (see *Configuring reporting preferences*, page 149).

To search the report list, first select an entry from the **Filter by** drop-down list, and then enter all or part of a job name or date. Note that the search is case-sensitive. You can search by:

- The report or job name
- The date the report was created (Creation Date)
- The name of the administrator that scheduled the report (Requester)
- The date the report is due to be deleted (Purge Date)

Click **Go** to begin the search.

Click **Clear** to remove the current search term, and then either perform a different search or click **Refresh** to display the complete list of reports.

If a recently completed report does not appear on the Review Reports page, you can also click **Refresh** to update the page with the latest data.

To delete a report, mark the check box beside the report name and click **Delete**.

To see the status of a scheduled report job, click **Job Queue** at the top of the page. See *Viewing the scheduled jobs list*, page 161, for more information about using the job queue.

To schedule a new report job, click **Scheduler** (see *Scheduling a presentation report*, page 158).

7

# Configuring Personal Email Manager End User Options

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

#### Topics:

- ♦ *Managing a Secure Sockets Layer (SSL) certificate*, page 165
- Creating the quarantine mail notification message, page 166
- ◆ Authorizing use of block and permit lists, page 170
- Enabling user account management, page 170
- ◆ Customizing the Personal Email Manager end-user portal, page 170

# Managing a Secure Sockets Layer (SSL) certificate

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

Use the **Settings > Personal Email > SSL Certificate** page to manage the Personal Email Manager SSL certificate, which enables secure email transmission for Personal Email Manager appliances. You can use the default certificate provided with Personal Email Manager, or you can import a new enterprise certificate from a certificate authority (CA).

After email product installation, default certificate information appears in the **Settings** > **Personal Email** > **SSL Certificate** page, in the Certificate Details section. Details include the certificate version, serial number, issuer, and expiration date.

# Importing a certificate

Importing an SSL certificate to Personal Email Manager from a CA replaces the current certificate. Personal Email Manager certificate information is automatically copied to a new appliance when it is added to the TRITON Manager Email module.

Use the following procedure to import a certificate:

- 1. Click **Import** in the **Settings > Personal Email > SSL Certificate** page, below the Certificate Details area.
- 2. Click **Yes** in the confirmation dialog box. An Import Certificate area appears below the Import button.
- 3. Enter the certificate filename in the **Import Certificate** field or navigate to it using **Browse**. File format must be .jks, .p12, or .pfx.
- 4. An SSL certificate file should be password protected. Enter a password in the **Certificate password** field (maximum length is 100 characters; do not use special characters).
- 5. Mark the **Private key alias** check box and enter an optional alias (or identifier) for the private key in the entry field.
- 6. Mark the **Private key password** field and enter an optional password for the private key in the entry field (maximum length is 100 characters).
- 7. Click **OK**.
- 8. Restart the Personal Email Manager service in the appliance manager to activate the new certificate.

# Restoring the default certificate

You can restore the Personal Email Manager default certificate at any time by clicking **Restore Default Certificate** in the **Settings > Personal Email > SSL Certificate** page. This action replaces the current certificate.

You should restart the Personal Email Manager service to activate the new certificate.

# Creating the quarantine mail notification message

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

The Personal Email Manager notification message alerts users that email addressed to them has been blocked. The notification message list includes mail sent to all a user's email addresses, including alias addresses. The notification is sent to a user's primary email address.

The **Settings > Personal Email > Notification Message** page is composed of 4 sections:

- Notification Message Links, in which you specify the IP address and port for Personal Email Manager facility end-user access (see Specifying Personal Email Manager access, page 167)
- ◆ Notification Message Schedule, where you set the frequency with which a message is sent informing a user of blocked messages (see *Scheduling the notification message*, page 167)
- ◆ Notification Message Template, in which you format the content and appearance of the notification message. Users see this message in their inbox when they have blocked email. (See *Using the notification message template*, page 168.)

 Recipients List, in which you designate the user directories whose members will receive notification messages. (See *Creating the notification message recipient list*, page 169.)

After you complete all 4 sections, click **OK** to enable the delivery of notification messages.

