



# **Cisco IronPort AsyncOS 7.1 for Email Configuration Guide**

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**GLOSSARY**

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# CHAPTER 1

## Getting Started with the IronPort Email Security Appliance

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This chapter contains the following sections:

- [What's New in This Release, page 1-1](#)
- [How to Use This Guide, page 1-8](#)
- [IronPort Email Security Appliance Overview, page 1-18](#)

## What's New in This Release

This section describes the new features and enhancements in AsyncOS for Email Security 7.1. For more information about the release, see the product release notes, which are available on the IronPort Customer Support Portal at the following URL:

<http://www.ironport.com/support/login.html>



### Note

You need a Support Portal account to access the site. If you do not already have an account, click the Request an Account link on the Support Portal login page. Generally, only IronPort customers, partners, and employees can access the Support Portal.

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You might also find it useful to review release notes for earlier releases to see the features and enhancements that were previously added. To view those release notes on the Support Portal, click the Earlier Releases link on the appropriate appliance documentation page.

## Enhancement: New RSA Email DLP Policy Templates

AsyncOS 7.1.1 includes two new RSA Email DLP policy templates:

- **Massachusetts CMR-201.** Policies based on this template identify documents and transmissions that contain personally identifiable information regulated by Massachusetts CMR-201. Any person who owns, licenses, stores or maintains personal information about a resident of the Commonwealth of Massachusetts is required to protect against unauthorized access to or use of the information in a manner that creates risk of identity theft or fraud. The policy detects US Social Security numbers, global credit card numbers and US drivers license numbers.
- **Corporate Financials.** Policies based on this template identify documents and transmissions that contain financial information related to organizational accounting such as balance sheets, cash flow, income statements, key ratios, SEC information, and annual, quarterly, and transition reports.

## Enhancement: DLP Assessment Wizard

AsyncOS 7.1 provides a browser-based DLP Assessment Wizard to guide you through the three-step process of configuring popular DLP policies and enabling them in the default outgoing mail policy. See [Using the DLP Assessment Wizard, page 11-370](#) for more information.

## Enhancement: TLS Enhancements

AsyncOS 7.1 provides a number of enhancements to the TLS features on the Email Security appliance:

- **Certificates Management.** You can use the GUI and CLI to add trusted public certificates and create a self-signed certificate. You can also use the appliance to generate a certificate signing request. See the “Customizing Listeners” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide* for more information.
- **Certificate Authorities Management.** You can import a custom list of trusted certificate authorities onto the appliance, as well as disable and export the default system list. See the “Customizing Listeners” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide* for more information.
- **TLS per Listener.** You can assign a unique certificate per listener on the appliance for TLS connections. You can also assign a certificate to the HTTPS services on an IP interface, the LDAP interface, and all outgoing TLS connections. See the “Customizing Listeners” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide* for more information.
- **Batch Management.** You can import and export a Destination Controls configuration file that defines multiple destination domains using the GUI and CLI. See the “Configuring Routing and Delivery” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide* for more information.
- **Troubleshooting Tools.** AsyncOS 7.1 provides three new troubleshooting tools for TLS:
  - The `hoststatus` command has been enhanced to display the reason why the last outgoing TLS connection failed.
  - The `tlsverify` command has been added to create a TLS connection on demand. This allows an administrator to pinpoint the exact step a TLS connection failure occurs.
  - AsyncOS 7.1 records information on why a TLS connection attempt failed in the mail logs.

See the “Testing and Troubleshooting” chapter of the *Cisco IronPort AsyncOS for Email Daily Management Guide* and the *Cisco IronPort AsyncOS CLI Reference Guide* for more information.

## New Feature: Administrative Access Control List

In AsyncOS 7.1, you can control from which IP addresses users access the Email Security appliance. Users can access the appliance from any machine with an IP address from an access list you define. You can create the list using the GUI or the `adminaccessconfig > ipaccess` command in the CLI. See [Configuring IP-Based Network Access, page 15-527](#) for more information.

## New Feature: Login Banner

AsyncOS 7.1 allows you to display a customizable message called a “login banner” when a user attempts to log into the Email Security appliance through SSH, Telnet, FTP, or Web UI. The login banner appears above the login prompt in the CLI and to the right of the login prompt in the GUI. The login banner can only be created using the `adminaccessconfig > banner` command. See [Adding a Login Banner, page 15-528](#) for more information.

## Enhancement: No Authentication Encryption Envelope

In AsyncOS 7.1 adds the option of a No Password Required security level to encryption profiles. This is the lowest level of encrypted message security. The recipient does not need to enter a password to open the encrypted message, but the read receipts, Secure Reply, Secure Reply All, and Secure Message Forwarding features will be unavailable to prevent another email user from sending a message on behalf of the original recipient. See [Configuring the Email Encryption Profile, page 12-392](#) for more information.

## Enhancement: Packet Capture

AsyncOS 7.1 provides packet capture controls. The packet capture feature provides the ability to intercept and display TCP/IP and other packets being transmitted or received over the network to which the appliance is attached. This feature can help you debug the network setup and to discover what network traffic is reaching the appliance or leaving the appliance. A `packetcapture` command

has also been added to the CLI. For more information, see the “Common Administrative Tasks” chapter in the *Cisco IronPort AsyncOS for Email Daily Management Guide*.

## Enhancement: Rescan Messages Released from Outbreak Quarantine

AsyncOS 7.1 includes an enhancement to the Virus Outbreak Filters feature. If the appliance has the Virus Outbreak Filters feature and either the IronPort Anti-Spam or Intelligent Multi-Scan feature, the anti-spam filter scans every message released from the Outbreak quarantine based on the mail flow policy that applies to the message. A message released from the Outbreak quarantine may be sent to the IronPort Spam Quarantine if it discovered to be spam, suspected spam, or a marketing message.

## Enhancement: Suspend and Resume Mail Operations in the GUI

AsyncOS 7.1 now allows you to suspend and resume message receiving and delivery in the GUI using the Shutdown/Suspend page (formerly the Shutdown/Reboot page) under the System Administration menu. See the “Common Administrative Tasks” chapter in the *Cisco IronPort AsyncOS for Email Daily Management Guide* for more information.

## New Feature: signed-certificate() Filter Rule

The `signed-certificate` rule selects those S/MIME messages where the X.509 certificate issuer or message signer matches the given regular expression. This rule only supports X.509 certificates. See the “Using Message Filters to Enforce Email Policies” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide* for more information.

## Enhancement: Unpacking Opaque-Signed Messages

The `scanconfig` CLI command now includes an option to convert the application/(x-)pkcs7-mime (opaque-signed) parts of a message to a multipart/signed (clear-signed) MIME entity in order to allow the IronPort Email Security appliance to scan the message's content. See the “Using Message Filters to Enforce Email Policies” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide* for more information.

## Enhancement: Retry Delivery in the GUI

In AsyncOS 7.1, messages that are scheduled for later delivery can now be immediately retried by clicking the **Retry All Delivery** button on the Delivery Status page in the GUI. Retry All Delivery allows you to reschedule messages in the queue for immediate delivery. All domains that are marked down and any scheduled or soft bounced messages are queued for immediate delivery. See the “Using Email Security Monitor” chapter in the *Cisco IronPort AsyncOS for Email Daily Management Guide*.

## Enhancement: New Message and Content Filter Actions

AsyncOS 7.1 adds two new message and content filter actions:

- **Add Log Entry.** This new message and content filter action inserts customized text into the IronPort Text Mail logs at the `INFO` level. The text can include action variables. The log entry also appears in message tracking.
- **Add Message Tag.** This new message and content filter action inserts a custom term into a message to use with RSA Email DLP policy filtering. You can configure a RSA Email DLP policy to limit scanning to messages with the message tag. The message tag is not visible to recipients.

See [Content Filter Actions, page 6-207](#) for information on the new content filter actions and the “Using Message Filters to Enforce Email Policies” chapter in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide* for information on the new message filter actions.

## Enhancement: New SPF Control Options in the CLI

The AsyncOS 7.1 CLI supports new control settings for each SPF/SIDF conformance level. Based on the SPF/SIDF verdict, you now have the ability to accept or reject a message, in SMTP conversation, on a per listener basis. You can modify the SPF/SIDF settings when editing the default settings for a listener's Host Access Table using the `listenerconfig` command. See the “Email Authentication” chapter in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide* and the *Cisco IronPort AsyncOS CLI Reference Guide* for information on the available settings.

## The Email Security Appliance Documentation Set

The documentation for the Email Security appliance includes the following books:

- *Cisco IronPort AsyncOS for Email Daily Management Guide*. This guide provides instructions for performing common, everyday tasks that system administrators use to manage and monitor the IronPort appliance, such as viewing email traffic using the Email Security Monitor, tracking email messages, managing system quarantines, and troubleshooting the appliance. It also provides reference information for features that system administrators interact with on a regular basis, including Email Security Monitor pages, AsyncOS logs, CLI support commands, and quarantines.
- *Cisco IronPort AsyncOS for Email Configuration Guide*. This guide is recommended for system administrators who are setting up a new IronPort appliance and want to learn about its email delivery features. It provides instructions on installing the appliance into an existing network infrastructure and setting it up as an email gateway appliance. It also includes reference information and configuration instructions for email delivery features such as the Email Pipeline, Virus Outbreak Filters, content filters, RSA Email DLP, email encryption, anti-virus scanning, and anti-spam scanning.
- *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*. This guide provides instructions configuring the advanced features of the IronPort appliance. Topics include configuring the appliance to work with LDAP, creating message filters to enforce email policies, organizing multiple appliances into clusters, and customizing the listeners on the appliance. In addition to configuration, this guide provides reference material for advanced

features such as message filter rules and actions, regular expressions used in content dictionaries and message filter rules, and LDAP query syntax and attributes.

- *IronPort AsyncOS CLI Reference Guide*. This guide provides a detailed list of the commands in the AsyncOS command line interface (CLI), as well as examples of the commands in use. System administrators can use this guide for reference when using the CLI on the IronPort appliance.

Occasionally, this book refers to the other guides for additional information about topics. These guides are available on the Documentation CD that came with your IronPort appliance as well as the IronPort Customer Support Portal. For more information, see [IronPort Nation, page 1-17](#).

## How to Use This Guide

Use this guide as a resource to learn about the features of your IronPort appliance. The topics are organized in a logical order. You might not need to read every chapter in the book. Review the Table of Contents and the section called [How This Book Is Organized, page 1-10](#) to determine which chapters are relevant to your system.

You can also use this guide as a reference book. It contains important information, such as network and firewall configuration settings, that you can refer to throughout the life of the appliance.

The guide is distributed in print and electronically as PDF and HTML files. The electronic versions of the guide are available on the IronPort Customer Support Portal. You can also access the HTML online help version of the book in the appliance GUI by clicking the Help and Support link in the upper-right corner.

## Before You Begin

Before you read this guide, review the *IronPort Quickstart Guide* and the latest product release notes for your appliance. In this guide, it is assumed that you have unpacked the appliance, physically installed it in a rack, and turned it on.





**Note**

If you have already cabled your appliance to your network, ensure that the default IP address for the IronPort appliance does not conflict with other IP addresses on your network. The IP address that is pre-configured on the Management port (on IronPort X1000/1000T/1050/1060, C60/600/650/660, and C30/300/300D/350/350D/360 appliances) or the Data 1 port (on IronPort C10/100/150/160 appliances) is 192.168.42.42.

## How This Book Is Organized

[Chapter 1, “Getting Started with the IronPort Email Security Appliance”](#) provides an introduction to the IronPort appliance and defines its key features and role in the enterprise network. New features of the current release are described.

[Chapter 2, “Overview”](#) introduces IronPort AsyncOS for Email and discusses administration of the IronPort appliance through its GUI and CLI. Conventions for using the CLI are described. This chapter also contains an overview of general purpose CLI commands.

[Chapter 3, “Setup and Installation”](#) describes the options for connecting to the IronPort appliance, including network planning, and initial system setup and configuration of the appliance.

[Chapter 4, “Understanding the Email Pipeline”](#) provides an overview of the email pipeline — the flow that email follows as it is processed by the IronPort appliance — and brief descriptions of the features that comprise the pipeline. The descriptions include cross-references to the sections containing detailed explanations of the features.

[Chapter 5, “Configuring the Gateway to Receive Email”](#) describes the process of configuring the appliance as an email gateway. This chapter introduces the concepts of interfaces, listeners, and the Host Access Table (HAT) — which support incoming email traffic and the Mail Flow Monitor.

[Chapter 6, “Email Security Manager”](#) describes Email Security Manager, the single, comprehensive dashboard to manage all email security services and applications on IronPort appliances. Email Security Manager allows you to manage the Virus Outbreak Filters feature, Anti-Spam, Anti-Virus, and email content policies — on a per-recipient or per-sender basis, through distinct inbound and outbound policies.

[Chapter 7, “Reputation Filtering”](#) provides an overview of how SenderBase Reputation Service scores are used to control incoming mail based on the reputation of the message sender.

[Chapter 8, “Anti-Spam”](#) describes the unique approach to fighting spam with the SenderBase Reputation Filters, IronPort Anti-Spam, and IronPort Intelligent Multi-Scan features integrated into the IronPort appliance.

[Chapter 9, “Anti-Virus”](#) explains the Sophos and McAfee Anti-Virus scanning features integrated into the IronPort appliance.

[Chapter 10, “Virus Outbreak Filters”](#) explains how Virus Outbreak Filters proactively provide a critical first layer of defense against new outbreaks. By detecting new outbreaks in real-time and dynamically responding to prevent suspicious traffic from entering the network, Virus Outbreak Filters offer protection until new signature updates are deployed.

[Chapter 11, “Data Loss Prevention”](#) describes how to use the data loss prevention features from RSA Security, Inc. to protect your organization’s information and intellectual property, as well as enforce regulatory and organizational compliance by preventing users from unintentionally emailing sensitive data.

[Chapter 12, “IronPort Email Encryption”](#) describes the process you use to encrypt email using the IronPort Encryption appliance or the hosted key service.

[Chapter 13, “SenderBase Network Participation”](#) describes how to share data from your appliance with the SenderBase Network.

[Chapter 14, “Text Resources”](#) details creating text resources such as content dictionaries, notification templates, and disclaimers for use in various components of AsyncOS.

[Chapter 15, “System Administration”](#) describes typical administration commands for managing and monitoring the IronPort appliance, such as working with feature keys, upgrading AsyncOS, reverting AsyncOS, and performing routine system maintenance. Maintenance tasks include setting the system time, changing the administrator password, and taking the system offline. This chapter also describes how to configure the network operation of the IronPort appliance, including DNS, interface, routing, and hostname settings.

[Chapter 16, “Enabling Your C300D/C350D/C360D Appliance”](#) describes the IronPort C300D, C350D, and C360D appliances.

[Chapter 17, “The IronPort M-Series Security Management Appliance”](#) describes the IronPort M-Series appliance, which is designed to centralize and consolidate important policy and runtime data, providing administrators and end users with a single interface for managing reporting and auditing information.

[Appendix A, “Accessing the Appliance”](#) describes how to access the IronPort appliance for uploading and downloading files.

[Appendix B, “Assigning Network and IP Addresses”](#) describes general rules on networks and IP address assignments and presents strategies for connecting the IronPort appliance within an enterprise network infrastructure.

[Appendix C, “Firewall Information”](#) describes the possible ports that may need to be opened for proper operation of the IronPort appliance behind a security firewall.

[Appendix D, “Cisco IronPort Systems, LLC Software License Agreement”](#) includes the software license agreement for the IronPort Email Security appliance.

## Topics Discussed in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*

The following topics are discussed in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*:

Chapter 1, “Customizing Listeners” describes the process for tailoring the configuration of your Enterprise Email Gateway. This chapter discusses, in detail, advanced features available to you as you configure interfaces and listeners to handle email receiving through the gateway.

Chapter 2, “Configuring Routing and Delivery Features” explains the features that affect email routing and delivery of email traveling through the IronPort appliance.

Chapter 3, “LDAP Queries” describes how your IronPort appliance can connect to your corporate Lightweight Directory Access Protocol (LDAP) servers and perform queries for the purposes of verifying recipients to accept (including group membership), mail routing and address rewriting, masquerading headers, and supporting for SMTP authentication.

Chapter 4, “Email Authentication” details the process of configuring and enabling email authentication on an IronPort appliance. IronPort AsyncOS supports several types of email authentication, including Sender Policy Framework (SPF), Sender ID Framework (SIDF), and DomainKeys Identified Mail (DKIM) verification of incoming mail, as well as DomainKeys and DKIM signing of outgoing mail.

Chapter 5, “Using Message Filters to Enforce Email Policies” describes how to use Message Filters to define rules for handling email, including the ability to modify the content of messages through the attachment filtering, image analysis, and content dictionary features.

Chapter 7, “Advanced Network Configuration” includes information about NIC pairing, virtual LANs and more.

Chapter 8, “Centralized Management” describes the centralized management feature, which allows you to manage and configure multiple appliances. The centralized management feature provides increased reliability, flexibility, and scalability within your network, allowing you to manage globally while complying with local policies.

Appendix A, “AsyncOS Quick Reference Guide” provides a quick reference for most commands in the CLI.

Appendix B, “Accessing the Appliance” describes how to access the IronPort appliance to send and retrieve files from IronPort appliance.

## **The following topics are discussed in the *Cisco IronPort AsyncOS for Email Daily Management Guide***

Chapter 1, “Managing the IronPort Email Appliance,” provides an introduction to the IronPort appliance and defines its key features and role in the enterprise network.

Chapter 2, “Using Email Security Monitor,” describes the Mail Flow Monitor feature: a powerful, web-based console that provides complete visibility into all inbound email traffic for your enterprise.

Chapter 3, “Tracking Email Messages,” describes local message tracking. You can use message tracking to determine if a particular message was delivered, found to contain a virus, or placed in a spam quarantine.

Chapter 4, “Quarantines,” describes the special queues or repositories used to hold and process messages. Messages in quarantines can be delivered or deleted, based on how you configured the quarantine. This includes the IronPort Spam quarantine.

Chapter 5, “Logging,” describes the logging and log subscription functionality of the IronPort appliance.

Chapter 6, “Managing and Monitoring via the CLI,” describes the commands available in the CLI available to you as you monitor the mail flow through the gateway.

Chapter 7, “Other Tasks in the GUI,” describes typical administration tasks for managing and monitoring the IronPort appliance through the GUI.

Chapter 8, “Common Administrative Tasks,” describes typical administration commands for managing and monitoring the IronPort appliance, such as adding users, managing the configuration file, and managing SSH keys. This chapter also describes how to request technical support, allow IronPort customer support remote access to your IronPort, and use feature keys.

Chapter 9, “Testing and Troubleshooting” describes the process of creating so-called *black hole listeners* for testing the system performance and troubleshooting configuration problems.

Appendix A, “Accessing the Appliance,” describes how to access the IronPort appliance for uploading and downloading files.

## Typographic Conventions

Typeface	Meaning	Examples
<b>AaBbCc123</b>	The names of commands, files, and directories; on-screen computer output.	Please choose an IP interface for this Listener.  The <b>sethostname</b> command sets the name of the IronPort appliance.
<b>AaBbCc123</b>	User input, in contrast to on-screen computer output.	mail3.example.com> <b>commit</b> Please enter some comments describing your changes: [ ]> <b>Changed the system hostname</b>
<i>AaBbCc123</i>	Book titles, new terms, emphasized words, and command line variables; for command line variables, the italicized text is a placeholder for the actual name or value.	Read the <i>IronPort Quickstart Guide</i> .  The IronPort appliance <i>must</i> be able to uniquely select an interface to send an outgoing packet.  Before you begin, please reset your password to a new value. Old password: <b>ironport</b> New password: <i>your_new_password</i> Retype new password: <b>your_new_password</b>

## Where to Find More Information

IronPort offers the following resources to learn more about the IronPort Email Security appliance.

### Cisco IronPort Technical Training

Cisco IronPort Systems Technical Training Services can help you acquire the knowledge and skills necessary to successfully evaluate, integrate, deploy, maintain, and support IronPort security products and solutions.

Use one of the following methods to contact Cisco IronPort Technical Training Services:

**Training.** For question relating to registration and general training:

- <http://training.ironport.com>
- [training@ironport.com](mailto:training@ironport.com)

**Certifications.** For questions relating to certificates and certification exams:

- <http://training.ironport.com/certification.html>
- [certification@ironport.com](mailto:certification@ironport.com)

## Knowledge Base

You can access the IronPort Knowledge Base on the Customer Support Portal at the following URL:

<http://www.ironport.com/support/login.html>



### Note

You need a Support Portal account to access the site. If you do not already have an account, click the Request an Account link on the Support Portal login page. Generally, only IronPort customers, partners, and employees can access the Support Portal.

The Knowledge Base contains a wealth of information on topics related to IronPort products.

Articles generally fall into one of the following categories:

- **How-To.** These articles explain how to do something with an IronPort product. For example, a how-to article might explain the procedures for backing up and restoring a database for an appliance.
- **Problem-and-Solution.** A problem-and-solution article addresses a particular error or issue that you might encounter when using an IronPort product. For example, a problem-and-solution article might explain what to do if a specific error message is displayed when you upgrade to a new version of the product.
- **Reference.** Reference articles typically provide lists of information, such as the error codes associated with a particular piece of hardware.



- **Troubleshooting.** Troubleshooting articles explain how to analyze and resolve common issues related to IronPort products. For example, a troubleshooting article might provide steps to follow if you are having problems with DNS.

Each article in the Knowledge Base has a unique answer ID number.

## IronPort Nation

IronPort Nation is an online forum for IronPort customers, partners, and employees. It provides a place to discuss general email and web security issues, as well as technical information about specific IronPort products. You can post topics to the forum to ask questions and share information with other IronPort users.

You access IronPort Nation on the Customer Support Portal at the following URL:

<http://www.ironport.com/support/login.html>

## IronPort Customer Support

You can request IronPort product support by phone, email, or online 24 hours a day, 7 days a week.

During Customer Support hours — 24 hours a day, Monday through Friday, excluding U.S. holidays — an engineer will contact you within an hour of your request.

To report a critical issue that requires urgent assistance outside of Customer Support hours, contact IronPort using one of the following methods:

U.S. Toll-free: 1 (877) 641-IRON (4766)

International: [http://www.ironport.com/support/contact\\_support.html](http://www.ironport.com/support/contact_support.html)

Support Portal: <http://www.ironport.com/support/login.html>

If you purchased support through a reseller or another supplier, please contact that supplier directly with your product support issues.

## Third Party Contributors

Some software included within IronPort AsyncOS is distributed under the terms, notices, and conditions of software license agreements of FreeBSD, Inc., Stichting Mathematisch Centrum, Corporation for National Research Initiatives, Inc., and other third party contributors, and all such terms and conditions are incorporated in IronPort license agreements.

The full text of these agreements can be found here:

[https://support.ironport.com/3rdparty/AsyncOS\\_User\\_Guide-1-1.html](https://support.ironport.com/3rdparty/AsyncOS_User_Guide-1-1.html).

Portions of the software within IronPort AsyncOS is based upon the RRDtool with the express written consent of Tobi Oetiker.

Portions of this document are reproduced with permission of Dell Computer Corporation. Portions of this document are reproduced with permission of McAfee, Inc. Portions of this document are reproduced with permission of Sophos Plc.

## IronPort Welcomes Your Comments

The IronPort Technical Publications team is interested in improving the product documentation. Your comments and suggestions are always welcome. You can send comments to the following email address:

[docfeedback@ironport.com](mailto:docfeedback@ironport.com)

Please include the following part number in the subject of your message: OL-22158-01.

## IronPort Email Security Appliance Overview

The IronPort Email Security appliance is a high-performance appliance designed to meet the email infrastructure needs of the most demanding enterprise networks. The Email Security appliance eliminates spam and viruses, enforces corporate policy, secures the network perimeter, and reduces the total cost of ownership (TCO) of enterprise email infrastructure.

IronPort Systems combines hardware, a hardened operating system, application, and supporting services to produce a purpose-built, rack-mount server appliance dedicated for enterprise messaging.

The IronPort AsyncOS™ operating system integrates several intelligent features into the IronPort appliance:

- **Anti-Spam** at the gateway, through the unique, multi-layer approach of SenderBase Reputation Filters and IronPort Anti-Spam integration.
- **Anti-Virus** at the gateway with the Sophos and McAfee Anti-Virus scanning engines.
- **Virus Outbreak Filters™**, IronPort's unique, preventive protection against new virus outbreaks that can quarantine dangerous messages until new Anti-Virus updates are applied, reducing the window of vulnerability to new virus outbreaks.
- **Spam Quarantine** either on-box or off, providing end user access to quarantined spam and suspected spam.
- **Email Authentication.** IronPort AsyncOS supports various forms of email authentication, including Sender Policy Framework (SPF), Sender ID Framework (SIDF), and DomainKeys Identified Mail (DKIM) verification of incoming mail, as well as DomainKeys and DKIM signing of outgoing mail.
- **IronPort Email Encryption.** You can encrypt outgoing mail to address HIPAA, GLBA and similar regulatory mandates. To do this, you configure an encryption policy on the Email Security appliance and use a local key server or hosted key service to encrypt the message.
- **Email Security Manager**, a single, comprehensive dashboard to manage all email security services and applications on the appliance. Email Security Manager can enforce email security based on user groups, allowing you to manage IronPort Reputation Filters, Virus Outbreak Filters, Anti-Spam, Anti-Virus, and email content policies through distinct inbound and outbound policies.
- **On-box Quarantine areas** to hold messages that violate email policies. Quarantines seamlessly interact with the Virus Outbreak Filters feature.
- **On-box message tracking.** AsyncOS for Email includes an on-box message tracking feature that makes it easy to find the status of messages that the Email Security appliance processes.
- **Mail Flow Monitoring** of all inbound and outbound email that provides complete visibility into all email traffic for your enterprise.

- **Access control** for inbound senders, based upon the sender's IP address, IP address range, or domain.
- Extensive **message filtering** technology allows you to enforce corporate policy and act on specific messages as they enter or leave your corporate infrastructure. Filter rules identify messages based on message or attachment content, information about the network, message envelope, message headers, or message body. Filter actions allow messages to be dropped, bounced, archived, blind carbon copied, or altered, or to generate notifications.
- **Message encryption via secure SMTP over Transport Layer Security** ensures messages travelling between your corporate infrastructure and other trusted hosts are encrypted.
- **Virtual Gateway™** technology allows the IronPort appliance to function as several email gateways within a single server, which allows you to partition email from different sources or campaigns to be sent over separate IP addresses. This ensures that deliverability issues affecting one IP address do not impact others.

AsyncOS for Email is a proprietary operating system that has been highly optimized for the task of Internet messaging. AsyncOS is a “hardened” operating system: all unnecessary services have been removed, which increases security and optimizes system performance. IronPort stackless threading technology eliminates allocation of a dedicated memory stack to each task, which increases concurrency and stability of the MTA. The custom I/O-driven scheduler is optimized for massively concurrent I/O events required by the email gateway versus the preemptive time slicing of the CPU in traditional operating systems. AsyncFS, the file system underlying AsyncOS, is optimized for millions of small files and ensures data recoverability in the case of system failure.

AsyncOS for email supports RFC 2821-compliant Simple Mail Transfer Protocol (SMTP) to accept and deliver messages. The IronPort appliance is designed to be easy to configure and manage. Most reporting, monitoring, and configuration commands are available through both the web-based GUI via HTTP or HTTPS. In addition, an interactive Command Line Interface (CLI) which you access from a Secure Shell (SSH), telnet, or direct serial connection is provided for the system. The IronPort appliance also features a robust logging capability, allowing you to configure log subscriptions spanning the functionality of the entire system and reducing the time spent finding the information you need.

## Mail Flow and the IronPort M-Series Appliance

If you include an M-Series appliance in your configuration, mail is sent to the IronPort M-Series appliance from other IronPort (C- and X-Series) appliances. An IronPort appliance that is configured to send mail to an IronPort M-Series appliance will automatically expect to receive mail released from the M-Series appliance and will not re-process those messages when they are received back — messages will bypass the HAT and other policy or scanning settings and be delivered. For this to work, the IP address of the IronPort M-Series appliance must not change. If the IP address of the IronPort M-Series appliance changes, the receiving C- or X-Series appliance will process the message as it would any other incoming message. Always use the same IP address for receiving and delivery on the IronPort M-Series appliance.

The IronPort M-Series appliance accepts mail for quarantining from the IP addresses specified in the IronPort Spam Quarantine settings. To configure the local quarantine on the IronPort M-Series appliance see the *IronPort AsyncOS for Security Management User Guide*. Note that the local quarantine on the IronPort M-Series appliance is referred to as an *external* quarantine by the other IronPort appliances sending mail to it.

Mail released by the IronPort M-Series appliance is delivered to the primary and secondary hosts (IronPort appliance or other groupware host) as defined in the Spam Quarantine Settings (see the *IronPort AsyncOS for Security Management User Guide*). Therefore, regardless of the number of IronPort appliances delivering mail to the IronPort M-Series appliance, all released mail, notifications, and alerts are sent to a single host (groupware or IronPort appliance). Take care to not overburden the primary host for delivery from the IronPort M-Series appliance.





## CHAPTER 2

# Overview

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This chapter introduces the IronPort AsyncOS operating system and administration of the IronPort appliance through both the web-based Graphical User Interface (GUI) and Command Line Interface (CLI). Conventions for using each interface are described. This chapter also contains general-purpose CLI commands. This chapter contains the following sections:

- [Web-based Graphical User Interface \(GUI\), page 2-23](#)
- [Command Line Interface \(CLI\), page 2-29](#)

## Web-based Graphical User Interface (GUI)

The graphical user interface (GUI) is the web-based alternative to the command line interface (CLI) for system monitoring and configuration. The GUI enables you to monitor the system using a simple web-based interface without having to learn the IronPort AsyncOS command syntax.

The GUI contains most of the functionality you need to configure and monitor the system. However, not all CLI commands are available in the GUI; some features are *only* available through the CLI. Many of the tasks listed throughout this book demonstrate how to accomplish a task from the GUI (when possible) first, followed by the CLI commands to accomplish the same task.

In the following chapters, you will learn how to use the GUI to:

- access the System Setup Wizard to perform the initial installation and configuration of the IronPort appliance.

- access Email Security Manager to enforce email security based on user groups, allowing you to manage IronPort Reputation Filters, Virus Outbreak Filters, Anti-Spam, Anti-Virus, and email content filtering policies through distinct inbound and outbound policies.
- edit the Host Access Table (HAT) for a listener, customizing your own sender groups (updating whitelists, blacklists, and greylists) and tailoring mail flow policies by querying for a sender's reputation, including the SenderBase Reputation Score (SBRS).
- create and manage dictionaries, disclaimers, and other text resources.
- configure an encryption profile to use IronPort Email Encryption to encrypt outbound emails.
- configure global settings for IronPort Anti-Spam, Sophos Anti-Virus, Virus Outbreak Filters, and SenderBase Network Participation.
- view status through XML pages, or access XML status information programmatically.

## Browser Requirements

To access the web-based UI, your browser must support and be enabled to accept JavaScript and cookies, and it must be able to render HTML pages containing Cascading Style Sheets (CSS).



### Note

Beginning with AsyncOS 5.5, the web-based UI incorporates libraries from the Yahoo! User Interface (YUI) Library, which is a set of utilities and controls, written in JavaScript, for building richly interactive web applications. The purpose of this change is to provide an improved user experience in the web-based UI.

The YUI library supports the vast majority of browsers that are in general use. The YUI library also has a comprehensive, public approach to browser support and is committed to making sure that components work well in all of what are designated as "A-Grade" browsers. For more information on graded browser support, see:

<http://developer.yahoo.com/yui/articles/gbs/>

IronPort tests our web application with and recommends the following list of A-grade browsers to access the web-based UI:



- Firefox 2.0 and later
- WinXP: Internet Explorer version 7
- Mac OS X: Safari 3.1 and later

**Note**

---

Your session will automatically time out after 30 minutes of inactivity.

---

Please note that when accessing the GUI, do not use multiple browser windows or tabs simultaneously to make changes to the IronPort appliance. Do not use concurrent GUI and CLI sessions either. Doing so will cause unexpected behavior and is not supported.

You may need to configure your browser's pop-up blocking settings in order to use the GUI because some buttons or links in the interface will cause additional windows to open.

## Accessing the GUI

By default, the system ships with HTTP enabled on the Management interface (for IronPort C60/600/650/660, C30/300/350/360, X1000/1050/1060, and M600/650/1000/1050/1060 appliances) or Data 1 (IronPort C10/100/150/160) interface. (For more information, see [Enabling the GUI on an Interface, page -442.](#))

To access the GUI on a brand new system, access the following URL:

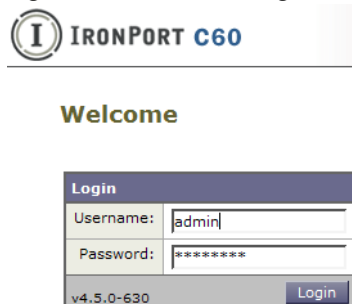
`http://192.168.42.42`

When the login page is displayed, log in to the system using the default username and password:

### Factory Default Username and Password

- Username: **admin**
- Password: **ironport**

For example:

**Figure 2-1 The Login Screen**

On brand new (not upgraded from previous releases of AsyncOS) systems, you will automatically be redirected to the System Setup Wizard.

During the initial system setup, you choose IP addresses for interfaces and whether to run HTTP and/or HTTPS services for those interfaces. When HTTP and/or HTTPS services have been enabled for an interface, you can use any supporting browser to view the GUI by entering the IP address or hostname of the IP interface as a URL in the location field (“address bar”) of the browser. For example:

```
http://192.168.1.1 OR
https://192.168.1.1 OR
http://mail3.example.com OR
https://mail3.example.com
```

**Note**

If HTTPS has been enabled for an interface (and HTTP requests are *not* being redirected to the secure service), remember to access the GUI using the “https://” prefix.

## Logging In

All users accessing the GUI must log in. Type your username and password, and then click Login to access the GUI. You must use a supported web browser (see [Browser Requirements, page 2-24](#)). You can log in with the admin account or with a specific user account you have created. (For more information, see “Adding Users” in the “Common Administrative Tasks” chapter of the *IronPort AsyncOS Daily Management Guide*.)

After you have logged in, the Monitor > Incoming Mail Overview page is displayed.

## GUI Sections and Basic Navigation

The GUI consists of the following menus which correspond to functions in your IronPort appliance: Monitor, Mail Policies, Security Services, Network, and System Administration. The following chapters will describe each section, including the tasks you perform on pages within each section.



### Note

Online help for the GUI is available from every page within the GUI. Click the **Help > Online Help** link at the top right of the page to access the online help.

You navigate among sections of the interface by clicking the menu headings for each main section (Monitor, Mail Policies, Security Services, Network, and System Administration). Within each menu are sub-sections that further group information and activities. For example, the Security Services section contains the Anti-Spam section that lists the Anti-Spam pages. Accordingly, when referring to specific pages in the GUI, the documentation uses the menu name, followed by an arrow and then the page name. For example, **Security Services > SenderBase**.

### Monitor menu

The Monitor section contain pages for the Mail Flow Monitor feature (Overview, Incoming Mail, Outgoing Destinations, Outgoing Senders, Delivery Status, Internal Users, Content Filters, Virus Outbreaks, Virus Types, System Capacity, System Status), Local and External Quarantines, and Scheduled Reports features. You can also access message tracking from this menu.

### Mail Policies menu

The Mail Policies section contains pages for the Email Security Manager feature (including Mail Policies and Content Filters), the Host Access Table (HAT) and Recipient Access Table (RAT) configuration, Destination Controls, Bounce Verification, Domain Keys, Text Resources, and Dictionaries.

## Security Services menu

The Security Services section contains pages to set global settings for the Anti-Spam, Anti-Virus, IronPort Email Encryption, Virus Outbreak Filters, and SenderBase Network Participation features. You also enable the following features from this menu: Reporting, Message Tracking, External Spam Quarantine.

## Network menu

The Network section contains pages for creating and managing IP interfaces, Listeners, SMTP Routes, DNS, Routing, Bounce Profiles, SMTP Authentication, and Incoming Relays.

## System Administration menu

The System Administration section contains pages for the Trace, Alerting, User Management, LDAP, Log Subscription, Return Addresses, System Time, Configuration File management, Feature Key Settings, Feature Keys, Shutdown/Reboot, Upgrades, and System Setup Wizard features.

## Centralized Management

If you have the Centralized Management feature and have enabled a cluster, you can browse machines in the cluster, create, delete, copy, and move settings among clusters, groups, and machines (that is, perform the equivalent of the `clustermode` and `clusterset` commands) from within the GUI.

For more information, see “Administering a Cluster from the GUI” in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

## The Commit Changes Button

The commit model in the GUI matches the same “explicit commit” model as used in the CLI. (For more information, see [Committing Configuration Changes, page 2-34](#).) As you make configuration changes in the GUI, you now must explicitly commit those changes by clicking the **Commit Changes** button. This button displays when you have uncommitted changes that need to be saved.

**Figure 2-2 The Commit Changes Button**

Clicking the **Commit Changes** button displays a page where you can add a comment and commit the changes, abandon all changes made since the most recent commit (the equivalent of the `clear` command in the CLI; see [Clearing Configuration Changes, page 2-35](#)), or cancel.

**Figure 2-3 Confirming Committed Changes Uncommitted Changes**

**Commit Changes**

*You have uncommitted changes. These changes will not go into effect until you commit them.*

Comment (optional):

## Command Line Interface (CLI)

The IronPort AsyncOS Command Line Interface is an interactive interface designed to allow you to configure and monitor the IronPort appliance. The commands are invoked by entering the command name with or without any arguments. If you enter the command without arguments, the command prompts you for the required information.

The Command Line Interface is accessible via SSH or Telnet on IP interfaces that have been configured with these services enabled, or via terminal emulation software on the serial port. By factory default, SSH and Telnet are configured on the Management port. Use the `interfaceconfig` command described in [Configuring the Gateway to Receive Email, page 5-107](#) to disable these services.

For more information about specific CLI commands, see the *Cisco IronPort AsyncOS CLI Reference Guide*.

## Command Line Interface Conventions

This section describes the rules and conventions of the AsyncOS CLI.

## Command Prompt

The top-level command prompt consists of the fully qualified hostname, followed by the greater than (>) symbol, followed by a space. For example:

```
mail3.example.com>
```

If the appliance has been configured as part of a cluster with the Centralized Management feature, the prompt in the CLI changes to indicate the current mode. For example:

```
(Cluster Americas) >
```

or

```
(Machine losangeles.example.com) >
```

See “Centralized Management” in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide* for more information.

When running commands, the CLI requires input from you. When the CLI is expecting input from you, the command prompt shows the default input enclosed in square brackets ([ ]) followed by the greater than (>) symbol. When there is no default input, the command-prompt brackets are empty.

For example:

```
Please create a fully-qualified hostname for this Gateway
```

```
(Ex: "mail3.example.com") :  
[]> mail3.example.com
```

When there is a default setting, the setting is displayed within the command-prompt brackets. For example:

```
Ethernet interface:  
1. Data 1  
2. Data 2  
3. Management  
[1]> 1
```

When a default setting is shown, typing Return is equivalent to typing the default:

```
Ethernet interface:  
1. Data 1  
2. Data 2  
3. Management  
[1]> (type Return)
```

## Command Syntax

When operating in the interactive mode, the CLI command syntax consists of single commands with no white spaces and no arguments or parameters. For example:

```
mail3.example.com> systemsetup
```

## Select Lists

When you are presented with multiple choices for input, some commands use numbered lists. Enter the number of the selection at the prompt.

For example:

```
Log level:  
1. Error  
2. Warning  
3. Information  
4. Debug  
5. Trace  
[3]> 3
```

## Yes/No Queries

When given a yes or no option, the question is posed with a default in brackets. You may answer **Y**, **N**, **Yes**, or **No**. Case is not significant.

For example:

```
Do you want to enable FTP on this interface? [Y]> n
```

## Subcommands

Some commands give you the opportunity to use subcommands. Subcommands include directives such as **NEW**, **EDIT**, and **DELETE**. For the **EDIT** and **DELETE** functions, these commands provide a list of the records previously configured in the system.

For example:

```
mail3.example.com> interfaceconfig
```

```
Currently configured interfaces:
```

```
1. Management (192.168.42.42/24: mail3.example.com)
```

```
Choose the operation you want to perform:
```

- NEW - Create a new interface.
- EDIT - Modify an interface.
- GROUPS - Define interface groups.
- DELETE - Remove an interface.

```
[ ]>
```



Within subcommands, typing Enter or Return at an empty prompt returns you to the main command.

## Escape

You can use the Control-C keyboard shortcut at any time within a subcommand to immediately exit return to the top level of the CLI.

## History

The CLI keeps a history of all commands you type during a session. Use the Up and Down arrow keys on your keyboard, or the Control-P and Control-N key combinations, to scroll through a running list of the recently-used commands.

```
mail3.example.com> (type the Up arrow key)
```

```
mail3.example.com> interfaceconfig (type the Up arrow key)
```

```
mail3.example.com> topin (type the Down arrow key)
```

## Command Completion

The IronPort AsyncOS CLI supports command completion. You can type the first few letters of some commands followed by the Tab key, and the CLI completes the string for unique commands. If the letters you entered are not unique among commands, the CLI “narrows” the set. For example:

```
mail3.example.com> set (type the Tab key)  
setgateway, sethostname, settime, settz  
mail3.example.com> seth (typing the Tab again completes the entry  
with sethostname)
```

For both the history and file completion features of the CLI, you must type Enter or Return to invoke the command.

## Configuration Changes

You can make configuration changes to IronPort AsyncOS while email operations proceed normally.

Configuration changes will not take effect until you:

1. Issue the `commit` command at the command prompt.
2. Give the `commit` command the input required.
3. Receive confirmation of the `commit` procedure at the CLI.

Changes to configuration that have not been committed will be recorded but not put into effect until the `commit` command is run.



### Note

Not all commands in AsyncOS require the `commit` command to be run. See Appendix A, “AsyncOS Quick Reference Guide,” in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide* or view the *Cisco IronPort AsyncOS CLI Reference Guide* for a summary of commands that require `commit` to be run before their changes take effect.

Exiting the CLI session, system shutdown, reboot, failure, or issuing the `clear` command clears changes that have not yet been committed.

## General Purpose CLI Commands

This section describes the commands used to commit or clear changes, to get help, and to quit the command-line interface.

## Committing Configuration Changes

The `commit` command is critical to saving configuration changes to the IronPort appliance. Many configuration changes are not effective until you enter the `commit` command. (A few commands do not require you to use the `commit` command for changes to take effect. See Appendix A, “AsyncOS Quick Reference Guide,” in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide* for more information. The `commit` command applies configuration changes made

to IronPort AsyncOS since the last `commit` command or the last `clear` command was issued. You may include comments up to 255 characters. Changes are not verified as committed until you receive confirmation along with a timestamp.

Entering comments after the `commit` command is optional.

```
mail3.example.com> commit
```

```
Please enter some comments describing your changes:
```

```
[ ]> Changed "psinet" IP Interface to a different IP address
```

```
Changes committed: Wed Jan 01 12:00:01 2003
```

**Note**

To successfully commit changes, you must be at the top-level command prompt. Type Return at an empty prompt to move up one level in the command line hierarchy.

## Clearing Configuration Changes

The `clear` command clears any changes made to the IronPort AsyncOS configuration since the last `commit` or `clear` command was issued.

```
mail3.example.com> clear
```

```
Are you sure you want to clear all changes since the last commit?  
[Y]> y
```

```
Changes cleared: Mon Jan 01 12:00:01 2003
```

```
mail3.example.com>
```

## Quitting the Command Line Interface Session

The `quit` command logs you out of the CLI application. Configuration changes that have not been committed are cleared. The `quit` command has no effect on email operations. Logout is logged into the log files. (Typing `exit` is the same as typing `quit`.)

```
mail3.example.com> quit
```

```
Configuration changes entered but not committed. Exiting will lose
changes.
```

```
Type 'commit' at the command prompt to commit changes.
```

```
Are you sure you wish to exit? [N]> Y
```

## Seeking Help on the Command Line Interface

The `help` command lists all available CLI commands and gives a brief description of each command. The `help` command can be invoked by typing either `help` or a single question mark (?) at the command prompt.

```
mail3.example.com> help
```



## CHAPTER 3

# Setup and Installation

---

This chapter guides you through the process of configuring your IronPort C- or X-Series appliance for email delivery using the System Setup Wizard. If you are configuring an IronPort M-Series appliance, please see [Chapter 17, “The IronPort M-Series Security Management Appliance”](#). When you have completed this chapter, the IronPort appliance will be able to send SMTP email over the Internet or within your network.

To configure your system as an Enterprise Gateway (accepting email from the Internet), complete this chapter first, and then see [Chapter 5, “Configuring the Gateway to Receive Email”](#) for more information.

This chapter contains the following sections:

- [Installation Planning, page 3-38](#)
- [Physically Connecting the IronPort Appliance to the Network, page 3-44](#)
- [Preparing for Setup, page 3-47](#)
- [Using the System Setup Wizard, page 3-54](#)
- [What’s Next: Understanding the Email Pipeline, page 3-90](#)

# Installation Planning

## Before You Begin

You can install your IronPort appliance into your existing network infrastructure in several ways. This section addresses several options available to you as you plan your installation.

### Plan to Place the IronPort Appliance at the Perimeter of Your Network

Please note that your IronPort appliance is designed to serve as your SMTP gateway, also known as a mail exchanger or “MX.” In addition to the “hardened” operating system dedicated for Internet messaging, many of the newest features in the AsyncOS operating system function optimally when the appliance is situated at the first machine with an IP address that is directly accessible to the Internet (that is, it is an external IP address) for sending and receiving email. For example:

- The per-recipient reputation filtering, anti-spam, anti-virus, and Virus Outbreak Filter features (see [Reputation Filtering, page 7-246](#), [IronPort Anti-Spam Filtering, page 8-263](#), [Sophos Anti-Virus Filtering, page 9-303](#), and [Virus Outbreak Filters, page 10-329](#)) are designed to work with a *direct flow* of messages from the Internet and from your internal network. You can configure the IronPort appliance for policy enforcement ([The Host Access Table \(HAT\): Sender Groups and Mail Flow Policies, page 5-115](#)) for all email traffic to and from your enterprise.

You need to ensure that the IronPort appliance is both accessible via the public Internet and is the “first hop” in your email infrastructure. If you allow another MTA to sit at your network’s perimeter and handle all external connections, then the IronPort appliance will not be able to determine the sender’s IP address. The sender’s IP address is needed to identify and distinguish senders in the Mail Flow Monitor, to query the SenderBase Reputation Service for the sender’s SenderBase Reputation Score (SBRS), and to improve the efficacy of the IronPort Anti-Spam and Virus Outbreak Filters features.

**Note**

If you cannot configure the appliance as the *first* machine receiving email from the Internet, you can still exercise some of the security services available on the appliance. Refer to [Incoming Relays, page 8-287](#) for more information.

When you use the IronPort appliance as your SMTP gateway:

- The Mail Flow Monitor feature (see “Using Email Security Monitor” in the *Cisco IronPort AsyncOS for Email Daily Management Guide*) offers complete visibility into all email traffic for your enterprise from both internal and external senders.
- LDAP queries (“LDAP Queries” in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*) for routing, aliasing, and masquerading can consolidate your directory infrastructure and provide for simpler updates.
- Familiar tools like alias tables (“Creating Alias Tables” in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*), domain-based routing (“The Domain Map Feature” in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*), and masquerading (“Configuring Masquerading” in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*) make the transition from Open-Source MTAs easier.

## Register the IronPort Appliance in DNS

Malicious email senders actively search public DNS records to hunt for new victims. You need to ensure that the IronPort appliance is registered in DNS, if you want to utilize the full capabilities of IronPort Anti-Spam, Virus Outbreak Filters, McAfee Antivirus and Sophos Anti-Virus. To register the IronPort appliance in DNS, create an A record that maps the appliance’s hostname to its IP address, and an MX record that maps your public domain to the appliance’s hostname. You must specify a priority for the MX record to advertise the IronPort appliance as either a primary or backup MTA for your domain.

In the following example, the IronPort appliance (ironport.example.com) is a backup MTA for the domain example.com, since its MX record has a higher priority value (20). In other words, the higher the numeric value, the lower the priority of the MTA.

```
$ host -t mx example.com
```

```
example.com mail is handled (pri=10) by mail.example.com
```

```
example.com mail is handled (pri=20) by ironport.example.com
```

By registering the IronPort appliance in DNS, you will attract spam attacks regardless of how you set the MX record priority. However, virus attacks rarely target backup MTAs. Given this, if you want to evaluate an anti-virus engine to its fullest potential, configure the IronPort appliance to have an MX record priority of equal or higher value than the rest of your MTAs.

## Installation Scenarios

You may want to review all features of the appliance prior to installing. [Chapter 4, “Understanding the Email Pipeline”](#) provides an overview of all functions available on the appliance that may affect the placement of the IronPort appliance within your infrastructure.

Most customers’ network configurations are represented in the following scenarios. If your network configuration varies significantly and you would like assistance planning an installation, please contact IronPort Customer Support (see [IronPort Customer Support, page 1-17](#)).

## Configuration Overview





In some scenarios, the IronPort appliance resides inside the network “DMZ,” in which case an additional firewall sits between the IronPort appliance and the groupware server.

The following network scenarios are described:

- Behind the Firewall (see [Figure 3-2 on page 3-46](#))

Choose the configuration that best matches your infrastructure. Then proceed to the next section, [Preparing for Setup, page 3-47](#).

## Incoming

- Incoming mail is accepted for the local domains you specify. (See )
- All other domains are rejected.
- External systems connect directly to the IronPort appliance to transmit email for the local domains, and the IronPort appliance relays the mail to the appropriate groupware servers (for example, Exchange™, Groupwise™, Domino™) via SMTP routes. (See “Routing Email for Local Domains” in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.)

## Outgoing

- Outgoing mail sent by internal users is routed by the groupware server to the IronPort appliance.
- The IronPort appliance accepts outbound email based on settings in the Host Access Table for the private listener. (For more information, see [Receiving Email with Listeners, page 5-108](#).)

## Ethernet Interfaces

- Only one of the available Ethernet interfaces on the IronPort appliance is required in these configurations. However, you can configure two Ethernet interfaces and segregate your internal network from your external Internet network connection.

See “Using Virtual Gateway™ Technology” in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide* and [Appendix B, “Assigning Network and IP Addresses”](#) for more information about assigning multiple IP addresses to the available interfaces.



**Note**

The IronPort X1000/1050/1060, C60/600/650/660, and C30/300/350/360 Email Security appliances have three available Ethernet interfaces by default. The IronPort C10/100/150/160 Email Security appliances have two available Ethernet interfaces.

Advanced Configurations

In addition to this configurations shown in [Figure 3-2](#) and [Figure 3-3](#), you can also configure:

- Multiple IronPort appliances using the Centralized Management feature
- Redundancy at the network interface card level by “teaming” two of the Ethernet interfaces on IronPort appliances using the NIC Pairing feature.

Both of these features are discussed in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

Firewall Settings (NAT, Ports)

Depending on your network configuration, your firewall may need to be configured to allow access on the following ports.

SMTP and DNS services must have access to the Internet. For other system functions, the following services may be required:

**Table 3-1** Firewall Ports

<ul style="list-style-type: none"><li>• SMTP: port 25</li><li>• DNS: port 53</li><li>• HTTP: port 80</li><li>• HTTPS: port 443</li><li>• SSH: port 22</li><li>• Telnet: port 23</li></ul>	<ul style="list-style-type: none"><li>• LDAP: port 389 or 3268</li><li>• NTP: port 123</li><li>• LDAP over SSL: port 636</li><li>• LDAP with SSL for Global Catalog queries: port 3269</li><li>• FTP: port 21, data port TCP 1024 and higher</li><li>• IronPort Spam Quarantine: port 6025</li></ul>
---	--

[Appendix C, “Firewall Information”](#) contains all information about the possible ports that may need to be opened for proper operation of the IronPort appliance. For example, ports in the firewall may need to be opened for connections:

- from the external clients (MTAs) to the IronPort appliance
- to and from groupware servers
- to the Internet root DNS servers or internal DNS servers
- to the IronPort downloads servers for McAfee and Sophos Anti-Virus updates, Virus Outbreak Filters rules, and updates to AsyncOS
- to the NTP servers
- to LDAP servers

## Physical Dimensions

The following physical dimensions apply to the **IronPort X1000/1050/1060, C600/650/660, C300/350/360, M1000/1050/1060, and M600/650/660** Email Security appliances:

- Height: 8.656 cm (3.40 inches)
- Width: 48.26 cm (19.0 inches) with rails installed (without rails, 17.5 inches)
- Depth: 75.68cm (29.79 inches)
- Weight: maximum 26.76 kg (59 lbs)

The following physical dimensions apply to the **IronPort C60 and C30** Email Security appliances:

- Height: 8.56 cm (3.375 inches)
- Width: 48.26 cm (19.0 inches) with rails installed (without rails, 17.5 inches)
- Depth: 69.85 cm (27.5 inches)
- Weight: maximum 25 kg (55 lbs)

The following physical dimensions apply to the **IronPort C10, C100, C150, and C160** Email Security appliances:

- Height: 4.2 cm (1.68 inches)

- Width: 48.26 cm (19.0 inches) with rails installed (without rails, 17.5 inches)
- Depth: 57.6 cm (22.7 inches)
- Weight: maximum 11.8 kg (26 lbs)

## Physically Connecting the IronPort Appliance to the Network

### Configuration Scenarios

The typical configuration scenario for the IronPort appliance is as follows:

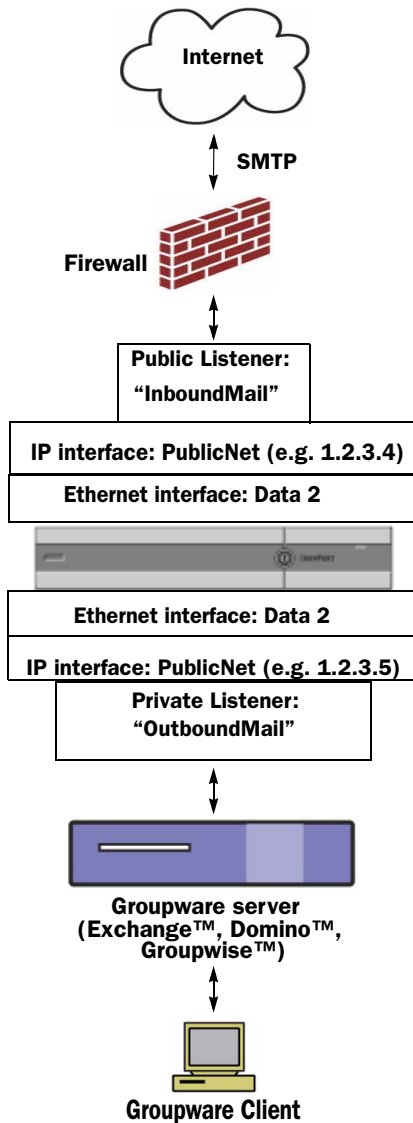
- **Interfaces** - Only one of the three available Ethernet interfaces on the IronPort appliance is required for most network environments. However, you can configure two Ethernet interfaces and segregate your internal network from your external Internet network connection.
- **Public Listener (incoming email)** - The public listener receives connections from many external hosts and directs messages to a limited number of internal groupware servers.
  - Accepts connections from external mail hosts based on settings in the HAT. By default, the HAT is configured to ACCEPT connections from all external mail hosts.
  - Accepts incoming mail only if it is addressed for the local domains specified in the RAT. All other domains are rejected.
  - Relays mail to the appropriate internal groupware server, as defined by SMTP Routes.
- **Private Listener (outgoing email)** - The private listener receives connections from a limited number of internal groupware servers and directs messages to many external mail hosts.
  - Internal groupware servers are configured to route outgoing mail to the IronPort C- or X-Series appliance.
  - The IronPort appliance accepts connections from internal groupware servers based on settings in the HAT. By default, the HAT is configured to RELAY connections from all internal mail hosts.

## Segregating Incoming and Outgoing Mail

You can segregate incoming and outgoing email traffic over separate listeners and on separate IP addresses. However, the System Setup Wizard on the appliance supports initial configuration of the following configurations:

- 2 separate listeners on 2 logical IP addresses configured on *separate* physical interfaces
  - segregates incoming and outgoing traffic
- 1 listener on 1 logical IP address configured on one physical interface
  - combines both incoming and outgoing traffic

Configuration worksheets for both one and two listener configurations are included below (see [Gathering the Setup Information, page 3-51](#)). Most configuration scenarios are represented by one of the following three figures.

**Figure 3-2 Behind the Firewall Scenario / 2 Listeners, 2 IP Addresses Configuration****Notes:**

- 2 Listeners
- 2 IP addresses
- 1 or 2 Ethernet interfaces (only 1 interface shown)
- SMTP routes configured

**Inbound Listener: "InboundMail" (public)**

- IP address: 1.2.3.4
- Listener on the Data2 interface listens on port 25
- HAT (accept ALL)
- RAT (accept mail for local domains; reject ALL)

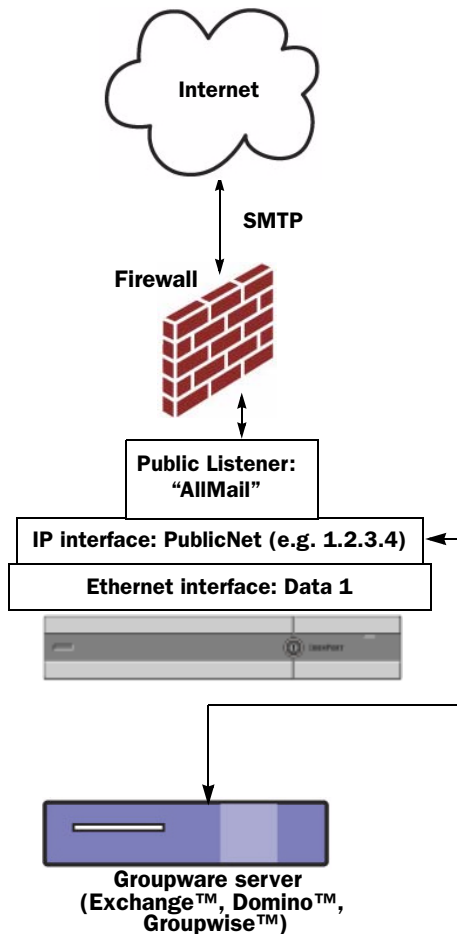
**Outbound Listener: "OutboundMail" (private)**

- IP address: 1.2.3.5
- Listener on the Data2 interface listens on port 25
- HAT (relay for local domains; reject ALL)

**DNS can be configured to use Internet Root servers or internal DNS servers**

**SMTP routes direct mail to proper groupware server**

**Firewall ports opened for appropriate services to and from the IronPort appliance**

**Figure 3-3** *One Listener / One IP Address Configuration***Notes:**

- 1 Listener
- 1 IP addresses
- 1 Ethernet interface
- SMTP routes configured

**Inbound Listener: "InboundMail" (public)**

- IP address: 1.2.3.4
- Listener on the Data2 interface listens on port 25
- HAT (accept ALL) includes entries for Groupware servers in RELAYLIST
- RAT (accept mail for local domains; reject ALL)

**DNS can be configured to use Internet Root servers or internal DNS servers**

**SMTP routes direct mail to proper groupware server**

**Firewall ports opened for appropriate services to and from the IronPort appliance**

## Preparing for Setup

The process of setting up the IronPort appliance is divided into five steps.

- 
- Step 1** Determine how you will connect to the appliance.
  - Step 2** Determine network and IP address assignments — one IP address or two.
  - Step 3** Gather information about your system setup.
  - Step 4** Launch a web browser and enter the IP address of the appliance. (Alternatively, you can access the command line interface (CLI) described in [Running the Command Line Interface \(CLI\) System Setup Wizard, page 3-72](#))
  - Step 5** Run the System Setup Wizard to configure your system.

## Determine Method for Connecting to the Appliance

To successfully set up the IronPort appliance in your environment, you must gather important network information from your network administrator about how you would like to connect the IronPort appliance to your network.



## Connecting to the Appliance

During the initial setup, you can connect to the appliance in one of two ways:

**Table 3-2**      **Options for Connecting to the Appliance**

<b>Ethernet</b>	An Ethernet connection between a PC and the network and between the network and the IronPort Management port. The IP address that has been assigned to the Management port by the factory is 192.168.42.42. This is the easiest way to connect if it works with your network configuration.
<b>Serial</b>	<p>A serial communications connection between the PC and the IronPort Serial Console port. If you cannot use the Ethernet method, a straight serial-to-serial connection between the computer and the appliance will work until alternate network settings can be applied to the Management port. For pinout information, see <a href="#">Accessing via a Serial Connection, page A-570</a>. The communications settings for the serial port are:</p> <p><b>Bits per second:</b> 9600</p> <p><b>Data bits:</b> 8</p> <p><b>Parity:</b> None</p> <p><b>Stop bits:</b> 1</p> <p><b>Flow control:</b> Hardware</p>

**Note**

Keep in mind that the initial connection method is not final. This process applies only for the initial configuration. You can change network settings at a later time to allow different connection methods. (See [Appendix A, “Accessing the Appliance”](#) for more information.) You can also create multiple user accounts with differing administrative privileges to access the appliance. (For more information, see “Adding Users” in the *Cisco IronPort AsyncOS for Email Daily Management Guide*.)

# Determining Network and IP Address Assignments

## Choosing Network Connections to Receive and Deliver Email

Most users take advantage of the two Data Ethernet ports on the IronPort appliance by connecting to two networks from the appliance:

- The private network accepts and delivers messages to your internal systems.
- The public network accepts and delivers messages to the Internet.

Other users may want to use only one Data port serving both functions. Although the Management Ethernet port can support any function, it is preconfigured for access to the graphical user interface and the command line interface.

## Binding Logical IP Addresses to Physical Ethernet Ports

You can segregate incoming and outgoing email traffic over separate listeners and on separate IP addresses. However, the System Setup Wizard on the appliance supports initial configuration of the following configurations:

- 2 separate listeners on 2 logical IP addresses configured on *separate* physical interfaces
  - segregates incoming and outgoing traffic
- 1 listener on 1 logical IP address configured on one physical interface
  - combines both incoming and outgoing traffic

## Choosing Network Settings for Your Connections

You will need the following network information about each Ethernet port that you choose to use:

- IP address
- Netmask

In addition, you will need the following information about your overall network:

- IP address of the default router (gateway) on your network
- IP address and hostname of your DNS servers (not required if you want to use Internet root servers)

- Hostname or IP address of your NTP servers (not required if you want to use IronPort's time servers)

See [Appendix B, “Assigning Network and IP Addresses”](#) for more information.



#### Note

If you are running a firewall on your network between the Internet and the IronPort appliance, it may be necessary to open specific ports for the IronPort appliance to work properly. See [Appendix C, “Firewall Information”](#) for more information.

## Gathering the Setup Information

Now that you understand the requirements and strategies when making the necessary selections in the System Setup Wizard, use the following tables to gather information about your system setup while reading this section.

See [Appendix B, “Assigning Network and IP Addresses”](#) for more detailed information on network and IP addresses. See [Chapter 17, “The IronPort M-Series Security Management Appliance”](#) if you are configuring an IronPort M-Series appliance.

**Table 3-3**      **System Setup Worksheet: 2 IP Addresses for Segregating Email Traffic**

System Settings	
Default System Hostname:	
Email System Alerts To:	
Deliver Scheduled Reports To:	
Time Zone Information:	
NTP Server:	
Admin Password:	
SenderBase Network Participation:	Enable / Disable
AutoSupport:	Enable / Disable
Network Integration	
Gateway:	

**Table 3-3**      **System Setup Worksheet: 2 IP Addresses for Segregating Email Traffic (Continued)**

DNS (Internet or Specify Own):		
<b>Interfaces</b>		
<b>Data 1 Port</b>		
IP Address:		
Network Mask:		
Fully Qualified Hostname:		
Accept Incoming Mail:	<b>Domain</b>	<b>Destination</b>
Relay Outgoing Mail:	<b>System</b>	
<b>Data 2 Port</b>		
IP Address:		
Network Mask:		
Fully Qualified Hostname:		
Accept Incoming Mail:	<b>Domain</b>	<b>Destination</b>
Relay Outgoing Mail:	<b>System</b>	
<b>Management Port</b>		
IP Address:		
Network Mask:		
Fully Qualified Hostname:		
Accept Incoming Mail:	<b>Domain</b>	<b>Destination</b>
Relay Outgoing Mail:	<b>System</b>	
<b>Message Security</b>		
SenderBase Reputation Filtering:		Enable / Disable
Anti-Spam Scanning Engine		None / IronPort
McAfee Anti-Virus Scanning Engine		Enable / Disable
Sophos Anti-Virus Scanning Engine		Enable / Disable
Virus Outbreak Filters		Enable / Disable

**Table 3-4      System Setup Worksheet: 1 IP Address for All Email Traffic**

<b>System Settings</b>		
Default System Hostname:		
Email System Alerts To:		
Deliver Scheduled Reports To:		
Time Zone:		
NTP Server:		
Admin Password:		
SenderBase Network Participation:	Enable / Disable	
AutoSupport:	Enable / Disable	
<b>Network Integration</b>		
Gateway:		
DNS (Internet or Specify Own):		
<b>Interfaces</b>		
<b>Data2 Port</b>		
IP Address:		
Network Mask:		
Fully Qualified Hostname:		
Accept Incoming Mail:	<b>Domain</b>	<b>Destination</b>
Relay Outgoing Mail:	<b>System</b>	
<b>Data1 Port</b>		
IP Address:		
Network Mask:		
Fully Qualified Hostname:		
<b>Message Security</b>		
SenderBase Reputation Filtering:	Enable / Disable	
Anti-Spam Scanning Engine	None / IronPort	

**Table 3-4      System Setup Worksheet: 1 IP Address for All Email Traffic**

McAfee Anti-Virus Scanning Engine	Enable / Disable
Sophos Anti-Virus Scanning Engine	Enable / Disable
Virus Outbreak Filters	Enable / Disable

# Using the System Setup Wizard

The IronPort AsyncOS operating system provides a browser-based System Setup Wizard to guide you through the five step process of system configuration. Also included is a command line interface (CLI) version of the System Setup Wizard. See [Running the Command Line Interface \(CLI\) System Setup Wizard, page 3-72](#) for more information. Some users will want to take advantage of custom configuration options not available in the System Setup Wizard. However, you must use the System Setup Wizard for the initial setup to ensure a complete configuration. If you have gathered the information required in [Preparing for Setup, page 3-47](#), the configuration process will take less time to complete.

  
**Warning**

**The System Setup Wizard will completely reconfigure your system. You should only use the System Setup Wizard the very first time you install the appliance, or if you want to completely overwrite your existing configuration.**

  
**Warning**

**The IronPort appliance ships with a default IP address of 192.168.42.42 on the Management port of C60/600/650/660, C30/300/350/360, and X1000/1050/1060 systems, and the Data 1 port of C10/100 systems. Before connecting the IronPort appliance to your network, ensure that no other device's IP address conflicts with this factory default setting. If you are configuring an IronPort M-Series appliance, please see [The IronPort M-Series Security Management Appliance, page 17-551](#).**

If you are connecting multiple factory-configured IronPort appliances to your network, add them one at a time, reconfiguring each IronPort appliance's default IP address as you go.

## Accessing the Web-Based Graphical User Interface (GUI)

To access the web-based Graphical User Interface (GUI), open your web browser and point it to 192.168.42.42.

Address	http://192.168.42.42/
---------	-----------------------

The login screen is displayed:

**Figure 3-4**      *Logging in to the Appliance*  
**Welcome**

Log in to the appliance by entering the username and password below.

### Factory Default Username and Password

- Username: **admin**
- Password: **ironport**



#### Note

Your session will time out if it is idle for over 30 minutes or if you close your browser without logging out. If this happens, you will be asked to re-enter your username and password. If your session times out while you are running the System Setup Wizard, you will have to start over again.

## Running the Web-Based System Setup Wizard

To launch the System Setup Wizard, log in to the graphical user interface as described in [Accessing the Web-Based Graphical User Interface \(GUI\)](#), [page 3-55](#). On the System Administration tab, click System Setup Wizard in the list of links on the left. On brand new (not upgraded from previous releases of AsyncOS) systems, your browser will automatically be redirected to the System Setup Wizard.

The System Setup Wizard walks you through completing the following configuration tasks, broken down into 5 categories:

- 
- Step 1**    Start
    - Read and accept the license agreement
  - Step 2**    System
    - Setting the hostname of the appliance
    - Configuring alert settings, report delivery settings, and AutoSupport
    - Setting the system time settings, and NTP server
    - Resetting the admin password
    - Enabling SenderBase Network participation
  - Step 3**    Network
    - Defining the default router and DNS settings
    - Enabling and configuring network interfaces, including:  
   Configuring incoming mail (inbound listener)  
   Defining SMTP routes (optional)  
   Configuring outgoing mail (outbound listener) and defining systems  
   allowed to relay mail through the appliance (optional)
  - Step 4**    Security
    - Enabling SenderBase Reputation Filtering
    - Enabling the Anti-Spam service
    - Enabling the IronPort Spam Quarantine
    - Enabling the Anti-Virus service
    - Enabling the Virus Outbreak Filters service
  - Step 5**    Review
    - Reviewing your setup and installing the configuration

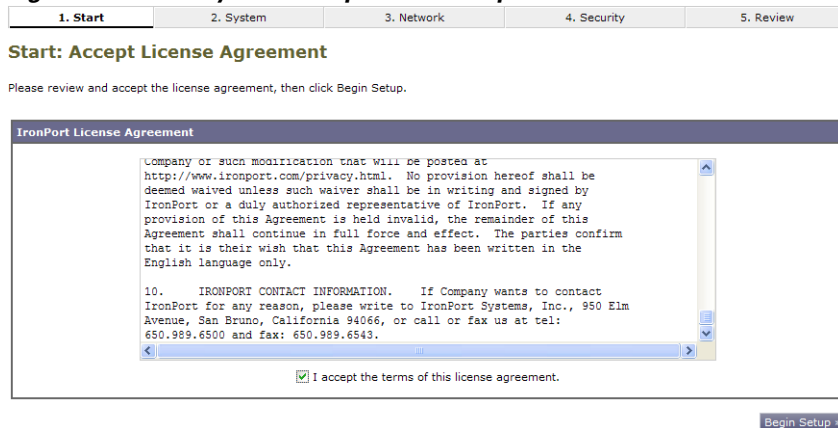
Step through the System Setup Wizard, clicking **Next** after you complete each step. You can move back to a previous step by clicking **Previous**. At the end of the process, you are prompted to commit the changes you have made. Your changes will not take effect until they have been committed. If you click **Next**, but have left a required field blank (or entered incorrect information), the fields in question are outlined in red. Make your corrections and click **Next** again.



## Step 1: Start

Begin by reading the license agreement. Once you have read and agreed to the license agreement, check the box indicating that you agree and then click **Begin Setup** to proceed.

**Figure 3-5 System Setup Wizard: Step 1. Start**



You can also view the text of the agreement here:

<https://support.ironport.com/license/eula.html>

## Step 2: System

### Setting the Hostname

Define the fully-qualified hostname for the IronPort appliance. This name should be assigned by your network administrator.

### Configuring System Alerts

IronPort AsyncOS sends alert messages via email if there is a system error that requires the user's intervention. Enter the email address (or addresses) to which to send those alerts.

You must add at least one email address that receives System Alerts. Enter a single email address, or separate multiple addresses with commas. The email recipients initially receive all types of alerts at all levels, except for Directory Harvest Attack Prevention alerts. You can add more granularity to the alert configuration later. For more information, see [Alerts, page 15-481](#).

## Configuring Report Delivery

Enter the address to which to send the default scheduled reports. If you leave this value blank, the scheduled reports are still run. They will be archived on the appliance rather than delivered.

## Setting the Time

Set the time zone on the IronPort appliance so that timestamps in message headers and log files are correct. Use the drop-down menus to locate your time zone or to define the time zone via GMT offset (see [Selecting a GMT Offset, page 15-529](#) for more information).

You can set the system clock time manually later, or you can use the Network Time Protocol (NTP) to synchronize time with other servers on your network or the Internet. By default, one entry to the IronPort Systems time servers ([time.ironport.com](http://time.ironport.com)) to synchronize the time on your IronPort appliance is already configured.

## Setting the Password

Set the password for the admin account. This is a required step. When changing the password for IronPort AsyncOS admin account, the new password must be six characters or longer. Be sure to keep the password in a secure location.

## Participating in SenderBase Network

SenderBase is an email reputation service designed to help email administrators research senders, identify legitimate sources of email, and block spammers.

If you agree to participate in the SenderBase Network, IronPort will collect aggregated email traffic statistics about your organization. This includes only summary data on message attributes and information on how different types of messages were handled by IronPort appliances. For example, IronPort does not collect the message body or the message subject. Personally identifiable information or information that identifies your organization will be kept

confidential. To learn more about SenderBase, including examples of the data collected, follow the **Click here for more information about what data is being shared...** link (see [Frequently Asked Questions](#), page 13-413).

To participate in the SenderBase Network, check the box next to “Allow IronPort to gather anonymous statistics on email and report them to SenderBase in order to identify and stop email-based threats” and click **Accept**.

See [Chapter 13, “SenderBase Network Participation”](#) for more information.

## Enabling AutoSupport

The IronPort AutoSupport feature (enabled by default) keeps the IronPort Customer Support team aware of issues with your IronPort appliance so that we can provide better support to you. (For more information, see [IronPort AutoSupport](#), page 15-484.)

**Figure 3-6**      **System Setup Wizard: Step 2. System Configuration**

Before you enter your System and Network settings:

- Choose a configuration that best matches your network infrastructure
- Determine network and IP address assignments
- Gather information about your system setup

System Settings	
Default System Hostname: ?	<input type="text" value="elroy.run"/> <small>example: ironport-C60.example.com</small>
Email System Alerts To:	<input type="text" value="example: admin@company.com"/>
Deliver Scheduled Reports To:	<input type="text" value="example: admin@company.com. Leave blank to only archive reports on-box."/>
Time Zone:	Region: <input type="text" value="GMT Offset"/> <input type="button" value="v"/> Country: <input type="text" value="GMT"/> <input type="button" value="v"/> Time Zone / GMT Offset: <input type="text" value="GMT"/> <input type="button" value="v"/>
NTP Server:	<input type="text" value="time.ironport.com"/>
Administrator Password:	Password: <input type="password"/> <small>Must be 6 or more characters.</small> Confirm Password: <input type="password"/>
SenderBase Network Participation:	<input checked="" type="checkbox"/> Allow IronPort to gather anonymous statistics on email and report them to SenderBase in order to identify and stop email-based threats. <a href="#">Learn what information is shared...</a>
AutoSupport: ?	<input checked="" type="checkbox"/> Send system alerts and weekly status reports to IronPort Customer Support

Click **Next** to continue.

## Step 3: Network

In Step 3, you define the default router (gateway) and configure the DNS settings, and then set up the appliance to receive and or relay email by configuring the Data 1, Data 2, and Management interfaces.

### Configuring DNS and Default Gateway

Type the IP address of the default router (gateway) on your network.

Next, configure the DNS (Domain Name Service) settings. IronPort AsyncOS contains a high-performance internal DNS resolver/cache that can query the Internet's root servers directly, or the system can use DNS servers you specify. If you choose to use your own servers, you will need to supply the IP address and hostname of each DNS server. You can enter up to four DNS servers via the System Setup Wizard. Please note that DNS servers you enter will have an initial priority of 0. For more information, see [Configuring Domain Name System \(DNS\) Settings](#), page 15-519.

**Note**

The appliance requires access to a working DNS server in order to perform DNS lookups for incoming connections. If you cannot specify a working DNS server that is reachable by the appliance while you are setting up the appliance, a workaround is to either select “Use Internet Root DNS Servers” or to specify, temporarily, the IP address of the Management interface so that you can complete the System Setup Wizard.

### Configuring Network Interfaces

Your IronPort appliance has network interfaces that are associated with the physical ports on the machine. For example, on C60/600/650/660, C30/300/350/360, and X1000/1050/1060 appliances, three physical Ethernet interfaces are available. On C10/100/150/160 appliances, two physical Ethernet interfaces are available.

To use an interface, mark the “Enable” checkbox and then specify an IP address, network mask, and fully qualified hostname. The IP address you enter should be the address intended for your inbound mail as reflected in your DNS records. Typically this address would have an MX record associated with it in DNS.

Each interface can be configured to accept mail (incoming), relay email (outgoing), or appliance management. During setup, you are limited to one of each. Typically, you would use one interface for incoming, one for outgoing, and one for appliance management. On the C10 and C100 appliances, you would typically use one interface for both incoming and outgoing mail, and the other interface for management.

You must configure one interface to receive email.

Assign and configure a logical IP address to one of the physical Ethernet interfaces on the appliance. If you decide to use both the Data 1 Ethernet port and the Data 2 Ethernet port, you need this information for both connections.

**C60/600/650/660, C30/300/350/360, and X1000/1050/1060 customers:**

IronPort recommends using one of the physical Ethernet ports to connect directly to the Internet for the purposes of receiving inbound email through public listeners, and using another physical Ethernet port to connect directly to your internal network for the purposes of relaying outbound email through private listeners.

**C10/100/150/160 customers:** Typically, the System Setup Wizard will configure only one physical Ethernet port with one listener for both receiving inbound email and relaying outbound email.

See [Binding Logical IP Addresses to Physical Ethernet Ports, page 3-50](#).

The following information is required:

- The **IP address** assigned by your network administrator.
- The **netmask** of the interface.

The netmask can be in standard dotted decimal form or hexadecimal form.

- (optional) A fully-qualified hostname for the IP address



**Note**

IP addresses within the same subnet cannot be configured on separate physical Ethernet interfaces. See [Appendix B, “Assigning Network and IP Addresses”](#) for more detailed information on Network and IP Address configuration.

## Accepting Mail

When configuring your interfaces to accept mail, you define:

- the domain for which to accept mail

- destination (SMTP Route) for each domain, this is optional

Mark the checkbox for Accept Incoming Mail to configure the interface to accept mail. Enter the name of the domain for which to accept mail.

Enter the Destination. This is the SMTP Route or name of the machine(s) where you would like to route email for the domains specified.

This is the first SMTP Routes entry. The SMTP Routes table allows you to redirect all email for each domain (also known as a Recipient Access Table (RAT) entry) you enter to a specific mail exchange (MX) host. In typical installations, the SMTP Routes table defines the specific groupware (for example, Microsoft Exchange) server or the “next hop” in the email delivery for your infrastructure.

For example, you can define a route that specifies that mail accepted for the domain `example.com` and all of its subdomains `.example.com` is routed the to the groupware server `exchange.example.com`.

You can enter multiple domains and destinations. Click **Add Row** to add another domain. Click the trash can icon to remove a row.



#### Note

Configuring SMTP Routes in this step is optional. If no SMTP routes are defined, the system will use DNS to lookup and determine the delivery host for the incoming mail received by the listener. (See “Routing Email for Local Domains” in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide* for more information.)

You must add at least one domain to the Recipient Access Table. Enter a domain —`example.com`, for example. To ensure that mail destined for any subdomain of `example.net` will match in the Recipient Access Table, enter `.example.net` as well as the domain name. For more information, see [Defining Recipients, page 5-179](#).

## Relaying Mail (Optional)

When configuring your interfaces to relay mail, you define the systems allowed to relay email through the appliance.

These are entries in the RELAYLIST of the Host Access Table for a listener. See [Sender Group Syntax, page 5-133](#) for more information.

Mark the check box for Relay Outgoing Mail to configure the interface to relay mail. Enter the hosts that may relay mail through the appliance.

When you configure an interface to relay outbound mail, the System Setup Wizard turns on SSH for the interface as long as no public listeners are configured to use the interface.

In the following example, two interfaces are created:

- 192.168.42.42 remains configured on the Management interface.
- 192.168.1.1 is enabled on the Data 1 Ethernet interface. It is configured to accept mail for domains ending in .example.com and an SMTP route is defined for exchange.example.com.
- 192.168.2.1 is enabled on the Data 2 Ethernet interface. It is configured to relay mail from exchange.example.com.

**Note**

The following example pertains to X1000/1050/1060, C60/600/650/660, and C30/300/350/360 appliances. For C10/100/150/160 appliances, the Data 2 interface is typically configured for both incoming and outgoing mail while the Data 1 interface is used for appliance management (see [C10/100 Installations, page 3-64](#)).

**Figure 3-7**      **Network Interfaces: 2 IP Addresses in Addition to Management (Segregated Traffic)**

<input checked="" type="checkbox"/> <b>Enable Data 1 Interface</b>		
<i>This interface is typically configured to accept mail.</i>		
IP Address:	192.168.1.1	
Network Mask:	255.255.255.0	
Fully Qualified Hostname:	mail3.example.com <small>Fully qualified hostname for this appliance</small>	
Accept Incoming Mail:	<input checked="" type="checkbox"/> Accept mail on this interface	
	Domain 2	Destination <input type="button" value="Add Row"/>
	example.com	exchange.example.com
	example: company.com	<small>i.e. An Exchange or Notes server</small>
Relay Outgoing Mail:	<input type="checkbox"/> Relay mail on this interface	
<input checked="" type="checkbox"/> <b>Enable Data 2 Interface</b>		
<i>This interface is typically configured to relay mail.</i>		
IP Address:	192.168.2.1	
Network Mask:	255.255.255.0	
Fully Qualified Hostname:	mail.example.com <small>Fully qualified hostname for this appliance</small>	
Accept Incoming Mail:	<input type="checkbox"/> Accept mail on this interface	
Relay Outgoing Mail:	<input checked="" type="checkbox"/> Relay mail on this interface	
	System 2	<input type="button" value="Add Row"/>
	exchange.example.com	
	example: company.com	
<input checked="" type="checkbox"/> <b>Enable Management Interface</b>		
<i>This interface is typically configured for system administration. (You are currently connected to this interface.)</i>		
IP Address:	192.168.42.42	
Network Mask:	255.255.255.0	
Fully Qualified Hostname:	mail.example.com <small>Fully qualified hostname for this appliance</small>	
Accept Incoming Mail:	<input type="checkbox"/> Accept mail on this interface	
Relay Outgoing Mail:	<input type="checkbox"/> Relay mail on this interface	

Use this configuration if you want your network to look like [Figure 3-2 on page 3-46](#).

**C10/100 Installations**

When configuring a single IP address for all email traffic (nonsegregated traffic), step 3 of the System Setup Wizard will look like this:



**Figure 3-8 Network Interfaces: 1 IP Address for Incoming and Outgoing (Nonsegregated) Traffic**

**Interfaces**

You must set up at least 1 interface and 1 interface must be configured to accept mail from the Internet.

**Enable Data 2 Interface**

This interface is typically used to accept and relay mail.

IP Address: 192.168.1.1

Network Mask: 255.255.255.0

Fully Qualified Hostname: mail3.example.com  
Fully qualified hostname for this appliance

Accept Incoming Mail: ☒ Accept mail on this interface

Domain	Destination	
example.com	exchange.example.com	
example: company.com	i.e. An Exchange or Notes server	

Relay Outgoing Mail: ☒ Relay mail on this interface

System	
exchange.example.com	
example: company.com	

**Enable Data 1 Interface**

This interface is typically used for system administration. (You are currently connected to this interface.)

IP Address: 192.168.42.42

Network Mask: 255.255.255.0

Fully Qualified Hostname: mail.example.com  
Fully qualified hostname for this appliance

Accept Incoming Mail: ☐ Accept mail on this interface

Relay Outgoing Mail: ☐ Relay mail on this interface

Use this configuration if you want your network to look like [Figure 3-3 on page 3-47](#).

Click **Next** to continue.

## Step 4: Security

In step 4, you configure anti-spam and anti-virus settings. The anti-spam options include SenderBase Reputation Filtering and selecting an anti-spam scanning engine. For anti-virus, you can enable Virus Outbreak Filters and Sophos or McAfee anti-virus scanning.

### Enabling SenderBase Reputation Filtering

The SenderBase Reputation Service can be used as a stand-alone anti-spam solution, but it is primarily designed to improve the effectiveness of a content-based anti-spam system such as IronPort Anti-Spam.

The SenderBase Reputation Service (<http://www.senderbase.org>) provides an accurate, flexible way for users to reject or throttle suspected spam based on the connecting IP address of the remote host. The SenderBase Reputation Service returns a score based on the probability that a message from a given source is spam. The SenderBase Reputation Service is unique in that it provides a global view of email message volume and organizes the data in a way that makes it easy to identify and group related sources of email. IronPort strongly suggests that you enable SenderBase Reputation Filtering.

Once enabled, SenderBase Reputation Filtering is applied on the incoming (accepting) listener.

## Enabling Anti-Spam Scanning

Your IronPort appliance may ship with a 30-day evaluation key for IronPort Anti-Spam software. During this portion of the System Setup Wizard, you can choose to enable IronPort Anti-Spam globally on the appliance. You can also elect to not enable the service.

If you choose to enable the anti-spam service, you can configure AsyncOS to send spam and suspected spam messages to the local IronPort Spam Quarantine. The IronPort Spam Quarantine serves as the end-user quarantine for the appliance. Only administrators can access the quarantine until end-user access is configured.

See [Chapter 8, “Anti-Spam”](#) for all of the IronPort Anti-Spam configuration options available on the appliance. See “Quarantines” in the *Cisco IronPort AsyncOS for Email Daily Management Guide* for information about the IronPort Spam Quarantine.

## Enabling Anti-Virus Scanning

Your IronPort appliance may ship with a 30-day evaluation key for the Sophos Anti-Virus or McAfee Anti-Virus scanning engines. During this portion of the System Setup Wizard, you can choose to enable an anti-virus scanning engine globally on the appliance.

If you choose to enable an anti-virus scanning engine, it is enabled for *both* the default incoming and default outgoing mail policies. The IronPort appliance scans mail for viruses, but it does not repair infected attachments. The appliance drops infected messages.

See [Chapter 9, “Anti-Virus”](#) for all of the anti-virus configuration options available on the appliance.

## Enabling Virus Outbreak Filters

Your IronPort appliance may ship with a 30-day evaluation key for Virus Outbreak Filters. Virus Outbreak Filters provide a “first line of defense” against new virus outbreaks by quarantining suspicious messages until traditional anti-virus security services can be updated with a new virus signature file.

See [Chapter 10, “Virus Outbreak Filters”](#) for more information.

**Figure 3-9 System Setup Wizard: Step 4. Configuring Message Security**

1. Start	2. System	3. Network	4. Security	5. Review
----------	-----------	------------	-------------	-----------

### Message Security

Your IronPort appliance uses message security to protect your email infrastructure from security threats. The security solutions are applied in the order depicted below. Each module reduces the overall volume of email sent to your infrastructure.

Anti-Spam	
SenderBase Reputation Filtering	<p>SenderBase Reputation Filtering provides a “first line of defense” against incoming spam by restricting access to your email infrastructure based on senders’ trustworthiness as determined by their SenderBase Reputation Score (SBRs). <a href="#">More about SBRs...</a></p> <p><input checked="" type="checkbox"/> Enable SenderBase Reputation Filtering</p>
Anti-Spam Scanning	<p>Select the anti-spam engine to use for the default incoming mail policy:</p> <p> <input type="radio"/> None  <input checked="" type="radio"/> IronPort Anti-Spam         </p> <p><input checked="" type="checkbox"/> Enable IronPort Spam Quarantine. This setting will quarantine positive and suspect spam.</p>

Anti-Virus	
Anti-Virus Scanning:	<p>Select the anti-virus engine to use for the default incoming and outgoing mail policy:</p> <p> <input type="radio"/> None  <input type="radio"/> McAfee  <input checked="" type="radio"/> Sophos         </p>
Virus Outbreak Filters	<p>Virus Outbreak Filters quarantine suspicious messages even before traditional anti-virus security services have provided a signature file. <a href="#">More about Virus Outbreak Filters...</a></p> <p><input checked="" type="checkbox"/> Enable Virus Outbreak Filters</p>

Click **Next** to continue.

## Step 5: Review

A summary of the configuration information is displayed. You can edit the System Settings, Network Integration, and Message Security information by clicking the **Previous** button or by clicking the corresponding **Edit** link in the upper-right of each section. When you return to a step to make a change, you must proceed through the remaining steps until you reach this review page again. All settings you previously entered will be remembered.

**Figure 3-10 System Setup Wizard: Step 5. Review**

1. Start	2. System	3. Network	4. Security	<b>5. Review</b>
----------	-----------	------------	-------------	------------------

**Review Your Configuration**

Please review your configuration. If you need to make changes, click the Edit button to return to the page you'd like to edit. [Printable Page](#)

System Settings		Edit
Default System Hostname:	example.com	
Email System Alerts To:	admin@example.com	
Time Zone:	America/Los_Angeles	
NTP Server:	time.ironport.com	
Admin Password:	(hidden)	
SenderBase Network Participation:	Enabled	
AutoSupport:	Enabled	

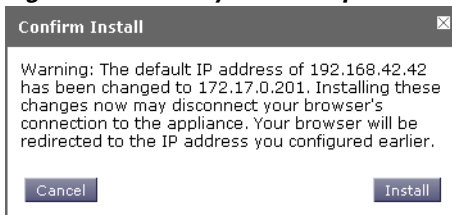
Network Integration		Edit
Gateway:	192.168.0.1	
DNS:	Use the Internet's Root DNS servers	
Interfaces		
Data 1 Port		
IP Address:	192.168.1.1	
Network Mask:	255.255.255.0	
Fully Qualified Hostname:	mail3.example.com	
Accept Incoming Mail:	Domain	Destination
	.example.com	exchange.example.com
Data 2 Port		
IP Address:	192.168.2.1	
Network Mask:	255.255.255.0	
Fully Qualified Hostname:	mail.example.com	
Relay Outgoing Mail:	System	
	exchange.example.com	
Management Port		
IP Address:	192.168.42.42	
Network Mask:	255.255.255.0	
Fully Qualified Hostname:	mail.example.com	

Message Security		Edit
SenderBase Reputation Filtering:	Enabled	
Default Incoming Mail Anti-Spam Engine:	IronPort Anti-Spam	
Sophos Anti-Virus:	Enabled	
Virus Outbreak Filters:	Enabled	

[< Previous](#)
[Cancel](#)
[Install This Configuration](#)

Once you are satisfied with the information displayed click **Install This Configuration**. A confirmation dialog is displayed. Click **Install** to install the new configuration.

**Figure 3-11 System Setup Wizard: Confirm Install**

Your IronPort appliance is now ready to send email.

**Note**

Clicking **Install** will cause the connection to the current URL (<http://192.168.42.42>) to be lost if you changed the IP address of the interface you used to connect to the appliance (the Management interface on X1000/1050/1060, C60/600/650/660, and C30/300/350/360 systems, or the Data 1 interface on C10/100/150/160 systems) from the default. However, your browser will be redirected to the new IP address.

Once System Setup is complete, several alert messages are sent. See [Immediate Alerts, page 3-90](#) for more information.

## Configuring Active Directory

If the System Setup Wizard properly installs the configuration on the Email Security appliance, the Active Directory Wizard appears. If you are running an Active Directory server on your network, use the Active Directory Wizard to configure an LDAP server profile for the Active Directory server and assign a listener for recipient validation. If you are not using Active Directory or want to configure it later, click **Skip this Step**. You can run the Active Directory Wizard on the System Administration > Active Directory Wizard page. You can also configure Active Directory and other LDAP profiles on the System Administration > LDAP page.

The Active Directory Wizard retrieves the system information needed to create an LDAP server profile, such as the authentication method, the port, the base DN, and whether SSL is supported. The Active Directory Wizard also creates LDAP accept and group queries for the LDAP server profile.

After the Active Directory Wizard creates the LDAP server profile, use the System Administration > LDAP page to view the new profile and make additional changes.

To use the Active Directory Wizard:

- Step 1** On the Active Directory Wizard page, click **Run Active Directory Wizard**.

**Figure 3-12 Active Directory Wizard – Step 1: Start**

- Step 2** Enter the host name for the Active Directory server.
- Step 3** Enter a username and password for the authentication request.
- Step 4** Click **Next** to continue.

The Active Directory Wizard tests the connection to the Active Directory server. If successful, the Test Directory Settings page is displayed.

**Figure 3-13 Active Directory Wizard – Step 2: Directory Lookup Test Test Directory Settings**

- Step 5** Test the directory settings by entering an email address that you know exists in the Active Directory and clicking **Test**. The results appear in the connection status field.
- Step 6** Click **Done**.

## Proceeding to the Next Steps

After you successfully configure your appliance to work with your Active Directory Wizard, or skip the process, the System Setup Next Steps page appears.

**Figure 3-14 System Setup is Complete**  
**System Setup Next Steps**

The IronPort appliance should now be configured to work within your network infrastructure. See below for additional tasks and information.

<p><b>Data Loss Prevention</b></p> <p>Find out what sensitive information is leaving your network. The Data Loss Prevention (DLP) Assessment Wizard allows you to easily apply popular DLP policies to your outgoing mail so you can determine your risk exposure.</p> <p><a href="#">Start Wizard...</a></p>	<p><b>Enter Feature Keys</b></p> <p>You enabled several features during System Setup. To continue using these features beyond the initial trial period, you must enter valid feature keys.</p> <p><a href="#">Enter Feature Keys</a></p>
<p><b>Reports</b></p> <p>The IronPort appliance can generate, deliver, and archive periodic reports on email security for your organization.</p> <p><a href="#">Manage Reports</a></p>	<p><b>Send Configuration File</b></p> <p>There are no recipients configured. Configuration file cannot be sent via email.</p>

Click the links on the System Setup Next Steps page to proceed with the configuration of your IronPort appliances.

## Accessing the Command Line Interface (CLI)

Access to the CLI varies depending on the management connection method you chose in [Connecting to the Appliance](#), page 3-49. The factory default username and password are listed next. Initially, only the admin user account has access to the CLI. You can add other users with differing levels of permission after you have accessed the command line interface for the first time via the admin account. (For information about adding users, see “Common Administrative Tasks” in the *Cisco IronPort AsyncOS for Email Daily Management Guide*.) The System Setup Wizard asks you to change the password for the admin account. The password for the admin account can also be reset directly at any time using the password command.

To connect via Ethernet: Start an SSH or Telnet session with the factory default IP address 192.168.42.42. SSH is configured to use port 22. Telnet is configured to use port 23. Enter the username and password below.

To connect via a Serial connection: Start a terminal session with the communication port on your personal computer that the serial cable is connected to. Use the settings for serial port outlined in [Connecting to the Appliance](#), page 3-49. Enter the username and password below.

Log in to the appliance by entering the username and password below.

## Factory Default Username and Password

- Username: **admin**
- Password: **ironport**

For example:

```
login: admin
password: ironport
```

## Running the Command Line Interface (CLI) System Setup Wizard

The CLI version of the System Setup Wizard basically mirrors the steps in the GUI version, with a few minor exceptions:

- The CLI version includes prompts to enable the web interface.
- The CLI version allows you to edit the default Mail Flow Policy for each listener you create.
- The CLI version contains prompts for configuring the global Anti-Virus and Virus Outbreak Filters security settings.
- The CLI version does not prompt you to create an LDAP profile after the system setup is complete. Use the `ldapconfig` command to create an LDAP profile.

To run the System Setup Wizard, type `systemsetup` at the command prompt.

```
IronPort> systemsetup
```

The System Setup Wizard warns you that you will reconfigure your system. If this is the very first time you are installing the appliance, or if you want to completely overwrite your existing configuration, answer “Yes” to this question.

```
WARNING: The system setup wizard will completely delete any existing
'listeners' and all associated settings including the 'Host Access
Table' - mail operations may be interrupted.
```



```
Are you sure you wish to continue? [Y]> Y
```

**Note**

The remainder of the system setup steps are described below. Examples of the CLI System Setup Wizard dialogue will only be included for sections that deviate from the GUI System Setup Wizard described above in [Running the Web-Based System Setup Wizard, page 3-55](#).

## Change the Admin Password

First, you change the password for IronPort AsyncOS admin account. You must enter the old password to continue. The new password must be six characters or longer. Be sure to keep the password in a secure location. Changes made to the password are effective once the system setup process is finished.

## Accept the License Agreement

Read and accept the software license agreement that is displayed.

## Set the Hostname

Next, you define the fully-qualified hostname for the IronPort appliance. This name should be assigned by your network administrator.

## Assign and Configure Logical IP Interface(s)

The next step assigns and configures a logical IP interface on the physical Ethernet interface named Management (on X100/1050/1060, C60/600/650/660, and C30/300/350/360 appliances) or Data 1 (on C10/100/150/160 appliances), and then prompts you to configure a logical IP interface on any other physical Ethernet interfaces available on the appliance.

Each Ethernet interface can have multiple IP interfaces assigned to it. An IP interface is a logical construct that associates an IP address and hostname with a physical Ethernet interface. If you decided to use both the Data 1 and Data 2 Ethernet ports, you need the IP addresses and hostnames for both connections.

**X1000/1050/1060, C60/600/650/660, and C30/300/350/360 customers:**

IronPort recommends using one of the physical Ethernet ports to connect directly to the Internet for the purposes of receiving inbound email through public listeners, and using another physical Ethernet port to connect directly to your internal network for the purposes of relaying outbound email through private listeners.