# **Specifying Personal Email Manager access**

Use the Notification Message Links section to designate the appliance that the end user accesses to manage blocked email in the Personal Email Manager tool. This setting is also used to create the hyperlinks to blocked mail listed in the user notification message. You can customize the URL for Personal Email Manager access to suit your needs.

Personal Email Manager users must have Personal Email Authentication permissions in order to use the facility. See *Managing user validation/authentication options*, page 67, for information about granting Personal Email Manager permissions to end users.

Enter the IP address or hostname of the Personal Email Manager appliance.

Enter the port number (default is 9449). The port number should not be an email management server or appliance reserved port.



#### Note

If you use the C appliance interface for Personal Email Manager access, you must use the default port of 9449.

Use the Custom URL field to enter a URL path for Personal Email Manager user access that is different from the one automatically generated using the IP address and port entered above. This URL is also used for the notification message hyperlinks. The path can have a maximum length of 250 alphanumeric characters, hyphens, and underscores; a hyphen cannot be the first character. The custom URL supports only 1 subdirectory (for example, www.mycompany.com/pemserver) and should use the port designated in the Port field.

Deploy a group of email appliances to handle Personal Email Manager end-user activities. Configuring an appliance cluster for Personal Email Manager access can enhance performance by activating an appliance load-balancing feature. If the appliance you access is configured in a cluster, the appliance forwards Personal Email Manager access requests to other cluster machines using a round robin mechanism.

Add and remove appliances from a cluster using the **Settings > General > Cluster Mode** page (see *Configuring an appliance cluster*, page 56, for information).

# Scheduling the notification message

You have several options for scheduling the frequency of the notification messages that tell users that they have blocked messages. Configure the schedule settings in **Settings > Personal Email > Notification Message**.

Select the frequency of notification messages in the **Send notifications** drop-down list. By default, **None** is selected, and no other option in this section is enabled.

- ◆ If you select **Every day** in the **Send notifications** drop-down list, the **Time** options are enabled for selection. You can choose as many time intervals as you like, in 1-hour increments.
- ◆ If you select **Every workday** in the **Send notifications** drop-down list, the **Time** options are enabled for selection. You can choose as many time intervals as you like, in 1-hour increments.
- ◆ If you select Every week in the Send notifications drop-down list, the Day of week and Time fields are activated. Designate a day of the week for notification messages to be sent. You can choose as many time intervals as you like, in 1-hour increments.



#### Note

Notification messages will be sent only to protected domains. Unprotected domains will not receive notification messages.

# Using the notification message template

The notification message template helps you determine the content and appearance of the email that informs users of blocked messages. Configure the notification message as follows:

- 1. Set the maximum number of messages that are included in each notification message. The default value is 50, maximum value is 100. A user with more than the maximum number of blocked messages waiting must handle the excess directly in the Personal Email Manager facility, via the Web Access link in the notification message.
- 2. Select the email actions you want the notification to include from among the following options:
  - **Deliver** (default selection), to allow the user to release a blocked message. The email may be delivered directly to the user's inbox, or it may be submitted for continued processing by subsequent filters if appropriate. The behavior is determined in the **Settings > Personal Email > End-user Portal** page, in the Quarantined Message Delivery Options section.
  - **Delete** (default selection), to remove a blocked message from the user's blocked message list
  - Add to Always Block list, to allow an authorized user to add an address to a personal Always Block List
  - Add to Always Permit list, to allow an authorized user to add an address to a personal Always Permit List
- 3. Enter your company name and other relevant information in the **Company** entry field.
- 4. Enter a brief description of the email filtering product in the **Description** entry field (default is "Websense Email Protection Solutions").

- 5. Enter the sender username in the **Sender username** field.
- 6. Enter the sender email address for the notification message in the **Sender email** address field.
- Configure the subject line that you want the notification message to display in the Subject field. This subject will appear in the user's inbox when the notification message is received.
- 8. Designate some appropriate header text for the notification message in the **Header** field. Default is "The following messages have been quarantined."
- 9. Enter some appropriate footer text for the notification message in the **Footer** field. Default is "For more information, please contact your Personal Email Manager administrator."

# Creating the notification message recipient list

You can determine which Personal Email Manager users receive notification messages by entering their details into the Recipients List section. Only the users listed in the Recipients list receive notification messages alerting them about blocked email.

The Recipients list is based on user directories. All existing user directories are listed in the left-hand user directories box. Select a user directory and click the right arrow to add the directory to the **Recipients** list.

Click **Add user directory** to create a new directory on the Add User Directory page (see *Adding and configuring a user directory*, page 59, for details). After you create a new user directory, it will appear in the user directories list on the Notification Message page.

If you want to delete a user directory from the Recipients list, select the directory in the Recipients list and click **Delete**.

# Setting user account options

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

You can configure some Personal Email Manager user account options in the **Settings > Personal Email > User Accounts** page. Allow users to manage personal Always Block and Always Permit lists, delegate blocked message management to another individual, and manage multiple user accounts in a single Personal Email Manager session.

User account management configuration settings made on 1 appliance are applied to all the appliances in your network.

# Authorizing use of block and permit lists

Authorized users can manage their own Always Block and Always Permit lists after they log in to Personal Email Manager. Use the **Settings** > **Personal Email** > **User Accounts** page to specify users who can manage entries in personal block and permit lists.

#### Adding authorized users

You can allow users to manage personal Always Block and Always Permit lists by specifying user directories that contain users with Personal Email Manager authentication privileges. Create user directories (in the User Directories page), and then specify authentication options for these user directories in the Add User Authentication page. (See *Adding and configuring a user directory*, page 59, for user directory details and *Managing user validation/authentication options*, page 67, for information about user authentication settings.)

In the **Settings > Personal Email > User Accounts** page, user directories for which you have specified Personal Email Manager privileges appear as available user directories. To grant permission for a user directory group to manage personal block/permit lists, select a user directory in the available directories list by marking the check box next to the directory name, and click the arrow button to move it to the Recipients box.

#### Removing authorized users

Remove previously authorized users by selecting a user directory in the Recipients box and clicking **Delete**. The user directory still appears in the available directories box, but its members no longer have Always Block/Always Permit list management permissions.

# **Enabling user account management**

You can enable user account management functions for a Personal Email Manager end user by marking the **Enable user account management** check box in the **Settings > Personal Email > User Accounts** page. You can let end users delegate the management of blocked messages to 1 or more other individuals.

End users can configure these options in the User Account Access page, in the Personal Email Manager end-user interface. See *Personal Email Manager User Help* for details.

# **Customizing the Personal Email Manager end-user portal**

Administrator Help | TRITON AP-EMAIL | Version 8.1.x

You can use the **Settings > Personal Email > End-user Portal** page to customize the end-user facility's appearance and to designate the quarantined message queues whose messages are displayed in Personal Email Manager end-user notification email.

# Choosing a logo display

By default, the Websense company name and logo appear on the Personal Email Manager end-user page. You may choose to have no company name or logo appear on the portal. For this option, leave the Company name field blank and select **None** in the Logo field drop-down list.

You can also customize the end-user portal by having your company name and logo appear there. Use the following procedures to customize your Personal Email Manager end-user portal in the End-user Portal Options section:

- 1. Enter your company name in the Company name field.
- 2. In the Logo field drop-down list, select **Custom**.
- 3. The **Upload logo** field appears. Browse to your logo file and select it for upload. The logo file must be:
  - A .gif, .png, .jpeg, or .jpg file format
  - Up to 1 MB and 120 x 34 pixels in size

You can change the logo file you use by clicking **Browse** next to your logo filename and browsing to a new logo file.

# **Enabling blocked message delivery**

Specify the queue to which you want a message blocked by the Personal Email Manager Always Block list delivered.

Mark the **Save the original message to a queue** check box, and select a queue from the drop-down list or add a new queue for this purpose.

# **Enabling end-user action auditing**

Specify whether you want to maintain a record of end-user email management activities performed from either the Personal Email Manager notification message or the Quarantined Messages List.

Mark the **Audit end-user actions** check box in the End-user Audit Option section to enable the Personal Email Manager Audit Log. View this log at **Main > Status > Logs** > **Personal Email Manager**. See *Personal Email Manager Audit Log*, page 26, for information about this log.