**C10/100/150/160 customers:** By default, the `systemsetup` command will configure only one physical Ethernet port with one listener for receiving inbound email and relaying outbound email.



**Note**

When you configure an interface to relay outbound mail, the system turns on SSH for the interface as long as no public listeners are configured to use the interface.

The following information is required:

- A **name** (nickname) created by you to refer to the IP interface later. For example, if you are using one Ethernet port for your private network and the other for the public network, you may want to name them PrivateNet and PublicNet, respectively.



**Note**

The names you define for interfaces are case-sensitive. AsyncOS will not allow you to create two identical interface names. For example, the names **Privatenet** and **PrivateNet** are considered as two *different* (unique) names.

- The **IP address** assigned by your network administrator.
- The **netmask** of the interface. The netmask can be in standard dotted decimal form or hexadecimal form.



**Note**

IP addresses within the same subnet cannot be configured on separate physical Ethernet interfaces. See [Appendix B, “Assigning Network and IP Addresses”](#) for more detailed information on Network and IP Address configuration.

**Note**

For C10/100 customers, the Data 2 interface is configured first.

## Specify the Default Gateway

In the next portion of the `systemsetup` command, you type the IP address of the default router (gateway) on your network.

## Enable the Web Interface

In the next portion of the `systemsetup` command, you enable the web interface for the appliance (for the Management Ethernet interface). You can also choose to run the web interface over secure HTTP (`https`). If you choose to use HTTPS, the system will use a demonstration certificate until you upload your own certificate. For more information, see “Enabling a Certificate for HTTPS” in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

## Configure the DNS Settings

Next, you configure the DNS (Domain Name Service) settings. IronPort AsyncOS contains a high-performance internal DNS resolver/cache that can query the Internet’s root servers directly, or the system can use your own DNS servers. If you choose to use your own servers, you will need to supply the IP address and hostname of each DNS server. You can enter as many DNS servers as you need (each server will have a priority of 0.). By default, `systemsetup` prompts you to enter the addresses for your own DNS servers.

## Create a Listener

A “listener” manages inbound email processing services that will be configured on a particular IP interface. Listeners only apply to email entering the IronPort appliance — either from your internal systems or from the Internet. IronPort AsyncOS uses listeners to specify criteria that messages must meet in order to be accepted and relayed to recipient hosts. You can think of a listener as an email listener (or even a “SMTP daemon”) running for IP addresses you specified above.

**X1000/1050/1060, C60/600/650/660 and C30/300/350/360 customers:** By default, the `systemsetup` command configures two listeners — one public and one private. (For more information on the types of listeners available, see [Configuring the Gateway to Receive Email, page 5-107](#).)

**C10/100/150/160 customers:** By default, the `systemsetup` command configures one public listener for both receiving mail from the Internet and for relaying email from your internal network. See [C10/100/150/160 Listener Example, page 3-82](#).

When you define a listener, you specify the following attributes:

- A **name** (nickname) created by you to refer to the listener later. For example, the listener that accepts email from your internal systems to be delivered to the Internet may be called OutboundMail.
- One of the IP interfaces (that you created earlier in the `systemsetup` command) on which to receive email.
- The name of the machine(s) to which you want to route email (public listeners only). (This is the first `smtproutes` entry. See “Routing Email for Local Domains” in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide* for more information.)
- Whether or not to enable filtering based on SenderBase Reputation Scores (SBRS) for public listeners. If enabled, you are also prompted to select between Conservative, Moderate, or Aggressive settings.
- Rate-limiting per host: the maximum number of recipients per hour you are willing to receive from a remote host (public listeners only).
- The recipient domains or specific addresses you want to accept email for (public listeners) or the systems allowed to relay email through the appliance (private listeners). (These are the first Recipient Access Table and Host Access Table entries for a listener. See [Sender Group Syntax, page 5-133](#) and [Accepting Email for Local Domains or Specific Users on Public Listeners \(RAT\), page 5-177](#) for more information.)

## Public Listener



### Note

The following examples of creating a public and private listener apply to X100/1050/1060, C60/600/650/660, and C30/300/350/360 customers only. IronPort C10/100/150/160 customers should skip to the next section [C10/100/150/160 Listener Example, page 3-82](#).

In this example portion of the `systemsetup` command, a public listener named `InboundMail` is configured to run on the `PublicNet` IP interface. Then, it is configured to accept all email for the domain `example.com`. An initial SMTP route to the mail exchange `exchange.example.com` is configured. Rate limiting is enabled, and the maximum value of 4500 recipients per hour from a single host is specified for the public listener.



#### Note

The value you enter for maximum recipients per hour you are willing to receive from a remote host is a completely arbitrary value, one that is usually relative to the size of the enterprise for which you are administering email. For example, a sender who sends 200 messages in an hour might be considered a “spammer” (sender of unsolicited bulk email), but if you are configuring the IronPort appliance to handle all email for a 10,000 person company, 200 messages per hour from a remote host may be a reasonable value. Conversely, in a 50-person company, someone sending 200 messages in an hour to you may be an obvious spammer. You must choose an appropriate value when you enable rate-limiting on a public listener (throttle) inbound email for your enterprise. For more information on Default Host Access policies, see [Sender Group Syntax, page 5-133](#).

The default host access policy for the listener is then accepted.

You are now going to configure how the IronPort C60 accepts mail by creating a "Listener".

Please create a name for this listener (Ex: "InboundMail"):

```
[> InboundMail
```

Please choose an IP interface for this Listener.

1. Management (192.168.42.42/24: mail3.example.com)
2. PrivateNet (192.168.1.1/24: mail3.example.com)
3. PublicNet (192.168.2.1/24: mail3.example.com)

```
[1]> 3
```

Enter the domains or specific addresses you want to accept mail for.

Hostnames such as "example.com" are allowed.

Partial hostnames such as ".example.com" are allowed.

Usernames such as "postmaster@" are allowed.

Full email addresses such as "joe@example.com" or "joe@[1.2.3.4]" are allowed.

Separate multiple addresses with commas.

```
[> example.com
```

Would you like to configure SMTP routes for example.com? [Y]> **y**

Enter the destination mail server which you want mail for example.com to be delivered. Separate multiple entries with commas.

```
[> exchange.example.com
```

Do you want to enable rate limiting for this listener? (Rate limiting defines the maximum number of recipients per hour you are willing to receive from a remote domain.) [Y]> **y**

Enter the maximum number of recipients per hour to accept from a remote domain.

```
[ ]> 4500
```

```
Default Policy Parameters
```

```
=====
```

```
Maximum Message Size: 100M
```

```
Maximum Number Of Connections From A Single IP: 1,000
```

```
Maximum Number Of Messages Per Connection: 1,000
```

```
Maximum Number Of Recipients Per Message: 1,000
```

```
Maximum Number Of Recipients Per Hour: 4,500
```

```
Maximum Recipients Per Hour SMTP Response:
```

```
    452 Too many recipients received this hour
```

```
Use SenderBase for Flow Control: Yes
```

```
Virus Detection Enabled: Yes
```

```
Allow TLS Connections: No
```

```
Would you like to change the default host access policy? [N]> n
```

```
Listener InboundMail created.
```

```
Defaults have been set for a Public listener.
```

```
Use the listenerconfig->EDIT command to customize the listener.
```

```
*****
```

## Private Listener

In this example portion of the `systemsetup` command, a private listener named OutboundMail is configured to run on the PrivateNet IP interface. Then, it is configured to relay all email for all hosts within the domain `example.com`. (Note the dot at the beginning of the entry: `.example.com`)

The default value for rate limiting (not enabled) and the default host access policy for this listener are then accepted.

Note that the default values for a private listener differ from the public listener created earlier. For more information, see [Public and Private Listeners, page 5-110](#).

```
Do you want to configure the C60 to relay mail for internal hosts?
[Y]> y
```

```
Please create a name for this listener (Ex: "OutboundMail"):
```

```
[ ]> OutboundMail
```

```
Please choose an IP interface for this Listener.
```

1. Management (192.168.42.42/24: mail3.example.com)
2. PrivateNet (192.168.1.1/24: mail3.example.com)
3. PublicNet (192.168.2.1/24: mail3.example.com)

```
[1]> 2
```

```
Please specify the systems allowed to relay email through the
IronPort C60.
```

```
Hostnames such as "example.com" are allowed.
```

```
Partial hostnames such as ".example.com" are allowed.
```



IP addresses, IP address ranges, and partial IP addresses are allowed.

Separate multiple entries with commas.

```
[ ]> .example.com
```

Do you want to enable rate limiting for this listener? (Rate limiting defines the maximum number of recipients per hour you are willing to receive from a remote domain.) [N]> **n**

Default Policy Parameters

=====

Maximum Message Size: 100M

Maximum Number Of Connections From A Single IP: 600

Maximum Number Of Messages Per Connection: 10,000

Maximum Number Of Recipients Per Message: 100,000

Maximum Number Of Recipients Per Hour: Disabled

Use SenderBase for Flow Control: No

Virus Detection Enabled: Yes

Allow TLS Connections: No

Would you like to change the default host access policy? [N]> **n**

Listener OutboundMail created.

Defaults have been set for a Private listener.

Use the `listenerconfig->EDIT` command to customize the listener.

\*\*\*\*\*

## C10/100/150/160 Listener Example



### Note

The following example of creating a listener applies to C10/100/150/160 customers only.

In this example portion of the `systemsetup` command, a listener named MailInterface is configured to run on the MailNet IP interface. Then, it is configured to accept all email for the domain `example.com`. An initial SMTP route to the mail exchange `exchange.example.com` is configured. Then, the same listener is configured to relay all email for all hosts within the domain `example.com`. (Note the dot at the beginning of the entry: `.example.com`)

Rate limiting is enabled, and the maximum value of 450 recipients per hour from a single host is specified for the public listener.



### Note

The value you enter for maximum recipients per hour you are willing to receive from a remote host is a completely arbitrary value, one that is usually relative to the size of the enterprise for which you are administering email. For example, a sender who sends 200 messages in an hour might be considered a “spammer” (sender of unsolicited bulk email), but if you are configuring the IronPort appliance to handle all email for a 10,000 person company, 200 messages per hour from a remote host may be a reasonable value. Conversely, in a 50-person company, someone sending 200 messages in an hour to you may be an obvious spammer. You must choose an appropriate value when you enable rate-limiting on a public listener (throttle) inbound email for your enterprise. For more information on Default Host Access policies, see [Sender Group Syntax, page 5-133](#).

The default host access policy for the listener is then accepted.

You are now going to configure how the IronPort C10 accepts mail by creating a "Listener".

Please create a name for this listener (Ex: "MailInterface"):

```
[> MailInterface
```

Please choose an IP interface for this Listener.

1. MailNet (10.1.1.1/24: mail3.example.com)
2. Management (192.168.42.42/24: mail3.example.com)

```
[1]> 1
```

Enter the domain names or specific email addresses you want to accept mail for.

Hostnames such as "example.com" are allowed.

Partial hostnames such as ".example.com" are allowed.

Usernames such as "postmaster@" are allowed.

Full email addresses such as "joe@example.com" or "joe@[1.2.3.4]" are allowed.

Separate multiple addresses with commas.

```
[> example.com
```

Would you like to configure SMTP routes for example.com? [Y]> **y**

Enter the destination mail server where you want mail for example.com to be delivered. Separate multiple entries with commas.

```
[> exchange.example.com
```

Please specify the systems allowed to relay email through the IronPort C10.

Hostnames such as "example.com" are allowed.

Partial hostnames such as ".example.com" are allowed.

IP addresses, IP address ranges, and partial IP addresses are allowed.

Separate multiple entries with commas.

```
[> .example.com
```

Do you want to enable rate limiting for this listener? (Rate limiting defines the maximum number of recipients per hour you are willing to receive from a remote domain.) [Y]> **y**

Enter the maximum number of recipients per hour to accept from a remote domain.

```
[> 450
```

Default Policy Parameters

=====

Maximum Message Size: 10M

```
Maximum Number Of Connections From A Single IP: 50

Maximum Number Of Messages Per Connection: 100

Maximum Number Of Recipients Per Message: 100

Maximum Number Of Recipients Per Hour: 450

Maximum Recipients Per Hour SMTP Response:

    452 Too many recipients received this hour

Use SenderBase for Flow Control:  Yes

Spam Detection Enabled:  Yes

Virus Detection Enabled:  Yes

Allow TLS Connections: No

Would you like to change the default host access policy?  [N]>

Listener MailInterface created.

Defaults have been set for a Public listener.

Use the listenerconfig->EDIT command to customize the listener.

*****
```

**Note**

Because the `systemsetup` command only configures one listener for both inbound and outbound mail for C10/100 customers, all outgoing mail will be calculated in the Mail Flow Monitor feature (which is normally used for inbound messages). See “Using the Email Security Monitor” in the *Cisco IronPort AsyncOS for Email Daily Management Guide* for more information.

## Enable IronPort Anti-Spam

Your IronPort appliance ships with a 30-day evaluation key for the IronPort Anti-Spam software. During this portion of the `systemsetup` command, you can choose to accept the license agreements and enable IronPort Anti-Spam globally on the appliance.

IronPort Anti-Spam scanning will then be enabled on the incoming mail policy.

**Note**

---

If you do not accept the license agreement, IronPort Anti-Spam is not enabled on the appliance.

---

See [Chapter 8, “Anti-Spam”](#) for all of the IronPort Anti-Spam configuration options available on the appliance.

## Select a Default Anti-Spam Scanning Engine

If you have enabled more than one anti-spam scanning engine, you are prompted to select which engine will be enabled for use on the default incoming mail policy.

## Enable IronPort Spam Quarantine

If you choose to enable an anti-spam service, you can enable the incoming mail policy to send spam and suspected spam messages to the local IronPort Spam Quarantine. Enabling the IronPort Spam Quarantine also enables the end-user quarantine on the appliance. Only administrators can access the end-user quarantine until end-user access is configured.

See “Quarantines” in the *Cisco IronPort AsyncOS for Email Daily Management Guide* for information on the IronPort Spam Quarantine.

## Enable Anti-Virus Scanning

Your IronPort appliance ships with a 30-day evaluation key for virus scanning engines. During this portion of the `systemsetup` command, you can choose to accept one or more license agreements and enable anti-virus scanning on the appliance. You must accept a license agreement for each anti-virus scanning engine you want to enable on your appliance.

After you accept the agreement, the anti-virus scanning engine you selected is enabled on the incoming mail policy. The IronPort appliance scans incoming mail for viruses, but it does not repair infected attachments. The appliance drops infected messages.

See [Chapter 9, “Anti-Virus”](#) for the anti-virus configuration options available on the appliance.

## Enable Virus Outbreak Filters and SenderBase Email Traffic Monitoring Network

This next step prompts you to enable both SenderBase participation and Virus Outbreak Filters. Your IronPort appliance ships with a 30-day evaluation key for Virus Outbreak Filters.

### Virus Outbreak Filters

Virus Outbreak Filters provide a “first line of defense” against new virus outbreaks by quarantining suspicious messages until traditional Anti-Virus security services can be updated with a new virus signature file. If enabled, Virus Outbreak Filters will be enabled on the default Incoming Mail Policy.

If you choose to enable Virus Outbreak Filters, enter a threshold value and whether you would like to receive Virus Outbreak Filters alerts. For more information about Virus Outbreak Filters and threshold values, see [Virus Outbreak Filters, page 10-329](#).

### SenderBase Participation

SenderBase is an email reputation service designed to help email administrators research senders, identify legitimate sources of email, and block spammers.

If you agree to participate in the SenderBase Email Traffic Monitoring Network, IronPort will collect aggregated statistics about email sent to your organization. This includes summary data on message attributes and information on how different types of messages were handled by IronPort appliances.

See [Chapter 13, “SenderBase Network Participation”](#) for more information.

## Configure the Alert Settings and AutoSupport

IronPort AsyncOS sends alert messages to a user via email if there is a system error that requires the user's intervention. Add at least one email address that receives system alerts. Separate multiple addresses with commas. The email addresses that you enter initially receive all types of alerts at all levels, except for Directory Harvest Attack Prevention alerts. You can add more granularity to the alert configuration later using the `alertconfig` command in the CLI or the System Administration > Alerts page in the GUI. For more information, see [Alerts, page 15-481](#).

The IronPort AutoSupport feature keeps the IronPort Customer Support team aware of issues with your IronPort appliance so that IronPort can provide industry-leading support to you. Answer “Yes” to send IronPort support alerts and weekly status updates. (For more information, see [IronPort AutoSupport, page 15-484](#).)

## Configure Scheduled Reporting

Enter an address to which to send the default scheduled reports. You can leave this value blank and the reports will be archived on the appliance instead of sent via email.

## Configure Time Settings

IronPort AsyncOS allows you to use the Network Time Protocol (NTP) to synchronize time with other servers on your network or the Internet, or to manually set the system clock. You must also set the time zone on the IronPort appliance so that timestamps in message headers and log files are correct. You can also use the IronPort Systems time servers to synchronize the time on your IronPort appliance.

Choose the Continent, Country, and Timezone and whether to use NTP including the name of the NTP server to use.

## Commit Changes

Finally, the System Setup Wizard will ask you to `commit` the configuration changes you have made throughout the procedure. Answer “Yes” if you want to commit the changes.



When you have successfully completed the System Setup Wizard, the following message will appear and you will be presented with the command prompt:

```
Congratulations! System setup is complete. For advanced
configuration, please refer to the User Guide.
```

```
mail3.example.com>
```

The IronPort appliance is now ready to send email.

## Test the Configuration

To test the IronPort AsyncOS configuration, you can use the `mailconfig` command immediately to send a test email containing the system configuration data you just created with the `systemsetup` command:

```
mail3.example.com> mailconfig
```

```
Please enter the email address to which you want to send
the configuration file. Separate multiple addresses with commas.
```

```
[> user@example.com
```

```
The configuration file has been sent to user@example.com.
```

```
mail3.example.com>
```

Send the configuration to a mailbox to which you have access to confirm that the system is able to send email on your network.

## Immediate Alerts

The IronPort appliance uses feature keys to enable features. The first time you create a listener in the `systemsetup` command, enable IronPort Anti-Spam, enable Sophos or McAfee Anti-Virus, or enable Virus Outbreak Filters, an alert is generated and sent to the addresses you specified in [Step 2: System, page 3-57](#).

The alert notifies you periodically of the time remaining on the key. For example:

```
Your "Receiving" key will expire in under 30 day(s). Please contact  
IronPort Customer Support.
```

```
Your "Sophos" key will expire in under 30 day(s). Please contact  
IronPort Customer Support.
```

```
Your "Virus Outbreak Filters" key will expire in under 30 day(s).  
Please contact IronPort Customer Support.
```

For information on enabling a feature beyond the 30-day evaluation period, contact your IronPort sales representative. You can see how much time remains on a key via the System Administration > Feature Keys page or by issuing the `featurekey` command. (For more information, see the section on working with feature keys in “Common Administrative Tasks” in the *Cisco IronPort AsyncOS for Email Daily Management Guide*.)

## What’s Next: Understanding the Email Pipeline

Now that `systemsetup` is complete, your IronPort appliance should be sending and receiving email. If you have enabled the anti-virus, anti-spam, and virus-outbreak filters security features, the system will also be scanning incoming and outgoing mail for spam and viruses.

The next step is to understand how to customize your appliances’ configuration. [Chapter 4, “Understanding the Email Pipeline”](#) provides a detailed overview of how email is routed through the system. Each feature is processed in order (from top to bottom) and is described in the remaining chapters of this guide.



## CHAPTER 4

# Understanding the Email Pipeline

---

The Email Pipeline is the process or flow email follows as it is processed by the IronPort appliance. Understanding the Email Pipeline is essential to getting the best performance from your IronPort appliance.

This chapter provides an overview of the Email Pipeline for incoming mail and a brief description of each feature. The brief description also includes a link to the chapter or book containing a detailed explanation of the feature.

This chapter contains the following sections:

- [Overview: Email Pipeline, page 4-91](#)
- [Incoming / Receiving, page 4-95](#)
- [Work Queue / Routing, page 4-98](#)
- [Delivery, page 4-103](#)

## Overview: Email Pipeline

[Table 4-1](#) and [Table 4-2](#) provide an overview of how incoming email is processed through the system, from reception to routing to delivery. Each feature is processed in order (from top to bottom) and is briefly described below. A full description of each feature can be found in the following chapters. Some features are described in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide* and *Cisco IronPort AsyncOS for Email Daily Management Guide*.

Shaded areas in [Table 4-2](#) represent processing that occurs in the Work Queue (see [Work Queue / Routing, page 4-98](#)). You can test most of the configurations of features in this pipeline using the `trace` command. For more information, see [Debugging Mail Flow Using Test Messages: Trace, page -446](#).

**Note**

For outgoing mail, RSA Email Data Loss Prevention scanning takes place after the Virus Outbreak Filters stage.

**Table 4-1**      ***Email Pipeline for the IronPort Appliance: Receiving Email Features***

Feature	Description
<b>Host Access Table (HAT)</b>	ACCEPT, REJECT, RELAY, or TCPREFUSE connections
<b>Host DNS Sender Verification</b>	Maximum outbound connections
<b>Sender Groups</b>	Maximum concurrent inbound connections per IP address
<b>Envelope Sender Verification</b>	Maximum message size and messages per connection
<b>Sender Verification Exception Table</b>	Maximum recipients per message and per hour
<b>Mail Flow Policies</b>	TCP listen queue size TLS: no/preferred/required SMTP AUTH: no/preferred/required Drop email with malformed FROM headers Always accept or reject mail from entries in the Sender Verification Exception Table. SenderBase on/off (IP profiling/flow control)
<b>Received Header</b>	Adds a received header to accepted email: on/off.
<b>Default Domain</b>	Adds default domain for “bare” user addresses.
<b>Bounce Verification</b>	Used to verify incoming bounce messages as legitimate.
<b>Domain Map</b>	Rewrites the Envelope Recipient for each recipient in a message that matches a domain in the domain map table.
<b>Recipient Access Table (RAT)</b>	(Public listeners only) ACCEPT or REJECT recipients in RCPT TO plus Custom SMTP Response. Allow special recipients to bypass throttling.

**Table 4-1**      ***Email Pipeline for the IronPort Appliance: Receiving Email Features***

<b>Alias tables</b>	Rewrites the Envelope Recipient. (Configured system-wide. <code>aliasconfig</code> is not a subcommand of <code>listenerconfig</code> .)
<b>LDAP Recipient Acceptance</b>	LDAP validation for recipient acceptance occurs within the SMTP conversation. If the recipient is not found in the LDAP directory, the message is dropped or bounced. LDAP validation can be configured to occur within the work queue instead.

**Table 4-2 Email Pipeline for the IronPort Appliance: Routing and Delivery Features**

Work Queue	LDAP Recipient Acceptance		LDAP validation for recipient acceptance occurs within the work queue. If the recipient is not found in the LDAP directory, the message is dropped or bounced. LDAP validation can be configured to occur within the SMTP conversation instead.
	Masquerading or LDAP Masquerading		Masquerading occurs in the work queue; it rewrites the Envelope Sender, To:, From:, and/or CC: headers, from a static table or via an LDAP query.
	LDAP Routing		LDAP queries are performed for message routing or address rewriting. Group LDAP queries work in conjunction with message filter rules mail-from-group and rcpt-to-group.
	Message Filters*		Message Filters are applied prior to message “splintering.” * Can send messages to quarantines.
	Safelist/Blocklist Scanning		AsyncOS checks the sender address against the end user safelist/blocklist database. If the sender address is safelisted, anti-spam scanning is skipped. The message may be splintered if there are multiple recipients. *Can send messages to quarantines if sender is blocklisted.
	Anti-Spam**	Per Recipient Scanning	Anti-Spam scanning engine examines messages and returns a verdict for further processing.
	Anti-Virus*		Anti-Virus scanning examines messages for viruses. Messages are scanned and optionally repaired, if possible. * Can send messages to quarantines.
	Content Filters*		Content Filters are applied. DKIM, SPF, and SIDS verification is performed if appropriate content filter conditions are defined. * Can send messages to quarantines.
	Virus Outbreak Filters*		The Virus Outbreak Filters feature helps protect against virus outbreaks. * Can send messages to quarantines.
Virtual gateways			Sends mail over particular IP interfaces or groups of IP interfaces.

**Table 4-2**      **Email Pipeline for the IronPort Appliance: Routing and Delivery Features**

<b>Delivery limits</b>	<ol style="list-style-type: none"> <li>1. Sets the default delivery interface.</li> <li>2. Sets the total maximum number of outbound connections.</li> </ol>
<b>Domain-based Limits</b>	Defines, per-domain: maximum outbound connections for each virtual gateway and for the entire system; the bounce profile to use; the TLS preference for delivery: no/preferred/required
<b>Domain-based routing</b>	Routes mail based on domain without rewriting Envelope Recipient.
<b>Global unsubscribe</b>	Drops recipients according to specific list (configured system-wide).
<b>Bounce profiles</b>	Undeliverable message handling. Configurable per listener, per Destination Controls entry, and via message filters.

\* These features can send messages to special queues called Quarantines.

\*\* Can send messages to the IronPort Spam Quarantine.

## Incoming / Receiving

The receiving phase of the Email Pipeline involves the initial connection from the sender's host. Each message's domains can be set, the recipient is checked, and the message is handed off to the work queue.

## Host Access Table (HAT), Sender Groups, and Mail Flow Policies

The HAT allows you to specify hosts that are allowed to connect to a listener (that is, which hosts you will allow to send email).

Sender Groups are used to associate one or more senders into groups, upon which you can apply message filters, and other Mail Flow Policies. Mail Flow Policies are a way of expressing a group of HAT parameters (access rule, followed by rate limit parameters and custom SMTP codes and responses).

Together, sender groups and mail flow policies are defined in a listener's HAT.

Host DNS verification settings for sender groups allow you to classify unverified senders prior to the SMTP conversation and include different types of unverified senders in your various sender groups.

While the connecting host was subject to Host DNS verification in sender groups — prior to the SMTP conversation — the domain portion of the envelope sender is DNS verified in mail flow policies, and the verification takes place during the SMTP conversation. Messages with malformed envelope senders can be ignored. You can add entries to the Sender Verification Exception Table — a list of domains and email addresses from which to accept or reject mail despite envelope sender DNS verification settings.

Reputation Filtering allows you to classify email senders and restrict access to your email infrastructure based on sender's trustworthiness as determined by the IronPort SenderBase Reputation Service.

For more information, see [The Host Access Table \(HAT\): Sender Groups and Mail Flow Policies, page 5-115](#).

## Received: Header

Using the `listenerconfig` command, you can configure a listener to not include the Received: header by default to all messages received by the listener.

For more information, see “Advanced Configuration Options” in the “Customizing Listeners” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

## Default Domain

You can configure a listener to automatically append a default domain to sender addresses that do not contain fully-qualified domain names; these are also known as “bare” addresses (such as “joe” vs. “joe@example.com”).

For more information, see “SMTP Address Parsing Options” in the “Customizing Listeners” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.



## Bounce Verification

Outgoing mail is tagged with a special key, and so if that mail is sent back as a bounce, the tag is recognized and the mail is delivered. For more information, see “IronPort Bounce Verification” in the “Configuring Routing and Delivery Features” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

## Domain Map

For each listener you configure, you can construct a domain map table which rewrites the envelope recipient for each recipient in a message that matches a domain in the domain map table. For example, joe@old.com -> joe@new.com

For more information, see “The Domain Map Feature” in the “Configuring Routing and Delivery Features” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

## Recipient Access Table (RAT)

For inbound email only, the RAT allows you to specify a list of all local domains for which the IronPort appliance will accept mail.

For more information, see [Accepting Email for Local Domains or Specific Users on Public Listeners \(RAT\)](#), page 5-177.

## Alias Tables

Alias tables provide a mechanism to redirect messages to one or more recipients. Aliases are stored in a mapping table. When the envelope recipient (also known as the Envelope To, or RCPT TO) of an email matches an alias as defined in an alias table, the envelope recipient address of the email will be rewritten.

For more information about Alias Tables, see “Creating Alias Tables” in the “Configuring Routing and Delivery Features” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

## LDAP Recipient Acceptance

You can use your existing LDAP infrastructure to define how the recipient email address of incoming messages (on a public listener) should be handled during the SMTP conversation or within the workqueue. See “Accept Queries” in the “Customizing Listeners” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*. This allows the IronPort appliance to combat directory harvest attacks (DHAP) in a unique way: the system accepts the message and performs the LDAP acceptance validation within the SMTP conversation or the work queue. If the recipient is not found in the LDAP directory, you can configure the system to perform a delayed bounce or drop the message entirely.

For more information, see the “LDAP Queries” chapter in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

## Work Queue / Routing

The Work Queue is where the received message is processed before moving to the delivery phase. Processing includes masquerading, routing, filtering, safelist/blocklist scanning, anti-spam and anti-virus scanning, Virus Outbreak Filters, and quarantining.

**Note**

Data loss prevention (DLP) scanning is only available for outgoing messages. For information on where DLP message scanning occurs in the Work Queue, see [Message Splintering, page 6-194](#).

## Email Pipeline and Security Services

Note, as a general rule, changes to security services (anti-spam scanning, anti-virus scanning, and Virus Outbreak Filters) do not affect messages already in the work queue. As an example:

If a message bypasses anti-virus scanning when it first enters the pipeline because of any of these reasons:

- anti-virus scanning was not enabled globally for the appliance, or

- the HAT policy was to skip anti-virus scanning, or
- there was a message filter that caused the message to bypass anti-virus scanning,

then the message will not be anti-virus scanned upon release from the quarantine, regardless of whether anti-virus scanning has been re-enabled. However, messages that bypass anti-virus scanning due to mail policies may be anti-virus scanned upon release from a quarantine, as the mail policy's settings may have changed while the message was in the quarantine. For example, if a message bypasses anti-virus scanning due to a mail policy and is quarantined, then, prior to release from the quarantine, the mail policy is updated to include anti-virus scanning, the message will be anti-virus scanned upon release from the quarantine.

Similarly, suppose you had inadvertently disabled anti-spam scanning globally (or within the HAT), and you notice this after mail is in the work queue. Enabling anti-spam at that point will not cause the messages in the work queue to be anti-spam scanned.

## LDAP Recipient Acceptance

You can use your existing LDAP infrastructure to define how the recipient email address of incoming messages (on a public listener) should be handled during the SMTP conversation or within the workqueue. See “Accept Queries” in the “Customizing Listeners” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*. This allows the IronPort appliance to combat directory harvest attacks (DHAP) in a unique way: the system accepts the message and performs the LDAP acceptance validation within the SMTP conversation or the work queue. If the recipient is not found in the LDAP directory, you can configure the system to perform a delayed bounce or drop the message entirely.

For more information, see the “LDAP Queries” chapter in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

## Masquerading or LDAP Masquerading

Masquerading is a feature that rewrites the envelope sender (also known as the sender, or MAIL FROM) and the To:, From:, and/or CC: headers on email processed by a private listener according to a table you construct. You can specify different masquerading parameters for each listener you create in one of two ways: via a static mapping table, or via an LDAP query.

For more information about masquerading via a static mapping table, see “Configuring Masquerading” in the “Configuring Routing and Delivery Features” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

For more information about masquerading via an LDAP query, see the “LDAP Queries” chapter in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

## LDAP Routing

You can configure your IronPort appliance to route messages to the appropriate address and/or mail host based upon the information available in LDAP directories on your network.

For more information, see “LDAP Queries” in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

## Message Filters

Message filters allow you to create special rules describing how to handle messages and attachments as they are received. Filter rules identify messages based on message or attachment content, information about the network, message envelope, message headers, or message body. Filter actions allow messages to be dropped, bounced, archived, quarantined, blind carbon copied, or altered.

For more information, see the “Using Message Filters to Enforce Email Policies” chapter in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

Multi-recipient messages are “splintered” after this phase, prior to Email Security Manager. Splintering messages refers to creating splinter copies of emails with single recipients, for processing via Email Security Manager.

# Email Security Manager (Per-Recipient Scanning)

## Safelist/Blocklist Scanning

End user safelists and blocklists are created by end users and stored in a database that is checked prior to anti-spam scanning. Each end user can identify domains, sub domains or email addresses that they wish to always treat as spam or never treat as spam. If a sender address is part of an end users safelist, anti-spam scanning is skipped, and if the sender address is listed in the blocklist, the message may be quarantined or dropped depending on administrator settings. For more information about configuring safelists and blocklists, see the “Quarantines” chapter in the *Cisco IronPort AsyncOS for Email Daily Management Guide*.

## Anti-Spam

The Anti-Spam feature involves IronPort Anti-Spam scanning. Anti-spam scanning offers complete, Internet-wide, server-side anti-spam protection. It actively identifies and defuses spam attacks before they inconvenience your users and overwhelm or damage your network, allowing you to remove unwanted mail before it reaches your users’ inboxes, without violating their privacy.

Anti-spam scanning can be configured to deliver mail to the IronPort Spam Quarantine (either on- or off-box). Messages released from the IronPort Spam Quarantine proceed directly to the destination queue, skipping any further work queue processing in the email pipeline.

See [Chapter 8, “Anti-Spam”](#) for more information.

## Anti-Virus

Your IronPort appliance includes integrated virus scanning engines. You can configure the appliance to scan messages and attachments for viruses on a per-“mail policy” basis. You can configure the appliance to do the following when a virus is found:

- attempt to repair the attachment
- drop the attachment
- modify the subject header

- add an additional X- header
- send the message to a different address or mailhost
- archive the message
- delete the message

Messages released from quarantines (see [Quarantines, page 4-103](#)) are scanned for viruses. See [Chapter 9, “Anti-Virus”](#) for more information about Anti-Virus scanning.

## Content Filters

You can create content filters to be applied to messages on a per-recipient or per-sender basis. Content filters are similar to message filters, except that they are applied later in the email pipeline — after a message has been “splintered” into a number of separate messages for each matching Email Security Manager policy. The functionality of content filters is applied after message filters processing and anti-spam and anti-virus scanning have been performed on a message.

For more information about Content Filters, see [Content Filters Overview, page 6-197](#).

## Virus Outbreak Filters

IronPort’s Virus Outbreak Filters feature includes special filters that act proactively to provide a critical first layer of defense against new outbreaks. Based on Outbreak Rules published by IronPort, messages with attachments of specific filetypes can be sent to a quarantine named Outbreak.

Messages in the Outbreak quarantine are processed like any other message in a quarantine. For more information about quarantines and the Work Queue, see [Quarantines, page 4-103](#).

See [Chapter 10, “Virus Outbreak Filters”](#) for more information.

## Quarantines

IronPort AsyncOS allows you to filter incoming or outgoing messages and place them into quarantines. Quarantines are special queues or repositories used to hold and process messages. Messages in quarantines can be delivered or deleted, based on how you configure the quarantine.

The following Work Queue features can send messages to quarantines:

- Message Filters
- Anti-Virus
- Virus Outbreak Filters
- Content Filters

Messages released from quarantines are re-scanned for viruses.

See the “Quarantines” chapter of the *Cisco IronPort AsyncOS for Email Daily Management Guide* for more information.

## Delivery

The delivery phase of the Email Pipeline focuses on the final phase of email processing, including limiting connections, bounces, and recipients.

## Virtual gateways

The IronPort Virtual Gateway technology enables users to separate the IronPort appliance into multiple Virtual Gateway addresses from which to send and receive email. Each Virtual Gateway address is given a distinct IP address, hostname and domain, and email delivery queue.

For more information, see “Using Virtual Gateway™ Technology” in the “Configuring Routing and Delivery Features” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

## Delivery Limits

Use the `deliveryconfig` command to set limits on delivery, based on which IP interface to use when delivering and the maximum number of concurrent connections the appliance makes for outbound message delivery.

For more information, see “Set Email Delivery Parameters” in the “Configuring Routing and Delivery Features” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

## Domain-Based Limits

For each domain, you can assign a maximum number of connections and recipients that will never be exceeded by the system in a given time period. This “good neighbor” table is defined through the Mail Policies > Destination Controls page (or the `destconfig` command).

For more information, see “Controlling Email Delivery” in the “Configuring Routing and Delivery Features” chapter in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

## Domain-Based Routing

Use the Network > SMTP Routes page (or the `smtproutes` command) to redirect all email for a particular domain to a specific mail exchange (MX) host, without rewriting the envelope recipient.

For more information, see “Routing Email for Local Domains” in the “Configuring Routing and Delivery Features” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

## Global Unsubscribe

Use Global Unsubscribe to ensure that specific recipients, recipient domains, or IP addresses never receive messages from the IronPort appliance. If Global Unsubscribe is enabled, the system will check all recipient addresses against a list of “globally unsubscribed” users, domains, email addresses, and IP Addresses. Matching emails are not sent.



For more information, see “Using Global Unsubscribe” in the “Configuring Routing and Delivery Features” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

## Bounce Limits

You use the Network > Bounce Profiles page (or the `bounceconfig` command) to configure how IronPort AsyncOS handles hard and soft conversational bounces for each listener you create. You create bounce profiles and then apply profiles to each listener using the Network > Listeners page (or the `listenerconfig` command). You can also assign bounce profiles to specific messages using message filters.

For more information about bounce profiles, see “Directing Bounced Email” in the “Configuring Routing and Delivery Features” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.





## CHAPTER 5

# Configuring the Gateway to Receive Email

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After you have configured the basic settings of your IronPort appliance via the GUI's System Setup Wizard (or the CLI `systemsetup` command), you are now ready to begin tailoring the configuration of your IronPort Email Security appliance to receive email. This chapter discusses, in detail, all of the features available to you as you begin to configure listeners on the appliance to handle receiving email.

The concept of the Host Access Table (HAT) is introduced. The Host Access Tables (HATs) of public listeners — with their specific sender groups and mail flow policies — provide the underlying framework that makes possible the Mail Flow Monitor feature. (“Using Email Security Monitor” in the *Cisco IronPort AsyncOS for Email Daily Management Guide* describes the Mail Flow Monitor feature in detail.)

This chapter contains the following sections:

- [Receiving Email with Listeners, page 5-108](#)
- [The Host Access Table \(HAT\): Sender Groups and Mail Flow Policies, page 5-115](#)
  - [Mail Flow Policies: Access Rules and Parameters, page 5-117](#)
  - [Sender Groups, page 5-131](#)
- [Modifying the HAT for a Listener via the GUI, page 5-158](#)
- [Sender Verification, page 5-161](#)

- [Accepting Email for Local Domains or Specific Users on Public Listeners \(RAT\), page 5-177](#)
- [Modifying the RAT for a Listener via the GUI, page 5-182](#)

## Receiving Email with Listeners

The IronPort AsyncOS operating system allows the IronPort appliance to function as the inbound email gateway for your enterprise, servicing SMTP connections from the Internet, accepting messages, and relaying messages to the appropriate systems.

In this configuration, you enable *listeners* to service these connections. A listener describes an email processing service that will be configured on a particular IP interface. Listeners only apply to email entering the IronPort appliance — either from the internal systems within your network or from the Internet. IronPort AsyncOS uses listeners to specify criteria that messages must meet in order to be accepted and relayed to recipient hosts. You can think of a listener as an “email injector” or even a “SMTP daemon” running on a specific port for each IP address you specify (including the initial addresses you configured with the `systemsetup` command).

Mail delivery policies cannot be configured so that mail is delivered to multiple ports on a single IP address (for example, port 25 for normal delivery and port 6025 for IronPort Spam quarantine). IronPort Systems recommends running each delivery option on a separate IP address or host. Further, it is not possible to use the same hostname for regular email delivery and quarantine delivery.

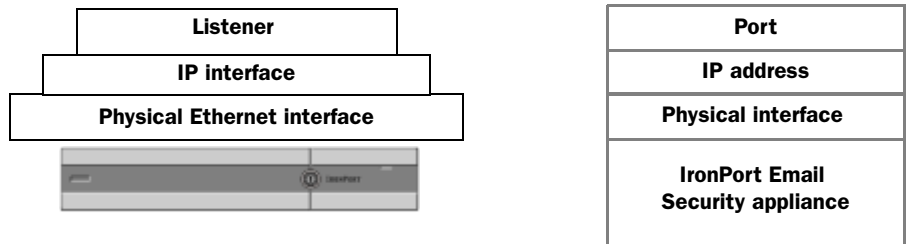
The System Setup Wizard or the `systemsetup` command (CLI) initially configures the *IP interfaces* that run on the available *Ethernet interfaces* on the IronPort appliance. On IronPort C10 and C100 appliances, these Ethernet interfaces are labeled Data1 and Data2. On all other IronPort appliances, they are labeled Data1, Data2, and Management. You can edit these interfaces at a later time via the IP Interfaces page on the Network menu or the `interfaceconfig` command. If you have completed the GUI’s System Setup Wizard (or the `systemsetup` command) and committed the changes, at least one listener should already be configured on the appliance. (Refer to the settings you entered in the [Step 3: Network, page 3-60](#).) The specific addresses to accept mail for were entered at that time, as well as the first SMTP Routes (Network > SMTP Routes or `smtproutes`) entry.

**Note**

When you create a new listener via the System Setup Wizard, AsyncOS creates the listener with default values. However, when you create a listener manually, AsyncOS does not use these default SBRS values.

Use the Listeners page (Network > Listeners) or the `listenerconfig` command to configure listeners that run over available IP interfaces on the IronPort appliance. For more information about creating and configuring listeners, see the “Customizing Listeners” chapter in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*. In “Using Virtual Gateway™ Technology” in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*, the IronPort Virtual Gateway technology is explained, in which you can further define and group IP interfaces over one or many IP addresses, or groups of IP addresses.

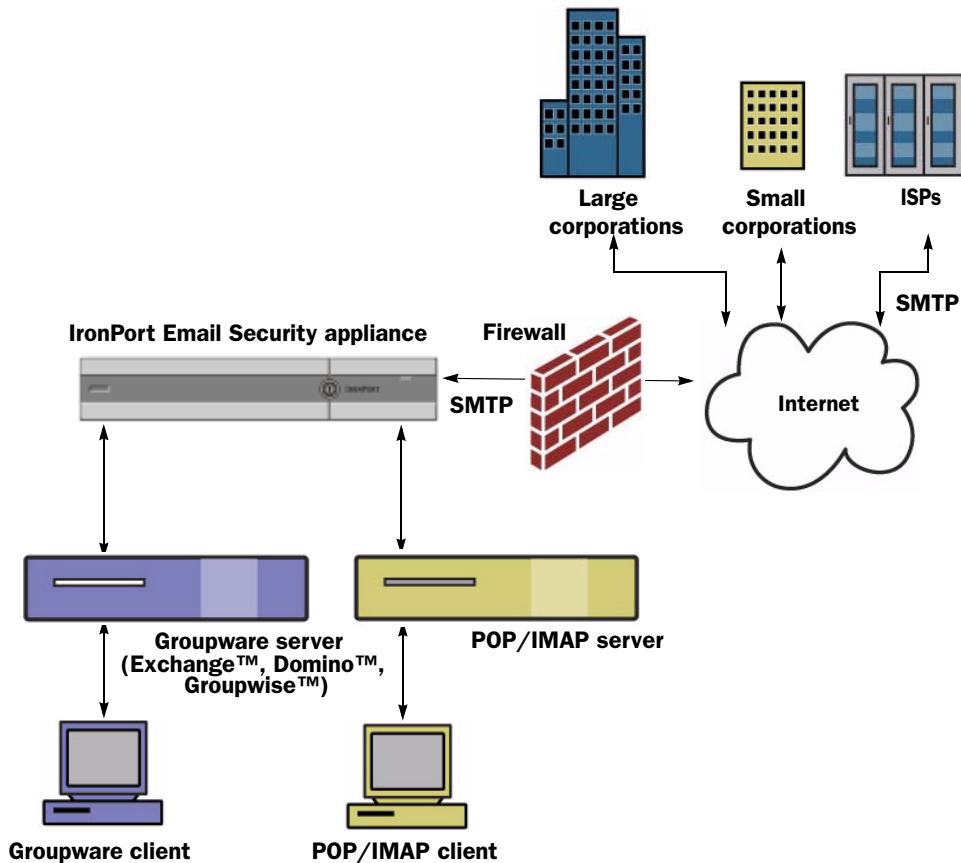
**Figure 5-1 Relationship Between Listeners, IP Interfaces, and Physical Ethernet Interfaces**



## Enterprise Gateway Configuration

In this configuration, the Enterprise Gateway configuration accepts email from the Internet and relays email to groupware servers, POP/IMAP servers, or other MTAs. At the same time, the enterprise gateway accepts SMTP messages from groupware servers and other email servers for relay to recipients on the Internet.

**Figure 5-2** Using the IronPort Appliance as an Enterprise Gateway



In this configuration, at least two listeners are required:

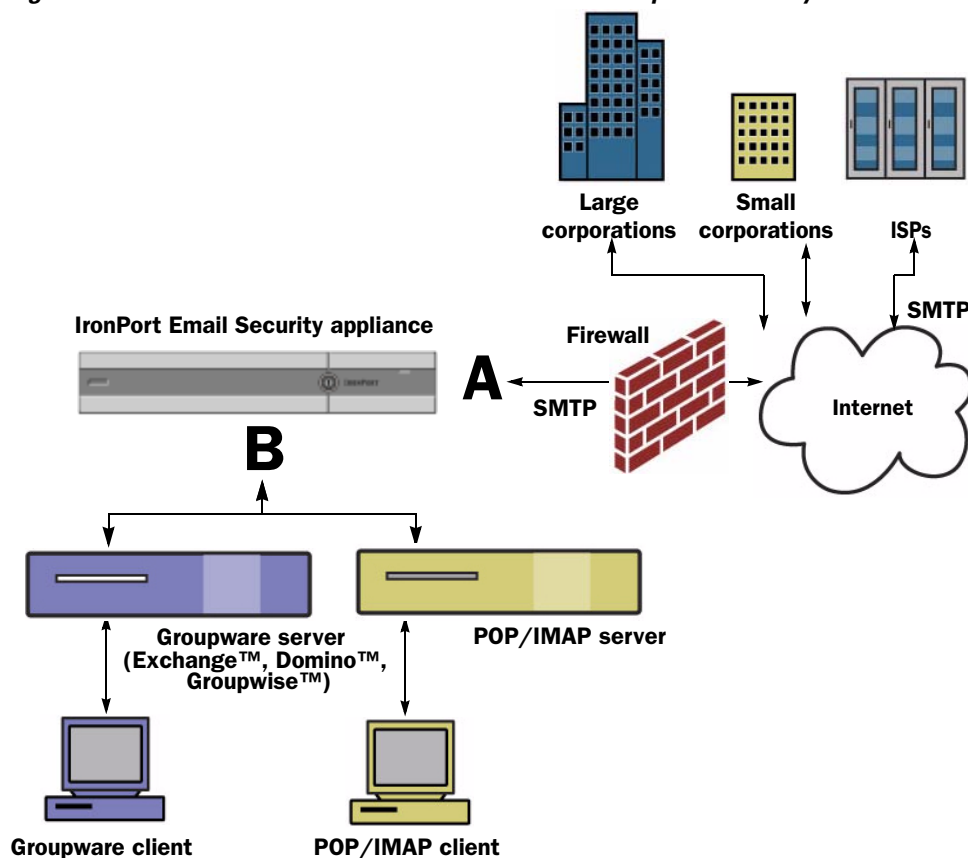
- One listener configured specifically to accept mail *from* the Internet
- One listener configured specifically to accept mail *from* your internal groupware and email servers (POP/IMAP)

## Public and Private Listeners

Consider the first listener a “public” listener and the second listener a “private” listener. IronPort AsyncOS differentiates between public listeners — which by default have the characteristics for receiving email from the Internet — and private listeners that are intended to accept email only from internal (groupware,

POP/IMAP, and other message generation) systems. Public and private listeners, by default, have different features available to them and different default settings. By creating distinct public and private listeners for different public and private networks, you can distinguish among email for security, policy enforcement, reporting, and management. For example, email received on public listeners is scanned by your configured anti-spam engine and the anti-virus scanning engine by default, while email received on private listeners is not scanned. The same illustration, with listeners, is shown in Figure 3-3.

**Figure 5-3** *Public and Private Listeners for an Enterprise Gateway*



In Figure 3-3, one public listener (A) and one private listener (B) are configured on the appliance in this Enterprise Gateway configuration.

Figure 3-4 further illustrates the differences between the default settings of public and private listeners. A public listener is intended to receive email from the internet. The public listener receives connections from *many* hosts and directs messages to a *limited* number of recipients. Conversely, a private listener is intended to receive email from your internal network. The private listener receives connections from a limited (known) number of hosts and directs messages to *many* recipients.

**C10/100 customers:** By default, the System Setup Wizard walks you through configuring one public listener for both receiving mail from the Internet and for relaying email from your internal network. That is, one listener can perform both functions.

Later in the chapter, these differences will be demonstrated in the Host Access Table and Recipient Access Table for each type of listener.

**Figure 5-4**      **Public and Private Listeners**

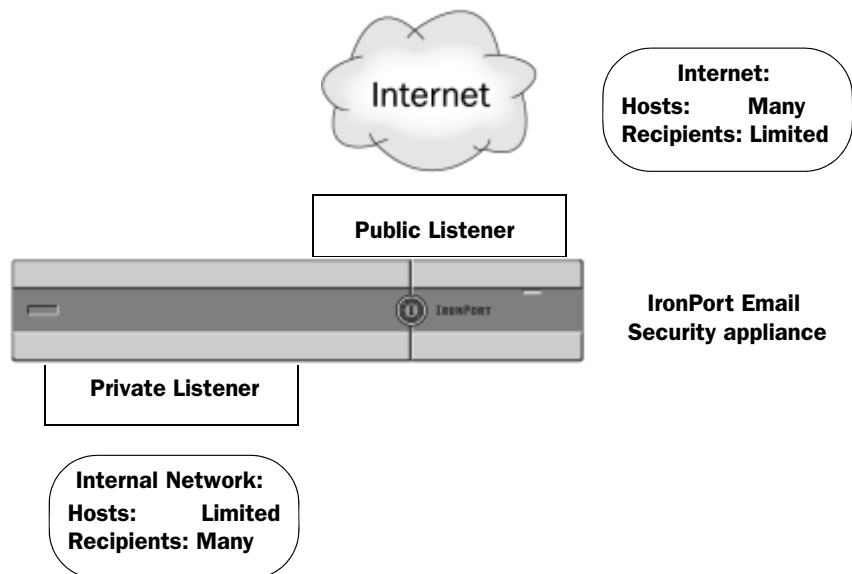


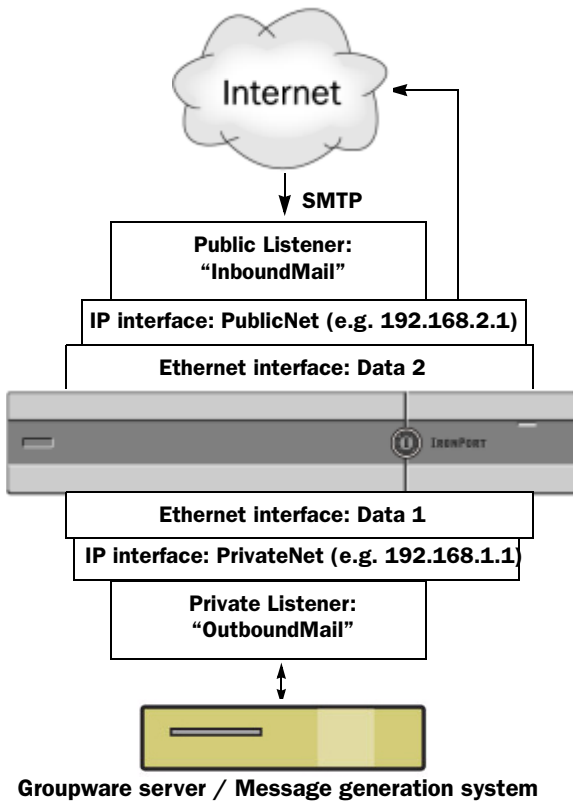
Figure 5-5 illustrates a typical Email Gateway configuration created by the System Setup Wizard Setup Wizard (or CLI `systemsetup` command) on IronPort X1000/1050/1060, C60/600/650/660, and C30/300/350/360 appliances. Two



listeners are created: a public listener to serve inbound connections on one interface and a private listener to serve outbound connections on a second IP interface.

[Figure 5-6](#) illustrates a typical Email Gateway configuration created by the System Setup Wizard (or CLI `systemsetup` command) on an IronPort C10/C100/150/160 appliance. One public listener on a single IP interface is created to serve both inbound and outbound connections.

**Figure 5-5** *Public and Private Listeners on X1000/1050/1060, C60/600/650/660, C30/300/350/360 Appliances*

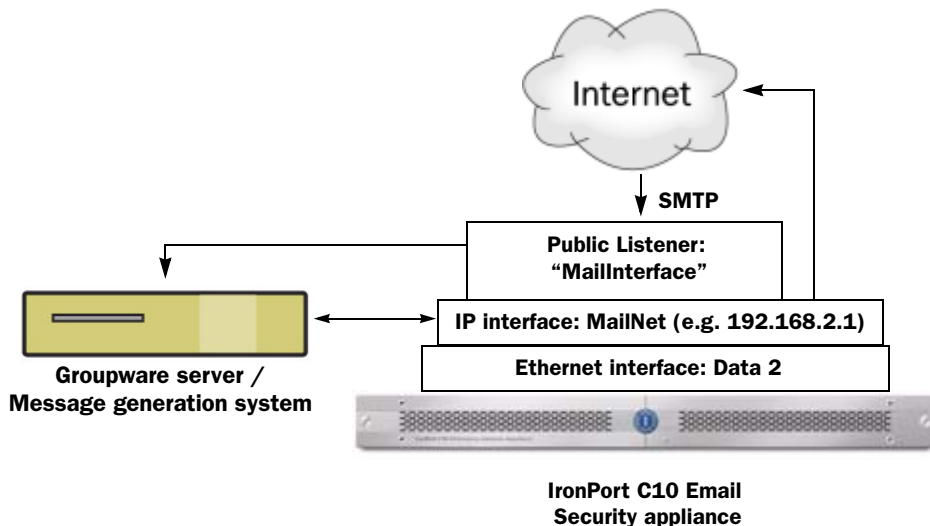


**Note** This public listener uses SMTP protocol on Port 25 of the PublicNet IP interface on the Data2 Ethernet interface to accept messages from the Internet. IP interface PublicNet sends messages to destination hosts on the Internet.

**IronPort Email Security appliance**

IP interface PrivateNet sends messages to internal mail hosts.

**Note** This private listener uses SMTP protocol on Port 25 of the PrivateNet IP interface on the Data1 Ethernet interface to accept messages from internal systems in the .example.com domain.

**Figure 5-6**      **Public Listener on C10 Appliance**

**Note** This public listener uses SMTP protocol on Port 25 of the PublicNet IP interface on the Data2 Ethernet interface to accept messages from the Internet and to relay messages from internal systems in the .example.com domain.

IP interface MailNet sends messages to destination hosts on the Internet and to internal mail hosts.

## The Host Access Table (HAT): Sender Groups and Mail Flow Policies

Each listener that is configured on an appliance has properties that you can configure to modify the behavior of the message it receives. As discussed in the [Overview: Email Pipeline, page 4-91](#), one of the first configurable features that influences a listener's behavior is its Host Access Table (HAT).

The HAT maintains a set of rules that control incoming connections from remote hosts for a listener. Every listener you create has its own HAT. HATs are defined for public and private listeners.

Entries in HAT are defined by this basic syntax:

**Table 5-1        Basic HAT Syntax**

Remote Host Definition	Rule
------------------------	------

The *remote host definition* is the way in which a remote host that is attempting to connect to the listener is defined (for example, by a single IP address).

A *rule* defines whether the remote host specified can or cannot connect to the listener.

Extending the basic syntax, HATs in AsyncOS support the ability to create named sets of remote host definitions; these are called *sender groups*. Named sets of access rules combined with parameter sets are called *mail flow policies*. This extended syntax is illustrated in [Table 5-2](#):

**Table 5-2        Advanced HAT Syntax**

<b>Sender Group:</b>	<b>Mail Flow Policy:</b>
<b>Remote Host</b>	<b>Access Rule + Parameters</b>
<b>Remote Host</b>	
<b>Remote Host</b>	
...	

The order that rules appear in the HAT is important. The HAT is read from top to bottom for each host that attempts to connect to the listener. If a rule matches a connecting host, the action is taken for that connection immediately.

Predefined and custom entries you place in the HAT are entered above the final “ALL” host entry.

Default HAT Entries

For all public listeners you create, by default, the HAT is set to *accept* email from *all* hosts. For all private listeners you create, by default, the HAT is set up to relay email from the host(s) you specify, and reject *all* other hosts.

**Note**

By rejecting all hosts other than the ones you specify, the `listenerconfig` and `systemsetup` commands prevent you from unintentionally configuring your system as an “open relay.” An open relay (sometimes called an “insecure relay” or a “third party” relay) is an SMTP email server that allows third-party relay of email messages. By processing email that is neither for nor from a local user, an open relay makes it possible for an unscrupulous sender to route large volumes of spam through your gateway.

## Mail Flow Policies: Access Rules and Parameters

Mail Flow Policies of the HAT allow you to control or limit the rates at which the listener will receive mail from remote hosts. You can also modify the SMTP codes and responses communicated during the SMTP conversation.

The HAT has four basic access rules for acting on connections from remote hosts:

**Step 1**

ACCEPT

Connection is accepted, and email acceptance is then further restricted by listener settings, including the Recipient Access Table (for public listeners).

**Step 2**

REJECT

Connection is initially accepted, but the client attempting to connect gets a 4XX or 5XX greeting. No email is accepted.

**Note**

You can also configure AsyncOS to perform this rejection at the message recipient level (RCPT TO), rather than at the start of the SMTP conversation. Rejecting messages in this way delays the message rejection and bounces the message, allowing AsyncOS to retain more detailed information about the rejected messages. This setting is configured from the CLI `listenerconfig --> setup` command. For more information, see “Customizing Listeners” in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

**Step 3**

TCPREFUSE

Connection is refused at the TCP level.

**Step 4** RELAY

Connection is accepted. Receiving for any recipient is allowed and is not constrained by the Recipient Access Table.

- CONTINUE

The mapping in the HAT is ignored, and processing of the HAT continues. If the incoming connection matches a later entry that is not CONTINUE, that entry is used instead. The CONTINUE rule is used to facilitate the editing of the HAT in the Graphical User Interface (GUI). For more information, see [Adding a New Sender Group, page 5-148](#).

In addition to these basic access control parameters, the following parameters are available for listeners you create. Parameters combined with an access rule (ACCEPT or REJECT) are called *mail flow policies*. A mail flow policy is a way of expressing a group of HAT parameters (access rule, followed by connection parameters, rate limiting parameters, custom SMTP codes and responses, and anti-spam, anti-virus, encryption, and authentication parameters).

Mail flow policies are then mapped to sender groups as entries in a listener's HAT.

**Table 5-3 HAT Mail Flow Policy Parameters**

Parameter	Description
<b>Connections</b>	
Maximum message size	The maximum size of a message that will be accepted by this listener. The smallest possible maximum message size is 1 kilobyte.
Maximum concurrent connections from a single IP	The maximum number of concurrent connections allowed to connect to this listener from a single IP address.
Maximum messages per connection	The maximum number of messages that can be sent through this listener per connection from a remote host.
Maximum recipients per message	That maximum number of recipients per message that will be accepted from this host.
<b>SMTP Banner</b>	
Custom SMTP Banner Code	The SMTP code returned when a connection is established with this listener.
Custom SMTP Banner Text	The SMTP banner text returned when a connection is established with this listener.

**Table 5-3 HAT Mail Flow Policy Parameters (Continued)**

Parameter	Description
Custom SMTP Reject Banner Code	The SMTP code returned when a connection is rejected by this listener.
Custom SMTP Reject Banner Text	The SMTP banner text returned when a connection is rejected by this listener.
Override SMTP Banner Host Name	By default, the appliance will include the hostname associated with the interface of the listener when displaying the SMTP banner to remote hosts (for example: <code>220-hostname ESMTP</code> ). You may choose to override this banner by entering a different hostname here. Additionally, you may leave the hostname field blank to choose <i>not</i> to display a hostname in the banner.
<b>Rate Limiting</b>	
Rate Limiting: Maximum Recipients per Hour	The maximum number of recipients per hour this listener will receive from a remote host. The number of recipients per sender IP address is tracked globally. Each listener tracks its own rate limiting threshold; however, because all listeners validate against a single counter, it is more likely that the rate limit will be exceeded if the same IP address (sender) is connecting to multiple listeners.
Rate Limiting: Max. recipient per Hour Exceeded Error Code	The SMTP code returned when a host exceeds the maximum number of recipients per hour defined for this listener.
Rate Limiting: Max. Recipients Per Hour Exceeded Error Text	The SMTP banner text returned when a host exceeds the maximum number of recipients per hour defined for this listener.
<b>Flow Control</b>	
Use SenderBase for Flow Control	Enable “look ups” to the IronPort SenderBase Reputation Service for this listener.

**Table 5-3 HAT Mail Flow Policy Parameters (Continued)**

Parameter	Description
Group by Similarity of IP Addresses: (significant bits 0-32)	Used to track and rate limit incoming mail on a per-IP address basis while managing entries in a listener's Host Access Table (HAT) in large CIDR blocks. You define a range of significant bits (from 0 to 32) by which to group similar IP addresses for the purposes of rate limiting, while still maintaining an individual counter for each IP address within that range. Requires "Use SenderBase" to be disabled. For more information about HAT significant bits, see "HAT Significant Bits Feature" in the "Configuring Routing and Delivery Features" chapter of the <i>Cisco IronPort AsyncOS for Email Advanced Configuration Guide</i> .
<b>Directory Harvest Attack Prevention (DHAP)</b>	
Directory Harvest Attack Prevention: Maximum Invalid Recipients Per Hour	The maximum number of invalid recipients per hour this listener will receive from a remote host. This threshold represents the total number of RAT rejections combined with the total number of messages to invalid LDAP recipients dropped in the SMTP conversation or bounced in the work queue (as configured in the LDAP accept settings on the associated listener). For more information on configuring DHAP for LDAP accept queries, see "LDAP Queries" in the <i>Cisco IronPort AsyncOS for Email Advanced Configuration Guide</i> .
Directory Harvest Attack Prevention: Drop Connection if DHAP threshold is Reached within an SMTP Conversation	The IronPort appliance will drop a connection to a host if the threshold of invalid recipients is reached.
Max. Invalid Recipients Per Hour Code:	Specify the code to use when dropping connections. The default code is 550.
Max. Invalid Recipients Per Hour Text:	Specify the text to use for dropped connections. The default text is "Too many invalid recipients."



**Table 5-3 HAT Mail Flow Policy Parameters (Continued)**

Parameter	Description
Drop Connection if DHAP threshold is reached within an SMTP Conversation	Enable to drop connections if the DHAP threshold is reached within an SMTP conversation.
Max. Invalid Recipients Per Hour Code	Specify the code to use when dropping connections due to DHAP within an SMTP conversation. The default code is 550.
Max. Invalid Recipients Per Hour Text:	Specify the text to use when dropping connections due to DHAP within an SMTP conversation.
<b>Spam Detection</b>	
Anti-spam scanning	Enable anti-spam scanning on this listener.
<b>Virus Detection</b>	
Anti-virus scanning	Enable the anti-virus scanning on this listener.
<b>Encryption and Authentication</b>	
Allow TLS Connections	Deny, Prefer, or Require Transport Layer Security (TLS) in SMTP conversations for this listener.
SMTP Authentication	Allows, disallow, or requires SMTP Authentication from remote hosts connecting to the listener. SMTP Authentication is described in detail in the “LDAP Queries” chapter of the <i>Cisco IronPort AsyncOS for Email Advanced Configuration Guide</i> .
If Both TLS and SMTP Authentication are enabled:	Require TLS to offer SMTP Authentication.
<b>Domain Key Signing</b>	
Domain Key/ DKIM Signing	Enable Domain Keys or DKIM signing on this listener (ACCEPT and RELAY only).
DKIM Verification	Enable DKIM verification.
<b>SPF/SIDF Verification</b>	

**Table 5-3 HAT Mail Flow Policy Parameters (Continued)**

Parameter	Description
Enable SPF/SIDF Verification	Enable SPF/SIDF signing on this listener. For more information, see the “Email Authentication” chapter of the <i>Cisco IronPort AsyncOS for Email Advanced Configuration Guide</i> .
Conformance Level	Set the SPF/SIDF conformance level. You can choose from SPF, SIDF or SIDF Compatible. For details, see the “Email Authentication” chapter of the <i>Cisco IronPort AsyncOS for Email Advanced Configuration Guide</i> .
Downgrade PRA verification result if 'Resent-Sender:' or 'Resent-From:' were used:	If you choose a conformance level of SIDF compatible, configure whether you want to downgrade Pass result of the PRA Identity verification to None if there are Resent-Sender: or Resent-From: headers present in the message. You may choose this option for security purposes.
HELO Test	Configure whether you want to perform a test against the HELO identity (Use this for SPF and SIDF Compatible conformance levels).
<b>Untagged Bounces</b>	
Consider Untagged Bounces to be Valid	Applies only if bounce verification tagging (discussed in the “Configuring Routing and Delivery Features” chapter of the <i>Cisco IronPort AsyncOS for Email Advanced Configuration Guide</i> ) is enabled. By default, the appliance considers untagged bounces invalid and either rejects the bounce or adds a custom header, depending on the Bounce Verification settings. If you choose to consider untagged bounces to be valid, the appliance accepts the bounce message.
<b>Envelope Sender DNS Verification</b>	
	See <a href="#">Sender Verification</a> , page 5-161.

**Table 5-3 HAT Mail Flow Policy Parameters (Continued)**

Parameter	Description
<b>Exception Table</b>	
Use Exception Table	Use the sender verification domain exception table. You can only have one exception table, but you can enable it per mail flow policy. See <a href="#">Sender Verification Exception Table, page 5-165</a> for more information.

By default, these parameters are set to the following default values shown in [Table 5-5](#) and [Table 5-6](#) for each listener on the appliance.

**Note**

If anti-spam or anti-virus scanning is enabled globally in the HAT, messages are flagged for anti-spam or anti-virus scanning as they are accepted by the IronPort appliance. If anti-spam or anti-virus scanning is disabled after the message is accepted, the message will still be subject to scanning when it leaves the work queue.

## HAT Variable Syntax

[Table 5-4](#) defines a set of variables that can also be used in conjunction with the custom SMTP and Rate Limiting banners defined for a Mail Flow Policy. Variable names are case-insensitive. (That is, `$group` is equivalent to `$Group`.)

**Table 5-4 HAT Variable Syntax**

Variable	Definition
<code>\$Group</code>	Replaced by the name of the sender group that was matched in the HAT. If the sender group has no name, “None” is displayed.
<code>\$Hostname</code>	Replaced by the remote hostname if and only if it has been validated by the IronPort appliance. If the reverse DNS lookup of the IP address is successful but returns no hostname, then “None” is displayed. If the reverse DNS lookup fails (for example, if the DNS server cannot be reached, or no DNS server has been configured) then “Unknown” is displayed.

Table 5-4            *HAT Variable Syntax (Continued)*

Variable	Definition
\$OrgID	Replaced by the SenderBase Organization ID (an integer value). If the IronPort appliance cannot obtain a SenderBase Organization ID, or if the SenderBase Reputation Service did not return a value, “None” is displayed.
\$RemoteIP	Replaced by the IP address of the remote client.
\$HATEntry	Replaced by the entry in the HAT that the remote client matched.

Using HAT Variables



Note

These variables can be used with the `smtp_banner_text` and `max_rcpts_per_hour_text` advanced HAT parameters shown in Table 1-3 of the “Customizing Listeners” chapter in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

Using these variables, you could edit the custom SMTP banner response text for accepted connections in the `$TRUSTED` policy in the GUI:

Figure 5-7            *Using HAT Variables*

Rate Limiting:	Max. Recipients Per Hour:	<input checked="" type="radio"/> Unlimited <input type="radio"/> <input type="text"/>
	Max. Recipients Per Hour Code:	<input type="text" value="452"/>
	Max. Recipients Per Hour Text:	<div>Too many recipients received this hour from Host: \$hostname</div>

Or like this, in the CLI:

```
Would you like to specify a custom SMTP response? [Y]> y

Enter the SMTP code to use in the response. 220 is the standard code.

[220]> 200
```

Enter your custom SMTP response. Press Enter on a blank line to finish.

**You've connected from the hostname: \$Hostname, IP address of: \$RemoteIP, matched the group: \$Group, \$HATEntry and the SenderBase Organization: \$OrgID.**

## Testing HAT Variables

To test these variables, add the IP address of a known, trusted machine to the \$WHITELIST sender group of a listener on the IronPort appliance. Then, connect from that machine via telnet. You can see the variable substitution in the SMTP response. For example:

```
# telnet IP_address_of_IronPort_Appliance
```

```
220 hostname ESMTP
```

```
200 You've connected from the hostname: hostname, IP address of:
IP-address_of_connecting_machine, matched the group: WHITELIST, 10.1.1.1
the SenderBase Organization: OrgID.
```

## Viewing Default Mail Flow Policies





[Figure 5-8](#) shows the default policy parameters for a public listener.

To view the default policy parameters for a listener:

- 
- Step 1** Access the GUI (see [Accessing the GUI, page 2-25](#)).
  - Step 2** Click Mail Policies > Mail Flow Policies.

The Mail Flow Policies page is displayed. If listeners are configured, the mail flow policies defined for the first alphabetical listener are displayed.

**Figure 5-8 Mail Flow Policies Page**  
**Mail Flow Policies**

Policies (Listener: IncomingMail (172.19.1.86:25) )		
<a href="#">Add Policy...</a>		
Policy Name	Behavior	Delete
THROTTLED	Accept	
ACCEPTED	Accept	
TRUSTED	Accept	
BLOCKED	Reject	
Default Policy Parameters		

**Step 3** Click the Default Policy Parameters link.

The default policy parameters page is displayed. See [Figure 5-9](#).

**Figure 5-9**      **Default Policy Parameters for a Public Listener (one of two)**

Default Settings		
Connections:	Max. Messages Per Connection:	<input type="text" value="10"/>
	Max. Recipients Per Message:	<input type="text" value="50"/>
	Max. Message Size:	<input type="text" value="20971520"/> <small>(add a trailing K for kilobytes; M for megabytes)</small>
	Max. Concurrent Connections From a Single IP:	<input type="text" value="10"/>
SMTP:	Custom SMTP Banner Code:	<input type="text" value="220"/>
	Custom SMTP Banner Text:	<input type="text"/>
	Custom SMTP Reject Banner Code:	<input type="text" value="554"/>
	Custom SMTP Reject Banner Text:	<input type="text"/>
	Override SMTP Banner Hostname:	<input checked="" type="radio"/> Use Hostname from Interface <input type="radio"/> <input type="text"/>
Mail Flow Limits		
Rate Limiting:	Max. Recipients Per Hour:	<input checked="" type="radio"/> Unlimited <input type="radio"/> <input type="text"/>
	Max. Recipients Per Hour Code:	<input type="text" value="452"/>
	Max. Recipients Per Hour Text:	<input type="text" value="Too many recipients received this hour"/>
Flow Control:	Use SenderBase for Flow Control:	<input checked="" type="radio"/> On <input type="radio"/> Off
	Group by Similarity of IP Addresses:	<i>This Feature can only be used if Senderbase Flow Control is off.</i> <input checked="" type="radio"/> Off <input type="radio"/> <input type="text"/> <small>(significant bits 0-32)</small>
Directory Harvest Attack Prevention (DHAP):	Max. Invalid Recipients Per Hour:	<input checked="" type="radio"/> Unlimited <input type="radio"/> <input type="text"/>
	Drop Connection if DHAP threshold is Reached within an SMTP Conversation:	<input checked="" type="radio"/> On <input type="radio"/> Off
	Max. Invalid Recipients Per Hour Code:	<input type="text" value="550"/>
	Max. Invalid Recipients Per Hour Text:	<input type="text" value="Too many invalid recip"/>

Figure 5-10      *Default Policy Parameters for a Public Listener (two of two)*

Security Features	
Spam Detection:	<input checked="" type="radio"/> On <input type="radio"/> Off
Virus Protection:	<input checked="" type="radio"/> On <input type="radio"/> Off
Encryption and Authentication:	TLS: <input checked="" type="radio"/> Off <input type="radio"/> Preferred <input type="radio"/> Required
	SMTP Authentication: <input checked="" type="radio"/> Off <input type="radio"/> Preferred <input type="radio"/> Required
	If Both TLS and SMTP Authentication are enabled: <input type="checkbox"/> Require TLS To Offer SMTP Authentication
Domain Key/DKIM Signing:	<input type="radio"/> On <input checked="" type="radio"/> Off
DKIM Verification:	<input type="radio"/> On <input checked="" type="radio"/> Off
SPF/SIDF Verification:	<input type="radio"/> On <input checked="" type="radio"/> Off
	Conformance Level: <input type="text" value="SIDF Compatible v1"/>
	Downgrade PRA verification result if 'Resent-Sender:' or 'Resent-From:' were used: <input checked="" type="radio"/> No <input type="radio"/> Yes
	HELO Test: <input type="radio"/> Off <input checked="" type="radio"/> On
Evaluate Untagged Bounces:	<input type="radio"/> Yes <input checked="" type="radio"/> No <small>(Applies only if bounce verification address tagging is in use. See Mail Policies &gt; Bounce Verification.)</small>
Sender Verification	
Envelope Sender DNS Verification:	<input type="radio"/> On <input checked="" type="radio"/> Off
	Malformed Envelope Senders:
	SMTP Code: <input type="text" value="\$53"/>
	SMTP Text: <input type="text" value="#5.5.4 Domain required for sender address"/>
	Envelope Senders whose domain does not resolve:
	SMTP Code: <input type="text" value="\$51"/>
	SMTP Text: <input type="text" value="#4.1.8 Domain of sender address &lt;\$EnVELOpe&gt;"/>
Envelope Senders whose domain does not exist:	
SMTP Code: <input type="text" value="\$53"/>	
SMTP Text: <input type="text" value="#5.1.8 Domain of sender address &lt;\$EnVELOpe&gt;"/>	
Use Sender Verification Exception Table:	<input type="radio"/> On <input checked="" type="radio"/> Off

Default Policy Parameters for Listeners

The following table lists the default parameters for public listeners.

Table 5-5      *HAT Default Policy Parameters for Public Listeners*

Parameters	Default Value
Maximum message size:	20 MB
Max. concurrent connections allowed to this listener:	10 connections
Maximum messages per connection:	10 messages
Maximum recipients per message:	50 recipients
SMTP Banner Code:	220
SMTP Banner Text:	“hostname_ESMTP”



**Table 5-5** *HAT Default Policy Parameters for Public Listeners*

<b>Parameters</b>	<b>Default Value</b>
SMTP Reject Banner Code:	554
SMTP Reject Banner Text:	"Access Denied"
Override SMTP Banner Hostname	Use hostname from Interface
Rate Limiting: Maximum Recipients per Hour:	No default. User-defined.
Rate Limiting: Limit Exceeded Error Code:	452
Rate Limiting: Limit Exceeded Error Text:	"Too many recipients received this hour"
Directory Harvest Attack Prevention	OFF
Use SenderBase:	ON
Group by Similarity of IP address:	DISABLED
Use anti-spam scanning:	ON (If anti-spam enabled)
Use anti-virus scanning:	ON (If anti-virus enabled)
Allow TLS Connections:	NO
Override Hostname	NO
SMTP Auth	OFF
Domainkey/DKIM Signing	OFF
DKIM Verification	OFF
SPF/SIDF Verification	OFF
Envelope Sender DNS Verification	OFF
Use Exception Table	OFF

The following table lists the default parameters for private listeners.

**Table 5-6 HAT Default Policy Parameters for Private Listeners**

Parameters	Default Value
Maximum messages per connection:	10,000 messages
Maximum recipients per message:	100,000 recipients
Maximum message size:	100 MB (104857600 bytes)
Max. concurrent connections from a single IP	50 connections
SMTP Banner Code:	220
SMTP Banner Text:	" <i>hostname</i> ESMTP"
SMTP Reject Banner Code:	554
SMTP Reject Banner Text:	"Access Denied"
Override SMTP Banner Hostname	Use Hostname from Interface
Rate Limiting: Maximum Recipients per Hour:	Unlimited
Rate Limiting: Limit Exceeded Error Code:	Not applicable
Rate Limiting: Limit Exceeded Error Text:	Not applicable
Use SenderBase:	OFF
Group by Similarity of IP address:	OFF
Directory Harvest Attack Prevention	OFF
Use anti-spam scanning:	OFF (If anti-spam enabled)
Use anti-virus scanning:	ON (If anti-virus enabled)
Allow TLS Connections:	NO
Override Hostname	NO
SMTP Auth	OFF
Domainkeys/DKIM Signing	OFF
DKIM Verification	OFF
SPF/SIDF Verification	OFF

**Table 5-6 HAT Default Policy Parameters for Private Listeners**

Parameters	Default Value
Accept Untagged Bounces	NO
Envelope Sender DNS Verification	OFF
Use Exception Table	OFF

## Sender Groups

HAT parameters are combined with an access rule to create a mail flow policy (see [Figure 5-6Mail Flow Policies: Access Rules and Parameters, page 5-117](#)). When you group together different HAT parameters and assign a name to them, you are defining a mail flow policy that can be applied to groups of senders.

A *sender group* is simply a list of senders gathered together for the purposes of handling email from those senders in the same way (that is, applying a mail flow policy to a group of senders). A sender group is a list of senders identified by:

- IP address
- IP range
- Specific host or domain name
- SenderBase Reputation Service “organization” classification
- SenderBase Reputation Score (SBRS) range (or lack of score)
- DNS List query response

See [Table 5-7](#) for the syntax of defining remote hosts (sender entries) that make up sender groups. These sender entries are separated by commas in a listener’s HAT. You assign a name for sender groups, as well as mail flow policies.

Together, sender groups and mail flow policies are defined in a listener’s HAT. By default, your IronPort appliance ships with the predefined mail flow policies and sender groups described in [Predefined Mail Flow Policies for Public Listeners, page 5-139](#).

In [Chapter 6, “Email Security Manager”](#) you will use the predefined sender groups and mail flow policies to quickly and powerfully classify the mail flowing through your gateway, enabling real-time changes to a listener’s HAT.

**Note**

The system acquires and verifies the validity of the remote host's IP address by performing a double DNS lookup. This consists of a reverse DNS (PTR) lookup on the IP address of the connecting host, followed by a forward DNS (A) lookup on the results of the PTR lookup. The system then checks that the results of the A lookup match the results of the PTR lookup. If the results do not match, or if an A record does not exist, the system only uses the IP address to match entries in the HAT.

## Sender Group Syntax

**Table 5-7** *Defining Remote Hosts in the HAT: Sender Group Syntax*

Syntax	Meaning
n.n.n.n	Full (complete) IP Address
n.n.n. n.n.n n.n. n.n n. n	Partial IP address
n.n.n.n-n n.n.n-n. n.n.n-n n.n-n. n.n-n n-n. n-n	Range of IP addresses
yourhost.example.com	A fully-qualified domain name
.partialhost	Everything within the partialhost domain
n/c n.n/c n.n.n/c n.n.n.n/c	CIDR address block
SBRs[n:n] SBRs[none]	SenderBase Reputation Score. For more information, see <a href="#">Sender Groups defined by SenderBase Reputation Scores, page 5-137</a> .
SBO:n	SenderBase Network Owner Identification Number. For more information, see <a href="#">Sender Groups defined by SenderBase Reputation Scores, page 5-137</a> .

**Table 5-7**      *Defining Remote Hosts in the HAT: Sender Group Syntax*

Syntax	Meaning
dnslist[dnsserver.domain]	DNS List query. For more information, see <a href="#">Sender Groups Defined by Querying DNS Lists in the HAT, page 5-138</a> .
ALL	Special keyword that matches ALL addresses. This applies only to the ALL sender group, and is always included (but not listed).

## Sender Groups Defined by Network Owners, Domains, and IP Addresses

Since the SMTP protocol has no built-in method for authenticating senders of email, senders of unsolicited bulk email have been successful at employing a number of tactics for hiding their identity. Examples include spoofing the Envelope Sender address on a message, using a forged HELO address, or simply rotating through different domain names. This leaves many mail administrators asking themselves the fundamental question, “Who is sending me all of this email?” To answer this question, the SenderBase Reputation Service has developed a unique hierarchy for aggregating identity-based information based on the IP address of the connecting host — the one thing that is almost impossible for a sender to forge in a message.

An **IP Address** is defined as the IP address of the sending mail host.

A **Domain** is defined as an entity that uses hostnames with a given second-level domain name (for example, yahoo.com), as determined by a reverse (PTR) lookup on the IP address.

A **Network Owner** is defined as an entity (usually a company) that controls a block of IP addresses, as determined based on IP address space assignments from global registries such as ARIN (the American Registry for Internet Numbers) and other sources.

An **Organization** is defined as an entity that most closely controls a particular group of mail gateways within a network owner’s IP block, as determined by SenderBase. An Organization may be the same as the Network Owner, a division within that Network Owner, or a customer of that Network Owner.

## Setting Policies Based on the HAT

Table 5-8 lists some examples of network owners and organizations.

**Table 5-8 Example of Network Owners and Organizations**

Example Type	Network Owner	Organization
Network Service Provider	Level 3 Communications	Macromedia Inc. AllOutDeals.com GreatOffers.com
Email Service Provider	GE	GE Appliances GE Capital GE Mortgage
Commercial Sender	The Motley Fool	The Motley Fool

As network owners can range dramatically in size, the appropriate entity to base your mail flow policy on is the organization. The SenderBase Reputation Service has a unique understanding of the source of the email down to the organization level, which the IronPort appliance leverages to automatically apply policies based on the organization. In the example above, if a user specified “Level 3 Communications” as a sender group in the Host Access Table (HAT), SenderBase will enforce policies based on the individual organizations controlled by that network owner.

For example, in Table 3-7 above, if a user enters a limit of 10 recipients per hour for Level 3, the IronPort appliance will allow up to 10 recipients per hour for Macromedia Inc., Alloutdeals.com *and* Greatoffers.com (a total of 30 recipients per hour for the Level 3 network owner). The advantage of this approach is that if one of these organizations begins spamming, the other organizations controlled by Level 3 will not be impacted. Contrast this to the example of “The Motley Fool” network owner. If a user sets rate limiting to 10 recipients per hour, the Motley Fool network owner will receive a total limit of 10 recipients per hour.

The IronPort Mail Flow Monitor feature is a way of defining the sender and providing you with monitoring tools to create mail flow policy decisions about the sender. To create mail flow policy decisions about a given sender, ask these questions:

**Step 1 Which IP addresses are controlled by this sender?**

The first piece of information that the Mail Flow Monitor feature uses to control the inbound email processing is the answer to this question. The answer is derived by querying the SenderBase Reputation Service. The SenderBase Reputation Service provides information about the relative size of the sender (either the SenderBase network owner or the SenderBase organization). Answering this question assumes the following:

- Larger organizations tend to control more IP addresses, and send more legitimate email.

**Step 2 Depending on its size, how should the overall number of connections be allotted for this sender?**

- Larger organizations tend to control more IP addresses, and send more legitimate email. Therefore, they should be allotted more connections to your appliance.
- The sources of high-volume email are often ISPs, NSPs, companies that manage outsourced email delivery, or sources of unsolicited bulk email. ISPs, NSPS, and companies that manage outsourced email delivery are examples of organizations that control many IP addresses, and should be allotted more connections to your appliance. Senders of unsolicited bulk email usually do not control many IP addresses; rather, they send large volumes of mail through a few number of IP addresses. They should be allotted fewer connections to your appliance.

The Mail Flow Monitor feature uses its differentiation between SenderBase network owners and SenderBase organizations to determine how to allot connections per sender, based on logic in SenderBase. See the “Using Email Security Monitor” chapter in *Cisco IronPort AsyncOS for Email Daily Management Guide* for more information on using the Mail Flow Monitor feature.



## Sender Groups defined by SenderBase Reputation Scores

The IronPort appliance can query the IronPort SenderBase Reputation Service to determine a sender's reputation score (SBRS). The SBRS is a numeric value assigned to an IP address, domain, or organization based on information from the SenderBase Reputation Service. The scale of the score ranges from -10.0 to +10.0, as described in [Table 5-9](#).

**Table 5-9**      *Definition of the SenderBase Reputation Score*

Score	Meaning
-10.0	Most likely to be a source of spam
0	Neutral, or not enough information to make a recommendation
+10.0	Most likely to be a trustworthy sender
none	No data available for this sender (typically a source of spam)

Using the SBRS, you configure the IronPort appliance to apply mail flow policies to senders based on their trustworthiness. For example, all senders with a score less than -7.5 could be rejected. This is most easily accomplished via the GUI; see [Creating a Sender Group with SenderBase Reputation Scores](#), page 5-154. However, if you are modifying an exported HAT in a text file, the syntax for including SenderBase Reputation Scores is described in [Table 5-10](#). See “Customizing Listeners” in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

**Table 5-10**      *Syntax for SenderBase Reputation Scores within a HAT*

SBRS [ <i>n</i> : <i>n</i> ]	SenderBase Reputation Score. Senders are identified by querying the SenderBase Reputation Service, and the scores are defined between the ranges.
SBRS[none]	Specify no SBRS (very new domains may not have SenderBase Reputation Scores yet).



### Note

Network owners added to a HAT via the GUI use the syntax `SBO:n`, where *n* is the network owner's unique identification number in the SenderBase Reputation Service.

Use the Network > Listeners page or `listenerconfig -> setup` command in the CLI to enable a listener to query the SenderBase Reputation Service. You can also define the timeout value that the appliance should wait when querying the SenderBase Reputation Service. Then, you can configure different policies to use look ups to the SenderBase Reputation Service by using the values in the Mail Policies Pages in the GUI or the `listenerconfig -> edit -> hostaccess` commands in the CLI.

**Note**

You can also create message filters to specify “thresholds” for SenderBase Reputation Scores to further act upon messages processed by the system. For more information, see “SenderBase Reputation Rule,” “Bypass Anti-Spam System Action,” and “Bypass Anti-Virus System Action” in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

## Sender Groups Defined by Querying DNS Lists in the HAT

You also have the ability in a listener’s HAT to define a sender group as matching a query to a specific DNS List sever. The query is performed via DNS at the time of the remote client’s connection. The ability to query a remote list also exists currently as a message filter rule (see “DNS List Rule” in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*), but only once the message content has been received in full.

This mechanism allows you to configure a sender within a group that queries a DNS List so that you can adjust your mail flow policies accordingly. For example, you could reject connections or limit the behavior of the connecting domain.

**Note**

Some DNS Lists use variable responses (for example, “127.0.0.1” versus “127.0.0.2” versus “127.0.0.3”) to indicate various facts about the IP address being queried against. If you use the message filter DNS List rule (see “DNS List Rule” in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*), you can compare the result of the query against different values. However, specifying a DNS List server to be queried in the HAT only supports a Boolean operation for simplicity (that is, does the IP address appear in the list or not)

**Note**

Be sure to include brackets in the query in the CLI. Brackets are not necessary when specifying a DNS List query in the GUI. Use the `dnslistconfig` command in the CLI to test a query, configure general settings for DNL queries, or flush the current DNS list cache.

Note that this mechanism can be used to identify “good” connections as well as “bad” connections. For example, a query to `query.bondedsender.org` will match on connecting hosts who have posted a financial bond with IronPort Systems’ Bonded Sender™ program to ensure the integrity of their email campaign. You could modify the default WHITELIST sender group to query the Bonded Sender program’s DNS servers (which lists these legitimate email senders who have willingly posted bonds) and adjust the mail flow policy accordingly.

## Predefined Mail Flow Policies for Public Listeners

When combined with an access rule (ACCEPT or REJECT), the parameters listed in [Table 5-3 on page 5-118](#) are predefined as the following four mail flow policies for each *public* listener you create:

- \$ACCEPTED
- \$BLOCKED
- \$THROTTLED
- \$TRUSTED

To access the predefined mail flow policies for a listener:

---

**Step 1** Access the GUI. (See [Accessing the GUI, page 2-25](#).)

**Step 2** Click Mail Policies > HAT Overview.

The Overview page is displayed. If listeners are configured, the Host Access Table overview page defined for the first alphabetical listener is displayed. Select the desired listener from the Listener list.

**Figure 5-11**      *Predefined Mail Flow Policies for Public Listeners*

Order	Sender Group	SenderBase™ Reputation Score ?	Mail Flow Policy	Delete
1	WHITELIST		TRUSTED	
2	BLACKLIST		BLOCKED	
3	SUSPECTLIST		THROTTLED	
4	UNKNOWNLIST		ACCEPTED	
	ALL		ACCEPTED	

**Step 3**      Click the name of a Mail Flow Policy to view the connection behavior and parameters for that policy.



**Note**      By default, C10/100 customers are prompted to create only one public listener during the `systemsetup` command. Public listeners created on IronPort C10/100 appliances also include a \$RELAYED mail flow policy that is used to relay mail for internal systems (as shown in [Figure 5-12](#)). For more information, see [RELAYLIST](#), [page 5-147](#). The \$RELAYLIST policy is shown only on private listeners on IronPort X1000/1050/1060, C60/600/650/660, and C30/300/350/360 appliances.

**Figure 5-12** *Predefined Mail Flow Policies for Single Listener*

Sender Groups (Listener: IncomingMail)		SenderBase™ Reputation Score ?											Mail Flow Policy	Delete
Order	Sender Group	-10	-8	-6	-4	-2	0	2	4	6	8	+10		
1	RELAYLIST												RELAYED	
2	WHITELIST												TRUSTED	
3	BLACKLIST												BLOCKED	
4	SUSPECTLIST												THROTTLED	
5	UNKNOWNLIST												ACCEPTED	
	ALL												ACCEPTED	

In this table, “Default” means that the default value as defined by the listener is used.

**Table 5-11** *Predefined Mail Flow Policies for Public Listeners*

Policy Name	Primary Behavior (Access Rule)	Parameters	Value
<b>\$ACCEPTED</b> (Used by All)	ACCEPT	Maximum messages / session: Maximum recipients / message: Maximum message size: Maximum concurrent connections: SMTP Banner Code: SMTP Banner Text: Override Hostname: Use TLS: Use McAfee virus scanning: Maximum recipients / hour: Maximum rcpt / hour Error Code: Max recipients / hour Text: Use SenderBase:	Default Default Default Default Default Default Default Default Default No default Default Default ON

Note: All parameters for the \$ACCEPTED policy are user-defined in the CLI `systemsetup` and `listenerconfig` commands. Select “y” when prompted with the question:

Would you like to change the default host access policy?  
 to modify these values. To change these values using the GUI, follow the steps in [Figure 5-7Viewing Default Mail Flow Policies](#), [page 5-125](#).

**Table 5-11** *Predefined Mail Flow Policies for Public Listeners (Continued)*

Policy Name	Primary Behavior (Access Rule)	Parameters	Value
<b>\$BLOCKED</b>	REJECT	Maximum messages / session: Maximum recipients / message: Maximum message size: Maximum concurrent connections: SMTP Banner Code: SMTP Banner Text: Override Hostname: Use TLS: Use McAfee virus scanning: Maximum recipients / hour: Maximum rcpt / hour Error Code: Max recipients / hour Text: Use SenderBase:	N/A N/A N/A N/A Default Default Default N/A N/A N/A N/A N/A N/A N/A
<b>\$THROTTLED</b>	ACCEPT	Maximum messages / session: Maximum recipients / message: Maximum message size: Maximum concurrent connections: SMTP Banner Code: SMTP Banner Text: Override Hostname: Use TLS: Use McAfee virus scanning: Maximum recipients / hour: Maximum rcpt / hour Error Code: Max recipients / hour Text: Use SenderBase: Envelope Sender DNS Ver:	1 25 10MB 1 Default Default Default Default Default* 20 Default Default ON ON
<b>\$TRUSTED</b>	ACCEPT	Maximum messages / session: Maximum recipients / message: Maximum message size: Maximum concurrent connections: SMTP Banner Code: SMTP Banner Text: Override Hostname: Use TLS: Use McAfee virus scanning: Maximum recipients / hour: Maximum rcpt / hour Error Code: Max recipients / hour Text: Use SenderBase:	5,000 5,000 100 MB 600 Default Default Default Default OFF* -1(Disable) N/A N/A OFF

\* If enabled.

\$ACCEPTED is a named policy, which is the same as the public listener's default HAT settings. You can assign the \$ACCEPTED policy to any sender group you create. (See [Adding a New Sender Group](#), page 5-148 and [Connections](#), page 5-118. See also [Working with the HAT](#), page 5-160).

The final ALL entry in a HAT for a public listener also uses the \$ACCEPTED policy as the primary behavior.

Each public listener, by default, has the sender groups and corresponding mail flow policies shown in [Table 5-12](#) defined by default.

**Table 5-12**      ***Predefined Sender Groups and Mail Flow Policies for Public Listeners***

This Sender Group:	Uses this Mail Flow Policy:
WHITELIST	\$TRUSTED
BLACKLIST	\$BLOCKED
SUSPECTLIST	\$THROTTLED
UNKNOWNLIST	\$ACCEPTED

These four basic sender groups and mail flow policies enable a framework for you to begin classifying the email flowing into your gateway on a public listener. In “Using Email Security Monitor” in the *Cisco IronPort AsyncOS for Email Daily Management Guide*, you will be able to see the real-time flow of email into your gateway and be able to make changes to a listener's HAT in real-time. (You can add IP addresses, domains, or organizations to an existing sender group, edit the existing or pre-defined policies, or create new mail flow policies.)

## WHITELIST

Add senders you trust to the Whitelist sender group. The \$TRUSTED mail flow policy is configured so that email from senders you trust has no rate limiting enabled, and the content from those senders is not scanned by the Anti-Spam or Anti-Virus software.

## BLACKLIST

Senders in the Blacklist sender group are rejected (by the parameters set in the \$BLOCKED mail flow policy). Adding senders to this group rejects connections from those hosts by returning a 5XX SMTP response in the SMTP HELO command.

## SUSPECTLIST

The Suspectlist sender group contains a mail flow policy that throttles, or slows, the rate of incoming mail. If senders are suspicious, you can add them to the Suspectlist sender group, where the mail flow policy dictates that:

- Rate limiting limits the maximum number of messages per session, the maximum number of recipients per message, the maximum message size, and the maximum number of concurrent connections you are willing to accept from a remote host.
- The maximum recipients per hour from the remote host is set to 20 recipients per hour. Note that this setting is the maximum throttling available. You can increase the number of recipients to receive per hour if this parameter is too aggressive.
- The content of messages will be scanned by the anti-spam scanning engine and the anti-virus scanning engine (if you have these feature enabled for the system).
- The IronPort SenderBase Reputation Service will be queried for more information about the sender.

## UNKNOWNLIST

The Unknownlist sender group may be useful if you are undecided about the mail flow policy you should use for a given sender. The mail flow policy for this group dictates that mail is accepted for senders in this group, but the IronPort Anti-Spam software (if enabled for the system), the anti-virus scanning engine, and the IronPort SenderBase Reputation Service should all be used to gain more information about the sender and the message content. Rate limits for senders in this group are also enabled with default values. For more information on virus scanning engines, see [Anti-Virus Scanning, page 9-302](#). For more information on the SenderBase Reputation Service, see [Reputation Filtering, page 7-246](#).



## Predefined Mail Flow Policies for Private Listeners

When combined with an access rule (RELAY or REJECT), the parameters listed in [Table 5-3](#) are predefined as the following two mail flow policies for each *private* listener you create:


- \$RELAYED
- \$BLOCKED

These policies are summarized in [Table 5-12](#).

**Figure 5-13** *Predefined Mail Flow Policies for a Private Listener*

Sender Groups (Listener: OutgoingMail )

Add Sender Group...Import HAT...

Order	Sender Group	SenderBase™ Reputation Score ?											Mail Flow Policy	Delete
		-10	-8	-6	-4	-2	0	2	4	6	8	+10		
1	RELAYLIST												RELAYED	
	ALL												BLOCKED	

Edit Order...Export HAT...

**Table 5-13**      **Predefined Mail Flow Policies for Private Listeners**

Policy Name	Primary Behavior (Access Rule)	Parameters	Value
<b>\$RELAYED</b>	RELAY	Maximum messages / session: Maximum recipients / message: Maximum message size: Maximum concurrent connections: SMTP Banner Code: SMTP Banner Text: Override Hostname: Use TLS: Use Sophos virus scanning: Maximum recipients / hour: Maximum rcpt / hour Error Code: Max recipients / hour Text: Use SenderBase:	Default Default Default Default Default Default Default Default Off (if enabled) -1 (Disabled) Not applicable Not applicable Default
<b>\$BLOCKED</b> (Used by All)	REJECT	Maximum messages / session: Maximum recipients / message: Maximum message size: Maximum concurrent connections: SMTP Banner Code: SMTP Banner Text: Override Hostname: Use TLS: Use Sophos virus scanning: Maximum recipients / hour: Maximum rcpt / hour Error Code: Max recipients / hour Text: Use SenderBase:	Not applicable Not applicable Not applicable Not applicable Default Default Default Not applicable Not applicable Not applicable Not applicable Not applicable Not applicable

\$BLOCKED is a named policy, which is the same as the private listener's default HAT settings. The final ALL entry in a HAT for a private listener also uses the \$BLOCKED policy as the default behavior.