# Activating quarantined message list caching

You can activate a list caching function for the Personal Email Manager end-user Quarantined Messages list that can enhance list display performance by reducing the number of database refresh operations. The following end-user actions do not automatically trigger a page refresh:

- ◆ Delete
- Deliver
- Reprocess
- Not spam

These operations reduce the size of the Quarantined Messages List until the page is less than half its original size, when an automatic refresh occurs.

Personal Email Manager end users may initiate a manual page refresh at any time by clicking **Refresh**.

# Choosing quarantine message queue display

Select the queues whose messages are displayed to Personal Email Manager end users by marking the check box next to the desired queue name in the Message Queue Display Settings section.

# **Enabling quarantine message delivery**

You can specify Personal Email Manager behavior when an end user clicks **Deliver** for a selected message in the Quarantined Messages list. Select 1 of the following options:

- Deliver quarantined message, to allow end users to release blocked email for direct delivery to their inboxes
- Resume quarantined message processing, to force the analysis of blocked email to resume through all subsequent filters. If this option is used, a message may not be delivered to an end user if it triggers a subsequent filter.

# Third-Party Trademarks

This product includes the following third-party software:

#### ANTLR

Copyright (c) 2012 Terence Parr and Sam Harwell. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- · Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in
  the documentation and/or other materials provided with the distribution.
- Neither the name of the author nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

## The Apache Software License version 2

Copyright © 2004 The Apache Software Foundation

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at http://www.apache.org/licenses/LICENSE-2.0.

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.

See the License for the specific language governing permissions and limitations under the License.

## **CKEditor for Java**

Copyright © 2003 - 2015 CKSource - Frederico Knabben

Licensed under the GNU GENERAL PUBLIC LICENSE (GPL) version 3, June 2007.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

#### TERMS AND CONDITIONS

0. Definitions

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you".

"Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

#### 1 Source Code

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

#### 2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes it unnecessary.

#### 3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice; keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

- a) The work must carry prominent notices stating that you modified it, and giving a relevant date.
- b) The work must carry prominent notices stating that it is released under this License and any conditions added under section.
- 7. This requirement modifies the requirement in section 4 to "keep intact all notices"
- c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.
- d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

- a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.
- b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.
- c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.
- d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.
- e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product a product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

#### 7 Additional Terms

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

- a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or
- b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or
- c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or
- d) Limiting the use for publicity purposes of names of licensors or authors of the material; or
- e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or
- f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on those licensors and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above requirements apply either way.

#### 8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

## 9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

## 10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

#### 11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network

server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with specific products or compelations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

#### 12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program

#### 13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

#### 14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

#### 15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

#### 16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

#### 17. Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

#### END OF TERMS AND CONDITIONS

#### dom4j

Copyright 2001 - 2005 © MetaStuff, Ltd. All rights reserved.

Redistribution and use of this software and associated documentation ("Software"), with or without modification, are permitted provided that the following conditions are met:

- 1. Redistributions of source code must retain copyright statements and notices. Redistributions must also contain a copy of this document.
- 2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer

in the documentation and/or other materials provided with the distribution.

- 3. The name "DOM4J" must not be used to endorse or promote products derived from this software without prior written permission of Metastuff, Ltd. for written permission, please contact dom4j-info@metastuff.com.
- 4. Products derived from this software may not be called "DOM4J" nor may "DOM4J" appear in their names without prior written permission of Metastuff, Ltd. DOM4J is a registered trademark of Metastuff, Ltd.
- 5. Due credit should be given to the DOM4J Project http://dom4j.sourceforge.net

THIS SOFTWARE IS PROVIDED BY METASTUFF, LTD. AND CONTRIBUTORS "AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL METASTUFF, LTD. OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

#### **Bouncy Castle**

Copyright (c) 2000 - 2015 The Legion Of The Bouncy Castle Inc. (http://www.bouncycastle.org)

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

#### Free Software Foundation, Inc.

Copyright © 2007 Free Software Foundation, Inc.

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed. GNU GENERAL PUBLIC LICENSE

Version 2, June 1991

PREAMBLE

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software—to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

## TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into

another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee

- 2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:
- a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.
- b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.
- c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

- 3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:
- a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
- b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
- c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

- 4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.
- 5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.
- 6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.
- 7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

- 8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.
- 9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

#### NO WARRANTY

- 11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.
- 12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

#### Javassist

Copyright © 1999 - 2015 by Shigeru Chiba. All rights reserved.

This software is distributed under the Mozilla Public License Version 2, the GNU Lesser General Public License Version 2.1 or later, or the Apache License Version 2.0.

Mozilla Public License version 2.0

- 1. Definitions
- 1.1. "Contributor" means each individual or legal entity that creates, contributes to the creation of, or owns Covered Software.
- 1.2. "Contributor Version" means the combination of the Contributions of others (if any) used by a Contributor and that particular Contributor's Contribution.
- 1.3. "Contribution" means Covered Software of a particular Contributor.
- 1.4. "Covered Software" means Source Code Form to which the initial Contributor has attached the notice in Exhibit A, the Executable Form of such Source Code Form, and Modifications of such Source Code Form, in each case including portions thereof.
- 1.5. "Incompatible With Secondary Licenses" means
- a. that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or
- b. that the Covered Software was made available under the terms of version 1.1 or earlier of the License, but not also under the terms of a Secondary License.
- 1.6. "Executable Form" means any form of the work other than Source Code Form.
- 1.7. "Larger Work" means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.
- 1.8 "License" means this document
- 1.9. "Licensable" means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.
- 1.10. "Modifications" means any of the following:
- a. any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered Software; or
- b. any new file in Source Code Form that contains any Covered Software.
- 1.11. "Patent Claims" of a Contributor means any patent claim(s), including without limitation, method, process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the License,

by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version

- 1.12. "Secondary License" means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.
- 1.13. "Source Code Form" means the form of the work preferred for making modifications.
- 1.14. "You" (or "Your") means an individual or a legal entity exercising rights under this License. For legal entities, "You" includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

## 2. License Grants and Conditions

#### 2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

a. under intellectual property rights (other than patent or trademark) Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

b. under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

#### 2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes such Contribution.

#### 2.3. Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License. Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

- a. for any code that a Contributor has removed from Covered Software; or
- b. for infringements caused by: (i) Your and any other third party's modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or
- c. under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section 3.4).

#### 2.4. Subsequent Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

#### 2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

#### 2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

## 2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

## 3. Responsibilities

#### 3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications that You create or to which You contribute, must be under the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients' rights in the Source Code Form.

## 3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

a. such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and

b. You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license for the Executable Form does not attempt to limit or alter the recipients' rights in the Source Code Form under this License.

## 3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

## 3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers of warranty, or limitations of liability) contained within the Source Code Form of the Covered Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

## 3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

## 4. Inability to Comply Due to Statute or Regulation

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

#### 5. Termination

- 5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.
- 5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License shall terminate
- 5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination

#### 6. Disclaimer of Warranty

Covered Software is provided under this License on an "as is" basis, without warranty of any kind, either expressed, implied, or statutory, including, without limitation, warranties that the Covered Software is free of defects, merchantable, fit for a particular purpose or non-infringing. The entire risk as to the quality and performance of the Covered Software is with You. Should any Covered Software prove defective in any respect, You (not any Contributor) assume the cost of any necessary servicing, repair, or correction. This disclaimer of warranty constitutes an essential part of this License. No use of any Covered Software is authorized under this License except under this disclaimer.

#### 7. Limitation of Liability

Under no circumstances and under no legal theory, whether tort (including negligence), contract, or otherwise, shall any Contributor, or anyone who distributes Covered Software as permitted above, be liable to You for any direct, indirect, special, incidental, or consequential damages of any character including, without limitation, damages for lost profits, loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses, even if such party shall have been informed of the possibility of such damages. This limitation of liability shall not apply to liability for death or personal injury resulting from such party's negligence to the extent applicable law prohibits such limitation. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so this exclusion and limitation may not apply to You.

#### 8. Litigation

Any litigation relating to this License may be brought only in the courts of a jurisdiction where the defendant maintains its principal place of business and such litigation shall be governed by laws of that jurisdiction, without reference to its conflict-of-law provisions. Nothing in this Section shall prevent a party's ability to bring cross-claims or counter-claims.

#### 9. Miscellaneous

This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not be used to construe this License against a Contributor.

#### 10. Versions of the License

#### 10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section 10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a distinguishing version number.