Each private listener, by default, has the following predefined sender group and corresponding mail flow policy shown in [Table 5-14](#) defined by default:

**Table 5-14** *Predefined Sender Groups and Mail Flow Policies for Private Listener*

This Sender Group:	Uses this Mail Flow Policy:
RELAYLIST	\$RELAYED
ALL	\$BLOCKED

This basic sender group and mail flow policy enables a framework for you to begin classifying the email flowing out of your gateway on a private listener.

## RELAYLIST

Add senders you know should be allowed to relay to the Relaylist sender group. The \$RELAYED mail flow policy is configured so that email from senders you are allowing to relay has no rate limiting, and the content from those senders is not scanned by the anti-spam scanning engine or anti-virus software.



### Note

The systems you allowed to relay email through the IronPort appliance when you created an outbound (private) listener in the GUI System Setup wizard (or CLI `systemsetup` command) are automatically added to the RELAYLIST sender group. See [Step 3: Network, page 3-60](#).



### Note

By default, C10/100 customers are prompted to create only one public listener during the `systemsetup` command. Public listeners created on IronPort C10/100 appliances also include a \$RELAYED mail flow policy that is used to relay mail for internal systems.

## Managing Sender Groups and Mail Flow Policies via the GUI

The Mail Policies > HAT Overview and Mail Flow Policy pages allow you to configure a HAT settings for a listener. From these pages, you can:

- See the mapping of sender groups to mail flow policies.

- Create, edit, or delete sender groups.
- Create, edit, or delete mail flow policies.
- Re-order HAT entries for a listener.

Click the Mail Policies > HAT Overview link. See [Figure 5-14](#). Choose the listener you want to configure from the Listener: drop-down list.

**Figure 5-14** *Host Access Table Overview Page*  
**HAT Overview**

**Find Senders**

Find Senders that Contain this Text:

**Sender Groups (Listener: IncomingMail (172.19.1.86:25) )**

Order	Sender Group	SenderBase™ Reputation Score <span>?</span>											Mail Flow Policy	Delete	
		-10	-8	-6	-4	-2	0	2	4	6	8	+10			
1	WHITELIST													TRUSTED	
2	BLACKLIST													BLOCKED	
3	SUSPECTLIST													THROTTLED	
4	UNKNOWNLIST													ACCEPTED	
	ALL													ACCEPTED	

Key:

From the HAT Overview page, you can add a sender group and edit the mail flow policies for a listener.

## Adding a New Sender Group

To add a new sender group, follow these steps:

- Step 1** From the HAT Overview page, click **Add Sender Group**.

**Figure 5-15 Add Sender Group Page**

Sender Group Settings	
Name:	<input type="text"/>
Order:	5 <input type="button" value="v"/>
Comment:	<input type="text"/>
Policy:	select a policy... <input type="button" value="v"/>
SBRS (Optional):	<input type="text"/> to <input type="text"/> <input type="checkbox"/> Include SBRS Scores of "None" <i>Recommended for suspected senders only.</i>
DNS Lists (Optional):	? <input type="text"/>
Connecting Host DNS Verification:	<input type="checkbox"/> Connecting host PTR record does not exist in the DNS. <input type="checkbox"/> Connecting host PTR record lookup fails due to temporary DNS failure. <input type="checkbox"/> Connecting host reverse DNS lookup (PTR) does not match the forward DNS lookup (A)

- Step 2** Type the name of the sender group, select the order in which it will be placed in the list of sender groups, and a comment (optional) in the fields provided.
- Step 3** If you do not know the mail flow policy you would like to apply to this group (or if no mail flow policies exist yet), then use the default “CONTINUE (no policy)” mail flow policy. Otherwise, choose a mail flow policy from the drop-down list.
- Step 4** Select a SBRS range and DNS list (optional). You can also mark the checkbox to include senders for which SBRS has no information. This is referred to as “none” and generally denotes a suspect.
- Step 5** Configure any host DNS verification settings (see [Implementing Sender Verification — Example Settings, page 5-166](#)).
- Step 6** Click **Submit** to save the sender group and return to the Host Access Table page, or... click **Submit and Add Senders** to create the group and begin adding senders to it.
- Step 7** Commit your changes.



**Note**

If you attempt to enter duplicate entries (identical domain or IP addresses) in a single sender group, the duplicates are discarded.

## Editing a Sender Group

To edit a sender group:

- Step 1** From the HAT Overview page, click the name of an existing sender group. The selected sender group is displayed:

**Figure 5-16** *Sender Group Detail Page*  
**Sender Group: WHITELIST**

Sender Group Settings	
Name:	WHITELIST
Order:	1
Comment:	My trusted senders have no Brightmail or rate limiting
Policy:	TRUSTED
SBRS (Optional):	Not in use
DNS Lists (Optional):	None
Connecting Host DNS Verification:	None Included
<a href="#">&lt;&lt; Back to HAT Overview</a> <a href="#">Edit Settings...</a>	

Find Senders	
Find Senders that Contain this Text:	<input type="text"/> <input type="button" value="Find"/>

Sender List: Display All Items in List	
<input type="button" value="Add Sender..."/>	
There are no senders.	

- Step 2** Click **Edit Settings** The Edit Sender Group page is displayed.

**Figure 5-17 Edit Sender Group Page**  
**Edit Sender Group Settings: WHITELIST**

Sender Group Settings	
Name:	WHITELIST
Order:	1
Comment:	My trusted senders have no Brightmail or rate limiting
Policy:	TRUSTED
SBRS (Optional):	<div>6.0 to 10.0</div> <input type="checkbox"/> Include SBRS Scores of "None" <i>Recommended for suspected senders only.</i>
DNS Lists (Optional):	
Connecting Host DNS Verification:	<input type="checkbox"/> Connecting host PTR record does not exist in the DNS. <input type="checkbox"/> Connecting host PTR record lookup fails due to temporary DNS failure. <input type="checkbox"/> Connecting host reverse DNS lookup (PTR) does not match the forward DNS lookup (A)

**Step 3** Make changes to the sender group and click **Submit**.

**Step 4** Commit your changes.

## Deleting a Sender Group

To delete a sender group:

**Step 1** From the HAT Overview page, click the trash can icon in the Delete column for the sender group to delete. You are prompted to confirm the deletion.

**Step 2** Click **Yes** to delete the sender group, or click **No** to cancel.

**Step 3** Commit your changes.

## Adding a New Mail Flow Policy

To add a new mail flow policy, follow these steps:

**Step 1** Click the Mail Policies > Mail Flow Policies link. The Mail Flow Policies page is displayed.

**Step 2** Click **Add Policy**. The Mail Flow Policies Add Policy page is displayed.

- Step 3** Enter the information for the Mail Flow Policy.
- Step 4** Configure envelope sender DNS verification settings (see [Implementing Sender Verification — Example Settings, page 5-166](#)).
- Step 5** Submit and commit your changes.

**Note**

Defaults for the policy are “greyed out” while the “Use Default” radio button is selected. To overwrite the default values, enable the feature or setting by selecting the “On” radio button and making changes to the now accessible values.

**Note**

The Custom SMTP Banner Text and Max. Recipients Per Hour text string fields support the HAT variables discussed in [HAT Variable Syntax, page 5-123](#).

**Note**

Some parameters depend on certain pre-configurations. (For example, the Directory Harvest Attack prevention setting requires that you have configured an LDAP Acceptance Query.)

## Editing a Mail Flow Policy

To edit a mail flow policy:

- Step 1** From the Mail Flow Policy overview page, click the name of a policy. The Mail Flow Policy Edit Policy page is displayed.
- Step 2** Make changes to the policy.
- Step 3** Submit and commit your changes.

## Deleting a Mail Flow Policy

To delete a mail flow policy:

- Step 1** Click the trash can icon in the delete column for the mail flow policy to delete. You are prompted to confirm the deletion.
- Step 2** Click **Yes** to delete the mail flow policy, or click **No** to cancel.




**Step 3** Commit your changes.

## Adding a Sender to a Sender Group

To add a sender to an existing sender group, follow these steps:

**Step 1** From a domain, IP, or network owner profile page, click the Add to Sender Group link.

**Figure 5-18** Add to Sender Group Link on a Profile Page

Current Information for rr.com		
Current Information from SenderBase	Sender Group Information	Network Information
Daily Magnitude: 8.0 Monthly Magnitude: 7.7 Days Since First Message from this Domain: 2630.8 days	Last Sender Group: UNKNOWNLIST	Network Owner: Road Runner
More from SenderBase 	Add to Sender Group...	

The Add to Sender Group page is displayed. See [Figure 5-19](#).

**Figure 5-19** Add to Sender Group Page

Sender	
Sender:	.fxp0.run, fxp0.run
Sender Group:	OutgoingMail (10.10.2.10:25) <span>Select a Sender Group...</span> IncomingMail (10.10.1.10:25) <span>Select a Sender Group...</span>
Comment:	<input type="text"/>
<div> <span>Cancel</span> <div>           WHITELIST            BLACKLIST            SUSPECTLIST            UNKNOWNLIST            ALL         </div> <span>Submit</span> </div>	

**Step 2** Choose the sender group from the list defined for each listener.

**Step 3** Click **Submit** to add the domain to the selected sender groups, or click **Cancel**.

**Step 4** Commit your changes.



### Note

When you add a domain to a sender group, two actual domains are listed in the GUI. For example, if you were adding the domain `example.net`, on the Add to Sender Group page, both `example.net` and `.example.net` are added. The second entry ensures that any host in the subdomain of `example.net` will be added to the sender group. For more information, see [Sender Group Syntax](#), page 5-133.

**Note**

If one or more of the senders you are adding to a sender group is a duplicate of a sender that is already present in that sender group, the duplicate senders will not be added and you will see a confirmation message.

---

**Success** — Added sender(s) to sender group(s). Some duplicates existed and were not added.

---

**Step 5** Click **Save** to add the sender and return to the Incoming Mail Overview page.

## Adding a Sender to a New Sender Group

To add a sender to an new sender group, follow these steps:

- 
- Step 1** When creating a new Sender Group, click **Submit and Add Senders**. The Add Sender page is displayed.
  - Step 2** Enter a sender.
  - Step 3** Enter an optional comment for the sender.
  - Step 4** Click **Submit** to add the domain to the sender group, or click **Cancel**.
  - Step 5** Commit your changes.

## Creating a Sender Group with SenderBase Reputation Scores

To add a sender group based on SenderBase Reputation Scores, follow these steps:

- 
- Step 1** Click **Add Sender Group** from the HAT Overview page.
  - Step 2** On the Add Sender Group page, type the name of the sender group and an optional comment.
  - Step 3** Choose a mail flow policy from the list.
  - Step 4** In the Senders section, choose SBRS from the drop-down list and click **Add Sender**.  
The page refreshes.
  - Step 5** Type the range in the SBRS from: and to: fields, and an optional comment.

In Figure 5-20, senders with a SenderBase Reputation Score less than -7.5 are blocked using the BLOCKED mail flow policy.

**Figure 5-20** *Creating a Sender Group with SenderBase Reputation Scores (1)*  
**Add Sender Group**

Sender Group Settings	
Name:	Bad_Reputation
Order:	1
Comment:	Block senders with a bad SenderBase Reputation Score
Policy:	BLOCKED
SBRs (Optional):	-7.5 to -10 <input type="checkbox"/> Include SBRs Scores of "None" <i>Recommended for suspected senders only.</i>
DNS Lists (Optional): ?	
Connecting Host DNS Verification:	<input type="checkbox"/> Connecting host PTR record does not exist in the DNS. <input type="checkbox"/> Connecting host PTR record lookup fails due to temporary DNS failure. <input type="checkbox"/> Connecting host reverse DNS lookup (PTR) does not match the forward DNS lookup (A)

In Figure 5-21, senders with a SenderBase Reputation Score greater than 8.0 bypass the anti-spam scanning for the listener:

**Figure 5-21**      **Creating a Sender Group with SenderBase Reputation Scores (2)**

### Add Sender Group

Sender Group Settings	
Name:	Good_Reputation
Order:	1
Comment:	Trust senders with a good SenderBase Reputation Score
Policy:	TRUSTED
SBRS (Optional):	8.0 to 10 <input type="checkbox"/> Include SBRS Scores of "None" <i>Recommended for suspected senders only.</i>
DNS Lists (Optional): ?	
Connecting Host DNS Verification:	<input type="checkbox"/> Connecting host PTR record does not exist in the DNS. <input type="checkbox"/> Connecting host PTR record lookup fails due to temporary DNS failure. <input type="checkbox"/> Connecting host reverse DNS lookup (PTR) does not match the forward DNS lookup (A)



**Note** You can also modify the default policies of the TRUSTED and BLOCKED to include senders based on SenderBase Reputation Scores using these same parameters. See [Implementing SenderBase Reputation Filters, page 7-250](#) for more information.

- Step 6** Click **Submit** to create the sender group based on SenderBase Reputation Scores.
- Step 7** Commit your changes.

**Figure 5-22 Host Access Table Using SenderBase Reputation Scores HAT Overview**

**Find Senders**

Find Senders that Contain this Text:

**Sender Groups (Listener: IncomingMail (172.19.1.86:25))**

Order	Sender Group	SenderBase™ Reputation Score <span>?</span>											Mail Flow Policy	Delete	
		-10	-8	-6	-4	-2	0	2	4	6	8	+10			
1	WHITELIST													TRUSTED	
2	BLACKLIST													BLOCKED	
3	SUSPECTLIST													THROTTLED	
4	UNKNOWNLIST													ACCEPTED	
5	Bad_Reputation													BLOCKED	
6	Good_Reputation													TRUSTED	
	ALL													ACCEPTED	

## Reordering the HAT

The order of entries in a HAT is important. Remember that the HAT is read from top to bottom for each host that attempts to connect to the listener. If a rule matches a connecting host, the action is taken for that connection immediately.

For example, if you specify a CIDR block in Sender Group A (using policy 1) and create Sender Group B for an IP address within that CIDR block, the policy in Sender Group B will never be applied.

To edit the order of entries in a HAT:

- Step 1** From the HAT Overview page, click **Edit Order**. The Edit Sender Group Order page is displayed.
- Step 2** Type the new order for existing rows of the HAT.
- Step 3** Submit and commit your changes.

The HAT Overview page refreshes with the new order displayed.

In the following example shown in [Figure 5-23](#), the order is being changed so that trusted senders are processed first, blocked senders are processed next, and unknown or suspected senders are processed last.

**Figure 5-23** *Changing the Order of Entries in the HAT*  
**Edit Sender Group Order**

Sender Groups (Listener: IncomingMail (172.19.1.86:25))												
Order	Sender Group	SenderBase™ Reputation Score <span>?</span>										Mail Flow Policy
<div>1</div>	WHITELIST											TRUSTED
<div>3</div>	BLACKLIST											BLOCKED
<div>5</div>	SUSPECTLIST											THROTTLED
<div>6</div>	UNKNOWNLIST											ACCEPTED
<div>4</div>	Bad_Reputation											BLOCKED
<div>2</div>	Good_Reputation											TRUSTED
	ALL											ACCEPTED

Cancel

Submit

## Searching for Senders

You can find senders by entering text in the Find Senders field at the top of the HAT Overview page. Enter the text to search with and click Find.

## Modifying the HAT for a Listener via the GUI

Log in to the Graphical User Interface (GUI) and click the Mail Policies tab. (For information about how to access the GUI, see [Accessing the GUI, page 2-25](#).) Click the HAT Overview link in the left menu. The Host Access Table Overview page is displayed:

**Figure 5-24 The Host Access Table Overview Page**  
**HAT Overview**

**Find Senders**

Find Senders that Contain this Text:

---

**Sender Groups (Listener: IncomingMail (172.19.1.86:25) )**

Order	Sender Group	SenderBase™ Reputation Score ?											Mail Flow Policy	Delete	
		-10	-8	-6	-4	-2	0	2	4	6	8	+10			
1	WHITELIST													TRUSTED	
2	BLACKLIST													BLOCKED	
3	SUSPECTLIST													THROTTLED	
4	UNKNOWNLIST													ACCEPTED	
	ALL													ACCEPTED	

The Host Access Table Overview shows a listing of the sender groups in the HAT, including the order, SenderBase Reputation Score range, and associated Mail Flow Policy.

From the Host Access Table Overview, you can:

- Add sender groups to the HAT
- Delete sender groups from the HAT
- Modify existing sender groups
- Change the order of the entries
- Import a HAT (overwrites existing entries) from a file (importing and exporting the HAT is described below, see [Working with the HAT, page 5-160](#))
- Export the HAT to a file
- Search for senders

Once you are editing a sender group, you can:

- Add senders to (and remove senders from) sender groups
- Edit settings for a sender group

For more information about working with Sender Groups, see [Managing Sender Groups and Mail Flow Policies via the GUI, page 5-147](#).

## Working with the HAT

### Exporting the HAT

To export the HAT:

- 
- Step 1** Click **Export HAT** The Export Host Access Table page is displayed:

**Figure 5-25**      *Exporting the HAT*  
**Export HAT**



- Step 2** Enter a file name for the exported HAT. This is the name of the file that will be created in the configuration directory on the appliance.
- Step 3** Submit and commit your changes.

### Importing a HAT

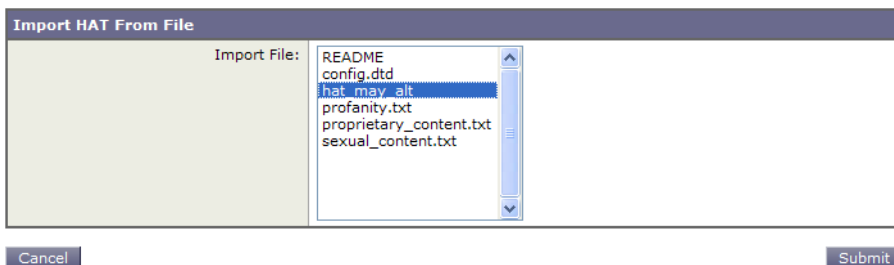
When you import a HAT, all of the existing HAT entries are removed from the current HAT.

To import a HAT from a file:

- 
- Step 1** Click **Import HAT** The Import Host Access Table page is displayed:



**Figure 5-26**      *Exporting a HAT*  
**Import HAT**



**Step 2**      Select a file from the list.



**Note**      The file to import must be in the configuration directory on the appliance.

**Step 3**      Click **Submit**. You will see a warning message, asking you to confirm that you wish to remove all of the existing HAT entries.

**Step 4**      Click **Import**.

**Step 5**      Commit your changes.

You can place “comments” in the file. Lines that begin with a ‘#’ character are considered comments and are ignored by AsyncOS. For example:

```
# File exported by the GUI at 20060530T215438

$BLOCKED

    REJECT {}

[ ... ]
```

## Sender Verification

Spam and unwanted mail is frequently sent by senders whose domains or IP addresses cannot be resolved by DNS. DNS verification means that you can get reliable information about senders and process mail accordingly. Sender

verification prior to the SMTP conversation (connection filtering based on DNS lookups of the sender's IP address) also helps reduce the amount of junk email processed through the mail pipeline on the IronPort appliance.

Mail from unverified senders is not automatically discarded. Instead, AsyncOS provides sender verification settings that allow you to determine how the appliance handles mail from unverified senders: you can configure your IronPort appliance to automatically block all mail from unverified senders prior to the SMTP conversation or throttle unverified senders, for example.

The sender verification feature consists of two components: verification of the connecting host, which occurs prior to the SMTP conversation, and verification of the domain portion of the envelope sender, which occurs during the SMTP conversation.

## Sender Verification: Host

Senders can be unverified for different reasons. For example, the DNS server could be “down” or not responding, or the domain may not exist. Host DNS verification settings for sender groups allow you to classify unverified senders prior to the SMTP conversation and include different types of unverified senders in your various sender groups.

The IronPort appliance attempts to verify the sending domain of the connecting host via DNS for incoming mail. This verification is performed prior to the SMTP conversation. The system acquires and verifies the validity of the remote host's IP address (that is, the domain) by performing a *double DNS lookup*. A double DNS lookup is defined as a reverse DNS (PTR) lookup on the IP address of the connecting host, followed by a forward DNS (A) lookup on the results of the PTR lookup. The appliance then checks that the results of the A lookup match the results of the PTR lookup. If the PTR or A lookups fail, or the results do not match, the system uses only the IP address to match entries in the HAT and the sender is considered as not verified.

Unverified senders are classified into three categories:

- Connecting host PTR record does not exist in the DNS.
- Connecting host PTR record lookup fails due to temporary DNS failure.
- Connecting host reverse DNS lookup (PTR) does not match the forward DNS lookup (A).

Using the sender group “Connecting Host DNS Verification” settings, you can specify a behavior for unverified senders (see [Implementing Host Sender Verification for the SUSPECTLIST Sender Group, page 5-167](#)).

You can enable host DNS verification in the sender group settings for any sender group; however, keep in mind that adding host DNS verification settings to a sender group means *including* unverified senders in that group. That means that spam and other unwanted mail will be included. Therefore, you should only enable these settings on sender groups that are used to reject or throttle senders. Enabling host DNS verification on the WHITELIST sender group, for example, would mean that mail from unverified senders would receive the same treatment as mail from your trusted senders in your WHITELIST (including bypassing anti-spam/anti-virus checking, rate limiting, etc., depending on how the mail flow policy is configured).

## Sender Verification: Envelope Sender

With envelope sender verification, the domain portion of the envelope sender is DNS verified. (Does the envelope sender domain resolve? Is there an A or MX record in DNS for the envelope sender domain?) A domain does not resolve if an attempt to look it up in the DNS encounters a temporary error condition such as a timeout or DNS server failure. On the other hand, a domain does not exist if an attempt to look it up returns a definitive “domain does not exist” status. This verification takes place during the SMTP conversation whereas host DNS verification occurs before the conversation begins — it applies to the IP address of connecting SMTP server.

In more detail: AsyncOS performs an MX record query for the domain of the sender address. AsyncOS then performs an A record lookup based on the result of the MX record lookup. If the DNS server returns “NXDOMAIN” (there is no record for this domain), AsyncOS treats that domain as non-existent. This falls into the category of “Envelope Senders whose domain does not exist.” NXDOMAIN can mean that the root name servers are not providing any authoritative name servers for this domain.

However, if the DNS server returns “SERVFAIL,” it is categorized as “Envelope Senders whose domain does not resolve.” SERVFAIL means that the domain does exist but DNS is having transient problems looking up the record.

A common technique for spammers or other illegitimate senders of mail is to forge the MAIL FROM information (in the envelope sender) so that mail from unverified senders that is accepted will be processed. This can lead to problems as bounce messages sent to the MAIL FROM address are undeliverable. Using envelope sender verification, you can configure your IronPort appliance to reject mail with malformed (but not blank) MAIL FROMs.

For each mail flow policy, you can:

- Enable envelope sender DNS verification.
- Offer custom SMTP code and response for malformed envelope sender. Malformed envelope senders are blocked if you have enabled envelope sender DNS verification.
- Offer custom response for envelope sender domains which do not resolve.
- Offer custom response for envelope sender domains which do not exist in DNS.

You can use the sender verification exception table to store a list of domains or addresses from which mail will be automatically allowed or rejected (see [Sender Verification Exception Table, page 5-165](#)). The sender verification exception table can be enabled independently of Envelope Sender verification. So, for example, you can still reject special addresses or domains specified in the exception table without enabling envelope sender verification. You can also always allow mail from internal or test domains, even if they would not otherwise be verified.

Though most spam is from unverifiable senders, there are reasons why you might want to accept mail from an unverified sender. For example, not all legitimate email can be verified through DNS lookups — a temporary DNS server problem can stop a sender from being verified.

When mail from unverified senders is attempted, the sender verification exception table and mail flow policy envelope sender DNS verification settings are used to classify envelope senders during the SMTP conversation. For example, you may accept and throttle mail from sending domains that are not verified because they do not exist in DNS. Once that mail is accepted, messages with malformed MAIL FROMs are rejected with a customizable SMTP code and response. This occurs during the SMTP conversation.

You can enable envelope sender DNS verification (including the domain exception table) in the mail flow policy settings for any mail flow policy via the GUI or the CLI (`listenerconfig -> edit -> hostaccess -> <policy>`).

## Partial Domains, Default Domains, and Malformed MAIL FROMs

If you enable envelope sender verification or disable allowing partial domains in SMTP Address Parsing options for a listener (see the SMTP Address Parsing Options section in “Customizing Listeners” in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*), the default domain settings for that listener will no longer be used.

These features are mutually exclusive.

## Custom SMTP Code and Response

You can specify the SMTP code and response message for messages with malformed envelope senders, for envelope senders which do not exist in DNS, and for envelope senders which do not resolve via DNS queries (DNS server might be down, etc.).

In the SMTP response, you can include a variable, `$EnvelopeSender`, which is expanded to the value of the envelope sender when the custom response is sent.

While typically a “Domain does not exist” result is permanent, it is possible for this to be a transient condition. To handle such cases, “conservative” users may wish to change the error code from the default 5XX to a 4XX code.

## Sender Verification Exception Table

The sender verification exception table is a list of domains or email addresses that will either be automatically allowed or rejected during the SMTP conversation. You can also specify an optional SMTP code and reject response for rejected domains. There is only one sender verification exception table per IronPort appliance and it is enabled per mail flow policy.

The sender verification exception table can be used to list obviously fake but correctly formatted domains or email addresses from which you want to reject mail. For example, the correctly formatted MAIL FROM: `pres@whitehouse.gov` could be listed in the sender verification exception table and set to be automatically rejected. You can also list domains that you want to automatically allow, such as internal or test domains. This is similar to envelope recipient (SMTP RCPT TO command) processing which occurs in the Recipient Access Table (RAT).

The sender verification exception table is defined in the GUI via the Mail Policies > Exception Table page (or the CLI, via the `exceptionconfig` command) and then is enabled on a per-policy basis via the GUI (see [Implementing Sender Verification for the ACCEPTED Mail Flow Policy](#), page 5-171) or the CLI (see the *Cisco IronPort AsyncOS CLI Reference Guide*).

Entries in the sender verification exception table have the following syntax:

**Figure 5-27 Exception Table Listing**

Order	Exception	Behavior	SMTP Response	Delete
1	pres@whitehouse.gov	Allow	N/A	

See [Creating the Sender Verification Exception Table via the GUI](#), page 5-172 for more information about modifying the exception table.

## Implementing Sender Verification — Example Settings

This section provides an example of a typical conservative implementation of host and envelope sender verification.

For this example, when implementing host sender verification, mail from connecting hosts for which reverse DNS lookup does not match is throttled via the existing SUSPECTLIST sender group and THROTTLED mail flow policy.

A new sender group (UNVERIFIED) and a new mail flow policy (THROTTLEMORE) are created. Mail from connecting hosts which are not verified will be throttled (using the UNVERIFIED sender group and the more aggressive THROTTLEMORE mail flow policy) prior to the SMTP conversation.

Envelope sender verification is enabled for the ACCEPTED mail flow policy.

Table 5-15 shows the suggested settings for implementing sender verification:

**Table 5-15 Sender Verification: Suggested Settings**

Sender Group	Policy	Include
UNVERIFIED	THROTTLEMORE	Prior to SMTP conversation: Connecting host PTR record does not exist in the DNS.
SUSPECTLIST	THROTTLED	Connecting host reverse DNS lookup (PTR) does not match the forward DNS lookup (A).
	ACCEPTED	Envelope Sender Verification during SMTP conversation: - Malformed MAIL FROM: - Envelope sender does not exist in DNS. - Envelope sender DNS does not resolve.

## Implementing Host Sender Verification for the SUSPECTLIST Sender Group

In the GUI, click HAT Overview on the Mail Policies tab. A list of existing sender groups is displayed. To enable and configure host DNS verification for the SUSPECTLIST sender group:

- 
- Step 1** On the HAT Overview page, click **SUSPECTLIST** in the list of sender groups.

**Figure 5-28 HAT Overview Page**  
**HAT Overview**

**Find Senders**

Find Senders that Contain this Text:

---

**Sender Groups (Listener: IncomingMail (172.19.0.86:25) )**

Order	Sender Group	SenderBase™ Reputation Score ?	Mail Flow Policy	Delete
		-10 -8 -6 -4 -2 0 2 4 6 8 +10		
1	WHITELIST		TRUSTED	
2	BLACKLIST		BLOCKED	
3	SUSPECTLIST		THROTTLED	
4	UNKNOWNLIST		ACCEPTED	
	ALL		ACCEPTED	

**Step 2** The Sender Group: SUSPECTLIST page is displayed:

**Figure 5-29 Sender Group: SUSPECTLIST**

**Sender Group Settings**

Name:	SUSPECTLIST
Order:	3
Comment:	Suspicious senders are throttled
Policy:	THROTTLED
SBRS (Optional):	-4.0 to -1.0 and SBRS Scores of "None"
DNS Lists (Optional):	None
Connecting Host DNS Verification:	None Included

**Step 3** Click **Edit Settings** The Edit Settings dialog is displayed:



**Figure 5-30** *Sender Group: SUSPECTLIST: Edit Settings*

Sender Group Settings	
Comment:	Suspicious senders are throttled
Policy:	THROTTLED
SBRS (Optional):	-4.0 to -1.0 <input checked="" type="checkbox"/> Include SBRS Scores of "None" <i>Recommended for suspected senders only.</i>
DNS Lists (Optional):	?
Connecting Host DNS Verification:	<input type="checkbox"/> Connecting host PTR record does not exist in DNS. <input type="checkbox"/> Connecting host PTR record lookup fails due to temporary DNS failure. <input checked="" type="checkbox"/> Connecting host reverse DNS lookup (PTR) does not match the forward DNS lookup (A).

Cancel
Submit

- Step 4** Select the THROTTLED policy from the list.
- Step 5** Check the “Connecting host reverse DNS lookup (PTR) does not match the forward DNS lookup (A)” checkbox under Connecting Host DNS Verification.
- Step 6** Submit and commit your changes.

Now, senders for which reverse DNS lookups fail will match the SUSPECTLIST sender group and will receive the default action from the THROTTLED mail flow policy.

**Note**

You can also configure host DNS verification via the CLI. See [Enabling Host DNS Verification via the CLI, page 5-177](#) for more information.

## Implementing Sender Verification

First, create a new mail flow policy (for this example, it is named THROTTLEMORE) and configure it with more stringent throttling settings:

- Step 1** On the Mail Flow Policies page, click **Add Policy**
- Step 2** Enter a name for the mail flow policy, and select Accept as the Connection Behavior.
- Step 3** Configure the policy to throttle mail.
- Step 4** Submit and commit your changes.

Next, create a new sender group (for this example, it is named UNVERIFIED) and configure it to use the THROTTLEMORE policy:

**Step 1** On the HAT Overview page, click **Add Sender Group**

**Figure 5-31 Add Sender Group: THROTTLEMORE**  
**Add Sender Group to IncomingMail (192.168.0.1:25)**

Sender Group Settings	
Name:	UNVERIFIED
Order:	5
Comment:	Throttle when host record is not in DNS
Policy:	THROTTLEMORE
SBRS (Optional):	<div> <input type="checkbox"/> to <input type="text"/> </div> <div> <input type="checkbox"/> Include SBRS Scores of "None"           </div> <div> <i>Recommended for suspected senders only.</i> </div>
DNS Lists (Optional): ?	
Connecting Host DNS Verification:	<div> <input checked="" type="checkbox"/> Connecting host PTR record does not exist in DNS.         </div> <div> <input type="checkbox"/> Connecting host PTR record lookup fails due to temporary DNS failure.         </div> <div> <input type="checkbox"/> Connecting host reverse DNS lookup (PTR) does not match the forward DNS lookup (A).         </div>

Cancel
Submit
Submit and Add Senders >>

**Step 2** Select the THROTTLEMORE policy from the list.

**Step 3** Check the “Connecting host PTR record does not exist in DNS” checkbox under Connecting Host DNS Verification.

**Step 4** Submit and commit your changes. The HAT Overview page now looks like this:

**Figure 5-32 HAT Overview**  
**HAT Overview**

The screenshot displays the 'HAT Overview' interface. At the top, there is a 'Find Senders' section with a text input field and a 'Find' button. Below this is the 'Sender Groups (Listener: IncomingMail (172.19.0.86:25))' section. It includes an 'Add Sender Group...' button and an 'Import HAT...' button. The main area is a table with columns for 'Order', 'Sender Group', 'SenderBase™ Reputation Score', 'Mail Flow Policy', and 'Delete'. The table lists five sender groups: WHITELIST, BLACKLIST, SUSPECTLIST, UNVERIFIED, and UNKNOWNLIST, each with a corresponding reputation score bar and mail flow policy. At the bottom, there are 'Edit Order...' and 'Export HAT...' buttons. A 'Key:' section at the bottom right shows 'Custom' and 'Default' options.

Order	Sender Group	SenderBase™ Reputation Score	Mail Flow Policy	Delete
1	WHITELIST	Score bar (approx. 8)	TRUSTED	[Delete]
2	BLACKLIST	Score bar (approx. -8)	BLOCKED	[Delete]
3	SUSPECTLIST	Score bar (approx. -2)	THROTTLED	[Delete]
4	UNVERIFIED	Score bar (approx. 0)	THROTTLEMORE	[Delete]
5	UNKNOWNLIST	Score bar (approx. 4)	ACCEPTED	[Delete]
	ALL		ACCEPTED	

Key: Custom Default

For the next step, configure the ACCEPTED mail flow policy to handle unverified senders.

## Implementing Sender Verification for the ACCEPTED Mail Flow Policy

In the GUI, click Mail Flow Policies on the Mail Policies Tab. A list of existing mail flow policies is displayed. To enable envelope sender DNS verification on the ACCEPTED mail flow policy:

- Step 1** On the Mail Flow Policies page, click on the ACCEPTED mail flow policy.
- Step 2** Scroll to the bottom of the mail flow policy:

**Figure 5-33** *ACCEPTED Mail Flow Policy Envelope Sender DNS Verification Settings*

Envelope Sender DNS Verification:	<input type="radio"/> Use Default (Off) <input checked="" type="radio"/> On <input type="radio"/> Off
	Malformed Envelope Senders: SMTP Code: <input type="text" value="553"/> SMTP Text: <input type="text" value="#5.5.4 Domain required for sender address"/>
	Envelope Senders whose domain does not resolve: SMTP Code: <input type="text" value="451"/> SMTP Text: <input type="text" value="#4.1.3 Domain of sender address &lt;\$Envelo"/>
	Envelope Senders whose domain does not exist: SMTP Code: <input type="text" value="553"/> SMTP Text: <input type="text" value="#5.1.8 Domain of sender address &lt;\$Envelo"/>
Use Exception Table:	<input type="radio"/> Use Default (Off) <input checked="" type="radio"/> On <input type="radio"/> Off

- Step 3** Select On to enable envelope sender DNS verification for this mail flow policy.
- Step 4** You may also define custom SMTP code and responses.
- Step 5** Enable the domain exception table by selecting On for “Use Domain Exception Table.”
- Step 6** Submit and commit your changes.

And for the last step, create the sender verification exception table to list exceptions to the sender verification settings.

## Creating the Sender Verification Exception Table via the GUI

Configure the Sender Verification Exception Table via the Mail Policies > Exception Table page. Note that the exception table applies globally to all mail flow policies with “Use Exception Table” enabled.

- Step 1** Click **Add Domain Exception** on the Mail Policies > Exception Table page. The Add Domain Exception page is displayed:

**Figure 5-34 Adding Addresses to the Exception Table**  
**Add Domain Exception**

Domain Exception	
Exception:	<input type="text"/> <i>(e.g.: user@example.com, user@, @example.com, @.example.com, @1.2.3.4)</i>
Order:	<input type="text" value="1"/> (of 1)
Behavior:	<input checked="" type="radio"/> Allow <input type="radio"/> Reject SMTP Code: <input type="text" value="553"/> SMTP Text: <input type="text" value="Envelope sender &lt;\$EnvelopeSender&gt; rejected"/>
<div> <input type="button" value="Cancel"/> <input type="button" value="Submit"/> </div>	

- Step 2** Enter an email address. You can enter a specific address (pres@whitehouse.gov), a name (user@), a domain (@example.com or @.example.com), or an address with a bracketed IP address (user@[192.168.23.1]).
- Step 3** Specify whether to allow or reject messages from the address. When rejecting mail, you can also specify an SMTP code and custom response.
- Step 4** Submit and commit your changes.

## Searching for Addresses within the Sender Verification Exception Table

To determine whether a specific address matches any entry in the exception table:

- Step 1** Enter the email address in the Find Domain Exception section of the Exception Table page and click **Find**.

**Figure 5-35** Searching for Matching Entries in the Exception Table

**Find Domain Exception**

Search for Email Address:

---

**Domain Exception Table**

Order	Exception	Behavior	SMTP Response	Delete
1	pres@whitehouse.gov	Reject	553, Envelope sender <\$EnvelopeSender> rej...	
2	@partner.com	Allow	N/A	

**Step 2** If the address matches any of the entries in the table, the first matching entry is displayed:

**Figure 5-36** Listing Matching Entries in the Exception Table

**Find Domain Exception**

Search for Email Address:

---

**Domain Exceptions Matching "mjones@partner.com"**

Order	Exception	Behavior	SMTP Response	Delete
2	@partner.com	Allow	N/A	

## Testing Sender Verification Settings

Now that you have configured sender verification settings, you can verify the behavior of your IronPort appliance.

Note that testing DNS-related settings is beyond the scope of this document.

## Testing the Envelope Sender Verification Settings

While it may be difficult to test the various DNS-related settings for your THROTTLED policy, you can test the malformed MAIL FROM setting.

**Step 1** Open a Telnet session to your IronPort appliance.

- Step 2** Use SMTP commands to send a test message with a malformed MAIL FROM (something like “admin” without a domain).

**Note**

If you have configured your IronPort appliance to use a default domain or to specifically allow partial domains when sending or receiving email or if you have enabled address parsing (see “Customizing Listeners” in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*) you may not be able to create, send, and receive an email with a missing or malformed domain.

- Step 3** Verify that the message is rejected.

```
# telnet IP_address_of_IronPort_Appliance port

220 hostname ESMTP

helo example.com

250 hostname

mail from: admin

553 #5.5.4 Domain required for sender address
```

Note that the SMTP code and response is the one you configured for the envelope sender verification settings for the THROTTLED mail flow policy.

## Testing the Sender Verification Exception Table

To confirm that mail from the email address listed in the sender verification exception table is not subject to envelope sender verification:

- Step 1** Add the following address to the exception table with an “Allow” behavior: admin@zzzaazzz.com
- Step 2** Commit your changes.
- Step 3** Open a Telnet session to your IronPort appliance.

**Step 4** Use SMTP commands to send a test message from the email address you entered in the sender verification exception table (admin@zzzaaazzz.com).

**Step 5** Verify that the message is accepted.

```
# telnet IP_address_of_IronPort_Appliance port

220 hostname ESMTD

helo example.com

250 hostname

mail from: admin@zzzaaazzz.com

250 sender <admin@zzzaaazzz.com> ok
```

If you remove that email address from the sender verification exception table, mail from that sender will be rejected because the domain portion of the envelope sender is not DNS verified.

## Sender Verification and Logging

The following log entries provide an example of Sender Verification verdicts.

### Envelope Sender Verification

Malformed Envelope Senders:

```
Thu Aug 10 10:14:10 2006 Info: ICID 3248 Address: <user> sender rejected,
envelope sender domain missing
```

Domain does not exist (NXDOMAIN):

```
Wed Aug 9 15:39:47 2006 Info: ICID 1424 Address: <user@domain.com>
sender rejected, envelope sender domain does not exist
```



Domain does not resolve (SERVFAIL):

```
Wed Aug 9 15:44:27 2006 Info: ICID 1425 Address: <user@domain.com>  
sender rejected, envelope sender domain could not be resolved
```

## Enabling Host DNS Verification via the CLI

To enable host DNS verification in the CLI, use the `listenerconfig->edit->hostaccess` command (see the *Cisco IronPort AsyncOS CLI Reference Guide* for more information).

[Table 5-16](#) shows the types of unverified senders and the corresponding CLI setting:

**Table 5-16** Sender Group Settings and Corresponding CLI Values

Connecting Host DNS Verification	Equivalent CLI Setting
Connecting host PTR record does not exist in the DNS.	<code>nx.domain</code>
Connecting host PTR record lookup fails due to temporary DNS failure.	<code>serv.fail</code>
Connecting host reverse DNS lookup (PTR) does not match the forward DNS lookup (A)	<code>not.double.verified</code>

## Accepting Email for Local Domains or Specific Users on Public Listeners (RAT)

When you create a public listener, you define all local domains that the appliance will accept messages for using the Recipient Access Table (RAT). Many enterprise gateways are configured to receive messages for several local domains. For example, suppose your company changed its name. You would need to receive email messages for recipients addressed to `currentcompanyname.com` and `oldcompanyname.com`. In this case, both local domains would be included in the RAT for your public listener. (Note: the Domain Map feature can map messages

from one domain to another. See the Domain Map feature section of the “Configuring Routing and Domain Features” in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.)


**Note**

If you have completed System Setup Wizard or the `systemsetup` command and issued the `commit` command, one public listener should already be configured on your appliance. (Refer to the settings you entered for: [Step 3: Network, page 3-60](#).) The default local domains or specific addresses to accept mail that you entered at that time were the first entries in the RAT for that public listener.

## Recipient Access Table (RAT)

The Recipient Access Table defines which recipients will be accepted by the public listener. The table specifies the address (which may be a partial address, username, domain, or hostname) and whether to accept or reject it. You can optionally include the SMTP response to the RCPT TO command for that recipient or bypass throttling control for specific entries.

RAT entries are defined by this basic syntax:

**Table 5-17 Basic RAT Syntax**

Recipient Definition	Rule	(Optional) Custom SMTP Response
----------------------	------	---------------------------------

## Rules

The RAT has two basic actions that it performs on recipients as they communicate in the SMTP conversation:

ACCEPT	The recipient is accepted.
REJECT	The recipient is rejected.

## Defining Recipients

The RAT allows you to define a recipient or group of recipients. Recipients can be defined by full email address, domain, partial domain, or username:

<code>division.example.com</code>	Fully-qualified domain name.
<code>.partialhost</code>	Everything within the “partialhost” domain.
<code>user@domain</code>	Complete email address.
<code>user@</code>	Anything with the given username.
<code>user@[IP_address]</code>	Username at a specific IP address. Note that the IP address must be between the “[ ]” characters.  Note that “ <code>user@IP_address</code> ” (without the bracket characters) is not a valid address. The system will append the brackets when it receives the message to create a valid address, which could affect whether a recipient is matched in the RAT.



### Note

When you add a domain to the Recipient Access Table in step 4 of the System Setup Wizard in the GUI (see [Step 3: Network, page 3-60](#)), you might want to consider adding a second entry to specify subdomains. For example, if you type the domain `example.net`, you might also want to enter `.example.net`. The second entry ensures that mail destined for any subdomain of `example.net` will match in the Recipient Access Table. Note that *only* specifying `.example.com` in the RAT will accept for all subdomains of `.example.com` but *will not* accept mail for complete email address recipients *without* a subdomain (for example `joe@example.com`).

## Bypassing Throttling for Special Recipients

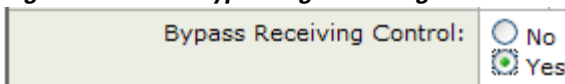
For recipient entries, you can specify that the recipient bypasses throttling control mechanisms enabled on the listener.

This feature is useful if there are certain recipients for whom you do not want to limit messages. For example, many users will want to receive email for the address “`postmaster@domain`” on a listener, even if the sending domain is being

throttled based on the receiving control defined in mail flow policies. Specifying this recipient to bypass receiving control in a listener's RAT allows the listener to receive unlimited messages for the recipient "postmaster@domain" while retaining mail flow policies for other recipients in the same domain. Recipients will avoid being counted against the recipients-per-hour counter maintained by the system if the sending domain is being limited.

To specify certain recipients to bypass receiving control via the GUI, select "Yes" for Bypass Receiving Control when adding or editing a RAT entry:

**Figure 5-37 Bypassing Receiving Control**



To specify certain recipients to bypass receiving control via the CLI, answer yes to the following question when you enter recipients using the `listenerconfig -> edit -> rcptaccess` command:

```
Would you like to bypass receiving control for this entry? [N]> y
```

## Bypassing LDAP Accept for Special Recipients

If you configure LDAP acceptance queries, you may wish to bypass the acceptance query for certain recipients. This feature can be useful if there are recipients for whom you receive email which you do not want to be delayed or queued during LDAP queries, such as `customercare@example.com`.

If you configure the recipient address to be rewritten in the work queue prior to the LDAP acceptance query, (such as aliasing or using a domain map), the rewritten address will not bypass LDAP acceptance queries. For example you use an alias table to map `customercare@example.com` to `bob@example.com` and `sue@example.com`. If you configure bypassing LDAP acceptance for `customercare@example.com`, an LDAP acceptance query is still run for `bob@example.com` and `sue@example.com` after the aliasing takes place.

To configure bypassing LDAP acceptance via the GUI, select **Bypass LDAP Accept Queries for this Recipient** when you add or edit the RAT entry.

To configure bypassing LDAP acceptance queries via the CLI, answer yes to the following question when you enter recipients using the `listenerconfig -> edit -> rcptaccess` command:

Would you like to bypass LDAP ACCEPT for this entry? [Y]> **y**

When you configure a RAT entry to bypass LDAP acceptance, be aware that the order of RAT entries affects how recipient addresses are matched. The RAT matches the recipient address with the first RAT entry that qualifies. For example, you have the following RAT entries: `postmaster@ironport.com` and `ironport.com`. You configure the entry for `postmaster@ironport.com` to bypass LDAP acceptance queries, and you configure the entry for `ironport.com` for ACCEPT. When you receive mail for `postmaster@ironport.com`, the LDAP acceptance bypass will occur only if the entry for `postmaster@ironport.com` is before the entry for `ironport.com`. If the entry for `ironport.com` is before the `postmaster@ironport.com` entry, the RAT matches the recipient address to this entry and applies the ACCEPT action.

## Default RAT Entries

For all public listeners you create, by default, the RAT is set to *reject* email from *all* recipients:

ALL	REJECT
-----	--------

In the Recipient Access Table Overview listing, the default entry is named “All Other Recipients.”



### Note

By default, the RAT *rejects* all recipients so that you do not accidentally create an *open relay* on the Internet. An open relay (sometimes called an “insecure relay” or a “third-party” relay) is an SMTP email server that allows third-party relay of email messages. By processing mail that is neither for — nor from — a local user, an open relay makes it possible for an unscrupulous sender to route large volumes of spam through your gateway. Use caution when changing the default values of Recipient Access Tables for public listeners you create.

You can not delete the default “ALL” entry from the RAT.

## Importing and Exporting Text Resources as Text Files

You will need access to the configuration directory on the appliance. Imported text files must be present in the configuration directory on the appliance. Exported text files are placed in the configuration directory.

See [Appendix A, “Accessing the Appliance”](#) for more information accessing on the configuration directory.

## Modifying the RAT for a Listener via the GUI

To modify the RAT from the GUI, click Mail Policies > Recipient Access Table (RAT). The Recipient Access Table Overview page is displayed:

**Figure 5-38**      *The Recipient Access Table Overview Page*

Overview for Listener: IncomingMail (172.19.1.86:25)			
Items per page 20			
Add Recipient...			Clear All Entries Import RAT...
Order	Recipient Address	Default Action	All <input type="checkbox"/> Delete
1	.run, .ironport.com	Accept	<input type="checkbox"/>
2	redfish.com	Accept (Bypass LDAP)	<input type="checkbox"/>
All Other Recipients		Reject	
Edit Order... Export RAT...			Delete

The Recipient Access Table Overview shows a listing of the entries in your RAT, including the order, default action, and whether or not the entry has been configured for bypassing LDAP accept queries.

From the Recipient Access Table Overview, you can:

- Add entries to the RAT
- Delete entries from the RAT
- Modify existing RAT entries
- Change the order of the entries
- Import RAT entries (overwrites existing entries) from a file
- Export RAT entries to a file

The RAT can be edited directly from the Command Line Interface (CLI). To customize a RAT for a listener you have defined, use the `edit -> rcptaccess -> new` subcommands of the `listenerconfig` command to add accepted local domains to the RAT for each public listener you configure. See the *Cisco IronPort AsyncOS CLI Reference Guide* for more information.

## Adding New RAT Entries

To add entries to a RAT:

- Step 1** Click **Add Recipient** The Add to Recipient Access Table page is displayed:

**Figure 5-39 Adding RAT Entries**

Recipient Details	
Order:	<input type="text" value="2"/>
Recipient Address: (?)	<input type="text" value="redfish.com"/>
Action:	<input type="button" value="Accept"/> <input checked="" type="checkbox"/> Bypass LDAP Accept Queries for this Recipient
Custom SMTP Response:	<input checked="" type="radio"/> No <input type="radio"/> Yes
	<div>Response Code: <input type="text" value="250"/></div> <div>Response Text: <div></div></div>
Bypass Receiving Control: (?)	<input checked="" type="radio"/> No <input type="radio"/> Yes

- Step 2** Select an order for the entry.
- Step 3** Enter the recipient address (see [Defining Recipients, page 5-179](#) for more information about valid entries).
- Step 4** Choose to accept or reject the recipient.
- Step 5** Optionally, you can choose to bypass LDAP acceptance queries for the recipient (See [Bypassing LDAP Accept for Special Recipients, page 5-180](#)).
- Step 6** If you want to use a custom SMTP response for this entry, select Yes for Custom SMTP Response. Enter a response code and text.
- Step 7** Optionally, you can choose to bypass throttling (see [Bypassing Throttling for Special Recipients, page 5-179](#)) select Yes for Bypass Receiving Control.
- Step 8** Submit and commit your changes.

## Deleting RAT Entries

To delete a RAT entry:

- 
- Step 1** Mark the checkbox in the Delete column for each entry you want to delete.
  - Step 2** Click **Delete**.
  - Step 3** The entry or entries you marked are removed from the RAT.
  - Step 4** Commit your changes.

## Modifying RAT Entries

To modify a RAT entry:

- 
- Step 1** Click the RAT entry in the Recipient Access Table Overview. The Edit Recipient Access Table page is displayed.
  - Step 2** Make changed to the entry.
  - Step 3** Commit your changes.

## Changing the Order of RAT Entries

To change the order of entries within the RAT:

- 
- Step 1** Click **Edit Order** The Edit Recipient Access Table Order page is displayed:

**Figure 5-40** *Changing the Order of RAT Entries*  
**Edit Recipient Access Table Order**

Overview for Listener: IncomingMail (172.19.1.86:25)		Items per page	20 ▾
Order	Recipient Address	Default Action	
<input type="text" value="1"/>	.run, ironport.com	Accept	
<input type="text" value="2"/>	redfish.com	Accept (Bypass LDAP)	
	All Other Recipients	Reject	

- Step 2** Change the order by arranging the values in the Order column.



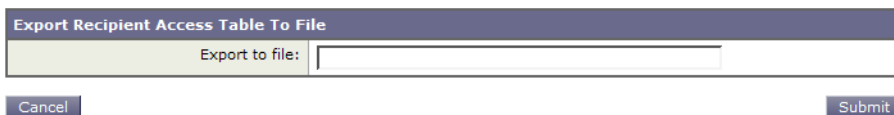
**Step 3** Commit your changes.

## Exporting RAT Entries

To export RAT entries:

**Step 1** Click **Export RAT** The Export Recipient Access Table page is displayed:

**Figure 5-41** *Exporting RAT Entries*  
**Export Recipient Access Table**



**Step 2** Enter a file name for the exported entries. This is the name of the file that will be created in the configuration directory on the appliance.

**Step 3** Submit and commit your changes.

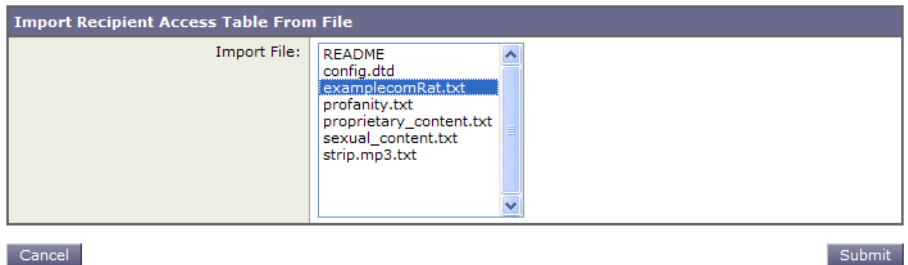
## Importing RAT Entries

When you import RAT entries, all of the existing RAT entries are removed from the RAT.

To import a set of RAT entries:

**Step 1** Click **Import RAT** The Import Recipient Access Table page is displayed:

**Figure 5-42**      **Exporting RAT Entries**  
**Import Recipient Access Table**



**Step 2**      Select a file from the list.



**Note**      The file to import must be in the configuration directory on the appliance.

**Step 3**      Click **Submit**. You will see a warning message, asking you to confirm that you wish to remove all of the existing RAT entries.

**Step 4**      Click **Import**.

**Step 5**      Commit your changes.

You can place “comments” in the file. Lines that begin with a ‘#’ character are considered comments and are ignored by AsyncOS. For example:

```
# File exported by the GUI at 20060530T220526

.example.com  ACCEPT

ALL  REJECT
```

At this point, our Email Gateway configuration looks like this:

Figure 5-43 Editing the RAT for a Public Listener

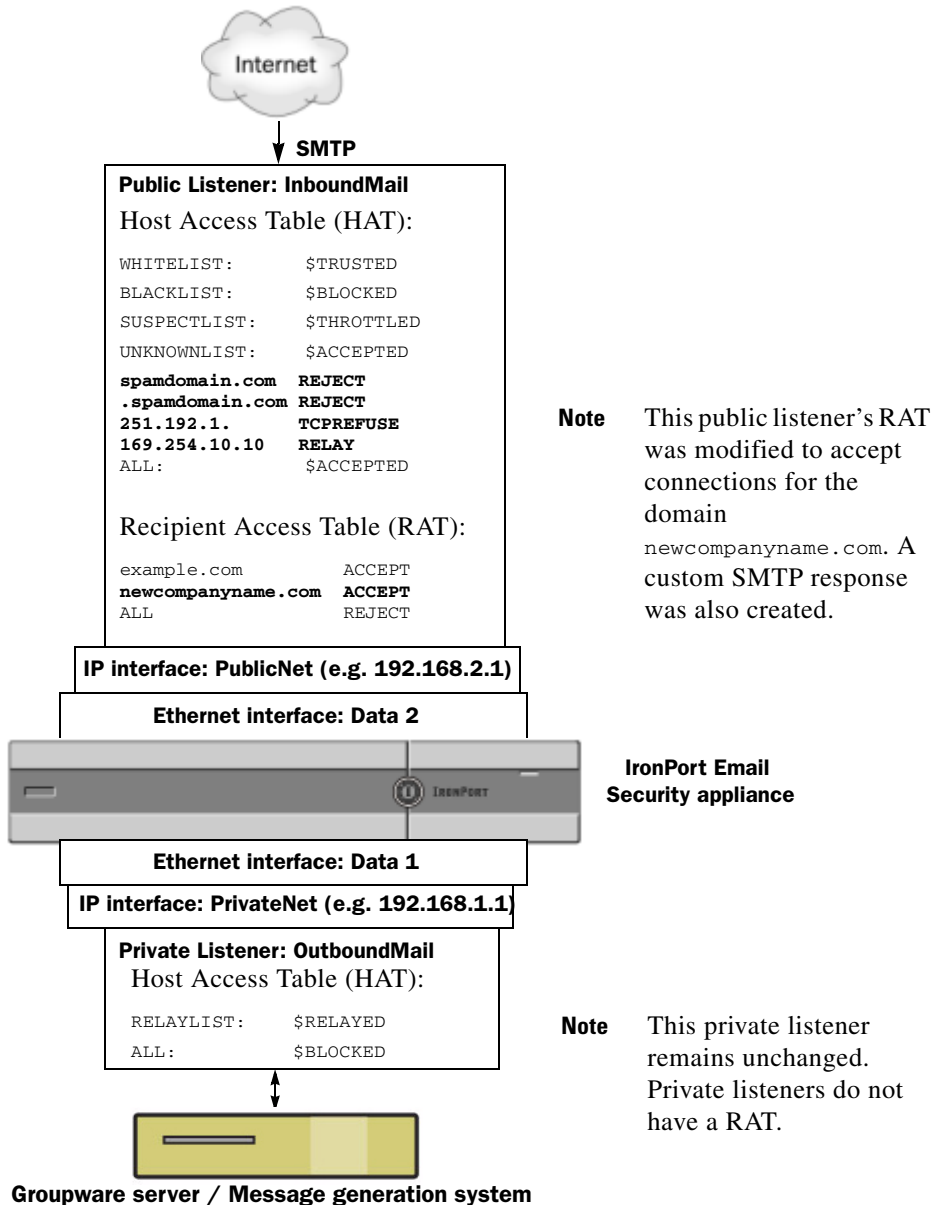
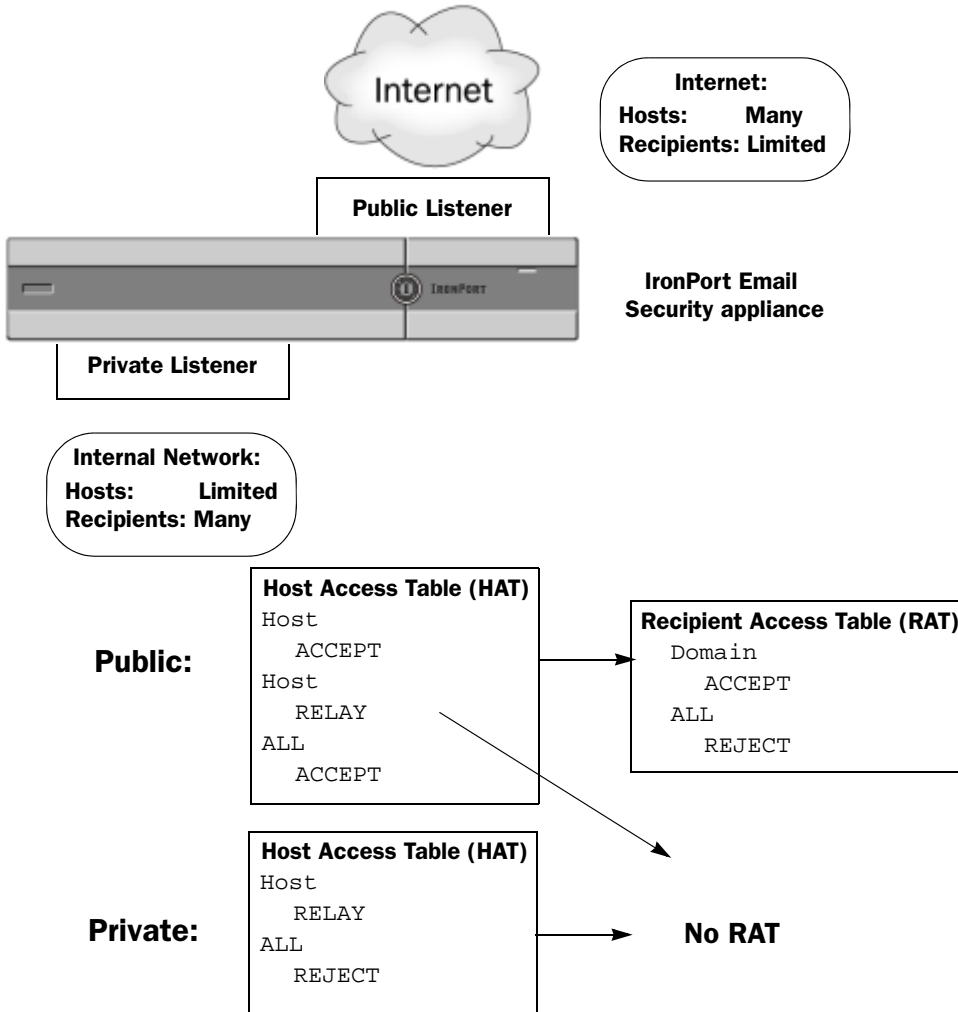


Figure 5-44 expands the illustration shown in Figure 5-4 to include the processing sequence of a listener's HAT and (if applicable) RAT, and the default values for each.

**Figure 5-44 Public and Private Listeners**





## CHAPTER 6

# Email Security Manager

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Email Security Manager is a single, comprehensive dashboard to manage all email security services and applications on IronPort appliances. Prior to this release, the anti-spam and anti-virus settings were configured on a per-listener basis — meaning the policy was applied based on the receiving listener of an IP address, and not based on the recipient or sender of the message. [Chapter 5, “Configuring the Gateway to Receive Email”](#) describes how to create and configure listeners.

Email Security Manager allows you to manage the Virus Outbreak Filters feature, anti-spam, anti-virus, and email content policies — on a per-recipient or per-sender basis, through distinct inbound and outbound policies.

Through the Mail Policies menu in the GUI (or the `policyconfig` command in the CLI), you create and manage incoming or outgoing mail policies. Mail policies are defined as a specific set of users (Envelope Recipients, Envelope Sender, From: header, or Reply-To: header) that map to specific settings for the following features:

- Anti-Spam Scanning
- Anti-Virus Scanning
- Virus Outbreak Filters
- Content Filters

Users can be defined by email address, email domains, or LDAP group queries.

This chapter contains the following sections:

- [Overview of User-Based Policies, page 6-190](#)
- [Content Filters Overview, page 6-197](#)
- [Practical Example \(GUI\), page 6-218](#)

# Overview of User-Based Policies

User-based policies in Email Security Manager are designed to allow you to create the policies that satisfy the different and sometimes disparate security needs of all users within your organization.

For example, using this feature, you can quickly create policies to enforce the following conditions:

- Disable IronPort Anti-Spam scanning for all email to the Sales organization. Enable it for the Engineering organization with a moderate policy: tag the subject lines of suspected spam and legitimate marketing messages, and drop positively identified spam. For the Human Resources organization, enable anti-spam scanning with an aggressive policy: quarantine suspected spam messages, quarantine legitimate marketing messages, and drop positively identified spam.
- Drop dangerous executable attachments for all users except those in the System Administrator group.
- Scan and attempt to repair viruses in messages destined for the Engineering organization, but drop infected attachments for all messages sent to the address `jobs@example.com`.
- Scan all outgoing messages using RSA Email DLP for possible confidential information. If a message matches, quarantine the message and send a blind-carbon copy to the Legal department.
- If an incoming message contains an MP3 attachment, quarantine the message and send a message to the intended recipient with instructions for calling the Network Operations Center to retrieve the message. Expire such messages after 10 days.
- Include a disclaimer to all outgoing mail from the Executive Staff with the company's newest tag line, but include a different "forward-looking statements" disclaimer to all outgoing mail from the Public Relations organization.
- Enable the Virus Outbreak Filters feature for all incoming messages, but bypass scanning for messages with attachments whose file extension is `.dwg`.

**Note**

Content dictionaries, disclaimers, and notification templates must be created before they can be referenced by content filters. For more information, see [Text Resources, page 14-419](#).

## Incoming vs. Outgoing Messages

Two policy tables are defined in the Email Security Manager: one table for messages from sending hosts that are stipulated by HAT policies with the “Accept” behavior, the other table for sending hosts qualified as having HAT “Relay” behavior. The former table is the *incoming* policy table, the latter is the *outgoing* policy table.

- *Incoming messages* are messages received from connections that match an ACCEPT HAT policy in any listener.
- *Outgoing messages* are messages from connections that match a RELAY HAT policy in any listener. This includes any connection that was authenticated with SMTP AUTH.

**Note**

In certain installations, “internal” mail being routed through the IronPort appliance will be considered *outgoing*, even if all the recipients are addressed to internal addresses. For example, by default for IronPort C10/100 customers, the system setup wizard will configure only one physical Ethernet port with one listener for receiving inbound email and relaying outbound email.

For many configurations, you can think of the incoming table as Public, while the Outgoing table is Private, although both could be used by a single listener. The policy table used on a particular message is not dependant on the direction of the message, with respect to sender or recipient addresses, out to the internet or in to an intranet.

You manage these tables using the Mail Policies > Incoming Mail Policies or Outgoing Mail Policies pages in the GUI, or the `policyconfig` command in the CLI.

## Policy Matching

As incoming messages are received by listeners on the system, each message recipient matches a policy in one of the tables, regardless of the number of listeners configured on the system. Matches are based on either the recipient's address or the sender's address:

- Recipient address matches the Envelope Recipient address

When matching recipient addresses, the recipient addresses entered are the final addresses after processing by preceding parts of the email pipeline. For example, if enabled, the default domain, LDAP routing or masquerading, alias table, domain map, and message filters features can rewrite the Envelope Recipient address and may affect whether the message matches a policy in the Email Security Manager (Anti-Spam, Anti-Virus, Content Filters, and Virus Outbreak Filters).

- Sender address matches:
  - Envelope Sender (RFC821 MAIL FROM address)
  - Address found in the RFC822 From: header
  - Address found in the RFC822 Reply-To: header

Addresses may be matched on either a full email address, user, domain, or partial domain, and addresses may also match LDAP group membership.

## First Match Wins

Each recipient is evaluated for each policy in the appropriate table (incoming or outgoing) in a top-down fashion.

For each recipient of a message, the first matching policy wins. If a recipient does not match any specific policy, the recipient will automatically match the default policy of the table.

If a match is made based on a sender address (or on the special “Listener” rule created by an upgrade — see below), all remaining recipients of a message will match that policy. (This is because there can be only one sender or one listener per message.)



## Examples of Policy Matching

The following examples help show how the policy tables are matched in a top-down fashion.

Given the following Incoming Mail Email Security Policy table shown in [Table 6-1](#), incoming messages will match different policies.

**Table 6-1 Policy Matching Example**

Order	Policy Name	Users
1	special_people	Recipient: joe@example.com Recipient: ann@example.com
2	from_lawyers	Sender: @lawfirm.com
3	acquired_domains	Recipient: @newdomain.com Recipient: @anotherexample.com
4	engineering	Recipient: PublicLDAP.ldapgroup: engineers
5	sales_team	Recipient: jim@ Recipient: john@ Recipient: larry@
	Default Policy	(all users)

### Example 1

A message from sender `bill@lawfirm.com` sent to recipient `jim@example.com` will match policy #2, because the user description that matches the sender (`@lawfirm.com`) appears sooner in the table than the user description that matches the recipient (`jim@`).

### Example 2

Sender `joe@yahoo.com` sends an incoming message with three recipients: `john@example.com`, `jane@newdomain.com`, and `bill@example.com`. The message for recipient `jane@newdomain.com` will receive the anti-spam, anti-virus, virus outbreak filters, and content filters defined in policy #3, while the message for recipient `john@example.com` will receive the settings defined in policy #5. Because the recipient `bill@example.com` does not match the engineering LDAP

query, the message will receive the settings defined by the default policy. This example shows how messages with multiple recipients can incur *message splintering*. See [Message Splintering, page 6-194](#) for more information.

### Example 3

Sender `bill@lawfirm.com` sends a message to recipients `ann@example.com` and `larry@example.com`. The recipient `ann@example.com` will receive the anti-spam, anti-virus, virus outbreak filters, and content filters defined in policy #1, and the recipient `larry@example.com` will receive the anti-spam, anti-virus, virus outbreak filters, and content filters defined in policy #2, because the sender (`@lawfirm.com`) appears sooner in the table than the user description that matches the recipient (`jim@`).

## Message Splintering

Intelligent message splintering (by matching policy) is the mechanism that allows for differing recipient-based policies to be applied independently to message with multiple recipients.

Each recipient is evaluated for each policy in the appropriate Email Security Manager table (incoming or outgoing) in a top-down fashion.

Each policy that matches a message creates a new message with those recipients. This process is defined as *message splintering*:





- If some recipients match different policies, the recipients are grouped according to the policies they matched, the message is split into a number of messages equal to the number of policies that matched, and the recipients are set to each appropriate “splinter.”
- If all recipients match the same policy, the message is not splintered. Conversely, a maximum splintering scenario would be one in which a single message is splintered for each message recipient.
- Each message splinter is then processed by anti-spam, anti-virus, DLP scanning, Virus Outbreak Filters, and content filters independently in the email pipeline.

[Table 6-2](#) illustrates the point at which messages are splintered in the email pipeline.

**Note**

Email DLP scanning is only available for outgoing messages.

**Table 6-2**      **Message Splintering in the Email Pipeline**

<b>Work Queue</b>	<b>Message Filters</b> (filters)	<b>Email Security Manager Scanning</b>	↓  <b>message for all recipients</b>
	<b>Anti-Spam</b> (antispamconfig, listenerconfig -> antispam)		Messages are splintered immediately <i>after</i> message filter processing but <i>before</i> anti-spam processing:
	<b>Anti-Virus</b> (antivirusconfig, antivirusupdate listenerconfig -> antivirus)		 <b>message for all recipients</b> <b>matching policy 1</b>
	<b>Content Filters</b> (policyconfig -> filters)		 <b>message for all recipients</b> <b>matching policy 2</b>
	<b>Virus Outbreak Filters</b> (vofconfig, vofflush, vofstatus)		 <b>message for all other recipients</b> <b>(matching the default policy)</b>
	<b>Data Loss Prevention</b> (policyconfig)		

**Note**

New MIDs (message IDs) are created for each message splinter (for example, MID 1 becomes MID 2 and MID 3). For more information, see the “Logging” chapter in the *Cisco IronPort AsyncOS for Email Daily Management Guide*. In addition, the trace function shows which policies cause a message to be split.

Policy matching and message splintering in Email Security Manager policies obviously affect how you manage the message processing available on the appliance.

## Managed Exceptions

Because the iterative processing of each splinter message impacts performance, IronPort recommends using the Incoming and Outgoing Mail Policies tables of Email Security Manager to configure policies on a *managed exception* basis. In

other words, evaluate your organization's needs and try to configure the feature so that the majority of messages will be handled by the default policy and the minority of messages will be handled by a few additional "exception" policies. In this manner, message splintering will be minimized and you are less likely to impact system performance from the processing of each splinter message in the work queue.

## Contents of Policies

Email Security Manager tables match incoming or outgoing messages for specific groups of users (Envelope Recipients, Envelope Sender, From: header, or Reply-To: header) and map them to specific settings for the following features:

- Anti-Spam Scanning — These settings are the same settings as per-listener settings in previous releases of AsyncOS. See [Anti-Spam, page 8-259](#) for more information.
- Anti-Virus Scanning — These settings are the same settings as per-listener settings in previous releases of AsyncOS. See [Anti-Virus, page 9-301](#) for more information.
- Content Filters — See [Content Filters Overview, page 6-197](#) for more information.
- Virus Outbreak Filters

IronPort's Virus Outbreak Filters feature is a predictive security service that provides a "first line of defense" against new virus outbreaks by quarantining suspicious messages until traditional anti-virus security services can be updated with a new virus signature file. You can enable or disable Virus Outbreak filters for given recipients, and also define the file types that will bypass the Virus Outbreak Filters feature in Email Security Manager. See [Chapter 10, "Virus Outbreak Filters"](#) for more information.

- Data Loss Prevention — See [Chapter 11, "Data Loss Prevention"](#) for more information.

[Figure 6-1](#) illustrates the Email Security Manager in the GUI that maps users defined in a policy to specific Anti-Spam, Anti-Virus, Virus Outbreak Filter, DLP, and Content Filters settings.

**Figure 6-1** Summary of Email Security Manager Policies in the GUI  
**Incoming Mail Policies**

Find Policies

Email Address: 

☒ Recipient
☐ Sender

Find Policies

Policies

Add Policy...

Order	Policy Name	Anti-Spam	Anti-Virus	Virus Outbreak Filters	Content Filters	Delete
1	Sales_Team	IronPort Anti-Spam Positive; Drop Suspected; Quarantine	(use default)	(use default)	drop_large_attachments ex_employee no_mp3s scan_for_confidential	
2	Engineering	(use default)	(use default)	Enabled	ex_employee scan_for_confidential	
	Default Policy	IronPort Anti-Spam Positive; Deliver Suspected; Disabled	Repaired; Deliver Encrypted; Deliver Unscannable; Deliver Virus Positive; Drop	Enabled	ex_employee no_mp3s scan_for_confidential	

Key: Default Custom Disabled

## Content Filters Overview

Email Security Manager policies allow you to create content filters to be applied to messages on a per-recipient or per-sender basis. Content filters are similar to message filters, except that they are applied later in the email pipeline — after a message has been “splintered” into a number of separate messages for each matching Email Security Manager policy. The functionality of content filters is applied after message filters processing and anti-spam and anti-virus scanning have been performed on a message.

Like regular message filters, you define a name for each content filter. The name must be unique to the Incoming or Outgoing Mail Policies table in which it will be used. Each Incoming and Outgoing Mail Policies table will have its own, singular “master list” of content filters. The order is defined on a per-table basis (for incoming or outgoing). However, each individual policy determines which particular filters will be executed.

Unlike regular message filters (which are applied before anti-spam and anti-virus scanning), content filters can be configured both in the CLI and in the GUI. The GUI includes a “rule builder” page that allows you to easily create the conditions and actions that constitute a content filter. Email Security Manager incoming or

outgoing mail policy tables manage which content filters are enabled the order in which they will be applied for any given policy. [Table 6-3](#) lists the available *conditions* you can use to create a content filter. [Table 6-4](#) lists the non-final and final *actions* you can use to define a content filter. Together, conditions and action constitute a content filter. [Table 6-5](#) shows the action variables you can use when creating content filters.

## Content Filter Conditions

Specifying conditions in content filters is optional.

In the content filter conditions, when you add filter rules that search for patterns in the message body or attachments, you can specify the minimum threshold for the number of times the pattern must be found. When AsyncOS scans the message, it totals the “score” for the number of matches it finds in the message and attachments. If the minimum threshold is not met, the regular expression does not evaluate to true. You can specify this threshold for text, smart identifiers, or content dictionary terms.

You can also use “smart identifiers” to identify patterns in data. Smart identifiers can detect the following patterns:

- Credit card numbers
- U.S. Social Security numbers
- CUSIP (Committee on Uniform Security Identification Procedures) numbers
- ABA (American Banking Association) routing numbers

For more information about specifying a minimum threshold for the number of times a pattern must be found, and smart identifiers, see the “Using Message Filters to Enforce Email Policies” chapter in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

Multiple conditions may be defined for each filter. When multiple conditions are defined, you can choose whether the conditions are tied together as a logical OR (“Any of the following conditions...”) or a logical AND (“All of the following conditions”).

**Table 6-3**      **Content Filter Conditions**

Condition	Description
(no conditions)	Specifying conditions in content filters is optional. If no conditions are specified, a <code>true</code> rule is implied. The <code>true</code> rule matches all messages, and the actions are always performed.
Message Body or Attachments	<p><b>Contains text:</b> Does the message body contain text or an attachment that matches a specific pattern?</p> <p><b>Contains smart identifier:</b> Does content in the message body or attachment match a smart identifier?</p> <p><b>Contains term in content dictionary:</b> Does the message body contain any of the regular expressions or terms in the content dictionary named <i>&lt;dictionary name&gt;</i>?</p> <p>For this option to be enabled, the dictionary must already have been created. See <a href="#">Content Dictionaries, page 14-420</a>.</p> <p><b>Number of matches required.</b> Specify the number of matches required for the rule to evaluate to true. You can specify this threshold for text, smart identifiers, or content dictionary terms.</p> <p>This includes delivery-status parts and associated attachments.</p>

**Table 6-3**      **Content Filter Conditions (Continued)**

Condition	Description
<b>Message Body</b>	<p><b>Contains text:</b> Does the message body contain text that matches a specific pattern?</p> <p><b>Contains smart identifier:</b> Does content in the message body match a smart identifier?</p> <p><b>Contains term in content dictionary:</b> Does the message body contain any of the regular expressions or terms in the content dictionary named <i>&lt;dictionary name&gt;</i>?</p> <p>For this option to be enabled, the dictionary must already have been created. See <a href="#">Content Dictionaries, page 14-420</a>.</p> <p><b>Number of matches required.</b> Specify the number of matches required for the rule to evaluate to true. You can specify this threshold for text or smart identifiers.</p> <p>This rule applies to the body of the message only. It does not include attachments or headers.</p>
<b>Message Size</b>	<p>Is the body size within a specified range? Body size refers to the size of the message, including both headers and attachments. The body-size rule selects those messages where the body size compares as directed to a specified number.</p>



**Table 6-3**      **Content Filter Conditions (Continued)**

Condition	Description
Attachment Content	<b>Contains text.</b> Does the message contain an attachment that contains text or another attachment that matches a specific pattern? This rule is similar to the <code>body-contains()</code> rule, but it attempts to avoid scanning the entire “body” of the message. That is, it attempts to scan only that which the user would view as being an attachment.
	<b>Contains a smart identifier.</b> Does content in the message attachment match the specified smart identifier?
	<b>Contains terms in content dictionary.</b> Does the attachment contain any of the regular expressions or terms in the content dictionary named <i>&lt;dictionary name&gt;</i> ?  To search for dictionary terms, the dictionary must already have been created. See <a href="#">Content Dictionaries, page 14-420</a> .
	<b>Number of matches required.</b> Specify the number of matches required for the rule to evaluate to true. You can specify this threshold for text, smart identifier, or content dictionary matches.

Table 6-3 Content Filter Conditions (Continued)

Condition	Description
<b>Attachment File Info</b>	<p><b>Filename.</b> Does the message contain an attachment with a filename that matches a specific pattern?</p> <p><b>File type.</b> Does the message contain an attachment of a file type that matches a specific pattern based on its fingerprint (similar to a UNIX <code>file</code> command)?</p> <p><b>MIME type.</b> Does the message contain an attachment of a specific MIME type? This rule is similar to the <code>attachment-type</code> rule, except only the MIME type given by the MIME attachment is evaluated. (The appliance does not try to “guess” the type of the file by its extension if there is no explicit type given.)</p> <p><b>Image Analysis.</b> Does the message contain an image attachment that matches the image verdict specified? Valid image analysis verdicts include: <i>Suspect</i>, <i>Inappropriate</i>, <i>Suspect or Inappropriate</i>, <i>Unscannable</i>, or <i>Clean</i>.</p>
<b>Attachment Protection</b>	<p><b>Contains an attachment that is password-protected or encrypted.</b></p> <p>(for example, use this condition to identify attachments that are potentially unscannable)</p> <p><b>Contains an attachment that is NOT password-protected or encrypted.</b></p> <p>(For example, use this condition with the Encrypt action to make sure all attachments are encrypted.)</p>

**Table 6-3 Content Filter Conditions (Continued)**

Condition	Description
Subject Header	<p><b>Subject Header:</b> Does the subject header match a certain pattern?</p> <p><b>Contains terms in content dictionary:</b> Does the subject header contain any of the regular expressions or terms in the content dictionary <i>&lt;dictionary name&gt;</i>?</p> <p>To search for dictionary terms, the dictionary must already have been created. See <a href="#">Content Dictionaries, page 14-420</a>.</p>
Other Header	<p><b>Header name:</b> Does the message contain a specific header?</p> <p><b>Header value:</b> Does the value of that header match a certain pattern?</p> <p><b>Header value contains terms in the content dictionary.</b> Does the specified header contain any of the regular expressions or terms in the content dictionary named <i>&lt;dictionary name&gt;</i>?</p> <p>To search for dictionary terms, the dictionary must already have been created. See <a href="#">Content Dictionaries, page 14-420</a></p>

Table 6-3 Content Filter Conditions (Continued)

Condition	Description
Envelope Sender	<p><b>Envelope Sender.</b> Does the Envelope Sender (i.e., the Envelope From, &lt;MAIL FROM&gt;) match a given pattern?</p> <p><b>Matches LDAP group.</b> Is the Envelope Sender, i.e., the Envelope From, &lt;MAIL FROM&gt;) in a given LDAP group?</p> <p><b>Contains term in content dictionary.</b> Does the envelope sender contain any of the regular expressions or terms in the content dictionary named &lt;dictionary name&gt;?</p> <p>To search for dictionary terms, the dictionary must already have been created. See <a href="#">Content Dictionaries, page 14-420</a>.</p>

**Table 6-3 Content Filter Conditions (Continued)**

Condition	Description
<b>Envelope Recipient</b>	<p><b>Envelope Recipient.</b> Does the Envelope Recipient, (i.e. the Envelope To, &lt;RCPT TO&gt;) match a given pattern?</p> <p><b>Matches LDAP group.</b> Is the Envelope Recipient, (i.e. the Envelope To, &lt;RCPT TO&gt;) in a given LDAP group?</p> <p><b>Contains term in content dictionary.</b> Does the envelope recipient contain any of the regular expressions or terms in the content dictionary named &lt;dictionary name&gt;?</p> <p>To search for dictionary terms, the dictionary must already have been created. See <a href="#">Content Dictionaries, page 14-420</a>.</p> <p><b>Note:</b> The Envelope Recipient rule is message-based. If a message has multiple recipients, only one recipient has to be found in a group for the specified action to affect the message to all recipients.</p> <p>Is the Envelope Sender (i.e., the Envelope From, &lt;MAIL FROM&gt;) in a given LDAP group?</p>
<b>Receiving Listener</b>	Did the message arrive via the named listener? The listener name must be the name of a listener currently configured on the system.
<b>Remote IP</b>	Was the message sent from a remote host that matches a given IP address or IP block? The Remote IP rule tests to see if the IP address of the host that sent that message matches a certain pattern. The IP address pattern is specified using the allowed hosts notation described in <a href="#">Sender Group Syntax, page 5-133</a> , except for the SBO, SBRS, dnslist notations and the special keyword ALL.
<b>Reputation Score</b>	What is the sender's SenderBase Reputation Score? The Reputation Score rule checks the SenderBase Reputation Score against another value.

Table 6-3 Content Filter Conditions (Continued)

Condition	Description
DKIM Authentication	Did DKIM authentication pass, partially verify, return temporarily unverifiable, permanently fail, or were no DKIM results returned?
SPF Verification	What was the SPF verification status? This filter rule allows you to query for different SPF verification results. For more information about SPF verification, see “Email Authentication” in <i>Cisco IronPort AsyncOS for Email Advanced Configuration Guide</i> .



Note

The dictionary-related conditions are only available if you have one or more dictionaries enabled. For information about creating content dictionaries, see [Content Dictionaries, page 14-420](#).

**Figure 6-2 Content Filter Conditions**

**Add Condition**

Message Body or Attachment

Message Body  
Message Size  
Attachment Content  
Attachment File Info  
Attachment Protection  
Subject Header  
Other Header  
Envelope Sender  
Envelope Recipient  
Receiving Listener  
Remote IP  
Reputation Score  
DKIM Authentication  
SPF Verification

**Message Body or Attachment** [Help](#)

Does the message body or attachment contain text that matches a specified pattern?

☒ Contains text:  \*

☐ Contains smart identifier:  ▼

☐ Contains term in content dictionary:  
*No content dictionaries are defined. See Mail Policies > Dictionaries.*

Number of matches required:  (1-1000)  
*For content dictionaries, the number of matches is based on term weight.*

(\*) accepts regular expression

## Content Filter Actions

At least one action must be defined for each content filter.

Actions are performed in order on messages, so consider the order of actions when defining multiple actions for a content filter.

When you configure a quarantine action for messages that match Attachment Content conditions, Message Body or Attachment conditions, Message body conditions, or the Attachment content conditions, you can view the matched content in the quarantined message. When you display the message body, the matched content is highlighted in yellow. You can also use the \$MatchedContent action variable to include the matched content in the message subject. For more information, see *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

Only one final action may be defined per filter, and the final action must be last action listed. Bounce, deliver, and drop are final actions. When entering actions for content filters, the GUI and CLI will force final actions to be placed last.

Table 6-4 Content Filter Actions

Action	Description
Quarantine	<p><b>Quarantine.</b> Flags the message to be held in one of the system quarantine areas.</p> <p><b>Duplicate message:</b> Sends a copy of the message to the specified quarantine and continues processing the original message. Any additional actions apply to the original message.</p>
Encrypt on Delivery	<p>The message continues to the next stage of processing. When all processing is complete, the message is encrypted and delivered.</p> <p><b>Encryption rule:</b> Always encrypts the message or only encrypts it if an attempt to send it over a TLS connection first fails. See <a href="#">Using a TLS Connection as an Alternative to Encryption, page 12-398</a> for more information.</p> <p><b>Encryption Profile.</b> Once processing is complete, encrypts the message using the specified encryption profile, then delivers the message. This action is for use with an IronPort Encryption Appliance or a hosted key service.</p> <p><b>Subject.</b> Subject for the encrypted message. By default, the value is \$Subject.</p>



**Table 6-4 Content Filter Actions (Continued)**

Action	Description
<b>Strip Attachment by Content</b>	<b>Attachment contains.</b> Drops all attachments on messages that contain the regular expression. Archive files (zip, tar) will be dropped if any of the files they contain match the regular expression pattern.
	<b>Contains smart identifier.</b> Drops all attachments on a message that contains the specified smart identifier.
	<b>Attachment contains terms in the content dictionary.</b> Does the attachment contain any of the regular expressions or terms in the content dictionary named <i>&lt;dictionary name&gt;?</i>
	<b>Number of matches required.</b> Specify the number of matches required for the rule to evaluate to true. You can specify this threshold for text, smart identifier, or content dictionary matches.
	<b>Replacement message.</b> The optional comment serves as the means to modify the text used to replace the attachment that was dropped. Attachment footers simply append to the message.

**Table 6-4 Content Filter Actions (Continued)**

Action	Description
<b>Strip Attachment by File Info</b>	<p><b>File name.</b> Drops all attachments on messages that have a filename that match the given regular expression. Archive file attachments (zip, tar) will be dropped if they contain a file that matches.</p> <p><b>File size.</b> Drops all attachments on the message that, in raw encoded form, are equal to or greater than the size (in bytes) given. Note that for archive or compressed files, this action does not examine the uncompressed size, but rather the size of the actual attachment itself.</p> <p><b>File type.</b> Drops all attachments on messages that match the given “fingerprint” of the file. Archive file attachments (zip, tar) will be dropped if they contain a file that matches.</p> <p><b>MIME type.</b> Drops all attachments on messages that have a given MIME type.</p> <p><b>Image Analysis Verdict.</b> Drops attachments for image attachments that match the image verdict specified. Valid image analysis verdicts include: <i>Suspect</i>, <i>Inappropriate</i>, <i>Suspect or Inappropriate</i>, <i>Unscannable</i>, or <i>Clean</i>.</p> <p><b>Replacement message.</b> The optional comment serves as the means to modify the text used to replace the attachment that was dropped. Attachment footers simply append to the message.</p>

**Table 6-4**      **Content Filter Actions (Continued)**

Action	Description
<b>Add Disclaimer Text</b>	<b>Above.</b> Add disclaimer above message (heading).
	<b>Below.</b> Add disclaimer below message (footer).
	<b>Note:</b> You must have already created disclaimer text in order to use this content filter action. See <a href="#">Disclaimer Text, page 14-439</a> for more information.
<b>Bypass Outbreak Filter Scanning</b>	Bypass Virus Outbreak Filter scanning for this message.
<b>Send Copy (Bcc:)</b>	<b>Email addresses.</b> Copies the message anonymously to the specified recipients.
	<b>Subject.</b> Add a subject for the copied message.
	<b>Return path (optional).</b> Specify a return path.
	<b>Alternate mail host (optional).</b> Specify an alternate mail host.

**Table 6-4 Content Filter Actions (Continued)**

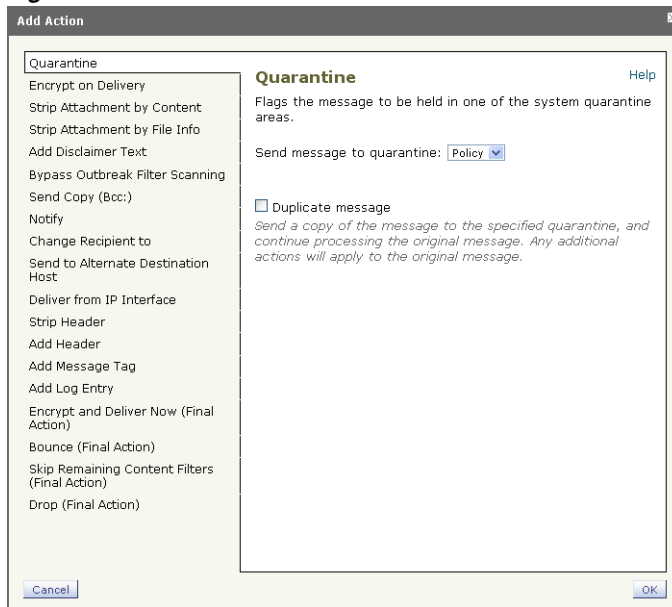
Action	Description
<b>Notify</b>	<p><b>Notify.</b> Reports this message to the specified recipients. You can optionally notify the sender and recipients.</p> <p><b>Subject.</b> Add a subject for the copied message.</p> <p><b>Return path (optional).</b> Specify a return path.</p> <p><b>Use template.</b> Select a template from the templates you created.</p> <p><b>Include original message as an attachment.</b> Adds the original message as an attachment.</p>
<b>Change Recipient to</b>	<b>Email address.</b> Changes the recipient of the message to the specified email address.
<b>Send to Alternate Destination Host</b>	<p><b>Mail host.</b> Changes the destination mail host for the message to the specified mail host.</p> <p><b>Note</b> This action prevents a message classified as spam by an anti-spam scanning engine from being quarantined. This action overrides the quarantine and sends it to the specified mail host.</p>
<b>Deliver from IP Interface</b>	<b>Send from IP interface.</b> Send from the specified IP Interface. The Deliver from IP Interface action changes the source host for the message to the source specified. The source host consists of the IP interface that the messages should be delivered from.
<b>Strip Header</b>	<b>Header name.</b> Remove the specified header from the message before delivering.

**Table 6-4 Content Filter Actions (Continued)**

Action	Description
<b>Add Header</b>	<p><b>Header name.</b> Inserts a header into the message before delivering.</p> <p><b>Header value.</b> Inserts a value for the header into the message before delivering.</p>
<b>Add Message Tag</b>	Inserts a custom term into the message to use with RSA Email DLP policy filtering. You can configure a RSA Email DLP policy to limit scanning to messages with the message tag. The message tag is not visible to recipients. For information on using messages tags in a DLP policy, see <a href="#">DLP Policies, page 11-358</a> .
<b>Add Log Entry</b>	Inserts customized text into the IronPort Text Mail logs at the INFO level. The text can include action variables. The log entry also appears in message tracking.
<b>Encrypt and Deliver Now (Final Action)</b>	<p>Encrypts and delivers the message, skipping any further processing.</p> <p><b>Encryption rule:</b> Always encrypts the message or only encrypts it if an attempt to send it over a TLS connection first fails. See <a href="#">Using a TLS Connection as an Alternative to Encryption, page 12-398</a> for more information.</p> <p><b>Encryption Profile.</b> Encrypts the message using the specified encryption profile, then delivers the message. This action is for use with an IronPort Encryption Appliance or a hosted key service.</p> <p><b>Subject.</b> Subject for the encrypted message. By default, the value is \$Subject.</p>
<b>Bounce (Final Action)</b>	Sends the message back to the sender.

**Table 6-4**      **Content Filter Actions (Continued)**

Action	Description
<b>Skip Remaining Content Filters (Final Action)</b>	Delivers the message to the next stage of processing, skipping any further content filters. Depending on configuration, this may mean deliver the message to recipient(s), quarantine, or begin Outbreak Filters scanning.
<b>Drop (Final Action)</b>	Drops and discards the message.

**Figure 6-3**      **Content Filter Actions in GUI**

## Action Variables

Headers added to messages processed by content filters can contain variables that will be automatically replaced with information from the original message when the action is executed. These special variables are called *action variables*. Your IronPort appliance supports the following set of action variables:

**Table 6-5**      **Action Variables**

Variable	Syntax	Description
<b>All Headers</b>	<code>\$AllHeaders</code>	Replaced by the message headers.
<b>Body Size</b>	<code>\$BodySize</code>	Replaced by the size, in bytes, of the message.
<b>Date</b>	<code>\$Date</code>	Replaced by the current date, using the format MM/DD/YYYY.
<b>Dropped File Name</b>	<code>\$dropped_filename</code>	Returns only the most recently dropped filename.

**Table 6-5 Action Variables (Continued)**

<b>Variable</b>	<b>Syntax</b>	<b>Description</b>
<b>Dropped File Names</b>	<code>\$dropped_filenames</code>	Same as <code>\$filenames</code> , but displays list of dropped files.
<b>Dropped File Types</b>	<code>\$dropped_filetypes</code>	Same as <code>\$filetypes</code> , but displays list of dropped file types.
<b>Envelope Sender</b>	<code>\$envelopefrom</code> or <code>\$envelopesender</code>	Replaced by the Envelope Sender (Envelope From, <MAIL FROM>) of the message.
<b>Envelope Recipients</b>	<code>\$EnvelopeRecipients</code>	Replaced by all Envelope Recipients (Envelope To, <RCPT TO>) of the message.
<b>File Names</b>	<code>\$filenames</code>	Replaced with a comma-separated list of the message's attachments' filenames.
<b>File Sizes</b>	<code>\$filesizes</code>	Replaced with a comma-separated list of the message's attachment's file sizes.
<b>File Types</b>	<code>\$filetypes</code>	Replaced with a comma-separated list of the message's attachments' file types.
<b>Filter Name</b>	<code>\$FilterName</code>	Replaced by the name of the filter being processed.
<b>GMTimeStamp</b>	<code>\$GMTimeStamp</code>	Replaced by the current time and date, as would be found in the Received: line of an email message, using GMT.
<b>HAT Group Name</b>	<code>\$Group</code>	Replaced by the name of the sender group the sender matched on when injecting the message. If the sender group had no name, the string ">Unknown<" is inserted.



**Table 6-5 Action Variables (Continued)**

<b>Variable</b>	<b>Syntax</b>	<b>Description</b>
<b>Mail Flow Policy</b>	<code>\$Policy</code>	Replaced by the name of the HAT policy applied to the sender when injecting the message. If no predefined policy name was used, the string “>Unknown<” is inserted.
<b>Matched Content</b>	<code>\$MatchedContent</code>	Replaced by the value (or values) that triggered a content-scanning filter. Matched content can be a content dictionary match, a smart identifier, or a match to a regular expression.
<b>Header</b>	<code>\$Header['string']</code>	Replaced by the value of the quoted header, if the original message contains a matching header. Note that double quotes may also be used.
<b>Hostname</b>	<code>\$Hostname</code>	Replaced by the hostname of the IronPort appliance.
<b>Internal Message ID</b>	<code>\$MID</code>	Replaced by the Message ID, or “MID” used internally to identify the message. Not to be confused with the RFC822 “Message-Id” value (use <code>\$Header</code> to retrieve that).
<b>Receiving Listener</b>	<code>\$RecvListener</code>	Replaced by the nickname of the listener that received the message.
<b>Receiving Interface</b>	<code>\$RecvInt</code>	Replaced by the nickname of the interface that received the message.
<b>Remote IP Address</b>	<code>\$RemoteIP</code>	Replaced by the IP address of the system that sent the message to the IronPort appliance.

**Table 6-5**      **Action Variables (Continued)**

Variable	Syntax	Description
<b>Remote Host Address</b>	<code>\$remotehost</code>	Replaced by the hostname of the system that sent the message to the IronPort appliance.
<b>SenderBase Reputation Score</b>	<code>\$Reputation</code>	Replaced by the SenderBase Reputation score of the sender. If there is no reputation score, it is replaced with “None”.
<b>Subject</b>	<code>\$Subject</code>	Replaced by the subject of the message.
<b>Time</b>	<code>\$Time</code>	Replaced by the current time, in the local time zone.
<b>Timestamp</b>	<code>\$Timestamp</code>	Replaced by the current time and date, as would be found in the Received: line of an email message, in the local time zone.

## Practical Example (GUI)

The following example demonstrates the features of Email Security Manager by illustrating the following tasks:

- 
- Step 1**    Editing the anti-spam, anti-virus, Virus Outbreak Filter, and Content Filters for the default Incoming Mail Policy.
  - Step 2**    Adding two new policies for different sets of users — the sales organization and the engineering organization — and then configuring different email security settings for each.
  - Step 3**    Creating three new content filters to be used in the Incoming Mail Overview policy table.
  - Step 4**    Editing the policies again to enable the content filters for some groups, but not for others.

This example is meant to show the power and flexibility with which you can manage different recipient-based settings for anti-spam, anti-virus, Virus Outbreak Filter, and Content Filters in Email Security Manager. For more detailed information about how anti-spam, anti-virus, and Virus Outbreak filters work, refer to the chapters following this one:

- [Anti-Spam, page 8-259](#)
- [Anti-Virus, page 9-301](#)
- [Virus Outbreak Filters, page 10-329](#)

## Accessing Email Security Manager

On newly-installed or upgraded systems, access Email Security Manager by clicking the Mail Policies tab. By default, The Incoming Mail Policies table is displayed.

On brand new systems, if you completed all steps in the system setup wizard and you chose to enable IronPort Anti-Spam, Sophos or McAfee Anti-Virus, and Virus Outbreak Filters, the Incoming Mail Policies Page will resemble [Figure 6-4](#).

By default, these settings are enabled for the default Incoming Mail Policy:

- Anti-Spam (if the IronPort Spam Quarantine is enabled): Enabled
  - Positively-identified spam: quarantine, prepend the message subject
  - Suspected spam: quarantine, prepend the message subject
  - Marketing email: scanning not enabled
- Anti-Spam (if the IronPort Spam Quarantine is not enabled): Enabled
  - Positively-identified spam: deliver, prepend the message subject
  - Suspected spam: deliver, prepend the message subject
  - Marketing email: scanning not enabled
- Anti-Virus: Enabled, Scan and Repair viruses, include an X-header with anti-virus scanning results
  - Repaired messages: deliver, prepend the message subject
  - Encrypted messages: deliver, prepend the message subject
  - Unscannable messages: deliver, prepend the message subject

- Virus infected messages: drop
- Virus Outbreak Filters: Enabled
  - No file extensions are excepted
- Content Filters: Disable

**Figure 6-4 Incoming Mail Policies Page: Defaults for a Brand New Appliance**  
**Incoming Mail Policies**

Find Policies

Email Address:

Recipient

Sender

Find Policies

Add Policy...

Order	Policy Name	Anti-Spam	Anti-Virus	Content Filters	Virus Outbreak Filters	Delete
	Default Policy	IronPort Anti-Spam Positive: Quarantine Suspected: Quarantine Marketing Messages: Disabled	Sophos Encrypted: Deliver Unscannable: Deliver Virus Positive: Drop	Disabled	Enabled	

Key: 

Default

Custom

Disabled



**Note**

In this example, the Incoming Mail Policy will use the default anti-spam settings for when the IronPort Spam Quarantine is enabled.

**Enabled, Disabled, and “Not Available”**

The columns in an Email Security Manager table (either incoming or outgoing) display links for the state of the security service for each policy name. If a service is enabled, the word “Enabled” or a summary of the configuration is displayed. Similarly, the word “Disabled” is displayed if a service is disabled.

“Not Available” is displayed as a link if the license agreement for a service has not been accepted yet or a service has expired. In these cases, clicking the “Not Available” link will display the global page within the Security Services tab, rather than the page where you can configure per-policy settings for a service. An alert is displayed to let you know that your page has changed to a different tab. See [Figure 6-5](#).

**Figure 6-5**      **Security Services Not Available**  
**Incoming Mail Policies**

Order	Policy Name	Anti-Spam	Anti-Virus	Content Filters	Virus Outbreak Filters	Delete
	Default Policy	Not Available	Not Available	Disabled	Not Available	

Key: Default Custom Disabled

## Editing the Default Policy: Anti-Spam Settings

Each row in the Email Security Manager represents a different policy. Each column represents a different security service.

- To edit the default policy, click any of the links for a security service in the bottom row of the Email Security Manager incoming or outgoing mail policy table.

In this example, you will change the anti-spam settings for the default policy for incoming mail to be more aggressive. The default value is to quarantine positively identified and suspected spam messages, with marketing email scanning disabled. This example shows how to change the setting so that positively identified spam is dropped. Suspected spam continues to be quarantined. Marketing email scanning is enabled, with marketing messages being delivered to the intended recipients. The subjects of marketing messages will be prepended with the text [MARKETING].

- Step 1** Click the link for the anti-spam security service. The Anti-Spam settings page shown in [Figure 6-6](#) is displayed.



**Note** For default security service settings, the first setting on the page defines whether the service is enabled for the policy. You can click “Disable” to disable the service altogether.

- Step 2** In the “Positively Identified Spam Settings” section, change the “Action to apply to this message” to Drop.

**Step 3** In the “Marketing Email Settings” section, click **Yes** to enable marketing email scanning.

If enabled, the default action is to deliver legitimate marketing messages while prepending the subject with the text `[MARKETING]`.

The “Add text to message” field only accepts US-ASCII characters.

**Step 4** Click **Submit**. The Incoming Mail Policies table page is re-displayed. Note that the summary link for the anti-spam security service has changed to reflect the new values.

Similar to the steps above, you can change the default anti-virus and virus outbreak filter settings for the default policy.

**Figure 6-6 Anti-Spam Settings Page**  
**Mail Policies: Anti-Spam**

Anti-Spam Settings	
<b>Policy:</b>	Default
Enable Anti-Spam Scanning for This Policy:	<input checked="" type="radio"/> Use IronPort Anti-Spam service <input type="radio"/> Disabled
<b>Positively Identified Spam Settings</b>	
Apply This Action to Message:	Drop
Add Text to Subject:	Prepend [SPAM]
Advanced	Optional settings for custom header and message delivery.
<b>Suspected Spam Settings</b>	
Enable Suspected Spam Scanning:	<input type="radio"/> No <input checked="" type="radio"/> Yes
Apply This Action to Message:	Spam Quarantine
	<small>Note: If local and external quarantines are defined, mail will be sent to local quarantine.</small>
Add Text to Subject:	Prepend [SUSPECTED SPAM]
Advanced	Optional settings for custom header and message delivery.
<b>Marketing Email Settings</b>	
Enable Marketing Email Scanning:	<input type="radio"/> No <input checked="" type="radio"/> Yes
Apply This Action to Message:	Deliver
	Send to Alternate Host (optional):
Add Text to Subject:	Prepend [MARKETING]
Advanced	Optional settings for custom header and message delivery.
<b>Spam Thresholds</b>	
<small>Spam is scored on a 1-100 scale. The higher the score, the more likely a message is a spam.</small>	
IronPort Anti-Spam:	<input checked="" type="radio"/> Use the Default Thresholds <input type="radio"/> Use Custom Settings:
Positively Identified Spam:	Score > 90 (50 - 100)
Suspected Spam:	Score > 50 (minimum 25, cannot exceed positive spam score)

Cancel Submit

## Creating a New Policy

In this part of the example, you will create two new policies: one for the sales organization (whose members will be defined by an LDAP acceptance query), and another for the engineering organization. You will then configure different email security settings for each.

**Step 1** Click the **Add Policy** button to begin creating a new policy.

The Add Users page is displayed.

**Step 2** Define a unique name for and adjust the order of the policy (if necessary).

The name of the policy must be unique to the Mail Policies table (either incoming or outgoing) in which it is defined.

Remember that each recipient is evaluated for each policy in the appropriate table (incoming or outgoing) in a top-down fashion. See [First Match Wins, page 6-192](#) for more information.

**Step 3** Define users for the policy.

You define whether the user is a sender or a recipient. (See [Policy Matching, page 6-192](#) for more detail.) The form shown in [Figure 6-7](#) defaults to recipients for incoming mail policies and to senders for outgoing mail policies.

Users for a given policy can be defined in the following ways:

- Full email address: `user@example.com`
- Partial email address: `user@`
- All users in a domain: `@example.com`
- All users in a partial domain: `@.example.com`
- By matching an LDAP Query



**Note**

---

Entries for users are case-insensitive in both the GUI and CLI in AsyncOS. Use caution when entering user for a given policy. For example, if you enter the recipient `Joe@` for a user, a message sent to `joe@example.com` will not match.

---

If you store user information within LDAP directories in your network infrastructure — for example, in Microsoft Active Directory, SunONE Directory Server (formerly known as “iPlanet Directory Server”), or Open LDAP directories — you can configure the IronPort appliance to query your LDAP servers for the purposes of accepting recipient addresses, rerouting messages to alternate addresses and/or mail hosts, masquerading headers, and determining if messages have recipients or senders from specific groups.

If you have configured the appliance to do so, you can use the configured queries to define users for a mail policy in Email Security Manager.

See the “LDAP Queries” chapter in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide* for more information.



**Figure 6-7**      **Defining Users for a Policy**  
**Add Incoming Mail Policy**

**Step 4** Click the **Add** button to add users into the Current Users list.

Policies can contain mixtures of senders, recipients, and LDAP queries.

Use the **Remove** button to remove a defined user from the list of current users.

**Step 5** When you are finished adding users, click **Submit**.

The Mail Policies page is displayed with the new policy added.

Note that all security services settings are set to use the default values when you first add a policy.

**Figure 6-8**      **Newly Added Policy — Sales Group**

Policies						
Add Policy...						
Order	Policy Name	Anti-Spam	Anti-Virus	Content Filters	Virus Outbreak Filters	Delete
1	Sales_Team	(use default)	(use default)	(use default)	(use default)	
	Default Policy	IronPort Anti-Spam Positive: Drop Suspected: Quarantine Marketing Messages: Deliver	Sophos Encrypted: Deliver Unscannable: Deliver Virus Positive: Drop	Disabled	Enabled	

Key: Default Custom Disabled

**Step 6** Click the **Add Policy** button again to add another new policy.

In this policy, individual email addresses for members of the engineering team are defined:

**Figure 6-9** *Creating a Policy for the Engineering Team*  
**Add Incoming Mail Policy**

**Add Policy**

Policy Name:  (e.g. my IT policy)

Insert Before Policy:

---

**Add Users**

☐ Sender

☒ Recipient

☒ Email Address(es):

(e.g. user@example.com, user@, @example.com, @.example.com)

☐ LDAP Group Query:

Query:

Group:

**Current Users**

Recipient: bob@example.com  
Recipient: fred@example.com  
Recipient: mary@example.com

**Step 7** When you are finished adding users for the engineering policy, click **Submit**.

The Mail Policies page is displayed with the new policy added. See [Figure 6-10](#).

**Step 8** Commit your changes.

**Figure 6-10**      **Newly Added Policy — Engineering Team**

Policies						
<a href="#">Add Policy...</a>						
Order	Policy Name	Anti-Spam	Anti-Virus	Content Filters	Virus Outbreak Filters	Delete
1	Sales_Team	(use default)	(use default)	(use default)	(use default)	
2	Engineering	(use default)	(use default)	(use default)	(use default)	
	Default Policy	IronPort Anti-Spam Positive: Drop Suspected: Quarantine Marketing Messages: Deliver	Sophos Encrypted: Deliver Unscannable: Deliver Virus Positive: Drop	Disabled	Enabled	

Key: Default Custom Disabled

**Note**

At this point, both newly created policies have the same settings applied to them as those in the default policy. Messages to users of either policy will match; however, the mail processing settings are not any different from the default policy. Therefore, messages that match users in the “Sales\_Group” or “Engineering” policies will not be processed any differently than the default policy.

## Default, Custom, and Disabled

The key at the bottom of the table shows how the color coding of cells for specific policies relates to the policy defined for the default row:

Key: Default Custom Disabled

- Yellow shading shows that the policy is using the same settings as the default policy.
- No shading (white) shows that the policy is using different settings than the default policy.
- Grey shading shows that the security service has been disabled for the policy.

## Creating Custom Policies

In this part of the example, you will edit the two policies just created in the previous section.

- For the sales group, you will change the anti-spam settings to be even more aggressive than the default policy. (See [Editing the Default Policy: Anti-Spam Settings](#), page 6-221.) The default policy of dropping positively

identified spam messages will be kept. However, in this example, you will change the setting for marketing messages so that they will be sent to the IronPort Spam quarantine.

This aggressive policy has the effect of minimizing unwanted messages being sent to sales team inboxes.

See [Anti-Spam, page 8-259](#) for more information on anti-spam settings.

- For the engineering team, customize the Virus Outbreak Filters feature setting so that files with the extension “dwg” will be bypassed by the Virus Outbreak Filter scanning.

See [Virus Outbreak Filters, page 10-329](#) for more information on configuring Virus Outbreak Filters.

To edit the anti-spam settings for the sales team policy:

- Step 1** Click the link for the Anti-Spam security service (the Anti-Spam) column in the sales policy row.

Because the policy was just added, the link is named: (use default).

**Figure 6-11** *Editing the Anti-Spam Settings for the Sales Team Policy*

Policies		
Add Policy...		
Order	Policy Name	Anti-Spam
1	Sales_Team	<a href="#">(use default)</a>
2	Engineering	<a href="#">(use default)</a>
	Default Policy	IronPort Anti-Spam Positive: Drop Suspected: Quarantine Marketing Messages: Deliver

The anti-spam settings page is displayed.

- Step 2** On the anti-spam security service page, change the value for “Enable Anti-Spam Scanning for this Policy” from “Use Default Settings” to “Use IronPort Anti-Spam.”

Choosing “Use IronPort Anti-Spam” here allows you to override the settings defined in the default policy.

- Step 3** In the “Positively-Identified Spam Settings” section, change the “Apply This Action to Message” to “Drop.”

- Step 4** In the “Suspected Spam Settings” section, click **Yes** to enable suspected spam scanning.

- Step 5** In the “Suspected Spam Settings” section, change the “Apply This Action to Message” to “Spam Quarantine.”



**Note** Selecting the IronPort Spam quarantine forwards mail according to the settings defined in the “Quarantines” chapter in the *Cisco IronPort AsyncOS for Email Daily Management Guide*.

- Step 6** In the “Add text to subject” field, click **None**.  
Messages delivered to the IronPort Spam quarantine will have no additional subject tagging.
- Step 7** In the “Marketing Email Settings” section, click **Yes** to enable scanning for marketing mail from legitimate sources.
- Step 8** In the “Apply This Action to Message” section, select “Spam Quarantine.”
- Step 9** Submit and commit your changes.

The Incoming Mail Policies page is displayed with the changes shown for the sales policy. See [Figure 6-12](#). Note that the shading shows that the policy is using different settings than the default policy.

**Figure 6-12 Anti-Spam Settings for the Sales Group Policy Changed**

Policies		
Add Policy...		
Order	Policy Name	Anti-Spam
1	Sales_Team	IronPort Anti-Spam Positive: Drop Suspected: Quarantine Marketing Messages: Quarantine
2	Engineering	(use default)
	Default Policy	IronPort Anti-Spam Positive: Drop Suspected: Quarantine Marketing Messages: Deliver

At this point, any message that is suspected spam and whose recipient matches the LDAP query defined for the sales team policy will be delivered to the IronPort Spam Quarantine.

To edit the Virus Outbreak Filter settings for the engineering team policy:

- Step 1** Click the link for the Virus Outbreak Filters feature security service (the Virus Outbreak Filters column) in the engineering policy row.

Because the policy was just added, the link is named: (use default).

**Figure 6-13**      *Editing the Virus Outbreak Filters Feature Settings for the Engineering Team Policy*

Policies						
Add Policy...						
Order	Policy Name	Anti-Spam	Anti-Virus	Content Filters	Virus Outbreak Filters	Delete
1	Sales_Team	IronPort Anti-Spam Positive: Drop Suspected: Quarantine Marketing Messages: Quarantine	(use default)	(use default)	(use default)	
2	Engineering	(use default)	(use default)	(use default)	(use default)	
	Default Policy	IronPort Anti-Spam Positive: Drop Suspected: Quarantine Marketing Messages: Deliver	Sophos Encrypted: Deliver Unscannable: Deliver Virus Positive: Drop	Disabled	Enabled	

Key: ☐ Default ☐ Custom ☐ Disabled

**Step 2**      On the Virus Outbreak Filters feature security service page, change the value for “Enable Virus Outbreak Filter Scanning for this Policy” from “Use Default Settings” to “Yes.”

Choosing “Yes” here allows you to override the settings defined in the default policy.

Doing so will also enable the contents of the rest of the page to allow you to select different settings.

**Step 3**      In the “Bypass Outbreak Filtering For” section of the page, type **dwg** in the in the file extension field.

The file extension “**dwg**” is not in the list of known file type that the IronPort appliance can recognize by its fingerprint when attachment scanning.



**Note**      You do not need to type the period (.) before the three letter filename extension.

**Step 4**      Click **Add Extension** to add .dwg files to the list of file extensions that will bypass Virus Outbreak Filters feature scanning.

**Figure 6-14** *Bypassing Virus Outbreak Filtering*  
Mail Policies: Virus Outbreak Filters

**Virus Outbreak Filter Settings**

**Policy:** Engineering

**Enable Virus Outbreak Filter scanning for this policy:**

☒ Yes  
☐ Use Default Settings  
☐ No

**Bypass Virus Outbreak Filtering For**

**File Extension:** ☐ Select File Extension... ☒ dwg

**File Extensions to Bypass**

dwg

**Step 5** Submit and commit your changes.

The Incoming Mail Policies page is displayed with the changes shown for the engineering policy. See [Figure 6-12](#). Note that the shading shows that the policy is using different settings than the default policy.

**Figure 6-15** *Anti-Spam Settings for the Sales Team Policy Changed*

Policies						
<input type="button" value="Add Policy..."/>						
Order	Policy Name	Anti-Spam	Anti-Virus	Content Filters	Virus Outbreak Filters	Delete
1	Sales_Team	IronPort Anti-Spam Positive: Drop Suspected: Quarantine Marketing Messages: Quarantine	(use default)	(use default)	(use default)	<input type="button" value="Delete"/>
2	Engineering	(use default)	(use default)	(use default)	Enabled	<input type="button" value="Delete"/>
	Default Policy	IronPort Anti-Spam Positive: Drop Suspected: Quarantine Marketing Messages: Deliver	Sophos Encrypted: Deliver Unscannable: Deliver Virus Positive: Drop	Disabled	Enabled	

Key:

At this point, any message that contains an attachment whose file extension is `dwg` — and whose recipient matches the recipients defined for the engineering team policy — will bypass the Virus Outbreak Filter scanning and continue processing.

## Finding Users in Policies of the Email Security Manager

Use the “Find Policies” button to search for users already defined in policies defined in the Email Security Manager Incoming or Outgoing Mail Policies pages.

For example, typing `joe@example.com` and clicking the Find Policies button will display results showing which policies contain defined users that will match the policy.

**Figure 6-16** Finding Users in Policies

Find Policies

Email Address:

Recipient

Sender

Find Policies

Results: Email Address "Recipient: joe@example.com" is defined in the following policies:

- Engineering
- Default Policy (all users)

Policies matching "joe@example.com"

Add Policy...

Show All Policies

Order	Policy Name	Anti-Spam	Anti-Virus	Content Filters	Virus Outbreak Filters	Delete
2	Engineering	(use default)	(use default)	(use default)	Enabled	
	Default Policy	IronPort Anti-Spam Positive: Drop Suspected: Quarantine Marketing Messages: Deliver	Sophos Encrypted: Deliver Unscannable: Deliver Virus Positive: Drop	Disabled	Enabled	

Key: 

Default

Custom

Disabled

Click the name of the policy to jump to the Edit Policy page to edit the users for that policy.

Note that the default policy will always be shown when you search for any user, because, by definition, if a sender or recipient does not match any other configured policies, it will *always* match the default policy.

## Email Security Manager: Managed Exceptions

Using the steps shown in the two examples above, you can begin to create and configure policies on a *managed exception* basis. In other words, after evaluating your organization’s needs you can configure policies so that the majority of messages will be handled by the default policy. You can then create additional “exception” policies for specific users or user groups, managing the differing policies as needed. In this manner, message splintering will be minimized and you are less likely to impact system performance from the processing of each splinter message in the work queue.

You can define policies based on your organizations’ or users’ tolerance for spam, viruses, and policy enforcement. [Table 6-6 on page 6-233](#) outlines several example policies. “Aggressive” policies are designed to minimize the amount of



spam and viruses that reach end-users mailboxes. “Conservative” policies are tailored to avoid false positives and prevent users from missing messages, regardless of policies.

**Table 6-6 Aggressive and Conservative Email Security Manager Settings**

	<b>Aggressive Settings</b>	<b>Conservative Settings</b>
<b>Anti-Spam</b>	Positively identified spam: Drop Suspected spam: Quarantine Marketing mail: Deliver and prepend “[Marketing]” to the subject messages	Positively identified spam: Quarantine Suspected spam: Deliver and prepend “[Suspected Spam]” to the subject of messages Marketing mail: Disabled
<b>Anti-Virus</b>	Repaired messages: Deliver Encrypted messages: Drop Unscannable messages: Drop Infectious messages: Drop	Repaired messages: Deliver Encrypted messages: Quarantine Unscannable messages: Quarantine Infectious messages: Drop
<b>Virus Outbreak Filters</b>	Enabled, no specific filename extensions allowed to bypass	Enabled with specific filename extensions allowed to bypass

## Creating New Content Filters

In this part of the example, you will create three new content filters to be used in the Incoming Mail Policy table. You will create the following:

### Step 1 “scan\_for\_confidential”

This filter will scan messages for the string “confidential.” If the string is found, a copy of the message will be sent to email alias `hr@example.com`, and the message will be sent to the Policy quarantine area.

### Step 2 “no\_mp3s”

This filter will strip MP3 attachments and notify the recipients that an MP3 file was stripped.

**Step 3** “ex\_employee”

This content filter will scan for messages sent to a specific envelope recipient address (an ex-employee). If the message matches, a specific notification message will be sent to the sender of the message and then the message will be bounced.

After creating the content filters, you will then configure each of the policies (including the default policy) to enable the specific content filters in differing combinations.

## Scan for Confidential

The first example content filter contains one condition and two actions. To create the content filter:

**Step 1** Click the Mail Policies tab.

**Step 2** Click the Incoming Content Filters Section.

The Incoming Content Filters page is displayed. On newly installed or upgraded systems, no content filters are defined by default.

**Figure 6-17 Incoming Content Filters Page**  
**Incoming Content Filters**



**Step 3** Click the **Add Filter** button.

The Add Content Filter page is displayed.

**Step 4** In the Name field, type `scan_for_confidential` as the name of the new filter.

Filter names can contain ASCII characters, numbers, underscores or dashes. The first character of a content filter name must be a letter or an underscore.

**Step 5** In the Description field, type the description. For example: `scan all incoming mail for the string 'confidential'.`

**Step 6** Click **Add Condition**.

**Step 7** Select Message Body.

**Step 8** Type `confidential` in the Contains text: field and click **OK**.

The Add Content Filter page shows the condition added.

**Step 9** Click **Add Action**.

**Step 10** Select Send Copy To (Bcc:).

**Step 11** In the Email Addresses field, type `hr@example.com`.

**Step 12** In the Subject field, type `[message matched confidential filter]`.

**Step 13** Click **OK**.

The Add Content Filter page shows the action added.

**Step 14** Click **Add Action**.

**Step 15** Select Quarantine.

**Step 16** In the drop-down menu, select the Policy quarantine area.

**Step 17** Click **OK**.

The Add Content Filter page shows the second action added.

**Step 18** Submit and commit your changes.

At this point, the content filter is not enabled for any incoming Mail Policy; in this example, you have only added a new content filter to the master list. Because it has not been applied to any policy, no email processing by Email Security Manager will be affected by this filter.

## No MP3 Attachments

The second example content filter contains no conditions and one action. To create the second content filter:

---

**Step 1** Click the **Add Filter** button.

The Add Content Filter page is displayed.

**Step 2** In the Name field, type `no_mp3s` as the name of the new filter.

**Step 3** In the Description field, type the description. For example: `strip all MP3 attachments`.

**Step 4** Click **Add Action**.

**Step 5** Select Strip Attachment by File Info.

- Step 6** Select `File type is`.
- Step 7** In the drop-down field, select `-- mp3`.
- Step 8** Enter a replacement message if desired.
- Step 9** Click **OK**.

The Add Content page shows the action added.

- Step 10** Submit and commit your changes.



#### Note

It is not necessary to specify a condition when creating a content filter. When no condition is defined, any actions defined will always apply in the rule. (Specifying no condition is equivalent to using the `true()` message filter rule — all messages will be matched if the content filter is applied to a policy.)

## Ex-employee

To create the third content filter:

- 
- Step 1** Click the **Add Filter** button.  
The Add Content Filter page is displayed.
  - Step 2** In the Name: field, type `ex_employee` as the name of the new filter.
  - Step 3** In the Description: field, type the description. For example: `bounce messages intended for Doug`.
  - Step 4** Click **Add Condition**.
  - Step 5** Select Envelope Recipient.
  - Step 6** For the envelope recipient, select `Begins with`, and type `doug@`.
  - Step 7** Click **OK**.

The Content Filters page refreshes to show the condition added. Note that you could create an LDAP directory containing the email addresses of former employees. As ex-employees are added to that directory, this content filter would be dynamically updated.

- Step 8** Click **Add Action**.
- Step 9** Select Notify.

**Step 10** Select the checkbox for Sender and, in the Subject field, type `message bounced for ex-employee of example.com`.

**Step 11** In the Use template section, select a notification template.



**Note**

Some sections of the content filter rule builder will not appear in the user interface if the resource has not been preconfigured. For example, content dictionaries, notification templates, and message disclaimers will not appear as options if they have not been configured previously via the Mail Policies > Dictionaries page (or the `dictionaryconfig` command in the CLI). For more information about creating dictionaries, see [Content Dictionaries, page 14-420](#).

**Step 12** Click **OK**.

The Add Content Filters page shows the action added.

**Step 13** Click **Add Action**.

**Step 14** Select Bounce (Final Action) and click **OK**.

You can only specify one final action for a content filter. If you try to attempt to add more than one final action, the GUI displays an error.

Adding this action may will cause senders of messages to this ex-employee to potentially receive two messages: one for the notification template, and one for the bounce notification template.

**Step 15** Submit and commit your changes.

The Incoming Content Filters page is displayed to show the newly-added content filter.

## Enabling and Applying Content Filters to Individual Policies

In the examples above, you created three content filters using the Incoming Content Filters pages. The Incoming Content Filters and Outgoing Content filters pages hold the “master lists” of all possible content filters that can be applied to a policy.

**Figure 6-18 Incoming Content Filters: Three Filters Created**

Filters					
Add Filter...					
Order	Filter Name	Description   Rules   Policies	Duplicate	Delete	
1	scan_for_confidential	scan all incoming mail for the string 'confidential'			
2	no_mp3s	strip all MP3 attachments			
3	ex_employee	bounce messages intended for Doug			

In this part of the example, you will apply the three new content filters to be used in the Incoming Mail Policy table.

- The default policy will receive all three content filters.
- The engineering group will *not* receive the no\_mp3s filter.
- The sales group will receive the content filters as the default incoming mail policy.

Click the links to enable and select content filters for individual policies. To edit the default incoming mail policy:

- Step 1** Click Incoming Mail Policies to return to the Incoming Mail Policy table.
- The page is refreshed to show the default policy and the two policies added in [Creating a New Policy, page 6-223](#). Note that content filtering is disabled by default for all policies.
- Step 2** Click the link for the Content Filters security service (the Content Filters column) in the default policy row. See [Figure 6-19](#).

**Figure 6-19 Editing the Content Filters Setting for the Default Incoming Mail Policy**

Policies						
Add Policy...						
Order	Policy Name	Anti-Spam	Anti-Virus	Content Filters	Virus Outbreak Filters	Delete
1	Sales_Group	IronPort Anti-Spam Positive: Drop Suspected: Quarantine	(use default)	(use default)	(use default)	
2	Engineering	(use default)	(use default)	(use default)	Enabled	
	Default Policy	IronPort Anti-Spam Positive: Drop Suspected: Deliver	Sophos Encrypted: Deliver Unscannable: Deliver Virus Positive: Drop	<a href="#">Disabled</a>	Enabled	

- Step 3** On the Content Filtering security service page, change the value for “Enable Content Filtering for this Policy” from “No” to “Yes.”

**Figure 6-20 Enabling Content Filters for the Policy and Selecting Specific Content Filters**

**Mail Policies: Content Filters**

**Content Filtering for: Default Policy**

Enable Content Filtering for this Policy: ☒ Yes ☐ No

Content Filters			
Order	Filter Name	Description	Enable
1	scan_for_confidential	scan all incoming email for the string "confidential"	<input type="checkbox"/>
2	no_mp3s	strip all mp3 attachments	<input type="checkbox"/>
3	ex_employee	bounce messages intended for Doug	<input type="checkbox"/>

Cancel Submit

The content filters defined in the master list (which were created in [Content Filters Overview, page 6-197](#) using the Incoming Content Filters pages) are displayed on this page. When you change the value from “No” to “Yes,” the checkboxes for each filter change from disabled (greyed out) to become enabled.



**Note** By default, when you enable content filtering for a policy, all content filters will be selected.

**Step 4** Click **Submit**.

The Incoming Mail Policies page is displayed, and the table is updated to show the names of the filters that have been enabled for the default policy.

**Figure 6-21 Three Content Filters Enabled for the Default Incoming Mail Policy**

Default Policy	IronPort Anti-Spam Positive: Drop Suspected: Deliver	Sophos Encrypted: Deliver Unscannable: Deliver Virus Positive: Drop	scan_for_confidential no_mp3s ex_employee
----------------	--	--	---

To disable content filters for the “engineering” policy:

**Step 1** Click the link for the Content Filters security service (the Content Filters column) in the engineering team policy row.

**Step 2** On the Content Filtering security service page, change the value for “Enable Content Filtering for this Policy” from “Use Default Settings” to “Yes.”

Because this policy was using the default values, when you change the value from “Use Default Settings” to “Yes,” the checkboxes for each filter change from disabled (greyed out) to become enabled.

**Step 3** Deselect the checkbox for the “no\_mp3s” filter.

**Figure 6-22 Deselecting a Content Filter**  
Mail Policies: Content Filters

Content Filtering for Policy: Engineering

Enable Content Filtering for this Policy: ☒ Yes ☐ Use Default Settings ☐ No

Content Filters			
Order	Filter Name	Description	Enable
1	scan_for_confidential	scan all incoming email for the string "confidential"	<input checked="" type="checkbox"/>
2	no_mp3s	strip all mp3 attachments	<input type="checkbox"/>
3	ex_employee	bounce messages intended for Doug	<input checked="" type="checkbox"/>

Cancel Submit

**Step 4** Click **Submit**.

The Incoming Mail Policies page is displayed, and the table is updated to show the names of the filters that have been enabled for the engineering policy.

**Figure 6-23 Updated Content Filters for Incoming Mail Policies**

Policies						
Add Policy...						
Order	Policy Name	Anti-Spam	Anti-Virus	Content Filters	Virus Outbreak Filters	Delete
1	Sales_Group	IronPort Anti-Spam Positive: Drop Suspected: Quarantine	(use default)	(use default)	(use default)	
2	Engineering	(use default)	(use default)	scan_for_confidential ex_employee	Enabled	
	Default Policy	IronPort Anti-Spam Positive: Drop Suspected: Deliver	Sophos Encrypted: Deliver Unscannable: Deliver Virus Positive: Drop	scan_for_confidential no_mp3s ex_employee	Enabled	

**Step 5** Commit your changes.

At this point, incoming messages that match the user list for the engineering policy will not have MP3 attachments stripped; however, all other incoming messages will have MP3 attachments stripped.

## Notes on Configuring Content Filters in the GUI

- It is not necessary to specify a condition when creating a content filter. When no action is defined, any actions defined will always apply in the rule. (Specifying no action is equivalent to using the `true()` message filter rule — all messages will be matched if the content filter is applied to a policy.)



- When entering text for filter rules and actions, the following meta characters have special meaning in regular expression matching: . ^ \$ \* + ? { [ ] \ | ( )

If you do not wish to use regular expression you should use a '\ (backslash) to escape any of these characters. For example: "\\*Warning\\*"

- When you define more than one Condition for a content filter, you can define whether *all* of the defined actions (that is, a logical AND) or any of the defined actions (logical OR) need to apply in order for the content filter to be considered a match.

**Figure 6-24** Choosing Any or All of the Following Conditions

Add Filter	
Name:	<input type="text"/>
Currently used by policies:	
Description:	<input type="text"/>
Order:	5 <input type="button" value="v"/>
Apply filter:	<input checked="" type="radio"/> If one or more conditions match <input type="radio"/> Only if ALL conditions match

- You can test message splintering and content filters by creating “benign” content filters. For example, it is possible to create a content filter whose only action is “deliver.” This content filter will not affect mail processing; however, you can use this filter to test how Email Security Manager policy processing affects other elements in the system (for example, the mail logs).
- Conversely, using the “master list” concept of the Incoming or Outgoing Content Filters, it is possible to create very powerful, wide-sweeping content filters that will immediately affect message processing for all mail handled by the appliance. The process for this is to:
  - Use the Incoming or Outgoing Content Filters page to create a new content filter whose order is 1.
  - Use the Incoming or Outgoing Mail Policies page to enable the new content filter for the default policy.
  - Enable the content filter for all remaining policies.
- The Bcc: and Quarantine actions available in Content Filters can help you determine the retention settings of quarantines you create. (See the “Quarantines” chapter in the *Cisco IronPort AsyncOS for Email Daily*

*Management Guide* for more details.) You can create filters that would simulate mail flow into and out of your system quarantines so that messages are not released too quickly from the system (that is, the quarantine areas do not fill their allotted disk space too quickly).

- Because it uses the same settings as the `scanconfig` command, the “Entire Message” condition does not scan a message’s headers; choosing the “Entire Message” will scan only the message body and attachments. Use the “Subject” or “Header” conditions to search for specific header information.
- Configuring users by LDAP query will only appear in the GUI if you have LDAP servers configured on the appliance (that is, you have configured the appliance to query specific LDAP servers with specific strings using the `ldapconfig` command).
- Some sections of the content filter rule builder will not appear in the GUI if the resource has not been preconfigured. For example, notification templates and message disclaimers will not appear as options if they have not been configured previously using the Text Resources page or the `textconfig` command in the CLI.
- Content filters features will recognize, can contain, and/or scan for text in the following character encodings:
  - Unicode (UTF-8)
  - Unicode (UTF-16)
  - Western European/Latin-1 (ISO 8859-1)
  - Western European/Latin-1 (Windows CP1252)
  - Traditional Chinese (Big 5)
  - Simplified Chinese (GB 2312)
  - Simplified Chinese (HZ GB 2312)
  - Korean (ISO 2022-KR)
  - Korean (KS-C-5601/EUC-KR)
  - Japanese (Shift-JIS (X0123))
  - Japanese (ISO-2022-JP)
  - Japanese (EUC)

You can mix and match multiple character sets within a single content filter. Refer to your web browser's documentation for help displaying and entering text in multiple character encodings. Most browsers can render multiple character sets simultaneously.

**Figure 6-25 Multiple Character Sets in a Content Filter**

The screenshot shows a web interface for configuring content filters. At the top, there's a tab labeled "Conditions". Below it, a form has a dropdown menu set to "Entire Message", a "Contains" button, and a text input field containing "Hello, 你好吗? My nam". To the right of the input field is an "Add Condition" button. Below the form, a section titled "Conditions" displays a list of conditions. The first condition is highlighted in yellow and reads: `body-contains("Hello, 你好吗? My name is Steve")`. A mouse cursor is pointing at the end of this condition.

- On the Incoming or Outgoing Content Filters summary pages, use the links for “Description,” “Rules,” and “Policies” to change the view presented for the content filters:
  - The **Description** view shows the text you entered in the description field for each content filter. (This is the default view.)
  - The **Rules** view shows the rules and regular expressions build by the rule builder page.
  - The **Policies** shows the policies for which each content filter is enabled.

**Figure 6-26 Using the Links to Toggle Description, Rules, and Policy for Content Filters**

### Incoming Content Filters

Filters					
Add Filter...					
Order	Filter Name	Description   Rules   Policies	Duplicate	Delete	
1	scan_for_confidential	scan_for_confidential: if (body-contains("confidential")) { quarantine ("Policy"); bcc ("hr@example.com", "[message matched confidential filter]"); }			
2	no_mp3s	no_mp3s: if (true) { drop-attachments-by-filetype("mp3", "mp3 deleted"); }			
3	ex_employee	ex_employee: if (rcpt-to == "^doug@") { notify-copy ("{\$EnvelopeSender", "message bounced for ex-employee of example.com"); bounce(); }			
4	drop_large_attachments	drop_large_attachments: if (true) { drop-attachments-by-size(5242880, "This attachment was too big!"); }			





## CHAPTER 7

# Reputation Filtering

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The IronPort appliance offers a unique, layered approach to stopping spam at the email gateway. The first layer of spam control, reputation filtering, allows you to classify email senders and restrict access to your email infrastructure based on senders' trustworthiness as determined by the IronPort SenderBase™ Reputation Service. The second layer of defense (discussed in the next chapter), scanning, is powered by IronPort Anti-Spam™ technology. Coupled together, reputation filtering and anti-spam scanning offer the most effective and highest performing anti-spam solution available today.

Using the IronPort appliance, it is very easy to create policies to deliver messages from known or highly reputable senders — such as customers and partners — directly to the end user without any anti-spam scanning. Messages from unknown or less reputable senders can be subjected to anti-spam scanning, and you can also throttle the number of messages you are willing to accept from each sender. Email senders with the worst reputation can have their connections rejected or their messages bounced based on your preferences.

The unique, two-layer approach to fighting spam of the IronPort appliance provides you with a powerful and unprecedented flexibility to manage and protect your enterprise email gateway.

This chapter contains the following sections:

- [Reputation Filtering, page 7-246](#)
- [Configuring Reputation Filtering, page 7-251](#)

The following chapter, Anti-Spam, discusses the anti-spam scanning engine in detail.

# Reputation Filtering

The SenderBase Reputation Service provides an accurate, flexible way for users to reject or throttle suspected spam based on the connecting IP address of the remote host. The SenderBase Reputation Service returns a score based on the probability that a message from a given source is spam and exposes objective data in the Mail Flow Monitor feature to allow mail administrators to get a more complete picture of who is sending them email (see “Using Email Security Monitor” in the *Cisco IronPort AsyncOS for Email Daily Management Guide*). The SenderBase Reputation Service can be used as a stand-alone anti-spam solution. It is primarily designed to improve the effectiveness of a content-based anti-spam system such as IronPort Anti-Spam.

Using the SenderBase Reputation Service, you can:

- Reduce spam

The SenderBase Reputation Service allows enterprises to identify known spam based on the connecting IP address, allowing organizations to block spam as soon as it reaches the gateway. This increases the effectiveness of the anti-spam scanning engine being used or any content-based filter.

- Protect against spam floods

Viruses such as SoBig and “hit and run” spam attacks can create sudden and unexpected spikes in message volume. If a particular sender starts sending at high volumes, the SenderBase Reputation Service can detect this through its global affiliate network and assign a more negative score, which the IronPort appliance can use to immediately begin limiting the number of recipients per hour allowed from the sender. (See also [Virus Outbreak Filters, page 10-329](#).)

- Improve throughput

The IronPort appliance can reduce system load and increase message throughput by immediately rejecting known spam and routing known good messages past content filters.

## Reputation Filtering: the IronPort SenderBase Reputation Service

The IronPort SenderBase Reputation Service (available at <http://www.senderbase.org>) is a service designed to help email administrators better manage incoming email streams by providing objective data about the

identity of senders. The SenderBase Reputation Service is similar to a credit reporting service for email; it provides data that enterprises can use to differentiate legitimate senders from spam sources. Integrated directly into the IronPort appliance GUI, the SenderBase Reputation Service provides objective data that allows you to identify reliably and block IP addresses originating unsolicited commercial email (UCE) or to verify the authenticity of legitimate incoming email from business partners, customers, or any other important source. The SenderBase Reputation Service is unique in that it provides a global view of email message volume and organizes the data in a way that makes it easy to identify and group related sources of email.

**Note**

If your IronPort appliance is set to receive mail from a local MX/MTA, you must identify upstream hosts that may mask the sender's IP address. See [Incoming Relays, page 8-287](#) for more information.

Several key elements of the SenderBase Reputation Service are that it is:

- Non-spoofable

The email sender's reputation is based on the IP addresses of the email sender. Because SMTP is a two-way conversation over TCP/IP, it is nearly impossible to “spoof” an IP address — the IP address presented must actually be controlled by the server sending the message.

- Comprehensive

The SenderBase Reputation Service uses global data from the SenderBase Affiliate network such as complaint rates and message volume statistics as well as data from carefully selected public blacklists and open proxy lists to determine the probability that a message from a given source is spam.

- Configurable

Unlike other “identity-based” anti-spam techniques like blacklists or whitelists that return a simple yes/no decision, the SenderBase Reputation Service returns a graduated response based on the probability that a message from that source is spam. This allows you to set your own threshold for where you choose to block spam and automatically assign senders to different groups based on their SenderBase Reputation Score.

## SenderBase Reputation Score (SBRS)

The SenderBase Reputation Score (SBRS) is a numeric value assigned to an IP address based on information from the SenderBase Reputation Service. The SenderBase Reputation Service aggregates data from over 25 public blacklists and open proxy lists, and combines this data with global data from SenderBase to assign a score from -10.0 to +10.0, as follows:

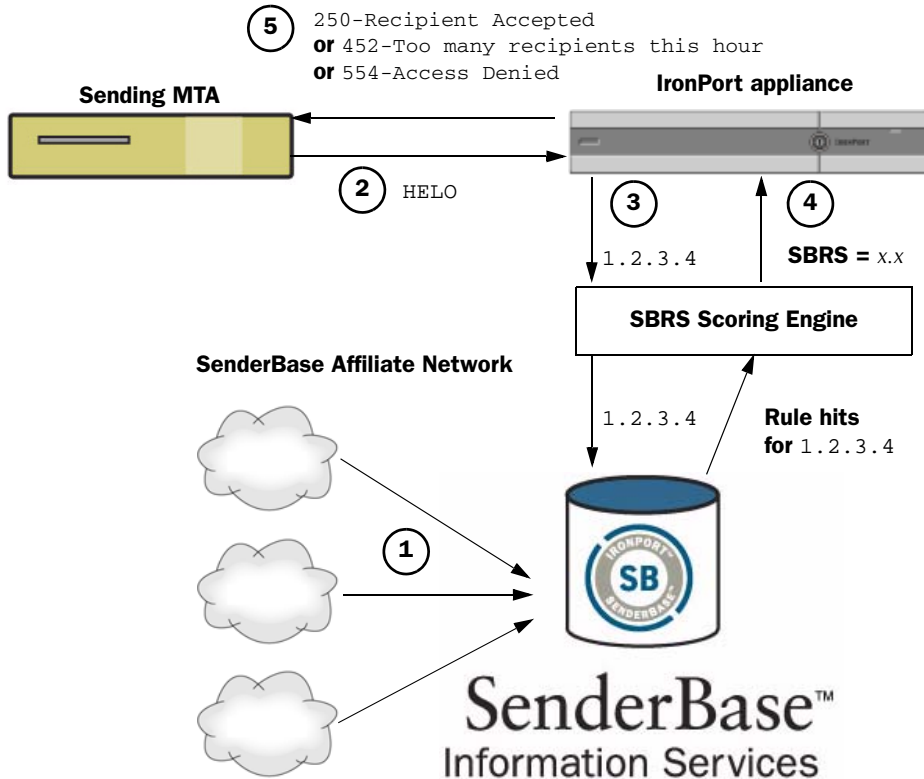
Score	Meaning
-10.0	Most likely to be a source of spam
0	Neutral, or not enough information to make a recommendation
+10.0	Most likely to be a trustworthy sender

The lower (more negative) the score, the more likely that a message is spam. A score of -10.0 means that this message is “guaranteed” to be spam, while a score of 10.0 means that the message is “guaranteed” to be legitimate.

Using the SBRS, you configure the IronPort appliance to apply mail flow policies to senders based on their trustworthiness. (You can also create message filters to specify “thresholds” for SenderBase Reputation Scores to further act upon messages processed by the system. For more information, refer to “SenderBase Reputation Rule” and “Bypass Anti-Spam System Action” in the “Using Message Filters to Enforce Email Policies” chapter in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.)



Figure 7-1

**The SenderBase Reputation Service**

- Global complaint data
- Global volume data

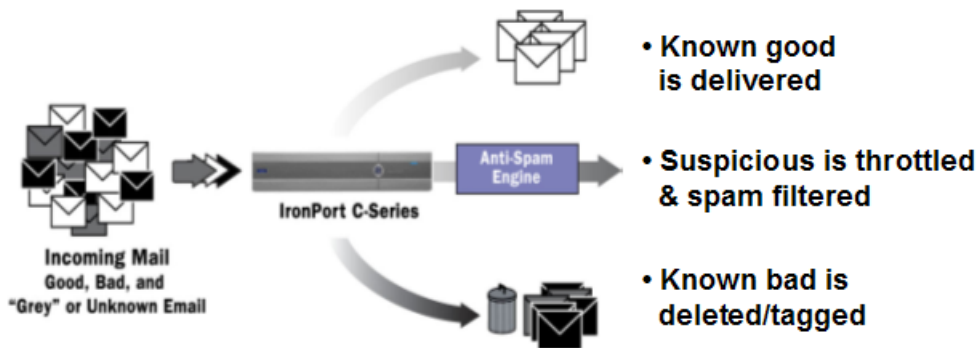
- 
- Step 1** SenderBase affiliates send real-time, global data
  - Step 2** Sending MTA opens connection with the IronPort appliance
  - Step 3** IronPort appliance checks global data for the connecting IP address
  - Step 4** SenderBase Reputation Service calculates the probability this message is spam and assigns a SenderBase Reputation Score
  - Step 5** IronPort returns the response based on the SenderBase Reputation Score

## Implementing SenderBase Reputation Filters

IronPort Reputation Filter technology aims to shunt as much mail as possible from the remaining security services processing that is available on the IronPort appliance. (See [Understanding the Email Pipeline](#), page 4-91.)

When enabling reputation filtering, mail from known bad senders is simply refused. Known good mail from global 2000 companies is automatically routed around the spam filters, reducing the chance of false positives. Unknown, or “grey” email is routed to the anti-spam scanning engine. Using this approach, reputation filters can reduce the load on the content filters by as much as 50%.

**Figure 7-2** Reputation Filtering Example



[Table 7-2](#) lists a set of recommended policies for implementing SenderBase reputation filtering. Depending on the objectives of your enterprise, you can implement a conservative, moderate, or aggressive approach.



### Note

Although IronPort recommends throttling, an alternative for implementing the SenderBase Reputation Service is to modify the subject line of suspected spam messages. To do this, use the following message filter shown in [Table 7-1](#). This filter uses the `reputation filter` rule and the `strip-header` and `insert-header` filter actions to replace the subject line of messages with a SenderBase Reputation Score lower than -2.0 with a subject line that includes the actual SenderBase Reputation Score represented as: `{Spam SBRS}`. Replace `listener_name` in this example with the name of your public listener. (The period on its own line is included so that you can cut and paste this text directly into the command line interface of the `filters` command.)

Refer to “Using Message Filters to Enforce Email Policies” chapter in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*, for more information.

**Table 7-1**      **Message Filter to Modify Subject Header with SBRS: Example 1**

```
sbrs_filter:

if ((recv-inj == "listener_name" AND subject != "\\{Spam -?[0-9.]+\\}"))
{
    insert-header("X-SBRS", "$REPUTATION");

    if (reputation <= -2.0)
    {
        strip-header("Subject");

        insert-header("Subject", "$Subject \\{Spam $REPUTATION\\}");
    }
}

.
```

## Configuring Reputation Filtering

Configure reputation filtering via the Mail Policies > HAT Overview page. For more information, see [Implementing SenderBase Reputation Filters, page 7-250](#).

### Conservative

A conservative approach is to block messages with a SenderBase Reputation Score lower than -4.0, throttle between -4.0 and -2.0, apply the default policy between -2.0 and +6.0, and apply the trusted policy for messages with a score greater than +6.0. Using this approach ensures a near zero false positive rate while achieving better system performance.

## Moderate

A moderate approach is to block messages with a SenderBase Reputation Score lower than -3.0, throttle between -3.0 and 0, apply the default policy between 0 and +6.0, and apply the trusted policy for messages with a score greater than +6.0. Using this approach ensures a very small false positive rate while achieving better system performance (because more mail is shunted away from Anti-Spam processing).

## Aggressive

An aggressive approach is to block messages with a SenderBase Reputation Score lower than -2.0, throttle between -2.0 and 0.5, apply the default policy between 0 and +4.0, and apply the trusted policy for messages with a score greater than +4.0. Using this approach, you might incur some false positives; however, this approach maximizes system performance by shunting the most mail away from Anti-Spam processing.



### Note

Users are also recommended to assign all messages with a SenderBase Reputation Score greater than 6.0 to the \$TRUSTED policy.

**Table 7-2**      ***Recommended Phased Approach to Implementing Reputation Filtering using the SBRS***

Policy	Blacklist	Throttle	Default	Whitelist
<b>Conservative</b>	-10 to -4	-4 to -2	-2 to 7	7 to 10
<b>Moderate</b>	-10 to -3	-3 to -1	-1 to 6	6 to 10
<b>Aggressive</b>	-10 to -2	-2 to -0.5	-0.5 to 4	4 to 10

Policy:	Characteristics:	Mail Flow Policy to Apply:
<b>Conservative:</b>	Near zero false positives, better performance	<b>\$BLOCKED</b>
<b>Moderate:</b>	Very few false positives, high performance	<b>\$THROTTLED</b>
<b>Aggressive:</b>	Some false positives, maximum performance	<b>\$DEFAULT</b>

The steps below outline a phased approach to implementing reputation filtering:

## Implementing Reputation Filtering in a Listener's HAT

To edit the default HAT entries for a public listener to include SBRS, perform the following steps:

- 
- Step 1** From the Mail Policies tab, select Host Access Table > HAT Overview. Select the public listener from the Sender Groups (Listener) menu. The HAT Overview page shows the SenderBase Reputation Score settings for each Sender Group.

**Figure 7-3 Listing Sender Groups' SenderBase Reputation Score Ranges**  
**HAT Overview**

**Find Senders**

Find Senders that Contain this Text:

---

**Sender Groups (Listener: IncomingMail (10.19.1.10:25) ▼)**

Order	Sender Group	SenderBase™ Reputation Score ?	Mail Flow Policy	Delete
1	WHITELIST		TRUSTED	
2	BLACKLIST		BLOCKED	
3	SUSPECTLIST		THROTTLED	
4	UNKNOWNLIST		ACCEPTED	
	ALL		ACCEPTED	

The HAT Overview shows the range of SenderBase Reputation Scores that are assigned to each sender group (the horizontal bar) as well as the associated mail flow policy.

**Step 2** Click the link for a sender group.

For example, click the “SUSPECTLIST” link. The Edit Sender Group page is displayed:

**Figure 7-4 Modifying a Sender Group's SBRS Ranges**  
**Edit Sender Group Settings: SUSPECTLIST**

**Sender Group Settings**

Name:

Order:

Comment:

Policy:

SBRS (Optional):  to

DNS Lists (Optional):  ?

Connecting Host DNS Verification:

- ☐ Connecting host PTR record does not exist in the DNS.
- ☐ Connecting host PTR record lookup fails due to temporary DNS failure.
- ☐ Connecting host reverse DNS lookup (PTR) does not match the forward DNS lookup (A)

**Step 3** Type the range of SenderBase Reputation Scores to define the sender group. You can also define an optional comment.

For example, for “SUSPECTLIST,” enter a range from -4.0 to 0. Refer to [Sender Groups defined by SenderBase Reputation Scores, page 5-137](#) for the syntax.

**Step 4** Click **Submit**.

Repeat steps 2-5 for each group in the listener’s HAT. For example, define the values for *conservative* approach. You can configure the values shown in [Table 7-2](#) for a moderate or aggressive approach as well.

Sender Group	SBRS Range	Mail Flow Policy
WHITELIST	6 to 10	TRUSTED
BLACKLIST	-10 to -7	BLOCKED
SUSPECTLIST	-7 to -2	THROTTLED
UNKNOWNLIST	-2 to 6	ACCEPTED



**Note**

Remember that order matters when defining sender groups in a listener’s HAT. (The HAT is read from top to bottom for each host that attempts to connect to the listener. If a rule matches a connecting host, the action is taken for that connection immediately.) IronPort recommends maintaining the default order of the predefined sender groups in a listener’s HAT — that is, RELAYLIST (C10/100 customers only), followed by WHITELIST, BLACKLIST, SUSPECTLIST, and UNKNOWNLIST.

**Step 5** Click the **Commit Changes** button, add an optional comment if necessary, and then click **Commit Changes** to finish implementing reputation filtering in a listener’s HAT.

## Testing Reputation Filtering Using the SBRS

Unless you regularly receive a large portion of spam, or you have set up “dummy” accounts to specifically receive spam for your organization, it may be difficult to immediately test the SBRS policies you have implemented. However, if you add

entries for reputation filtering with SenderBase Reputation Scores into a listener's HAT as indicated in [Table 7-3](#), you will notice that a smaller percentage of inbound mail will be “unclassified.”

You test the policies you have created using the `trace` command with an arbitrary SBRS. See [Debugging Mail Flow Using Test Messages: Trace](#), page -446. The `trace` command is available in the CLI as well as the GUI.

**Table 7-3**      ***Suggested Mail Flow Policies for Implementing the SBRS***

Policy Name	Primary Behavior (Access Rule)	Parameters	Value
\$BLOCKED	REJECT	None	
\$THROTTLED	ACCEPT	Maximum messages / session: Maximum recipients / message: Maximum message size: Maximum concurrent connections: Use Spam Detection: Use TLS: Maximum recipients / hour: Use SenderBase:	10 20 1 MB 10 ON OFF 20 <i>(recommended)</i> ON



**Table 7-3**      ***Suggested Mail Flow Policies for Implementing the SBRS (Continued)***

Policy Name	Primary Behavior (Access Rule)	Parameters	Value
<b>\$ACCEPTED</b> (Public Listener)	ACCEPT	Maximum messages / session: Maximum recipients / message: Maximum message size: Maximum concurrent connections: Use Spam Detection: Use TLS: Use SenderBase:	1,000 1,000 100 MB 1,000 ON OFF ON
<b>\$TRUSTED</b>	ACCEPT	Maximum messages / session: Maximum recipients / message: Maximum message size: Maximum concurrent connections: Use Spam Detection: Use TLS: Maximum recipients / hour: Use SenderBase:	1,000 1,000 100 MB 1,000 OFF OFF -1 ( <i>disabled</i> ) OFF

**Note**

In the \$THROTTLED policy, the maximum recipients per hour from the remote host is set to 20 recipient per hour, by default. Note that this setting controls the maximum throttling available. You can increase the number of recipients to receive per hour if this parameter is too aggressive. For more information on Default Host Access policies, see [Predefined Mail Flow Policies for Public Listeners](#), page 5-139.

## Monitoring the Status of the SenderBase Reputation Service

The SenderBase page in the Security Services menu displays the connection status and the timestamp of the most recent query from the IronPort appliance to the SenderBase Network Status Server and SenderBase Reputation Score Service.

The SenderBase Reputation Score Service sends the SRBS scores to the appliance. The SenderBase Network Server sends the appliance information the IP addresses, domains, and organizations that are sending mail to you. AsyncOS uses this data for its reporting and email monitoring features.

**Figure 7-5**      *SenderBase Network Status on the SenderBase Page*

SenderBase Network Status		
Type	Status	Last Status Check
SenderBase Network Server	up	Wed Sep 10 13:44:52 2008 PDT
SenderBase Reputation Score Service	up	Wed Sep 10 13:44:52 2008 PDT

The `sbstatus` command in CLI displays the same information.



## CHAPTER 8

# Anti-Spam

---

The IronPort appliance offers a unique, layered approach to stopping spam at the email gateway. The first layer of spam control, reputation filtering (discussed previously in [Chapter 7, “Reputation Filtering”](#)) allows you to classify email senders and restrict access to your email infrastructure based on senders’ trustworthiness as determined by the IronPort SenderBase™ Reputation Service. The second layer of defense, scanning, is powered by IronPort Anti-Spam™ and IronPort Intelligent Multi-Scan technology. Coupled together, reputation filtering and anti-spam scanning offer the most effective and highest performing anti-spam solution available today.

Using the IronPort appliance, it is very easy to create policies to deliver messages from known or highly reputable senders — such as customers and partners — directly to the end user without any anti-spam scanning. Messages from unknown or less reputable senders can be subjected to anti-spam scanning, and you can also throttle the number of messages you are willing to accept from each sender. Email senders with the worst reputation can have their connections rejected or their messages dropped based on your preferences.

The unique, two-layer approach to fighting spam of the IronPort appliance provides you with a powerful and unprecedented flexibility to manage and protect your enterprise email gateway.

This chapter contains the following sections:

- [Anti-Spam Overview, page 8-260](#)
- [IronPort Anti-Spam Filtering, page 8-263](#)
- [IronPort Intelligent Multi-Scan Filtering, page 8-271](#)
- [Configuring Anti-Spam Rule Updating, page 8-274](#)

- [Configuring Per-Recipient Policies for Anti-Spam, page 8-276](#)
- [Incoming Relays, page 8-287](#)

# Anti-Spam Overview

Your IronPort appliance offers two anti-spam solutions: the IronPort Anti-Spam engine and IronPort Intelligent Multi-Scan. You can license and enable these solutions on your IronPort appliance, but you cannot enable both for the same policy. Using the Email Security Manager, you can quickly and easily specify a different anti-spam solution for different groups of users.

## Enabling Anti-Spam Scanning

When using the System Setup Wizard (or `systemsetup` command in the CLI), you are presented with option to enable either IronPort Intelligent Multi-Scan or the IronPort Anti-Spam engine. You cannot enable both during system setup, but you can enable the anti-spam solution that you didn't choose by using the Security Services menu after system setup is complete. During system setup, you have the option to enable the IronPort Spam Quarantine for positive and suspect spam.

To enable the engine for the first time (either during system setup or later), read and agree to the license agreement.

**Figure 8-1**      **Anti-Spam Engine - Selecting During System Setup**

Anti-Spam	
SenderBase Reputation Filtering	SenderBase Reputation Filtering provides a "first line of defense" against incoming spam by restricting access to your email infrastructure based on senders' trustworthiness as determined by their SenderBase Reputation Score (SBRs). <a href="#">More about SBRs...</a> <input checked="" type="checkbox"/> Enable SenderBase Reputation Filtering
Anti-Spam Scanning	Select the anti-spam engine to use for the default incoming mail policy: <input type="radio"/> None <input checked="" type="radio"/> IronPort Anti-Spam <input checked="" type="checkbox"/> Enable IronPort Spam Quarantine. This setting will quarantine positive and suspect spam.



**Note**

Please see [Email Pipeline and Security Services, page 4-98](#) for information about how and when anti-spam scanning is applied.

After the system is set up, you can configure the anti-spam scanning solution for incoming mail policies via the Mail Policies > Incoming Mail Policies page. (Anti-spam scanning is typically disabled for outgoing mail policies.) You can even disable anti-spam scanning for a policy.

In this example, the default mail policy and the “Partners” policy are using the IronPort Anti-Spam scanning engine to quarantine positive and suspected spam.

**Figure 8-2 Mail Policies - Anti-Spam Engine Per Recipient**  
Incoming Mail Policies

**Find Policies**

Email Address:

☒ Recipient ☐ Sender **Find Policies**

---

**Policies**

[Add Policy...](#)

Order	Policy Name	Anti-Spam	Anti-Virus	Content Filters	Virus Outbreak Filters	Delete
1	Partners	(use default)	(use default)	(use default)	(use default)	
	Default Policy	IronPort Anti-Spam Positive: Quarantine Suspected: Quarantine	Sophos Encrypted: Deliver Unscannable: Deliver Virus Positive: Drop	Disabled	Enabled	

Key: Default Custom Disabled

To change the Partners policy to use IronPort Intelligent Multi-Scan and scan for unwanted marketing messages, click on the entry in the Anti-Spam column corresponding with the Partners row (“use default”).

Select IronPort Intelligent Multi-Scan for the scanning engine, and select Yes to enable unwanted marketing message detection. Use the default settings for unwanted marketing message detection.

Figure 8-3 shows IronPort Intelligent Multi-Scan and unwanted marketing message detection enabled in a policy.

**Figure 8-3 Mail Policies - Enabling IronPort Intelligent Multi-Scan**

Anti-Spam Settings	
<b>Policy:</b>	Test
Enable Anti-Spam Scanning for This Policy:	<input type="radio"/> Use Settings from Default Policy (IronPort Anti-Spam) <input type="radio"/> Use IronPort Anti-Spam service <input checked="" type="radio"/> Use IronPort Intelligent Multi-Scan <i>Spam scanning built on IronPort Anti-Spam.</i> <input type="radio"/> Disabled
Positively-Identified Spam Settings	
Apply This Action to Message:	Deliver <input type="button" value="v"/> Send to Alternate Host (optional): <input type="text"/>
Add Text to Subject:	Prepend <input type="button" value="v"/> [SPAM]
<input type="button" value="Advanced"/> Optional settings for custom header and message delivery.	
Suspected Spam Settings	
Enable Suspected Spam Scanning:	<input type="radio"/> No <input checked="" type="radio"/> Yes
Apply This Action to Message:	Deliver <input type="button" value="v"/> Send to Alternate Host (optional): <input type="text"/>
Add Text to Subject:	Prepend <input type="button" value="v"/> [SUSPECTED SPAM]
<input type="button" value="Advanced"/> Optional settings for custom header and message delivery.	
Marketing Email Settings	
Enable Marketing Email Scanning:	<input type="radio"/> No <input checked="" type="radio"/> Yes
Apply This Action to Message:	Deliver <input type="button" value="v"/> Send to Alternate Host (optional): <input type="text"/>
Add Text to Subject:	Prepend <input type="button" value="v"/> [MARKETING]
<input type="button" value="Advanced"/> Optional settings for custom header and message delivery.	

After submitting and committing the changes, the mail policy looks like this:

**Figure 8-4 Mail Policies - Intelligent Multi-Scan Enabled in Policy Incoming Mail Policies**

Find Policies

Email Address:

Recipient

Sender

Find Policies

Policies

Add Policy...

Order	Policy Name	Anti-Spam	Anti-Virus	Content Filters	Virus Outbreak Filters	Delete
1	Partners	IronPort Intelligent Multi-Scan Positive: Deliver Suspected: Deliver Marketing Messages: Deliver	(use default)	(use default)	(use default)	<div></div>
	Default Policy	IronPort Anti-Spam Positive: Deliver Suspected: Deliver Marketing Messages: Disabled	Not Available	Disabled	Not Available	

Key: 

Default

Custom

Disabled

## Anti-Spam Scanning Engine Settings

Each anti-spam solution has a group of configuration settings associated with it. These settings apply only to the corresponding engine, and are available on the IronPort Anti-Spam page and IronPort Intelligent Multi-Scan page on the Security Services menu, and the Incoming/Outgoing Mail Policies Anti-Spam settings page. The scanning solution's specific settings are discussed in the corresponding sections. The IronPort Anti-Spam and IronPort Intelligent Multi-Scan pages also display a list of their most recent anti-spam rule updates.

For more information on configuring global anti-spam settings, see:

- [Enabling IronPort Anti-Spam and Configuring Global Settings, page 8-266](#) and
- [Enabling IronPort Intelligent Multi-Scan and Configuring Global Settings, page 8-272.](#)

For more information on configuring anti-spam scanning on a per recipient basis, see [Configuring Per-Recipient Policies for Anti-Spam, page 8-276.](#)

## Anti-Spam Scanning and Messages Generated by the IronPort Appliance

IronPort recommends that recipients who receive email alerts, scheduled reports, and other automated messages from the IronPort appliance be placed in an incoming mail policy that bypasses anti-spam scanning. These messages may contain URLs or other information associated with spam sources not ordinarily found in a company's mail stream which may occasionally cause such messages to be marked as SPAM. Alternatively, you can choose to add the IP addresses sending mail on behalf of the IronPort appliance to the 'WHITELIST' policy in the host access table (see [Adding a Sender to a Sender Group, page 5-153](#)). For more information, please contact your authorized IronPort appliance support center.

## IronPort Anti-Spam Filtering

Your IronPort appliance includes a 30-day license for the integrated IronPort Anti-Spam scanning engine.

## IronPort Anti-Spam and CASE: an Overview

IronPort Anti-Spam filtering is based on Context Adaptive Scanning Engine (CASE)™, and is the first anti-spam scanning engine to combine email and web reputation information to:

- Eliminate the broadest range of email threats — detect spam, “phishing,” zombie-based attacks, and other “blended” threats.
- Deliver the highest accuracy — anti-spam rules based on email and web reputation from SenderBase Reputation Service.
- Offer ease of use — due to reduced hardware and administrative costs.
- Deliver industry leading performance — CASE uses dynamic early exit criteria and off-box network calculations to deliver breakthrough performance.
- Address the needs of international users — IronPort Anti-Spam is tuned to deliver industry-leading efficacy world-wide.

### Broadest Threat Prevention

CASE combines content analysis, email reputation, and web reputation to deliver the broadest set of threat prevention factors.

IronPort designed IronPort Anti-Spam from the ground up to detect the broadest range of email threats. IronPort Anti-Spam addresses a full range of known threats including spam, phishing and zombie attacks, as well as hard-to-detect low volume, short-lived email threats such as “419” scams. In addition, IronPort Anti-Spam identifies new and evolving blended threats such as spam attacks distributing malicious content through a download URL or an executable.

To identify these threats, IronPort Anti-Spam uses the industry's most complete approach to threat detection, examining the full context of a message—its content, methods of message construction, the reputation of the sender, and the reputation of web sites advertised in the message and more. Only IronPort Anti-Spam combines the power of email and web reputation data, leveraging the full power of the world's largest email and web traffic monitoring network — SenderBase — to detect new attacks as soon as they begin.



**Note**

If your IronPort appliance is set to receive mail from a local MX/MTA, you must identify upstream hosts that may mask the sender's IP address. See [Incoming Relays, page 8-287](#) for more information.

## Lowest False Positive Rate

IronPort Anti-Spam and IronPort Virus Outbreak Filters are powered by IronPort's patent-pending Context Adaptive Scanning Engine (CASE)™. CASE provides breakthrough accuracy and performance by analyzing over 100,000 message attributes across four dimensions:

- Step 1** Email reputation — *who* is sending you this message?
- Step 2** Message content — *what* content is included in this message?
- Step 3** Message structure — *how* was this message constructed?
- Step 4** Web reputation — *where* does the call to action take you?

Analyzing multi-dimensional relationships allows CASE to catch a broad range of threats while maintaining exceptional accuracy. For example, a message that has content claiming to be from a legitimate financial institution but that is sent from an IP address on a consumer broadband network or that contains a URL hosted on a “zombie” PC will be viewed as suspicious. In contrast, a message coming from a pharmaceutical company with a positive reputation will not be tagged as spam even if the message contains words closely correlated with spam.

## Industry-Leading Performance

CASE combines the following features to deliver accurate verdicts quickly:

- Multiple threats are scanned for in a single pass
- Dynamic “early exit” system

System performance is optimized using IronPort's unique “early exit” system. IronPort developed a proprietary algorithm to determine the order in which rules are applied based on rule accuracy and computational expense. Lighter and more accurate rules are run first, and if a verdict is reached, additional rules are not required. This improves system throughput, allowing our

products to meet the needs of large-scale enterprises. Conversely, the efficiency of the engine allows for implementation on low-cost hardware, making IronPort's security services attractive for low-end customers.

- Off-box network calculations

## International Users

IronPort Anti-Spam is tuned to deliver industry-leading efficacy world-wide. In addition to locale-specific content-aware threat detection techniques, you can further optimize anti-spam scanning for specific regions using regional rules profiles. The anti-spam engine includes a regional rules profile. The regional rules profile targets spam on a regional basis. For example, China and Taiwan receive a high percentage of spam in traditional or modern Chinese. The Chinese regional rules are optimized for this type of spam. IronPort strongly recommends you use the Chinese regional rules profile if you receive mail primarily for mainland China, Taiwan, and Hong Kong. You can enable the regional rules profile from Security Services > IronPort Anti-Spam.



### Note

Because the regional rules profile optimizes the anti-spam engine for a particular region, it can reduce capture rates for other types of spam. Therefore, IronPort recommends you enable this feature only if you receive the bulk of your email from the specified region.

IronPort Anti-Spam leverages globally representative email and web content-agnostic data contributed by over 125,000 ISPs, universities and corporations throughout the Americas, Europe, and Asia. The Threat Operations Center is set up for global operations with centers in Sao Paulo, Beijing and London. In addition, analysts speak 32 languages including Chinese, Japanese, Korean, Portuguese, and Spanish.

## Enabling IronPort Anti-Spam and Configuring Global Settings

### Overview

You enable IronPort Anti-Spam and modify its global configuration settings using the Security Services > IronPort Anti-Spam and Security Services > Service Updates pages (GUI) or the `antisppamconfig` and `updateconfig` commands (CLI). The following global settings are configured:

- Enable IronPort Anti-Spam globally for the appliance.
- Configure the maximum size of message to be scanned by IronPort Anti-Spam.
- Enter a length of time to wait for timeout when scanning a message.

Most users will not need to change the maximum message size to be scanned or the timeout value. That said, you may be able to optimize the throughput of your appliance by lowering the maximum message size setting.

- Define and (optionally) enable a proxy server for obtaining IronPort Anti-Spam rules updates (Security Services > Service Updates). If you define a proxy server to retrieve rules updates, you can optionally configure an authenticated username, password, and specific port when connecting to the proxy server.
- Define and (optionally) enable a download server from which to receive IronPort Anti-Spam rules updates (Security Services > Service Updates).
- Enable or disable receiving automatic updates to IronPort Anti-Spam rules, and also specify the update interval.



#### Note

The proxy server setup is available via the Security Services > Service Updates page. For more information about specifying a proxy server, see [The Service Updates Page, page 15-473](#). Note that the proxy server is global in that all services that are configured to use a proxy server will use the same proxy server.



#### Note

If you chose to enable IronPort Anti-Spam in the GUI's system setup wizard (or the CLI `systemsetup` command), it will be enabled for the default incoming mail policy with the default values for the global settings.

## Evaluation Key

Your IronPort appliance ships with a 30-day evaluation key for the IronPort Anti-Spam software. This key is not enabled until you accept the license agreement in the system setup wizard or Security Services > IronPort Anti-Spam pages (in the GUI) or the `systemsetup` or `antispamconfig` commands (in the CLI). Once you have accepted the agreement, IronPort Anti-Spam will be enabled, by default, for the default incoming Mail Policy. An alert is also sent to the administrator address you configured (see [Step 2: System, page 3-57](#)) noting that the IronPort Anti-Spam license will expire in 30 days. Alerts are sent 30, 15, 5, and 0 days prior to expiration. For information on enabling the feature beyond the 30-day evaluation period, contact your IronPort sales representative. You can see how much time remains on the evaluation via the System Administration > Feature Keys page or by issuing the `featurekey` command. (For more information, see the section on working with feature keys in “Common Administrative Tasks” in the *Cisco IronPort AsyncOS for Email Daily Management Guide*.)

[Figure 8-5](#) shows the global settings that you configure on the Security Services > IronPort Anti-Spam page.

**Figure 8-5      IronPort Anti-Spam Global Settings: Editing**

IronPort Anti-Spam Global Settings	
IronPort Anti-Spam Scanning:	Enabled
Maximum Message Size to Scan:	131072 bytes
Timeout for Scanning Single Message:	1m
Regional Scanning:	Off
<div>Edit Global Settings...</div>	

To enable IronPort Anti-Spam, follow these steps:

- Step 1

If you have not enabled IronPort Anti-Spam in the system setup wizard, select Security Services > IronPort Anti-Spam.
- Step 2

Click **Enable**.

The license agreement page is displayed.



Note

If you do not accept the license agreement, IronPort Anti-Spam is not enabled on the appliance.

- Step 3** Scroll to the bottom of the page and click **Accept** to accept the agreement.
- A page similar to [Figure 8-6](#) is displayed.
- Step 4** Click **Edit Global Settings**.
- Step 5** Check the box next to Enable IronPort Anti-Spam scanning.
- Checking this box enables the feature globally for the appliance. However, you must still enable per-recipient settings in Mail Policies. For more information, see [Configuring Per-Recipient Policies for Anti-Spam](#), page 8-276
- Step 6** Choose a value for the *maximum message size to scan* by IronPort Anti-Spam.
- The default value is 128 Kb. Messages larger than this size will not be scanned by IronPort Anti-Spam and the `X-IronPort-Anti-Spam-Filtered: true` header will not be added to the message.
- Step 7** Enter the number of seconds to wait for timeout when scanning a message.
- When specifying the number of seconds, enter an integer from 1 to 120. The default value is 60 seconds.
- Step 8** Enable or disable regional scanning. Regional scanning optimizes IronPort Anti-Spam scanning for a particular region. Because this feature optimizes the anti-spam engine for a particular region, it can reduce capture rates for other types of spam. Therefore, IronPort recommends you enable this feature only if you receive the bulk of your email from the specified region. For more information about regional scanning, see [International Users](#), page 8-266.
- Step 9** Submit and commit your changes.
- The Security Services > IronPort Anti-Spam page is refreshed to display the values you chose in the previous steps.

**Figure 8-6**      **IronPort Anti-Spam Global Settings**  
**IronPort Anti-Spam**

IronPort Anti-Spam Overview		
IronPort Anti-Spam Scanning:	Enabled	
Maximum Message Size to Scan:	131072 bytes	
Timeout for Scanning Single Message:	60 seconds	
Regional Scanning:	Off	
<a href="#">Edit Global Settings...</a>		

Rule Updates (Last download attempt made on: 03 Apr 2007 21:06 (GMT))		
Rule Type	Last Update	Current Version
CASE Core Files	03 Apr 2007 21:06 (GMT)	1.1.7-008
Structural Rules	03 Apr 2007 21:06 (GMT)	1.1.7-005-20070402_170501
Content Rules	03 Apr 2007 21:06 (GMT)	20070403_205114
Content Rules Update	03 Apr 2007 21:06 (GMT)	20070403_210501
CASE Utilities	03 Apr 2007 21:01 (GMT)	1.1.7-008
Web Reputation DB	03 Apr 2007 21:06 (GMT)	20070402_201000
Web Reputation Rules	03 Apr 2007 21:06 (GMT)	20070402_201000-20070403_210000
<a href="#">Update Now</a>		

## Additional Steps

Once you have enabled IronPort Anti-Spam, enable SenderBase Reputation Service scoring, even if you are not rejecting connections based on SenderBase Reputation Scores. For more information on enabling SBRS, see [Implementing SenderBase Reputation Filters](#), page 7-250.

# IronPort Intelligent Multi-Scan Filtering

IronPort Intelligent Multi-Scan incorporates multiple anti-spam scanning engines, including IronPort Anti-Spam, to provide an intelligent, multi-layer anti-spam solution. This method provides more accurate verdicts that increase the amount of spam that is caught but without increasing the false positives rate.

When processed by IronPort Intelligent Multi-Scan, a message is first scanned by third-party anti-spam engines. IronPort Intelligent Multi-Scan then passes the message and the verdicts of the third-party engines to IronPort Anti-Spam, which assumes responsibility for the final verdict. After IronPort Anti-Spam performs its scan, it returns a combined multi-scan score to AsyncOS. Combining the benefits of the third-party scanning engines and IronPort Anti-Spam results in more caught spam while maintaining IronPort Anti-Spam's low false positive rate.

You cannot configure the order of the scanning engines used in IronPort Intelligent Multi-Scan; IronPort Anti-Spam will always be the last to scan a message and IronPort Intelligent Multi-Scan will not skip it if a third-party engine determines that a message is spam.

Using IronPort Intelligent Multi-Scan can lead to reduced system throughput. Please contact your IronPort support representative for more information.

This feature is supported on all C-Series and X-Series appliances, except for the C100 appliance.

**Note**

The Intelligent Multi-Scan feature key also enables IronPort Anti-Spam on the appliance, giving you the option of enabling either IronPort Intelligent MultiScan or IronPort Anti-Spam for a mail policy.

# Enabling IronPort Intelligent Multi-Scan and Configuring Global Settings

## Overview

You enable IronPort Intelligent Multi-Scan and modify its global configuration settings using the Security Services > IronPort Intelligent Multi-Scan and Security Services > Service Updates pages (GUI) or the `antispamconfig` and `updateconfig` commands (CLI). The following global settings are configured:

- Enable IronPort Intelligent Multi-Scan globally for the appliance.
- Configure the maximum size of message to be scanned by IronPort Intelligent Multi-Scan.
- Enter a length of time to wait for timeout when scanning a message.

Most users will not need to change the maximum message size to be scanned or the timeout value. That said, you may be able to optimize the throughput of your appliance by lowering the maximum message size setting.

- Define and (optionally) enable a proxy server for obtaining IronPort Intelligent Multi-Scan rules updates (Security Services > Service Updates). If you define a proxy server to retrieve rules updates, you can optionally configure an authenticated username, password, and specific port when connecting to the proxy server.
- Define and (optionally) enable a download server from which to receive IronPort Intelligent Multi-Scan rules updates (Security Services > Service Updates).
- Enable or disable receiving automatic updates to IronPort Intelligent Multi-Scan rules, and also specify the update interval.



### Note

The proxy server setup is available via the Security Services > Service Updates page. For more information about specifying a proxy server, see [The Service Updates Page, page 15-473](#). Note that the proxy server is global in that all services that are configured to use a proxy server will use the same proxy server.



**Note**

If you chose to enable IronPort Intelligent Multi-Scan in the GUI's system setup wizard (or the CLI `systemsetup` command), it will be enabled for the default incoming mail policy with the default values for the global settings.

Figure 8-7 shows the global settings that you configure on the Security-Services > IronPort Intelligent Multi-Scan page.

**Figure 8-7** *IronPort Intelligent Multi-Scan Global Settings: Editing*

IronPort Intelligent Multi-Scan Overview	
IronPort Intelligent Multi-Scan:	Enabled
Maximum Message Size to Scan:	131072 bytes
Timeout for Scanning Single Message:	60 seconds
<a href="#">Edit Global Settings...</a>	

To enable IronPort Intelligent Multi-Scan, follow these steps:

**Step 1** If you did not enable IronPort Intelligent Multi-Scan in the system setup wizard, select Security Services > IronPort Intelligent Multi-Scan.

**Step 2** Click **Enable**.

The license agreement page is displayed.

**Note**

If you do not accept the license agreement, IronPort Intelligent Multi-Scan is not enabled on the appliance.

**Step 3** Scroll to the bottom of the page and click **Accept** to accept the agreement.

A page similar to Figure 8-8 is displayed.

**Step 4** Click **Edit Global Settings**.

**Step 5** Check the box next to Enable IronPort Intelligent Multi-Scan.

Checking this box enables the feature globally for the appliance. However, you must still enable per-recipient settings in Mail Policies. For more information, see [Configuring Per-Recipient Policies for Anti-Spam](#), page 8-276.

**Step 6** Choose a value for the *maximum message size to scan* by IronPort Intelligent Multi-Scan.

The default value is 128 Kb. Messages larger than this size will not be scanned by IronPort Intelligent Multi-Scan.

- Step 7** Enter the number of seconds to wait for timeout when scanning a message.
- When specifying the number of seconds, enter an integer from 1 to 120. The default value is 60 seconds.
- Step 8** Submit and commit your changes.
- The Security Services > IronPort Intelligent Multi-Scan page is refreshed to display the values you chose in the previous steps.

**Figure 8-8** *IronPort Intelligent Multi-Scan Global Settings*  
**IronPort Intelligent Multi-Scan**

IronPort Intelligent Multi-Scan Overview		
IronPort Intelligent Multi-Scan:		Enabled
Maximum Message Size to Scan:		131072 bytes
Timeout for Scanning Single Message:		60 seconds
<a href="#">Edit Global Settings...</a>		

Rule Updates (Last download attempt made on: Never)		
Rule Type	Last Update	Current Version
CASE Core Files	Base Version	2.7.1-005
Structural Rules	Base Version	2.7.1-005-20090511_160603
CASE Utilities	Base Version	2.7.1-005
Web Reputation DB	Never Updated	20050725_000000
Web Reputation Rules	Never Updated	20050725_000000-20050725_000000
<a href="#">Update Now</a>		

## Additional Steps

Once you have enabled IronPort Intelligent Multi-Scan, enable SenderBase Reputation Service scoring, even if you are not rejecting connections based on SenderBase Reputation scores. For more information on enabling SBRS, see [Implementing SenderBase Reputation Filters, page 7-250](#).

## Configuring Anti-Spam Rule Updating

IronPort Anti-Spam and IronPort Intelligent Multi-Scan rules are retrieved (by default) from IronPort's update servers. You can specify a local server for updates, a proxy server to use for retrieving updates, and whether and how frequently to check for rule updates. To configure updates for your anti-spam solution, click **Edit Update Settings** on the Security Services > Service Updates page.

See [Service Updates, page 15-473](#) for more information.

## Enabling a Proxy Server for Obtaining IronPort Anti-Spam Rules Updates

The IronPort appliance is configured to connect directly to IronPort's update servers to receive anti-spam rules updates. This connection is made by HTTP on port 80 and the content is encrypted. If you do not want to open this port in your firewall, you can define a proxy server and specific port from which the appliance can receive updated rules.

If you choose to use a proxy server, you can specify an optional authentication and port.

IronPort Anti-Spam and IronPort Intelligent Multi-Scan will *automatically* use a proxy server if one has been defined. There is no way to turn off the proxy server for the anti-spam solution without disabling it for all other service updates (Virus Outbreak Filters, Sophos Anti-Virus, etc.).



### Note

---

If you define a proxy server, it will be used for all service updates that are configured to use a proxy server, automatically.

---

For more information about defining a proxy server, see [Specify an HTTP Proxy Server \(Optional\), page 15-480](#).

## Monitoring Rules Updates

Once you have accepted the license agreement, the most recent IronPort Anti-Spam and IronPort Intelligent Multi-Scan rules updates are listed on the their corresponding page in the Security Services menu (GUI) and in the `antispamstatus` command (CLI).



### Note

---

If the update has not occurred, or a server has not been configured, the string “Never Updated” is displayed.

---

**Figure 8-9 Rules Updates Section of Security Services > IronPort Anti-Spam Page: GUI**

Rule Updates (Last download attempt made on: 12 Sep 2005 21:43 GMT )		
Rule Type	Last Update	Current Version
CASE Core Files	Never Updated	1.0.0-202
Anti-Spam Rules	Never Updated	1.0.0-203-BETA-20050908_200919
CASE Utilities	Never Updated	1.0.0-105
URL Database	12 Sep 2005 05:39 GMT	20050908_184000
URL Database Delta	12 Sep 2005 21:42 GMT	20050908_184000-20050912_144000
		<a href="#">Update Now</a>

## Configuring Per-Recipient Policies for Anti-Spam

The IronPort Anti-Spam and IronPort Intelligent Multi-Scan solutions process email for incoming (and outgoing) mail based on policies (configuration options) you configure using the Email Security Manager feature. IronPort Anti-Spam and IronPort Intelligent Multi-Scan scan messages through their filtering modules for classification. The classification, or *verdict*, is then returned for subsequent delivery action. Four verdicts are possible: messages can be identified as not spam, identified as a unwanted marketing email, positively identified as spam, or suspected to be spam. Actions taken on messages positively identified as spam, suspected to be spam, or identified as unwanted marketing messages include:

- Specifying a Positive or Suspected Spam threshold.
- Choosing which overall action to take on unwanted marketing messages, positively identified spam, or suspected spam messages: deliver, drop, bounce, or quarantine.
- Archiving messages to an mbox-format log file. You must create a log to enable archiving messages identified as spam. See [Archiving Identified Messages](#), page 8-279.
- Altering the subject header of messages identified as spam or marketing.
- Sending messages to an alternate destination mailhost.
- Adding a custom X-Header to messages.
- Sending messages to an alternate envelope recipient address. (For example, you could route messages identified as spam to an administrator's mailbox for subsequent examination.) In the case of a multi-recipient message, only a single copy is sent to the alternate recipient.

**Note**

These actions are not mutually exclusive; you can combine some or all of them differently within different incoming or outgoing policies for different processing needs for groups of users. You can also treat positively identified spam differently from suspected spam in the same policy. For example, you may want to drop messages positively identified as spam, but quarantine suspected spam messages.

You enable IronPort Anti-Spam or IronPort Intelligent Multi-Scan actions on a per-recipient basis using the Email Security Manager feature: the Mail Policies > Incoming or Outgoing Mail Policies pages (GUI) or the `policyconfig -> antis spam` command (CLI). After the anti-spam solution has been enabled globally, you configure these actions separately for each mail policy you create. You can configure different actions for different mail policies. You can only enable one anti-spam solution per policy; you cannot enable both on the same policy.

**Note**

To enable anti-spam scanning for outgoing mail, you also need to check the anti-spam settings of the relevant host access table, especially for a private listener. For more information, see [Mail Flow Policies: Access Rules and Parameters, page 5-117](#).

Each row in the Email Security Manager represents a different policy. Each column represents a different security service.

**Figure 8-10 Mail Policies - Anti-Spam Engine**

Policies						
Add Policy...						
Order	Policy Name	Anti-Spam	Anti-Virus	Content Filters	Virus Outbreak Filters	Delete
1	Sales_Team	IronPort Anti-Spam Positive: Drop Suspected: Quarantine Marketing Messages: Quarantine	(use default)	(use default)	(use default)	
2	Engineering	(use default)	(use default)	(use default)	Enabled	
	Default Policy	IronPort Anti-Spam Positive: Drop Suspected: Quarantine Marketing Messages: Deliver	Sophos Encrypted: Deliver Unscannable: Deliver Virus Positive: Drop	Disabled	Enabled	

Key: Default Custom Disabled

## Editing the Anti-Spam Settings for a Mail Policy

The process for editing the per-user anti-spam settings for a mail policy is essentially the same, whether the policy is for incoming or outgoing mail.

Individual policies (not the default) have an additional field to “Use Default” settings. Selecting this causes the policy to adopt all of the Anti-Spam settings from the default mail policy.

See also [Editing the Default Policy: Anti-Spam Settings, page 6-221](#) for more information.

To edit the anti-spam settings for a mail policy, including the default policy:

- 
- Step 1** Click the link for the Anti-Spam security service in any row of the Email Security Manager incoming or outgoing mail policy table.

The Anti-Spam settings page similar to the one shown in [Figure 8-11](#) is displayed.

Click the link in the default row to edit the settings for the default policy. [Figure 8-11](#) shows the settings for a specific policy (not the default). Compare this screen with [Figure 6-6 on page 6-223](#). Note how individual policies have the “Use Default” option.

- Step 2** Select the anti-spam solution you want to use for the policy.

You can click **Disabled** to disable anti-spam scanning altogether for the mail policy.

- Step 3** Configure settings for positively identified spam, suspected spam, and unwanted marketing messages.

[Figure 8-11](#) shows the IronPort Anti-Spam settings for the default mail policy about to be edited. See [Positively Identified versus Suspected Spam, page 8-282](#) and [Notes on Configuring Settings for Identified Messages, page 8-278](#).

- Step 4** Submit and commit your changes.

The Mail Policies > Incoming or Outgoing Mail Policies page is refreshed to reflect the values you chose in the previous steps.

## Notes on Configuring Settings for Identified Messages

### Positive/Suspected Spam Threshold

Enter a threshold value for positively identified spam and a value for suspected spam. For more information about spam thresholds, see [Positive and Suspect Spam Threshold, page 8-280](#).

## Action to Apply

Choose which overall action to take on positively identified spam, suspected spam, or unwanted marketing messages: Deliver, Drop, Bounce, or Quarantine.

## Archiving Identified Messages

You can archive identified messages into the “Anti-Spam Archive” log. The format is an mbox-format log file. For more information, see the example below and refer to the “Logging” chapter of the *Cisco IronPort AsyncOS for Email Daily Management Guide*.

## Altering the Subject Header

You can alter the text of the Subject header on identified messages by prepending or appending certain text strings to help users more easily identify and sort spam and unwanted marketing messages.



### Note

White space is *not* ignored in the “Modify message subject” field. Add spaces after (if prepending) or before (if appending) the text you enter in this field to separate your added text from the original subject of the message. For example, add the text [SPAM] with a few trailing spaces if you are prepending.



### Note

The “Add text to message” field only accepts US-ASCII characters.

## Sending Identified Messages to an Alternate Destination Host

You can send identified messages to an alternate destination mailhost.

## Adding a Custom X-Header

You can add a custom X-Header to identified messages.

Click **Yes** and define the header name and text.

## Changing the Envelope Recipient Address

You can have identified messages sent to an alternate envelope recipient address.

Click **Yes** and define an alternate address.

For example, you could route messages identified as spam to an administrator's mailbox for subsequent examination. In the case of a multi-recipient message, only a single copy is sent to the alternate recipient.

**Figure 8-11** *IronPort Anti-Spam Settings for a Mail Policy*  
Mail Policies: Anti-Spam

Anti-Spam Settings	
<b>Policy:</b>	Default
Enable Anti-Spam Scanning for This Policy:	<input checked="" type="radio"/> Use IronPort Anti-Spam service <input type="radio"/> Disabled
<b>Positively-Identified Spam Settings</b>	
Apply This Action to Message:	Deliver <input type="button" value="v"/> Send to Alternate Host (optional): <input type="text"/>
Add Text to Subject:	Prepend <input type="button" value="v"/> [SPAM]
<a href="#">Advanced</a>	Optional settings for custom header and message delivery.
<b>Suspected Spam Settings</b>	
Enable Suspected Spam Scanning:	<input type="radio"/> No <input checked="" type="radio"/> Yes
Apply This Action to Message:	Deliver <input type="button" value="v"/> Send to Alternate Host (optional): <input type="text"/>
Add Text to Subject:	Prepend <input type="button" value="v"/> [SUSPECTED SPAM]
<a href="#">Advanced</a>	Optional settings for custom header and message delivery.
<b>Marketing Email Settings</b>	
Enable Marketing Email Scanning:	<input type="radio"/> No <input checked="" type="radio"/> Yes
Apply This Action to Message:	Deliver <input type="button" value="v"/> Send to Alternate Host (optional): <input type="text"/>
Add Text to Subject:	Prepend <input type="button" value="v"/> [MARKETING]
<a href="#">Advanced</a>	Optional settings for custom header and message delivery.
<b>Spam Thresholds</b>	
Spam is scored on a 1-100 scale. The higher the score, the more likely a message is a spam.	
IronPort Anti-Spam:	<input checked="" type="radio"/> Use the Default Thresholds <input type="radio"/> Use Custom Settings: <div>             Positively Identified Spam: Score &gt; <input type="text" value="90"/> (50 - 100)              Suspected Spam: Score &gt; <input type="text" value="50"/> (minimum 25, cannot exceed positive spam score)           </div>

## Positive and Suspect Spam Threshold

When evaluating messages for spam, IronPort Anti-Spam and IronPort Intelligent Multi-Scan apply thousands of rules in order to arrive at an overall spam score for the message. To maintain its high accuracy, the both anti-spam solutions by default set this threshold value quite high. Messages returning a score between 90 and 100 are considered to be positively identified as spam. You can change the positively identified spam threshold to a value between 75 (most aggressive) and



99 (most conservative). You can configure the anti-spam solution to reflect the spam tolerance levels of your organization. Both IronPort Anti-Spam and IronPort Intelligent Multi-Scan provide a configurable Positive and Suspected spam threshold, applicable *per mail policy*. This allows you to create an optional category of “suspected spam” — a gray area of messages that are suspiciously similar to spam, but also share some traits with legitimate messages.

You can change the threshold setting of this new category to different levels of aggressiveness, so that any messages with scores below the configured suspected spam range will be considered legitimate, and any messages above the suspected threshold but below the positive threshold will be considered to be suspected spam and will be treated accordingly. You can also define a separate action to take on suspected spam; for example, you may wish to drop “positively identified” spam, but quarantine “suspected” spam.

The higher the number you enter, the higher the threshold for IronPort Anti-Spam rules used to determine if a message qualifies as suspected spam. Enter a lower number to enable a lower threshold and subsequently mark more messages as “possible spam” (which may result in a higher false positive rate). Conversely, enter a higher number if you want to ensure that only spam messages are being filtered (which may result in some spam getting through). The default value is 50. See [Positively Identified versus Suspected Spam, page 8-282](#) for common configurations using this two categories.

The suspected spam threshold is set per mail policy for IronPort Anti-Spam.

# Positively Identified versus Suspected Spam

Because IronPort Anti-Spam and IronPort Intelligent Multi-Scan make the distinction between positively identified and suspected spam ([Positive and Suspect Spam Threshold, page 8-280](#)), many users configure their systems in one of the following ways:

**Table 8-1**      *Common Example Configurations of Positively Identified and Suspected Spam*

Spam	Method 1 Actions (Aggressive)	Method 2 Actions (Conservative)
Positively Identified	Drop	Deliver with “[Positive Spam]” added to the subject of messages
Suspected	Deliver with “[Suspected Spam]” added to the subject of messages	Deliver with “[Suspected Spam]” added to the subject of messages

The first configuration method tags only suspected spam messages, while dropping those messages that are positively identified. Administrators and end-users can check the subject line of incoming message for false positives, and an administrator can adjust, if necessary, the suspected spam threshold.

In the second configuration method, positively identified and suspected spam is delivered with an altered subject. Users can delete suspected and positively identified spam. This method is more conservative than the first.

See [Table 6-6 on page 6-233](#) for a further discussion of mixing aggressive and conservative policies on a per-recipient basis using the Email Security Manager feature.

# Unwanted Marketing Message Detection

IronPort Anti-Spam and IronPort Intelligent Multi-Scan can distinguish between spam and unwanted marketing messages from a legitimate source. Even though marketing messages are not considered spam, your organization or end-users may not want to receive them. Like spam, you have the option to deliver, drop,

quarantine, or bounce unwanted marketing message. You also have the option to tag unwanted marketing messages by adding text to the message's subject to identify it as marketing.

## Headers Added by IronPort Anti-Spam and Intelligent Multi-Scan

If IronPort Anti-Spam scanning or Intelligent Multi-Scan is enabled for a mail policy, each message that passes through that policy will have the following header added to the message:

```
X-IronPort-Anti-Spam-Filtered: true
```

A second header will also be inserted for each message filtered by IronPort Anti-Spam or Intelligent Multi-Scan. This header contains information that allows IronPort Support to identify the CASE rules and engine version used to scan the message:

```
X-IronPort-Anti-Spam: result
```

IronPort Intelligent Multi-Scan also adds headers from the third-party anti-spam scanning engines.

In addition, using the Email Security Manager feature, you can define an additional custom header to be added to all messages for a given policy that are positively identified as spam, suspected to be spam, or identified as unwanted marketing mail. (See [Adding a Custom X-Header](#), page 8-279.)

You can also create message filters that use the `skip-spamcheck` action so that certain messages skip IronPort Anti-Spam scanning. For more information, refer to “Bypass Anti-Spam System Action” in “Using Message Filters to Enforce Email Policies,” of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

## Reporting Incorrectly Classified Messages to IronPort Systems

Messages that appear to be incorrectly classified may be reported to IronPort for analysis. Each message is reviewed by a team of human analysts and used to enhance the accuracy and effectiveness of the product. Each message should be forwarded as an RFC 822 attachment to the following addresses:

- spam@access.ironport.com - for reporting missed spam
- ham@access.ironport.com - for reporting false-positives

For more information about reporting incorrectly classified messages, please see the IronPort Knowledge base or contact your IronPort Support provider.

## Testing IronPort Anti-Spam

To quickly test the IronPort Anti-Spam configuration of your appliance:

- 
- Step 1** Enable IronPort Anti-Spam on a mail policy (as above).
- Step 2** Send a test email that includes the following header to a user in that mail policy:
- `X-Advertisement: spam`

For testing purposes, IronPort Anti-Spam considers any message with an X-header formatted as `X-Advertisement: spam` to be spam. The test message you send with this header is flagged by IronPort Anti-Spam, and you can confirm that the actions you configured for the mail policy ([Configuring Per-Recipient Policies for Anti-Spam, page 8-276](#)) are performed. You can use the `trace` command and include this header, or use a Telnet program to send SMTP commands to the appliance. See the “Testing and Troubleshooting” chapter in the *Cisco IronPort AsyncOS for Email Daily Management Guide* and [Appendix A, “Accessing the Appliance”](#) for more information.



### Note

Examining a message’s headers for specific headers added by IronPort Anti-Spam is another method to test the configuration of IronPort Anti-Spam on your appliance. See [Headers Added by IronPort Anti-Spam and Intelligent Multi-Scan, page 8-283](#).

---

## Evaluating Anti-Spam Efficacy

IronPort strongly recommends evaluating the product using a live mail stream directly from the Internet. This is because IronPort Anti-Spam and IronPort Intelligent Multi-Scan rules are added quickly to prevent active spam attacks and quickly expire once attacks have passed. Testing using old messages will therefore lead to inaccurate test results.

Using the `X-Advertisement: spam` header is the best method to test if your system configuration is correctly handling a message that would be considered spam if it were “live.” Use the `trace` command (see [Debugging Mail Flow Using Test Messages: Trace, page -446](#)) or see the following example.

Common pitfalls to avoid while evaluating include:

- Evaluating using resent or forwarded mail or cut-and-pasted spam messages  
Mail lacking the proper headers, connecting IP, signatures, etc. will result in inaccurate scores.
- Testing “hard spam” only  
Removing the “easy spam” using SBRS, blacklists, message filters, etc. will result in a lower overall catch rate percentage.
- Resending spam caught by another anti-spam vendor
- Testing older messages  
CASE adds and removes rules rapidly based on current threats. Testing using an older collection of messages will significantly distort the results.

## Example

Use SMTP commands to send a test message with the `X-advertisement: spam` header to an address to which you have access. Ensure that the mail policy is configured to receive messages for the test address (see [Accepting Email for Local Domains or Specific Users on Public Listeners \(RAT\), page 5-177](#)) and that the HAT will accept the test connection.

```
# telnet IP_address_of_IronPort_Appliance_with_IronPort_Anti-Spam
port

220 hostname ESMTP
```

```
helo example.com

250 hostname

mail from: <test@example.com>

250 sender <test@example.com> ok

rcpt to: <test@address>

250 recipient <test@address> ok

data

354 go ahead

Subject: Spam Message Test

X-Advertisement: spam


spam test

.

250 Message MID accepted

221 hostname

quit
```

Then, check the mailbox of the test account and confirm that the test message was correctly delivered based upon the actions you configured for the mail policy.