#### 10.2. Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license steward.

#### 10.3 Modified Versions

If you create software not governed by this License, and you want to create a new license for such software, you may create and use a modified version of this License if you rename the license and remove any references to the name of

the license steward (except to note that such modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses

If You choose to distribute Source Code Form that is Incompatible With Secondary Licenses under the terms of this version of the License, the notice described in Exhibit B of this License must be attached.

Exhibit A - Source Code Form License Notice

This Source Code Form is subject to the terms of the Mozilla Public License, v. 2.0. If a copy of the MPL was not distributed with this file, You can obtain one at http://mozilla.org/MPL/2.0/.

If it is not possible or desirable to put the notice in a particular file, then You may include the notice in a location (such as a LICENSE file in a relevant directory) where a recipient would be likely to look for such a notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - "Incompatible With Secondary Licenses" Notice

This Source Code Form is "Incompatible With Secondary Licenses", as defined by the Mozilla Public License, v. 2.0.

## ifree

JFreeChart is open source software that is distributed under the terms of the GNU Lesser General Public License (LGPL), which permits use in proprietary applications.

Copyright (C) 1991, 1999 Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

GNU Lesser General Public License, version 2.1, February 1999

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library. The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between

a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

## TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

- 2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:
- \* a) The modified work must itself be a software library.
- \* b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.
- \* c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.
- \* d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the

work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

- \* a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)
- \* b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.
- \* c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.
- \* d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.
- \* e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

- 7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:
- \* a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.
- \* b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.
- 8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.
- 9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.
- 10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.
- 11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

#### NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

#### Ehcache

© Copyright 2015 Software AG, Darmstadt, Germany and/or Software AG USA Inc., Reston, VA, USA and/or its subsidiaries and/or its affiliates and/or their licensors.

The open source Ehcache project is licensed under the Apache 2.0 License.

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

## 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

- 3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
- 4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:
- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works: and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

- 5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
- 6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
- 7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
- 8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
- 9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

## Joda-Time

Copyright ©2002-2015 Joda.org. All Rights Reserved.

Apache License, Version 2.0, January 2004 http://www.apache.org/licenses/
TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

## 1. Definitions.

- "License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.
- "Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.
- "Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

- "You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.
- "Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.
- "Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.
- "Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).
- "Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.
- "Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."
- "Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.
- 2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
- 3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
- 4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:
- (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

- 5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
- 6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
- 7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated

with Your exercise of permissions under this License.

- 8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
- 9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

#### Libevent

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- · Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in
  the documentation and/or other materials provided with the distribution.
- Neither the name of the author nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

#### nef

Copyright © 1998 - 2004 Mike D. Schiffman All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- Neither the name of the <organization> nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL <COPYRIGHT HOLDER> BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

#### **Net-SNMP**

Copyright © 2001 - 2009 Net-SNMP. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- · Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- Neither the name of the author nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE

COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

#### nl

Copyright © 2003 - 2006 Thomas Graf All rights reserved.

## GNU LESSER GENERAL PUBLIC LICENSE

Version 3, June 2007

Copyright © 2007 Free Software Foundation, Inc. <a href="http://fsf.org/">http://fsf.org/</a>

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed. This version of the GNU Lesser General Public License incorporates the terms and conditions of version 3 of the GNU General Public License, supplemented by the additional permissions listed below.

0. Additional Definitions

As used herein, "this License" refers to version 3 of the GNU Lesser General Public License, and the "GNU GPL" refers to version 3 of the GNU General Public License.

"The Library" refers to a covered work governed by this License, other than an Application or a Combined Work as defined below.

An "Application" is any work that makes use of an interface provided by the Library, but which is not otherwise based on the Library. Defining a subclass of a class defined by the Library is deemed a mode of using an interface provided by the Library.

A "Combined Work" is a work produced by combining or linking an Application with the Library. The particular version of the Library with which the Combined Work was made is also called the "Linked Version".

The "Minimal Corresponding Source" for a Combined Work means the Corresponding Source for the Combined Work, excluding any source code for portions of the Combined Work that, considered in isolation, are based on the Application, and not on the Linked Version.