For example:

- Was the subject line altered?
- Was your additional custom header added?
- Was the message delivered to an alternate address?
- Was the message dropped?

# Incoming Relays

The Incoming Relays feature helps your IronPort appliance obtain the IP address of an external machine that is sending mail to the IronPort appliance via one or more mail exchange/transfer agents (MX or MTA), filtering servers, etc. at the edge of the network. In this type of configuration, the IP address of the external machine is not automatically known by the IronPort appliance. Instead, mail appears to originate from the local MX/MTA (the incoming relay) rather than from the external machine. IronPort Anti-Spam and IronPort Intelligent Multi-Scan depend on accurate IP addresses for external senders so it is vital for the IronPort appliance to have this information.

**Note**

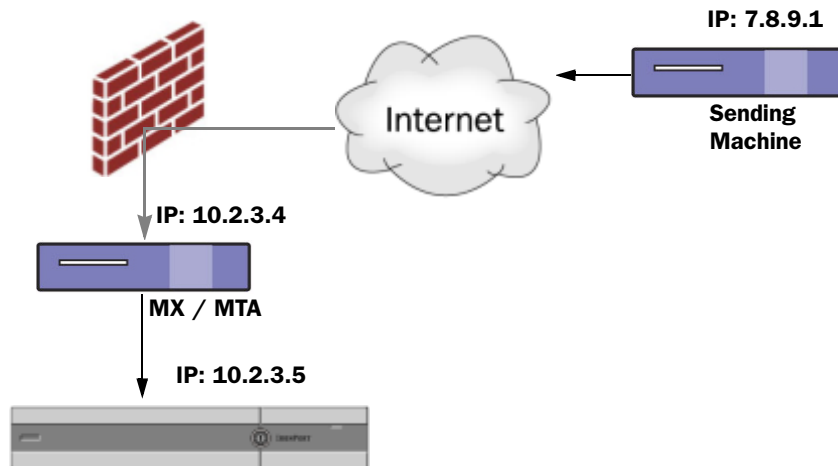
---

You should only enable this feature if you have a local MX/MTA relaying mail to your IronPort appliance.

---

[Figure 8-12](#) shows a very basic example of an incoming relay. Mail from IP address 7.8.9.1 appears to come from IP address 10.2.3.4 because the local MX/MTA is relaying mail to the IronPort appliance.

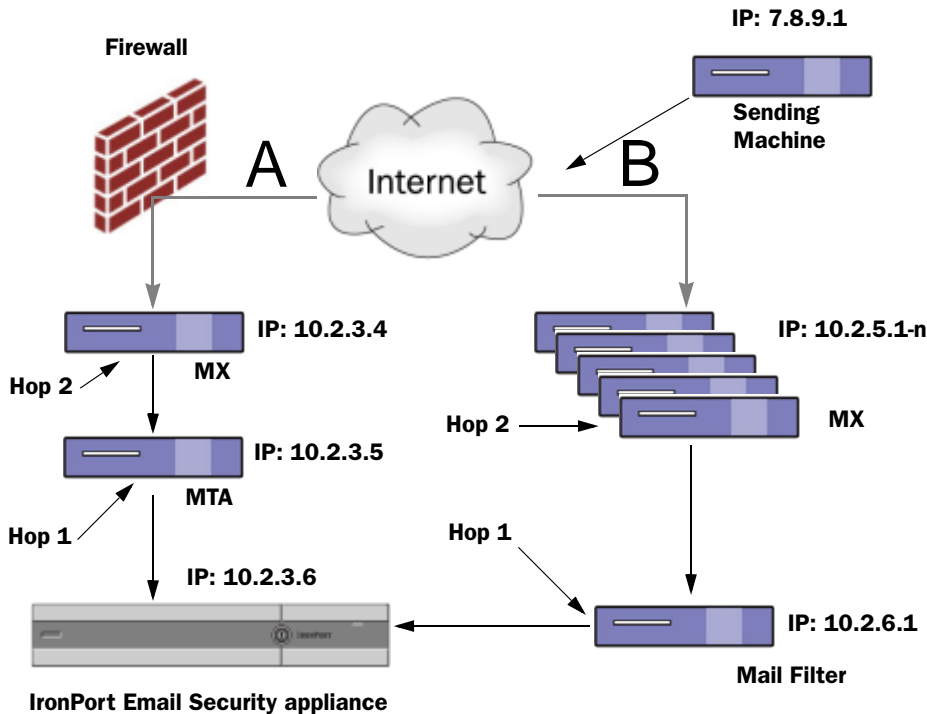
**Figure 8-12 Mail Relayed by MX/MTA – Simple**



#### **IronPort Email Security appliance**

Figure 8-13 shows two other, slightly more complicated examples of how mail may be relayed inside the network and how mail may be processed by several servers within the network before it is passed to the IronPort appliance. In example A, mail from 7.8.9.1 passes through the firewall and is processed by an MX and an MTA before being delivered to the IronPort appliance. In example B, mail from 7.8.9.1 is sent to a load balancer or other type of traffic shaping appliance and is sent to any one of a range of MXs prior to being delivered to the IronPort appliance.



**Figure 8-13 Mail Relayed by MX/MTA — Advanced**

## The Incoming Relays Feature: Overview

Occasionally, administrators need to run the IronPort appliance behind the mail exchange (MX) or mail transfer agent (MTA) at the edge of the network instead of receiving mail directly from the Internet. Unfortunately, when using this configuration the IronPort appliance is not receiving the mail directly from the Internet and so it does not have access to the last connecting IP address from the external network. Instead mail received is listed as being received from the local MX/MTA. It is critical for successful operation of the IronPort appliance that the connecting IP address be known so that SenderBase Reputation Service can be used in IronPort Intelligent Multi-Scan and IronPort Anti-Spam scanning.

The solution is to configure an incoming relay. When configuring an incoming relay, you specify the names and IP addresses of all of the internal MX/MTAs connecting to the IronPort appliance, as well as the header used to store the originating IP address. You have two options for specifying the header: a custom header or an existing received header.

## Incoming Relays and Email Security Monitor

When using the Incoming Relay feature, data provided by the Email Security Monitor will contain data for both the external IP and the MX/MTA. For example, if an external machine (IP 7.8.9.1) sent 5 emails through the internal MX/MTA (IP 10.2.3.4), Mail Flow Summary will show 5 messages coming from IP 7.8.9.1 and 5 more coming from the internal relay MX/MTA (IP 10.2.3.5).

## Incoming Relays and Filters

The Incoming Relays feature provides the various SenderBase Reputation Service related filter rules (`reputation`, `no-reputation`) with the correct SenderBase Reputation score.

## Incoming Relays, HAT, SBRS, and Sender Groups

Please note that HAT policy groups do not currently use information from Incoming Relays. However, because the Incoming Relays feature does supply the SenderBase Reputation score, you can simulate HAT policy group functionality via message filters and the `$reputation` variable.

## Incoming Relays and Reporting

When using Incoming Relays, the SenderBase Reputation score is not reported correctly in the Email Security Monitor reports. Also, sender groups may not be resolved correctly.

## IP Addresses

As a general rule, when specifying an IP address (of the machine connecting to the IronPort appliance — the incoming relay), be as specific as possible. That said, IP addresses can also be entered using standard CIDR format or an IP address range. For example, if you have several MTAs at the edge of your network receiving email, you might want to enter a range of IP addresses to include all of your MTAs, such as 10.2.3.1/8 or 10.2.3.1-10.

## Message Headers and Incoming Relays

### Custom Header

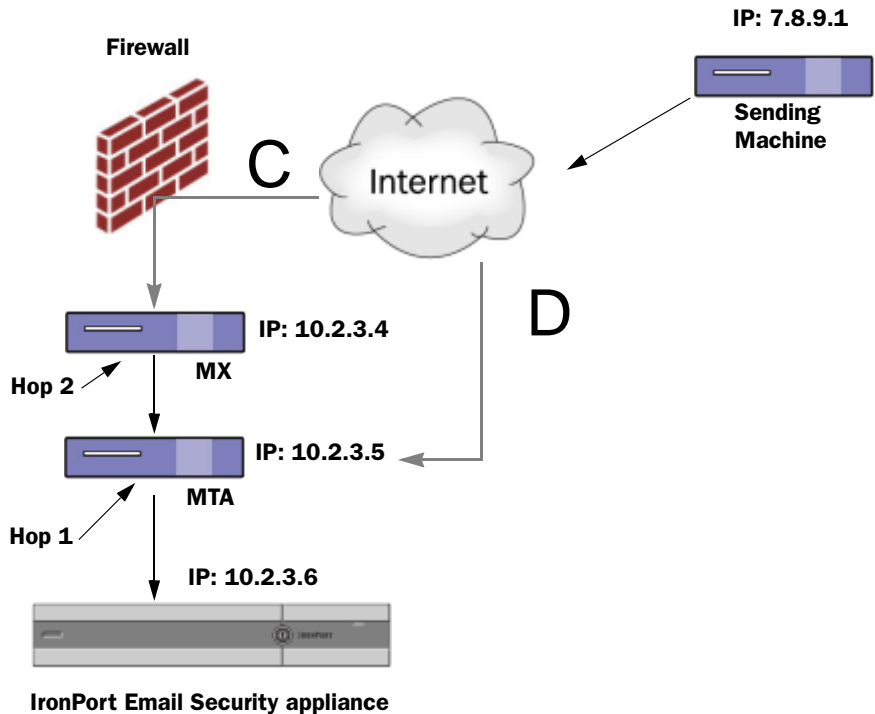
Use this method to specify a custom header. This is the recommended method. The machine connecting to the original sender needs to add this custom header. The value of the header is expected to be the IP address of the external sending machine. For example:

```
SenderIP: 7.8.9.1
```

```
X-CustomHeader: 7.8.9.1
```

When entering a header, you do not need to enter the trailing colon.

If your local MX/MTA can receive mail from a variable number of hops, inserting a custom header is the only way to enable the Incoming Relays feature. For example, in [Figure 8-14](#) both path C and D lead to IP address 10.2.3.5; however, path C has two hops and path D has one. Because the number of hops can vary in this situation, you must use a custom header in order to have Incoming Relays configured correctly.

**Figure 8-14 Mail Relayed by MX/MTA – Variable Number of Hops**

## Received Header

If configuring the MX/MTAs to include a custom header containing the sending IP address is not an option, you can configure the incoming relays feature to attempt to determine the sending IP address by examining the “Received:” headers in the message. Using the “Received:” header will only work if the number of network “hops” will always be constant for an IP address. In other words, the machine at the first hop (10.2.3.5 in [Figure 8-13](#)) should always be the same number of hops away from the edge of your network. If incoming mail can take different paths (resulting in a different number of hops, as described in [Figure 8-14](#)) to the machine connecting to your IronPort appliance, you must use a custom header (see [Custom Header](#), page 8-291).

Specify a parsing character or string and the number of network hops (or Received: headers) back to look. A hop is basically the message travelling from one machine to another (being received by the IronPort appliance does not count

as a hop. See [Determining Which Headers are Used, page 8-295](#) for more information). AsyncOS looks for the first IP address following the first occurrence of the parsing character or string in the Received: header corresponding to the number of specified hops. For example, if you specify two hops, the second Received: header, working backward from the IronPort appliance is parsed. If the parsing character is not found, or if there is not a valid IP address found, the IronPort appliance uses the real IP address of the connecting machine.

If you specify an opening square bracket ( [ ) and two hops for the following example mail headers, the IP address of the external machine is 7.8.9.1. However, if you specify an closing parenthesis ( ) ) as the parsing character, a valid IP address will not be found. In this case, the Incoming Relays feature is treated as disabled, and the IP of the connecting machine is used (10.2.3.5).

In the example in [Figure 8-13](#) the incoming relays are:

- Path A — 10.2.3.5 (with 2 hops when using received headers) and
- Path B — 10.2.6.1 (with 2 hops when using received headers)

[Table 8-2](#) shows example email headers for a message as it moves through several hops on its way to the IronPort appliance as in [Figure 8-13](#). This example shows extraneous headers (ignored by your IronPort appliance) which are present once the message has arrived in the recipient's inbox. The number of hops to specify would be two. [Table 8-3](#) shows the headers for the same email message, without the extraneous headers

**Table 8-2      A Series of Received: Headers (Path A Example 1)**

<b>1</b>	Microsoft Mail Internet Headers Version 2.0  Received: from smemail.rand.org ([10.2.2.7]) by smmail5.customerdoamin.org with Microsoft SMTPSVC(5.0.2195.6713);  Received: from ironport.customerdomain.org ([10.2.3.6]) by smemail.customerdoamin.org with Microsoft SMTPSVC(5.0.2195.6713);
<b>2</b>	Received: from mta.customerdomain.org ([10.2.3.5]) by ironport.customerdomain.org with ESMTTP; 21 Sep 2005 13:46:07 -0700
<b>3</b>	Received: from mx.customerdomain.org (mx.customerdomain.org) [10.2.3.4]) by mta.customerdomain.org (8.12.11/8.12.11) with ESMTTP id j8LKkWu1008155 for <joefoo@customerdomain.org>

**Table 8-2 A Series of Received: Headers (Path A Example 1) (Continued)**

<b>4</b>	Received: from sending-machine.spamham.com (sending-machine.spamham.com [7.8.9.1]) by mx.customerdomain.org (Postfix) with ESMTTP id 4F3DA15AC22 for <joefoo@customerdomain.org>
<b>5</b>	Received: from linux1.thespammer.com (HELO linux1.thespammer.com) ([10.1.1.89]) by sending-machine.spamham.com with ESMTTP;  Received: from exchangel.thespammer.com ([10.1.1.111]) by linux1.thespammer.com with Microsoft SMTPSVC(6.0.3790.1830);  Subject: Would like a bigger paycheck?  Date: Wed, 21 Sep 2005 13:46:07 -0700  From: "A. Sender" <asend@otherdomain.com>  To: <joefoo@customerdomain.org>

Notes for [Table 8-2](#):

- 
- Step 1** The IronPort appliance ignores these headers.
- Step 2** The IronPort appliance receives the message (not counted as a hop).
- Step 3** First hop (and incoming relay).
- Step 4** Second hop. This is the sending MTA. The IP address is 7.8.9.1.
- Step 5** The IronPort appliance ignores these Microsoft Exchange headers.

**Table 8-3 A Series of Received: Headers (Path A Example 2)**

<b>1</b>	Received: from mta.customerdomain.org ([10.2.3.5]) by ironport.customerdomain.org with ESMTTP; 21 Sep 2005 13:46:07 -0700
<b>2</b>	Received: from mx.customerdomain.org (mx.customerdomain.org) [10.2.3.4]) by mta.customerdomain.org (8.12.11/8.12.11) with ESMTTP id j8LKKWu1008155 for <joefoo@customerdomain.org>;
<b>3</b>	Received: from sending-machine.spamham.com (sending-machine.spamham.com [7.8.9.1]) by mx.customerdomain.org (Postfix) with ESMTTP id 4F3DA15AC22 for <joefoo@customerdomain.org>;

Figure 8-15 shows the incoming relay for path A (above) as configured in the Add Relay page in the GUI:

**Figure 8-15 A Configured Incoming Relay**

Incoming Relay	
Name: ?	IncomingRelayOne
IP Address: ?	10.2.3.5
Header:	<input type="radio"/> Specify a custom header
	<input checked="" type="radio"/> Parse the "Received" header
	Begin parsing after: ?
	Hop: ? 2

## Determining Which Headers are Used

Your IronPort appliance will only examine the headers that were present when the message was received. So, additional headers added locally (such as Microsoft Exchange headers, etc.) or when the message is received by the IronPort appliance are not processed. One way to help determine which headers are used is to configure AsyncOS logging to include received headers via the `logheaders` subcommand of the `logconfig` CLI command:

```
mail3.example.com> logconfig
```

Currently configured logs:

```
[ ... list of configured logs ... ]
```

Choose the operation you want to perform:

- NEW - Create a new log.
- EDIT - Modify a log subscription.
- DELETE - Remove a log subscription.

```

- SETUP - General settings.

- LOGHEADERS - Configure headers to log.

- HOSTKEYCONFIG - Configure SSH host keys.

- CLUSTERSET - Set how logs are configured in a cluster.

- CLUSTERSHOW - Display how logs are configured in a cluster.

[]> logheaders

```

Please enter the list of headers you wish to record in the log files.

Separate multiple headers with commas.

```
[]> Received
```

## Configuring the Incoming Relays Feature (GUI)

The Incoming Relays page is available via the Network tab.

### Enabling the Incoming Relays Feature

Once enabled, the Incoming Relays feature is enabled globally for the appliance (relays are not listener specific). To enable the Incoming Relays feature:

- 
- Step 1** Click the Incoming Relays link on the Network Tab. The Incoming Relays page is displayed:



**Figure 8-16 Incoming Relays Page**  
**Incoming Relays**

Relay List	
You do not need this feature unless you have local MX or MTA relaying mail to your IronPort appliance.	
Status:	<input type="button" value="Disabled"/> <input type="button" value="Enable"/>
<input type="button" value="Add Relay..."/>	
No relays defined.	

- Step 2** Click **Enable** to enable Incoming Relays. (If the Incoming Relays feature is enabled, you can disable it by clicking **Disable**.)
- Step 3** Commit your changes.

## Incoming Relays and Mail Logs

The following example shows a typical log entry containing Incoming Relay information:

```
Wed Aug 17 11:20:41 2005 Info: MID 58298 IncomingRelay(myrelay):
Header Received found, IP 192.168.230.120 being used
```

## Adding a Relay

To add a relay:

- Step 1** Click the **Add Relay** button on the Incoming Relays page. The Add Relay page is displayed:

**Figure 8-17**      **Add Relay Page**  
**Add Relay**

Incoming Relay	
Name: ?	<input type="text"/>
IP Address: ?	<input type="text"/>
Header:	<input type="radio"/> Specify a custom header <input type="text"/>
	<input checked="" type="radio"/> Parse the "Received" header
	Begin parsing after: ? <input type="text" value="from"/>
	Hop: ? <input type="text" value="1"/>

- Step 2** Enter a name for the relay.
- Step 3** Enter an IP Address for the relay. For more information about valid IP address entries, see [IP Addresses, page 8-291](#).
- Step 4** Select a header type (Custom or Received). For more information about custom headers, see [Custom Header, page 8-291](#). When entering a header, you do not need to enter the trailing colon.
- For custom headers, enter the header name.
  - For Received: headers, enter the character or string after which the IP address will appear. Enter the number for the “hop” to check for the IP address. For more information, see [Received Header, page 8-292](#).
- Step 5** Commit your changes.

## Editing a Relay

To edit a relay:

- 
- Step 1** Click on the relay’s name in the Incoming Relay page. The Edit Relay page is displayed.
- Step 2** Make changes to the relay.
- Step 3** Commit your changes.

## Deleting a Relay

To delete a relay:

- Step 1** Click on the trash can icon in the corresponding row for the relay you want to delete. You are prompted to confirm the deletion.
- Step 2** Click **Delete**.
- Step 3** Commit your changes.

## Incoming Relays and Logging

In the following log example, the SenderBase Reputation score for the sender is reported initially on line 1. Later, once the Incoming Relay is processed, the correct SenderBase Reputation score is reported on line 5.

1	Fri Apr 28 17:07:29 2006 Info: ICID 210158 ACCEPT SG UNKNOWNLIST match nx.domain SBRS rfc1918
2	Fri Apr 28 17:07:29 2006 Info: Start MID 201434 ICID 210158
3	Fri Apr 28 17:07:29 2006 Info: MID 201434 ICID 210158 From: <joe@sender.com>
4	Fri Apr 28 17:07:29 2006 Info: MID 201434 ICID 210158 RID 0 To: <mary@example.com>
5	Fri Apr 28 17:07:29 2006 Info: MID 201434 IncomingRelay(senderdotcom): Header Received found, IP 192.192.108.1 being used, <b>SBRS 6.8</b>
6	Fri Apr 28 17:07:29 2006 Info: MID 201434 Message-ID '<7.0.1.0.2.20060428170643.0451be40@sender.com>'
7	Fri Apr 28 17:07:29 2006 Info: MID 201434 Subject 'That report...'
8	Fri Apr 28 17:07:29 2006 Info: MID 201434 ready 2367 bytes from <joe@sender.com>
9	Fri Apr 28 17:07:29 2006 Info: MID 201434 matched all recipients for per-recipient policy DEFAULT in the inbound table
10	Fri Apr 28 17:07:34 2006 Info: ICID 210158 close
11	Fri Apr 28 17:07:35 2006 Info: MID 201434 using engine: CASE spam negative
12	Fri Apr 28 17:07:35 2006 Info: MID 201434 antivirus negative
13	Fri Apr 28 17:07:35 2006 Info: MID 201434 queued for delivery





## CHAPTER 9

# Anti-Virus

---

The IronPort appliance includes integrated virus scanning engines from Sophos, Plc and McAfee, Inc. You can obtain license keys for the IronPort appliance to scan messages for viruses using one or both of these virus scanning engines.

You can configure the appliance to scan messages for viruses (based on the matching incoming or outgoing mail policy), and, if a virus is found, to perform different actions on the message (including “repairing” the message of viruses, modifying the subject header, adding an additional X-header, sending the message to an alternate address or mailhost, archiving the message, or deleting the message).

If enabled, virus scanning is performed in the “work queue” on the appliance, immediately after Anti-Spam scanning. (See [Understanding the Email Pipeline, page 4-91.](#))

By default, virus scanning is enabled for the default incoming and outgoing mail policies.

This chapter contains the following section:

- [Anti-Virus Scanning, page 9-302](#)
- [Sophos Anti-Virus Filtering, page 9-303](#)
- [McAfee Anti-Virus Filtering, page 9-306](#)
- [Enabling Virus Scanning and Configuring Global Settings, page 9-308](#)
- [Configuring Virus Scanning Actions for Users, page 9-312](#)
- [Testing Virus Scanning, page 9-327](#)

# Anti-Virus Scanning

You can configure your IronPort appliance to scan for viruses using the McAfee or Sophos anti-virus scanning engines.

The McAfee and Sophos engines contain the program logic necessary to scan files at particular points, process and pattern-match virus definitions with data they find in your files, decrypt and run virus code in an emulated environment, apply heuristic techniques to recognize new viruses, and remove infectious code from legitimate files.

## Evaluation Key

Your IronPort appliance ships with a 30-day evaluation key for each available anti-virus scanning engine. You enable the evaluation key by accessing the license agreement in the System Setup Wizard or Security Services > Sophos/McAfee Anti-Virus pages (in the GUI) or running the `antivirusconfig` or `systemsetup` commands (in the CLI). Once you have accepted the agreement, the Anti-Virus scanning engine will be enabled, by default, for the default incoming and outgoing mail policies. For information on enabling the feature beyond the 30-day evaluation period, contact your IronPort sales representative. You can see how much time remains on the evaluation via the System Administration > Feature Keys page or by issuing the `featurekey` command. (For more information, see the section on working with feature keys in “Common Administrative Tasks” in the *Cisco IronPort AsyncOS for Email Daily Management Guide*).

## Multi-Layer Anti-Virus Scanning

AsyncOS supports scanning messages with multiple anti-virus scanning engines — multi-layer anti-virus scanning. You can configure your IronPort appliance to use one or both of the licensed anti-virus scanning engines on a per mail policy basis. You could create a mail policy for executives, for example, and configure that policy to scan mail with both Sophos and McAfee engines.

Scanning messages with multiple scanning engines provides “defense in depth” by combining the benefits of both Sophos and McAfee anti-virus scanning engines. Each engine has leading anti-virus capture rates, but because each engine relies on a separate base of technology (discussed in [McAfee Anti-Virus Filtering](#),

[page 9-306](#) and [Sophos Anti-Virus Filtering, page 9-303](#)) for detecting viruses, the multi-scan approach can be even more effective. Using multiple scanning engines can lead to reduced system throughput, please contact your IronPort support representative for more information.

You cannot configure the order of virus scanning. When you enable multi-layer anti-virus scanning, the McAfee engine scans for viruses first, and the Sophos engine scans for viruses second. If the McAfee engine determines that a message is virus-free, the Sophos engine scans the message, adding a second layer of protection. If the McAfee engine determines that a message contains a virus, the IronPort appliance skips Sophos scanning and performs actions on the virus message based on settings you configured.

## Sophos Anti-Virus Filtering

The IronPort appliance includes integrated virus-scanning technology from Sophos, Plc. Sophos Anti-Virus provides cross-platform anti-virus protection, detection and disinfection.

Sophos Anti-Virus provides a virus detection engine that scans files for viruses, Trojan horses, and worms. These programs come under the generic term of *malware*, meaning “malicious software.” The similarities between all types of malware allow anti-virus scanners to detect and remove not only viruses, but also all types of malicious software.

## Virus Detection Engine

The Sophos virus detection engine lies at the heart of the Sophos Anti-Virus technology. It uses a proprietary architecture similar to Microsoft’s COM (Component Object Model), consisting of a number of objects with well-defined interfaces. The modular filing system used by the engine is based on separate, self-contained dynamic libraries each handling a different “storage class,” for example, file type. This approach allows virus scanning operations to be applied on generic data sources, irrespective of type.

Specialized technology for loading and searching data enables the engine to achieve very fast scanning speeds. Incorporated within it are:

- a full code emulator for detecting polymorphic viruses

- an on-line decompressor for scanning inside archive files
- an OLE2 engine for detecting and disinfecting macro viruses

The IronPort appliance integrates with the virus engine using SAV Interface.

## Virus Scanning

In broad terms, the engine's scanning capability is managed by a powerful combination of two important components: a classifier that knows where to look, and the virus database that knows what to look for. The engine classifies the file by type rather than by relying on the extension.

The virus engine looks for viruses in the bodies and attachments of messages received by the system; an attachment's file type helps determine its scanning. For example, if a message's attached file is an executable, the engine examines the header which tells it where the executable code starts and it looks there. If the file is a Word document, the engine looks in the macro streams. If it is a MIME file, the format used for mail messaging, it looks in the place where the attachment is stored.

## Detection Methods

How viruses are detected depends on their type. During the scanning process, the engine analyzes each file, identifies the type, and then applies the relevant technique(s). Underlying all methods is the basic concept of looking for certain types of instructions or certain ordering of instructions.

### Pattern matching

In the technique of pattern matching, the engine knows the particular sequence of code and is looking for an exact match that will identify the code as a virus. More often, the engine is looking for sequences of code that are similar, but not necessarily identical, to the known sequences of virus code. In creating the descriptions against which files are compared during scanning, Sophos virus researchers endeavor to keep the identifying code as general as possible so that – using heuristics, as explained below – the engine will find not just the original virus but also its later derivatives.



## Heuristics

The virus engine can combine basic pattern matching techniques with heuristics – a technique using general rather than specific rules – to detect several viruses in the same family, even though Sophos researchers might have analyzed only one virus in that family. The technique enables a single description to be created that will catch several variants of one virus. Sophos tempers its heuristics with other methods, minimizing the incidence of false positives.

## Emulation

Emulation is a technique applied by the virus engine to polymorphic viruses. Polymorphic viruses are encrypted viruses that modify themselves in an effort to hide themselves. There is no visible constant virus code and the virus encrypts itself differently each time it spreads. When it runs, it decrypts itself. The emulator in the virus detection engine is used on DOS and Windows executables, while polymorphic macro viruses are found by detection code written in Sophos's Virus Description Language.

The output of this decryption is the real virus code and it is this output that is detected by the Sophos virus detection engine after running in the emulator.

Executables that are sent to the engine for scanning are run inside the emulator, which tracks the decryption of the virus body as it is written to memory. Normally the virus entry point sits at the front end of a file and is the first thing to run. In most cases, only a small amount of the virus body has to be decrypted in order for the virus to be recognized. Most clean executables stop emulating after only a few instructions, which reduces overhead.

Because the emulator runs in a restricted area, if the code does turn out to be a virus, the virus does not infect the appliance.

## Virus Descriptions

Sophos exchanges viruses with other trusted anti-virus companies every month. In addition, every month customers send thousands of suspect files directly to Sophos, about 30% of which turn out to be viruses. Each sample undergoes rigorous analysis in the highly secure virus labs to determine whether or not it is a virus. For each newly discovered virus, or group of viruses, Sophos creates a description.

## Sophos Alerts

IronPort encourages customers who enable Sophos Anti-Virus scanning to subscribe to Sophos alerts on the Sophos site at <http://www.sophos.com/virusinfo/notifications/>.

Subscribing to receive alerts directly from Sophos will ensure you are apprised of the latest virus outbreaks and their available solutions.

## When a Virus is Found

When a virus has been detected, Sophos Anti-Virus can repair (disinfect) the file. Sophos Anti-Virus can usually repair any file in which a virus has been found, after which the file can be used without risk. The precise action taken depends on the virus.

There can be limitations when it comes to disinfecting, because it is not always possible to return a file to its original state. Some viruses overwrite part of the executable program which cannot be reinstated. In this instance, you define how to handle messages with attachments that could not be repaired. You configure these settings on a per-recipient basis using the Email Security Feature: the Mail Policies > Incoming or Outgoing Mail Policies pages (GUI) or the `policyconfig -> antivirus` command (CLI). For more information on configuring these settings, see [Configuring Virus Scanning Actions for Users, page 9-312](#).

## McAfee Anti-Virus Filtering

The McAfee® scanning engine:

- Scans files by pattern-matching virus signatures with data from your files.
- Decrypts and runs virus code in an emulated environment.
- Applies heuristic techniques to recognize new viruses.
- Removes infectious code from files.

## Pattern-Matching Virus Signatures

McAfee uses anti-virus definition (DAT) files with the scanning engine to detect particular viruses, types of viruses, or other potentially unwanted software. Together, they can detect a simple virus by starting from a known place in a file, then searching for a virus signature. Often, they must search only a small part of a file to determine that the file is free from viruses.

## Encrypted Polymorphic Virus Detection

Complex viruses avoid detection with signature scanning by using two popular techniques:

- **Encryption.** The data inside the virus is encrypted so that anti-virus scanners cannot see the messages or computer code of the virus. When the virus is activated, it converts itself into a working version, then executes.
- **Polymorphism.** This process is similar to encryption, except that when the virus replicates itself, it changes its appearance.

To counteract such viruses, the engine uses a technique called emulation. If the engine suspects that a file contains such a virus, the engine creates an artificial environment in which the virus can run harmlessly until it has decoded itself and its true form becomes visible. The engine can then identify the virus by scanning for a virus signature, as usual.

## Heuristics Analysis

Using only virus signatures, the engine cannot detect a new virus because its signature is not yet known. Therefore the engine can use an additional technique — heuristic analysis.

Programs, documents or email messages that carry a virus often have distinctive features. They might attempt unprompted modification of files, invoke mail clients, or use other means to replicate themselves. The engine analyzes the program code to detect these kinds of computer instructions. The engine also searches for legitimate non-virus-like behavior, such as prompting the user before taking action, and thereby avoids raising false alarms.

By using these techniques, the engine can detect many new viruses.

## When a Virus is Found

When a virus has been detected, McAfee can repair (disinfect) the file. McAfee can usually repair any file in which a virus has been found, after which the file can be used without risk. The precise action taken depends on the virus.

Occasionally, there can be limitations when it comes to disinfecting files because it is not always possible to return a file to its original state. Some viruses overwrite part of the executable program which cannot be reinstated. In this instance, you define how to handle messages with attachments that could not be repaired. You configure these settings on a per-recipient basis using the Email Security Feature: the Mail Policies > Incoming or Outgoing Mail Policies pages (GUI) or the `policyconfig -> antivirus` command (CLI). For more information on configuring these settings, see [Configuring Virus Scanning Actions for Users, page 9-312](#).

## Enabling Virus Scanning and Configuring Global Settings

To perform virus scanning, you must first enable virus scanning on the IronPort appliance. After you enable the virus scanning engine or engines, you can apply the virus scanning engine to incoming or outgoing mail policies.

### Overview

You can enable a virus scanning engine when you run the System Setup Wizard. Or, you can enable and modify the virus scanning engine global configuration settings via Security Services > Sophos/McAfee Anti-Virus pages (GUI) or the `antivirusconfig` command (CLI). You can configure the following global settings:

- Globally enable McAfee or Sophos anti-virus scanning for the entire system.
- Specify the anti-virus scanning timeout value.

In addition to the two values on the global settings page, you can further configure the anti-virus settings via the Service Updates page (available from the Security Services tab). Additional settings include:

- How (from which URL) the system will receive anti-virus updates. If you use the McAfee Anti-Virus engine, the virus definitions are updated from a dynamic URL. If you have strict firewall policies, you may need to configure your IronPort appliance to obtain updates from a static URL.
- How frequently the system checks for new virus definitions. (You define the number of minutes between checks.)
- You can optionally enable a proxy server for obtaining anti-virus updates.

For more information about configuring these additional settings, see [System Time, page 15-528](#).

## Enabling Anti-Virus Scanning and Configure Global Settings

To enable anti-virus scanning globally for the appliance, see [Click Edit Global Settings, page 9-309](#).

To enable Anti-Virus scanning if you have not previously enabled an anti-virus engine in the System Setup Wizard (see [Step 4: Security, page 3-65](#) for the GUI or the [Enable Anti-Virus Scanning, page 3-86](#) for the CLI), complete the following steps:

---

**Step 1** Select Security Services > McAfee

OR

Select Security Services > Sophos

**Step 2** Click **Enable** The license agreement page is displayed.




---

**Note** Clicking **Enable** enables the feature globally for the appliance. However, you must later enable per-recipient settings in Mail Policies.

---

**Step 3** After reading the agreement, scroll to the bottom of the page and click **Accept** to accept the agreement. A page similar to [Figure 9-1](#) is displayed.

**Step 4** Click **Edit Global Settings**

**Step 5** Choose a maximum virus scanning timeout value.

Configure a timeout value for the system to stop performing anti-virus scanning on a message. The default value is 60 seconds.

- Step 6

Click **Submit**. The Security Services > Sophos or McAfee Anti-Virus page is refreshed to display the values you chose in the previous steps.

**Figure 9-1**      *Sophos Anti-Virus Settings Updated*  
**Sophos Anti-Virus**

Success — Your changes have been committed.

Sophos Anti-Virus Overview

Anti-Virus Scanning by Sophos Anti-Virus:	Enabled
Virus Scanning Timeout (seconds):	300

Edit Global Settings...

Current Sophos Anti-Virus files


File Type	Version	Updated On
Sophos Anti-Virus Engine	4.13	23 Jan 2007 22:35 (GMT)
Sophos IDE Rules	2007013108	31 Jan 2007 21:21 (GMT)

Update Now

- Step 7

Click the **Commit Changes** button.
- Step 8

You can now configure anti-virus settings on a per-recipient basis. See [Configuring Virus Scanning Actions for Users, page 9-312](#).



Note

For information about how and when anti-virus scanning is applied, see [Email Pipeline and Security Services, page 4-98](#).

# Retrieving Anti-Virus Updates via HTTP

By default, the IronPort appliance is configured to check for updates every 15 minutes. For the Sophos engine, the server updates from the update site: `http://downloads.ironport.com/av` . For the McAfee anti-virus engine, the server updates from a dynamic site.

The maximum amount of time that the system waits for an update to complete before timing out is a dynamic value that is defined as 1 minute less than the anti-virus update interval (defined on Security Services> Service Updates). This configuration value aids customers on slower connections while downloading large updates that may take longer than 10 minutes for an update to complete.

## Monitoring and Manually Checking for Updates

Once you have accepted the license agreement and configured the global settings, you can use Security Services > Sophos or McAfee Anti-Virus page (GUI) or the `antivirusstatus` command (CLI) to verify that you have the latest anti-virus engine and identity files installed and to confirm when the last update was performed.

You can also manually check for updates. From the Security Services > Sophos or McAfee Anti-Virus page in the Current Anti-Virus Files table, click Update Now.

**Figure 9-2** *Manually Checking for Sophos Updates*

Current Sophos Anti-Virus files		
File Type	Version	Updated On
Sophos Anti-Virus Engine	4.13	23 Jan 2007 22:35 (GMT)
Sophos IDE Rules	2007020105	01 Feb 2007 20:24 (GMT)
		<a href="#">Update Now</a>

In the CLI, use the `antivirusstatus` command to check the status of your virus files and `antivirusupdate` command to manually check for updates:

**Table 9-1** *Viewing Anti-Virus Status*

```
example.com> antivirusstatus
Choose the operation you want to perform:
- MCAFEE - Display McAfee Anti-Virus version information
- SOPHOS - Display Sophos Anti-Virus version information
> sophos
SAV Engine Version      4.13
  IDE Serial            2007020302
  Last Engine Update    Tue Jan 23 22:35:16 2007
  Last IDE Update       Sat Feb  3 14:13:49 2007
  Last Update Attempt   Sun Feb  4 00:33:43 2007
  Last Update Success   Sat Feb  3 14:13:47 2007
```

**Table 9-2** *Checking for New Anti-Virus Updates*

```
example.com> antivirusupdate
Choose the operation you want to perform:
- MCAFEE - Request updates for McAfee Anti-Virus
- SOPHOS - Request updates for Sophos Anti-Virus
>sophos
Requesting check for new Sophos Anti-Virus updates
example.com>
```

The `antivirus` log can be used to verify that all individual identity files based on `filename.ide` have been successfully downloaded, extracted, or updated. Use the `tail` command to show the final entries in any “AntiVirus” log subscription to ensure that virus updates were obtained.

## Configuring Virus Scanning Actions for Users

Once enabled globally, the virus scanning engine integrated into the IronPort appliance processes messages for viruses for incoming and outgoing mail based on policies (configuration options) you configure using the Email Security Manager feature. You enable Anti-Virus actions on a per-recipient basis using the Email Security Feature: the Mail Policies > Incoming or Outgoing Mail Policies pages (GUI) or the `policyconfig -> antivirus` command (CLI).

## Message Scanning Settings

- Scan for Viruses Only:

Messages processed by the system are scanned for viruses. Repairs are *not* attempted for infected attachments. You can choose whether to drop attachments and deliver mail for messages that contain viruses or could not be repaired.

- Scan and Repair Viruses:

Messages processed by the system are scanned for viruses. If a virus is found in an attachment, the system will attempt to “repair” the attachment.

- Dropping Attachments

You can choose to drop infected attachments.

When infected attachments to messages have been scanned and *dropped* by the anti-virus scanning engine, the attachment is replaced with a new attachment called “Removed Attachment.” The attachment type is text/plain and contains the following:

```
This attachment contained a virus and was stripped.
```



Filename: *filename*

Content-Type: *application/filetype*

Users will always be notified if their messages were modified in any way because they were infected with a bad attachment. You can configure a secondary notification action, as well (see [Sending Notifications, page 9-317](#)). The notify action is *not* needed to inform users that a message was modified if you choose to drop infected attachments.

- X-IronPort-AV Header

All messages that are processed by the Anti-Virus scanning engine on the appliance have the header `X-IronPort-AV:` added to messages. This header provides additional information to you when debugging issues with your anti-virus configuration, particularly with messages that are considered “unscannable.” You can toggle whether the X-IronPort-AV header is included in messages that are scanned. Including this header is recommended.

## Message Handling Settings

You configure the virus scanning engine to handle four distinct classes of messages that are received by a listener, with separate actions for each. [Figure 9-3](#) summarizes the actions the system performs when the virus scanning engine is enabled. See also [Figure 9-4](#) and [Figure 9-5](#) for the GUI configuration.

For each of the following message types, you can choose which actions are performed. The actions are described below (see [Configuring Settings for Message Handling Actions, page 9-315](#)). For example, you can configure your anti-virus settings for virus-infected messages so that the infected attachment is dropped, the subject of the email is modified, and a custom alert is sent to the message recipient.

## Repaired Message Handling

Messages are considered *repaired* if the message was completely scanned and all viruses have been repaired or removed. These messages will be delivered as is.

## Encrypted Message Handling

Messages are considered *encrypted* if the engine is unable to finish the scan due to an encrypted or protected field in the message. Messages that are marked encrypted may also be repaired.

Note the differences between the encryption detection message filter rule (refer to “Encryption Detection Rule” in the “Using Message Filters to Enforce Email Policies” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*) and the virus scanning actions for “encrypted” messages. The encrypted message filter rule evaluates to “true” for any messages that are PGP or S/MIME encrypted. The encrypted rule can only detect PGP and S/MIME encrypted data. It does not detect password protected ZIP files, or Microsoft Word and Excel documents that include encrypted content. The virus scanning engine considers any message or attachment that is password protected to be “encrypted.”



### Note

---

If you upgrade from a 3.8 or earlier version of AsyncOS and you configured Sophos Anti-Virus scanning, you must configure the Encrypted Message Handling section after you upgrade.

---

## Unscannable Message Handling

Messages are considered *unscannable* if a scanning timeout value has been reached, or the engine becomes unavailable due to an internal error. Messages that are marked unscannable may also be repaired.

## Virus Infected Message Handling

The system may be unable to drop the attachment or completely repair a message. In these cases, you can configure how the system handles messages that could still contain viruses.

The configuration options are the same for encrypted messages, unscannable messages, and virus messages.

## Configuring Settings for Message Handling Actions

### Action to Apply

Choose which overall action to take on each message type for encrypted, unscannable, or virus positive messages: drop the message, deliver the message as an attachment to a new message, deliver the message as is, or send the message to the anti-virus quarantine area ([Quarantines and Anti-Virus Scanning, page 9-316](#)). See the “Quarantines” chapter in *Cisco IronPort AsyncOS for Email Daily Management Guide* for more information about quarantines.

Configuring the appliance to deliver the infected messages as an attachment to a new message allows the recipient to choose how to deal with the original, infected attachment.

If you choose to deliver the message or deliver the message as an attachment to a new message, you can additionally:

- Modify message subject
  - Archive original message
  - Send generic notification
- The following actions are available in the “Advanced” section of the GUI:
- Add custom header to message
  - Modify message recipient
  - Send message to alternate destination host
  - Send custom alert notification (to recipient only)



#### Note

These actions are not mutually exclusive; you can combine some or all of them differently within different incoming or outgoing policies for different processing needs for groups of users. See the following sections and [Notes on Anti-Virus Configurations, page 9-323](#) for more information on defining various scanning policies using these options.



Note

Repaired messages have only two advanced options: Add custom header and Send custom alert notification. All other message types have access to all of the advanced options.

Quarantines and Anti-Virus Scanning

When flagged for quarantine, the message continues through the rest of the email pipeline. When the message reaches the end of the pipeline, if the message has been flagged for one or more quarantines then it enters those queues. Note that if the message does not reach the end of the pipeline, it is not placed in a quarantine.

For example, a content filter can cause a message to be dropped or bounced, in which case the message will not be quarantined.

Modify the Message Subject Header

You can alter the text of identified messages by prepending or appending certain text strings to help users more easily identify and sort identified messages.



Note

White space is *not* ignored in the “Modify message subject” field. Add spaces after (if prepending) or before (if appending) the text you enter in this field to separate your added text from the original subject of the message. For example, add the text [WARNING: VIRUS REMOVED] with a few trailing spaces if you are prepending.

The default text is:

**Table 9-3**      **Default Subject Line Text for Anti-Virus Subject Line Modification**

Verdict	Default Text to Add to Subject
Encrypted	[WARNING: MESSAGE ENCRYPTED]
Infected	[WARNING: VIRUS DETECTED]
Repaired	[WARNING: VIRUS REMOVED]
Unscannable	[WARNING: A/V UNSCANNABLE]

Any message with multiple states causes a multi-part notification message informing users what actions the appliance performed on the message (for example, the user is notified that the message was repaired of a virus, but another part of the message was encrypted).

## Archive Original Message

You can archive messages the system has identified as containing (or possibly containing) viruses to the “avarchive” directory. The format is an mbox-format log file. You *must* configure an “Anti-Virus Archive” log subscription to archive messages with viruses or messages that could not be completely scanned. For more information, refer to “Logging” in the *Cisco IronPort AsyncOS for Email Daily Management Guide* for more information.



### Note

In the GUI, you may need to click the “Advanced” link to reveal the “Archive original message” setting.

## Sending Notifications

When the system has identified a message as containing viruses, you can send the default notification to the sender, the recipient, and/or additional users. When specifying additional users to notify, separate multiple addresses with commas (in both the CLI and the GUI). The default notification messages are:

**Table 9-4**      **Default Notifications for Anti-Virus Notifications**

Verdict	Notification
Repaired	The following virus(es) was detected in a mail message: <virus name(s)>  Actions taken: Infected attachment dropped (or Infected attachment repaired).
Encrypted	The following message could not be fully scanned by the anti-virus engine due to encryption.

**Table 9-4 Default Notifications for Anti-Virus Notifications (Continued)**

Unscannable	The following message could not be fully scanned by the anti-virus engine.
Infectious	The following unrepairable virus(es) was detected in a mail message: <virus name(s)>.

## Add Custom Header to Message

You can define an additional, custom header to be added to all messages that are scanned by the anti-virus scanning engine. Click **Yes** and define the header name and text.

You can also create filters that use the `skip-viruscheck` action so that certain messages bypass virus scanning. See “Bypass Anti-Virus System Action” in the “Using Message Filters to Enforce Email Policies” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide* for more information.

## Modify message recipient

You can modify the message recipient, causing the message to be delivered to a different address. Click **Yes** and enter the new recipient address.

## Send message to alternate destination host

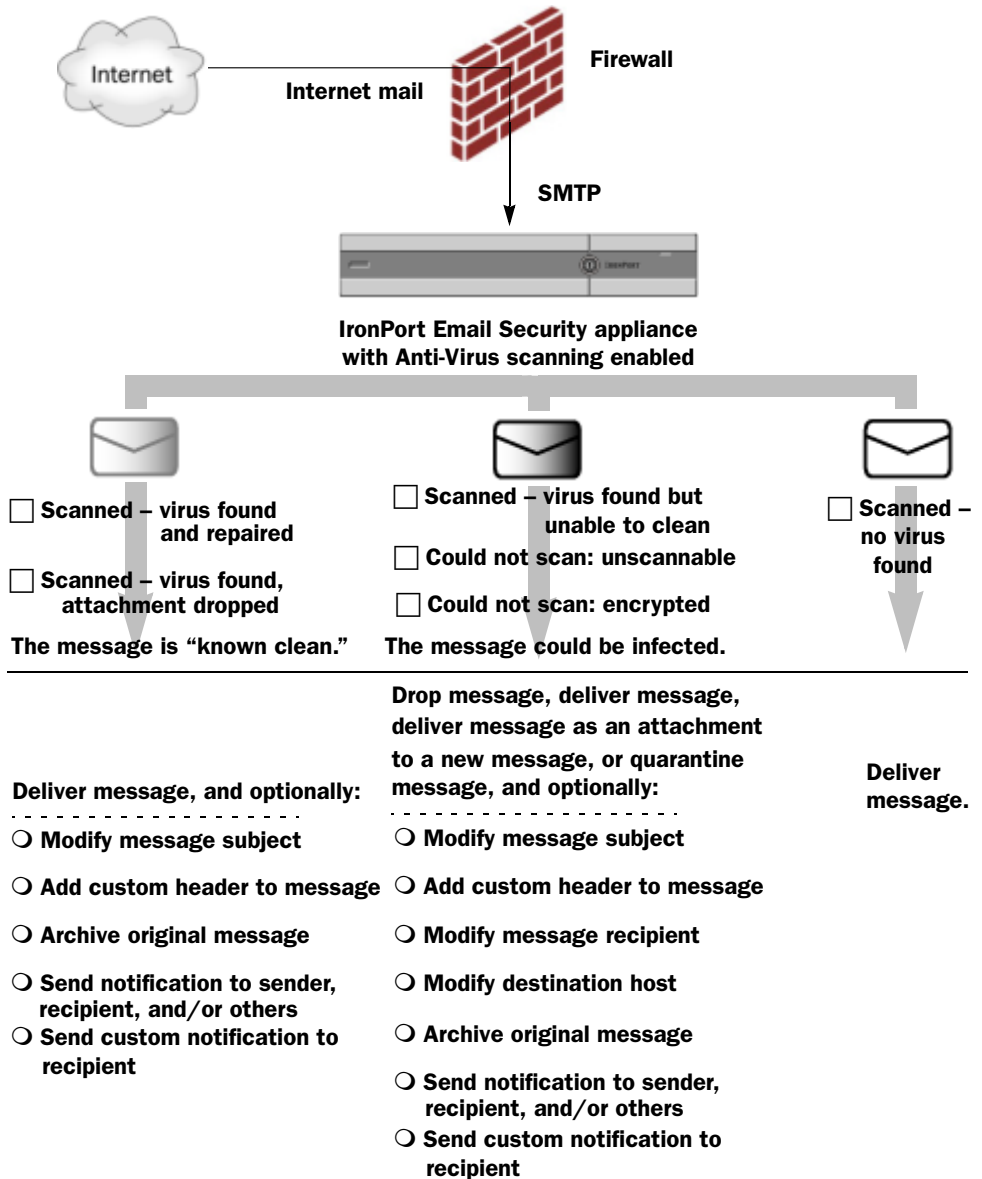
You can choose to send the notification to a different recipient or destination host for encrypted, unscannable, or virus infected messages. Click **Yes** and enter an alternate address or host.

For example, you could route suspected messages to an administrator’s mailbox or a special mail server for subsequent examination. In the case of a multi-recipient message, only a single copy is sent to the alternative recipient.

## Send custom alert notification (to recipient only)

You can send a custom notification to the recipient. To do so, you must first create the custom notification prior to configuring the settings. See [Text Resources, page 14-434](#) for more information.

**Figure 9-3 Options for Handling Messages Scanned for Viruses**



**Note**

By default, Anti-Virus scanning is enabled in the \$TRUSTED mail flow policy for public listeners, which is referenced by the WHITELIST sender group. See [Mail Flow Policies: Access Rules and Parameters, page 5-117](#).

## Editing the Anti-Virus Settings for a Mail Policy

The process for editing the per-user anti-virus settings for a mail policy is essentially the same for incoming or outgoing mail.

Individual policies (not the default) have an additional field to “Use Default” settings. Select this setting to inherit the default mail policy settings.

You enable anti-virus actions on a per-recipient basis using the Email Security Feature: the Mail Policies > Incoming or Outgoing Mail Policies pages (GUI) or the `policyconfig -> antivirus` command (CLI). After you enable anti-virus settings globally, you configure these actions separately for each mail policy you create. You can configure different actions for different mail policies.

To edit the anti-virus settings for a mail policy, including the default policy:

- 
- Step 1** Click the link for the anti-virus security service in any row of the Email Security Manager incoming or outgoing mail policy table.

The Anti-Virus settings page similar to the one shown in [Figure 9-4](#) and [Figure 9-5](#) is displayed.

Click the link in the default row to edit the settings for the default policy. [Figure 9-4](#) and [Figure 9-5](#) show the settings for an individual policy (not the default).

- Step 2** Click **Yes** or **Use Default** to enable Anti-Virus Scanning for the policy.

The first setting on the page defines whether the service is enabled for the policy. You can click **Disable** to disable the service altogether.

For mail policies other than the default, choosing “Yes” enables the fields in the Repaired, Encrypted, Unscannable, and Virus Infected Messages areas to become active.

- Step 3** Select an Anti-Virus scanning engine. You can select McAfee or Sophos engines.

- Step 4** Configure Message Scanning settings.



See [Message Scanning Settings, page 9-312](#) for more information.

- Step 5** Configure settings for Repaired, Encrypted, Unscannable, and Virus Infected messages.

[Figure 9-4](#) and [Figure 9-5](#) show the Anti-Virus settings for the mail policy named “Engineering” about to be edited. See [Message Handling Settings, page 9-313](#) and [Configuring Settings for Message Handling Actions, page 9-315](#).

- Step 6** Click **Submit**.

The Mail Policies > Incoming or Outgoing Mail Policies page is refreshed to reflect the values you chose in the previous steps.

- Step 7** Commit your changes.

**Figure 9-4**      **Anti-Virus Settings for a Mail Policy (not default) - 1 of 2**

Anti-Virus Settings	
<b>Policy:</b>	Engineering
<b>Enable Anti-Virus Scanning for This Policy:</b>	<input checked="" type="radio"/> Yes <input checked="" type="checkbox"/> Use McAfee Anti-Virus <input checked="" type="checkbox"/> Use Sophos Anti-Virus <input type="radio"/> Use Default Settings <input type="radio"/> No
<b>Message Scanning</b>	
	<div>Scan and Repair viruses ▼</div> <input type="checkbox"/> Drop infected attachments if a virus is found and it could not be repaired <input checked="" type="checkbox"/> (recommended) Include an X-header with the Anti-Virus scanning results in messages
<b>Repaired Messages:</b>	
Action Applied to Message:	Deliver As Is ▼
Archive Original Message:	<input checked="" type="radio"/> No <input type="radio"/> Yes
Modify Message Subject:	<input type="radio"/> No <input checked="" type="radio"/> Prepend <input type="radio"/> Append <div>[WARNING: VIRUS REMOVED]</div>
Send Notification Message:	<input type="checkbox"/> ...to sender <input type="checkbox"/> ...to recipient <input type="checkbox"/> ...to others: <input type="text"/>
▸ Advanced	Optional settings for custom header and message delivery.

**Figure 9-5** *Anti-Virus Settings for a Mail Policy (not default) - 2 of 2*

Encrypted Messages:	
Action Applied to Message:	<input type="text" value="Deliver As Is"/>
Archive Original Message:	<input checked="" type="radio"/> No <input type="radio"/> Yes
Modify Message Subject:	<input type="radio"/> No <input checked="" type="radio"/> Prepend <input type="radio"/> Append <input type="text" value="[WARNING: MESSAGE ENCRYPTED]"/>
Send Notification Message:	<input type="checkbox"/> ...to sender <input type="checkbox"/> ...to recipient <input type="checkbox"/> ...to others: <input type="text"/>
<a href="#">Advanced</a> Optional settings for custom header and message delivery.	
Unscannable Messages:	
Action Applied to Message:	<input type="text" value="Deliver As Is"/>
Archive Original Message:	<input type="radio"/> No <input checked="" type="radio"/> Yes
Modify Message Subject:	<input type="radio"/> No <input checked="" type="radio"/> Prepend <input type="radio"/> Append <input type="text" value="[WARNING: A/V UNSCANNABLE]"/>
Send Notification Message:	<input type="checkbox"/> ...to sender <input type="checkbox"/> ...to recipient <input type="checkbox"/> ...to others: <input type="text"/>
<a href="#">Advanced</a> Optional settings for custom header and message delivery.	
Virus Infected Messages:	
Action Applied to Message:	<input type="text" value="Drop Message"/>
Archive Original Message:	<input type="radio"/> No <input checked="" type="radio"/> Yes
Modify Message Subject:	<input checked="" type="radio"/> No <input type="radio"/> Prepend <input type="radio"/> Append <input type="text"/>
Send Notification Message:	<input type="checkbox"/> ...to sender <input type="checkbox"/> ...to recipient <input type="checkbox"/> ...to others: <input type="text"/>
<a href="#">Advanced</a> Optional settings for custom header and message delivery.	

## Notes on Anti-Virus Configurations

The drop attachments flag makes a considerable difference in how anti-virus

scanning works. When the system is configured to “Drop infected attachments if a virus is found and it could not be repaired,” any viral or unscannable MIME parts are removed from messages. The output from Anti-Virus scanning, then, is almost always a *clean* message. The action defined for *Unscannable Messages*, as shown in the GUI pane, rarely takes place.

In a “Scan for Viruses only” environment, these actions “clean” messages by dropping the bad message parts. Only if the RFC822 headers themselves are attacked or encounter some other problem would this result in the unscannable actions taking place. However, when Anti-Virus scanning is configured for “Scan for Viruses only” and “Drop infected attachments if a virus is found and it could not be repaired,” is *not* chosen, the unscannable actions are very likely to take place.

Table 9-5 lists some common Anti-Virus configuration options.

**Table 9-5 Common Anti-Virus Configuration Options**

Situation	Anti-Virus Configuration
<b>Widespread Virus Outbreak</b>  <b>Any viral message is simply dropped from the system with little other processing taking place.</b>	<b>Drop-attachments:</b> NO  <b>Scanning:</b> Scan-Only  <b>Cleaned messages:</b> Deliver  <b>Unscannable messages:</b> DROP message  <b>Encrypted messages:</b> Send to administrator or quarantine for review.  <b>Viral messages:</b> Drop message
<b>Liberal Policy</b>  <b>As many documents as possible are sent.</b>	<b>Drop-attachments:</b> YES  <b>Scanning:</b> Scan and Repair  <b>Cleaned messages:</b> [VIRUS REMOVED] and Deliver  <b>Unscannable messages:</b> Forward as attachment  <b>Encrypted messages:</b> Mark and forward  <b>Viral messages:</b> Quarantine or mark and forward.

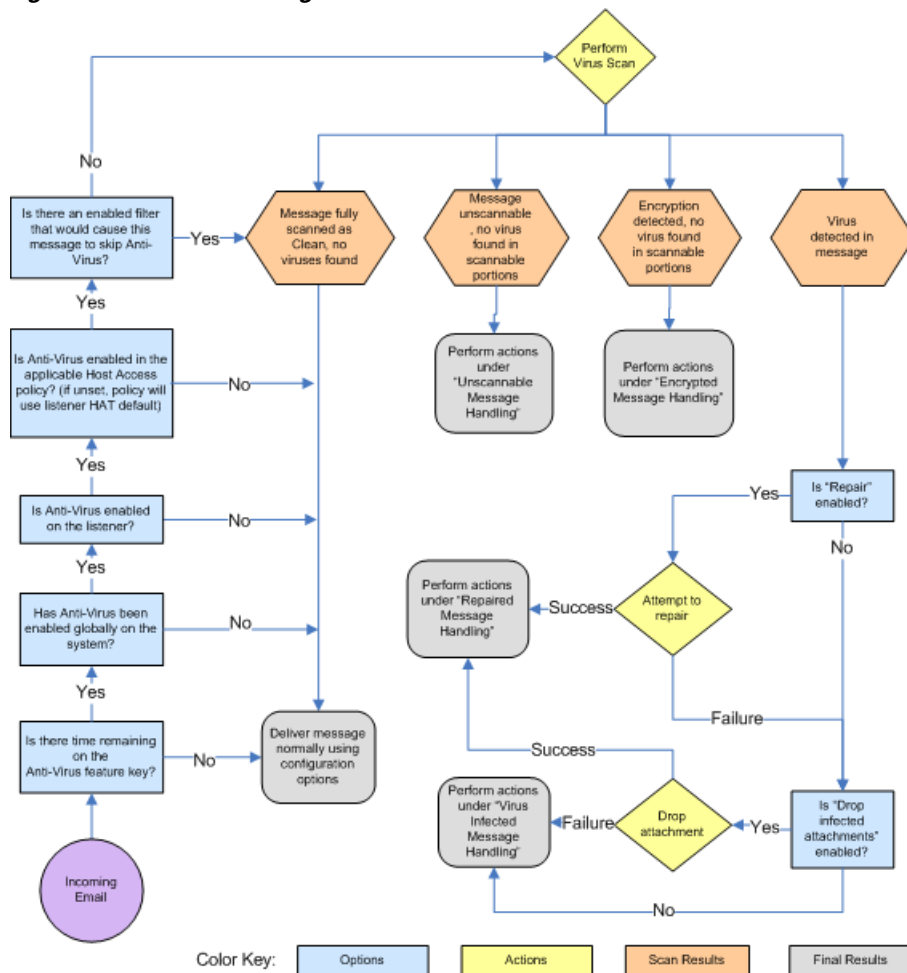
**Table 9-5 Common Anti-Virus Configuration Options (Continued)**

<b>More Conservative Policy</b>	<b>Drop-attachments:</b> YES <b>Scanning:</b> Scan and Repair <b>Cleaned messages:</b> [VIRUS REMOVED] and Deliver (Archive cleaned messages for a more cautious policy.) <b>Unscannable messages:</b> Send notification(s), quarantine, OR drop and archive. <b>Encrypted messages:</b> Mark and forward OR treat as unscannable <b>Viral messages:</b> Archive and drop
<b>Conservative with Review</b>  <b>Possible virus messages are sent to a quarantine mailbox so that an administrator can review the content.</b>	<b>Drop-attachments:</b> NO <b>Scanning:</b> Scan-Only <b>Cleaned messages:</b> Deliver (this action won't normally be taken) <b>Unscannable messages:</b> Forward as attachment, alt-src-host, or alt-rcpt-to actions. <b>Encrypted messages:</b> Treat as unscannable <b>Viral messages:</b> Forward to quarantine or administrator.

## Flow Diagram for Anti-Virus Actions

[Figure 9-6 on page 9-326](#) explains how anti-virus actions and options affect messages processed by the appliance.

Figure 9-6 Flow Diagram for Anti-Virus Actions

**Note**

If you configure multi-layer anti-virus scanning, the IronPort appliance performs virus scanning with the McAfee engine first and the Sophos engine second. It scans messages using both engines, unless the McAfee engine detects a virus. If the McAfee engine detects a virus, the IronPort appliance performs the anti-virus actions (repairing, quarantining, etc.) defined for the mail policy.

# Testing Virus Scanning

To test the virus scanning configuration of your appliance:

- Step 1** Enable virus scanning for a mail policy.
- Use the Security Services > Sophos/McAfee Anti-virus page or the `antivirusconfig` command to set global settings, and then use the Email Security Manager pages (GUI) or the `antivirus` subcommand of `policyconfig` to configure the settings for a specific mail policy.
- Step 2** Open a standard text editor, then type the following character string as *one line, with no spaces or line breaks*:

```
X5O!P%@AP[4\PZX54(P^)7CC)7}$EICAR-STANDARD-ANTIVIRUS-TEST-FILE!$H+H*
```



**Note** The line shown above should appear as one line in your text editor window, so be sure to maximize your text editor window and delete any line breaks. Also, be sure to type the letter O, not the number 0, in the “X5O...” that begins the test message.

If you are reading this manual on your computer, you can copy the line directly from the PDF file or HTML file and paste it into your text editor. If you copy the line, be sure to delete any extra carriage returns or spaces.

- Step 3** Save the file with the name **EICAR.COM**.

The file size will be 68 or 70 bytes.



**Note** This file is *not* a virus — it cannot spread or infect other files, or otherwise harm your computer. However, you should delete the file when you have finished testing your scanner to avoid alarming other users.

- Step 4** Attach the file **EICAR.COM** to an email message, and send it to the listener that will match the mail policy you configured in step 1.

Ensure the that the recipient you specify in the test message will be accepted on the listener. (For more information, see [Accepting Email for Local Domains or Specific Users on Public Listeners \(RAT\)](#), page 5-177.)

Note that it may be difficult to email the file if you have virus scanning software is installed for outgoing mail on a gateway other than the IronPort (for example, a Microsoft Exchange server).




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**Note** The test file always scans as unrepairable.

---

**Step 5** Evaluate the actions you configured for virus scanning on the listener and ensure they are enabled and working as expected.

This is most easily accomplished by performing one of the following actions:

- Configure the virus scanning settings to Scan and Repair mode or Scan only mode without dropping attachments.

Send an email with the Eicar test file as an attachment.

Confirm that the actions taken match your configuration for Virus Infected Message Handling (the settings in [Virus Infected Message Handling, page 9-314](#)).

- Configure the virus scanning settings to Scan and Repair mode or Scan only mode with dropping attachments.

Send an email with the Eicar test file as an attachment.

Confirm that the actions taken match your configuration for Repaired Message Handling (the settings in [Repaired Message Handling, page 9-313](#)).

For more information obtaining virus files for testing anti-virus scanning, see:

[http://www.eicar.org/anti\\_virus\\_test\\_file.htm](http://www.eicar.org/anti_virus_test_file.htm)

This page provides 4 files for downloading. Note that it may be difficult to download and extract these files if you have a client-side virus scanning software installed.





# CHAPTER 10

## Virus Outbreak Filters

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IronPort's Virus Outbreak Filters feature provides you with a “head start” when battling virus outbreaks. Historically, as new viruses or variants hit the Internet, the most critical time period is the window of time between when the virus is released and when the anti-virus vendors release an updated virus definition. Having advanced notice — even a few hours — is vital to curbing the spread of malicious code. During that vulnerability window, a modern virus can propagate globally, bringing email infrastructure to a halt.

IronPort's Virus Outbreak Filters act proactively to provide a critical first layer of defense against new outbreaks. By detecting new outbreaks in real-time and dynamically responding to prevent suspicious traffic from entering the network, IronPort's Virus Outbreak Filters offer protection until new anti-virus signature updates are deployed. Integrated into IronPort's email security appliances, the Virus Outbreak Filters have two principal components: the outbreak detection technology and the intelligent quarantine system implemented in the IronPort appliances.

IronPort's industry leading Virus Outbreak Filters technology provides “fire and forget” functionality, requiring no administrator interaction once enabled. The technology uses two different rule sets to provide the highest efficacy and the most focused set of criteria for virus detection to ensure that filters can be laser focused on a particular threat. The Virus Outbreak Filters rules and actions are visible to the administrator, not hidden away behind the scenes, providing instant access to the messages that were quarantined, and the reason why they were quarantined.

Your IronPort appliance ships with a 30-day evaluation license for the Virus Outbreak Filters feature.

This chapter contains the following sections:

- [Virus Outbreak Filters Overview, page 10-330](#)
- [Managing Virus Outbreak Filters \(GUI\), page 10-339](#)
- [Monitoring Virus Outbreak Filters, page 10-350](#)
- [Troubleshooting The Virus Outbreak Filters Feature, page 10-351](#)

## Virus Outbreak Filters Overview

The Virus Outbreak Filters engine compares incoming messages with published Virus Outbreak Filter rules. Messages that match rules are assigned a threat level and that threat level is compared to the threat level threshold you set. Messages that meet or exceed that threshold are quarantined.

The process of outbreak detection and filtering begins with SenderBase: SenderBase tracks more than 20 million IP addresses and has a view into approximately 25% of the world's email traffic. IronPort uses historical SenderBase data to create a statistical view of normal global traffic patterns. The Virus Outbreak Filters engine depends on the set of rules that are used to determine threat levels of incoming messages.

## Virus Outbreak Filters - Next Generation Preventive Solution

The Virus Outbreak Filters feature has significant enhancements in features and usability. At a high level the enhancements include, but are not limited to:

- Increased granularity of Outbreak Rules (including anti-virus signature rules)
- Addition of CASE (Context Adaptive Scanning Engine) scanning
- Addition of Adaptive Rules
- Dynamic Quarantine (Periodic message re-evaluation, auto release based on anti-virus update, enhanced overflow options etc.)
- Better Quarantine Management (enhanced visibility, search/sort options, alerts etc.)

These feature enhancements are designed to increase the systems capture rate for outbreaks and provide enhanced visibility into an outbreak along with increased ease of use and management of outbreak messages.

## Types of Rules: Adaptive and Outbreak.

Prior to version 4.5, Virus outbreak rules were based solely on file attachment types and as such only one rule type (tied to attachment file type) was used. Beginning with AsyncOS version 4.5, two types of rules are used by Virus Outbreak Filters: Adaptive and Outbreak.

### Outbreak Rules

Outbreak rules are generated by the IronPort Threat Operations Center (TOC), and focus on the message as a whole, rather than just attachment filetypes. Outbreak rules use SenderBase data (real time and historical traffic data) and any combination of message parameters such as attachment file type, file name keywords, or anti-virus engine update to recognize and prevent virus outbreaks in real time. Outbreak Rules are given a unique ID used to refer to the rule in various places in the GUI (such as the Outbreak quarantine).

Real-time data from the global SenderBase network is then compared to this baseline, identifying anomalies that are proven predictors of an outbreak. The IronPort Threat Operations Center (TOC) reviews the data and issues a threat indicator or Virus Threat Level (VTL). The VTL is a numeric value between 0 (no threat) and 5 (extremely risky), and measures the likelihood that a message contains a virus for which no other gateway defense is widely deployed by IronPort customers (for more information, see [Virus Threat Levels \(VTL\), page 10-334](#)). VTL are published as outbreak rules by the TOC.

Some example characteristics that can be combined in Outbreak Rules include:

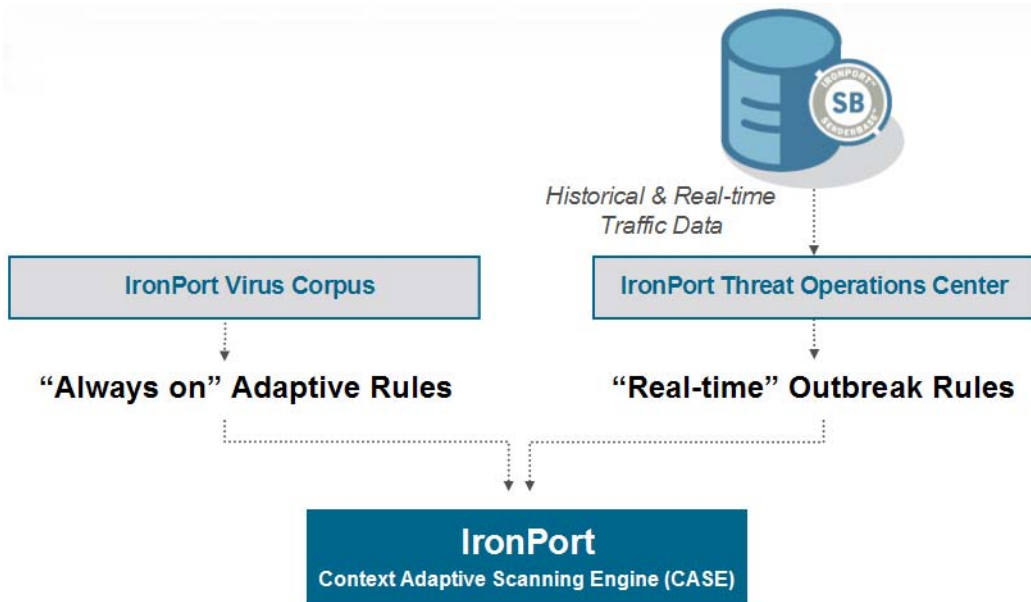
- File Type, File Type & Size, File Type & File Name Keyword, etc.
- File Name Keyword & File Size
- File Name Keyword
- Message URL
- File Name & Sophos IDE

### Adaptive Rules

Adaptive Rules are a set of rules within CASE that accurately compare message attributes to attributes of known viral and outbreak messages. These rules have been created after studying known viral messages and known good messages

within an extensive IronPort virus corpus. Adaptive Rules are updated often as the corpus is evaluated. They complement existing Outbreak Rules to detect outbreak messages at all times. While Outbreak Rules take effect when a possible outbreak is occurring, Adaptive Rules (once enabled) are “always on,” catching outbreak messages locally before the full anomaly has formed on a global basis. Additionally, Adaptive Rules continuously respond to small and subtle changes in email traffic and structure, providing updated protection to customers.

**Figure 10-1**      **Detection: Multiple Methods, More Parameters**



## Outbreaks

A Virus Outbreak Filter rule is basically a VTL (e.g. 4) associated with a set of characteristics for an email message and attachment — things such as file size, file type, file name, message content, and so on. For example, assume the IronPort TOC notices an increase in the occurrences of a suspicious email message carrying a .exe attachment that is 143 kilobytes in size, and whose file name includes a specific keyword (“hello” for example). An Outbreak Rule is published increasing the VTL for messages matching this criteria. Your IronPort appliance checks for and downloads newly published Outbreak and Adaptive Rules every 5

minutes by default (see [Updating Virus Outbreak Filter Rules, page 10-344](#)). Adaptive Rules are updated less frequently. On the IronPort appliance, you set a threshold for quarantining (e.g. 3). If the VTL for a message equals or exceeds your threshold, the message is sent to the *Outbreak* quarantine area.

## Quarantines and Anti-Virus Scanning

Quarantining these messages provides a buffer during which updated anti-virus definitions can be created and installed. This interval is crucial to limiting the exposure to and spread of viruses within your company. Messages are passed through anti-virus scanning again upon release from the Outbreak quarantine. Messages are also passed through anti-spam scanning upon release from the quarantine if the appliance uses an anti-spam filter. For more information, see [Dynamic Quarantine, page 10-337](#).

The next step involves the handling the quarantined messages themselves. The length of time the messages are scheduled to remain in the quarantine, as well as what actions take place when the messages are released from the quarantine is configured via the Quarantines page. For more information about working with quarantines in general, see the “Quarantines” chapter in the *Cisco IronPort AsyncOS for Email Daily Management Guide*. For more information about how Virus Outbreak Filters and the Outbreak quarantine work together, see [The Virus Outbreak Filters Feature and the Outbreak Quarantine, page 10-346](#).



### Note

It is possible to use the Virus Outbreak Filters feature without having enabled anti-virus scanning on the IronPort appliance. The two security services are designed to complement each other, but will also work separately. That said, if you do not enable anti-virus scanning on your IronPort appliance, you will need to need to monitor your anti-virus vendor’s updates and manually release or re-evaluate some messages in the Outbreak quarantine. When using Virus Outbreak Filters without anti-virus scanning enabled, keep the following in mind:

- You should disable Adaptive Rules
- Messages will get quarantined by Outbreak Rules
- Messages will get released if the threat level is lowered or time expires
- Downstream anti-virus vendors (desktops/groupware) may catch the message on release

## Virus Threat Levels (VTL)

Table 10-1 on page 10-334 provides a basic set of guidelines or definitions for each of the various levels.

**Table 10-1 Virus Threat Level Definitions**

VTL	Risk	Meaning
0	None	There is no known risk of a new virus threat.
1	Low	There is a suspected very small scale virus threat.
2	Low/Medium	There is a suspected small to medium scale virus threat.
3	Medium	There is a confirmed threat or a medium to large scale suspected threat.
4	High	There is a confirmed virus threat that is either large scale or very dangerous.
5	Extreme	There is a confirmed virus threat that is either extremely large scale, or large scale and extremely dangerous.

Information about each Outbreak Rule and the associated VTL can be found here:

<http://support.ironport.com/outbreaks/>

The site lists current Outbreak Rules, including comments about each rule from the IronPort Threat Operations Center (TOC). See this site for information on how to report outbreaks.

You can click the View link for an Outbreak Rule to see a history of all Outbreak Rules related to a specific extension type.



### Note

The site is password protected. Please contact IronPort Customer Support if you are unable to access the site.

For more information about VTL and outbreak rules, see [Virus Outbreak Filters Rules, page 10-343](#).

## Guidelines for Setting Your Threat Level Threshold

The threat level threshold allows administrators to be more or less aggressive in quarantining suspicious messages. A low setting (1 or 2) is more aggressive and will quarantine more messages; conversely, a higher score (4 or 5) is less aggressive and will only quarantine messages with an extremely high likelihood of carrying a virus.

IronPort recommends the default value of 3.

## How the Virus Outbreak Filters Feature Works

Email messages pass through a series of steps, the “email pipeline,” when being processed by your IronPort appliance (for more information about the email pipeline, see [Understanding the Email Pipeline, page 4-91](#)). As the messages proceed through the email pipeline, they are run through the anti-spam (AS) and anti-virus (AV) scanning engines (only if anti-spam and anti-virus are enabled for that mail policy). Only messages that pass through those scans are scanned by the Virus Outbreak Filters feature (see [Message and Content Filters and the Email Pipeline, page 10-351](#) for more information about how the email pipeline can affect which messages are scanned by the Virus Outbreak Filters feature). In other words, known spam or messages containing recognized viruses are not scanned by the Virus Outbreak Filters feature because they will have already been removed from the mail stream — deleted, quarantined, etc., — based on your anti-spam and anti-virus settings. Messages that arrive at the Virus Outbreak Filters feature have therefore been marked virus-free.

## Message Scoring

When a new virus is released into the wild, no anti-virus software recognizes it as a virus yet, so this is where the Virus Outbreak Filters feature can be invaluable. Incoming messages are scanned and scored by CASE — each message is compared with published Outbreak and Adaptive Rules (see [Types of Rules: Adaptive and Outbreak., page 10-331](#)). Based on which, if any, rules the message matches, it is assigned the corresponding virus threat level or VTL. For cases where a message receives multiple scores (from Outbreak and Adaptive Rules), see [Message Scoring, the Context Adaptive Scanning Engine, and Virus Outbreak Filters, page 10-336](#). If there is no associated VTL (the message does not match any rules), then the message is assigned a default VTL of 0.

Once that calculation has been completed, the Virus Outbreak Filters feature will check whether the VTL of that message meets or exceeds your threshold value. If it does, that message will be quarantined, otherwise it will be passed along for further processing in the pipeline.

## Message Scoring, the Context Adaptive Scanning Engine, and Virus Outbreak Filters

Virus Outbreak Filters are powered by IronPort's unique Context Adaptive Scanning Engine (CASE). CASE leverages over 100,000 adaptive message attributes tuned automatically and on a regular basis, based on real-time analysis of messaging threats. For Virus Outbreak Filters, CASE analyzes the message content, context and structure to accurately determine likely Adaptive Rule triggers.

CASE combines Adaptive Rules and real-time Outbreak Rules published by the TOC (Threat Operations Center) to score every message and assign a unique Virus Threat Level (VTL). This VTL is compared to the preset quarantining threshold on the appliance and if it is equal to or exceeds this threshold level, messages will automatically start getting quarantined.

Additionally, CASE re-evaluates existing quarantine messages against the latest rules published to determine the latest threat level of a message. This ensures that only messages that have a threat level consistent with an outbreak message stay within the quarantine and messages that are no longer a threat flow out of the quarantine after an automatic re-evaluate.

For more information about CASE, see [IronPort Anti-Spam and CASE: an Overview, page 8-264](#).

In the case of multiple scores — one score from an Adaptive Rule (or the highest score if multiple Adaptive Rules apply), and another score from an Outbreak Rule (or the highest score if multiple Outbreak Rules apply) — intelligent algorithms are used to determine the score.



## Dynamic Quarantine

The Virus Outbreak Filters feature's Outbreak quarantine is a temporary holding area used to store messages until new virus definitions have been created and your anti-virus software updated. See [Outbreak Lifecycle and Rules Publishing, page 10-339](#) for more information. Quarantined messages can be released from the Outbreak quarantine in several ways. As new outbreak rules are downloaded, messages in the Outbreak quarantine are automatically re-evaluated, beginning with the oldest message. If the revised threat level of a message falls under the system's threshold, the message will automatically be released (regardless of the Outbreak quarantine's settings), thereby minimizing the time it spends in the quarantine. If new rules are published while messages are being re-evaluated, the rescan is restarted.

Please note that messages are not automatically released from the outbreak quarantine when new anti-virus signatures are available. New rules that are published may or may not reference new anti-virus signatures; however, messages will not be released due to an anti-virus engine update unless an Outbreak Rule changes the threat level of the message to a score lower than your Threat Level Threshold.

Messages are also released from the Outbreak quarantine once the timeout period (default is 24 hours) has elapsed. Messages can be manually released from the quarantine. Messages can also be released from the quarantine when the quarantine is full and more messages are inserted (this is referred to as overflow). Overflow only occurs when the Outbreak quarantine is at 100% capacity, and a new message is added to the quarantine. At this point, messages are released in the following order of priority:

- Messages quarantined by Adaptive Rules (those scheduled to be released soonest are first)
- Messages quarantined by Outbreak Rules (those scheduled to be released soonest are first)

Overflow stops the moment the Outbreak quarantine is below 100% capacity. For more information about how quarantine overflow is handled, see the "Quarantines" chapter in the *Cisco IronPort AsyncOS for Email Daily Management Guide*.

Messages released from the Outbreak quarantine are run through the anti-virus filter again. If it is now marked as a known virus, then it will be subject to your anti-virus settings (including a possible second quarantining in the Virus quarantine). For more information, see [The Virus Outbreak Filters Feature and the Outbreak Quarantine, page 10-346](#).

Thus it is important to note that in a message's lifetime, it may actually be quarantined twice — once due to the Virus Outbreak Filters feature, and once when it is released from the Outbreak quarantine. A message will not be subject to a second quarantine if the anti-virus verdicts from each anti-virus scan (prior to Virus Outbreak Filters, and when released from the Outbreak quarantine) match. Also note that the Virus Outbreak Filters feature does not take any final actions on messages. The Virus Outbreak Filters feature will either quarantine a message (for further anti-virus processing) or move the message along to the next step in the pipeline.

If your appliance uses either IronPort Anti-Spam or Intelligent Multi-Scan, messages released from the Outbreak quarantine are also run through the anti-spam filter based on the mail flow policy that applies to the message. If it is detected as spam, suspect spam, or marketing, the message will be subject to your anti-spam settings, including quarantining in the IronPort Spam Quarantine. For more information on how anti-spam filtering works, see [Chapter 8, “Anti-Spam.”](#)

## Outbreak Lifecycle and Rules Publishing

Very early in a virus outbreak's lifecycle, broader rules are used to quarantine messages. As more information becomes available, increasingly focused rules are published, narrowing the definition of what is quarantined. As the new rules are published, messages that are no longer considered possible virus messages are released from quarantine (messages in the outbreak quarantine are rescanned as new rules are published).

**Table 10-2**      **Example Rules for an Outbreak Lifecycle**

Time	Rule Type	Rule Description	Action
T=0	Adaptive Rule (based on past outbreaks)	A consolidated rule set based on over 100K message attributes, which analyzes message content, context and structure	Messages are automatically quarantined if they match Adaptive Rules
T=5 min	Outbreak Rule	Quarantine messages containing .zip (exe) files	Quarantine all attachments that are .zips containing a .exe
T=10 min	Outbreak Rule	Quarantine messages that have .zip (exe) files greater than 50 KB	Any message with .zip (exe) files that are less than 50 KB would be released from quarantine
T=20 min	Outbreak Rule	Quarantine messages that have .zip (exe) files between 50 to 55 KB, and have "Price" in the file name	Any message that does not match this criteria would be released from quarantine
T=12 hours	Outbreak Rule	Scan against new signature	All remaining messages are scanned against the latest anti-virus signature

## Managing Virus Outbreak Filters (GUI)

Log in to the Graphical User Interface (GUI) and click the Security Services tab. For information about how to access the GUI, see [Accessing the GUI, page 2-25](#). Click the Virus Outbreak Filters link in the left menu.

**Figure 10-2**      **Virus Outbreak Filters Main Page**  
**Virus Outbreak Filters**

Virus Outbreak Filters Overview

Global Status:	Enabled
Adaptive Rules:	Enabled
Maximum Message Size to Scan:	256K
Threat Level Threshold for Quarantining:	3
Receive Emailed Alerts:	No
<div>Edit Global Settings...</div>	

Virus Outbreak Filter Rules

Rule Updates (Last download attempt made on: Mon May 02 13:02:44)

Rule Type	Last Update	Current Version
Virus Outbreak Rules	Fri Apr 29 13:02:43	20050422_231148
CASE - Core	Fri Apr 29 13:02:43	1.0.0-017
CASE - Tools	Wed Dec 31 16:00:00	1.0.0-012

Virus Outbreak Filter Rules with higher number pose a greater risk. (1= lowest threat, 5= highest threat)

Above Quarantine Threshold

Threat Level	Rule ID	Rule Description
5	OUTBREAK_0002187_03	A MyDoom.BB outbreak.
5	OUTBREAK_0005678_00	Configuration file: sample2.conf.
3	OUTBREAK_0000578_00	Virus spread through an image file.

Rules last updated: Fri Apr 29 13:02:49 2005

Clear Current Rules

The Virus Outbreak Filters page shows two sections: the Virus Outbreak Filters Overview and a listing of current Virus Outbreak Filter Rules (if any).

In [Figure 10-2](#), Virus Outbreak Filters are enabled, Adaptive Scanning is enabled, the maximum message size is set to 256k, and the Threat Level Threshold is set to 3. To change these settings, click **Edit Global Settings**. For more information about editing Global Settings, see [Configuring Virus Outbreak Filters Global Settings](#), page 10-341.

The Virus Outbreak Filter Rules section lists the time, date, and version of the latest update for various components (the rules engine, as well as the rules themselves), as well as a listing of the current Virus Outbreak Filter rules, sorted by rules above or below your Threat Level Threshold.

For more information about Outbreak Rules, see [Virus Outbreak Filters Rules](#), page 10-343.

## Configuring Virus Outbreak Filters Global Settings

To configure the Global Settings for Virus Outbreak Filters, click **Edit Global Settings**. The Virus Outbreak Filters Global Settings page is displayed:

**Figure 10-3**      **Virus Outbreak Filters Global Settings Page**  
**Edit Virus Outbreak Filters Settings**

Virus Outbreak Filters Global Settings	
<input checked="" type="checkbox"/>	<b>Enable Virus Outbreak Filters</b>
Adaptive Rules:	<input type="checkbox"/> Enable Adaptive Rules
Maximum Message Size to Scan:	262144 bytes
Threat Level Threshold for Quarantining: ?	3 ▼
Emailed Alerts: ?	<input type="checkbox"/> Receive Emailed Alerts

Cancel
Submit

Use this page to: enable Virus Outbreak Filters globally, enable Adaptive Scanning, set a maximum size for files to scan (note that you are entering the size in *bytes*), select a Threat Level Threshold, and elect whether to enable alerts for the Virus Outbreak Filter. Note that alerts and Adaptive Rules are not enabled by default. This functionality is also available via the `vofconfig` CLI command (see the *Cisco IronPort AsyncOS CLI Reference Guide*). Once you have made changes, click **Submit**, click **Commit Changes**, add an optional comment if necessary, and then click **Commit Changes** to save the changes.

## Enabling the Virus Outbreak Filters Feature

To enable the Virus Outbreak Filters feature globally, check the box next to Enable Virus Outbreak Filters on the Virus Outbreak Filters Global Settings page, and click **Submit**. You must have agreed to the Virus Outbreak Filters/SenderBase license agreement first.

Once enabled globally, the Virus Outbreak Filters feature can then be enabled or disabled individually for each Mail Policy, including the default policy. For more information, see [The Virus Outbreak Filters Feature and Mail Policies](#), page 10-345.

The Virus Outbreak Filters feature uses the Context Adaptive Scanning Engine (CASE), regardless of whether or not IronPort anti-spam scanning is enabled.

For more information about the Virus Outbreak filter feature, see [Email Pipeline and Security Services, page 4-98](#).

**Note**

If you have not already agreed to the license during system setup (see [Step 4: Security, page 3-65](#)), you must click **Enable** on the Security Services > Virus Outbreak Filters page, and then read and agree to the license.

## Enabling Adaptive Rules

Adaptive Scanning enables the use of Adaptive Rules in Virus Outbreak Filters. A set of factors or traits (file size, etc.) are used to determine the likelihood of a message being viral when no signature information about the message is available. To enable Adaptive Scanning, check the box next to Enable Adaptive Rules on the Virus Outbreak Filters Global Settings page, and click **Submit**.

## Setting a Threat Level Threshold

Select a Threat Level threshold from the list. A smaller number means that you will be quarantining more messages, while a larger number results in fewer messages quarantined. IronPort recommends the default value of 3.

For more information, see [Guidelines for Setting Your Threat Level Threshold, page 10-335](#).

## Enabling Alerts for Virus Outbreak Filters

Check the box labeled “Emailed Alerts” to enable alerting for the Virus Outbreak Filters feature. Enabling emailed alerts for Virus Outbreak Filters merely enables the alerting engine to send alerts regarding Virus Outbreak Filters. Specifying which alerts are sent and to which email addresses is configured via the Alerts page in the System Administration tab. For more information on configuring alerts for Virus Outbreak Filters, see [Alerts, SNMP Traps, and Virus Outbreak Filters, page 10-350](#).

## Virus Outbreak Filters Rules

Outbreak Rules are published by the IronPort Threat Operations Center and your IronPort appliance checks for and downloads new outbreak rules every 5 minutes.

The Virus Outbreak Filter Status section of the Virus Outbreak Filters page shows a list of the current outbreak rules, divided into two groups: Above Quarantine Threshold and Below Quarantine Threshold:

**Figure 10-4** *Virus Outbreak Filters Rules Listing*

Virus Outbreak Filter Rules		
Rule Updates (Last download attempt made on: Wed May 04 12:52:27)		
Rule Type	Last Update	Current Version
Virus Outbreak Rules	Tue May 03 11:17:42	20050422_231148
CASE - Core	Wed Dec 31 16:00:00	1.0.0-017
CASE - Tools	Tue May 03 13:33:30	1.0.0-013
Virus Outbreak Filter Rules with higher number pose a greater risk. (1= lowest threat, 5= highest threat)		
Above Quarantine Threshold		
Threat Level	Rule ID	Rule Description
5	OUTBREAK_0002187_03	A MyDoom.BB outbreak.
5	OUTBREAK_0005678_00	This configuration file was generated by sample2.conf.
Below Quarantine Threshold		
Threat Level	Rule ID	Rule Description
3	OUTBREAK_0000578_00	This virus is spread through image files.
Rules last updated: Tue May 3 11:17:46 2005		
<a href="#">Clear Current Rules</a>		

## Managing Outbreak Filter Rules

Because the Outbreak Rules are automatically downloaded for you, there really is no management needed on the part of the user.

However, if for some reason your IronPort appliance is not able to reach SenderBase for new rules over a period of time, it is possible that your locally-cached scores are no longer valid, i.e., if a known viral attachment type now has an update in the anti-virus software and/or is no longer a threat. At this time, you may wish to no longer quarantine messages with these characteristics.

You can clear the current outbreak rules by clicking **Clear Current Rules** (this is identical to issuing the `vofflush` command via the CLI, see the *Cisco IronPort AsyncOS CLI Reference Guide*).

**Note**

If you click **Clear Current Rules** in the GUI or use `vofflush` from the CLI for the same effect, you are basically *disabling Outbreak Rules* until the next time that your IronPort appliance is able to download a new set of scores from SenderBase. Adaptive Rules are not cleared.

## Updating Virus Outbreak Filter Rules

By default, your IronPort appliance will attempt to download new outbreak rules every 5 minutes. You can change this interval via the Security Services > Service Updates page. For more information, see [System Time, page 15-528](#).

## Containers: Specific and Always Rules

Container files are files, such as zipped (.zip) archives, that contain other files. The TOC can publish rules that deal with specific files within archive files.

For example, if a virus outbreak is identified by the IronPort TOC to consist of a .zip file containing a .exe, a specific Outbreak Rule is published that sets a threat level for .exe files within .zip files (.zip(exe)), but does not set a specific threat level for any other file type contained within .zip files (e.g. .txt files). A second rule (.zip(\*)) covers all other file types within that container file type. An Always rule for a container will always be used in a message's VTL calculation regardless of the types of files that are inside a container. An always rule will be published by the TOC if all such container types are known to be dangerous.

**Table 10-3      Fallback Rules and Threat Level Scores**

Outbreak Rule	Threat Level	Description
.zip(exe)	4	This rule sets a threat level of 4 for .exe files within .zip files.
.zip(doc)	0	This rule sets a threat level of 0 for .doc files within .zip files.
zip(*)	2	This rule sets a threat level of 3 for all .zip files, regardless of the types of files they contain.

In this example, a .foo file within a .zip file will assume the threat level of 2.



## The Virus Outbreak Filters Feature and Mail Policies

The Virus Outbreak Filters feature has settings that can be set per Mail Policy. The Virus Outbreak Filters feature can be enabled or disabled for each Mail Policy. Specific file extensions can be exempted from processing by the Virus Outbreak Filters feature, per Mail Policy. This functionality is also available via the `policyconfig` CLI command (see the *Cisco IronPort AsyncOS CLI Reference Guide*).

**Figure 10-5 Mail Policy Listing**  
**Incoming Mail Policies**

Policies						
<a href="#">Add Policy...</a>						
Order	Policy Name	Anti-Spam	Anti-Virus	Content Filters	Virus Outbreak Filters	Delete
1	Stringent	(use default)	(use default)	(use default)	(use default)	
	Default Policy	Disabled	Not Available	Disabled	Enabled	

Key: Default Custom Disabled

To modify the Virus Outbreak Filters feature settings for a specific listener, click the link in the Virus Outbreak Filters column of the policy to change. The Virus Outbreak Filter Settings page is displayed.

**Figure 10-6 Virus Outbreak Filters Settings and Mail Policies**  
**Mail Policies: Virus Outbreak Filters**

**Virus Outbreak Filter Settings**

**Policy:** Stringent

**Enable Virus Outbreak Filter scanning for this policy:**

☐ Yes

☒ Use Default Settings

☐ No

**Bypass Virus Outbreak Filtering For**

**File Extension:**

[Add Extension](#)

[Cancel](#) [Submit](#)

To enable the Virus Outbreak Filters feature for a particular mail policy, select **Yes**. Select **Use Default Settings** to use the Virus Outbreak Filters settings that are in place for the Default Mail Policy. If the Default Mail Policy has the Virus

Outbreak Filters feature enabled, all other mail policies using the default will also have the Virus Outbreak Filters feature enabled. Once you have made changes, commit your changes.

## Bypassing File Extension Types

You can modify a policy to bypass specific file types. Bypassed file extensions are not included when the CASE engine calculates the score for the message; however, the attachments are still processed by the rest of the email security workflow.

To bypass a file extension:

On the Incoming Mail Policies, Virus Outbreak Filter Settings page, select or type in a file extension, and click **Add Extension**. For more information, see [Email Security Manager, page 6-189](#).

To remove an extension from the list of bypassed extensions, click the trash can icon next to the extension.

### Bypassing File Extensions: Container File Types

When bypassing file extensions, files within container files (a .doc file within a .zip, for example) are bypassed if the extension is in the list of extensions to bypass. For example, if you add .doc to the list of extensions to bypass, all .doc files, even those within container files are bypassed.

## The Virus Outbreak Filters Feature and the Outbreak Quarantine

Messages that are quarantined by the Virus Outbreak Filters feature are sent to the Outbreak quarantine. This quarantine functions like any other quarantine (for more information about working with quarantines, see the “Quarantines” chapter in the *Cisco IronPort AsyncOS for Email Daily Management Guide*) except that it has a “summary” view, useful for deleting or releasing all messages from the quarantine, based on the rule (for Outbreak Rules, the Outbreak ID is shown, and for Adaptive Rules, a generic term is shown) used to place the message in the quarantine. For more information about the summary view, see [Outbreak Quarantine and the Manage by Rule Summary View, page 10-349](#).

**Figure 10-7**      **The Outbreak Quarantine**  
**Edit Quarantine**

Quarantine Settings	
Quarantine Name:	Outbreak
Space Allocation:	3072 MB
Maximum Retention:	12 Hours
Default Action:	Release
Overflow Messages:	Add Subject: <input type="radio"/> Disable <input checked="" type="radio"/> Prepend <input type="radio"/> Append <input type="text" value="[POSSIBLE VIRUS]"/>
	Add X-Header: Name: <input type="text"/> Value: <input type="text"/>
	Strip Attachments: <input checked="" type="radio"/> Off <input type="radio"/> On
Quarantine Users	
All Users	Outbreak Quarantine Users
<div></div>	<div></div>
<div>Add »</div> <div>« Remove</div>	
<div>Cancel</div> <div>Submit</div>	

## Monitoring the Outbreak Quarantine

Though a properly configured quarantine requires little if any monitoring, it is a good idea to keep an eye on the Outbreak Quarantine, especially during and after virus outbreaks when legitimate messages may be delayed.

If a legitimate message is quarantined, depending on the settings for the Outbreak quarantine:

- If the quarantine's Default Action is set to release, the message will be released when the retention time period expires or when the quarantine overflows. You can configure the Outbreak quarantine so that the following actions are performed on messages before they are released due to overflow: strip attachments, modify the subject, add an X-Header. For more information about these actions, see the "Quarantines" chapter in the *Cisco IronPort AsyncOS for Email Daily Management Guide*.

- If the quarantine's Default Action is set to delete, the message will be deleted when the retention time period expires, or when the quarantine overflows.
- Overflow occurs when the quarantine is full and more messages are added. In this case the messages closest to their expiration date (not necessarily the oldest messages) are released first, until enough room is available for the new messages. You can configure the Outbreak quarantine so that the following actions are performed on messages before they are released due to overflow: strip attachments, modify the subject, add an X-Header.

Because quarantined messages are rescanned whenever new rules are published, it is very likely that messages in the Outbreak quarantine will be released prior to the expiration time.

Still, it can be important to monitor the Outbreak quarantine if the Default Action is set to "delete." IronPort recommends most users to not set the default action to delete. For more information about releasing messages from the Outbreak quarantine, or changing the Default Action for the Outbreak Quarantine, see the "Quarantines" chapter in the *Cisco IronPort AsyncOS for Email Daily Management Guide*.

Conversely, if you have messages in your Outbreak quarantine that you would like to keep in the quarantine longer while you wait for a new virus definition, for example, you can delay the expiration of those messages. Keep in mind that increasing the retention time for messages can cause the size of the quarantine to grow.



#### Note

If anti-virus scanning is disabled globally (not via a mail policy) while a message is in the Outbreak quarantine, the message is not anti-virus scanned when it leaves the quarantine, even if anti-virus scanning is re-enabled prior to the message leaving the quarantine.



#### Note

You can use the Virus Outbreak Filters feature without having enabled anti-virus scanning on the IronPort appliance (see [Quarantines and Anti-Virus Scanning, page 10-333](#)).

## Outbreak Quarantine and the Manage by Rule Summary View

You can view the contents of the Outbreak quarantine, just like any other quarantine by clicking on the name of the quarantine in the listing on the Monitor menu in the GUI. The Outbreak quarantine has an additional view as well, the Outbreak Quarantine Manage by Rule Summary link.

**Figure 10-8**      *The Outbreak Quarantine Manage by Rule Summary Link Quarantines*

Quarantine Overview									
<a href="#">Add Quarantine...</a>									
Quarantine Name	Search	# of Messages	% Full	Space Allocation	Retention Period	Action	Users	Settings	Delete
Outbreak		4	0.0	3,072 MB	12h	Release		<a href="#">Edit</a>	
Policy		974	0.1	1,024 MB	10d	Delete		<a href="#">Edit</a>	
Virus		8	0.0	2,048 MB	30d	Delete		<a href="#">Edit</a>	

### Using the Summary View to Perform Message Actions on Messages in the Outbreak Quarantine Based on Rule ID.

Click on the Manage by Rule Summary link to see a listing of the contents of the Outbreak quarantine, grouped by rule ID:

**Figure 10-9**      *The Outbreak Quarantine Manage by Rule Summary View Outbreak Quarantine Summary*

Manage by Rule Summary					
<input type="checkbox"/> All Select	Rule ID	Number of messages	Average message size	Total size	Capacity
<input type="checkbox"/>	EXE_BAGL	4	16 KB	0.1 MB	0.0%
<b>Totals</b>		4	16 KB		
<input type="text" value="Select Action..."/> <input type="button" value="Submit"/>					

From this view, you can choose to release, delete, or delay the exit for all messages pertaining to a specific outbreak or adaptive rule, rather than selecting individual messages. You can also search through or sort the listing.

This functionality is also available via the `quarantineconfig -> vofmanage` CLI command. For more information, see the *Cisco IronPort AsyncOS CLI Reference Guide*.

# Monitoring Virus Outbreak Filters

IronPort Systems provides you several tools to monitor the performance and activity of the Virus Outbreak Filters feature.

## Virus Outbreak Filters Overview and Rules Listing

The overview and rules listing provide useful information about the current status of the Virus Outbreak Filters feature. View this information via the Security Services > Virus Outbreak Filters page.

## Outbreak Quarantine

Use the outbreak quarantine to monitor how many messages are being flagged by your Virus Outbreak Filters threat level threshold. Also available is a listing of quarantined messages by rule. View this information via the Monitor > Local Quarantines > Outbreak link and the Manage Rule by Summary link on the Monitor > Local Quarantines page.

## Support Web Sites

IronPort Systems also provides useful information outside of your appliance. The following URLs contain information, status, and virus threat details relating to virus outbreaks and the Virus Outbreak Filters feature.

<http://www.ironport.com/> (Virus Threat Level chart)

<http://www.ironport.com/> (Virus threat details)

[https://support.ironport.com/index\\_.html](https://support.ironport.com/index_.html) (Information about virus outbreaks)

## Alerts, SNMP Traps, and Virus Outbreak Filters

The Virus Outbreak Filters feature supports two different types of notifications: regular AsyncOS alerts and SNMP traps.

SNMP traps are generated when a rule update fails. For more information about SNMP traps in AsyncOS, see the “Managing and Monitoring via the CLI” chapter in the *Cisco IronPort AsyncOS for Email Daily Management Guide*.

AsyncOS has two types of alerts for the Virus Outbreak Filter feature: size and rule

AsyncOS alerts are generated whenever the Outbreak quarantine's size goes above 5, 50, 75, and 95 of the maximum size. The alert generated for the 95% threshold has a severity of CRITICAL, while the remaining alert thresholds are WARNING. Alerts are generated when the threshold is crossed as the quarantine size increases. Alerts are not generated when thresholds are crossed as the quarantine size decreases. For more information about alerts, see [Alerts, page 15-481](#).

AsyncOS also generates alerts when rules are published, the threshold changes, or when a problem occurs while updating rules or the CASE engine.

## Troubleshooting The Virus Outbreak Filters Feature

This section provides some basic troubleshooting tips for the Virus Outbreak Filters feature.

Use the checkbox on the Manage Quarantine page for the Outbreak quarantine to notify IronPort of mis-classifications.

Optionally, you can use the following email address to report mis-classifications to IronPort Systems:

- [clean@ironport.com](mailto:clean@ironport.com)
- [outbreaks@ironport.com](mailto:outbreaks@ironport.com) — for reporting messages sent to the outbreak quarantine for investigation.

### Multiple Attachments and Bypassed Filetypes

Bypassed file types are only excluded if a message's only attachment is of that type, or in the case of multiple attachments, if the other attachments do not yet have existing rules. Otherwise the message is scanned.

### Message and Content Filters and the Email Pipeline

Message and content filters are applied to messages prior to scanning by Virus Outbreak Filters. Filters can cause messages to skip or bypass the Virus Outbreak Filters scanning.







# CHAPTER 11

## Data Loss Prevention

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In the Information Age, your organization's data is one of its most prized possessions. Your organization spends a lot of money making data available to your employees, customers, and partners. Data is always on the move by traveling over email and the Web. This increased access poses challenges for information security professionals to figure out how to prevent the malicious or unintentional loss of sensitive and proprietary information.

The IronPort Email Security appliance secures your data by providing an integrated data loss prevention (DLP) scanning engine and DLP policy templates from RSA Security Inc. to identify and protect sensitive data. The RSA Email DLP feature protects your organization's information and intellectual property and enforces regulatory and organizational compliance by preventing users from unintentionally emailing sensitive data. You define what kind of data is allowed to be emailed from your employees and the actions that the appliance takes, such as quarantining messages containing sensitive information and sending a notification to a compliance officer.

If enabled, RSA Email DLP scanning is performed in the appliance's "work queue" for outgoing mail immediately after the virus outbreak filters stage. See [Message Splintering, page 6-194](#) for more information.

This chapter contains the following sections:

- [Understanding How Email DLP Works, page 11-354](#)
- [RSA Email DLP Global Settings, page 11-356](#)
- [DLP Policies, page 11-358](#)
- [Using the DLP Assessment Wizard, page 11-370](#)
- [Content Matching Classifiers, page 11-374](#)

- [Regular Expressions for Content Matching Classifiers](#), page 11-381
- [Advanced DLP Policy Customization](#), page 11-383
- [Configuring Per-Recipient Policies for RSA Email DLP](#), page 11-386

## Understanding How Email DLP Works

The RSA Email DLP feature uses a three-level policy structure to define your organization's data loss prevention rules and the actions that the IronPort appliance takes when a message violates those rules:

- **Detection Rules.** At the lowest level, DLP content scanning consists of *detection rules* used to scan for particular patterns in a block of text. These detection rules include regular expressions, words and phrases, dictionaries, and entities, which are similar to smart identifiers.
- **Content Matching Classifier.** The next level is the *content matching classifier*, which scans an outgoing message and its attachments for sensitive information, such as credit card data or other personal information. A classifier contains a number of detection rules along with context rules that impose additional requirements. As an example, consider the Credit Card Number classifier developed by RSA. This classifier not only requires that the message contains a text string that matches a credit card number pattern, but that it also contains supporting information such as an expiration date, credit card company (Visa, AMEX, etc.), or name and address. Requiring this additional information results in more accurate verdicts of a message's content, leading to less false positives. A *DLP violation* occurs when a classifier detects sensitive information in a message that violates your organization's DLP rules.
- **DLP Policy.** At the highest level is a *DLP policy*, which consists of a set of conditions and a set of actions. The conditions include classifiers for a message's content and tests for message metadata, such as sender, recipient, or attachment file type. The actions specify both the overall action to take on messages (deliver, drop, or quarantine) and secondary actions such as encrypting the message, copying it, altering its header, and sending notifications.

You define your organization's DLP policies in DLP Policy Manager and then enable the policies in your outgoing mail policies. The appliance scans outgoing messages for DLP policy violations after the virus outbreak filters stage of the

“work queue.” AsyncOS also provides the DLP Assessment Wizard to guide you through setting up the most popular DLP policies. For more information, see [Using the DLP Assessment Wizard, page 11-370](#).

The RSA Email DLP scanning engine scans each message and its attachments using every classifier in the DLP policies enabled in the outgoing mail policy. To scan attachments, the IronPort appliance’s content scanning engine extracts the attachment and the RSA Email DLP scanning engine scans its content. After scanning is complete, the RSA Email DLP engine determines if the message violated any of the enabled DLP policies. If the violation matches more than one DLP policy, the RSA Email DLP engine chooses the first matching DLP policy listed in the outgoing mail policy in a top-down fashion. You define the order of the DLP policies in the DLP Policy Manager.

The RSA Email DLP engine decides how to handle a message by first calculating a risk factor score for the DLP violation. The risk factor score represents the severity of the DLP violation, ranging from 0 to 100. The RSA Email DLP engine compares the risk factor score to the Severity Scale defined for that DLP policy. The Severity Scale categorizes the possible DLP violation as one of the following severity levels:

- Ignore
- Low
- Medium
- High
- Critical

The severity level determines which actions, if any, are taken on the message.

You can use the DLP Incidents report to view information on DLP violations occurring in outgoing mail. You can also use message tracking to search for messages based on the severity of the DLP violation.

- For more information on DLP email policies and content matching classifiers, see [DLP Policies, page 11-358](#).
- For more information on content matching classifiers, see [Content Matching Classifiers, page 11-374](#).
- For more information on the DLP Incidents report, see the “Using Email Security Monitor” chapter in the *Cisco IronPort AsyncOS for Email Daily Management Guide*.

- For information on searching for messages with DLP violations in Message Tracking, see the “Tracking Email Messages” chapter in the *Cisco IronPort AsyncOS for Email Daily Management Guide*.

**Note**

The scanning engine only uses a classifier once when scanning a message. If an outgoing mail policy has two or more DLP policies that use the same classifier, all policies will use the result from a single classifier scan.

## Hardware Requirements

The RSA Email DLP feature is supported on all C-Series and X-Series appliances, except for the C10, C30, C60, C100, C300D, C350D, and C360D appliances.

## RSA Email DLP Global Settings

To scan outgoing emails for sensitive data, you must first enable RSA Email DLP scanning on the appliance using the Security Services > RSA Email DLP page. You can choose to either run the DLP Assessment Wizard to enable the most popular DLP policies on the appliance or manually enable the RSA Email DLP feature.

To learn how to run the DLP Assessment Wizard, see [Using the DLP Assessment Wizard, page 11-370](#). To learn how to manually enable RSA Email DLP, see [Enabling RSA Email DLP and Configuring Global Settings, page 11-357](#).

After you enable RSA Email DLP, you can configure DLP policies and actions in the DLP Policy Manager and then enable them on your outgoing mail policies using the Email Security Manager. For more information, see [DLP Policies, page 11-358](#) and [Configuring Per-Recipient Policies for RSA Email DLP, page 11-386](#).

## Enabling RSA Email DLP and Configuring Global Settings

**Note**

If you want to use the DLP Assessment Wizard to configure the appliance's DLP policies, see [Using the DLP Assessment Wizard, page 11-370](#).

To enable RSA Email DLP on the appliance:

---

**Step 1** Select Security Services > RSA Email DLP.

**Step 2** Click **Enable**.

**Step 3** The license agreement page is displayed.

**Note**

If you do not accept the license agreement, RSA Email DLP is not enabled on the appliance.

**Step 4** Scroll to the bottom of the page and click **Accept** to accept the agreement.

**Step 5** Click **Enable**.

RSA Email DLP is enabled on the appliance.

**Step 6** Click **Edit Settings**.

The Edit RSA Email Data Loss Prevention Global Settings page is displayed.

**Step 7** If message tracking is already enabled on your appliance, choose whether or not to enable matched content logging. By selecting this, the IronPort appliance logs DLP violations and AsyncOS displays the DLP violations and surrounding content in Message Tracking, including sensitive data such as credit card numbers and social security numbers.

**Step 8** Submit and commit your changes.

**Figure 11-1** *RSA Email Data Loss Prevention Enabled*  
**RSA Email Data Loss Prevention Settings**

RSA Email Data Loss Prevention Settings	
Data Loss Prevention:	Enabled
Matched Content Logging:	Disabled
<a href="#">Edit Settings...</a>	

## DLP Policies

A DLP policy is a set of conditions that AsyncOS and the RSA Email DLP scanning engine use to determine whether an outgoing message contains sensitive data and the actions that AsyncOS takes when a message contains such data.

DLP policies include content matching classifiers developed by RSA, which the RSA Email DLP scanning engine uses to detect sensitive data in messages and attachments. The classifiers search for more than data patterns like credit card numbers and driver license IDs; they examine the context of the patterns, leading to fewer false positives. For more information, see [Content Matching Classifiers, page 11-374](#).

If the DLP scanning engine detects a DLP violation in a message or an attachment, the DLP scanning engine determines the risk factor of the violation and returns the result to the matching DLP policy. The policy uses its own severity scale to evaluate the severity of the DLP violation based on the risk factor and applies the appropriate actions to the message. The scale includes five severity levels: Ignore, Low, Medium, High, and Critical.

Actions that can be taken on all severity levels except Ignore include:

- The overall action to take on the message being examined: deliver, drop, or quarantine.
- Encrypt messages.
- Alter the subject header of messages containing a DLP violation.
- Add disclaimer text to messages.
- Send messages to an alternate destination mailhost.
- Send copies (bcc) of messages to other recipients. (For example, you could copy messages with critical DLP violations to a compliance officer's mailbox for subsequent examination.)

- Send a DLP violation notification message to the sender or other contacts, such as a manager or DLP compliance officer.

**Note**

These actions are not mutually exclusive: you can combine some of them within different DLP policies for various processing needs for groups of users. You can also configure different treatments based on severity levels in the same policy. For example, you may want to quarantine messages with critical violations and send a notification to a compliance officer but deliver messages with low severity levels.

## Content of Policies

Email DLP policies contain the following information:

- Name and description of the policy.
- A list of content matching classifiers. Depending on the policy, you may be required to create a regular expression to search for identification numbers. See [Content Matching Classifiers, page 11-374](#) for more information.
- A list of specific senders and recipients for filtering messages. See [Filtering Senders and Recipients, page 11-366](#) for more information.
- A list of attachment file types for filtering messages. See [Filtering Attachments, page 11-367](#) for more information.
- Severity settings, including actions applied to settings and adjusting the Severity Scale. See [Setting the Severity Levels, page 11-367](#) for more information.









## DLP Policy Manager

The DLP Policy Manager is a single dashboard to manage all email DLP policies on your IronPort appliance. You access the DLP Policy Manager from the Mail Policies menu. From the DLP Policy Manager you can perform the following actions:

- Create and manage DLP policies based on a predefined template. For more information, see [Creating an Email DLP Policy Based on a Predefined Template, page 11-363](#).

- Create and manage DLP policies based on a custom template. For more information, see [Creating a DLP Policy Using the Custom Policy Template](#), page 11-384.
- Create, import, and manage custom DLP dictionaries. For more information, see the “Text Resources” chapter in the *Cisco IronPort AsyncOS for Email Configuration Guide*.
- Manage US drivers license classifiers. For more information, see [US Drivers License Classifiers](#), page 11-362.

**Figure 11-2 DLP Policy Manager with Active DLP Policies**  
**DLP Policy Manager: Active Policies for Outgoing Mail**

Active DLP Policies for Outgoing Mail			
<a href="#">Add DLP Policy...</a>			
Order	DLP Policy	Duplicate	Delete
1	Payment Card Industry Data Security Standard (PCI-DSS)		
2	Email to Competitor		
3	ABA Routing Numbers		
4	California SB-1386		
<a href="#">Edit Policy Order...</a>			
Advanced Settings			
US Drivers Licenses		All Classifiers Enabled	
Custom DLP Dictionaries (for use in Custom Policies only)		None Available	

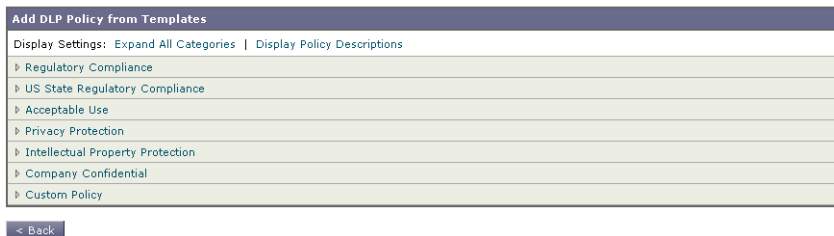
## RSA Email DLP Policy Templates

AsyncOS comes with a large collection of predefined policy templates developed by RSA to protect your organization’s intellectual property and confidential information and enforce rules and regulations defined by laws and industry standards. When creating a DLP policy using the DLP Policy Manager, you first select the template that you want to use.

[Figure 11-3](#) shows the categories of DLP policy templates available.



**Figure 11-3 Add DLP Policy From Templates**  
**DLP Policy Manager: Add DLP Policy**



DLP policy templates are organized into the following categories:

- **Regulatory Compliance.** Identifies messages and attachments that contain personally identifiable information, credit information, or other protected or non-public information.
- **Acceptable Use.** Identifies messages sent to competitors or restricted recipients that contain sensitive information about an organization.
- **Privacy Protection.** Identifies messages and attachments that contain identification numbers for financial accounts, tax records, or national IDs.
- **Intellectual Property Protection.** Identifies popular publishing and design document file types that may contain intellectual property that an organization would want to protect.
- **Company Confidential.** Identifies documents and messages that contain information about corporate accounting information and upcoming mergers and acquisitions.
- **Custom Policy.** AsyncOS also provides the option to create your own policy from scratch using classifiers developed by RSA or your organization. This option is considered advanced and should be used only in the rare cases when the predefined policy templates do not meet the unique requirements of your network environment. See [Advanced DLP Policy Customization, page 11-383](#) for more information.

For information on DLP policy templates that require customization, see [Customizing Classifiers for DLP Policies, page 11-364](#).

[Figure 11-4](#) shows a predefined RSA policy template for detecting FERPA (Family Educational Rights and Privacy Act) violations.

**Figure 11-4**      **Predefined RSA Email DLP Policy Template**  
**Mail Policies: DLP: Policy: FERPA (Family Educational Rights and Privacy Act)**

Policy: FERPA (Family Educational Rights and Privacy Act)

DLP Policy Name:

FERPA (Family Educational Rights and Privacy Act)

Description:

Identifies documents and transmissions that contain student information protected by the Family Education Rights and Privacy Act (FERPA) in the United States. FERPA defines regulations that protect personally identifiable information (PII) (student records) held by

Content Matching Classifier:

Student Identification Numbers (customization recommended) AND Student Records

Student Identification Numbers as a regular expression:

Combine multiple number patterns with "|" to form a single expression. (Example: 123-CL456789 matches the regular expression [0-9]{3}\-[A-Z]{2}[0-9]{6} See more examples.)

AND match with related words or phrases:

Separate multiple entries with a line break or comma. Sometimes number patterns consistently appear with words or phrases as in "Student Identification Numbers: 123-CL456789." Including the words "Student Identification Numbers:" would improve content matching accuracy.

Filter Senders and Recipients:

Restrict this DLP policy by specific recipients and senders.

Filter Attachments:

Restrict this DLP policy to detect specific attachment types.

Filter Message Tags:

Restrict this DLP policy to detect message tags.

Severity Settings

Critical Severity Settings

Action Applied to Messages:

Deliver

☐ Enable Encryption

Encryption is unavailable. This service is disabled. (See Security Services > IronPort Email Encryption)

Advanced

This section contains settings for Message modifications, message delivery and DLP notifications.

High Severity Settings

☒ Inherit Critical Severity settings.

Medium Severity Settings

☒ Inherit High Severity settings.

Low Severity Settings

☒ Inherit Medium Severity settings.

Severity Scale

Severity Scale:

IGNORE	LOW	MEDIUM	HIGH	CRITICAL
0 - 9	10 - 34	35 - 59	60 - 89	90 - 100

Edit Scale...

Cancel

Submit

US Drivers License Classifiers

Many policies use a US Drivers License classifier. By default, this classifier searches for drivers licenses for all 50 US states and the District of Columbia. Even US state-specific policies such as California AB-1298 and Montana HB-732 search for all 51 types of drivers licenses. If you are concerned about false positives or appliance performance, you can limit searching to specific US states or no states by clicking the link for US Drivers Licenses under **Advanced**

**Settings** in the DLP Policy Manager. For more information on how the RSA scanning engine uses drivers license classifies, see [US Drivers License](#), page 11-379.

## Creating an Email DLP Policy Based on a Predefined Template

You can create a DLP policy either using a predefined template or a custom template. See [Creating a DLP Policy Using the Custom Policy Template](#), page 11-384 for information on using a custom template.

To add a DLP policy based on a predefined template:

- 
- Step 1** Select Mail Policies > DLP Policy Manager.
  - Step 2** Click **Add DLP Policy**.
  - Step 3** Click the name of a category to display a list of the available RSA Email DLP policy templates.




---

**Note** You can click **Display Policy Descriptions** to view detailed descriptions of the available policy templates.

---

- Step 4** Click **Add** for the RSA Email DLP policy template that you want to use.  
A page similar to [Figure 11-4 on page 11-362](#) opens. All predefined templates will already have a name and a description, which you can change. Most templates have one or more classifiers, and some have predefined attachment types.
- Step 5** If the policy requires a customized classifier, enter a regular expression to define the pattern of your organization's identification numbering system and a list of words or phrases related to the identification numbers. See [Customizing Classifiers for DLP Policies](#), page 11-364 for more information.




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**Note** You cannot add or remove classifiers for policies based on a predefined template.

---

- Step 6** Optionally, you can limit the DLP policy to messages with specific recipients or senders, attachment types, or message tags. For more information, see [Filtering Messages for DLP Policies, page 11-366](#).
- Step 7** In the Critical Severity Settings section, choose whether to drop, deliver, or quarantine messages containing critical DLP violations.
- Step 8** Optionally, you can choose to encrypt the message, modify its header, deliver it to an alternate host, send a copy (bcc) to another recipient, and send a DLP notification message.
- For information on DLP notifications, see the “Text Resources” chapter in the *Cisco IronPort AsyncOS for Email Configuration Guide*.
- Step 9** If you want to define different settings for messages that match the high, medium, or low severity level, uncheck the **Inherit settings** check box for the appropriate security level. Edit the overall action for the message and the other settings.
- Step 10** If you want adjust the DLP violation severity scale for the policy, click **Edit Scale** and adjust the settings. For more information, see [Setting the Severity Levels, page 11-367](#).
- Step 11** Submit and commit your changes.
- The policy is added to the DLP Policy Manager.

## Customizing Classifiers for DLP Policies

Some of the DLP policy templates require customized classifiers for better efficacy. These classifiers search for confidential identification numbers in outgoing messages, such as patient or student identification numbers, but require one or more regular expressions to define the patterns of your organization’s record numbering system. You can also add a list of words and phrases that are associated with the record identification number for supporting information. If the classifier detects the number pattern in an outgoing message, it searches for the supporting information to verify that the pattern is an identification number and not a random number string. This results in less false positives.

As an example, use the HIPAA (Health Insurance Portability and Accountability Act) template to create a policy. This template includes the Patient Identification Numbers content matching classifier, which you can customize to detect a patient’s identification number. Enter the regular expression

`[0-9]{3}\-[A-Z]{2}[0-9]{6}` for the classifier. This regular expression detects numbers in the pattern of 123-CL456789. Enter “Patient ID” for a related phrase.

Finish creating the policy and enable it in an outgoing mail policy. Submit and commit your changes. Now, if the policy detects the number pattern in an outgoing message with the phrase “Patient ID” in close proximity, it will return a DLP violation.

The following DLP policy templates have customizable content matching classifiers:

- **HIPAA (Health Insurance Portability and Accountability Act).** The Patient Identification Numbers classifier can be customized, but it is not required. A match for the Patient Identification Numbers classifier, or the Patient Identifiers and HIPAA Dictionaries classifiers returns a DLP violation.
- **FERPA (Family Educational Rights and Privacy Act).** Requires customization of Student Identification Numbers classifier. A match for the Student Identification Numbers and Student Records classifiers is a DLP violation.
- **GLBA (Gramm-Leach Bliley Act).** The Custom Account Numbers classifier can be customized, but it is not required. A match for one or more of the following classifiers is a DLP violation: Custom Account Numbers, US Drivers Licenses, Credit Card Number, or US Social Security Number.
- **California AB-1298.** The Group Insurance Numbers, Medical Record Numbers, and Patient Identification Numbers classifiers can be customized, but they are not required. A match for one or more of the following classifiers is a DLP violation: Group Insurance Numbers, Medical Record Numbers, Patient Identification Numbers, US Drivers Licenses, Patient Identifiers, Credit Card Number, HIPAA Dictionaries.
- **Massachusetts CMR-201.** The US Bank Account Numbers classifier can be customized, but is not required. A match for one or more of the following classifiers is a DLP violation: US Bank Account Numbers, US Drivers Licenses, Credit Card Number, US Social Security Number, ABA Routing Numbers classifier. This policy template is available in AsyncOS 7.1.1 and later.
- **Custom Account Numbers.** Requires customization of the Custom Account Numbers classifier. A match for the Custom Account Numbers classifier is a DLP violation.
- **Patient Identification Numbers.** The Patient Identification Numbers classifier can be customized, but it is not required. A match for the Patient Identification Numbers or Patient Identifiers classifier is a DLP violation.

- **Mergers and Acquisitions.** Use a list of words or phrases to customize the Mergers and Acquisitions Codenames classifier, but it is not required. You do not need to use a regular expression. A match for the Mergers and Acquisitions Codenames or Merger Keywords classifier is a DLP violation.

For information on how to create a regular expression, see [Regular Expressions for Content Matching Classifiers, page 11-381](#). For more information on how content matching classifiers detect DLP violations, see [Content Matching Classifiers, page 11-374](#).

## Filtering Messages for DLP Policies

You have the option of limiting a DLP policy to scanning only messages based on specific information detected by AsyncOS. DLP policy scanning can be limited by the following information:

- Senders and recipients
- Attachment types
- Message tags

## Filtering Senders and Recipients

You can limit the DLP policy to scan messages with specific recipients or senders in one of the following ways:

- Full email address: `user@example.com`
- Partial email address: `user@`
- All users in a domain: `@example.com`
- All users in a partial domain: `@.example.com`

You can separate multiple entries using a line break or a comma.

For an outgoing message, AsyncOS first matches the recipient or sender to an outgoing mail policy. After the recipient or sender is matched, RSA Email DLP then matches the sender or recipient to the DLP policies enabled for the mail policy.

## Filtering Attachments

You can limit the DLP policy to messages with specific attachment types. Attachments are first extracted using AsyncOS's content scanning engine and then the content of the attachment is scanned by the RSA Email DLP scanning engine. The appliance provides a number of predefined file types for scanning, but you can also specify file types that are not listed. If you specify a file type that is not predefined, AsyncOS searches for the file type based on the attachment's extension. You can limit RSA Email DLP scanning to attachments with a minimum file size in bytes.

## Filtering by Message Tag

If you want to limit a DLP policy to scanning messages containing a specific phrase, you can use a message or content filter to search outgoing messages for the phrase and insert a custom message tag into the message. When creating a DLP policy, select the message tags you want to use for filtering outgoing messages. For more information, see [Content Filter Actions, page 6-207](#) and the "Using Message Filters to Enforce Mail Policies" in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

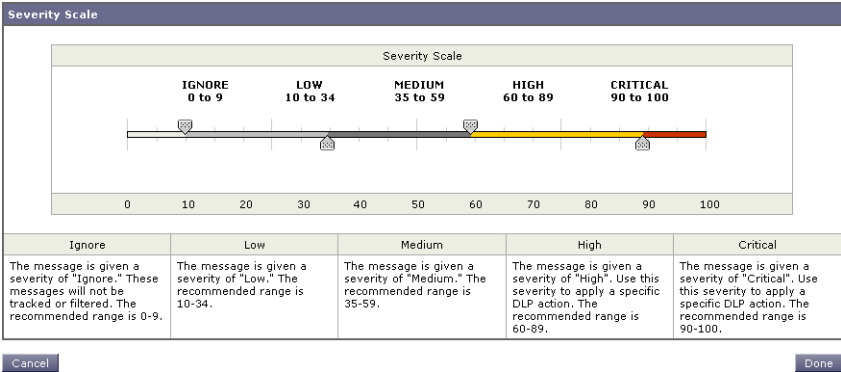
## Setting the Severity Levels

If RSA Email DLP scanning engine detects a DLP violation, it calculates a risk factor score that represents the severity of the DLP violation, ranging from 0 to 100. The policy compares the risk factor score to the Severity Scale. The Severity Scale includes five severity levels: Ignore, Low, Medium, High, and Critical. The severity level determines the actions taken on the message. By default, all severity levels (except Ignore) inherit the settings of the higher severity level; the High severity level inherits the settings from Critical, Medium inherits from High, and Low inherits from Medium. You can edit the level to specify different actions for different severities.

For information on how the DLP scanning engine calculates a risk factor, see [Understanding How Email DLP Works, page 11-354](#).

You can also adjust the Severity Scale for a policy to define the estimated severity of the DLP violation returned by the scanning engine. [Figure 11-5](#) shows the severity scale. Use the scale's arrows to adjust the scores for the severity levels.

**Figure 11-5** *Adjusting the DLP Policy Severity Scale*



# Arranging the Order of the Email DLP Policies

The order of policies in the DLP Policy Manager is important. When a DLP violation occurs, RSA Email DLP matches the violation to the DLP policies enabled in the outgoing mail policy. If the violation matches more than one DLP policy, RSA Email DLP chooses the first matching DLP policy in the top-down order.

- Step 1** On the DLP Policy Manager page, click **Edit Policy Order**.
- Step 2** Click on the row for a policy you want to move and drag it to a new position in the order.
- Step 3** Once you have finished reordering the policies, submit and commit your changes.

# Editing an Email DLP Policy

To edit an existing DLP policy:



---

**Step 1** Click on the name of the RSA Email DLP policy in the listing on the DLP Policy Manager page.

The Mail Policies: DLP page is displayed.

**Step 2** Make changes to the DLP policy.

**Step 3** Submit and commit your changes.



**Note**

If you rename a policy, you will have to re-enable it in the Email Security Manager.

---

## Deleting an Email DLP Policy

To delete a DLP policy, click on the trash can icon next to the policy in the listing. A confirmation message is displayed. This message notifies you if the DLP policy is used in one or more outgoing mail policies. Deleting a policy removes it from these mail policies. Submit and commit your changes.

## Duplicating an Email DLP Policy

If you want to create a DLP policy that is similar to an existing one but with different settings, the DLP Policy Manager gives you the option to create a duplicate policy.

To duplicate an email DLP policy:

---

**Step 1** On the DLP Policy Manager page, click on the Duplicate icon next to the policy in the listing that you want to duplicate.

**Step 2** Enter a name for the policy.

**Step 3** Make your changes to the policy's settings.

**Step 4** Submit and commit your changes.

# Using the DLP Assessment Wizard

AsyncOS provides a browser-based DLP Assessment Wizard to guide you through the three-step process of configuring popular DLP policies and enabling them in the appliance's default outgoing mail policy.

DLP policies added using the DLP Assessment Wizard deliver all messages, regardless of the severity of detected DLP violations. Use the DLP Policy Manager to edit the overall action on messages, filter recipients or senders, filter attachment types, and severity level settings. For more information on editing DLP policies, see [DLP Policy Manager, page 11-359](#).

The DLP Assessment Wizard enables matched content logging for message tracking. The Email Security appliance will log detected DLP violations and AsyncOS will display the violations and surrounding content in message tracking, including sensitive data such as credit card numbers and social security numbers. The DLP Assessment Wizard automatically enables message tracking on the appliance if it was not previously enabled. If you do not want the appliance to log this data, use the Security Services > RSA Email DLP page to disable matched content logging.

To launch the DLP Assessment Wizard, go to the Security Services > RSA Email DLP page. Check the **Enable and configure DLP using the DLP Assessment Wizard** check box and click **Enable**.

You can only use the DLP Assessment Wizard if there are no existing DLP policies on the appliance.

[Figure 11-6](#) shows the option of running the DLP Assessment Wizard from the RSA Email Data Loss Prevention Settings page.

**Figure 11-6** RSA Email Data Loss Prevention Settings Page  
**RSA Email Data Loss Prevention Settings**

RSA Email Data Loss Prevention Settings	
The RSA Email Data Loss Prevention feature is currently disabled.	
DLP Wizard (optional):	<p>The Data Loss Prevention (DLP) Assessment Wizard allows you to select and apply popular DLP policies to your outgoing mail so you can determine your risk exposure.</p> <p><input type="checkbox"/> Enable and configure DLP using the DLP Assessment Wizard.</p>
<input type="button" value="Enable..."/>	

## Running the DLP Assessment Wizard

The DLP Assessment Wizard walks you through completing the following DLP configuration tasks, broken down into three steps:

- 
- Step 1** Policies
    - Select the DLP policies for the types of information you want to protect on your network
    - Customize the DLP policies that require additional information to find sensitive data
  - Step 2** Reports
    - Configure DLP Incident Summary report delivery settings
  - Step 3** Review
    - Review and enable your DLP policies

Step through the DLP Assessment Wizard, clicking **Next** after you complete each step. You can move back to a previous step by clicking **Previous**. At the end of the process, you are prompted to commit the changes you have made. Your changes will not take effect until they have been committed.

## Step 1: Policies

### Selecting the DLP Policies

Select the DLP policies for the types of sensitive information you want the appliance to detect in outgoing messages.

The following policies are available:

- **Payment Card Industry Data Security Standard (PCI-DSS)** credit card track data and credit cards.
- **HIPAA (Health Insurance Portability and Accountability Act)** detects HIPAA dictionaries and code sets, US Social Security numbers, US National Provider Identifiers and may be customized to detect patient identification numbers.
- **FERPA (Family Educational Rights and Privacy Act)** detects student records and can be customized to detect student identification numbers.
- **GLBA (Gramm-Leach Bliley Act)** detects credit card numbers, US Social Security numbers, US Drivers License numbers and may be customized to detect custom account numbers.
- **California SB-1386** detects documents and transmissions that contain personally identifiable information (PII) as regulated by California SB-1386 (Civil Code 1798), such as US Social Security numbers, credit card numbers, and US drivers license numbers. Any business that operates in California and owns or licenses computerized PII data for California residents, regardless of their physical location, is required to comply.
- **Restricted Files** detects emails that contain restricted files, including .mdb, .exe, .bat and Oracle executable files (.fmx, .frm). This policy can be customized to add additional file attributes to the policy violation rules.

You can create other types of DLP policies using the DLP Policy Manager.

## Customizing the DLP Policies

Some DLP policies use content matching classifiers that can be customized to detect sensitive information in outgoing messages. The customized classifiers for the HIPAA, FERPA, and GLB, policies use a regular expression to search for identification number patterns in outgoing messages. If you select the Restricted Files policy, you can choose the attachment file types you want the DLP policy to detect. The Restricted Files policy detects .exe and .mdb files by default, but you can remove these file types. You can also configure the Restricted Files policy to apply only to encrypted or password-protected files.

For more information on customizing the content matching classifiers for these DLP policies, see [Customizing Classifiers for DLP Policies, page 11-364](#).

Click **Next** to continue.

**Figure 11-7** *DLP Assessment Wizard: Step 1. Policies*  
**DLP Assessment Wizard**

How vulnerable is your network to data loss?	
Let the DLP Assessment Wizard set up a data loss prevention policy for your network.	
What type of information would you like to protect in your network?	<input type="checkbox"/> <b>Payment Card Industry Data Security Standard (PCI-DSS)</b> This policy will detect credit card track data and credit cards.
	<input type="checkbox"/> <b>HIPAA (Health Insurance Portability and Accountability Act)</b> This policy will detect HIPAA dictionaries and code sets, US Social Security numbers, US National Provider Identifiers and may be customized to detect patient identification numbers.
	<input type="checkbox"/> <b>FERPA (Family Educational Rights and Privacy Act)</b> This policy will detect student records and can be customized to detect student identification numbers.
	<input type="checkbox"/> <b>GLBA (Gramm-Leach-Bliley Act)</b> This policy will detect credit card numbers, US Social Security numbers, US Drivers License numbers and may be customized to detect custom account numbers.
	<input type="checkbox"/> <b>California SB-1386</b> Identifies documents and transmissions that contain personally identifiable information (PII) as regulated by California SB-1386 (Civil Code 1798). This policy detects US Social Security numbers, credit card numbers and US drivers license numbers.
	<input type="checkbox"/> <b>Restricted Files</b> Identifies email transmissions that contain restricted files defined by you. By default the policy matches on mdb, exe, bat and Oracle executable files (fmx, frm). This policy can be fully customized once the wizard is completed.

Cancel Next »

## Step 2: Reports

Enter an email address for the scheduled DLP Incident Summary report. Use commas to separate multiple addresses. If you leave this value blank, the scheduled report is not created. For more information on DLP Incident Summary reports, see the “Using Email Security Monitor” chapter in the *Cisco IronPort AsyncOS for Email Daily Management Guide*.

Click **Next** to continue.

**Figure 11-8** *DLP Assessment Wizard: Step 2. Reports*  
**DLP Reports**

Configure DLP Policy Reports (Optional)	
Email Reports To:	<input type="text"/>
Separate multiple addresses with commas.	

« Previous Cancel Next »

## Step 3: Review

A summary of the DLP configuration information is displayed. You can edit the Policies and Reporting information by clicking the **Previous** button or by clicking the corresponding **Edit** link in the upper-right of each section. When you return

to a step to make a change, you must proceed through the remaining steps until you reach this review page again. All settings you previously entered will be remembered.

**Figure 11-9** *DLP Assessment Wizard: Step 3. Review*  
**Review DLP Policies**

Please review your DLP policies. If you need to make changes, click the edit link to return to the first step.

DLP Policies		Edit
Data Loss Prevention Policies:	California 58-1386	
	Restricted Files	
	Applied if attachment filetype is: exe, mdb	

DLP Reports		Edit
Deliver Reports To:	dlp@example.com	

< Previous Cancel Finish

Once you are satisfied with the information displayed click **Finish**. AsyncOS displays the Outgoing Mail Policies page with your DLP policies enabled in the default outgoing mail policy. A summary of your DLP policy configuration is displayed at the top of the page. Commit your changes.

For information on editing the DLP policies and creating additional ones, see [DLP Policy Manager, page 11-359](#). For information on enabling the DLP policies for other outgoing mail policies, see [Configuring Per-Recipient Policies for RSA Email DLP, page 11-386](#).

# Content Matching Classifiers

Content matching classifiers are the detection components of the RSA Email DLP scanning engine. They search messages and the content of extracted attachments for data patterns, such as credit card numbers or driver license identification numbers, and the context in which the patterns appear. For example, a classifier for detecting credit card numbers scans for not only patterns of numbers that match the credit card number format, but supporting data like expiration dates and the name of credit card company. Evaluating the context of the data decreases the number of false positives.

Many of the policy templates from RSA include a predefined set of classifiers. When creating a policy based on the Custom Policy template, you can choose an RSA classifier or add one of your own. For information on creating your own classifier to use in custom DLP policies, see [Creating a Content Matching Classifier, page 11-385](#).

A number of policy templates require customization of one or more classifiers in order to detect sensitive data. Customization includes creating a regular expression to search for identification numbers and a list of words and phrases that may consistently appear with the identification number. For example, adding a policy based on the FERPA (Family Educational Rights and Privacy Act) template requires creating a regular expression to match custom student ID numbers. If the ID numbers consistently appear with the phrase “Student ID,” such as “Student ID: 123-45-6789,” adding the phrase to the policy would improve content matching accuracy. For more information on required customization for DLP policies, see [Customizing Classifiers for DLP Policies, page 11-364](#).

**Note**

For policies that do not have a classifier, the scanning engine always returns a risk factor value of “75” when a message violates the policy. You may want to adjust the severity scale for such policies, depending on the type of DLP violations that may occur. See [Setting the Severity Levels, page 11-367](#) for more information.

## Classifier Detection Rules

Classifiers require rules for detecting DLP violations in a message or document. Classifiers can use one or more of the following detection rules:

- **Words or Phrases.** A list of words and phrases that the classifier should look for. Separate multiple entries with a comma or line break.
- **Regular Expression.** A regular expression to define a search pattern for a message or attachment. You can also define a pattern to exclude from matching to prevent false positives. See [Examples of Regular Expressions for DLP, page 11-383](#) for more information.
- **Dictionary.** A dictionary of related words and phrases. RSA Email DLP comes with dictionaries created by RSA, but you can create your own. See the [Chapter 14, “Text Resources”](#) for more information.
- **Entity.** Similar to smart identifiers, entities identify patterns in data, such as ABA routing numbers, credit card numbers, addresses, and social security numbers.

Classifiers assign a numeric value to the detection rule matches found in a message and calculate a score for the message. The risk factor used to determine the severity of a message’s DLP violation is a 0 - 100 version of the classifier’s final score. Classifiers use the following values to detect patterns and calculate the risk factor:

- **Proximity.** Defines how close the rule matches must occur in the message or attachment to count as valid. For example, if a numeric pattern similar to a social security number appears near the top of a long message and an address appears in the sender’s signature at the bottom, they are probably not related and the classifier does not count them as a match.
- **Minimum Total Score.** The minimum score required for the classifier to return a result. If the score of a message’s matches does not meet the minimum total score, its data is not considered sensitive.
- **Weight.** For each rule, you specify a “weight” to indicate the importance of the rule. The classifier scores the message by multiplying the number of detection rule matches by the weight of the rule. Two instances of a rule with a weight of 10 results in a score of 20. If one rule is more important for the classifier than the others, it should be assigned a greater weight.
- **Maximum Score.** A rule’s maximum score prevents a large number of matches for a low-weight rule to skew the final score of the scan.



To calculate the risk factor, the classifier multiplies the number of matches for a detection rule by the weight of the rule. If this value exceeds the detection rule's maximum score, the classifier uses the maximum score value. If the classifier has more than one detection rule, it adds the scores for all of its detection rules into a single value. The classifier maps the detection rules score (10 - 10000) on a scale of 10 - 100 using the logarithmic scale shown in [Table 11-1](#) to create the risk factor.

**Table 11-1**      ***Logarithmic Scale for Calculating the Risk Factor***

Rule Scores	Risk Factor
10	10
20	20
30	30
50	40
100	50
150	60
300	70
500	80
1000	90
10000	100

## Classifier Examples

The following examples show how classifiers match message content.

### Credit Card Number

Several DLP policy templates include the Credit Card Number classifier. The credit card number itself is subject to various constraints, such as the pattern of digits and punctuation, the issuer-specific prefix, and the final check digit. The classifier requires additional supporting information to make a match, such as a second credit card number, an expiration date, or the name of the card issuer. This reduces the number of false positives.

Examples:

- 4999-9999-9999-9996 (No match because of no supporting information)
- 4999-9999-9999-9996 01/09 (Match)
- Visa 4999-9999-9999-9996 (Match)
- 4999-9999-9999-9996 4899 9999 9999 9997 (Match because of more than one credit card number)

## US Social Security Number

The US Social Security Number classifier requires a properly formatted number as well as supporting data, such as a date of birth, name, or the string `SSN`.

Examples:

- 321-02-3456 (No match because of no supporting information)
- 321-02-3456 July 4 (Match)
- 321-02-3456 7/4/1980 (Match)
- 321-02-3456 7/4 (No match)
- 321-02-3456 321-02-7654 (Match because of more than one SSN)
- SSN: 321-02-3456 (Match)
- Joe Smith 321-02-3456 (Match)
- 321-02-3456 CA 94066 (Match)

## ABA Routing Number

The ABA Routing Number classifier is similar to the Credit Card Number classifier.

Examples:

- 119999992 (No match because of no supporting information)
- routing 119999992 account 1234567 (Match)

## US Drivers License

Several DLP policy templates use the US Drivers License classifier. This classifier contains a separate set of detection rules for each US state and the District of Columbia. You can selectively enable or disable states that are not important for your organization's policies by clicking the link for US Drivers Licenses under **Advanced Settings** in the DLP Policy Manager.



### Note

A predefined DLP policy template for a specific state, such as California SB 1386, uses the detection rules for all states and will return a DLP violation for data with a non-California driver license because it is still considered a privacy violation.

The individual state classifiers match against the patterns for that state, and requires the corresponding state name or abbreviation, and additional supporting data.

Examples:

- CA DL: C3452362 (Match because it has the correct pattern for the number and supporting data)
- California DL: C3452362 (Match)
- DL: C3452362 (No match because there is not enough supporting data)
- California C3452362 (No match because there is not enough supporting data)
- OR DL: C3452362 (No match because it is the incorrect pattern for Oregon)
- OR DL: 3452362 (Match because it is the correct pattern for Oregon)
- WV DL: D654321 (Match because it is the correct pattern for West Virginia)
- WV DL: G654321 (No match because it is the incorrect pattern for West Virginia)

## HIPAA Dictionaries

The predefined HIPAA policy template uses the HIPAA Dictionaries classifier to detect medical-related data. This classifier works with the Patient Identifiers classifier to detect personal information. The HIPAA DLP policy requires a match

on this classifier along with a match on a personal information identifier, such as a US Social Security Number or US National Provider Identifier, to return a DLP violation.

Examples:

- `angina, cancer` (Match)
- `angina` (No match because it needs more than one term)
- `headache, fever` (Match)
- `camphor glycerin` (Match)
- `fracture paralysis` (Match)
- `bite cut` (Match)

## Patient Identifiers

The Patient Identifiers classifiers provide the personal information component of the HIPAA policy template. It scans for US Social Security numbers and US National Provider Identifier (NPI) numbers. The NPI is a 10-digit number with a check digit.

Examples:

- `321-02-4567 7/4/1980` (US Social Security number and possible birth date)
- `NPI: 3459872347` (Match for NPI)
- `3459872347` (No match because of no supporting information)
- `NPI: 3459872342` (No match because of incorrect check digit)

## Student Records

The predefined FERPA (Family Educational Rights and Privacy Act) DLP policy template uses the Student Records classifier. Combine it with a customized Student Identification Number classifier to detect specific student ID patterns for better accuracy.

Example:

- `Joe Smith, Class Rank: 234, Major: Chemistry Transcript` (Match)

## Corporate Financials

The predefined Sarbanes-Oxley (SOX) policy template uses the Corporate Financials classifier to search for non-public corporate financial information.

Examples:

2009 Cisco net sales, net income, depreciation (Match)

FORM 10-Q 2009 I.R.S. Employer Identification No. (Match)

## Regular Expressions for Content Matching Classifiers

A number of policy templates require customization of one or more classifiers, which involves creating a regular expression to search for identification numbers that may be linked to confidential information, such as a custom account number or patient identification number. The style of regular expressions used for content matching classifiers is the **POSIX Basic Regular Expression** style regular expressions.

Use the following table as a guide for creating regular expressions for classifiers:

**Table 11-2**      **Regular Expression in Classifiers**

<b>Regular expression (abc)</b>	Regular expressions for classifiers match a string if the sequence of directives in the regular expression match any part of the string.  For example, the regular expression <code>ACC</code> matches the string <code>ACCOUNT</code> as well as <code>ACCT</code> .
<b>[ ]</b>	Use brackets to indicate a set of characters. Characters can be defined individually or within a range.  For example, <code>[a-z]</code> matches all lowercase letters from <code>a</code> to <code>z</code> , while <code>[a-zA-Z]</code> matches all uppercase and lowercase letters from <code>A</code> to <code>Z</code> . <code>[xyz]</code> matches only the letters <code>x</code> , <code>y</code> , or <code>z</code> .

**Table 11-2**      **Regular Expression in Classifiers**

<b>Backslash special characters (\)</b>	<p>The backslash character <i>escapes</i> special characters. Thus the sequence <code>\.</code> only matches a literal period, the sequence <code>\\$</code> only matches a literal dollar sign, and the sequence <code>\^</code> only matches a literal caret symbol.</p> <p>The backslash character also begins tokens, such as <code>\d</code>.</p> <p><b>Important Note:</b> The backslash is also a special escape character for the parser. As a result, if you want to include backslash in your regular expression, you must use <i>two</i> backslashes — so that after parsing, only one “real” backslash remains, which is then passed to the regular expression system.</p>
<b>\d</b>	<p>Token that matches a digit (0-9). To match more than one digit, enter an integer in <code>{ }</code> to define the length of the number.</p> <p>For example, <code>\d</code> matches only a single digit such as 5, but not 55. Using <code>\d{2}</code> matches a number consisting of two digits, such as 55, but not 5.</p>
<b>Number of repetitions {min,max}</b>	<p>The regular expression notation that indicates the number of repetitions of the previous token is supported.</p> <p>For example, the expression <code>“\d{8}”</code> matches 12345678 and 11223344 but not 8.</p>
<b>Or ( )</b>	<p>Alternation, or the “or” operator. If A and B are regular expressions, the expression <code>“A B”</code> will match any string that matches either “A” or “B.” Can be used to combine number patterns in a regular expression.</p> <p>For example, the expression <code>“foo bar”</code> will match either <code>foo</code> or <code>bar</code>, but not <code>foobar</code>.</p>

## Examples of Regular Expressions for DLP

The primary case for using regular expressions in content matching classifiers is to define specific account, patient, or student identification numbers. These are usually simple regular expressions that describe patterns of numbers and letters. For example:

- An 8-digit number: `\d{8}`
- Identification code with hyphens between sets of numbers: `\d{3}-\d{4}-\d{4}`
- Identification code that begins with a single letter that can be upper or lower case: `[a-zA-Z]\d{7}`
- Identification code that begins with three digits and is followed by nine uppercase letters: `\d{3}[A-Z]{9}`
- Using `|` to define two different number patterns to search for:  
`\d{3}[A-Z]{9}|\d{2}[A-Z]{9}-\d{4}`



### Note

Regular expressions are case sensitive, so they should include upper and lower case, such as `[a-zA-Z]`. If only certain letters are used, you can define the regular expression accordingly.

The less specific the pattern, such as an 8-digit number, the more likely you will want the policy to search for additional words and phrases to distinguish a random 8-digit number from an actual customer number.

## Advanced DLP Policy Customization

If the available RSA policy templates do not meet the unique requirements of your organization, a number of options are available for creating your own DLP policies from scratch. These options include:

- Creating your own DLP policy using the Custom Policy Template
- Creating your own classifiers to use in a custom policy
- Creating and importing your own DLP dictionaries to use in a custom policy

**Note**

These options are advanced and should only be used in cases where predefined settings do not meet your organization's needs.

## Creating a DLP Policy Using the Custom Policy Template

You can create a custom DLP policy using the Custom Policy template. You can use predefined RSA classifiers for the policy or add a custom classifier. See [Creating a Content Matching Classifier, page 11-385](#) for instructions on creating a classifier.

Custom policies can return a DLP violation if the content matches a single classifier or all classifiers, depending on how the policy is defined. To prevent false positives, a DLP policy can include a classifier that the message content must not match. By checking the NOT checkbox for a classifier, a message that includes matching content for the classifier is not reported as a DLP violation.

To add a custom policy:

- 
- Step 1** Select Mail Policies > DLP Policy Manager.
  - Step 2** Click **Add DLP Policy**.
  - Step 3** Click the name of the Custom Policy category.
  - Step 4** Click **Add** for the Custom Policy template.
  - Step 5** Enter a name and description for the policy.
  - Step 6** Select a classifier for the policy. You can use an existing classifier or select the option Create a Classifier.
  - Step 7** Click **Add**.
 

If you selected Create a Classifier, the Add Content Matching Classifier page opens. Otherwise, the predefined classifier is added to the policy.
  - Step 8** To add more than one classifier to the policy, repeat steps 6 - 7.
  - Step 9** Optionally, you can limit the DLP policy to messages with specific recipients or senders. You can separate multiple entries using a line break or a comma. For more information, see [Filtering Senders and Recipients, page 11-366](#).
  - Step 10** Optionally, you can limit the DLP policy to messages with specific attachment types. For more information, see [Filtering Attachments, page 11-367](#).



- Step 11** In the Critical Violations Settings section, choose whether to drop, deliver, or quarantine messages containing critical DLP violations.
- Step 12** Optionally, you can choose to encrypt the message, modify its header, deliver it to an alternate host, send a copy (bcc) to another recipient, and send a DLP notification message.

For information on DLP notifications, see [Text Resources, page 14-419](#).

- Step 13** If you want to define different settings for messages that match the high, medium, or low severity level, uncheck the **Inherit settings** check box for the appropriate security level. Edit the overall action for the message and the other settings.
- Step 14** If you want to adjust the DLP violation severity scale for the policy, click **Edit Scale** and adjust the settings. For more information, see [Setting the Severity Levels, page 11-367](#).
- Step 15** Submit and commit your changes.

The policy is added to the DLP Policy Manager.

## Creating a Content Matching Classifier

When creating a custom policy, you can create a custom classifier by selecting the Create a Classifier option. See [Classifier Detection Rules, page 11-376](#) for more information on the rules and values required to create a classifier.

After you have created and submitted the classifier, it will appear in the list of available classifiers when creating a custom policy.

To create a classifier, follow these steps:

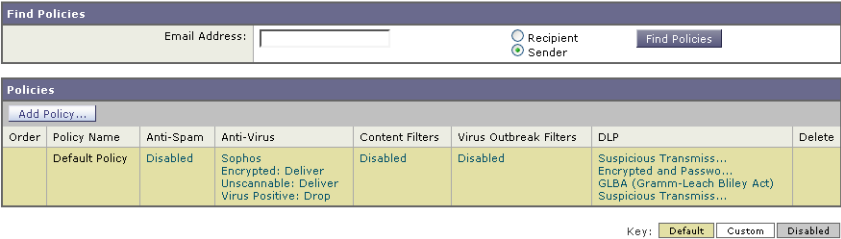
- 
- Step 1** Enter a name and description for the classifier.
- Step 2** Enter the number of characters that the classifier's rules must appear in proximity to one another.
- Step 3** Enter the minimum total score for the classifier.
- Step 4** Define a rule for the classifier, including the weight and maximum score.
- Step 5** Click **Add Rule** to add the rule to the classifier. You can add multiple rules.
- Step 6** Submit your classifier and continue creating the custom policy.

# Configuring Per-Recipient Policies for RSA Email DLP

You enable RSA Email DLP policies on a per-recipient basis using the Email Security Manager feature: the Mail Policies > Outgoing Mail Policies pages (GUI) or the `policyconfig` command (CLI). You can enable different DLP policies for the different outgoing mail policies. You can only use DLP policies in outgoing mail policies. See [Figure 11-10](#).

DLP scanning takes place after the Virus Outbreak Filters stage of the email “work queue.” See the “Email Security Manager” chapter of the *Cisco IronPort AsyncOS for Email Configuration Guide* for more information.

**Figure 11-10** Default Outgoing Mail Policy with Enabled DLP Policies



## Editing the DLP Settings for a Mail Policy

The process for editing the per-user DLP settings for an outgoing mail policy is essentially the same for the default policy and individual policies. Individual policies (not the default) have an additional option for the DLP settings to **Enable DLP (Inherit default mail policy settings)**. Selecting this causes the policy to adopt all of the DLP settings from the default outgoing mail policy.

[Figure 11-11](#) shows a list of DLP policies enabled for the default outgoing mail policy.

**Figure 11-11**      **Enabling DLP Policies in the Default Outgoing Mail Policy**  
**Mail Policies: DLP**

DLP Settings for Default Outgoing Mail Policy	
Enable DLP (Customize settings) ▼	
DLP Policies	
To add, edit or remove DLP policies, go to Mail Policies > DLP Policy Manager.	
DLP Policy	<input type="checkbox"/> Enable All
Email to Competitor	<input type="checkbox"/>
Encrypted and Password-Protected Files	<input type="checkbox"/>
GLBA (Gramm-Leach Bliley Act)	<input type="checkbox"/>
Suspicious Transmission - Spreadsheet	<input type="checkbox"/>
Transmission of Contact Information	<input type="checkbox"/>
<input type="button" value="Cancel"/>	<input type="button" value="Submit"/>

To edit the DLP settings for an outgoing mail policy, including the default:

- 
- Step 1** Click the link for the DLP security service in any row of the Email Security Manager outgoing mail policy table.
- The DLP settings page is displayed.
- Step 2** Click the link in the default row to edit the settings for the default policy.
- Step 3** Select **Enable DLP (Customize Settings)** for the mail policy.
- A list of the policies defined in the DLP Policy Manager is displayed.
- Step 4** Select the RSA Email DLP policies that you want to use on this outgoing mail policy.
- Step 5** Submit and commit your changes.





# CHAPTER 12

## IronPort Email Encryption

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IronPort AsyncOS supports using encryption to secure inbound and outbound email.

This chapter contains the following sections:

- [IronPort Email Encryption: Overview, page 12-389](#)
- [Configuring the Email Encryption Profile, page 12-392](#)
- [Configuring the Encryption Content Filter, page 12-398](#)
- [Inserting Encryption Headers into Messages, page 12-403](#)

## IronPort Email Encryption: Overview

To use this feature, you create an encryption profile that specifies characteristics of the encrypted message and connectivity information for the key server. The key server may either be the Cisco Registered Envelope Service (managed service) or an IronPort Encryption appliance (locally managed server). Next, you create content filters or message filters (or both) to determine which messages to encrypt.

An outgoing message that meets the filter condition is placed in a queue on the Email Security appliance for encryption processing. Once the message is encrypted, the key used to encrypt it is stored on the key server specified in the encryption profile and the encrypted message is queued for delivery. If a temporary condition exists that prohibits the encryption of emails in the queue (i.e., temporary C-Series busyness or CRES unavailability), messages are re-queued and retried at a later time.

**Note**

You can also set up the appliance to first attempt to send a message over a TLS connection before encrypting it. For more information, see [Using a TLS Connection as an Alternative to Encryption, page 12-398](#).

To configure outbound email encryption on the Email Security appliance, complete the following steps:

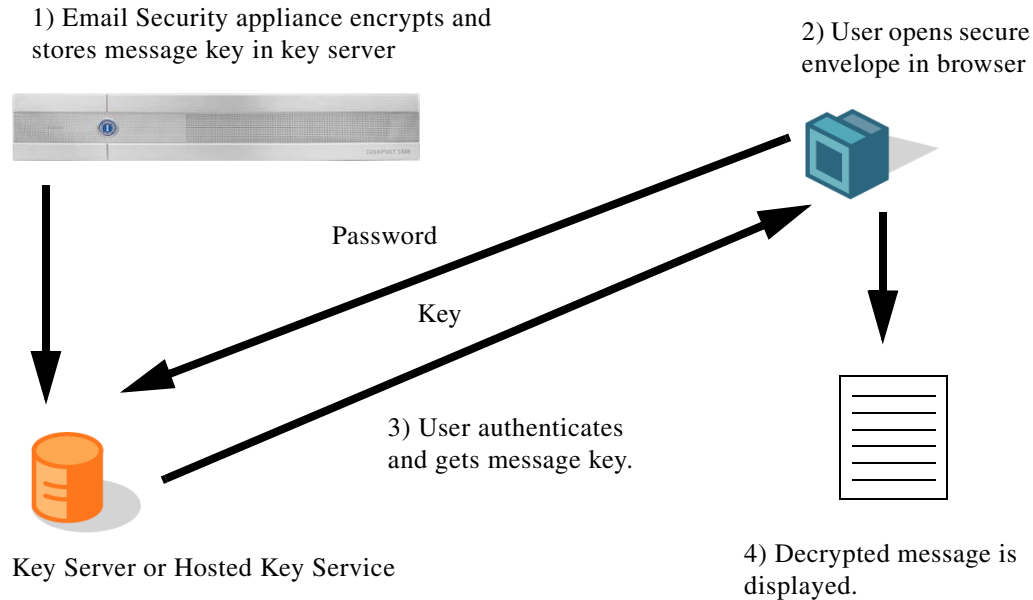
- 
- Step 1 If you want to use a local key server, configure the IronPort Encryption appliance.** For instructions on configuring key servers, see the *IronPort Encryption Appliance Local Key Server User Guide*.
- Step 2 Configure an encryption profile.** For instructions on configuring the encryption profile, see [Configuring the Email Encryption Profile, page 12-392](#).
- Step 3 If you want to use the hosted key service, create a Cisco Registered Envelope Service corporate account. You create the account by clicking the Provision button after configuring an encryption profile.**
- Step 4 Configure an outgoing content filter.** You need to configure a content filter to tag the outbound emails that should be encrypted. For instructions on creating the content filter, see [Configuring the Encryption Content Filter, page 12-398](#).

The following web browsers are supported:

- Microsoft® Internet Explorer 6 (Windows only)
- Microsoft® Internet Explorer 7 (Windows only)
- Firefox 2
- Firefox 3
- Safari 3

## Encryption Workflow

When using email encryption, the IronPort Email Security appliance encrypts a message and stores the message key on a local key server or a hosted key service. When the recipient opens an encrypted message, the recipient is authenticated by the key service, and the decrypted message is displayed.

**Figure 12-1 Encryption Workflow**

The basic workflow for opening encrypted messages is:

- 
- Step 1** When you configure an encryption profile, you specify the parameters for message encryption. For an encrypted message, the Email Security appliance creates and stores a message key on a local key server or on the hosted key service (Cisco Registered Envelope Service).
- Step 2** The recipient opens the secure envelope in a browser.
- Step 3** When a recipient opens an encrypted message in a browser, a password may be required to authenticate the recipient's identity. The key server returns the encryption key associated with the message.

**Note**

When opening an encrypted email message for the first time, the recipient is required to register with the key service to open the secure envelope. After registering, the recipient may be able to open encrypted messages without authenticating, depending on settings configured in the encryption profile. The encryption profile may specify that a password isn't required, but certain features will be unavailable.

**Step 4** The decrypted message is displayed.

## Maximum Message Size for Encryption

Table 12-1 shows the maximum message size that will be accepted for encryption on each appliance. The IronPort appliance bounces any message that exceeds the maximum size.

**Table 12-1** *Maximum Message Size for Encryption by IronPort Appliance*

Model	Max. Message Size (in MBytes)
C10/100	37
C30/150/160/300	44
C60/350/360/600	46
C650/660 and X1000/1050/1060	50

## Configuring the Email Encryption Profile

To use encryption with the Email Security appliance, you must configure an encryption profile. You can enable and configure an encryption profile using the `encryptionconfig` CLI command, or via Security Services > IronPort Email Encryption in the GUI.

## Editing Email Encryption Global Settings

To enable email encryption, complete the following steps.

- 
- Step 1** Click Security Services > IronPort Email Encryption.
  - Step 2** Click **Enable**.
  - Step 3** Optionally, click **Edit Settings** and configure a proxy server.



**Figure 12-2**      **Configuring Global Settings**

IronPort Email Encryption Settings	
<input checked="" type="checkbox"/> Enable IronPort Email Encryption	
Proxy Server (optional)	
Proxy Settings:	<input type="checkbox"/> Configure proxy for use in encryption profiles.
Proxy Type	
<input checked="" type="radio"/> HTTP <input type="radio"/> SOCKS 4 <input type="radio"/> SOCKS 5	
Host Name or IP Address	
<input type="text"/>	Port: <input type="text" value="3128"/>
Authentication (Optional):	
	Username: <input type="text"/>
	Password: <input type="text"/>
	Retype Password: <input type="text"/>

## Adding an Encryption Profile

You can create one or more encryption profiles if you use a local key service. You might want to create different encryption profiles if you want to use different levels of security for different groups of email. For example, you might want messages containing sensitive material to be sent with high security, but other messages to be sent with medium security. In this case, you might create a high security encryption profile to associate with the messages containing certain key words (such as 'confidential'), and create another encryption profile for other outgoing messages.



### Note

You can configure multiple encryption profiles for a hosted key service. If your organization has multiple brands, this allows you to reference different logos stored on the key server for the PXE envelopes.

You create and save an encryption profile to store the following encryption settings:

- **Key server settings.** Specify a key server and information for connecting to that key server.
- **Envelope settings.** Specify details about the message envelope, such as the level of security, whether to return read receipts, the length of time a message is queued for encryption before it times out, the type of encryption algorithm to use, and whether to enable a decryption applet to run on the browser.

- **Message settings.** Specify details about messages, such as whether to enable secure message forwarding and secure Reply All.
- **Notification settings.** Specify the notification template to use for text and HTML notifications, as well as encryption failure notifications. You create the templates in text resources and select the templates when creating the encryption profile. You can also specify a message subject for encryption failure notifications. For more information about notifications, see [Encryption Notification Templates, page 14-457](#) and [Bounce and Encryption Failure Notification Templates, page 14-452](#).

**Figure 12-3 Adding an Encryption Envelope Profile**  
**Add Encryption Envelope Profile**

Encryption Profile Settings	
Profile Name:	Marketing Material
Key Server Settings	
Key Service Type:	IronPort Encryption Appliance (in network) ▼
Proxy:	A proxy server is not currently configured.
IronPort Encryption Appliance URL:	Internal URL: ? https:// External URL: ? https://
Envelope Settings	
<a href="#">Example Envelope</a>	
Envelope Message Security:	<input checked="" type="radio"/> High Security <i>Recipient must enter a password to open the encrypted message, even if credentials are cached ("Remember Me" selected).</i> <input type="radio"/> Medium Security <i>No password entry required if recipient credentials are cached ("Remember Me" selected).</i> <input type="radio"/> No Password Required <i>The recipient does not need a password to open the encrypted message.</i>
Logo Link:	<input checked="" type="radio"/> No link <input type="radio"/> Custom link URL: <input type="text"/> <i>By defining a URL, the logo in the upper left corner of the recipient envelope will become a link (example: http://www.mycompany.com/).</i>
Read Receipts:	<input checked="" type="checkbox"/> Enable Read Receipts
<a href="#">Advanced</a>	Encryption Queue Timeout: ? 14400 seconds Encryption Algorithm: ? <input checked="" type="radio"/> ARC4 (typical) <input type="radio"/> AES Message Attachment Decryption: <input checked="" type="checkbox"/> Use Decryption Applet <i>Disabling this setting will cause message attachments to be decrypted at the key server. They will take longer to open, but they don't require a Java plug-in.</i>
Message Settings	
<a href="#">Example Message</a>	
End-User Controls:	<input type="checkbox"/> Enable Secure Reply All <input type="checkbox"/> Enable Secure Message Forwarding
Notification Settings	
Encrypted Message HTML Notification:	System Generated <a href="#">Preview Message</a> <i>(see Mail Policies &gt; Text Resources &gt; Encryption Notification Template - HTML)</i>
Encrypted Message Text Notification:	System Generated <a href="#">Preview Message</a> <i>(see Mail Policies &gt; Text Resources &gt; Encryption Notification Template - Text)</i>
Encryption Failure Notification:	Message Subject: [ENCRYPTION FAILURE] Message Body: System Generated <a href="#">Preview Message</a> <i>(see Mail Policies &gt; Text Resources &gt; DSN Bounce and Encryption Failure Notification Template)</i>
<div>Cancel</div> <div>Submit</div>	

To add an encryption profile:

- Step 1** In the Email Encryption Profiles section, click **Add Encryption Profile**.
- Step 2** Enter a name for the Encryption Profile.
- Step 3** In the Key Server Settings section, select from the following key servers:
  - IronPort Encryption appliance (in network)

- Cisco Registered Envelope Service (hosted key service)
- Step 4** If you select the Cisco Registered Envelope Service, enter the URL for the hosted key service. The key service URL is `https://res.cisco.com`.
- Step 5** If you select the IronPort Encryption appliance (local key service), enter the following settings:
- **Internal URL.** This URL is used by the IronPort Email Security appliance to contact the in-network IronPort Encryption appliance.
  - **External URL.** This URL is used when the recipient's message accesses keys and other services on the IronPort Encryption appliance. The recipient uses this URL to make inbound HTTPS requests.
- Step 6** In the Envelope Settings section, select the level of message security:
- **High Security.** The recipient must always enter a password to open encrypted messages.
  - **Medium Security.** The recipient does not need to enter credentials to open the encrypted message if the recipient credentials are cached.
  - **No Password Required.** This is the lowest level of encrypted message security. The recipient does not need to enter a password to open the encrypted message, but the read receipts, Secure Reply, Secure Reply All, and Secure Message Forwarding features will be unavailable to prevent another email user from sending a message on behalf of the original recipient.
- Step 7** To enable users to open your organization's URL by clicking its logo, you can add a link to the logo. Choose from the following options:
- **No link.** A live link is not added to the message envelope.
  - **Custom link URL.** Enter the URL to add a live link to the message envelope.
- Step 8** Optionally, enable read receipts. If you enable this option, the sender receives a receipt when recipients open the secure envelope.
- Step 9** Optionally, enter the length of time (in seconds) that a message can be in the encryption queue before timing out. Once a message times out, the appliance bounces the message and sends a notification to the sender.
- Step 10** Optionally, select an encryption algorithm:
- **ARC4.** ARC4 is the most common choice, providing strong encryption with minimal decryption delays for message recipients.

- **AES.** AES provides stronger encryption but also takes longer to decrypt, introducing delays for recipients. AES is typically used in government and banking applications.

**Step 11** Enable or disable the decryption applet. Enabling this option causes the message attachment to be opened in the browser environment. Disabling this option causes message attachments to be decrypted at the key server. If you disable this option, messages may take longer to open, but are not dependent on the browser environment.

**Step 12** In the Message Settings section, enable or disable **Secure Reply All**.

**Step 13** Enable or disable **Secure Message Forwarding**.

**Step 14** Select an HTML notification template. Choose from HTML notifications you configured in text resources. If you did not configure a template, the system uses the default template.




---

**Note** The key server uses an HTML or text notification based on the recipient's email application. You must configure notifications for both.

---

**Step 15** Select a text notification template. Choose from text notifications you configured in text resources. If you did not configure a template, the system uses the default template.

**Step 16** Enter a subject header for encryption failure notifications. The appliance sends a notification if the encryption process times out.

**Step 17** Select an encryption failure notification template for the message body. Choose from an encryption failure notification template you configured in text resources. If you did not configure a template, the system uses the default template.

**Step 18** Submit and commit your changes.

**Step 19** If you use Cisco Registered Envelope Service, you must take the additional step of provisioning your appliance. Provisioning the appliance registers the encryption profile with the hosted key service. To provision the appliance, click the **Provision** button for the encryption profile you want to register.

## Updating the PXE Engine

The IronPort Email Encryption Settings page displays the current versions of the PXE engine and the Domain Mappings file used by your appliance. In previous versions of AsyncOS, you had to update AsyncOS in order to update the PXE engine. Now, you can use the Security Services > Service Updates page (or the `updateconfig` command in the CLI) to configure the IronPort appliance to automatically update the PXE engine. For more information, see [Service Updates, page 15-473](#).

You can also manually update the engine using the **Update Now** button of the PXE Engine Updates section of IronPort Email Encryption Settings page (or the `encryptionupdate` command in the CLI).

**Figure 12-4** *PXE Engine Updates on the IronPort Email Encryption Settings Page*

PXE Engine Updates		
Type	Last Update	Current Version
PXE Engine	Never updated	6.7.0
Domain Mappings File	Never updated	1.0.0
		<a href="#">Update Now</a>

## Configuring the Encryption Content Filter

After you create an encryption profile, you need to create an outgoing content filter that determines which email messages should be encrypted. The content filter scans outgoing email and determines if the message matches the conditions specified. Once the content filter determines a message matches the condition, the IronPort Email Security appliance encrypts the message and sends the generated key to the key server. It uses settings specified in the encryption profile to determine the key server to use and other encryption settings.

## Using a TLS Connection as an Alternative to Encryption

Based on the destination controls specified for a domain, your IronPort appliance can securely relay a message over a TLS connection instead of encrypting it, if a TLS connection is available. The appliance decides whether to encrypt the

message or send it over a TLS connection based on the TLS setting in the destination controls (Required, Preferred, or None) and the action defined in the encryption content filter.

When creating the content filter, you can specify whether to always encrypt a message or to attempt to send it over a TLS connection first, and if a TLS connection is unavailable, to encrypt the message. [Table 12-2](#) shows you how an Email Security appliance will send a message based on the TLS settings for a domain's destination controls, if the encryption control filter attempts to send the message over a TLS connection first.

**Table 12-2**      **TLS Support on ESA Appliances**

Destination Controls TLS Setting	Action if TLS Connection Available	Action if TLS Connection Unavailable
None	Encrypt envelope and send	Encrypt envelope and send
TLS Preferred	Send over TLS	Encrypt envelope and send
TLS Required	Send over TLS	Retry/bounce message

For more information on enabling TLS on destination controls, see the “Customizing Listeners” chapter in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

## Creating a Content Filter to Encrypt and Deliver Now

To create a content filter to encrypt a message and deliver it immediately, skipping any further processing:

- 
- Step 1**      Go to Mail Policies > Outgoing Content Filters.
  - Step 2**      In the Filters section, click **Add Filter**.
  - Step 3**      In the Conditions section, click **Add Condition**.
  - Step 4**      Add a condition to filter the messages that you want to encrypt. For example, to encrypt sensitive material, you might add a condition that identifies messages containing particular words or phrases, such as “Confidential,” in the subject or body.

**Step 5** Click **OK**.

For more details about building conditions, see [Content Filters Overview, page 6-197](#).

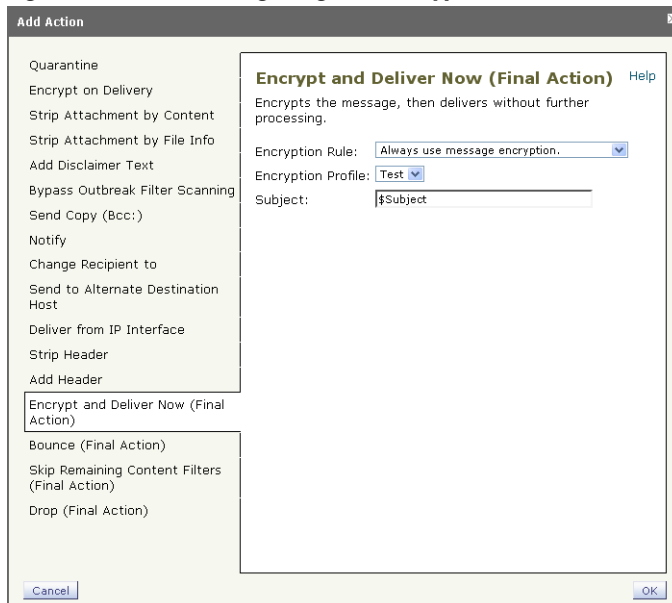
**Step 6** Optionally, click **Add Action** and select **Add Header** to insert an encryption header into the messages to specify an additional encryption setting.

For more information about encryption headers, see [Inserting Encryption Headers into Messages, page 12-403](#).

**Step 7** In the Actions section, click **Add Action**.

**Step 8** Select **Encrypt and Deliver Now (Final Action)**.

**Figure 12-5** *Configuring the Encrypt and Deliver Now Action*



**Step 9** Select whether to always encrypt messages that meet the condition or to only encrypt messages if the attempt to send it over a TLS connection fails.

**Step 10** Select the encryption profile to associate with the content filter.

The encryption profile specifies settings about the key server to use, levels of security, formatting of the message envelope, and other message settings. When you associate an encryption profile with the content filter, the content filter uses these stored settings to encrypt messages.



**Step 11** Enter a subject for the message.

**Step 12** Click **OK**.

The content filter in [Figure 12-6](#) shows a content filter that searches for ABA content in the message body. The action defined for the content filter specifies that the email is encrypted and delivered.

**Figure 12-6 Encryption Content Filter**

The screenshot shows the 'Content Filter Settings' and 'Conditions'/'Actions' configuration interface. The 'Content Filter Settings' section includes fields for Name, Currently Used by Policies, Description, and Order. The 'Conditions' section shows a table with one condition: 'Message Body' with the rule 'only-body-contains("aba", 1)'. The 'Actions' section shows a table with one action: 'Encrypt and Deliver (Final Action)' with the rule 'encrypt ("encrypt\_sensitive", "\$Subject")'. Buttons for 'Add Condition...', 'Add Action...', 'Cancel', and 'Submit' are visible.

Content Filter Settings			
Name:	sensitive_content		
Currently Used by Policies:	No policies currently use this rule.		
Description:	encrypt messages that contain sensitive material		
Order:	2 (of 2)		

Conditions			
Add Condition...			
Order	Condition	Rule	Delete
1	Message Body	only-body-contains("aba", 1)	

Actions			
Add Action...			
Order	Action	Rule	Delete
1	Encrypt and Deliver (Final Action)	encrypt ("encrypt_sensitive", "\$Subject")	

Cancel Submit

**Step 13** After you add the encrypt action, click **Submit**.

**Step 14** Commit your changes.

**Step 15** Once you add the content filter, you need to add the filter to an outgoing mail policy. You may want to enable the content filter on the default policy, or you may choose to apply the filter to a specific mail policy, depending on your organization's needs. For information about working with mail policies, see [Overview of User-Based Policies, page 6-190](#).

## Creating a Content Filter to Encrypt on Delivery

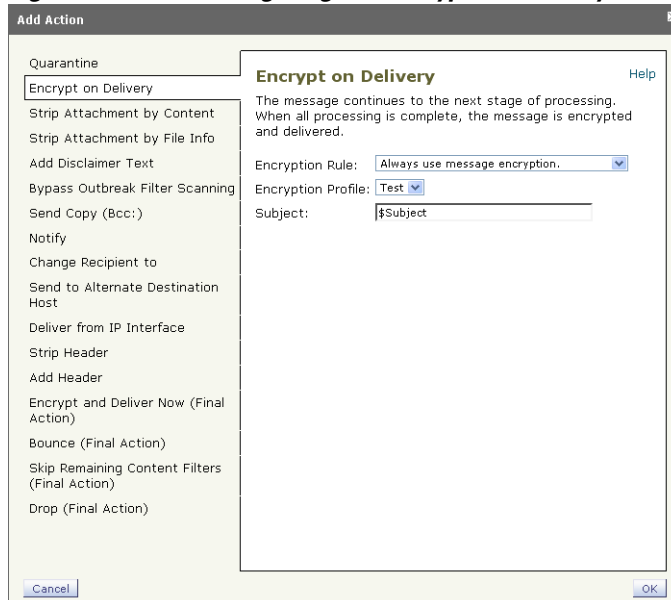
To create a content filter to encrypt a message on delivery, which means that the message continues to the next stage of processing, and when all processing is complete, the message is encrypted and delivered:

**Step 1** Go to Mail Policies > Outgoing Content Filters.

**Step 2** In the Filters section, click **Add Filter**.

- Step 3** In the Conditions section, click **Add Condition**.
- Step 4** Add a condition to filter the messages that you want to encrypt. For example, to encrypt sensitive material, you might add a condition that identifies messages containing particular words or phrases, such as “Confidential,” in the subject or body.
- Step 5** Click **OK**.
- For more details about building conditions, see [Content Filters Overview, page 6-197](#).
- Step 6** Optionally, click **Add Action** and select **Add Header** to insert an encryption header into the messages to specify an additional encryption setting.
- For more information about encryption headers, see [Inserting Encryption Headers into Messages, page 12-403](#).
- Step 7** In the Actions section, click **Add Action**.
- Step 8** Select **Encrypt on Delivery**.

**Figure 12-7** *Configuring the Encrypt on Delivery Action*



- Step 9** Select whether to always encrypt messages that meet the condition or to only encrypt messages if the attempt to send it over a TLS connection fails.

**Step 10** Select the encryption profile to associate with the content filter.

The encryption profile specifies settings about the key server to use, levels of security, formatting of the message envelope, and other message settings.

When you associate an encryption profile with the content filter, the content filter uses these stored settings to encrypt messages.

**Step 11** Enter a subject for the message.

**Step 12** Click **OK**.

**Step 13** After you add the encrypt action, click **Submit**.

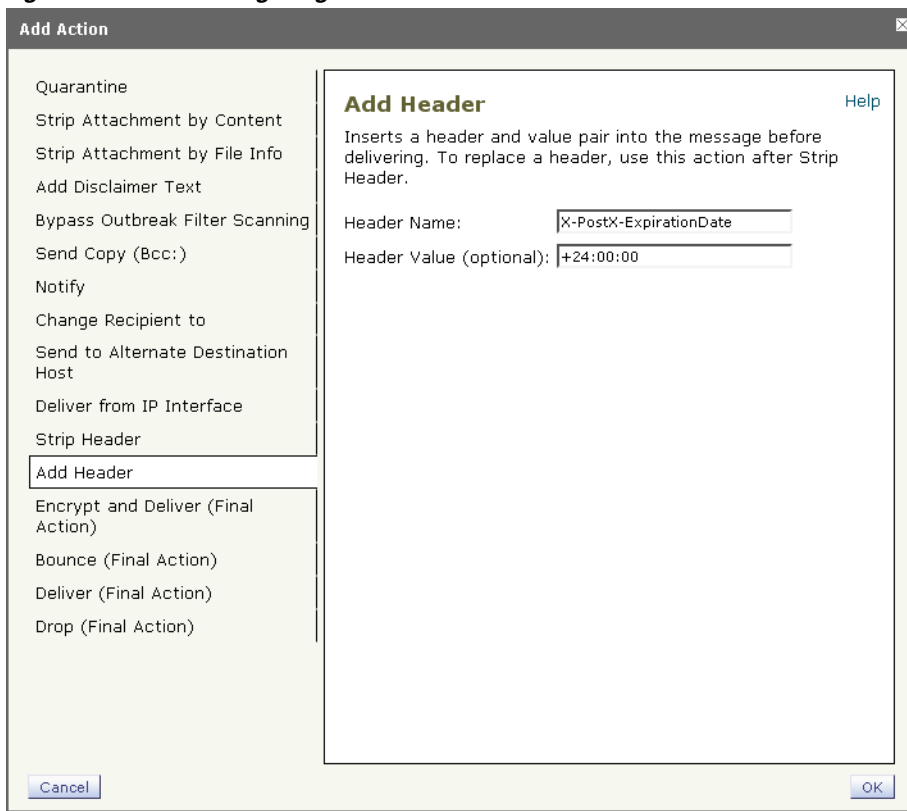
**Step 14** Commit your changes.

**Step 15** Once you add the content filter, you need to add the filter to an outgoing mail policy. You may want to enable the content filter on the default policy, or you may choose to apply the filter to a specific mail policy, depending on your organization's needs. For information about working with mail policies, see [Overview of User-Based Policies, page 6-190](#).

## Inserting Encryption Headers into Messages

AsyncOS enables you to add encryption settings to a message by inserting an SMTP header into a message using either a content filter or a message filter. The encryption header can override the encryption settings defined in the associated encryption profile, and it can apply specified encryption features to messages.

To add an encryption header to a message by using a content filter, add the Add Header filter action to the content filter, and enter the encryption header and its value. For example, if you want a Registered Envelope to expire in 24 hours after you send it, type `X-PostX-ExpirationDate` as the header name and `+24:00:00` as the header value.

**Figure 12-8** Configuring the Add Header Action

For more information about creating an encryption content filter, see [Creating a Content Filter to Encrypt and Deliver Now, page 12-399](#). For information about inserting a header using a message filter, see the “Using Message Filters to Enforce Email Policies” chapter in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

## Encryption Headers

Table 12-3 displays the encryption headers that you can add to messages.

**Table 12-3**      **Email Encryption Headers**

MIME Header	Description	Value
X-PostX-Reply-Enabled	Indicates whether to enable secure reply for the message and displays the Reply button in the message bar. This header adds an encryption setting to the message.	A Boolean for whether to display the Reply button. Set to <code>true</code> to display the button. The default value is <code>false</code> .
X-PostX-Reply-All-Enabled	Indicates whether to enable secure “reply all” for the message and displays the Reply All button in the message bar. This header overrides the default profile setting.	A Boolean for whether to display Reply All button. Set to <code>true</code> to display the button. The default value is <code>false</code> .
X-PostX-Forward-Enabled	Indicates whether to enable secure message forwarding and displays the Forward button in the message bar. This header overrides the default profile setting.	A Boolean for whether to display the Forward button. Set to <code>true</code> to display the button. The default value is <code>false</code> .
X-PostX-Send-Return-Receipt	Indicates whether to enable read receipts. The sender receives a receipt when recipients open the Secure Envelope. This header overrides the default profile setting.	A Boolean for whether to send a read receipt. Set to <code>true</code> to display the button. The default value is <code>false</code> .

**Table 12-3**      **Email Encryption Headers**

MIME Header	Description	Value
X-PostX-ExpirationDate	<p>Defines a Registered Envelope's expiration date before sending it. The key server restricts access to the Registered Envelope after the expiration date. The Registered Envelope displays a message indicating that the message has expired. This header adds an encryption setting to the message.</p> <p>If you use Cisco Registered Envelope Service, you can log in to the website at <a href="http://res.cisco.com">http://res.cisco.com</a> and use the message management features to set, adjust, or eliminate the expiration dates of messages after you send them.</p>	A string value containing relative date or time. Use the <code>+HH:MM:SS</code> format for relative hours, minutes, and seconds, and the <code>+D</code> format for relative days. By default, there is no expiration date.
X-PostX-ReadNotificationDate	<p>Defines the Registered Envelope's "read by" date before sending it. The local key server generates a notification if the Registered Envelope has not been read by this date. Registered Envelopes with this header do not work with Cisco Registered Envelope Service, only a local key server. This header adds an encryption setting to the message.</p>	A string value containing relative date or time. Use the <code>+HH:MM:SS</code> format for relative hours, minutes, and seconds, and the <code>+D</code> format for relative days. By default, there is no expiration date.

**Table 12-3**      **Email Encryption Headers**

MIME Header	Description	Value
X-PostX-Suppress-Applet-For-Open	Indicates whether to disable the decryption applet. The decryption applet causes message attachments to be opened in the browser environment. Disabling the applet causes the message attachment to be decrypted at the key server. If you disable this option, messages may take longer to open, but they are not dependent on the browser environment. This header overrides the default profile setting.	A Boolean for whether to disable the decryption applet. Set to <code>true</code> to disable the applet. The default value is <code>false</code> .

**Table 12-3      Email Encryption Headers**

MIME Header	Description	Value
X-PostX-Use-Script	Indicates whether to send JavaScript-free envelopes. A JavaScript-free envelope is a Registered Envelope that does not include the JavaScript that is used to open envelopes locally on the recipient's computer. The recipient must use either the Open Online method or the Open by Forwarding method to view the message. Use this header if a recipient domain's gateway strips JavaScript and makes the encrypted message unopenable.This header adds an encryption setting to the message.	A Boolean for whether the JavaScript applet should be included or not. Set to <code>false</code> to send a JavaScript-free envelope. The default value is <code>true</code> .
X-PostX-Remember-Envelope-Key-Checkbox	Indicates whether to allow envelope-specific key caching for offline opening of envelopes. With envelope key caching, the decryption key for a particular envelope is cached on the recipient's computer when the recipient enters the correct password and selects the "Remember the password for this envelope" check box. After that, the recipient does not need to enter a password again to reopen the envelope on the computer. This header adds an encryption setting to the message.	A Boolean for whether to enable envelope key caching and display the "Remember the password for this envelope" check box. The default value is <code>false</code> .

## Encryption Headers Examples

This section provides examples of encryption headers.



## Enabling Envelope Key Caching for Offline Opening

To send a Registered Envelope with envelope key caching enabled, insert the following header into the message:

```
X-PostX-Remember-Envelope-Key-Checkbox: true
```

The “Remember the password for this envelope” check box is displayed on the Registered Envelope.

## Enabling JavaScript-Free Envelopes

To send a Registered Envelope that is JavaScript-free, insert the following header into the message:

```
X-PostX-Use-Script: false
```

When the recipient opens the securedoc.html attachment, the Registered Envelope is displayed with an Open Online link, and the Open button is disabled.

## Enabling Message Expiration

To configure a message so that it expires 24 hours after you send it, insert the following header into the message:

```
X-PostX-ExpirationDate: +24:00:00
```

The recipient can open and view the content of the encrypted message during the 24-hour period after you send it. After that, the Registered Envelope displays a message indicating that the envelope has expired.

## Disabling the Decryption Applet

To disable the decryption applet and have the message attachment decrypted at the key server, insert the following header into the message:

```
X-PostX-Suppress-Applet-For-Open: true
```



### Note

The message may take longer to open when you disable the decryption applet, but it is not dependent on the browser environment.





# CHAPTER 13

## SenderBase Network Participation

---

SenderBase is an email reputation service designed to help email administrators research senders, identify legitimate sources of email, and block spammers.

In the System Setup Wizard (GUI) and the `systemsetup` command (CLI) you can agree to participate in the SenderBase Network. IronPort will collect aggregated email traffic statistics about your organization. This includes only summary data on message attributes and information on how different types of messages were handled by IronPort appliances. For example, IronPort does not collect the message body or the message subject. Personally identifiable information or information that identifies your organization will be kept confidential.

This chapter contains the following sections:

- [Enabling Sharing, page 13-411](#)
- [Frequently Asked Questions, page 13-413](#)

## Enabling Sharing

To share statistics from your IronPort appliance with the SenderBase network:

- 
- Step 1** Access the Security Services > SenderBase page.

**Figure 13-1**      **Security Services > SenderBase Page**

SenderBase Network Participation	
<b>Statistics Sharing</b>	
IronPort gathers limited data on email from our customers in order to improve the efficacy of our products and services. This data is anonymized and used in aggregate with data from other sources to identify and stop email-based threats. By sharing data with us, you can be protected more quickly from new threats such as spam, viruses, and directory harvest attacks targeting your organization.	
<b>Sharing Settings</b>	
Share limited data with SenderBase Information Service:	Disabled
<a href="#">Enable...</a>	



**Note** If you have not already agreed to the license agreement during system setup (see [Step 2: System, page 3-57](#)), this page will look different. You must click **Enable** on the Security Services > SenderBase page and then read and agree to the license before you can edit global settings.

**Step 2** Click **Edit Global Settings**.

**Figure 13-2**      **Security Services > SenderBase page: Edit**

SenderBase Network Participation Settings	
Statistical Data Sharing:	<input checked="" type="checkbox"/> Enable sharing statistical data with the SenderBase Information Service (Recommended)
<a href="#">Cancel</a> <a href="#">Submit</a>	

**Step 3** Mark the box to enable sharing statistical data with the SenderBase Information Service. Checking this box enables the feature globally for the appliance. When enabled, the Context Adaptive Scanning Engine (CASE) is used to collect and report the data (regardless of whether or not IronPort anti-spam scanning is enabled).

**Step 4** As an option, you can enable a proxy server for sharing statistical data with the SenderBase Information Service. If you define a proxy server to retrieve rules updates, you can also configure an authenticated username, password, and specific port when connecting to the proxy server in the additional fields provided. To edit these settings, see [System Time, page 15-528](#). You can configure the same settings using the `senderbaseconfig` command in the CLI

# Frequently Asked Questions

IronPort recognizes that privacy is important to you, so we design and operate our services with the protection of your privacy in mind. If you enroll in SenderBase Network Participation, IronPort will collect aggregated statistics about your organization's email traffic; however, we do not collect or use any personally identifiable information. Any information IronPort collects that would identify your users or your organization will be treated as confidential.

## Why should I participate?

Participating in the SenderBase Network helps us help you. Sharing data with us is important to helping stop email-based threats such as spam, viruses and directory harvest attacks from impacting your organization. Examples of when your participation is especially important include:

- Email attacks that are specifically targeted at your organization, in which case the data you contribute provides the primary source of information to protect you.
- Your organization is one of the first to be hit by a new global email attack, in which case the data you share with us will dramatically improve the speed with which we are able to react to a new threat.

## What data do I share?

The data is summarized information on message attributes and information on how different types of messages were handled by IronPort appliances. We do not collect the full body of the message. Again, information provided to IronPort that would identify your users or your organization will be treated as confidential. (See [What does IronPort do to make sure that the data I share is secure?](#), page 13-416 below).

Table 13-1 and Table 13-2 explain a sample log entry in a “human-friendly” format.

**Table 13-1      Statistics Shared Per IronPort Appliance**

Item	Sample Data
<b>MGA Identifier</b>	MGA 10012
<b>Timestamp</b>	Data from 8 AM to 8:05 AM on July 1, 2005
<b>Software Version Numbers</b>	MGA Version 4.7.0
<b>Rule Set Version Numbers</b>	Anti-Spam Rule Set 102
<b>Anti-virus Update Interval</b>	Updates every 10 minutes
<b>Quarantine Size</b>	500 MB
<b>Quarantine Message Count</b>	50 messages currently in quarantine
<b>Virus Score Threshold</b>	Send messages to quarantine at threat level 3 or higher
<b>Sum of Virus Scores for messages entering quarantine</b>	120
<b>Count of messages entering quarantine</b>	30 (yields average score of 4)
<b>Maximum quarantine time</b>	12 hours
<b>Count of Outbreak quarantine messages broken down by why they entered and exited quarantine, correlated with Anti-Virus result</b>	50 entering quarantine due to .exe rule 30 leaving quarantine due to manual release, and all 30 were virus positive
<b>Count of Outbreak quarantine messages broken down by what action was taken upon leaving quarantine</b>	10 messages had attachments stripped after leaving quarantine
<b>Sum of time messages were held in quarantine</b>	20 hours

**Table 13-2 Statistics Shared Per IP Address**

Item	Sample Data
<b>Message count at various stages within the appliance</b>	Seen by Anti-Virus engine: 100 Seen by Anti-Spam engine: 80
<b>Sum of Anti-Spam and Anti-Virus scores and verdicts</b>	2,000 (sum of anti-spam scores for all messages seen)
<b>Number of messages hitting different Anti-Spam and Anti-Virus rule combinations</b>	100 messages hit rules A and B 50 messages hit rule A only
<b>Number of Connections</b>	20 SMTP Connections
<b>Number of Total and Invalid Recipients</b>	50 total recipients 10 invalid recipients
<b>Hashed Filename(s): (a)</b>	A file <one-way-hash>.pif was found inside an archive attachment called <one-way-hash>.zip.
<b>Obfuscated Filename(s): (b)</b>	A file aaaaaaa0.aaa.pif was found inside a file aaaaaaa.zip.
<b>URL Hostname (c)</b>	There was a link found inside a message to www.domain.com
<b>Obfuscated URL Path (d)</b>	There was a link found inside a message to hostname www.domain.com, and had path aaa000aa/aa00aaa.
<b>Number of Messages by Spam and Virus Scanning Results</b>	10 Spam Positive 10 Spam Negative 5 Spam Suspect 4 Virus Positive 16 Virus Negative 5 Virus Unscannable
<b>Number of messages by different Anti-Spam and Anti-Virus verdicts</b>	500 spam, 300 ham
<b>Count of Messages in Size Ranges</b>	125 in 30K-35K range

**Table 13-2      Statistics Shared Per IP Address**

Item	Sample Data (Continued)
Count of different extension types	300 “.exe” attachments
Correlation of attachment types, true file type, and container type	100 attachments that have a “.doc” extension but are actually “.exe”  50 attachments are “.exe” extensions within a zip
Correlation of extension and true file type with attachment size	30 attachments were “.exe” within the 50-55K range

- (a) Filenames will be encoded in a 1-way hash (MD5).
- (b) Filenames will be sent in an obfuscated form, with all lowercase ASCII letters ([a-z]) replaced with “a,” all uppercase ASCII letters ([A-Z]) replaced with “A,” any multi-byte UTF-8 characters replaced with “x” (to provide privacy for other character sets), all ASCII digits ([0-9]) replaced with “0,” and all other single byte characters (whitespace, punctuation, etc.) maintained. For example, the file Britney1.txt.pif would appear as Aaaaaaa0.aaa.pif.
- (c) URL hostnames point to a web server providing content, much as an IP address does. No confidential information, such as usernames and passwords, are included.
- (d) URL information following the hostname is obfuscated to ensure that any personal information of the user is not revealed.

## What does IronPort do to make sure that the data I share is secure?

If you agree to participate in the SenderBase Network:

Data sent from your IronPort appliances will be sent to the IronPort SenderBase Network servers using the secure protocol HTTPS.

All customer data will be handled with care at IronPort. This data will be stored in a secure location and access to the data will be limited to employees and contractors at IronPort who require access in order to improve the company's email security products and services or provide customer support.

No information identifying email recipients or the customer's company will be shared outside of IronPort Systems when reports or statistics are generated based on the data.



## Will sharing data impact the performance of my IronPort appliances?

IronPort believes that there will be a minimal performance impact for most customers. We record data that already exists as part of the mail delivery process. Customer data is then aggregated on the appliance and sent to SenderBase servers in batches, typically every 5 minutes. We anticipate that the total size of data transferred via HTTPS will be less than 1% of the bandwidth of a typical company's email traffic.

When enabled, the Context Adaptive Scanning Engine (CASE) is used to collect and report the data (regardless of whether or not IronPort anti-spam scanning is enabled).

**Note**

For C30 and C10/100 appliances, if you choose to participate in the SenderBase Network, a “body scan” is performed on each message. This happens regardless of whether a filter or other action applied to the message would have triggered a body scan. See “Body Scanning Rule” in the “Using Message Filters to Enforce Email Policies” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide* for more information about body scanning.

If you have additional questions, please contact IronPort Customer Support. See [IronPort Customer Support, page 1-17](#).

## Are there other ways I can share data?

For customers that want to share additional data to do even more to help IronPort provide top quality security services, there is also a command that allows this. This higher level of data sharing will also provide attachment filenames in clear, unhashed text, as well as hostnames of URLs in messages. If you are interested in learning more about this feature, please talk to your Systems Engineer or contact IronPort Customer Support.