The "Corresponding Application Code" for a Combined Work means the object code and/or source code for the Application, including any data and utility programs needed for reproducing the Combined Work from the Application, but excluding the System Libraries of the Combined Work.

1. Exception to Section 3 of the GNU GPL

You may convey a covered work under sections 3 and 4 of this License without being bound by section 3 of the GNU GPL.

2. Conveying Modified Versions.

If you modify a copy of the Library, and, in your modifications, a facility refers to a function or data to be supplied by an Application that uses the facility (other than as an argument passed when the facility is invoked), then you may convey a copy of the modified version:

- a) under this License, provided that you make a good faith effort to ensure that, in the event an Application does not supply the function or data, the facility still operates, and performs whatever part of its purpose remains meaningful, or
- b) under the GNU GPL, with none of the additional permissions of this License applicable to that copy.
- 3. Object Code Incorporating Material from Library Header Files.

The object code form of an Application may incorporate material from a header file that is part of the Library. You may convey such object code under terms of your choice, provided that, if the incorporated material is not limited to numerical parameters, data structure layouts and accessors, or small macros, inline functions and templates (ten or fewer lines in length), you do both of the following:

- a) Give prominent notice with each copy of the object code that the Library is used in it and that the Library and its use are covered by this License.
- b) Accompany the object code with a copy of the GNU GPL and this license document.
- 4 Combined Works

You may convey a Combined Work under terms of your choice that, taken together, effectively do not restrict modification of the portions of the Library contained in the Combined Work and reverse engineering for debugging such modifications, if you also do each of the following:

- a) Give prominent notice with each copy of the Combined Work that the Library is used in it and that the Library and its use are covered by this License.
- b) Accompany the Combined Work with a copy of the GNU GPL and this license document.
- c) For a Combined Work that displays copyright notices during execution, include the copyright notice for the Library among these notices, as well as a reference directing the user to the copies of the GNU GPL and this license document.
- d) Do one of the following:
- 0) Convey the Minimal Corresponding Source under the terms of this License, and the Corresponding Application Code in a form suitable for, and under terms that permit, the user to recombine or relink the Application with a modified version of the Linked Version to produce a modified Combined Work, in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.
- 1) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (a) uses at

run time a copy of the Library already present on the user's computer system, and (b) will operate properly with a modified version of the Library that is interface-compatible with the Linked Version.

e) Provide Installation Information, but only if you would otherwise be required to provide such information under section 6 of the GNU GPL, and only to the extent that such information is necessary to install and execute a modified version of the Combined Work produced by recombining or relinking the Application with a modified version of the Linked Version. (If you use option 4d0, the Installation Information must accompany the Minimal Corresponding Source and Corresponding Application Code. If you use option 4d1, you must provide the Installation Information in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.)

#### 5 Combined Libraries

You may place library facilities that are a work based on the Library side by side in a single library together with other library facilities that are not Applications and are not covered by this License, and convey such a combined library under terms of your choice, if you do both of the following:

- a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities, conveyed under the terms of this License.
- b) Give prominent notice with the combined library that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.
- 6. Revised Versions of the GNU Lesser General Public License.

The Free Software Foundation may publish revised and/or new versions of the GNU Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library as you received it specifies that a certain numbered version of the GNU Lesser General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that published version or of any later version published by the Free Software Foundation. If the Library as you received it does not specify a version number of the GNU Lesser General Public License, you may choose any version of the GNU Lesser General Public License ever published by the Free Software Foundation.

If the Library as you received it specifies that a proxy can decide whether future versions of the GNU Lesser General Public License shall apply, that proxy's public statement of acceptance of any version is permanent authorization for you to choose that version for the Library.

#### **Objenesis**

Copyright (c) 2003-2013, Objenesis Team and all contributors

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## org.slf4j

Copyright (c) 2004-2013 QOS.ch All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions: The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software. THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

#### pcap

Copyright © 1998 The Regents of the University of California

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- · Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- Neither the name of the <organization> nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL <COPYRIGHT HOLDER> BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR

CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

## zip4j

Copyright 2010 Srikanth Reddy Langala

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License.

You may obtain a copy of the License at http://www.apache.org/licenses/LICENSE-2.0.

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.

See the License for the specific language governing permissions and limitations under the License.