# CHAPTER 14

## Text Resources

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This chapter discusses creating and managing various text resources, such as content dictionaries, DLP dictionaries, disclaimers, and templates.

### Content Dictionaries

You can use content dictionaries to scan messages against message or content filters in order to take appropriate action in accordance with your corporate policies. You can create, delete, and view dictionaries; add and delete entries from a dictionary; and import and export entire dictionaries. You can also determine case sensitivity and word boundary detection for each dictionary. For example, you could create a list of confidential or profane words, and, using a filter rule to scan messages for words in the list, drop or archive messages containing matching words. And you can add a “weight” terms in a dictionary so that certain terms trigger a filter action more easily.

Dictionaries can contain non-ASCII characters.

### DLP Dictionaries

You can use data loss prevention (DLP) dictionaries in custom DLP policies to scan outgoing messages for sensitive information. Similar to content dictionaries, you can create, delete, and view dictionaries; add and delete entries from a dictionary; and import and export entire dictionaries. Unlike content dictionaries, terms in DLP policies do not have a “weight.” AsyncOS comes with a set of predefined dictionaries from RSA Security Inc., but you can create custom DLP dictionaries.

Dictionary terms are case-sensitive and can contain non-ASCII characters. For more information on data loss prevention, see [Chapter 11, “Data Loss Prevention.”](#)

## Text Resources

Text resources are text objects, such as disclaimers, notification templates, and anti-virus templates. You can create new objects for use in various components of AsyncOS. You can import and export text resources.

## Message Disclaimer Stamping

Message disclaimer stamping allows you to add a disclaimer text resource to messages. For example, you could append a copyright statement, promotional message, or disclaimer to every message sent from within your enterprise.

This chapter contains the following sections:

- [Content Dictionaries, page 14-420](#)
- [Managing Content Dictionaries \(GUI\), page 14-423](#)
- [Using and Testing Content Dictionaries, page 14-428](#)
- [DLP Dictionaries, page 14-430](#)
- [Text Resources, page 14-434](#)
- [Managing Text Resources \(GUI\), page 14-436](#)
- [Using Text Resources, page 14-439](#)

# Content Dictionaries

AsyncOS provides two types of dictionaries: content and DLP dictionaries. For information on managing DLP dictionaries, see [DLP Dictionaries, page 14-430](#).

Content dictionaries are groups of words or entries that work in conjunction with the Body Scanning feature on the appliance and are available to both content and message filters. Use the dictionaries you define to scan messages, message headers, and message attachments for terms included in the dictionary in order to take appropriate action in accordance with your corporate policies. For example,

you could create a list of confidential or profane words, and, using a filter rule to scan messages that contain words in the list, drop, archive, or quarantine the message.

The AsyncOS operating system includes the ability to define a total of 100 content dictionaries using the GUI (Mail Policies > Dictionaries) or the CLI's `dictionaryconfig` command. You can create, delete, and view dictionaries; add and delete entries from a dictionary; and import and export entire dictionaries.

## Dictionary Content

Words in dictionaries are created with one text string per line, and entries can be in plain text or in the form of regular expressions. Dictionaries can also contain non-ASCII characters. Defining dictionaries of regular expressions can provide more flexibility in matching terms, but doing so requires you to understand how to delimit words properly. For a more detailed discussion of Python style regular expressions, consult the Python Regular Expression HOWTO, accessible from

<http://www.python.org/doc/howto/>



### Note

To use the special character # at the beginning of a dictionary entry, you can use a character class [#] to prevent it being treated as a comment.

For each term, you specify a “weight,” so that certain terms can trigger filter conditions more easily. When AsyncOS scans messages for the content dictionary terms, it “scores” the message by multiplying the number of term instances by the weight of term. Two instances of a term with a weight of three would result in a score of six. AsyncOS then compares this score with a threshold value associated with the content or message filter to determine if the message should trigger the filter action.

You can also add smart identifiers to a content dictionary. Smart identifiers are algorithms that search for patterns in data that correspond to common numeric patterns, such as social security numbers and ABA routing numbers. These identifiers can be useful for policy enforcement. For more information about regular expressions, see “Regular Expressions in Rules” in the “Using Message Filters to Enforce Email Policies” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*. For more information about smart identifiers, see “Smart Identifiers” in the “Using Message Filters to Enforce Email Policies” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

**Note**

Dictionaries containing non-ASCII characters may or may not display properly in the CLI on your terminal. The best way to view and change dictionaries that contain non-ASCII characters is to export the dictionary to a text file, edit that text file, and then import the new file back into the appliance. For more information, see [Importing and Exporting Dictionaries as Text Files, page 14-422](#).

## Word Boundaries and Double-byte Character Sets

In some languages (double-byte character sets), the concepts of a word or word boundary, or case do not exist. Complex regular expressions that depend on concepts like what is or is not a character that would compose a word (represented as “\w” in regex syntax) cause problems when the locale is unknown or if the encoding is not known for certain. For that reason, you may want to disable word-boundary enforcement.

## Importing and Exporting Dictionaries as Text Files

The content dictionary feature also includes, by default, the following text files located in the configuration directory of the appliance:

- `config.dtd`
- `profanity.txt`
- `proprietary_content.txt`
- `sexual_content.txt`

These text files are intended to be used in conjunction with the content dictionaries feature to aid you in creating new dictionaries. These content dictionaries are weighted and use smart identifiers to better detect patterns in data and trigger filters when the patterns indicate compliance issues.

See [Appendix A, “Accessing the Appliance”](#) for more information accessing on the configuration directory.

You can also create your own dictionary files and import them onto the appliance. The best way to add non-ASCII characters to dictionaries is to add the terms into the dictionary in a text file off the appliance, move that file onto the appliance, and then import that file as a new dictionary. For more information about importing dictionaries, see [Importing Dictionaries, page 14-426](#). For information about exporting dictionaries, see [Exporting Dictionaries, page 14-427](#).

You can also import and export custom DLP dictionaries. For more information, see [Importing and Exporting DLP Dictionaries](#), page 14-432.



### Warning

**These text files contain terms that some persons may consider obscene, indecent or offensive. If you import terms from these files into your content dictionaries, the terms will be displayed when you later view the content dictionaries you have configured on the appliance.**

## Managing Content Dictionaries (GUI)

Log in to the GUI and click the Mail Policies tab. Click the Dictionaries link in the left menu.

**Figure 14-1**      *The Dictionaries Page*  
**Dictionaries**

Content Dictionaries				
<a href="#">Add Dictionary...</a>		<a href="#">Import Dictionary...</a>		
Name	Terms	Ignore case	Match Whole Words Only	Delete
<a href="#">secret_words</a>	codename SecretProjectName	Yes	Yes	
<a href="#">Export Dictionary...</a>				

## Adding Dictionaries

To create a new dictionary:

- Step 1** Click **Add Dictionary** on the Dictionaries page. The Add Dictionary page is displayed:

**Figure 14-2**      **The Dictionaries Page**  
**Add Dictionary**

Dictionary Properties			
Name:		<input type="text" value="Banking Terms"/>	
Advanced Matching:		<input type="checkbox"/> Match whole words <input type="checkbox"/> Case Sensitive	
Smart Identifiers: ?		Enable Smart Identifiers <input type="checkbox"/> Credit Card Numbers      1 <input type="checkbox"/> Social Security Numbers      1 <input checked="" type="checkbox"/> ABA Routing Numbers      1 <input type="checkbox"/> CUSIPs      1	

Dictionary		Number of terms: 1	
Add Terms: <input type="text" value="Account"/>  <small>Separate multiple entries with line breaks.</small> Weight: ? 1 <input type="button" value="Add"/>	Term	Weight	Delete
	Bank	2	<input type="button" value="Delete"/>

- Step 2** Type a name for the dictionary.
- Step 3** Specify whether to match whole words only by marking the checkbox next to Match Whole Words Only. See [Matching Whole Words Only, page 14-425](#) for more information.
- Step 4** Specify whether to perform case-sensitive searches. See [Matching Case-Sensitive Words, page 14-425](#) for more information.
- Step 5** Optionally, add a smart-identifier to the dictionary. Smart identifiers are algorithms that search for patterns in data that correspond to common numeric patterns, such as social security numbers and ABA routing numbers. For more information about smart identifiers, see the “Using Message Filters to Enforce Email Policies” chapter in *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.
- Step 6** Enter new dictionary entries into the list of terms. For more information about the kinds of entries that are supported, see [Dictionary Content, page 14-421](#).



**Step 7** Specify a weight for the term. You can “weight” a dictionary term so that it is more likely than other terms to trigger a filter action. For more information about how this weight is used to determine filter actions, see “Threshold Scoring for Content Dictionaries” in the “Using Message Filters to Enforce Email Policies” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

**Step 8** Click **Add**.

**Step 9** Submit and commit your changes.

The Dictionaries page now lists the new dictionary, along with the terms included and the setting configured for the dictionary.



**Note**

---

Content dictionary entries with the regular expression: “. \*” at the beginning or end will cause the system to lock if a match for the “word” MIME part is found. IronPort Systems recommends you do not use “. \*” at the beginning or end of a content dictionary entry.

---

## Matching Case-Sensitive Words

Checking this box will cause AsyncOS to consider the case of the word when matching. For example, the words “codename” would match a dictionary entry of “codename”, but the word “CodeName” would not match.

## Matching Whole Words Only

Checking this box will cause words to match only if they match the whole entry. For example, the word “codename” would match a dictionary entry of “codename,” while “code” and “codenam” would not.

## Sorting Terms

You can click the column heading to sort by term or weight. If you click the column heading a second time, it reverses the sort order.

## Editing Dictionaries

To edit an existing dictionary:

- 
- Step 1** Click the name of the dictionary in the listing on the Dictionaries page. The Edit Dictionary page is displayed.
  - Step 2** Make changes to the entries or the settings for the dictionary, and click **Submit**.
  - Step 3** Commit your changes.

## Deleting Dictionaries

To delete a dictionary:

- 
- Step 1** Click the trash can icon next to the dictionary to delete in the dictionary listing. A confirmation message is displayed.
  - Step 2** The confirmation message lists any filters that are currently referencing the dictionary.
  - Step 3** Click **Delete** to delete the dictionary.
  - Step 4** Commit your changes.
  - Step 5** Any message filters that reference the deleted dictionary are marked as invalid.
  - Step 6** Any content filters that reference the deleted dictionary are left enabled, but will evaluate to false.

## Importing Dictionaries

To import a dictionary via the GUI:

- 
- Step 1** Click **Import Dictionary** on the Dictionaries page. The Import Dictionary dialog is displayed:

**Figure 14-3**      **The Import Dictionary Page**  
**Import Dictionary**

**Step 2** Select the location to import from.

**Step 3** Select a file to import.



**Note** The file to import must be in the configuration directory on the appliance.

**Step 4** Select the default weight to use for dictionary terms. AsyncOS will assign a default weight to any terms with unspecified weights. You can edit the weights after importing the file.

**Step 5** Select an encoding.

**Step 6** Click **Next**.

**Step 7** The imported dictionary is displayed in the Add Dictionary page.

**Step 8** You can now name and edit the dictionary before adding it.

**Step 9** Submit and commit your changes.

## Exporting Dictionaries

To export a dictionary via the GUI:

**Step 1** Click **Export Dictionary** on the Dictionaries page. The Export Dictionary dialog is displayed:

**Figure 14-4**      **The Export Dictionary Page**  
**Export Dictionary**

- Step 2**      Select a dictionary to export.
- Step 3**      Enter a file name for the dictionary. This is the name of the file that will be created in the configuration directory on the appliance.
- Step 4**      Select the location to export to.
- Step 5**      Select an encoding for the text file.
- Step 6**      Submit and commit your changes.

## Using and Testing Content Dictionaries

Dictionaries can be used along with the various `dictionary-match()` message filter rules and with content filters.

### Dictionary Match Filter Rule

The message filter rule named `dictionary-match(<dictionary_name>)` (and its counterparts) evaluates to true if the message body contains any of the regular expressions in the content dictionary named *dictionary\_name*. If that dictionary does not exist, the rule evaluates to false.

Note that the `dictionary-match()` rule functions similarly to the `body-contains()` body scanning rule: it only scans the body and attachments of messages, and not the headers.

For scanning headers, you can use the appropriate `*-dictionary-match()`-type rule (there are rules for specific headers, such as `subject-dictionary-match()` and a more generic rule, `header-dictionary-match()`, in which you can specify any header including custom headers). See “Dictionary Rules” in the “Using

Message Filters to Enforce Email Policies” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide* for more information about dictionary matching.

**Table 14-1**      **Message Filter Rules for Content Dictionaries**

Rule	Syntax	Description
<b>Dictionary Match</b>	<code>dictionary-match(&lt;dictionary_name&gt;)</code>	Does the message contain a word that matches all the regular expressions listed in the named dictionary?

In the following example, a new message filter using the `dictionary-match()` rule is created to blind carbon copy the administrator when the IronPort appliance scans a message that contains any words within the dictionary named “secret\_words” (created in the previous example). Note that because of the settings, only messages that contain the whole word “codename” matching the case exactly will evaluate to true for this filter.

```
bcc_codenames:

    if (dictionary-match ('secret_words'))

    {

        bcc('administrator@example.com');

    }
```

In this example, we send the message to the Policy quarantine:

```
quarantine_codenames:

    if (dictionary-match ('secret_words'))

    {

        quarantine('Policy');

    }
```

## Example Dictionary Entries

**Table 14-2**      *Example Dictionary Entries*

Description	Example
Wildcard	*
Anchors	Ends with: foo\$ Begins with: ^foo
Email address (Do not escape the period)	<b>foo@example.com, @example.com</b> <b>example.com\$</b> (ends with) <b>@example.*</b>
Subject	<b>An email subject</b> (keep in mind when using the ^ anchor in email subjects that subjects are often prepended with “RE:” or “FW:” and the like)

## Testing Content Dictionaries

The `trace` function can provide quick feedback on message filters that use the `dictionary-match()` rule. See [Debugging Mail Flow Using Test Messages: Trace, page -446](#) for more information. You can also use the `quarantine()` action to test filters, as in the `quarantine_codenames` filter example above.

## DLP Dictionaries

DLP dictionaries are groups of words or phrases that work in conjunction with the RSA DLP scanning feature on the appliance and are available to custom DLP policies. Use the DLP dictionaries to scan messages and message attachments for the words and phrases included in the dictionary in order to take appropriate action in accordance with your corporate policies. AsyncOS comes with a set of predefined dictionaries from RSA Security Inc., but you can create custom DLP dictionaries.

You can also create your own dictionary as a text file on your local machine and import it onto the appliance. Use line breaks for each term in the dictionary text file. Dictionary terms are case-sensitive and can contain non-ASCII characters.

You manage DLP dictionaries using the DLP Policy Manager. To open the DLP Policy Manager, select the Mail Policies > DLP Policy Manager menu in the GUI. For more information on the DLP Policy Manager, see [Chapter 11, “Data Loss Prevention.”](#)

## Adding Custom Dictionaries

To create a new dictionary:

**Step 1** Click the **Custom DLP Dictionaries** link in the DLP Policy Manager.

The DLP Dictionaries page appears.

**Step 2** Click Add Dictionary.

The Add Dictionary Page appears.

**Figure 14-5 Add DLP Dictionaries**  
DLP Policy Manager: Add DLP Dictionaries

The screenshot shows the 'Add DLP Dictionaries' interface. At the top, there's a header 'DLP Dictionaries' and a status indicator 'Number of terms: 0'. Below this is a 'Name:' field. The main area is divided into two sections. On the left, under 'Add Terms:', there is a large text input area with a placeholder 'Separate multiple entries with line breaks.' and an 'Add' button. On the right, there is a table with two columns: 'Term' and 'Delete'. The table is currently empty, showing 'No terms entered.' at the bottom. At the bottom of the page, there are 'Cancel' and 'Submit' buttons.

**Step 3** Enter a name for the custom dictionary.

**Step 4** Enter new dictionary entries into the list of terms. You can use line breaks to enter multiple entries at once.

**Step 5** Click **Add**.

**Step 6** Submit and commit the new dictionary.

The Dictionaries page now lists the new dictionary, along with the terms included and the setting configured for the dictionary.

## Editing Custom DLP Dictionaries

To edit a custom dictionary:

- 
- Step 1** Click on the name of the dictionary in the listing on the DLP Dictionaries page.
  - Step 2** Make changes to the entries.
  - Step 3** Submit and commit your changes.

## Deleting Custom DLP Dictionaries

To delete a custom dictionary:

- 
- Step 1** Click the trash can icon next to the dictionary to delete in the dictionary listing. A confirmation message is displayed listing any filters that are currently referencing the dictionary.
  - Step 2** Click **Delete** to delete the dictionary.
  - Step 3** Commit your changes.

## Importing and Exporting DLP Dictionaries

You can create your own DLP dictionary as a text file on your local machine and import it into AsyncOS, as well as export existing custom dictionaries as text files. Predefined DLP dictionaries cannot be exported.

The DLP dictionary file includes a list of the words and phrases used as dictionary terms with line breaks separating each term. If you export an existing content dictionary to use as a DLP dictionary, you need to strip the weight values from the text file and convert any regular expressions to words or phrases before importing the file as a DLP dictionary.



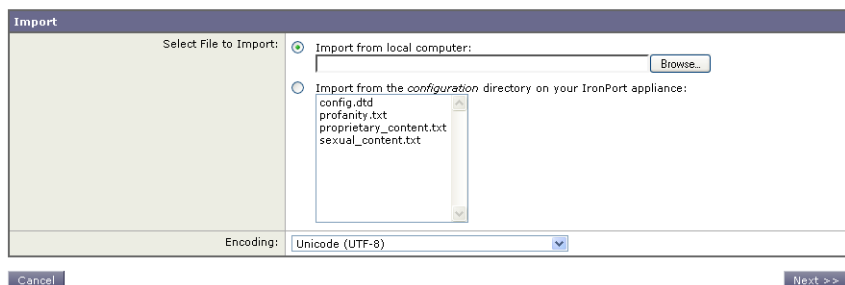
## Importing DLP Dictionaries as a Text File

To import a dictionary:

- 
- Step 1** Click Import Dictionary on the DLP Dictionaries page.

The Import Dictionary dialog is displayed:

**Figure 14-6** *Importing Dictionaries*  
DLP Policy Manager



- Step 2** Select a file to import from either your local machine or the configuration directory on the appliance.
- Step 3** Select an encoding.
- Step 4** Click **Next**.
- Step 5** The imported dictionary is displayed in the Add Dictionary page.
- Step 6** You can now name and edit the dictionary before adding it.
- Step 7** Submit and commit your changes.

## Exporting DLP Dictionaries as a Text File

To export a dictionary:

- 
- Step 1** Click Export Dictionary on the Dictionaries page.

The Export Dictionary dialog is displayed:

**Figure 14-7**      **Exporting Dictionaries**  
Dictionaries

Export	
Dictionary to Export:	Select Dictionary...
File Name:	
Export Location:	<input checked="" type="radio"/> Export to local computer <input type="radio"/> Export to the configuration directory on your IronPort appliance
Encoding:	Unicode (UTF-8)
<div> <span>Cancel</span> <span>Submit</span> </div>	

- Step 2**      Select a dictionary to export.
- Step 3**      Enter a file name for the dictionary.
- Step 4**      Select whether to export the dictionary to your local machine or to the configuration directory on the appliance.
- Step 5**      Select an encoding for the file.
- Step 6**      Submit and commit your changes.

## Text Resources

Text resources are text templates that can be attached to messages or sent as messages. Text resources can be one of six types:

- Message disclaimers — text that is added to messages (for more information about disclaimer stamping, see [Disclaimer Text, page 14-439](#))
- Notification templates — messages that are sent as notifications, used with the `notify()` and `notify-bcc()` actions (for more information, see [Notification Templates, page 14-447](#))
- Anti-virus notification templates — are messages that are sent as notifications when a virus is found in a message. You can create a template for a container (which appends the original message), or as a notice that is sent without the appended message (for more information, see [Anti-Virus Notification Templates, page 14-448](#))
- Bounce and Encryption Failure Notification templates — are messages that are sent as notifications when a message is bounced or message encryption fails (for more information, see [Bounce and Encryption Failure Notification Templates, page 14-452](#)).

- DLP Notification templates — are messages that are sent when a message contains information that violates of your organization’s data loss prevention policies (for more information, see [DLP Notification Templates, page 14-454](#)).
- Encryption Notification Templates — are messages that are sent when you configure the IronPort appliance to encrypt outgoing email. The notification informs recipients that they have received an encrypted message and provides instructions for reading it (for more information, see [Encryption Notification Templates, page 14-457](#)).

You can use the CLI (`textconfig`) or the GUI to manage text resources, including: adding, deleting, editing, importing, and exporting. For information on managing text resources, see [Managing Text Resources \(GUI\), page 14-436](#).

Text resources can contain non-ASCII characters.



#### Note

---

When using text resources and the CLI, text resources containing non-ASCII characters may or may not display properly in the CLI on your terminal. The best way to view and change text resources that contain non-ASCII characters is to export the text resource to a text file, edit that text file, and then import the new file back into the appliance. For more information, see [Importing and Exporting Text Resources as Text Files, page 14-435](#)

---

## Importing and Exporting Text Resources as Text Files

You will need access to the configuration directory on the appliance. Imported text files must be present in the configuration directory on the appliance. Exported text files are placed in the configuration directory.




See [Appendix A, “Accessing the Appliance”](#) for more information accessing on the configuration directory.

The best way to add non-ASCII characters to text resources is to add the terms into the text resource in a text file off the appliance, move that file onto the appliance, and then import that file as a new text resource. For more information about importing text resources, see [Importing Text Resources, page 14-437](#). For information about exporting text resources, see [Exporting Text Resources, page 14-438](#).

# Managing Text Resources (GUI)

Log in to the GUI and click the Mail Policies tab. Click the Text Resources link in the left menu. The Text Resources page is displayed, including a list of existing text resources.

**Figure 14-8      The Text Resources Page**  
**Text Resources**

Text Resources		
<a href="#">Add Text Resource...</a>		<a href="#">Import Text Resource...</a>
Text Resource Name	Type	Delete
message.footer.1	Footer	
message.too.large	Standard Notification Template	
strip.mp3	Standard Notification Template	
<a href="#">Export Text Resource...</a>		

## Adding Text Resources

To create a new text resource:

- Step 1
- Click **Add Text Resource** on the Text Resource page. The Add Text Resource page is displayed:

**Figure 14-9      The Add Text Resource Page**  
**Add Text Resource**

Text Resource	
Name:	<input type="text"/>
Type:	<div><div>Select Type...</div><div><div>Select Type...</div><div>Anti-Virus Container Template</div><div>Anti-Virus Notification Template</div><div>Bounce and Encryption Failure Notification Template</div><div>DLP Notification Template</div><div>Disclaimer</div><div>Encryption Notification Template (HTML)</div><div>Encryption Notification Template (text)</div><div>Notification Template</div></div></div>
<small>Select a Text Resource type to continue.</small>	
<a href="#">Cancel</a>	<a href="#">Submit</a>

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- Step 2
- Type a name for the text resource.
- Step 3
- Select the type of text resource you want to create.
- Step 4
- Enter the text of the message.
- Step 5
- Click **Submit** to create the new text resource.

- Step 6** Commit your changes.

## Editing Text Resources

To edit an existing text resource:

- 
- Step 1** Click the name of the text resource in the listing on the Text Resources page. The Edit Text Resource page is displayed:
- Step 2** Make changes to the text resource.
- Step 3** Submit and commit your changes.

## Deleting Text Resources

To delete a text resource:

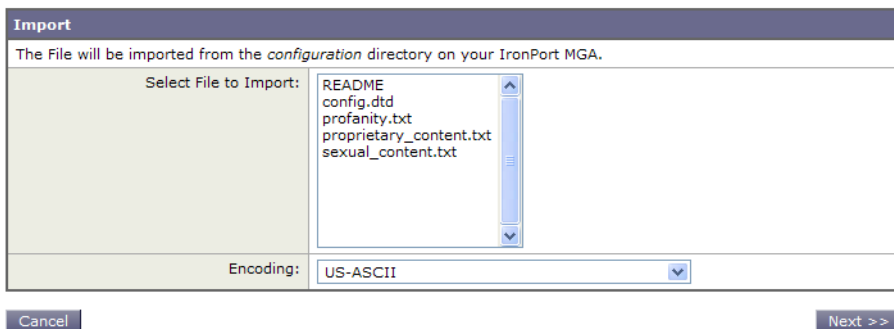
- 
- Step 1** Click the trash can icon next to the text resource to delete in the text resource listing. A confirmation message is displayed.
- Step 2** Click **Delete** to delete the text resource.
- Step 3** Commit your changes.
- Step 4** Any message filters that reference the deleted text resource are marked as invalid.
- Step 5** Any content filters that reference the deleted text resource are left enabled, but will evaluate to false.

## Importing Text Resources

To import a text resource via the GUI:

- 
- Step 1** Click **Import Text Resource** on the Text Resources page. The Import Text Resource page is displayed:

**Figure 14-10 The Import Text Resource Page**  
**Import Text Resource**



**Step 2** Select a file to import.



**Note** The file to import must be in the configuration directory on the appliance.

**Step 3** Specify an encoding.

**Step 4** Click **Next**.

**Step 5** The imported text resource is displayed.

**Step 6** You can now name, edit, and select the type of the text resource before adding it.

**Step 7** Submit and commit your changes.

## Exporting Text Resources

To export a text resource via the GUI:

**Step 1** Click **Export Text Resource** on the Text Resources page. The Export Text Resource dialog is displayed:

**Figure 14-11 The Export Text Resource Page**  
**Export Text Resource**

- Step 2** Select a text resource to export.
- Step 3** Enter a file name for the text resource. This is the name of the file that will be created in the configuration directory on the appliance.
- Step 4** Select an encoding for the text file.
- Step 5** Submit and commit your changes.

## Using Text Resources

All types of text resources are created in the same way, using the Text Resources page or the `textconfig` CLI command. Once created, each type is used in a different way. Disclaimers and notification templates are used with filters and listeners, while anti-virus notification templates are used with mail policies and anti-virus settings.

## Disclaimer Text

The IronPort appliance can append a default text string above or below the text (heading or footer) for some or all messages received by a listener. There are four ways disclaimers can be added to messages on the IronPort appliance:

1. via a listener, using the GUI or the `listenerconfig` command (see [Adding Disclaimer Text via a Listener, page 14-440](#))
2. using the content filter action, `Add Disclaimer Text` (see [Content Filter Actions, page 6-207](#))
3. using the message filter action, `add-footer()` (see the “Using Message Filters to Enforce Email Policies” chapter in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*)
4. using a data loss prevention profile (see [Data Loss Prevention, page 11-353](#))

For example, you could append a copyright statement, promotional message, or disclaimer to every message sent from within your enterprise.

Prior to using disclaimer text you have to create the disclaimer. Use the Text Resources page in the GUI (see [Adding Text Resources, page 14-436](#)) or the `textconfig` command (see the *Cisco IronPort AsyncOS CLI Reference Guide*) to create and manage a set of text strings to be used.

## Adding Disclaimer Text via a Listener

Once you have disclaimer text resources created, select which text strings will be appended to messages received by the listener. You can add disclaimer text above or below a message. This feature is available on both public (inbound) and private (outbound) listeners.

If you send a message that consists of text and HTML (Microsoft Outlook calls this type of message a “multipart alternative”), the IronPort appliance will stamp the disclaimer on both parts of the message. However, if your message has signed content, the content will not be modified because the modification will invalidate the signature. Instead, a new part is created with a disclaimer stamp that says “Content-Disposition inline attachment.” For more information on multipart messages, see “Message Bodies vs. Message Attachments” in the “Using Message Filters to Enforce Email Policies” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

The following example shows how to select a disclaimer to apply to messages on a listener via the GUI:



**Figure 14-12**      **Editing a Listener to Include a Disclaimer**  
**Add Listener**

Listener Settings	
Name:	<input type="text"/>
Type of Listener:	<input checked="" type="radio"/> Public <input type="radio"/> Private
Interface:	Management <input type="button" value="v"/> TCP Port: <input type="text" value="25"/>
Bounce Profile:	Default <input type="button" value="v"/>
Disclaimer Above:	None <input type="button" value="v"/> <i>Disclaimer text will be applied above the message body.</i>
Disclaimer Below:	None <input type="button" value="v"/> <i>Disclaimer text will be applied below the message body.</i>
SMTP Authentication Profile:	None <input type="button" value="v"/>
▶ SMTP Address Parsing Options:	Optional settings for controlling parsing in SMTP "MAIL FROM" and "RCPT TO"
▶ Advanced:	Optional settings for customizing the behavior of the Listener
▶ LDAP Queries:	No LDAP Server Profiles have been created. Profiles can be defined at System Administration > LDAP

## Adding Disclaimers via Filters

You can also append specific, predefined text strings to the disclaimers of messages using the filter action `add-footer()` or the content filter action “Add Disclaimer Text.” For example, the following message filter rule appends the text string named `legal.disclaimer` to all messages sent from users in the LDAP group “Legal:”

```
Add-Disclaimer-For-Legal-Team:

if (mail-from-group == 'Legal')
{

    add-footer('legal.disclaimer');

}
```

## Disclaimers and Filter Action Variables

You can also use message filter action variables (see “Action Variables” in the “Using Message Filters to Enforce Email Policies” chapter in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*) for more information). To use

message filter action variables in disclaimers, create a message disclaimer (via the Text Resource page in the GUI or the **textconfig** command), and reference the variable:

```
(running textconfig command)
```

Enter or paste the message disclaimer here. Enter '.' on a blank line to end.

**This message processed at:** *\$Timestamp*

.

Message disclaimer "legal.disclaimervar" created.

Current Text Resources:

1. legal.disclaimer (Message Disclaimer)
2. legal.disclaimervar (Message Disclaimer)

Choose the operation you want to perform:

- NEW - Create a new text resource.
- IMPORT - Import a text resource from a file.
- EXPORT - Export text resource to a file.
- PRINT - Display the content of a resource.
- EDIT - Modify a resource.
- DELETE - Remove a resource from the system.

```
[]>
```

```
mail3.example.com>commit
```

Now, use the new disclaimer in a filter

```
Add-Timestamp:
```

```
if (mail-from-group == 'Legal')  
  
{  
  
    add-footer('legal.disclaimervar');  
  
}
```

The `add-footer()` action supports non-ASCII text by adding the footer as an inline, UTF-8 coded, quoted printable attachment.

## Disclaimer Stamping and Multiple Encodings

AsyncOS includes a setting used to modify the way disclaimer stamping with different character encodings works. By default, AsyncOS attempts to place the disclaimers it attaches within the body part of an email message. You can use a setting configured within the `localeconfig` command to configure the behavior if the encodings of the body part and the disclaimer are different. To understand this setting, it is helpful to view an email message as consisting of several parts:

To: joe@example.com	Headers
From: mary@example.com	
Subject: Hi!	
<blank line>	Body part
Hello!	

This message has been scanned...	First attachment part
Example.zip	Second attachment part

The message body after the first blank line may contain many MIME parts. The second and following parts are often called “attachments,” while the first is often called the “body” or “text.”

A disclaimer can be included in an email as either an attachment (above) or as part of the body

To: joe@example.com	Headers
From: mary@example.com	
Subject: Hi!	
<blank line>	
Hello!	Body part
This message has been scanned...	Disclaimer now included in body part
Example.zip	First attachment part

Typically, when there is an encoding mismatch between the message body and a disclaimer, AsyncOS attempts to encode the entire message in the same encoding as the message body so that the disclaimer will be included in the body (“inline”) and not included as a separate attachment. In other words, the disclaimer will be included inline if the encoding of the disclaimer matches that of the body, or if the text in the disclaimer contains characters that can be displayed inline (in the body). For example, it is possible to have a ISO-8859-1 encoded disclaimer that only contains US-ASCII characters; consequently, this will display “inline” without problems.

However, if the disclaimer cannot be combined with the body, you can use the `localeconfig` command to configure AsyncOS to attempt to promote, or convert, the body text to match the encoding of the disclaimer so that the disclaimer can be included in the body of the message:

```
example.com> localeconfig
```

Behavior when modifying headers: Use encoding of message body

Behavior for untagged non-ASCII headers: Impose encoding of message body

Behavior for mismatched footer or heading encoding: Only try encoding from

message body

Choose the operation you want to perform:

- SETUP - Configure multi-lingual settings.

```
[>] setup
```

If a header is modified, encode the new header in the same encoding as

the message body? (Some MUAs incorrectly handle headers encoded in a

different encoding than the body. However, encoding a modified header

in the same encoding as the message body may cause certain characters in the modified header to be lost.) [Y]>

If a non-ASCII header is not properly tagged with a character set and

is being used or modified, impose the encoding of the body on the

header during processing and final representation of the message?

(Many MUAs create non-RFC-compliant headers that are then handled in an undefined way. Some MUAs handle headers encoded in character sets that differ from that of the main body in an incorrect way. Imposing the encoding of the body on the header may encode

the header more precisely. This will be used to interpret the content of headers for processing, it will not modify or rewrite the header

unless that is done explicitly as part of the processing.) [Y]>

Footers or headings are added in-line with the message body whenever possible. However, if the footer or heading is encoded differently than the message body, and if imposing a single encoding will cause loss of characters, it will be added as an attachment. The system will always try to use the message body's encoding for the footer or heading. If that fails, and if the message body's encoding is US-ASCII, the system can try to edit the message body to use the footer's or heading's encoding. Should the system try to impose the footer's or headings's encoding on the message body? [N]> **y**

Behavior when modifying headers: Use encoding of message body

Behavior for untagged non-ASCII headers: Impose encoding of message body. Behavior for mismatched footer or heading encoding: Try both body and footer or heading encodings

Choose the operation you want to perform:

- SETUP - Configure multi-lingual settings.

For more information about the `localeconfig` command, see the “Customizing Listeners” chapter in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

## Notification Templates

Notification templates are used with the `notify()` and `notify-copy()` filter actions. Notification templates may contain action variables (see “Action Variables” in the “Using Message Filters to Enforce Email Policies” chapter in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*) and non-ascii text. For example, you could use the `$Allheaders` action variable to include the headers from the original message. You can configure the From: address for notifications, see [Configuring the Return Address for Various Generated Messages](#), page 15-481.

Once you have created a notification template, you can refer to it in content and message filters. [Figure 14-13](#) shows a content filter where the `notify-copy()` filter action is set to send the “grape\_text” notification to “grapewatchers@example.com:”

**Figure 14-13**      *Notify Example in a Content Filter*  
**Edit Content Filter**

Edit Filter	
Name:	grapecheck
Currently used by policies:	DEFAULT
Description:	Looking for grapes.
Order:	1
Apply filter:	<input checked="" type="radio"/> If one or more conditions match <input type="radio"/> Only if ALL conditions match
Conditions	
Select New Condition...	Add Condition
Condition	Delete
body-contains("grape")	
Actions	
Select New Action...	Add Action
Action	Delete
notify-copy ("grapewatchers@example.com", "Found one!", "", "grape_text")	

Cancel Submit

## Anti-Virus Notification Templates

There are two types of anti-virus notification templates:

- **anti-virus notification template.** The anti-virus notification template is used when the original message is not attached to the virus notification.
- **anti-virus container template.** The container template is used when the original message is sent as an attachment.


Anti-virus notification templates are used in basically the same way as notification templates except that they are used with the anti-virus engine instead of filters. You can specify a custom notification to send while editing a mail policy. You can configure the From: address for anti-virus notifications. For information, see [Configuring the Return Address for Various Generated Messages](#), page 15-481.



## Custom Anti-Virus Notification Templates

Figure 14-14 shows a mail policy where a custom anti-virus notification is specified.

**Figure 14-14** *Anti-Virus Container Template Notification Example in a Mail Policy*

Virus Infected Messages:	
Action Applied to Message:	Deliver as Attachment (RFC822) to New Message ▾
Archive Original Message:	<input type="radio"/> No <input checked="" type="radio"/> Yes
Modify Message Subject:	<input type="radio"/> No <input checked="" type="radio"/> Prepend <input type="radio"/> Append
	[WARNING : VIRUS DETECTED]
▼ Advanced	
Add Custom Header to Message:	<input checked="" type="radio"/> No <input type="radio"/> Yes
	Header: <input type="text"/>
	Value: <input type="text"/>
Container Notification:	anti_virus_container ▾ <a href="#">Preview Message Body</a>  <small>(see Mail Policies &gt; Text Resources &gt; Anti-Virus Container Template)</small>

## Anti-Virus Notification Variables

When creating an anti-virus notification, you can use any of the notification variables listed in Table 14-3:

**Table 14-3** *Anti-Virus Notification Variables*

Variable	Substituted With
\$To	Replaced by the message To: header (not the Envelope Recipient).
\$From	Replaced by the message From: header (not the Envelope Sender).
\$Subject	Replaced by the subject of the original message.
\$AV_VIRUSES	Replaced by the list of all the viruses found anywhere in the message:  “Unix/Apache.Trojan”, “W32/Bagel-F”

**Table 14-3      Anti-Virus Notification Variables (Continued)**

<b>Variable</b>	<b>Substituted With</b>
<b>\$AV_VIRUS_TABLE</b>	Replaced by the table of MIME-Part/Attachment names and viruses in each part: “HELLO.SCR” : “W32/Bagel-F” <unnamed part of the message> : “Unix/Apache.Trojan”
<b>\$AV_VERDICT</b>	Replaced by the anti-virus verdict.
<b>\$AV_DROPPED_TABLE</b>	Replaced by the table of attachments that were dropped. Each row is composed of a part or filename followed by the list of viruses associated with that part: “HELLO.SCR” : “W32/Bagel-f”, “W32/Bagel-d” “Love.SCR” : “Netsky-c”, “W32/Bagel-d”
<b>\$AV_REPAIRED_VIRUSES</b>	Replaced by the list of all the viruses found and repaired.
<b>\$AV_REPAIRED_TABLE</b>	Replaced by the table of all parts and viruses found and repaired: “HELLO.SCR” : “W32/Bagel-F”
<b>\$AV_DROPPED_PARTS</b>	Replaced by the list of filenames that were dropped: “HELLO.SCR”, “CheckThisOut.exe”
<b>\$AV_REPAIRED_PARTS</b>	Replaced by the list of filenames or parts that were repaired.
<b>\$AV_ENCRYPTED_PARTS</b>	Replaced by the list of filenames or parts that were encrypted.
<b>\$AV_UNSCANNABLE_PARTS</b>	Replaced by the list of filenames or parts that were unscannable.
<b>\$Date</b>	Replaced by the current date, using the format MM/DD/YYYY.
<b>\$Time</b>	Replaced by the current time, in the local time zone.

**Table 14-3      Anti-Virus Notification Variables (Continued)**

<b>Variable</b>	<b>Substituted With</b>
<b>\$GMTimestamp</b>	Replaced by the current time and date, as would be found in the Received: line of an email message, using GMT.
<b>\$MID</b>	Replaced by the Message ID, or “MID” used internally to identify the message. Not to be confused with the RFC822 “Message-Id” value (use \$Header to retrieve that).
<b>\$Group</b>	Replaced by the name of the sender group the sender matched on when injecting the message. If the sender group had no name, the string “>Unknown<” is inserted.
<b>\$Policy</b>	Replaced by the name of the HAT policy applied to the sender when injecting the message. If no predefined policy name was used, the string “>Unknown<” is inserted.
<b>\$Reputation</b>	Replaced by the SenderBase Reputation score of the sender. If there is no reputation score, it is replaced with “None”.
<b>\$filenames</b>	Replaced with a comma-separated list of the message’s attachments’ filenames.
<b>\$filetypes</b>	Replaced with a comma-separated list of the message’s attachments’ file types.
<b>\$filesizes</b>	Replaced with a comma-separated list of the message’s attachment’s file sizes.
<b>\$remotehost</b>	Replaced by the hostname of the system that sent the message to the IronPort appliance.
<b>\$AllHeaders</b>	Replaced by the message headers.
<b>\$EnvelopeFrom</b>	Replaced by the Envelope Sender (Envelope From, <MAIL FROM>) of the message.
<b>\$Hostname</b>	Replaced by the hostname of the IronPort appliance.

**Note**

Variable names are not case-sensitive. For example, specifying “\$to” is equivalent to specifying “\$To” in the text resource. If an “AV\_” variable is empty in the original message, the string <None> is substituted.

After the text resource has been defined, use the Mail Policies > Incoming/Outgoing Mail Policies > Edit Anti-Virus Settings page or the `policyconfig -> edit -> antivirus` command to specify that the original message is to be included as an RFC 822 attachment for Repaired, Unscannable, Encrypted, or Virus Positive messages. See [Send custom alert notification \(to recipient only\)](#), page 9-318 for more information.

## Bounce and Encryption Failure Notification Templates

Bounce and encryption failure notification templates are used in basically the same way as notification templates except that they are used with bounce notifications and message encryption failure notifications. You can specify a custom bounce notification to send while editing a bounce profile and a custom message encryption failure notification while editing an encryption profile.

[Figure 14-15](#) shows a bounce notification template specified in a bounce profile.

**Figure 14-15 Bounce Notification Example in a Bounce Profile**

Send Delay Warning Messages:

☐ Use Default (No) ☒ Yes ☐ No

Message Composition

Message Subject:

Notification Template:

Minimum Interval Between Messages:  seconds

Maximum Number of Messages to Send:

**Note**

You must use RFC-1891 DSNs to use custom templates.

[Figure 14-16](#) shows an encryption failure template specified in an encryption profile.

**Figure 14-16 Encryption Failure Notification Example in an Encryption Profile**

Notification Settings	
<i>Use system generated notifications by default or create custom notification templates can be configured in Mail Policies &gt; Text Resources</i>	
HTML Notification:	System Generated <a href="#">Preview Message</a>
Text Notification:	System Generated <a href="#">Preview Message</a>
Encryption Failure Notification:	Message Subject: <input type="text" value="[ENCRYPTION FAILURE]"/> Message Body: <input type="text" value="MaxSize"/> <a href="#">Preview Message</a>

## Bounce and Encryption Failure Notification Variables

When creating a bounce or encryption failure notification, you can use any of the notification variables listed in [Table 14-4](#):

**Table 14-4 Bounce Notification Variables**


Variable	Substituted With
<b>\$Subject</b>	The subject of the original message.
<b>\$Date</b>	Replaced by the current date, using the format MM/DD/YYYY.
<b>\$Time</b>	Replaced by the current time, in the local time zone.
<b>\$GMTTimeStamp</b>	Replaced by the current time and date, as would be found in the Received: line of an email message, using GMT.
<b>\$MID</b>	Replaced by the Message ID, or “MID” used internally to identify the message. Not to be confused with the RFC822 “Message-Id” value (use \$Header to retrieve that).
<b>\$BouncedRecipient</b>	Bounced recipient address
<b>\$BounceReason</b>	Reason for this notification
<b>\$remotehost</b>	Replaced by the hostname of the system that sent the message to the IronPort appliance.

## DLP Notification Templates

DLP notification templates are used when you configure your appliance to use the RSA Email DLP feature. The notification informs recipients that an outgoing message may contain sensitive data that violates your organization’s data loss prevention policies. You can specify a custom DLP notification while editing a DLP policy in the DLP Policy Manager.

Figure 14-17 shows an example of a DLP notification template being used in a DLP policy.

**Figure 14-17**     *DLP Notification Templates Enabled in a DLP Policy*

DLP Notification	
Recipients:	<input checked="" type="checkbox"/> Sender <input checked="" type="checkbox"/> Other: <input type="text"/> <small>Separate multiple email addresses with commas. (user@example.com)</small>
Return Address (optional):	<input type="text"/>
Subject:	<input type="text" value="DLP Violation"/>
Notification:	<input type="checkbox"/> Include original message as an attachment. <input type="text" value="PII_Violation"/> <a href="#">Preview Message</a>  <small>(See <a href="#">Mail Policies</a> &gt; <a href="#">Text Resources</a>)</small>

### DLP Notification Variables

DLP notification templates can use the following variables.

**Table 14-5**     *DLP Notification Variables*

Variable	Substituted With
<b>\$DLPPolicy</b>	Replaced by the name of the email DLP policy violated.
<b>\$DLPSeverity</b>	Replaced by the severity of violation. Can be “Low,” “Medium,” “High,” or “Critical.”
<b>\$DLPRiskFactor</b>	Replaced by the risk factor of the message’s sensitive material (score 0 - 100).
<b>\$To</b>	Replaced by the message To: header (not the Envelope Recipient).

**Table 14-5 DLP Notification Variables**

<b>Variable</b>	<b>Substituted With</b>
<b>\$From</b>	Replaced by the message From: header (not the Envelope Sender).
<b>\$Subject</b>	Replaced by the subject of the original message.
<b>\$Date</b>	Replaced by the current date, using the format MM/DD/YYYY.
<b>\$Time</b>	Replaced by the current time, in the local time zone.
<b>\$GMTimestamp</b>	Replaced by the current time and date, as would be found in the Received: line of an email message, using GMT.
<b>\$MID</b>	Replaced by the Message ID, or “MID” used internally to identify the message. Not to be confused with the RFC822 “Message-Id” value (use \$Header to retrieve that).
<b>\$Group</b>	Replaced by the name of the sender group the sender matched on when injecting the message. If the sender group had no name, the string “>Unknown<” is inserted.
<b>\$Reputation</b>	Replaced by the SenderBase Reputation score of the sender. If there is no reputation score, it is replaced with “None”.
<b>\$filenames</b>	Replaced with a comma-separated list of the message’s attachments’ filenames.
<b>\$filetypes</b>	Replaced with a comma-separated list of the message’s attachments’ file types.
<b>\$filesizes</b>	Replaced with a comma-separated list of the message’s attachment’s file sizes.
<b>\$remotehost</b>	Replaced by the hostname of the system that sent the message to the IronPort appliance.
<b>\$AllHeaders</b>	Replaced by the message headers.
<b>\$EnvelopeFrom</b>	Replaced by the Envelope Sender (Envelope From, <MAIL FROM>) of the message.

**Table 14-5 DLP Notification Variables**

<b>Variable</b>	<b>Substituted With</b>
<b>\$Hostname</b>	Replaced by the hostname of the IronPort appliance.
<b>\$bodysize</b>	Replaced by the size, in bytes, of the message.
<b>\$header['string']</b>	Replaced by the value of the quoted header, if the original message contains a matching header. Note that double quotes may also be used.
<b>\$remoteip</b>	Replaced by the IP address of the system that sent the message to the IronPort appliance.
<b>\$recvlistener</b>	Replaced by the nickname of the listener that received the message.
<b>\$dropped_filenames</b>	Same as <code>\$filenames</code> , but displays list of dropped files.
<b>\$dropped_filename</b>	Returns only the most recently dropped filename.
<b>\$recvint</b>	Replaced by the nickname of the interface that received the message.
<b>\$timestamp</b>	Replaced by the current time and date, as would be found in the Received: line of an email message, in the local time zone.
<b>\$Time</b>	Replaced by the current time, in the local time zone.
<b>\$orgid</b>	Replaced by the SenderBase Organization ID (an integer value).
<b>\$enveloperecipients</b>	Replaced by all Envelope Recipients (Envelope To, <RCPT TO>) of the message.
<b>\$dropped_filetypes</b>	Same as <code>\$filetypes</code> , but displays list of dropped file types.
<b>\$dropped_filetype</b>	Returns only the file type of the most recently dropped file.



## Encryption Notification Templates

Encryption notification templates are used when you configure IronPort Email Encryption to encrypt outbound email. The notification informs recipients that they have received an encrypted message and provides instructions for reading it. You can specify a custom encryption notification to send with encrypted messages. You specify both an HTML and a text encryption notification when you create an encryption profile. Therefore, if you want to create a custom profile, you should create both text and HTML notifications.

Figure 14-18 shows encryption notifications specified in an encryption profile.

**Figure 14-18**      **Encryption Notification Templates Enabled on Encryption Profile**

Notification Settings	
Select a notification template for each format. The notification informs recipients that they have received an encrypted message and provides instructions for reading it.	
HTML Notification:	<div>encrypt_html</div> <div>Preview Message</div>
Text Notification:	<div>encrypt_txt</div> <div>Preview Message</div>
Notification templates can be configured in Mail Policies > Text Resources	





# CHAPTER 15

## System Administration

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System administration in general is handled primarily via the System Administration menu in the Graphical User Interface (GUI). Some system administration features are accessible only via the Command Line Interface (CLI).

In addition, you may want to access the IronPort appliance's system monitoring features via the IronPort Graphical User Interface (GUI), which is described in [Other Tasks in the GUI, page -441](#).



### Note

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Several of the features or commands described in this section will affect, or be affected by routing precedence. Please see [IP Addresses, Interfaces, and Routing, page B-576](#) for more information.

---

This chapter contains the following topics:

- [Upgrading AsyncOS, page 15-460](#)
- [AsyncOS Reversion, page 15-469](#)
- [Service Updates, page 15-473](#)
- [Configuring the Return Address for Various Generated Messages, page 15-481](#)
- [Alerts, page 15-481](#)
- [Changing Network Settings, page 15-518](#)
- [System Time, page 15-528](#)

# Upgrading AsyncOS

## Before You Upgrade

Upgrading AsyncOS uses the following two step process:

- 
- Step 1** **Configure the upgrade settings.** You can configure settings that affect how the Email Security appliance downloads the upgrade information. For example, you can choose where to download the upgrade images from and more. For more information, see [Configuring Upgrade Settings from the GUI, page 15-467](#).
  - Step 2** **Upgrade AsyncOS.** After you configure the upgrade settings, upgrade the version of AsyncOS on the appliance. For more information see [Upgrading AsyncOS from the GUI, page 15-460](#) and [Upgrading AsyncOS from the CLI, page 15-461](#).

As a best practice, IronPort recommends preparing for an upgrade by taking the following steps:

- 
- Step 1** Save the XML config file off-box.
  - Step 2** If you are using the Safelist/Blocklist feature, export the list off-box.
  - Step 3** Suspend the listeners using the `suspendlistener` command when running the upgrade from the CLI. If you perform the upgrade from the GUI, listener suspension occurs automatically.
  - Step 4** Drain the mail queue and the delivery queue.




---

**Note** Re-enable the listeners post-upgrade.

---

## Upgrading AsyncOS from the GUI

To upgrade AsyncOS after you have configured your update settings:

- 
- Step 1** Click **Available Upgrades** on the System Administration > System Upgrade page. The Available Upgrades page is displayed.

**Figure 15-1**      **The Available Upgrades Page**  
**Available Upgrades**

**Upgrades**

Select an upgrade from the list below. Most system upgrades require a reboot of the system after the upgrade is applied. Changes made to your system's configuration between the time the upgrade download is completed and the system is rebooted will not be saved.

Available Upgrades:

- AsyncOS 7.0.0 build 604 upgrade For Email, 2009-09-29
- AsyncOS 7.0.0 build 603 upgrade For Email, 2009-09-29
- AsyncOS 7.0.0 build 602 upgrade For Email, 2009-09-28
- AsyncOS 7.0.0 build 601 upgrade For Email, 2009-09-25
- AsyncOS 7.0.0 build 566 upgrade For Email, 2009-09-25
- AsyncOS 7.0.0 build 565 upgrade For Email, 2009-09-24

Upgrade Preparation:

☒ Save the current configuration to the *configuration* directory before upgrading.

☐ Mask passwords in the configuration file.

Note: Files with masked passwords cannot be loaded using Load Configuration.

Email file to:

Separate multiple addresses with commas.

Cancel Begin Upgrade >

- Step 2** Select an upgrade from the list of available upgrades.
- Step 3** Choose whether or not to save the current configuration to the configuration directory.
- Step 4** Choose whether or not to mask the passwords in the configuration file.



**Note** You cannot load a configuration file with masked passwords using the Configuration File page in the GUI or the `loadconfig` command in the CLI.

- Step 5** If you want to email a copies of the configuration file, enter the email addresses to which you want to email the file. Use commas to separate multiple email addresses.
- Step 6** Click **Begin Upgrade**. A progress bar appears near the top of the page. You may be asked one or more times to confirm changes or read and agree to new license agreements, etc.
- Step 7** After the upgrade is finished, you are asked to reboot the appliance.
- Step 8** Click **Reboot Now**.

## Upgrading AsyncOS from the CLI

Issue the `upgrade` command to show a list of available upgrades. Select the desired upgrade from the list to install it. You may be asked to confirm messages or read and agree to license agreements, etc. You can choose whether or not to

save the current configuration to the `configuration` directory. If so, you can choose whether or not to mask the passwords in the configuration file. You can also choose to email a copy of the configuration files.

**Note**

You cannot load a configuration file with masked passwords using the `loadconfig` command.

When upgrading, do not pause for long amounts of time at the various prompts. If the TCP session should happen to time out during the download, your upgrade may fail.

## Differences from Traditional Upgrading Method

Please note these differences when upgrading AsyncOS from a local server as opposed to the traditional method:

**Step 1**

The upgrading installs immediately *while downloading*.

A banner displays for 10 seconds at the beginning of the upgrade process. While this banner is displayed, you have the option to type Control-C to exit the upgrade process before downloading starts.

## Configuring AsyncOS Upgrade Settings

You can configure how the Email Security appliance downloads AsyncOS upgrades. IronPort provides two methods (or “sources”) for upgrading: streaming upgrades and remote upgrades.

With streaming upgrades, your IronPort appliances download the AsyncOS upgrades directly from the IronPort update servers. Each IronPort appliance downloads the upgrade separately. For more information, see [Streaming Upgrade Overview, page 15-463](#).

For remote upgrades, your IronPort appliances download the AsyncOS upgrades from a server within your network. You only download the upgrade image from IronPort one time, and then serve it to your IronPort appliances. For more information, see [Remote Upgrade Overview, page 15-465](#).

Use the Security Services > Service Updates page to switch between the two upgrading methods (streaming is the default), as well as configure the interface to use to download the upgrade and proxy server settings. For more information, see [Configuring Upgrade Settings from the GUI, page 15-467](#). Optionally, use the `updateconfig` command in the CLI.

**Figure 15-2**      **The Service Updates Page**  
**Service Updates**

Update Settings for Security Services	
Update Server (images):	Dynamic (IronPort Update Server)
Update Server (list):	Dynamic (IronPort Update Server)
Automatic Updates:	Enabled
Update Interval:	5m
Interface:	Auto Select
HTTP Proxy Server:	Not Enabled
HTTPS Proxy Server:	Not Enabled
<a href="#">Edit Update Settings...</a>	



#### Note

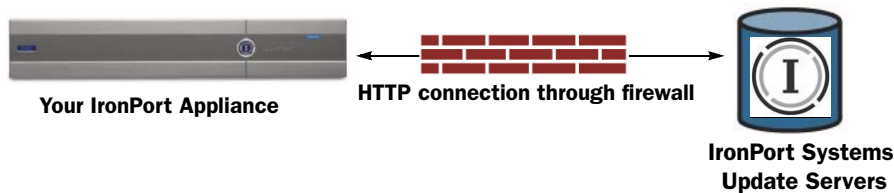
Regardless of which upgrade method you use, you should also consider saving your configuration via the `saveconfig` command after your upgrade is complete. For more information, see “Managing the Configuration File” in the *Cisco IronPort AsyncOS for Email Daily Management Guide*.

## Upgrading Clustered Systems

If you are upgrading clustered machines, please see “Upgrading Machines in a Cluster” in the “Centralized Management” chapter of the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

## Streaming Upgrade Overview

In Streaming upgrades, your IronPort appliance connects directly to the IronPort update servers to find and download upgrades:

**Figure 15-3 Streaming Update Method**

IronPort Systems uses a distributed upgrade server architecture to make sure customers can quickly download AsyncOS upgrades wherever in the world they are located. Because of this distributed server architecture, the IronPort update servers use dynamic IP addresses. If you have strict firewall policies, you may need to configure a static location for AsyncOS upgrades. For more information, see [Configuring a Static Address for Streaming Upgrades, page 15-464](#).

You will need to create a firewall rule to allow downloading of upgrades from IronPort update servers on ports 80 and 443. If you have any existing firewall rules allowing download of legacy upgrades from `updates.ironport.com` on ports such as 22, 25, 80, 4766, they will need to be removed and/or replaced with revised firewall rules. For more information, see [Appendix C, “Firewall Information”](#).

## Configuring a Static Address for Streaming Upgrades

The McAfee Anti-Virus and IronPort AsyncOS update servers use dynamic IP addresses. If you have strict firewall policies, you may need to configure a static location for updates and AsyncOS upgrades. If you determine that your firewall settings require a static IP address for updates, complete the following steps:

- 
- Step 1** Contact IronPort Customer support to obtain the static URL address.
  - Step 2** Create a firewall rule to allow downloading of upgrades from the static IP address on port 80.
  - Step 3** Navigate to the Security Services > Service Updates page, and click Edit **Update Settings**.
  - Step 4** On the Edit Update Settings page, in the “Update Servers (images)” section, choose Local Update Servers and enter the static URL received in step 1 in the Base URL field for AsyncOS upgrades and McAfee Anti-Virus definitions.
  - Step 5** Verify that IronPort Update Servers is selected for the “Update Servers (list)” section.

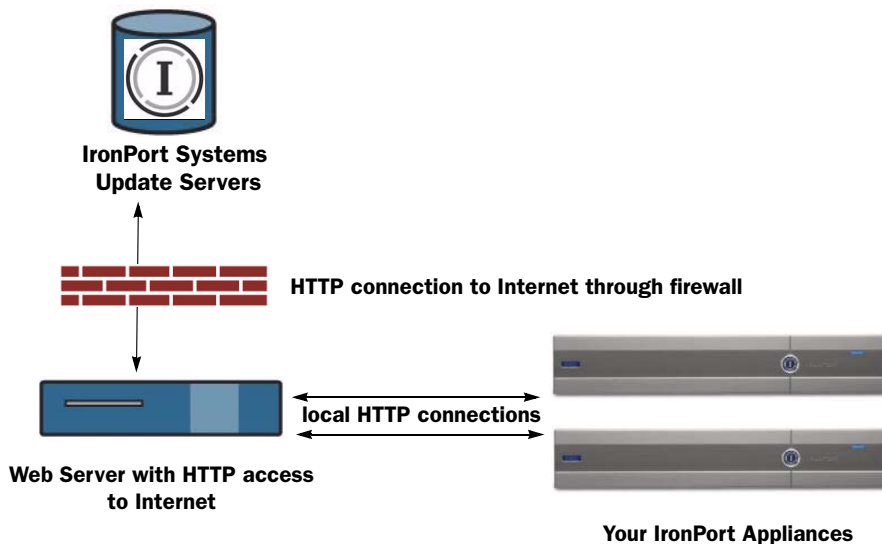


**Step 6** Submit and commit your changes.

## Remote Upgrade Overview

You can also download AsyncOS upgrade images to a local server and host upgrades from within your own network rather than obtaining upgrades directly from IronPort's update servers. Using this feature, an upgrade image is downloaded via HTTP to any server in your network that has access to the Internet. If you choose to download the update image, you can then configure an internal HTTP server (an "update manager") to host the AsyncOS images to your IronPort appliances.

**Figure 15-4 Remote Update Method**



The basic process is to:

- 
- Step 1** Configure a local server to retrieve and serve the upgrade files.
  - Step 2** Download the upgrade files.
  - Step 3** Configure the appliance to use the local server using either the Security Services > Service Updates page in the GUI or the `updateconfig` command in the CLI.

- Step 4** Upgrade the appliance using either the System Administration > System Upgrade page or the `upgrade` command in the CLI.

## Hardware and Software Requirements for Remote Upgrades

For *downloading* AsyncOS upgrade files, you must have a system in your internal network that has:

- Internet access to the IronPort Systems update servers.
- A web browser (see [Browser Requirements, page 2-24](#)).



### Note

For this release, if you need to configure a firewall setting to allow HTTP access to this address, you must configure it using the DNS name and not a specific IP address.

For *hosting* AsyncOS update files, you must have a server in your internal network that has:

- A web server — for example, Microsoft IIS (Internet Information Services) or the Apache open source server — which:
  - supports the display of directory or filenames in excess of 24 characters
  - has directory browsing enabled
  - is configured for anonymous (no authentication) or basic (“simple”) authentication
  - contains at least 350MB of free disk space for each AsyncOS update image

## Hosting a Remote Upgrade Image

After setting up a local server, go to [http://updates.ironport.com/fetch\\_manifest.html](http://updates.ironport.com/fetch_manifest.html) to download a ZIP file of an upgrade image. To download the image, enter your serial number and the version number of the IronPort appliance. You will then be presented with a list of available upgrades. Click on the upgrade version that you want to download, and unzip the ZIP file in the root directory on the local server while keeping the

directory structure intact. To use the upgrade image, configure the appliance to use the local server on the Edit Update Settings page (or use `updateconfig` in the CLI).

The local server also hosts an XML file that limits the available AsyncOS upgrades for the IronPort appliances on your network to the downloaded upgrade image. This file is called the “manifest.” The manifest is located in the `asyncos` directory of the upgrade image ZIP file. After unzipping the ZIP file in the root directory of the local server, enter the full URL for the XML file, including the filename, on the Edit Update Settings page (or use `updateconfig` in the CLI).

For more information about remote upgrades, please see the IronPort Knowledge Base or contact your IronPort Support provider.

**Note**

Only use a local update server for AsyncOS upgrade images, not security update images. When you specify a local update server, the local server does not automatically receive updated security updates from IronPort, so the appliances in your network eventually become out of date. Use a local update server for upgrading AsyncOS, and then change the update and upgrade settings back to use the IronPort update servers so the security services update automatically again.

## Configuring Upgrade Settings from the GUI

Update settings include the source for the AsyncOS upgrade (remote or streaming), the interface to use to download the upgrade, and proxy server settings. In addition to AsyncOS upgrades, you can also edit settings for various IronPort services such as anti-spam, ant-virus, and Virus Outbreak Filter services. For information about updating services, see [Service Updates, page 15-473](#).

To edit the AsyncOS upgrade settings:

- 
- Step 1** Click Edit Update Settings on the Security Services > Service Updates page.

The Edit Update Settings page is displayed.

- Step 2** Choose whether to download the AsyncOS upgrade image from the IronPort update servers or a local server.

If you choose a local server, enter the base URL for the local server hosting the AsyncOS upgrade image. If the server requires authentication, you can also enter a valid user name and password.

**Note**

When you specify a local server for AsyncOS upgrades, the local server does not automatically receive updated McAfee Anti-Virus definitions, so the appliances in your network eventually become out of date. Change the settings back to use the IronPort update servers after the upgrade so the McAfee Anti-Virus definitions update automatically again.

- Step 3** If you choose to download the AsyncOS upgrade image from a local server, select the local server as the source for the list of available updates (the manifest XML file). Enter the full URL for the manifest, including the file name, and the HTTP port number. If the server requires authentication, you can also enter a valid user name and password.
- Step 4** Select the interface to use for the upgrade.
- Step 5** Enter HTTP proxy server or HTTPS proxy server information if desired.
- Step 6** Submit and commit changes.

## Configuring Upgrade Settings from the CLI

To tell your appliances where to retrieve the AsyncOS upgrade (local or from IronPort's servers), run the `updateconfig` command. To install an upgrade, run the `upgrade` command.

**Note**

In previous versions of AsyncOS, the `upgradeconfig` command was used to retrieve upgrades to AsyncOS. This command is not used in AsyncOS 6.5.

## The updateconfig Command

The `updateconfig` command is used to tell your IronPort appliance where to look for service updates, including AsyncOS upgrades. By default, when you type the `upgrade` command, the appliance will contact IronPort's upgrade servers for the latest update. For remote upgrades, issue the `updateconfig` command and configure the appliance to use a local update server (the local server configured above).

**Note**

You can use the `ping` command to ensure that the appliance can contact the local server. You can also use the `telnet` command to telnet to port 80 of the local server to ensure the local server is listening on that port.

## AsyncOS Reversion

AsyncOS includes the ability to revert the AsyncOS operating system to a previous qualified build for emergency uses.

**Note**

After upgrading to AsyncOS 7.0, you cannot revert to a version of AsyncOS earlier than 6.5.

## Available Versions

Because upgrades cause one-way transformation of key subsystems, the reversion process is complex and requires qualification by IronPort Quality Assurance teams. IronPort certifies specific versions of CASE, Sophos, Virus Outbreak Filters, and McAfee to AsyncOS versions. Not all prior versions of the AsyncOS operating system are available for reversion. The earliest AsyncOS version supported for this functionality is AsyncOS 5.5.0; prior versions of AsyncOS are not supported.

## Important Note About Reversion Impact

Using the `revert` command on an IronPort appliance is a very destructive action. This command destroys all configuration logs and databases. Only the network information for the management interface is preserved--all other network configuration is deleted. In addition, reversion disrupts mail handling until the appliance is reconfigured. Because this command destroys network configuration, you may need physical local access to the IronPort appliance when you want to issue the `revert` command.

**Warning**


---

**You must have a configuration file for the version you wish to revert to. Configuration files are *not* backwards-compatible.**

---

## Performing AsyncOS Reversion

To run the `revert` command, complete the following steps:

- Step 1** Ensure that you have the configuration file for the version you wish to revert to. Configuration files are not backwards-compatible. To do this, you can email the file to yourself or FTP the file. A simple way to do this is to run the `mailconfig` CLI command.
- Step 2** Save a backup copy of the current configuration of your appliance (with passwords unmasked) on another machine.

**Note**


---

This is not the configuration file you will load after reverting.

---

- Step 3** If you use the Safelist/Blocklist feature, export the Safelist/Blocklist database to another machine.
- Step 4** Wait for the mail queue to empty.
- Step 5** Log into the CLI of the appliance you want to revert.

When you run the `revert` command, several warning prompts are issued. After these warning prompts are accepted, the revert action takes place immediately. Therefore, do not begin the reversion process until after you have completed the pre-reversion steps.

- Step 6** From the CLI, Issue the `revert` command.

**Note**


---

The reversion process is time-consuming. It may take fifteen to twenty minutes before reversion is complete and console access to the IronPort appliance is available again.

---

The following example shows the `revert` command:

```
mail.mydomain.com> revert
```

This command will revert the appliance to a previous version of AsyncOS.

WARNING: Reverting the appliance is extremely destructive.

The following data will be destroyed in the process:

- all configuration settings (including listeners)
- all log files
- all databases (including messages in Virus Outbreak and Policy quarantines)
- all reporting data (including saved scheduled reports)
- all message tracking data
- all IronPort Spam Quarantine message and end-user safelist/blocklist data

Only the network settings for the Management interface will be preserved.

Before running this command, be sure you have:

- saved the configuration file of this appliance (with passwords unmasked)

- exported the IronPort Spam Quarantine safelist/blocklist database  
to another machine (if applicable)
- waited for the mail queue to empty

Reverting the device causes an immediate reboot to take place.

After rebooting, the appliance reinitializes itself and reboots again to the desired version.

Do you want to continue?

Are you *\*really\** sure you want to continue? yes

Available version	Install date
=====	=====
Available version	Install date
1. 5.5.0-236	Tue Aug 28 11:03:44 PDT 2007
2. 5.5.0-330	Tue Aug 28 13:06:05 PDT 2007
3. 5.5.0-418	Wed Sep 5 11:17:08 PDT 2007

Please select an AsyncOS version: 2

You have selected "5.5.0-330".

The system will now reboot to perform the revert operation.



- Step 7** The appliance will reboot twice.
- Step 8** After the machine reboots twice, use the serial console to configure an interface with an accessible IP address using the `interfaceconfig` command.
- Step 9** Enable FTP or HTTP on one of the configured interfaces.
- Step 10** Either FTP the XML configuration file you created, or paste it into the GUI interface.
- Step 11** Load the XML configuration file of the version you are reverting to.
- Step 12** If you use the Safelist/Blocklist feature, import and restore the Safelist/Blocklist database.
- Step 13** Commit your changes.
- The reverted IronPort appliance should now run using the selected AsyncOS version.

## Service Updates

Many of the settings used to configure how the IronPort appliance updates various services (such as the anti-spam, anti-virus, and Virus Outbreak Filter services) are accessible via the Service Updates page from the Security Services menu or via the `updateconfig` command in the CLI.

You can also upgrade IronPort AsyncOS using the Service Updates page or the `updateconfig` command. For more information, see [Upgrading AsyncOS, page 15-460](#).

## The Service Updates Page

The Service Updates page (available via the Security Services menu in the GUI) displays the current settings for updating various services for your IronPort appliance. The update settings include: Update Server (images), Update Server (list), Update URLs for various components, Enable Automatic Updates, Automatic Update interval, and the HTTP and HTTPS Proxy Servers.

**Note**

The McAfee Anti-Virus and IronPort AsyncOS update servers use dynamic IP addresses. If you have strict firewall policies, you may need to configure a static location for McAfee anti-virus updates and AsyncOS upgrades. If you determine that your firewall settings require a static IP address for updates, follow instructions below for editing the update settings and contact IronPort Customer support to obtain the required URL addresses.

## Editing Update Settings

To edit the update settings for your IronPort appliance, click the **Edit Update Settings** button. You can configure the following types of settings: Update Servers (images), Update Servers (list), Automatic Updates, Interface, and Proxy Servers. See [Table 15-1 on page 15-477](#) for more details on the update settings.

Figure 15-5 shows the settings available for Update Servers.

**Figure 15-5 Update Servers Settings for Images and Lists**

<p><b>Update Servers (images):</b></p>	<p>The update servers will be used to obtain <b>update images</b> for the following services:</p> <ul style="list-style-type: none"> <li>- Sophos Anti-Virus definitions</li> <li>- IronPort Anti-Spam rules</li> <li>- IronPort Intelligent Multi-Scan rules</li> <li>- Virus Outbreak Filters rules</li> <li>- Feature Key updates</li> <li>- McAfee Anti-Virus definitions</li> <li>- PXE Engine updates</li> <li>- IronPort AsyncOS upgrades</li> <li>- IMS Secondary Service rules</li> </ul> <p><input checked="" type="radio"/> IronPort Update Servers</p> <p><input type="radio"/> Local Update Servers (location of update image files)</p> <p>Base Url (Sophos Anti-Virus definitions, IronPort Anti-Spam rules, IronPort Intelligent Multi-Scan rules, Virus Outbreak Filters rules, Feature Key updates): <input type="text" value="http://downloads.ironport.com/"/> Port: <input type="text" value="80"/>  <i>Ex. http://downloads.example.com</i></p> <p>Authentication (optional):</p> <p>Username: <input type="text"/></p> <p>Password: <input type="text"/></p> <p>Retype Password: <input type="text"/></p> <p>Host (McAfee Anti-Virus definitions, PXE Engine updates, IronPort AsyncOS upgrades): <input type="text"/> Port: <input type="text"/> (optional)  <i>Ex. downloads.example.com</i></p> <p>Host (IMS Secondary Service rules): <input type="text"/>  <i>Ex. downloads.example.com</i></p>
<p><b>Update Servers (list):</b></p>	<p>The URL will be used to obtain the <b>list of available updates</b> for the following services:</p> <ul style="list-style-type: none"> <li>- McAfee Anti-Virus definitions</li> <li>- PXE Engine updates</li> <li>- IronPort AsyncOS upgrades</li> </ul> <p><input checked="" type="radio"/> IronPort Update Servers</p> <p><input type="radio"/> Local Update Servers (location of list of available updates file)</p> <p>Full Url <input type="text"/> Port: <input type="text"/>  <i>Ex. http://updates.example.com/my_updates.xml</i></p> <p>Authentication (optional):</p> <p>Username: <input type="text"/></p> <p>Password: <input type="text"/></p> <p>Retype Password: <input type="text"/></p>

Figure 15-6 shows the settings available for Automatic Updates and the Interface.

**Figure 15-6 Automatic Updates and Interfaces Settings**

<p><b>Automatic Updates:</b></p>	<p><input checked="" type="checkbox"/> Enable automatic updates for Sophos Anti-Virus definitions, IronPort Anti-Spam rules, IronPort Intelligent Multi-Scan rules, Virus Outbreak Filters rules</p> <p>Update Interval: <input type="text" value="5m"/></p> <p><input checked="" type="checkbox"/> Enable automatic updates for McAfee Anti-Virus definitions, PXE Engine updates</p> <p>Update Interval: <input type="text" value="5m"/></p>
<p><b>Interface:</b></p>	<p><input type="text" value="Auto Select"/> <input type="button" value="v"/></p> <p><i>Interface section applies only to McAfee Anti-Virus definitions, PXE Engine updates and IronPort AsyncOS upgrades</i></p>

Figure 15-7 shows the settings available for Proxy Servers.

**Figure 15-7** Proxy Servers Settings

Proxy Servers (optional):	<b>HTTP Proxy Server</b>	
	<i>If an HTTP proxy server is defined it will be used to update the following services:</i>	
	<i>- Sophos Anti-Virus definitions</i>	
	<i>- IronPort Anti-Spam rules</i>	
	<i>- IronPort Intelligent Multi-Scan rules</i>	
	<i>- Virus Outbreak Filters rules</i>	
	<i>- Feature Key updates</i>	
	<i>- McAfee Anti-Virus definitions</i>	
	<i>- PXE Engine updates</i>	
	<i>- IronPort AsyncOS upgrades</i>	
	<i>- IMS Secondary Service rules</i>	
	HTTP Proxy Name:	Port: 80
	Username:	
	Password:	
Retype Password:		
<b>HTTPS Proxy Server</b>		
<i>If an HTTPS proxy server is defined it will be used to update the following services:</i>		
<i>- McAfee Anti-Virus definitions</i>		
<i>- PXE Engine updates</i>		
<i>- IronPort AsyncOS upgrades</i>		
<i>- SenderBase Network Participation sharing</i>		
HTTPS Proxy Name:	Port: 443	
Username:		
Password:		
Retype Password:		

**Table 15-1**      **Update Settings**

Setting	Description
<b>Update Servers (images)</b>	<p>Choose whether to download service update and IronPort AsyncOS upgrade images from the IronPort update servers or a local web server.</p> <p>The default is the IronPort update servers. In addition to AsyncOS upgrades, these servers are used to obtain update images for Sophos and McAfee Anti-Virus definitions, IronPort Anti-Spam and IronPort Intelligent Multi-Scan rules, Virus Outbreak Filter rules, feature key updates, and PXE Engine updates.</p> <p>You might want to choose a local web server under either of the following circumstances:</p> <ul style="list-style-type: none"><li>• You want to download the upgrade and update images from IronPort, but you need to enter a static address provided by IronPort Customer Support.</li><li>• You want to temporarily download an upgrade image stored on a local web server. After you download the image, IronPort recommends changing this setting back to the IronPort update servers (or the static address if you used that) so that security components continue to update automatically.</li></ul> <p>When you choose a local update server, enter the base URL and port number for the servers used to download the upgrades and updates. If the server requires authentication, you can also enter a valid user name and password.</p> <p><b>Note</b>      IronPort Intelligent Multi-Scan requires a second local server to download updates for third-party anti-spam rules.</p>

**Table 15-1      Update Settings**

Setting	Description
<b>Update Servers (lists)</b>	<p>Choose whether to download the list of available updates (the manifest XML file) from the IronPort update servers or a local web server. The manifest XML file includes updates for McAfee Anti-Virus and the PXE Engine, as well as AsyncOS upgrades.</p> <p>The default is the IronPort update servers. You might want to choose a local web server when you want to temporarily download an upgrade image stored on a local web server. After you download the image, IronPort recommends changing this setting back to the IronPort update servers so that security components continue to update automatically.</p> <p>When you choose a local update server, enter the full path to the manifest XML file for the list including the file name and port number for the server. If you leave the port field blank, AsyncOS uses port 80. If the server requires authentication, you can also enter a valid user name and password.</p> <p>For more information, see <a href="#">Remote Upgrade Overview, page 15-465</a>.</p>
<b>Automatic Updates</b>	<p>Enable automatic updates and the polling interval (how often the appliance will check for update) for Sophos and McAfee Anti-Virus definitions, IronPort Anti-Spam rules, IronPort Intelligent Multi-Scan rules, PXE Engine updates, and Virus Outbreak Filter rules.</p>
<b>Routing Table</b>	<p>Choose which network interface to use when contacting the update servers for McAfee Anti-Virus definitions, PXE Engine updates and IronPort AsyncOS upgrades. The available proxy data interfaces are shown. By default, the appliance selects an interface to use.</p>

**Table 15-1**      **Update Settings**

Setting	Description
<b>HTTP Proxy Server</b>	An optional proxy server used for all of the following services: IronPort AsyncOS upgrades, PXE Engine updates, Sophos and McAfee Anti-Virus definitions, IronPort Anti-Spam rules, IronPort Intelligent Multi-Scan rules, Virus Outbreak Filter rules, Virus Threat Level, and SenderBase Network Participation sharing. Note that if you specify a proxy server, it will be used for ALL of these services.
<b>HTTPS Proxy Server</b>	An optional proxy server using HTTPS. If you define the HTTPS proxy server, it will be used to update the following services: IronPort AsyncOS upgrades, SenderBase Network Participation sharing, PXE Engine updates, and McAfee Anti-Virus definitions.

## Configuring the Update Server

To set an update server for your IronPort appliance:

- Step 1**      Select either the IronPort update servers or local update servers for obtaining update images for services



**Note**      If you select a local server as an upgrade source, automatic updates for McAfee Anti-Virus definitions cease. To continue updating McAfee Anti-Virus definitions, host the update images or a list of the updates on the local server.

- Step 2**      If you select local update servers for update images, first enter the base URL, port number, and the optional authentication information for the local server hosting all service updates except AsyncOS upgrades and McAfee Anti-Virus definitions. Then enter the base URL for the local server hosting the AsyncOS upgrades and McAfee Anti-Virus definitions.

- Step 3** Select either the IronPort update servers or a local update server for obtaining a list of available for IronPort AsyncOS upgrades and McAfee Anti-Virus definitions.
- Step 4** If you select a local update server for the list of available upgrades, enter the full path to the XML file for the list, including the file name, and the HTTP port number as well as the optional authentication information.

## Configuring Automatic Updates

To enable automatic updates and configure the update interval:

- 
- Step 1** Select the check box to enable automatic updates.
- Step 2** Enter an update interval (time to wait between checks for updates). Add a trailing **m** for minutes, **h** for hours, and **d** for days.

## Specify an HTTP Proxy Server (Optional)

To specify an HTTP proxy server:

- 
- Step 1** Enter a server URL and port number.
- Step 2** Enter a username and password for an account on that server, if necessary.
- Step 3** Submit and commit your changes.

## Specify an HTTPS Proxy Server (Optional)

To specify an HTTPS proxy server:

- 
- Step 1** Enter a server URL and port number.
- Step 2** Enter a username and password for an account on that server, if necessary.
- Step 3** Submit and commit your changes.



# Configuring the Return Address for Various Generated Messages

You can configure the envelope sender for mail generated by AsyncOS for the following circumstances:

- Anti-Virus notifications
- Bounces
- Notifications (`notify()` and `notify-copy()` filter actions)
- Quarantine notifications (and “Send Copy” in quarantine management)
- Reports

You can specify the display, user, and domain names of the return address. You can also choose to use the Virtual Gateway domain for the domain name.

Use the Return Addresses page available on the System Administration menu in the GUI, or use the `addressconfig` command via the CLI.

**Figure 15-8**      *The Return Addresses Page*  
**Return Addresses**

Return Addresses for System-Generated Email	
Anti-Virus Messages:	"Mail Delivery System" <MAILER-DAEMON@hostname>
Bounce Messages:	"Mail Delivery System" <MAILER-DAEMON@hostname>
Notifications:	"Mail Delivery System" <MAILER-DAEMON@hostname>
Quarantine Messages:	"Mail Delivery System" <MAILER-DAEMON@hostname>
Reports:	IronPort Reporting <reporting@hostname>
<a href="#">Edit Settings...</a>	

To modify the return address for system-generated email messages via the GUI, click **Edit Settings** on the Return Addresses page. Make changes to the address or addresses you want to modify, click **Submit**, and, finally, commit your changes.

## Alerts

Alerts are email notifications containing information about events occurring on the IronPort appliance. These events can be of varying levels of importance (or severity) from minor to major and pertain generally to a specific component or

feature on your appliance. Alerts are generated by the IronPort appliance. You can specify, at a much more granular level, which alert messages are sent to which users and for which severity of event they are sent. Manage alerts via the System Administration > Alerts page in the GUI (or via the `alertconfig` command in the CLI).

## Alerting Overview

The alerting feature consists of two main parts:

- **Alerts** - consist of an **Alert Recipient** (email addresses for receiving alerts), and the alert notification (severity and alert type) sent to the recipient.
- **Alert Settings** - specify global behavior for the alerting feature, including alert sender (FROM:) address, seconds to wait between sending duplicate alerts, and whether to enable AutoSupport (and optionally send weekly AutoSupport reports).

## Alerts: Alert Recipients, Alert Classifications, and Severities

Alerts are email messages or notifications containing information about a specific function (or alert classification) or functions such as a hardware or anti-virus problem, sent to an alert recipient. An alert recipient is simply an email address to which the alert notifications are sent. The information contained in the notification is determined by an alert classification and a severity. You can specify which alert classifications, at which severity, are sent to any alert recipient. The alerting engine allows for granular control over which alerts are sent to which alert recipients. For example, you can configure the system to send only specific alerts to an alert recipient, configuring an alert recipient to receive notifications only when Critical (severity) information about the System (alert type) is sent. You can also configure general settings (see [Configuring Alert Settings, page 15-489](#)).

See [Alert Listing, page 15-490](#) for a complete list of alerts.

### Alert Classifications

AsyncOS sends the following alert classifications:

- System

- Hardware
- Updater
- Virus Outbreak Filters
- Anti-Virus
- Anti-Spam
- Directory Harvest Attack Prevention

## Severities

Alerts can be sent for the following severities:

- Critical: Requires immediate attention.
- Warning: Problem or error requiring further monitoring and potentially immediate attention.
- Information: Information generated in the routine functioning of this device.

## Alert Settings

Alert settings control the general behavior and configuration of alerts, including:

- The RFC 2822 Header From: when sending alerts (enter an address or use the default “alert@<hostname>”). You can also set this via the CLI, using the `alertconfig -> from` command.
- The initial number of seconds to wait before sending a duplicate alert.
- The maximum number of seconds to wait before sending a duplicate alert.
- The status of AutoSupport (enabled or disabled).
- The sending of AutoSupport’s weekly status reports to alert recipients set to receive System alerts at the Information level.

## Sending Duplicate Alerts

You can specify the initial number of seconds to wait before AsyncOS will send a duplicate alert. If you set this value to 0, duplicate alert summaries are not sent and instead, all duplicate alerts are sent without any delay (this can lead to a large amount of email over a short amount of time). The number of seconds to wait between sending duplicate alerts (alert interval) is increased after each alert is

sent. The increase is the number of seconds to wait plus twice the last interval. So a 5 second wait would have alerts sent at 5 seconds, 15, seconds, 35 seconds, 75 seconds, 155 seconds, 315 seconds, etc.

Eventually, the interval could become quite large. You can set a cap on the number of seconds to wait between intervals via the maximum number of seconds to wait before sending a duplicate alert field. For example, if you set the initial value to 5 seconds, and the maximum value to 60 seconds, alerts would be sent at 5 seconds, 15 seconds, 35 seconds, 60 seconds, 120 seconds, etc.

## SMTP Routes and Alerts

Alerts sent from the appliance to addresses specified in the Alert Recipient follow SMTP routes defined for those destinations.

## IronPort AutoSupport

To allow IronPort to better support and design future system changes, the IronPort appliance can be configured to send IronPort Systems a copy of all alert messages generated by the system. This feature, called AutoSupport, is a useful way to allow our team to be proactive in supporting your needs. AutoSupport also sends weekly reports noting the uptime of the system, the output of the `status` command, and the AsyncOS version used.

By default, alert recipients set to receive Information severity level alerts for System alert types will receive a copy of every message sent to IronPort. This can be disabled if you do not want to send the weekly alert messages internally. To enable or disable this feature, see [Configuring Alert Settings, page 15-489](#).

## Alert Messages

Alert messages are standard email messages. You can configure the Header From: address, but the rest of the message is generated automatically.

## Alert From Address

You can configure the Header From: address via the **Edit Settings** button or via the CLI (see the *Cisco IronPort AsyncOS CLI Reference Guide*).

## Alert Subject

An alert email message's subject follows this format:

```
Subject: [severity]-[hostname]: ([class]) short message
```

## Alert Delivery

Because alert messages can be used to inform you of problems within your IronPort appliance, they are not sent using AsyncOS's normal mail delivery system. Instead, alert messages pass through a separate and parallel email system designed to operate even in the face of significant system failure in AsyncOS.

The alert mail system does not share the same configuration as AsyncOS, which means that alert messages may behave slightly differently from other mail delivery:

- Alert messages are delivered using standard DNS MX and A record lookups.
  - They do not use `smtproutes` in AsyncOS versions older than 5.X.
  - They do cache the DNS entries for 30 minutes and the cache is refreshed every 30 minutes, so in case of DNS failure the alerts still go out.
- Alert messages do not pass through the work queue, so they are not scanned for viruses or spam. They are also not subjected to message filters or content filters.
- Alert messages do not pass through the delivery queue, so they are not affected by bounce profiles or destination control limits.

## Example Alert Message

Date: 23 Mar 2005 21:10:19 +0000

To: joe@example.com

From: IronPort C60 Alert [alert@example.com]

Subject: Critical-example.com: (Anti-Virus) update via  
http://newproxy.example.com failed

The Critical message is:

update via http://newproxy.example.com failed

Version: 4.5.0-419

Serial Number: XXXXXXXXXXXX-XXXXXXX

Timestamp: Tue May 10 09:39:24 2005

For more information about this error, please see

<http://support.ironport.com>

If you desire further information, please contact your support provider.

## Managing Alert Recipients

Log in to the Graphical User Interface (GUI) and click the System Administration tab. (For information about how to access the GUI, see [Accessing the GUI, page 2-25](#).) Click the Alerts link in the left menu.

**Figure 15-9**      **The Alerts Page**  
**Alerts**

Alert Recipients								
<a href="#">Add Recipient...</a>								
Recipient Address	System	Hardware	Updater	Virus Outbreak Filters	Anti-Virus	Anti-Spam	Directory Harvest Attack Prevention	Delete
joe@example.com	All	All	All	All	All	All	All	
mary@example.com	Critical	Critical	Critical	Critical	Critical	Critical	Critical	

Alert Settings	
From Address to Use When Sending Alerts:	Automatically Generated
Initial Number of Seconds to Wait Before Sending a Duplicate Alert:	300
Maximum Number of Seconds to Wait Before Sending a Duplicate Alert:	3600
IronPort AutoSupport:	Enabled
	Send copy of weekly AutoSupport reports to System Information Alert recipients.
<a href="#">Edit Settings...</a>	



**Note**

If you enabled AutoSupport during System Setup, the email address you specified will receive alerts for all severities and classes by default. You can change this configuration at any time.

The Alerts page lists the existing alert recipients and alert settings.

From the Alerts page, you can:

- Add, configure, or delete alert recipients
- Modify the alert settings

## Adding New Alert Recipients

To add a new alert recipient:

- Step 1** Click **Add Recipient** on the Alerts page. The Add Alert Recipients page is displayed:

**Figure 15-10 Adding a New Alert Recipient**  
Add Alert Recipient

Alert Recipient				
Recipient Address:		<input type="text"/>		
<i>Separate multiple email addresses with commas</i>				
	Alert Severities to Receive			
	All	Critical ?	Warning ?	Info ?
Alert Type	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
System	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hardware	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Updater	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Virus Outbreak Filters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anti-Virus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anti-Spam	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Directory Harvest Attack Prevention	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Step 2** Enter the recipient's email address. You can enter multiple addresses, separated by commas.
- Step 3** Select which alert severities to receive.
- Step 4** Submit and commit your changes.

## Configuring Existing Alert Recipients

To edit an existing alert recipient:

- Step 1** Click the alert recipient in the Alert Recipients listing. The Configure Alert Recipient page is displayed.
- Step 2** Make changes to the alert recipient.
- Step 3** Submit and commit your changes.

## Deleting Alert Recipients

To delete an alert recipient:

- Step 1** Click the trash can icon corresponding to the alert recipient in the Alert Recipient listing.
- Step 2** Confirm the deletion by clicking **Delete** in the warning dialog that appears.
- Step 3** Commit your changes.



# Configuring Alert Settings

Alert settings are global settings, meaning that they affect how all of the alerts behave.

## Editing Alert Settings

To edit alert settings:

- Step 1** Click **Edit Settings** on the Alerts page. The Edit Alert Settings page is displayed:

**Figure 15-11** *Editing Alert Settings*  
**Edit Alert Settings**

Alert Settings	
From Address to Use When Sending Alerts:	<input type="radio"/> <input type="text"/> <input checked="" type="radio"/> Automatically generated (example: IronPort C60 Alert <alert@host.example.com>)
Wait Before Sending a Duplicate Alert:	<input checked="" type="checkbox"/> Enable <div> <input type="text" value="300"/> Initial Number Of Seconds to Wait Before Sending a Duplicate Alert         </div> <div> <input type="text" value="3600"/> Maximum Number Of Seconds to Wait Before Sending a Duplicate Alert:         </div>
IronPort AutoSupport:	<input checked="" type="checkbox"/> Enable <input checked="" type="checkbox"/> Send copy of weekly AutoSupport reports to System Information Alert recipients.

Cancel
Submit

- Step 2** Enter a Header From: address to use when sending alerts, or select Automatically Generated (“alert@<hostname>”).
- Step 3** Mark the checkbox if you want to specify the number of seconds to wait between sending duplicate alerts. For more information, see [Sending Duplicate Alerts](#), page 15-483.
- Specify the initial number of seconds to wait before sending a duplicate alert.
  - Specify the maximum number of seconds to wait before sending a duplicate alert.
- Step 4** You can enable AutoSupport by checking the IronPort AutoSupport option. For more information about AutoSupport, see [IronPort AutoSupport](#), page 15-484.

- If AutoSupport is enabled, the weekly AutoSupport report is sent to alert recipients set to receive System alerts at the Information level. You can disable this via the checkbox.

**Step 5**      Submit and commit your changes.

## Alert Listing

The following tables list alerts by classification, including the alert name (internal descriptor used by IronPort), actual text of the alert, description, severity (critical, information, or warning) and the parameters (if any) included in the text of the message. The value of the parameter is replaced in the actual text of the alert. For example, an alert message below may mention “\$ip” in the message text. “\$ip” is replaced by the actual IP address when the alert is generated.

## Anti-Spam Alerts

[Table 15-2](#) contains a list of the various anti-spam alerts that can be generated by AsyncOS, including a description of the alert and the alert severity.

**Table 15-2**      *Listing of Possible Anti-Spam Alerts*

Alert Name	Message and Description	Parameters
AS.SERVER.ALERT	\$engine anti-spam - \$message \$tb	'engine' - The type of anti-spam engine.
	Critical. Sent when the anti-spam engine fails.	'message' - The log message.  'tb' - Traceback of the event.
AS.UPDATE_ENOSPC	Anti-Spam Update: Out of disk space.	
	Critical. Sent when the anti-spam engine fails due to a lack of disk space.	

**Table 15-2**      *Listing of Possible Anti-Spam Alerts (Continued)*

Alert Name	Message and Description	Parameters
<b>AS.TOOL.INFO_ALERT</b>	Update - \$engine - \$message	'engine' - The anti-spam engine name  'message' - The message
	Information. Sent when there is a problem with the anti-spam engine.	
<b>AS.TOOL.ALERT</b>	Update - \$engine - \$message	'engine' - The anti-spam engine name  'message' - The message
	Critical. Sent when an update is aborted due to a problem with one of the tools used to manage the anti-spam engine.	
<b>AS.UPDATE.ALERT</b>	Update - \$engine - \$message	'engine' - The anti-spam engine name  'message' - The message
	Critical. Sent when an error is encountered while the anti-spam engine is updated.	
<b>AS.UPDATE_FAILURE</b>	\$engine update unsuccessful. This may be due to transient network or DNS issues, HTTP proxy configuration causing update transmission errors or unavailability of downloads.ironport.com. The specific error on the appliance for this failure is: \$error	'engine' - The engine that failed to update.  'error' - The error that happened.
	Warning. Sent when the anti-spam engine or CASE rules fail to update.	

# Anti-Virus Alerts

Table 15-3 contains a list of the various Anti-Virus alerts that can be generated by AsyncOS, including a description of the alert and the alert severity.

**Table 15-3**      *Listing of Possible Anti-Virus Alerts*

Alert Name	Message and Description	Parameters
AV.SERVER.ALERT / AV.SERVER.CRITICAL	\$engine antivirus - \$message \$tb	'engine' - The type of anti-virus engine.
	Critical. Sent when there is a critical problem with the anti-virus scanning engine.	'message' - The log message. 'tb' - Traceback of the event.
AV.SERVER.ALERT.INFO	\$engine antivirus - \$message \$tb	'engine' - The type of anti-virus engine.
	Information. Sent when an informational event occurs with the anti-virus scanning engine.	'message' - The log message. 'tb' - Traceback of the event.
AV.SERVER.ALERT.WARN	\$engine antivirus - \$message \$tb	'engine' - The type of anti-virus engine.
	Warning. Sent when there is a problem with the anti-virus scanning engine.	'message' - The log message. 'tb' - Traceback of the event.
AV.UPDATE.ALERT.INFO	\$message	'message' - The log message.
	Information. Sent when an informational event occurs with the anti-virus update.	
AV.UPDATE.ALERT.WARN	\$message	'message' - The log message.
	Warning. Sent when there is a problem with the anti-virus update.	

**Table 15-3**      *Listing of Possible Anti-Virus Alerts (Continued)*

Alert Name	Message and Description	Parameters
<b>AV.UPDATE.ALERT</b>	\$message	'message' - The log message.
	Critical. Sent when there is a critical problem with the anti-virus update.	
<b>AV.UPDATE_ENOSPC</b>	Anti-Virus Update: Out of disk space.	
	Critical. Sent when the anti-virus engine is unable to update due to lack of disk space.	
<b>MAIL.ANTIVIRUS.ERROR_MESSAGE</b>	MID \$mid antivirus \$what error \$tag	'mid' - MID 'what' - The error that happened. 'tag' - Virus outbreak name if set.
	Critical. Sent when anti-virus scanning produces an error while scanning a message.	
<b>MAIL.SCANNER.PROTOCOL_MAX_RETRY</b>	MID \$mid is malformed and cannot be scanned by \$engine.	'mid' - MID 'engine' - The engine being used
	Critical. The scanning engine attempted to scan the message unsuccessfully because the message is malformed. The maximum number of retries has been exceeded, and the message will be processed without being scanned by this engine.	

## Directory Harvest Attack Prevention (DHAP) Alerts

Table 15-4 contains a list of the various DHAP alerts that can be generated by AsyncOS, including a description of the alert and the alert severity.

**Table 15-4**      *Listing of Possible Directory Harvest Attack Prevention Alerts*

Alert Name	Message and Description	Parameters
LDAP.DHAP_ALERT	LDAP: Potential Directory Harvest Attack detected. See the system mail logs for more information about this attack.	
	Warning. Sent when a possible directory harvest attack is detected.	

## Hardware Alerts

Table 15-5 contains a list of the various Hardware alerts that can be generated by AsyncOS, including a description of the alert and the alert severity.

**Table 15-5**      *Listing of Possible Hardware Alerts*

Alert Name	Message and Description	Parameters
INTERFACE.ERRORS	Port \$port: has detected \$in_err input errors, \$out_err output errors, \$col collisions please check your media settings.	'port' - Interface name. 'in_err' - The number of input errors since the last message.
	Warning. Sent when interface errors are detected.	'out_err' - The number of output errors since the last message. 'col' - The number of packet collisions since the last message.
MAIL.MEASUREMENTS_FILESYSTEM	The \$file_system partition is at \$capacity% capacity	'file_system' - The name of the filesystem
	Warning. Sent when a disk partition is nearing capacity (75%).	'capacity' - How full the filesystem is in percent.

**Table 15-5**      *Listing of Possible Hardware Alerts (Continued)*

Alert Name	Message and Description	Parameters
<b>MAIL.MEASUREMENTS_FILESYSTEM.CRITICAL</b>	The \$file_system partition is at \$capacity% capacity	'file_system' - The name of the filesystem
	Critical. Sent when a disk partition reaches 90% capacity (and at 95%, 96%, 97%, etc.).	'capacity' - How full the filesystem is in percent.
<b>SYSTEM.RAID_EVENT_ALERT</b>	A RAID-event has occurred: \$error	'error' - The text of the RAID error.
	Warning. Sent when a critical RAID-event occurs.	
<b>SYSTEM.RAID_EVENT_ALERT_INFO</b>	A RAID-event has occurred: \$error	'error' - The text of the RAID error.
	Information. Sent when a RAID-event occurs.	

## IronPort Spam Quarantine Alerts

Table 15-6 contains a list of the various IronPort Spam Quarantine alerts that can be generated by AsyncOS, including a description of the alert and the alert severity.

**Table 15-6**      *Listing of Possible IronPort Spam Quarantine Alerts*

Alert Name	Message and Description	Parameters
<b>ISQ.CANNOT_CONNECT_OFF_BOX</b>	ISQ: Could not connect to off-box quarantine at \$host:\$port	'host' - address of off-box quarantine
	Information. Sent when AsyncOS was unable to connect to the (off-box) IP address.	'port' - port to connect to on off-box quarantine

**Table 15-6**      *Listing of Possible IronPort Spam Quarantine Alerts (Continued)*

Alert Name	Message and Description	Parameters
<b>ISQ.CRITICAL</b>	ISQ: \$msg	'msg' - message to be displayed
	Critical. Sent when a critical error with IronPort Spam Quarantine is encountered.	
<b>ISQ.DB_APPROACHING_FULL</b>	ISQ: Database over \$threshold% full	'threshold' - the percent full threshold at which alerting begins
	Warning. Sent when the IronPort Spam Quarantine database is nearly full.	
<b>ISQ.DB_FULL</b>	ISQ: database is full	
	Critical. Sent when the IronPort Spam Quarantine database is full.	
<b>ISQ.MSG_DEL_FAILED</b>	ISQ: Failed to delete MID \$mid for \$rcpt: \$reason	'mid' - MID 'rcpt' - Recipient or "all" 'reason' - Why the message was not deleted
	Warning. Sent when an email is not successfully deleted from the IronPort Spam Quarantine.	
<b>ISQ.MSG_NOTIFICATION_FAILED</b>	ISQ: Failed to send notification message: \$reason	'reason' - Why the notification was not sent
	Warning. Sent when a notification message is not successfully sent.	
<b>ISQ.MSG_QUAR_FAILED</b>		
	Warning. Sent when a message is not successfully quarantined.	



**Table 15-6**      *Listing of Possible IronPort Spam Quarantine Alerts (Continued)*

Alert Name	Message and Description	Parameters
<b>ISQ.MSG_RLS_FAILED</b>	ISQ: Failed to release MID \$mid to \$rcpt: \$reason	'mid' - MID
	Warning. Sent when a message is not successfully released.	'rcpt' - Recipient or "all"  'reason' - Why the message was not released
<b>ISQ.MSG_RLS_FAILED_UNK_RCPTS</b>	ISQ: Failed to release MID \$mid: \$reason	'mid' - MID
	Warning. Sent when a message is not successfully released because the recipient is unknown.	'reason' - Why the message was not released
<b>ISQ.NO_EU_PROPS</b>	ISQ: Could not retrieve \$user's properties. Setting defaults	'user' - end user name
	Information. Sent when AsyncOS is unable to retrieve information about a user.	
<b>ISQ.NO_OFF_BOX_HOST_SET</b>	ISQ: Setting up off-box ISQ without setting host	
	Information. Sent when AsyncOS is configured to reference an external quarantine, but the external quarantine is not defined.	

# Safelist/Blocklist Alerts

contains a list of the various Safelist/Blocklist alerts that can be generated by AsyncOS, including a description of the alert and the alert severity

**Table 15-7**      *Listing of Possible Safelist/Blocklist Alerts*

Alert Name	Message and Description	Parameters
SLBL.DB.RECOVERY_FAILED	SLBL: Failed to recover End-User Safelist/Blocklist database: '\$error'.	'error' - error reason
	Critical. Failed to recover the Safelist/Blocklist database.	
SLBL.DB.SPACE_LIMIT	SLBL: End-User Safelist/Blocklist database exceeded allowed disk space: \$current of \$limit.	'current' - how much it has used, in MB
	Critical. The safelist/blocklist database exceeded the allowed disk space.	'limit' - the configured limit, in MB

# System Alerts

Table 15-8 contains a list of the various System alerts that can be generated by AsyncOS, including a description of the alert and the alert severity.

**Table 15-8**      *Listing of Possible System Alerts*

Alert Name	Message and Description	Parameters
COMMON.APP_FAILURE	An application fault occurred: \$error	'error' - The text of the error, typically a traceback.
	Warning. Sent when there is an unknown application failure.	

**Table 15-8 Listing of Possible System Alerts (Continued)**

Alert Name	Message and Description	Parameters
<b>COMMON.KEY_EXPIRED_ALERT</b>	Your "\$feature" key has expired. Please contact your authorized IronPort sales representative.	'feature' - The name of the feature that is about to expire.
	Warning. Sent when a feature key has expired.	
<b>COMMON.KEY_EXPIRING_ALERT</b>	Your "\$feature" key will expire in under \$days day(s). Please contact your authorized IronPort sales representative.	'feature' - The name of the feature that is about to expire.
	Warning. Sent when a feature key is about to expire.	'days' - The number of days it will expire.
<b>COMMON.KEY_FINAL_EXPIRING_ALERT</b>	This is a final notice. Your "\$feature" key will expire in under \$days day(s). Please contact your authorized IronPort sales representative.	'feature' - The name of the feature that is about to expire.
	Warning. Sent as a final notice that a feature key is about to expire.	'days' - The number of days it will expire.
<b>DNS.BOOTSTRAP_FAILED</b>	Failed to bootstrap the DNS resolver. Unable to contact root servers.	
	Warning. Sent when the appliance is unable to contact the root DNS servers.	
<b>INTERFACE.FAILOVER.FAILURE_BACKUP_DETECTED</b>	Standby port \$port on \$pair_name failure	'port' - Detected port
	Warning. Sent when a backup NIC pairing interface fails.	'pair_name' - Failover pair name.
<b>INTERFACE.FAILOVER.FAILURE_BACKUP_RECOVERED</b>	Standby port \$port on \$pair_name okay	'port' - Failed port
	Information. Sent when a NIC pair failover is recovered.	'pair_name' - Failover pair name.

**Table 15-8**      *Listing of Possible System Alerts (Continued)*

Alert Name	Message and Description	Parameters
<b>INTERFACE.FAILOVER. FAILURE_DETECTED</b>	Port \$port failure on \$pair_name, switching to \$port_other	'port' - Failed port. 'port_other' - New port.
	Critical. Sent when a NIC pairing failover is detected due to an interface failure.	'pair_name' - Failover pair name.
<b>INTERFACE.FAILOVER. FAILURE_DETECTED_NO_ BACKUP</b>	Port \$port_other on \$pair_name is down, can't switch to \$port_other	'port' - Failed port. 'port_other' - New port.
	Critical. Sent when a NIC pairing failover is detected due to an interface failure, but a backup interface is not available.	'pair_name' - Failover pair name.
<b>INTERFACE.FAILOVER. FAILURE_RECOVERED</b>	Recovered network on \$pair_name using port \$port	'port' - Failed port 'pair_name' - Failover pair name.
	Information. Sent when a NIC pair failover is recovered.	
<b>INTERFACE.FAILOVER. MANUAL</b>	Manual failover to port \$port on \$pair_name	'port' - New active port.
	Information. Sent when a manual failover to another NIC pair is detected.	'pair_name' - Failover pair name.
<b>COMMON.INVALID_FILTER</b>	Invalid \$class: \$error	'class' - Either "Filter", "SimpleFilter", etc.
	Warning. Sent when an invalid filter is encountered.	'error' - Additional why-filter-is-invalid info.
<b>LDAP.GROUP_QUERY_ FAILED_ALERT</b>	LDAP: Failed group query \$name, comparison in filter will evaluate as false	'name' - The name of the query.
	Critical. Sent when an LDAP group query fails.	

**Table 15-8**      *Listing of Possible System Alerts (Continued)*

Alert Name	Message and Description	Parameters
<b>LDAP.HARD_ERROR</b>	LDAP: work queue processing error in \$name reason \$why	' <b>name</b> ' - The name of the query.
	Critical. Sent when an LDAP query fails completely (after trying all servers).	' <b>why</b> ' - Why the error happened.
<b>LOG.ERROR.*</b>	Critical. Various logging errors.	
<b>MAIL.PERRCPT.LDAP_GROUP_QUERY_FAILED</b>	LDAP group query failure during per-recipient scanning, possible LDAP misconfiguration or unreachable server.	
	Critical. Sent when an LDAP group query fails during per-recipient scanning.	
<b>MAIL.QUEUE.ERROR.*</b>	Critical. Various mail queue hard errors.	
<b>MAIL.RES_CON_START_ALERT.MEMORY</b>	This system (hostname: \$hostname) has entered a 'resource conservation' mode in order to prevent the rapid depletion of critical system resources. RAM utilization for this system has exceeded the resource conservation threshold of \$memory_threshold_start%. The allowed receiving rate for this system will be gradually decreased as RAM utilization approaches \$memory_threshold_halt%.	' <b>hostname</b> ' - The name of the host.  ' <b>memory_threshold_start</b> ' - The percent threshold where memory tarpitting starts.  ' <b>memory_threshold_halt</b> ' - The percent threshold where the system will halt due to memory being too full.
	Critical. Sent when RAM utilization has exceeded the system resource conservation threshold.	

**Table 15-8**      *Listing of Possible System Alerts (Continued)*

Alert Name	Message and Description	Parameters
<b>MAIL.RES_CON_START_ALERT.QUEUE_SLOW</b>	This system (hostname: \$hostname) has entered a 'resource conservation' mode in order to prevent the rapid depletion of critical system resources. The queue is overloaded and is unable to maintain the current throughput.	'hostname' - The name of the host.
	Critical. Sent when the mail queue is overloaded and system resource conservation is enabled.	
<b>MAIL.RES_CON_START_ALERT.QUEUE</b>	This system (hostname: \$hostname) has entered a 'resource conservation' mode in order to prevent the rapid depletion of critical system resources. Queue utilization for this system has exceeded the resource conservation threshold of \$queue_threshold_start%. The allowed receiving rate for this system will be gradually decreased as queue utilization approaches \$queue_threshold_halt%.	'hostname' - The name of the host. 'queue_threshold_start' - The percent threshold where queue tarpitting starts. 'queue_threshold_halt' - The percent threshold where the system will halt due to the queue being too full.
	Critical. Sent when queue utilization has exceeded the system resource conservation threshold.	

**Table 15-8**      *Listing of Possible System Alerts (Continued)*

Alert Name	Message and Description	Parameters
<b>MAIL.RES_CON_START_ALERT.WORKQ</b>	This system (hostname: \$hostname) has entered a 'resource conservation' mode in order to prevent the rapid depletion of critical system resources. Listeners have been suspended because the current work queue size has exceeded the threshold of \$suspend_threshold. Listeners will be resumed once the work queue size has dropped to \$resume_threshold. These thresholds may be altered via use of the 'tarpit' command on the system CLI.	<b>'hostname'</b> - The name of the host.  <b>'suspend_threshold'</b> - Work queue size above which listeners are suspended.  <b>'resume_threshold'</b> - Work queue size below which listeners are resumed.
	Information. Sent when listeners are suspended because the work queue size is too big.	
<b>MAIL.RES_CON_START_ALERT</b>	This system (hostname: \$hostname) has entered a 'resource conservation' mode in order to prevent the rapid depletion of critical system resources.	<b>'hostname'</b> - The name of the host.
	Critical. Sent when the appliance enters "resource conservation" mode.	

**Table 15-8**      *Listing of Possible System Alerts (Continued)*

Alert Name	Message and Description	Parameters
<b>MAIL.RES_CON_STOP_ALERT</b>	This system (hostname: \$hostname) has exited 'resource conservation' mode as resource utilization has dropped below the conservation threshold.	'hostname' - The name of the host.
	Information. Sent when the appliance leaves "resource conservation" mode.	
<b>MAIL.WORK_QUEUE_PAUSED_NATURAL</b>	work queue paused, \$num msgs, \$reason	'num' - The number of messages in the work queue.
	Critical. Sent when the work queue is paused.	'reason' - The reason the work queue is paused.
<b>MAIL.WORK_QUEUE_UNPAUSED_NATURAL</b>	work queue resumed, \$num msgs	'num' - The number of messages in the work queue.
	Critical. Sent when the work queue is resumed.	
<b>NTP.NOT_ROOT</b>	Not running as root, unable to adjust system time	
	Warning. Sent when the IronPort appliance is unable to adjust time because NTP is not running as root.	
<b>QUARANTINE.ADD_DB_ERROR</b>	Unable to quarantine MID \$mid - quarantine system unavailable	'mid' - MID
	Critical. Sent when a message cannot be sent to a quarantine.	



**Table 15-8**      *Listing of Possible System Alerts (Continued)*

Alert Name	Message and Description	Parameters
<b>QUARANTINE.DB_UPDATE_FAILED</b>	Unable to update quarantine database (current version: \$version; target \$target_version)	' <b>version</b> ' - The schema version detected.  ' <b>target_version</b> ' - The target schema version.
	Critical. Sent when a quarantine database cannot be updated.	
<b>QUARANTINE.DISK_SPACE_LOW</b>	The quarantine system is unavailable due to a lack of space on the \$file_system partition.	' <b>file_system</b> ' - The name of the filesystem.
	Critical. Sent when the disk space for quarantines is full.	
<b>QUARANTINE.THRESHOLD_ALERT</b>	Quarantine "\$quarantine" is \$full% full	' <b>quarantine</b> ' - The name of the quarantine.
	Warning. Sent when a quarantine reaches 5%, 50%, or 75% of capacity.	' <b>full</b> ' - The percentage of how full the quarantine is.
<b>QUARANTINE.THRESHOLD_ALERT.SERIOUS</b>	Quarantine "\$quarantine" is \$full% full	' <b>quarantine</b> ' - The name of the quarantine.
	Critical. Sent when a quarantine reaches 95% of capacity.	' <b>full</b> ' - The percentage of how full the quarantine is.

**Table 15-8**      *Listing of Possible System Alerts (Continued)*

Alert Name	Message and Description	Parameters
<b>REPORTD.DATABASE_OPEN_FAILED_ALERT</b>	The reporting system has encountered a critical error while opening the database. In order to prevent disruption of other services, reporting has been disabled on this machine. Please contact customer support to have reporting enabled. The error message is: \$err_msg	'err_msg' - The error message raised
	Critical. Sent if the reporting engine is unable to open the database.	
<b>REPORTD.AGGREGATION_DISABLED_ALERT</b>	Processing of collected reporting data has been disabled due to lack of logging disk space. Disk usage is above \$threshold percent. Recording of reporting events will soon become limited and reporting data may be lost if disk space is not freed up (by removing old logs, etc.). Once disk usage drops below \$threshold percent, full processing of reporting data will be restarted automatically.	'threshold' - The threshold value
	Warning. Sent if the system runs out of disk space. When the disk usage for a log entry exceeds the log usage threshold, reportd disables aggregation and sends the alert.	

**Table 15-8**      *Listing of Possible System Alerts (Continued)*

Alert Name	Message and Description	Parameters
<b>REPORTING.CLIENT.UPDATE_FAILED_ALERT</b>	Reporting Client: The reporting system has not responded for an extended period of time (\$duration).	'duration' - Length of time the client has been trying to contact the reporting daemon. This is a string in a human readable format ('1h 3m 27s').
	Warning. Sent if the reporting engine was unable to save reporting data.	
<b>REPORTING.CLIENT.JOURNAL.FULL</b>	Reporting Client: The reporting system is unable to maintain the rate of data being generated. Any new data generated will be lost.	
	Critical. Sent if the reporting engine is unable to store new data.	
<b>REPORTING.CLIENT.JOURNAL.FREE</b>	Reporting Client: The reporting system is now able to handle new data.	
	Information. Sent when the reporting engine is again able to store new data.	
<b>PERIODIC.REPORTS.REPORT_TASK.BUILD_FAILURE</b>	A failure occurred while building periodic report '\$report_title'. This subscription has been removed from the scheduler.	'report_title' - the report title
	Critical. Sent when the reporting engine is unable to build a report.	

**Table 15-8**      *Listing of Possible System Alerts (Continued)*

Alert Name	Message and Description	Parameters
<b>PERIODIC_REPORTS.REPORT_TASK.EMAIL_FAILURE</b>	A failure occurred while emailing periodic report '\$report_title'. This subscription has been removed from the scheduler.	'report_title' - the report title
	Critical. Sent when a report could not be emailed.	
<b>PERIODIC_REPORTS.REPORT_TASK.ARCHIVE_FAILURE</b>	A failure occurred while archiving periodic report '\$report_title'. This subscription has been removed from the scheduler.	'report_title' - the report title
	Critical. Sent when a report could not be archived.	
<b>SENDERBASE.ERROR</b>	Error processing response to query \$query: response was \$response	'query' - The query address.
	Information. Sent when an error occurred while processing a response from SenderBase.	'response' - Raw data of response received.
<b>SMTPAUTH.FWD_SERVER_FAILED_ALERT</b>	SMTP Auth: could not reach forwarding server \$ip with reason: \$why	'ip' - The IP of the remote server.
	Warning. Sent when the SMTP Authentication forwarding server is unreachable.	'why' - Why the error happened.
<b>SMTPAUTH.LDAP_QUERY_FAILED</b>	SMTP Auth: LDAP query failed, see LDAP debug logs for details.	
	Warning. Sent when an LDAP query fails.	

**Table 15-8**      *Listing of Possible System Alerts (Continued)*

Alert Name	Message and Description	Parameters
<b>SYSTEM.HERMES_SHUTDOWN_FAILURE.REBOOT</b>	While preparing to \${what}, failed to stop mail server gracefully: \${error}\$what:=reboot	'error' - The error that happened.
	Warning. Sent when there was a problem shutting down the system on reboot.	
<b>SYSTEM.HERMES_SHUTDOWN_FAILURE.SHUTDOWN</b>	While preparing to \${what}, failed to stop mail server gracefully: \${error}\$what:=shut down	'error' - The error that happened.
	Warning. Sent when there was a problem shutting down the system.	
<b>SYSTEM.RCPTVALIDATION.UPDATE_FAILED</b>	Error updating recipient validation data: \$why	'why' - The error message.
	Critical. Sent when a recipient validation update failed.	
<b>SYSTEM.SERVICE_TUNNEL.DISABLED</b>	Tech support: Service tunnel has been disabled	
	Information. Sent when a tunnel created for IronPort Support Services is disabled.	
<b>SYSTEM.SERVICE_TUNNEL.ENABLED</b>	Tech support: Service tunnel has been enabled, port \$port	'port' - The port used for the service tunnel.
	Information. Sent when a tunnel created for IronPort Support Services is enabled.	

## Updater Alerts

Table 15-9 contains a list of the various Updater alerts that can be generated by AsyncOS.

Table 15-9 Listing of Possible Updater Alerts

Alert Name	Message and Description	Parameters
UPDATER.APP.UPDATE_ABANDONED	\$app abandoning updates until a new version is published. The \$app application tried and failed \$attempts times to successfully complete an update. This may be due to a network configuration issue or temporary outage	‘ <b>app</b> ’ - The application name.  ‘ <b>attempts</b> ’ - The number of attempts tried.
	Warning. The application is abandoning the update.	
UPDATER.UPDATERD.MANIFEST_FAILED_ALERT	The updater has been unable to communicate with the update server for at least \$threshold.	‘ <b>threshold</b> ’ - Human readable threshold string.
	Warning. Failed to acquire a server manifest.	
UPDATER.UPDATERD.RELEASE_NOTIFICATION	\$mail_text	‘ <b>mail_text</b> ’ - The notification text.  ‘ <b>notification_subject</b> ’ - The notification text.
	Warning. Release notification.	
UPDATER.UPDATERD.UPDATE_FAILED	Unknown error occured: \$traceback	‘ <b>traceback</b> ’ - The traceback.
	Critical. Failed to run an update.	

## Virus Outbreak Filter Alerts

Table 15-10 contains a list of the various Virus Outbreak Filter alerts that can be generated by AsyncOS, including a description of the alert and the alert severity. Please note that Virus Outbreak Filters can also be referenced in system alerts for quarantines (the Outbreak quarantine, specifically).

**Table 15-10**      *Listing of Possible Virus Outbreak Filter Alerts*

Alert Name	Message and Description	Parameters
VOF.GTL_THRESHOLD_ALERT	IronPort Virus Outbreak Filters Rule Update Alert:\$text All rules last updated at: \$time on \$date.	' <b>text</b> ' - Update alert text.
	Information. Sent when the Virus Outbreak Filters threshold has changed.	' <b>time</b> ' - Time of last update. ' <b>date</b> ' - Date of last update.
AS.UPDATE_FAILURE	\$engine update unsuccessful. This may be due to transient network or DNS issues, HTTP proxy configuration causing update transmission errors or unavailability of downloads.ironport.com. The specific error on the appliance for this failure is: \$error	' <b>engine</b> ' - The engine that failed to update. ' <b>error</b> ' - The error that happened.
	Warning. Sent when the anti-spam engine or CASE rules fail to update.	

# Clustering Alerts

Table 15-10 contains a list of the various clustering alerts that can be generated by AsyncOS, including a description of the alert and the alert severity.

Table 15-11 Listing of Possible Clustering Alerts

Alert Name	Message and Description	Parameters
CLUSTER.CC_ERROR.AUTH_ERROR	Error connecting to cluster machine \$name at IP \$ip - \$error - \$why\$error;=Machine does not appear to be in the cluster	'name' - The hostname and/or serial number of the machine.  'ip' - The IP of the remote host.  'why' - Detailed text about the error.
	Critical. Sent when there was an authentication error. This can occur if a machine is not a member of the cluster.	
CLUSTER.CC_ERROR.DROPPED	Error connecting to cluster machine \$name at IP \$ip - \$error - \$why\$error;=Existing connection dropped	'name' - The hostname and/or serial number of the machine.  'ip' - The IP of the remote host.  'why' - Detailed text about the error.
	Warning. Sent when the connection to the cluster was dropped.	
CLUSTER.CC_ERROR.FAILED	Error connecting to cluster machine \$name at IP \$ip - \$error - \$why\$error;=Connection failure	'name' - The hostname and/or serial number of the machine.  'ip' - The IP of the remote host.  'why' - Detailed text about the error.
	Warning. Sent when the connection to the cluster failed.	



**Table 15-11**      *Listing of Possible Clustering Alerts (Continued)*

Alert Name	Message and Description	Parameters
<b>CLUSTER.CC_ERROR.FORWARD_FAILED</b>	Error connecting to cluster machine \$name at IP \$ip - \$error - \$why\$error:=Message forward failed, no upstream connection	' <b>name</b> ' - The hostname and/or serial number of the machine.  ' <b>ip</b> ' - The IP of the remote host.  ' <b>why</b> ' - Detailed text about the error.
	Critical. Sent when the appliance was unable to forward data to a machine in the cluster.	
<b>CLUSTER.CC_ERROR.NOROUTE</b>	Error connecting to cluster machine \$name at IP \$ip - \$error - \$why\$error:=No route found	' <b>name</b> ' - The hostname and/or serial number of the machine.  ' <b>ip</b> ' - The IP of the remote host.  ' <b>why</b> ' - Detailed text about the error.
	Critical. Sent when the machine was unable to obtain a route to another machine in the cluster.	
<b>CLUSTER.CC_ERROR.SSH_KEY</b>	Error connecting to cluster machine \$name at IP \$ip - \$error - \$why\$error:=Invalid host key	' <b>name</b> ' - The hostname and/or serial number of the machine.  ' <b>ip</b> ' - The IP of the remote host.  ' <b>why</b> ' - Detailed text about the error.
	Critical. Sent when there was an invalid SSH host key.	

**Table 15-11**      *Listing of Possible Clustering Alerts (Continued)*

Alert Name	Message and Description	Parameters
<b>CLUSTER.CC_ERROR.TIMEOUT</b>	Error connecting to cluster machine \$name at IP \$ip - \$error - \$why\$error:=Operation timed out	' <b>name</b> ' - The hostname and/or serial number of the machine.  ' <b>ip</b> ' - The IP of the remote host.
	Warning. Sent when the specified operation timed out.	' <b>why</b> ' - Detailed text about the error.
<b>CLUSTER.CC_ERROR_NOIP</b>	Error connecting to cluster machine \$name - \$error - \$why	' <b>name</b> ' - The hostname and/or serial number of the machine.
	Critical. Sent when the appliance could not obtain a valid IP address for another machine in the cluster.	' <b>why</b> ' - Detailed text about the error.
<b>CLUSTER.CC_ERROR_NOIP.AUTH_ERROR</b>	Error connecting to cluster machine \$name - \$error - \$why\$error:=Machine does not appear to be in the cluster	' <b>name</b> ' - The hostname and/or serial number of the machine.  ' <b>why</b> ' - Detailed text about the error.
	Critical. Sent when there was an authentication error connecting to a machine in a cluster. This can occur if a machine is not a member of the cluster.	

**Table 15-11**      *Listing of Possible Clustering Alerts (Continued)*

Alert Name	Message and Description	Parameters
<b>CLUSTER.CC_ERROR_NOIP.DROPPED</b>	Error connecting to cluster machine \$name - \$error - \$why\$error:=Existing connection dropped	'name' - The hostname and/or serial number of the machine.  'why' - Detailed text about the error.
	Warning. Sent when the machine was unable to obtain a valid IP address for another machine in the cluster and the connection to the cluster was dropped.	
<b>CLUSTER.CC_ERROR_NOIP.FAILED</b>	Error connecting to cluster machine \$name - \$error - \$why\$error:=Connection failure	'name' - The hostname and/or serial number of the machine.  'why' - Detailed text about the error.
	Warning. Sent when there was an unknown connection failure and the machine was unable to obtain a valid IP address for another machine in the cluster.	

**Table 15-11**      *Listing of Possible Clustering Alerts (Continued)*

Alert Name	Message and Description	Parameters
<b>CLUSTER.CC_ERROR_NOIP.FORWARD_FAILED</b>	Error connecting to cluster machine \$name - \$error - \$why\$error:=Message forward failed, no upstream connection	'name' - The hostname and/or serial number of the machine.  'why' - Detailed text about the error.
	Critical. Sent when the machine was unable to obtain a valid IP address for another machine in the cluster and the appliance was unable to forward data to the machine.	
<b>CLUSTER.CC_ERROR_NOIP.NOROUTE</b>	Error connecting to cluster machine \$name - \$error - \$why\$error:=No route found	'name' - The hostname and/or serial number of the machine.  'why' - Detailed text about the error.
	Critical. Sent when the machine was unable to obtain a valid IP address for another machine in the cluster and it was unable to obtain a route to the machine.	

**Table 15-11**      *Listing of Possible Clustering Alerts (Continued)*

Alert Name	Message and Description	Parameters
<b>CLUSTER.CC_ERROR_NOIP.SSH_KEY</b>	Error connecting to cluster machine \$name - \$error - \$why\$error:=Invalid host key	'name' - The hostname and/or serial number of the machine.  'why' - Detailed text about the error.
	Critical. Sent when the machine was unable to obtain a valid IP address for another machine in the cluster and was unable to obtain a valid SSH host key.	
<b>CLUSTER.CC_ERROR_NOIP.TIMEOUT</b>	Error connecting to cluster machine \$name - \$error - \$why\$error:=Operation timed out	'name' - The hostname and/or serial number of the machine.  'why' - Detailed text about the error.
	Warning. Sent when the machine was unable to obtain a valid IP address for another machine in the cluster and the specified operation timed out.	
<b>CLUSTER.SYNC.PUSH_ALERT</b>	Overwriting \$sections on machine \$name	'name' - The hostname and/or serial number of the machine.  'sections' - List of cluster sections being sent.
	Critical. Sent when configuration data has gotten out of sync and has been sent to a remote host.	

# Changing Network Settings

This section describes the features used to configure the network operation of the IronPort appliance. These features give you direct access to the hostname, DNS, and routing settings that you configured via the System Setup Wizard (or the `systemsetup` command) in [Using the System Setup Wizard, page 3-54](#).

The following features are described:

- `sethostname`
- DNS Configuration (GUI and via the `dnsconfig` command)
- Routing Configuration (GUI and via the `routeconfig` and `setgateway` commands)
- `dnsflush`
- Password
- Network Access
- Login Banner

## Changing the System Hostname

The hostname is used to identify the system at the CLI prompt. You must enter a fully-qualified hostname. The `sethostname` command sets the name of the IronPort appliance. The new hostname does not take effect until you issue the `commit` command.

## The sethostname Command

```
oldname.example.com> sethostname
```

```
[oldname.example.com]> mail3.example.com
```

```
oldname.example.com>
```

For the hostname change to take effect, you must enter the `commit` command. After you have successfully committed the hostname change, the new name appears in the CLI prompt:

```
oldname.example.com> commit
```

```
Please enter some comments describing your changes:
```

```
[ ]> Changed System Hostname
```

```
Changes committed: Mon Jan 01 12:00:01 2003
```

The new hostname appears in the prompt as follows: `mail3.example.com>`

## Configuring Domain Name System (DNS) Settings

You can configure the DNS settings for your IronPort appliance through the DNS page on the Network menu of the GUI, or via the `dnsconfig` command.

You can configure the following settings:

- whether to use the Internet's DNS servers or your own, and which specific server(s) to use
- which interface to use for DNS traffic
- the number of seconds to wait before timing out a reverse DNS lookup

- clear DNS cache

## Specifying DNS Servers

IronPort AsyncOS can use the Internet root DNS servers, your own DNS servers, or the Internet root DNS servers and authoritative DNS servers you specify. When using the Internet root servers, you may specify alternate servers to use for specific domains. Since an alternate DNS server applies to a single domain, it must be authoritative (provide definitive DNS records) for that domain.

AsyncOS supports “splitting” DNS servers when not using the Internet’s DNS servers. If you are using your own internal server, you can also specify exception domains and associated DNS servers.

When setting up “split DNS,” you should set up the in-addr.arpa (PTR) entries as well. So, for example, if you want to redirect “.eng” queries to the nameserver 1.2.3.4 and all the .eng entries are in the 172.16 network, then you should specify “eng,16.172.in-addr.arpa” as the domains in the split DNS configuration.

## Multiple Entries and Priority

For each DNS server you enter, you can specify a numeric priority. AsyncOS will attempt to use the DNS server with the priority closest to 0. If that DNS server is not responding AsyncOS will attempt to use the server at the next priority. If you specify multiple entries for DNS servers with the same priority, the system randomizes the list of DNS servers at that priority every time it performs a query. The system then waits a short amount of time for the first query to expire or “time out” and then a slightly longer amount of time for the second, etc. The amount of time depends on the exact total number of DNS servers and priorities that have been configured. The timeout length is the same for all IP addresses at any particular priority. The first priority gets the shortest timeout, each subsequent priority gets a longer timeout. Further, the timeout period is roughly 60 seconds. If you have one priority, the timeout for each server at that priority will be 60 seconds. If you have two priorities, the timeout for each server at the first priority will be 15 seconds, and each server at the second priority will be 45 seconds. For three priorities, the timeouts are 5, 10, 45.



For example, suppose you configure four DNS servers, with two of them at priority 0, one at priority 1, and one at priority 2:

**Table 15-12**      *Example of DNS Servers, Priorities, and Timeout Intervals*

Priority	Server(s)	Timeout (seconds)
0	1.2.3.4, 1.2.3.5	5, 5
1	1.2.3.6	10
2	1.2.3.7	45

AsyncOS will randomly choose between the two servers at priority 0. If one of the priority 0 servers is down, the other will be used. If both of the priority 0 servers are down, the priority 1 server (1.2.3.6) is used, and then, finally, the priority 2 (1.2.3.7) server.

The timeout period is the same for both priority 0 servers, longer for the priority 1 server, and longer still for the priority 2 server.

## Using the Internet Root Servers

The IronPort AsyncOS DNS resolver is designed to accommodate the large number of simultaneous DNS connections required for high-performance email delivery.



### Note

If you choose to set the default DNS server to something other than the Internet root servers, that server must be able to recursively resolve queries for domains for which it is not an authoritative server.

## Reverse DNS Lookup Timeout

The IronPort appliance attempts to perform a “double DNS lookup” on all remote hosts connecting to a listener for the purposes of sending or receiving email. [That is: the system acquires and verifies the validity of the remote host's IP address by performing a double DNS lookup. This consists of a reverse DNS (PTR) lookup on the IP address of the connecting host, followed by a forward DNS (A) lookup on the results of the PTR lookup. The system then checks that the results of the A lookup match the results of the PTR lookup. If the results do not match, or if an

A record does not exist, the system only uses the IP address to match entries in the Host Access Table (HAT).] This particular timeout period applies only to this lookup and is not related to the general DNS timeout discussed in [Multiple Entries and Priority](#), page 15-520.

The default value is 20 seconds. You can disable the reverse DNS lookup timeout globally across all listeners by entering ‘0’ as the number of seconds. If the value is set to 0 seconds, the reverse DNS lookup is not attempted, and instead the standard timeout response is returned immediately.

## DNS Alert

Occasionally, an alert may be generated with the message “Failed to bootstrap the DNS cache” when an appliance is rebooted. The messages means that the system was unable to contact its primary DNS servers, which can happen at boot time if the DNS subsystem comes online before network connectivity is established. If this message appears at other times, it could indicate network issues or that the DNS configuration is not pointing to a valid server.

## Clearing the DNS Cache

The Clear Cache button from the GUI, or the `dnsflush` command (for more information about the `dnsflush` command, see the *Cisco IronPort AsyncOS CLI Reference Guide*), clears all information in the DNS cache. You may choose to use this feature when changes have been made to your local DNS system. The command takes place immediately and may cause a temporary performance degradation while the cache is repopulated.

## Configuring DNS Settings via the Graphical User Interface

Log in to the Graphical User Interface (GUI) and click the DNS link on the Network tab.

**Figure 15-12 The DNS Page**  
**DNS**

DNS Server Settings					
DNS Servers:	Use these DNS Servers:				
	<table border="1"> <thead> <tr> <th>Priority</th> <th>IP Address</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>192.168.0.3</td> </tr> </tbody> </table>	Priority	IP Address	0	192.168.0.3
Priority	IP Address				
0	192.168.0.3				
Interface for DNS traffic:	Auto				
Wait Before Timing out Reverse DNS Lookups:	20				
<div>Clear DNS Cache</div> <div>Edit Settings...</div>					

To edit DNS Settings via the GUI:

- Step 1** Click **Edit Settings**. The Edit DNS page is displayed:

**Figure 15-13 The Edit DNS Page**  
**Edit DNS**

DNS Server Settings			
DNS Servers: <input type="radio"/> Use these DNS Servers			
Priority ?	Server IP	<div>Add Row</div>	
<input type="text"/>	<input type="text"/>	<div></div>	
Alternate DNS servers Overrides (Optional):			
Domain(s)	DNS Server IP Address	<div>Add Row</div>	
<input type="text"/>	<input type="text"/>	<div></div>	
<i>i.e., example.com, example2.com</i>	<i>i.e., 10.0.0.3</i>		
<input checked="" type="radio"/> Use the Internet's Root DNS Servers			
Alternate DNS servers Overrides (Optional):			
Domain	DNS Server FQDN	DNS Server IP Address	<div>Add Row</div>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<div></div>
<i>i.e., example.com</i>	<i>i.e., dns.example.com</i>	<i>i.e., 10.0.0.3</i>	
Interface for DNS Traffic: <div>Auto</div>			
Wait Before Timing out Reverse DNS Lookups: <div>20</div>			
<div>Cancel</div>		<div>Submit</div>	

- Step 2** Select whether to use the Internet's root DNS servers or your own internal DNS server or the Internet's root DNS servers and specify alternate DNS servers.

**Step 3** If you want to use your own DNS server(s) enter the server ID and click **Add Row**. Repeat this for each server. When entering your own DNS servers, specify a priority as well. For more information, see [Specifying DNS Servers, page 15-520](#).

**Step 4** If you want to specify alternate DNS servers for certain domains, enter the domain and the alternate DNS server IP address. Click **Add Row** to add additional domains.



**Note** You can enter multiple domains for a single DNS server by using commas to separate domain names. You can also enter multiple DNS servers by using commas to separate IP addresses.

**Step 5** Choose an interface for DNS traffic.

**Step 6** Enter the number of seconds to wait before cancelling a reverse DNS lookup.

**Step 7** You can also clear the DNS cache by clicking **Clear Cache**.

**Step 8** Submit and commit your changes.

## Configuring TCP/IP Traffic Routes

Some network environments require the use of traffic routes other than the standard default gateway. You can manage static routes via the GUI through the Routing page on the Network tab, or the CLI, via the `routeconfig` command.

### Managing Static Routes (GUI)

You can create, edit, or delete static routes via the Routing page on the Network tab. You can also modify the default gateway from this page.

#### Adding Static Routes

To create a new static route:

**Step 1** Click **Add Route** in the route listing on the Routing page. The Add Static Route page is displayed:

**Figure 15-14 Adding a Static Route**  
**Add Static Route**

Static Route Settings	
Route Name:	<input type="text"/>
Destination IP Address:	<input type="text"/>
Gateway IP Address:	<input type="text"/>

- Step 2** Enter a name for the route.
- Step 3** Enter the destination IP address.
- Step 4** Enter the Gateway IP address.
- Step 5** Submit and commit your changes.

## Deleting Static Routes

To delete a static route:

- Step 1** Click the trash can icon corresponding to the static route name in the Static Routes listing.
- Step 2** Confirm the deletion by clicking **Delete** in the warning dialog that appears.
- Step 3** Commit your changes.

## Editing Static Routes

To edit a static route:

- Step 1** Click the name of the route in the Static Route listing. The Edit Static Route page is displayed.
- Step 2** Make changes to the route.
- Step 3** Commit your changes.

## Modifying the Default Gateway (GUI)

To modify the default gateway:

- Step 1** Click Default Route in the route listing on the Routing page. The Edit Static Route page is displayed:

**Figure 15-15**     *Editing the Default Gateway*  
**Edit Static Route**

Gateway Settings	
Route Name:	Default Router
Destination IP Address:	All Destinations
Gateway IP Address:	<input type="text" value="172.19.0.1"/>

- Step 2** Change the Gateway IP address.
- Step 3** Submit and commit your changes.

# Configuring the Default Gateway

You can configure the default gateway via the GUI though the Static Routes page on the Network menu (see [Modifying the Default Gateway \(GUI\)](#), page 15-525) or via the `setgateway` command in the CLI.

# Changing the admin User’s Password

The password for the admin user can be changed via the GUI or the CLI.

To change the password via the GUI, use the Users page available via the System Administration tab. For more information, see the section on managing users in “Common Administrative Tasks” in the *Cisco IronPort AsyncOS for Email Daily Management Guide*.

To change the password for the `admin` user via the CLI, use the `password` command. Passwords must be six characters or longer. The `password` command requires you to enter the old password for security.



**Note**

Changes to the password take effect immediately and do not require you to execute the `commit` command.

## Configuring IP-Based Network Access

You can control from which IP addresses users access the Email Security appliance. Users can access the appliance from any machine with an IP address from the access list you define. When creating the network access list, you can specify IP addresses, subnets, or CIDR addresses.

AsyncOS displays a warning if you do not include the IP address of your current machine in the network access list. If your current machine's IP address is not in the list, it will not be able to access the appliance after you commit your changes.

You can create the network access list either via the Network Access page in the GUI or the `adminaccessconfig > ipaccess` CLI command. [Figure 15-16](#) shows the Network Access page with a list of IP addresses that are allowed to connect to the Email Security appliance.

**Figure 15-16**     *The Network Access Page*  
**Network Access**

User Access:	Only Allow Specific Connections
	10.0.0.33/32, 10.0.0.52/32, 10.0.0.130/32, 10.0.0.105/32, 10.0.0.155/32, 10.0.0.23/32, 10.0.0.28/32, 10.0.0.209/32, 10.0.0.32/32, 10.0.0.31/32, 10.0.0.53/32, 10.0.0.39/32, 10.0.0.60/32, 10.0.0.19/32, 10.0.0.51/32

To create a user access list via the GUI:

- Step 1** Use the System Administration > Network Access page.
- Step 2** Click **Edit Settings**.
- Step 3** Select Only Allow Specific Connections.
- Step 4** Enter the IP addresses that will be allowed to connect to the appliance.  
You can enter an IP address, IP address range or CIDR range. Use commas to separate multiple entries.
- Step 5** Submit and commit your changes.

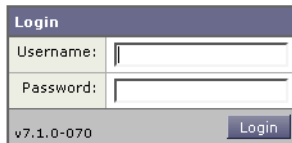
## Adding a Login Banner

You can configure the Email Security appliance to display a message called a “login banner” when a user attempts to log into the appliance through SSH, Telnet, FTP, or Web UI. The login banner is customizable text that appears above the login prompt in the CLI and to the right of the login prompt in the GUI. You can use the login banner to display internal security information or best practice instructions for the appliance. For example, you can create a simple note that saying that unauthorized use of the appliance is prohibited or a detailed warning concerning the organization’s right to review changes made by the user to the appliance.

Use the `adminaccessconfig > banner` command in the CLI to create the login banner. The maximum length of the login banner is 2000 characters to fit 80x25 consoles. A login banner can be imported from a file in the `/data/pub/configuration` directory on the appliance. After creating the banner, commit your changes.

Figure 15-17 shows a login banner displayed on the Web UI login screen.

**Figure 15-17**      **Web UI Login Screen with Banner**  
**Welcome**



Use of this system in an unauthorized manner is prohibited.

## System Time

To set the System Time on your IronPort appliance, set the Time Zone used, or select an NTP server and query interface, use the Time Zone or Time Settings page from the System Administration menu in the GUI or use the following commands in the CLI: `ntpconfig`, `settime`, and `settz`



## The Time Zone Page

The Time Zone page (available via the System Administration menu in the GUI) displays the time zone for your IronPort appliance. You can select a specific time zone or GMT offset.

### Selecting a Time Zone

To set the time zone for your IronPort appliance:

- Step 1** Click **Edit Settings** on the System Administration > Time Zone page. The Edit Time Zone page is displayed:

**Figure 15-18**     *The Time Zone Page*  
**Edit Time Zone**

Time Zone Setting		
Time Zone:	Region:	America ▼
	Country:	United States ▼
	Time Zone:	Pacific Time (Los_Angeles) ▼

- Step 2** Select a Region, country, and time zone from the pull-down menus.
- Step 3** Submit and commit your changes.

### Selecting a GMT Offset

- Step 1** Click **Edit Settings** on the System Administration > Time Zone page. The Edit Time Zone page is displayed.
- Step 2** Select GMT Offset from the list of regions. The Time Zone Setting page is updated:

**Figure 15-19**      *The Time Zone Page*  
**Edit Time Zone**

Time Zone Setting		
Time Zone:	Region:	GMT Offset ▼
	Country:	GMT ▼
	Time Zone:	GMT+08 (GMT+8) ▼

Cancel
Submit

- Step 3**      Select an offset in the Time Zone list. The offset refers to the amount of hours that must be added/subtracted in order to reach GMT (the Prime Meridian). Hours preceded by a minus sign (“-”) are east of the Prime Meridian. A plus sign (“+”) indicates west of the Prime Meridian.
- Step 4**      Submit and commit your changes.

# Editing Time Settings (GUI)

To edit the time settings for your IronPort appliance, click the **Edit Settings** button on the System Administration > Time Settings page. The Edit Time Settings page is displayed:

**Figure 15-20 The Edit Time Settings Page**  
**Edit Time Settings**

**Time Settings**

Time Keeping Method: ☒ Use Network Time Protocol

NTP Server

time.ironport.com	
-------------------	--

Interface for NTP Server Queries: Auto select

☐ Set Time Manually

Local Time: MM:10 DD:20 YYYY:2005 HH:4 MM:19 SS:23 PM

*Note: manual time set will take place immediately when the Submit button is clicked — it is not necessary to "commit" these changes.*

Cancel Submit

## Editing the Network Time Protocol (NTP) Configuration (Time Keeping Method)

To use an NTP server to synchronize the system clock with other computers and edit the NTP server settings:

- Step 1** Click **Edit Settings** on the System Administration > Time Settings page. The Edit Time Settings page is displayed.
- Step 2** In the Time Keeping Method section, select Use Network Time Protocol.
- Step 3** Enter an NTP server address and click **Add Row**. You can add multiple NTP servers.
- Step 4** To delete an NTP server from the list, click the trash can icon for that server.
- Step 5** Select an interface for NTP queries. This is the IP address from which NTP queries should originate.
- Step 6** Submit and commit your changes.

## Setting System Time (not using NTP Server)

To set the system time manually, and not use an NTP server:

- Step 1** Click **Edit Settings** on the System Administration > Time Settings page. The Edit Time Settings page is displayed.

- Step 2** In the Time Keeping Method section, select Set Time Manually.
- Step 3** Enter the month, day, year, hour, minutes, and seconds.
- Step 4** Select A.M or P.M.
- Step 5** Submit and commit your changes.



# CHAPTER 16

## Enabling Your C300D/C350D/C360D Appliance

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The C300D/C350D/C360D appliance is a special model of the IronPort appliances, specifically designed for outbound email delivery. This chapter discusses the various features of and modifications to the AsyncOS operating system specific to the C300D appliance. Note that in this chapter, the C300D, C350D, and C360D appliances are interchangeable. The remainder of the text in this chapter refers only to the C300D; however, all information discussed is also applicable to the C350D and C360D appliances.

This chapter contains the following sections:

- [Overview: The C300D Appliance, page 16-533](#)
- [Configuring the C300D Appliance, page 16-537](#)
- [IronPort Mail Merge \(IPMM\), page 16-539](#)

### Overview: The C300D Appliance

The C300D appliance is a C300/350/360 appliance with a feature key for AsyncOS modifications designed and optimized for outbound delivery of mail. The C300D appliance includes dramatically enhanced performance intended to meet the specific needs of outbound customer messaging.

## Additional Features for the C300D

As part of the optimization for message delivery, the C300D appliance contains some additional features not found in the standard IronPort appliances.

### Additional features:

- 256 Virtual Gateway Addresses - The IronPort Virtual Gateway technology allows you to configure enterprise mail gateways for all domains you host — with distinct IP addresses, hostname and domains — and create separate corporate email policy enforcement and anti-spam strategies for those domains, while hosted within the same physical appliance. For more information, see “Customizing Listeners” in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.
- IronPort Mail Merge (IPMM) - IronPort Mail Merge (IPMM) removes the burden of generating individual personalized messages from customer systems. By removing the need to generate thousands of individual messages and transmit them between message generating systems and the email gateway, users benefit from the decreased load on their systems and increased throughput of email delivery. For more information, see [IronPort Mail Merge \(IPMM\)](#), page 16-539.
- Resource-conserving bounce setting - The C300D appliance allows you to configure the system to detect potential blocked destinations and bounce all messages bound for that destination. For more information, see [Configuring Resource-Conserving Bounce Settings](#), page 16-538.
- Software based performance enhancement - The C300D appliance includes a software module that dramatically enhances the outbound delivery performance.

## Features Disabled in the C300D

Your C300D appliance contains several modifications to the AsyncOS operating system. Some features of the standard C- and X-Series appliances are not applicable to outbound email delivery and to improve system performance have been disabled. These modifications and differences are discussed below.

## Non-Applicable Features:

- IronPort anti-spam scanning and on or off box spam quarantining — Because anti-spam scanning pertains mostly to incoming mail, the IronPort Anti-Spam scanning engine is disabled. Chapter 9 is, therefore, not applicable.
- Virus Outbreak Filters — Because IronPort's Virus Outbreak Filters feature is used to quarantine incoming mail, this feature has been disabled on the C300D. Chapter 11 is, therefore, not applicable.
- SenderBase Network Participation capabilities — Because SenderBase Network Participation reports information about incoming mail, this feature has been disabled on the C300D appliance. Chapters 8 and 12 are, therefore, not applicable.
- Reporting — Reporting is limited. Some reports are not available, and the reporting that does occur is set to run at a very limited level due to the performance issues.
- RSA Data Loss Prevention — RSA DLP scanning for outgoing messages has been disabled on C300D appliances.
- The totals shown in the Email Security Monitor Overview report for C300D/350D appliances may erroneously include spam and suspect spam counts although these features are disabled for the C300/350D appliances.

## AsyncOS Features Applicable to the C300D

The C300D appliance incorporates most of the latest AsyncOS features, many of which are of interest to C300D users. [Table 16-1](#) lists some of these features:

**Table 16-1 AsyncOS Features Included in the C300D Appliance**

Feature	More Information
<b>Domain Key signing</b>	DKIM/Domain Keys is a method for verifying authenticity of email based on a signing key used by the sender. See the “Email Authentication” chapter in the <i>Cisco IronPort AsyncOS for Email Advanced Configuration Guide</i> .
<b>Centralized management</b>	See the “Centralized Management” chapter in the <i>Cisco IronPort AsyncOS for Email Advanced Configuration Guide</i> .
<b>Delivery throttling</b>	For each domain, you can assign a maximum number of connections and recipients that will never be exceeded by the system in a given time period. This “good neighbor” table is defined through the <code>destconfig</code> command.  For more information, see the section on Controlling Email Delivery in “Configuring Routing and Delivery Features” the <i>Cisco IronPort AsyncOS for Email Advanced Configuration Guide</i> .
<b>Bounce Verification</b>	Verify the authenticity of bounce messages. See the section on IronPort Bounce Verification in the “Configuring Routing and Delivery Features” chapter of the <i>Cisco IronPort AsyncOS for Email Advanced Configuration Guide</i> .
<b>Delegated administration</b>	See information on adding users in the “Common Administrative Tasks” chapter of the <i>Cisco IronPort AsyncOS for Email Daily Management Guide</i> .
<b>Trace (debug)</b>	See <a href="#">Debugging Mail Flow Using Test Messages: Trace</a> , page -446.



**Table 16-1 AsyncOS Features Included in the C300D Appliance**

Feature	More Information
VLAN, NIC-pairing	See the “Advanced Network Configuration” chapter in the <i>Cisco IronPort AsyncOS for Email Advanced Configuration Guide</i> .
Optional Anti-virus engine	You can add optional anti-virus scanning to ensure the integrity of your outbound messages. See <a href="#">Anti-Virus Scanning</a> , page 9-302.

## Configuring the C300D Appliance

To enable your C300D:

- Step 1** Apply the provided feature key. You will need to apply the key to your C300D IronPort Email Security appliance *prior to running the system setup wizard* (prior to configuring the appliance). Apply the key via the System Administration > Feature Key page or by issuing the `featurekey` command in the CLI.



**Note** The preceding feature keys include a sample 30 day Sophos or McAfee Anti-Virus license you can use to test anti-virus scanning on outbound mail.

- Step 2** Reboot the appliance.
- Step 3** Run the system setup wizard (GUI or CLI) and configure your appliance.
- Please keep in mind that the IronPort C300D appliance does not include anti-spam scanning or the Virus Outbreak Filters feature. (Please ignore these chapters in the Configuration Guide.)



**Note** In a clustered environment, you cannot combine C300D/C350D appliances with AsyncOS appliances that are not configured with the delivery performance package.

## Configuring Resource-Conserving Bounce Settings

Once the C300D appliance is configured, you can configure the system to detect potential delivery problems and bounce all messages for a destination.

**Note**

Using this setting will bounce all messages in the queue for a destination domain that is deemed undeliverable. You will need to re-send the message once the delivery issues have been resolved.

### Example of Enabling Resource-Conserving Bounce Settings

```
mail3.example.com> bounceconfig
```

Choose the operation you want to perform:

- NEW - Create a new profile.
- EDIT - Modify a profile.
- DELETE - Remove a profile.
- SETUP - Configure global bounce settings.

```
[>] setup
```

Do you want to bounce all enqueued messages bound for a domain if the host is down? [N]> **y**

When using this feature, a host is considered “down” after at least 10 consecutive connection attempts fail. AsyncOS scans for down hosts every 15 minutes, so it is possible that more than 10 attempts will be made before the queue is cleared.

# IronPort Mail Merge (IPMM)

**Note**

---

IronPort Mail Merge is only available on the IronPort C300D appliance.

---

## Overview

IronPort Mail Merge removes the burden of generating individual personalized messages from customer systems. By removing the need to generate thousands of individual messages and transmit them between message generating systems and the email gateway, users benefit from the decreased load on their systems and increased throughput of email delivery.

With IPMM, a single message body is created with variables representing locations in the message to be replaced for personalization. For each individual message recipient, only the recipient email address and the variable substitutions need to be transmitted to the email gateway. In addition, IPMM can be used to send certain recipients specific “parts” of the message body, while excluding certain parts from others recipients. (For example, suppose you needed to include a different copyright statements at the end of your messages to recipients in two different countries.)

## Benefits

Using the Mail Merge function of the IronPort C300D appliance has many benefits:

- Ease of use for the mail administrator. The complexities of creating personalized messages for each recipient are removed, as IPMM provides variable substitution and an abstracted interface in many common languages.
- Reduced load on message generation systems. By requiring one copy of the message body and a table of required substitutions, most of the message generation “work” is off-loaded from message generation systems and moved to the IronPort C300D appliance.
- Increased delivery throughput. By reducing the resources necessary to accept and queue thousands of incoming messages, the IronPort appliance can significantly increase out-bound delivery performance.

- Queue storage efficiency. By storing less information for each message recipient, users can achieve orders-of-magnitude, better use of queue storage on the C300D appliance.

## Using the Mail Merge

### SMTP Injection

IPMM extends SMTP as the transport protocol. There is no special configuration that needs to be made to the IronPort C300D appliance. (By default, IPMM can be enabled for private listeners and disabled for public listeners on the IronPort C300D Email Security appliance.) However, if you are not currently using SMTP as your injection protocol, you must create a new private listener that utilizes SMTP through the IronPort C300D appliance interface.

Refer to the “Customizing Listeners” chapter in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide* for more information on configuring listeners. Use the `setipmm` subcommand of `listenerconfig` to enable IPMM on the injector.

IPMM modifies SMTP by altering two commands — `MAIL FROM` and `DATA` — and adding another: `XDFN`. The `MAIL FROM` command is replaced with `XMRG FROM` and, the `DATA` command is replaced with `XPRT`.

To generate a Mail Merge message, the commands used to generate the message need to be issued in a particular sequence.

- 
- Step 1** The initial EHLO statement, identifying the sending host.
  - Step 2** Each message starts with an `XMRG FROM:` statement, indicating the sender address.
  - Step 3** Each recipient is then defined:
    - One or more `XDFN` variable allocation statements are made, including defining the parts (`XDFN *PART=1,2,3...`), and any other recipient specific variables.
    - The recipient email address is defined with the `RCPT TO:` statement. Any variable allocations prior to the `RCPT TO:`, but after the prior `XMRG FROM`, or `RCPT TO` command, will be mapped to this recipient email address.

- Step 4** Each part is defined using the `XPRT n` command, with each part terminated by a period (.) character similar to the `DATA` command. The last part is defined by the `XPRT n LAST` command.

## Variable Substitution

Any part of the message body, including message headers, can contain variables for substitution. Variables can appear in HTML messages, as well. Variables are user-defined and must begin with the ampersand (&) character and end with the semi-colon character (;). Variable names beginning with an asterisk (\*) are reserved and cannot be used.

### Reserved Variables

IPMM contains five special “reserved” variables that are predefined.

**Table 16-2** *IPMM: Reserved Variables*

*FROM	The reserved variable *FROM is derived from the “Envelope From” parameter. The “Envelope From” parameter is set by the “XMRG FROM:” command.
*TO	The reserved variable *TO is derived from the envelope recipient value, as set by the “RCPT TO:” command.
*PARTS	The reserved variable *PARTS holds a comma separated list of parts. It is set prior to defining a recipient with the “RCPT TO:” and determines which of the “XPRT n” message body blocks a given user will receive.
*DATE	The reserved variable *DATE is replaced with the current date stamp.
*DK	The reserved variable *DK is used to specify a DomainKeys Signing profile (this profile must already exist in AsyncOS). For more information about creating DomainKeys Signing profiles, see the “Email Authentication” chapter in <i>Cisco IronPort AsyncOS for Email Advanced Configuration Guide</i> .

For example, the following example message body (including headers) contains four distinct variables and five substitution locations that will be replaced in the final message. Note that the same variable may be used more than once in the

message body. Also, the reserved variable `&*TO;` is used, which will be replaced with the recipient email address. This reserved variable does not need to be passed in as a separate variable. The variables in the example appear in bold.

## Example Message #1

From: Mr.Spacely <spacely@sprockets.com>

To: **&first\_name;&last\_name;&\*TO;**

Subject: Thanks for Being a Spacely Sprockets Customer

Dear **&first\_name;**,

Thank you for purchasing a **&color;** sprocket.

This message needs only be injected once into the IronPort C300D appliance. For each recipient, the following additional information is required:

- A recipient email address
- Name-value pairs for the variable substitution

## Part Assembly

Where SMTP uses a single `DATA` command for each message body, IPMM uses one or many `XPR` commands to comprise a message. Parts are assembled based upon the order specified per-recipient. Each recipient can receive any or all of the message parts. Parts can be assembled in any order.

The special variable `*PARTS` holds a comma separated list of parts.

For example, the following example message contains two parts.

The first part contains the message headers and some of the message body. The second part contains an offer that can be variably included for specific customers.

## Example Message #2, Part 1

```
From: Mr. Spacely <spacely@sprockets.com>

To: &first_name; &last_name; &*TO;

Subject: Thanks for Being a Spacely Sprockets Customer
```

```
Dear &first_name;,
```

```
Thank you for purchasing a &color; sprocket.
```

## Example Message #2, Part 2

```
Please accept our offer for 10% off your next sprocket purchase.
```

The message parts need only be injected once into the IronPort C300D appliance. In this case, each recipient requires the following additional information:

- The ordered list of parts to be included in the final message
- A recipient email address
- Name value pairs for the variable substitution

## IPMM and DomainKeys Signing

IPMM does support DomainKeys Signing. Use the `*DK` reserved variable to specify a DomainKeys profile. For example:

```
XDFN first_name="Jane" last_name="User" color="red" *PARTS=1,2
*DK=mass_mailing_1
```

In this example, “mail\_mailing\_1” is the name of a previously configured DomainKeys profile.

## Command Descriptions

When a client injects IPMM messages to the listener, it uses extended SMTP with the following key commands.

### XMRG FROM

Syntax:

**XMRG FROM:** *<sender email address>*

This command replaces the SMTP `MAIL FROM:` command and indicates that what follows is an IPMM message. An IPMM job is initiated with the `XMRG FROM:` command.

### XDFN

Syntax:

**XDFN** *<KEY=VALUE>* [*KEY=VALUE*]

The `XDFN` command sets the per-recipient metadata. Note that key-value pairs can optionally be enclosed in angle brackets or square brackets.

`*PARTS` is a special reserved variable that indicates the index number as defined by the `XPRT` command (described below). The `*PARTS` variable is split as a comma-delimited list of integers. The integers match the body parts to be sent as defined by the `XPRT` commands. The other reserved variables are: `*FROM`, `*TO`, and `*DATE`.

### XPRT

Syntax:

`XPRT` *index\_number* `LAST`

*Message*

.



The `XPRT` command replaces the `SMTP DATA` command. The command accepts the transfer of the message part after the command is issued. The command is completed with a single period on a line followed by a return (which is the same way an `SMTP DATA` command is completed).

The special keyword **LAST** indicates the end of the mail merge job and must be used to specify the final part that will be injected.

After the **LAST** keyword is used, the message is queued, and delivery begins.

## Notes on Defining Variables

- When you define variables with the `XDFN` command, note that the actual command line cannot exceed the physical limit of the system. In the case of the IronPort C300D appliance, this limit is 4 kilobytes per line. Other host systems may have lower thresholds. Use caution when defining multiple variables on very large lines.
- You can escape special characters using the forward slash “/” character when defining variables key-value pairs. This is useful if your message body contains HTML character entities that might be mistakenly replaced with variable definitions. (For example, the character entity `&trade;` defines the HTML character entity for a trademark character. If you created the command `XDFN trade=foo` and then created a IPMM message containing the HTML character entity “`&trade;`,” the assembled message would contain the variable substitution (“`foo`”) instead of the trademark character. The same concept is true for the ampersand character “`&`” which is sometimes used in URLs containing GET commands.

## Example IPMM Conversation

The following is an example IPMM conversation of Example Message #2 (shown above). The message will be sent to two recipients in this example: “Jane User” and “Joe User.”

In this example, the type in **bold** represents what you would type in a manual SMTP conversation with the IronPort C300D appliance, type in *monospaced type* represents the responses from the SMTP server, and *italic type* represents comments or variables.

A connection is established:

```
220 ESMTP
```

```
EHLO foo
```

```
250-ehlo responses from the injector enabled for IPMM
```

The conversation is started:

```
XMRG FROM:<user@domain.com> [Note: This replaces the MAIL FROM: SMTP
command.]
```

```
250 OK
```

Variables and parts are set for each recipient:

```
XDFN first_name="Jane" last_name="User" color="red" *PARTS=1,2
```

```
[Note: This line defines three variables (first_name, last_name, and
color) and then uses the *PARTS reserved variable to define that the next
recipient defined will receive message parts numbers 1 and 2.]
```

```
250 OK
```

```
RCPT TO:<jane@example.com>
```

```
250 recipient <jane@example.com> ok
```

```
XDFN first_name="Joe" last_name="User" color="black" *PARTS=1
```

```
[Note: This line defines three variables (first_name, last_name, and
color) and then uses the *PARTS reserved variable to define that the next
recipient defined will receive message parts numbers 1 only.]
```

```
RCPT TO:<joe@example.com>
```

```
250 recipient <joe@example.com> ok
```

Next, part 1 is transmitted:

**XPRT 1** *[Note: This replaces the DATA SMTP command.]*

354 OK, send part

**From:** Mr. Spacely <spacely@sprockets.com>

**To:** &first\_name; &last\_name; &\*TO;

**Subject:** Thanks for Being a Spacely Sprockets Customer

&\*DATE;

Dear &first\_name;;

Thank you for purchasing a &color; sprocket.

.

And then part 2 is transmitted. Note that the `LAST` keyword is used to identify Part 2 as the final part to assemble:

**XPRT 2 LAST**

Please accept our offer for 10% off your next sprocket purchase.

.

250 Ok, mailmerge message enqueued

The “250 Ok, mailmerge message queued” notes that the message has been accepted.

Based on this example, recipient Jane User will receive this message:

From: Mr. Spacely <spacely@sprockets.com>

To: Jane User <jane@example.com>

Subject: Thanks for Being a Spacely Sprockets Customer

*message date*

Dear Jane,

Thank you for purchasing a red sprocket.

Please accept our offer for 10% off your next sprocket purchase.

Recipient Joe User will receive this message:

From: Mr. Spacely <spacely@sprockets.com>

To: Joe User <joe@example.com>

Subject: Thanks for Being a Spacely Sprockets Customer

*message date*

Dear Joe,

Thank you for purchasing a black sprocket.

## Example Code

IronPort has created libraries in common programming languages to abstract the task of injecting IPMM messages into the IronPort appliance listener enabled for IPMM. Contact IronPort Customer Support for examples of how to use the IPMM library. The code is commented extensively to explain its syntax.





# CHAPTER 17

## The IronPort M-Series Security Management Appliance

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The IronPort M-Series appliance is a special model of the IronPort appliances, specifically designed to serve as an external or “off box” spam quarantine for use with other IronPort appliances. This chapter discusses network planning, system setup, and general use of the IronPort M-Series appliance.

This chapter contains the following sections:

- [Overview, page 17-551](#)
- [Network Planning, page 17-552](#)
- [Configuring Monitoring Services, page 17-554](#)

## Overview

You can use an IronPort M-Series Security Management appliance to complement your IronPort Email Security appliance. The IronPort M-Series Security Management appliance is designed to serve as an external or “off box” location to monitor corporate policy settings and audit information. It combines hardware, an operating system (AsyncOS), and supporting services to centralize and consolidate important policy and runtime data, providing administrators and end users with a single interface for managing reporting and auditing information for the IronPort C-Series and X-Series Email Security appliances. The IronPort M-Series appliance ensures top performance from IronPort Email Security

appliances, and protects corporate network integrity by increasing deployment flexibility. You can coordinate your security operations from a single IronPort M-Series appliance, or spread the load across multiple appliances.

The AsyncOS for Security Management appliance includes the following features:

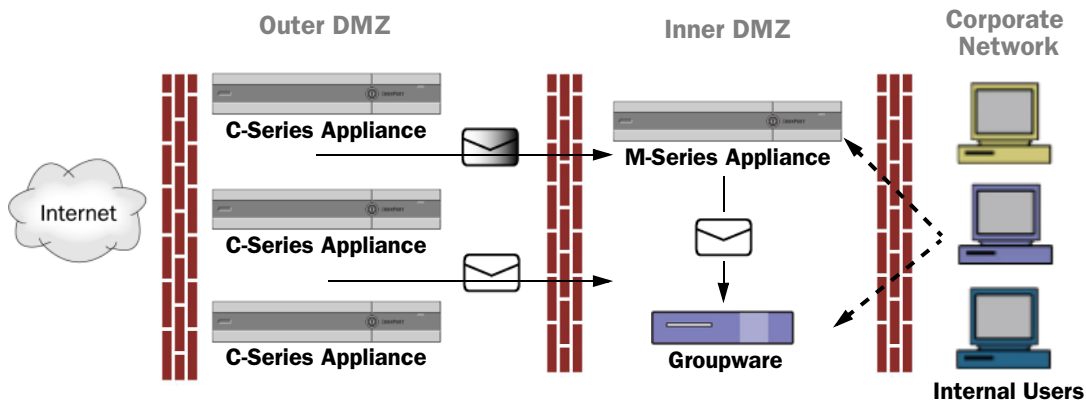
- External IronPort Spam Quarantine. Hold spam and suspected spam messages for end users, and allow end users and administrators to review messages that are flagged as spam before making a final determination.
- Centralized reporting. Run reports on aggregated data from multiple Email Security appliances.
- Centralized tracking. Track email messages that traverse multiple Email Security appliances.

For information about configuring and using your IronPort Security Management appliance, see the *IronPort AsyncOS for Security Management User Guide* .

## Network Planning

The IronPort M-Series appliance lets you separate the end user interfaces (mail applications, etc.) from the more secure gateway systems residing in your various DMZs. Using a two-layer firewall can provide you with flexibility in network planning so that end users will not connect directly to the outer DMZ (see [Figure 17-1](#)).



**Figure 17-1** Typical Network Configuration Incorporating the IronPort M-Series Appliance

Large corporate data centers can share one IronPort M-Series appliance acting as an external IronPort Spam quarantine for one or more IronPort C- or X-Series appliances. Further, remote offices can be set up to maintain their own local IronPort appliance quarantines for local use (using the local IronPort Spam quarantine on C- or X-Series appliances).

Figure 17-1 shows a typical network configuration incorporating the IronPort M-Series appliance and multiple DMZs. Incoming mail from the Internet is received by the IronPort appliances in the outer DMZ. Clean mail is sent along to the MTA (groupware) in the inner DMZ and eventually to the end users within the corporate network.

Spam and suspected spam (depending on your mail flow policy settings) is sent to the IronPort M-Series appliance's Spam quarantine. End users may then access the quarantine and elect to delete spam and release messages they would like to have delivered to themselves. Messages remaining in the IronPort Spam quarantine are automatically deleted after a configurable amount of time (see the "Quarantines" chapter in the *Cisco IronPort AsyncOS for Email Daily Management Guide*).

## Mail Flow and the IronPort M-Series Appliance

Mail is sent to the IronPort M-Series appliance from other IronPort (C- and X-Series) appliances. An IronPort appliance that is configured to send mail to an IronPort M-Series appliance will automatically expect to receive mail released from the M-Series appliance and will not re-process those messages when they are

received back — messages will bypass the HAT and other policy or scanning settings and be delivered. For this to work, the IP address of the IronPort M-Series appliance must not change. If the IP address of the IronPort M-Series appliance changes, the receiving C- or X-Series appliance will process the message as it would any other incoming message. You should always use the same IP address for receiving and delivery on the IronPort M-Series appliance.

The IronPort M-Series appliance accepts mail for quarantining from the IP addresses specified in the IronPort Spam Quarantine settings. To configure the local quarantine on the IronPort M-Series appliance see the *IronPort AsyncOS for Security Management User Guide*. Note that the local quarantine on the IronPort M-Series appliance is referred to as an *external* quarantine by the other IronPort appliances sending mail to it.

Mail released by the IronPort M-Series appliance is delivered to the primary and secondary hosts (IronPort appliance or other groupware host) as defined in the Spam Quarantine Settings (see the *IronPort AsyncOS for Security Management User Guide*). Therefore, regardless of the number of IronPort appliances delivering mail to the IronPort M-Series appliance, all released mail, notifications, and alerts are sent to a single host (groupware or IronPort appliance). Take care to not overburden the primary host for delivery from the IronPort M-Series appliance.

## Configuring Monitoring Services

Before you can use a Security Management appliance for centralized reporting and centralized tracking or as an external IronPort Spam Quarantine, you need to configure the monitoring services on the Email Security appliances.

When you configure the monitoring services on the Email Security appliances, you must also enable the services on the Security Management appliance. For more information, see the *IronPort AsyncOS for Security Management User Guide*.

You use monitoring services to run reports on email traffic, track message routing, and deliver suspect and spam messages to an external IronPort Spam Quarantine. You can configure one or more of the following services:

- **Centralized Reporting.** For more information, see [Configuring an Email Security Appliance to Use Centralized Reporting](#), page 17-555.

- **Centralized Tracking.** For more information, see [Configuring an Email Security Appliance to Use Centralized Tracking](#), page 17-556.
- **IronPort Spam Quarantine.** For more information, see [Configuring an Email Security Appliance to Use an External IronPort Spam Quarantine](#), page 17-558.

## Configuring an Email Security Appliance to Use Centralized Reporting

You can configure centralized reporting on an Email Security appliance at any time. Typically, you configure centralized reporting after you enable the feature on a Security Management appliance.



### Note

Before enabling centralized reporting, ensure that sufficient disk space is allocated to that service.

To enable centralized reporting on an Email Security appliance:

**Step 1** Click Security Services > Reporting.

The Reporting Service Settings page is displayed.

**Figure 17-2**      *The Reporting Service Settings Page*  
**Reporting Service Settings**

Reporting Service	
Reporting Service:	<input type="radio"/> Local Reporting Only <input checked="" type="radio"/> Local and Centralized Reporting <small>When selecting Centralized Reporting, ensure that the Security Management Appliance is configured to obtain reporting data from this appliance.</small>
<div> <span>Cancel</span> <span>Submit</span> </div>	

**Step 2** In the Reporting Service section, select the Local and Centralized Reporting option.

**Step 3** Submit and commit your changes.

**Note**

To use centralized reporting, you must enable the feature on the Email Security appliances *and* on the Security Management appliance. For information about enabling centralized reporting on the Security Management appliance, see the *IronPort AsyncOS for Security Management User Guide*.

## Centralized Reporting Mode

After an Email Security appliance is configured to use centralized reporting and you add it to the Security Management appliance as a managed appliance, the Email Security appliance operates in centralized reporting mode. When an Email Security appliance is in centralized reporting mode, the scheduled reports for that appliance are suspended, and you can no longer access the scheduled report configuration page and the archived reports for the appliance. Also, the appliance stores only a week's worth of data. New data for the monthly and yearly reports is stored on the Security Management appliance. Existing data on the Email Security appliance for the monthly report is not transferred to the Security Management appliance. After centralized reporting is disabled, the Email Security appliance begins storing new monthly report data.

If you disable centralized reporting on the Email Security appliance, scheduled reports resume, and you can access its archived reports. After disabling centralized reporting, the appliance only displays data for the past hour and day, but not the past week or month. This is temporary. The appliance will display the reports for the past week and month after it accumulates enough data. If the Email Security appliance is placed back into centralized reporting mode, it will display data for the past week in the interactive reports.

## Configuring an Email Security Appliance to Use Centralized Tracking

You can configure an Email Security appliance to use either local (on-box) tracking or centralized tracking.

**Note**

You cannot enable both centralized and local tracking on an Email Security appliance.

To enable centralized tracking on an Email Security appliance:

**Step 1** Click Security Services > Message Tracking.

The Message Tracking Service page is displayed.

**Figure 17-3**      *The Message Tracking Service Page*  
**Message Tracking Service**

**Step 2** In the Message Tracking Service section, click **Edit Settings**.

**Figure 17-4**      *The Message Tracking Service Settings Page*  
**Message Tracking Service Settings**

**Step 3** Select the Enable Message Tracking Service check box.

**Step 4** Select the Centralized Tracking option.

**Step 5** Optionally, select the check box to save information for rejected connections.



**Note** Saving tracking information for rejected connections can adversely affect the performance of the Security Management appliance.

**Step 6** Submit and commit your changes.



**Note** To use centralized tracking, you must enable the feature on the Email Security appliances *and* the Security Management appliance. For information about enabling centralized tracking on the Security Management appliance, see the *IronPort AsyncOS for Security Management User Guide*.

## Configuring an Email Security Appliance to Use an External IronPort Spam Quarantine

You need to enable the external spam quarantine feature on an Email Security appliance to use a Security Management appliance as an IronPort Spam Quarantine. You also need to provide the IP address and port number that the Email Security appliance uses to connect to the external spam quarantine.

To enable an Email Security appliance to use a Security Management appliance as an external IronPort Spam Quarantine:

- Step 1** Click Security Services > External Spam Quarantine.  
The External Spam Quarantine page is displayed.
- Step 2** Click **Configure**.  
The Configure External Spam Quarantine page is displayed.

**Figure 17-5** The Configure External Spam Quarantine Page  
**Configure External Spam Quarantine**

External Spam Quarantine Settings	
<input checked="" type="checkbox"/> <b>Enable External Spam Quarantine</b>	
Name:	IronPort_Spam_Quarantine (e.g. spam_quarantine)
IP Address:	111.111.1.11
Port:	6025
Safelist/Blocklist:	<input checked="" type="checkbox"/> Enable End User Safelist/Blocklist Feature Blocklist Action: Quarantine

Cancel Submit

- Step 3** In the External Spam Quarantine section, select the Enable External Spam Quarantine check box.
- Step 4** In the Name field, enter the name of the Security Management appliance.
- Step 5** Enter an IP address and port number. The IP address and port number for the Security Management appliance are configured on the IronPort Spam Quarantine page.
- Step 6** Optionally, select the check box to enable the End User Safelist/Blocklist feature, and specify the appropriate blocklist action.
- Step 7** Submit and commit your changes.

For more information about the IronPort Spam Quarantine and the End User Safelist/Blocklist feature, see “Quarantines” chapter in the *Cisco IronPort AsyncOS for Email Daily Management Guide*. For more information about working with the IronPort Spam Quarantine on an M-Series appliance, see the *IronPort AsyncOS for Security Management User Guide* .







# APPENDIX A

## Accessing the Appliance

You can access any IP interface you create on the appliance through a variety of services.

By default, the following services are either enabled or disabled on each interface:

**Table A-1**      *Services Enabled by Default on IP Interfaces*

		Enabled by default?	
Service	Default port	Management interface	New IP interfaces you create
FTP	21	No	No
Telnet	23	Yes	No
SSH	22	Yes	No
HTTP	80	Yes	No
HTTPS	443	Yes	No

(a) the “Management Interface” settings shown here are also the default settings for the Data 1 Interface on IronPort C10/100 appliances.

- If you need to access the appliance via the graphical user interface (GUI), you must enable HTTP and/or HTTPS on an interface.
- If you need to access the appliance for the purposes of uploading or downloading configuration files, you must enable FTP or Telnet on an interface. See [FTP Access, page A-565](#).
- You can also upload or download files using secure copy (`sftp`).

# IP Interfaces

An IP interface contains the network configuration data needed for an individual connection to the network. You can configure multiple IP interfaces to a physical Ethernet interface. You can also configure access to the IronPort Spam quarantine via an IP interface. For email delivery and Virtual Gateways, each IP interface acts as one Virtual Gateway address with a specific IP address and hostname. You can also “join” interfaces into distinct groups (via the CLI), and the system will cycle through these groups when delivering email. Joining or grouping Virtual Gateways is useful for load-balancing large email campaigns across several interfaces. You can also create VLANs, and configure them just as you would any other interface (via the CLI). For more information, see the “Advanced Networking” chapter in the *Cisco IronPort AsyncOS for Email Advanced Configuration Guide*.

**Figure A-1**        **IP Interfaces Page**  
**IP Interfaces**

Network Interfaces and IP Addresses			
Add IP Interface...			
Name	IP Address	Hostname	Delete
Data 1	172.19.1.86/24	buttercup.run	
Data 2	172.19.2.86/24	buttercup.run	
Management	172.19.0.86/24	buttercup.run	

## Configuring IP Interfaces

The Network > IP Interfaces page (and `interfaceconfig` command) allows you to add, edit, or delete IP interfaces.



**Note**

You can not change the name or ethernet port associated with the Management interface on the M-Series appliance. Further, the IronPort M-Series appliance does not support all of the features discussed below (Virtual Gateways, for example).

The following information is required when you configure an IP interface:

**Table A-2** *IP Interface Components*

<b>Name</b>	The nickname of the interface.
<b>IP address</b>	IP addresses within the same subnet cannot be configured on separate physical Ethernet interfaces.
<b>Netmask (or subnetmask)</b>	You can enter the netmask in standard dotted octet form (e.g. 255.255.255.0) or hexadecimal form (e.g. 0xffffffff). The default netmask is 255.255.255.0, a common class C value.
<b>Broadcast address</b>	IronPort AsyncOS automatically calculates the default broadcast address from the IP address and the netmask.
<b>Hostname</b>	The hostname that is related to the interface. This hostname will be used to identify the server during the SMTP conversation. You are responsible for entering a valid hostname associated with each IP address. The software does not check that DNS correctly resolves the hostname to the matching IP address, or that reverse DNS resolves to the given hostname.
<b>Allowed services</b>	FTP, SSH, Telnet, IronPort Spam Quarantine, HTTP, and HTTPS can be enabled or disabled on the interface. You can configure the port for each service. You can also specify the HTTP/HTTPS, port, and URL for the IronPort Spam Quarantine.



**Note**

If you have completed the GUI's System Setup Wizard (or the Command Line Interface `systemsetup` command) as described in [Chapter 3, "Setup and Installation"](#) and committed the changes, one or two interfaces should already be configured on your appliance. (Refer to the settings you entered in the "Assign and Configure Logical IP Interface(s)" section.) In addition, the Management interface is configured on the IronPort appliance.

# Creating IP Interfaces via the GUI

To create an IP interface:

- Step 1
- Click **Add IP Interface** on the Network > IP Interfaces page. The Add IP Interface page is displayed:

**Figure A-2      Add IP Interface Page**  
**Add IP Interface**

IP Interface Settings

Name:

Ethernet Port:

Data 1

IP Address:

Netmask:

255.255.255.0

Hostname:

HTTPS Certificate:

System Default

Services:

Service

Port

☐ FTP

21

☐ Telnet

23

☐ SSH

22

Appliance Management

☐ HTTP

80

☐ HTTPS

443

☐ Redirect HTTP requests to HTTPS (HTTP and HTTPS Services will be turned on)

Spam Quarantine

☐ Spam Quarantine HTTP

82

☐ Spam Quarantine HTTPS

83

☐ Redirect HTTP requests to HTTPS (HTTP and HTTPS Services will be turned on)

☐ This is the default interface for Spam Quarantine

Quarantine login and notifications will originate on this interface.

URL Displayed in Notifications:

☐ Hostname

(examples: http://spamQ.url/, http://10.1.1.1:82/)

Warnings : \*

Please exercise care when disabling or changing these items, as this could disrupt active connections to this appliance when changes to these items are committed.

\*\*

Hyperlinks and URLs affected by these changes will not be usable until the changes are committed.

Cancel

Submit

- Step 2
- Enter a name for the interface.
- Step 3
- Select an Ethernet port and enter an IP address.
- Step 4
- Enter the netmask for the IP address.
- Step 5
- Enter a hostname for the interface.
- Step 6
- Select a TLS certificate for HTTPS services.
- Step 7
- Mark the checkbox next to each service you wish to enable on this IP interface.  
Change the corresponding port if necessary.

- Step 8** Select whether or not to enable redirecting HTTP to HTTPS for appliance management on the interface.
- Step 9** If you are using the IronPort Spam quarantine, you can select HTTP or HTTPS or both and specify the port numbers for each. You can also select whether to redirect HTTP requests to HTTPS. Finally, you can specify whether the IP interface is the default interface for the IronPort Spam quarantine, whether to use the hostname as the URL, or provide a custom URL.
- Step 10** Click **Submit**.
- Step 11** Click the **Commit Changes** button, add an optional comment if necessary, and then click **Commit Changes** to finish creating the IP interface.

## FTP Access

To access the appliance via FTP, follow these steps:



### Warning

---

**By disabling services via the Network > IP Interfaces page or the `interfaceconfig` command, you have the potential to disconnect yourself from the GUI or CLI, depending on how you are connected to the appliance. Do not disable services with this command if you are not able to reconnect to the appliance using another protocol, the Serial interface, or the default settings on the Management port.**

---

- Step 1** Use the Network > IP Interfaces page (or the `interfaceconfig` command) to enable FTP access for the interface.
- In this example, the Management interface is edited to enable FTP access on port 21 (the default port):

Figure A-3      *Edit IP Interface Page*  
**Edit IP Interface**

IP Interface Settings		
Name:	<input type="text" value="Management"/>	
Ethernet Port:	<input type="button" value="Management"/>	
IP Address:	<input type="text" value="172.19.0.11"/> *	
Netmask:	<input type="text" value="255.255.255.0"/> *	
Hostname:	<input type="text" value="elroy.run"/>	
Services:	Service	Port
	<input checked="" type="checkbox"/> FTP	<input type="text" value="21"/>
	<input checked="" type="checkbox"/> Telnet	<input type="text" value="23"/>
	<input checked="" type="checkbox"/> SSH	<input type="text" value="22"/> *



**Note**      Remember to commit your changes before moving on to the next step.

**Step 2**      Access the interface via FTP. Ensure you are using the correct IP address for the interface. For example:  
`ftp 192.168.42.42`

Many browsers also allow you to access interfaces via FTP. For example:  
`ftp://192.10.10.10`

- Step 3** Browse to the directory for the specific task you are trying to accomplish. After you have accessed an interface via FTP, you can browse the following directories to copy and add (“GET” and “PUT”) files. See [Table A-2 on page A-567](#).

**Table A-3** Directories available for access

Directory Name	Description
<b>/antivirus</b>	The directory where the Sophos Anti-Virus engine log files are kept. You can inspect the log files this directory to manually check for the last successful download of the virus definition file (scan.dat).
<b>/avarchive</b> <b>/bounces</b> <b>/cli_logs</b> <b>/delivery</b> <b>/error_logs</b> <b>/ftpd_logs</b> <b>/gui_logs</b> <b>/mail_logs</b> <b>/rptd_logs</b> <b>/sntpd.logs</b> <b>/status</b> <b>/system_logs</b>	Created automatically for <b>logging</b> via the System Administration > Logging page or the logconfig and rollovernow commands. See the “Logging” chapter in the <i>Cisco IronPort AsyncOS for Email Daily Management Guide</i> for a detailed description of each log.  See “Log File Type Comparison” in the Logging chapter for the differences between each log file type.

**Table A-3** Directories available for access *(Continued)*

Directory Name	Description
/MFM	<p>The Mail Flow Monitoring database directory contains data for the Mail Flow Monitor functionality available from the GUI. Each subdirectory contains a README file that documents the record format for each file.</p> <p>You can copy these files to a different machine for record keeping, or load the files into a database and create your own analysis application. The record format is the same for all files in all directories; this format may change in future releases.</p>
/saved_reports	<p>The directory where all archived reports configured on the system are stored.</p>
/configuration	<p>The directory where data from the following pages and commands is exported to and/or imported (saved) from:</p> <ul style="list-style-type: none"> <li>Virtual Gateway mappings (altsrchost)</li> <li>configuration data in XML format (saveconfig, loadconfig)</li> <li>Host Access Table (HAT) Page (hostaccess)</li> <li>Recipient Access Table (RAT) Page (rcptaccess)</li> <li>SMTP Routes Page (smtproutes)</li> <li>alias tables (aliasconfig)</li> <li>masquerading tables (masquerade)</li> <li>message <b>filters</b> (filters)</li> <li>global unsubscribe data (unsubscribe)</li> <li>test messages for the trace command</li> </ul>

**Step 4** Use your FTP program to upload and download files to and from the appropriate directory.



## Secure Copy (scp) Access

If your client operating system supports a secure copy (`scp`) command, you can copy files to and from the directories listed in [Table A-2](#). For example, in the following example, the file `/tmp/test.txt` is copied from the client machine to the configuration directory of the appliance with the hostname of `mail3.example.com`.

Note that the command prompts for the password for the user (`admin`). This example is shown for reference only; your particular operating system's implementation of secure copy may vary.

```
% scp /tmp/test.txt admin@mail3.example.com:configuration
```

```
The authenticity of host 'mail3.example.com (192.168.42.42)' can't be
established.
```

```
DSA key fingerprint is 69:02:01:1d:9b:eb:eb:80:0c:a1:f5:a6:61:da:c8:db.
```

```
Are you sure you want to continue connecting (yes/no)? yes
```

```
Warning: Permanently added 'mail3.example.com ' (DSA) to the list of
known hosts.
```

```
admin@mail3.example.com's password: (type the password)
```

```
test.txt                100% | ***** | 1007
00:00
```

```
%
```

In this example, the same file is copied from the appliance to the client machine:

```
% scp admin@mail3.example.com:configuration/text.txt .
```

```
admin@mail3.example.com's password: (type the password)
```

```
test.txt                100% | ***** | 1007
00:00
```

You can use secure copy (`scp`) as an alternative to FTP to transfer files to and from the IronPort appliance.



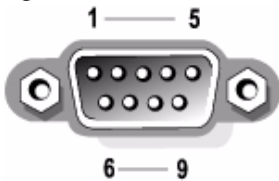
**Note**

Only users in the operators and administrators group can use secure copy (`scp`) to access the appliance. For more information, see information on adding users in “Common Administrative Tasks” in *Cisco IronPort AsyncOS for Email Daily Management Guide*.

# Accessing via a Serial Connection

If you are connecting to the appliance via a serial connection (see [Connecting to the Appliance](#), page 3-49), [Figure A-4](#) illustrates the pin numbers for the serial port connector, and [Table A-4](#) defines the pin assignments and interface signals for the serial port connector.

**Figure A-4      Pin Numbers for the Serial Port**



**Table A-4      Serial Port Pin Assignments**

Pin	Signal	I/O	Definition
1	DCD	I	Data carrier detect
2	SIN	I	Serial input
3	SOUT	O	Serial output
4	DTR	O	Data terminal ready
5	GND	n/a	Signal ground
6	DSR	I	Data set ready
7	RTS	I	Request to send
8	CTS	O	Clear to send

**Table A-4**      **Serial Port Pin Assignments (Continued)**

Pin	Signal	I/O	Definition
<b>9</b>	RI	I	Ring indicator
<b>Shell</b>	n/a	n/a	Chassis ground





## APPENDIX **B**

# Assigning Network and IP Addresses

---

This appendix describes general rules on networks and IP address assignments, and it presents some strategies for connecting the IronPort appliance to your network.

Topics included in this appendix include:

- [Ethernet Interfaces, page B-573](#)
- [Selecting IP Addresses and Netmasks, page B-574](#)
- [Strategies for Connecting Your IronPort Appliance, page B-577](#)

## Ethernet Interfaces

The IronPort X1000/1050/1060, C600/650/660, and C300/350/360 appliances are equipped with as many as four Ethernet interfaces located on the rear panel of the system depending on the configuration (whether or not you have the optional optical network interface). They are labeled:

- Management
- Data1
- Data2
- Data3
- Data4

The IronPort C60 and C30 appliances are equipped with three Ethernet interfaces located on the rear panel of the system. They are labeled:

- Management
- Data1
- Data2

The IronPort C10/100/150/160 appliance is equipped with two Ethernet interfaces located on the rear panel of the system. They are labeled:

- Data1
- Data2

## Selecting IP Addresses and Netmasks

When you configure the network, the IronPort appliance must be able to uniquely select an interface to send an outgoing packet. This requirement will drive some of the decisions regarding IP address and netmask selection for the Ethernet interfaces. The rule is that only one interface can be on a single network (as determined through the applications of netmasks to the IP addresses of the interfaces).

An IP address identifies a physical interface on any given network. A physical Ethernet interface can have more than one IP address for which it accepts packets. An Ethernet interface that has more than one IP address can send packets over that interface with any one of the IP addresses as the source address in the packet. This property is used in implementing Virtual Gateway technology.

The purpose of a netmask is to divide an IP address into a network address and a host address. The network address can be thought of as the network part (the bits matching the netmask) of the IP address. The host address is the remaining bits of the IP address. The number of bits in a four octet address that are significant are sometimes expressed in CIDR (Classless Inter-Domain Routing) style. This is a slash followed by the number of bits (1-32).

A netmask can be expressed in this way by simply counting the ones in binary, so 255.255.255.0 becomes “/24” and 255.255.240.0 becomes “/20”.

# Sample Interface Configurations

This section shows sample interface configurations based on some typical networks. The example will use two interfaces called Int1 and Int2. In the case of the IronPort appliance, these interface names can represent any two interfaces out of the three IronPort interfaces (Management, Data1, Data2).

## Network 1:

Separate interfaces must appear to be on separate networks.

Interface	IP address	netmask	net address
Int1	192.168.1.10	255.255.255.0	192.168.1.0/24
Int2	192.168.0.10	255.255.255.0	192.168.0.0/24

Data addressed to 192.168.1.x (where X is any number 1-255, except for your own address, 10 in this case) will go out on Int1. Anything addressed to 192.168.0.x will go out on Int2. Any packet headed for some other address not in these formats, most likely out on a WAN or the Internet, will be sent to the default gateway which must itself be on one of these networks. The default gateway will then forward the packet on.

## Network 2:

The network addresses (network parts of the IP addresses) of two different interfaces cannot be the same.

Ethernet Interface	IP address	netmask	net address
Int1	192.168.1.10	255.255.0.0	192.168.0.0/16
Int2	192.168.0.10	255.255.0.0	192.168.0.0/16

This situation presents a conflict in that two different Ethernet interfaces have the same network address. If a packet from the IronPort appliance is sent to 192.168.1.11, there is no way to decide which Ethernet interface should be used to deliver the packet. If the two Ethernet interfaces are connected to two separate physical networks, the packet may be delivered to the incorrect network and never find its destination. The IronPort appliance will not allow you to configure your network with conflicts.

You can connect two Ethernet interfaces to the same physical network, but you must construct IP addresses and netmasks to allow the IronPort appliance to select a unique delivery interface.

## IP Addresses, Interfaces, and Routing

When selecting an interface on which to perform a command or function in the GUI or CLI that allows you to select an interface (for example, upgrading AsyncOS, or configuring DNS, etc.), routing (your default gateway) will take precedence over your selection.

For example, suppose you have an IronPort appliance with the 3 network interfaces configured, each on a different network segment (assume all /24):

Ethernet	IP
<b>Management</b>	192.19.0.100
<b>data1</b>	192.19.1.100
<b>data2</b>	192.19.2.100

And your Default gateway is 192.19.0.1.

Now, if you perform an AsyncOS upgrade (or other command or function that allows you to select an interface) and you select the IP that is on data1 (192.19.1.100), you would expect all the TCP traffic to occur over the data1 ethernet interface. However, what happens is that the traffic will go out of the interface that is set as your default gateway, in this case Management, but will be stamped with the source address of the IP on data1.



# Summary

The IronPort appliance must always be able to identify a unique interface over which a packet will be delivered. To make this decision, the IronPort appliance uses a combination of the packet’s destination IP address, and the network and IP address settings of its Ethernet interfaces. The following table summarizes the preceding examples:

	Same Network	Different Network
Same Physical Interface	Allowed	Allowed
Different Physical Interface	Not Allowed	Allowed

# Strategies for Connecting Your IronPort Appliance

Keep these things in mind when connecting your IronPort appliance:

- Administrative traffic (CLI, web interface, log delivery) traffic is usually small compared to email traffic.
- If two Ethernet interfaces are connected to the same network switch, but end up talking to a single interface on another host downstream, or are connected to a network hub where all data are echoed to all ports, no advantage is gained by using two interfaces.
- SMTP conversations over an interface operating at 1000Base-T will be slightly faster than ones over the same interfaces operating at 100Base-T, but only under ideal conditions.
- There is no point in optimizing connections to your network if there is a bottleneck in some other part of your delivery network. Bottlenecks most often occur in the connection to the Internet and further upstream at your connectivity provider.

The number of IronPort appliance interfaces that you choose to connect and how you address them should be dictated by the complexity of your underlying network. It is not necessary to connect multiple interfaces if your network topology or data volumes do not call for it. It is also possible to keep the connection simple at first as you familiarize yourself with the gateway and then increase the connectivity as volume and network topology require it.





# APPENDIX **C**

## Firewall Information

The following table lists the possible ports that may need to be opened for proper operation of the IronPort appliance (these are the default values).

**Table C-1**      **Firewall Ports**

Port	Protocol	In/Out	Hostname	Description
20/21	TCP	In or Out	AsyncOS IPs, FTP Server	FTP for aggregation of log files.
22	TCP	In	AsyncOS IPs	SSH access to the CLI, aggregation of log files.
22	TCP	Out	SSH Server	SSH aggregation of log files.
22	TCP	Out	SCP Server	SCP Push to log server
23	Telnet	In	AsyncOS IPs	Telnet access to the CLI, aggregation of log files.
23	Telnet	Out	Telnet Server	Telnet upgrades, aggregation of log files (not recommended).
25	TCP	Out	Any	SMTP to send email.
25	TCP	In	AsyncOS IPs	SMTP to receive bounced email or if injecting email from outside firewall.
80	HTTP	In	AsyncOS IPs	HTTP access to the GUI for system monitoring.
80	HTTP	Out	downloads.ironport.com	Service updates, except for AsyncOS upgrades and McAfee definitions.
80	HTTP	Out	updates.ironport.com	AsyncOS upgrades and McAfee Anti-Virus definitions.

**Table C-1 Firewall Ports (Continued)**

82	HTTP	In	AsyncOS IPs	Used for viewing the IronPort Anti-Spam quarantine.
83	HTTPS	In	AsyncOS IPs	Used for viewing the IronPort Anti-Spam quarantine.
53	UDP/TCP	In & Out	DNS Servers	DNS if configured to use Internet root servers or other DNS servers outside the firewall. Also for SenderBase queries.
110	TCP	Out	POP Server	POP authentication for end users for IronPort Spam Quarantine
123	UDP	In & Out	NTP Server	NTP if time servers are outside firewall.
143	TCP	Out	IMAP Server	IMAP authentication for end users for IronPort Spam Quarantine
161	UDP	In	AsyncOS IPs	SNMP Queries
162	UDP	Out	Management Station	SNMP Traps
389 3268	LDAP	Out	LDAP Servers	LDAP if LDAP directory servers are outside firewall. LDAP authentication for IronPort Spam Quarantine
636 3269	LDAPS	Out	LDAPS	LDAPS — ActiveDirectory's Global Catalog Server
443	TCP	In	AsyncOS IPs	Secure HTTP ( <a href="https">https</a> ) access to the GUI for system monitoring.
443	TCP	Out	res.cisco.com	Cisco Registered Envelope Service
443	TCP	Out	updates-static.ironport.com	Verify the latest files for the update server.
443	TCP	Out	phonehome.senderbase.org	Receive/Send Virus Outbreak Filters
514	UDP/TCP	Out	Syslog Server	Syslog logging
628	TCP	In	AsyncOS IPs	QMQP if injecting email from outside firewall.

**Table C-1**      **Firewall Ports (Continued)**

2222	CCS	In & Out	AsyncOS IPs	Cluster Communication Service (for Centralized Management).
6025	TCP	Out	AsyncOS IPs	IronPort Spam Quarantine





## APPENDIX **D**

# IronPort End User License Agreement

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This appendix contains the following section:

- [Cisco IronPort Systems, LLC Software License Agreement, page D-583](#)

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## GLOSSARY

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### A

- Allowed Hosts** Computers that are allowed to relay email through the IronPort appliance via a private listener. Allowed hosts are defined by their hostnames or IP addresses.
- Anti-Virus** Sophos and McAfee Anti-Virus scanning engines provide cross-platform anti-virus protection, detection and disinfection. through virus detection engines which scans files for viruses, Trojan horses and worms. These programs come under the generic term of *malware*, meaning “malicious software.” The similarities between all types of malware allow anti-virus scanners to detect and remove not only viruses, but also all types of malicious software.

---

### B

- Blacklist** A list of known bad senders. By default, senders in the Blacklist sender group of a public listener are rejected by the parameters set in the \$BLOCKED *mail flow policy*.

---

### C

- Character Set (Double-byte)** Double Byte Character Sets are foreign-language character sets requiring more than one byte of information to express each character.

<b>CIDR Notation</b>	Classless Inter-Domain Routing. A convenient shorthand for describing a range of IP addresses within their network contexts using an arbitrary number of bits. Using this notation, you note the network prefix part of an address by adding a forward slash (/) followed by the number of bits used for the network part. Thus a Class C network can be described in prefix notation as 192.168.0.1/24. A CIDR specification of 206.13.1.48/25 would include any address in which the first 25 bits of the address matched the first 25 bits of 206.13.1.48.
<b>Content Filters</b>	Content-based filters used to process messages during the Per-Recipient Scanning phase of the work queue in the email pipeline. Content filters are evoked after Message filters, and act on individual splintered messages.
<b>Content Matching Classifier</b>	The detection component of the RSA data loss prevention scanning engine. A classifier contains a number of rules for detecting sensitive data, along with context rules that search for supporting data. For example, a credit card classifier not only requires that the message contain a string that matches a credit card number, but that it also contains supporting information such as an expiration data, a credit card company name, or an address.
<b>Conversational Bounce</b>	A bounce that occurs within the SMTP conversation. The two types of conversational bounces are <i>hard bounces</i> and <i>soft bounces</i> .

---

## D

<b>Debounce Timeout</b>	The amount of time, in seconds, the system will refrain from sending the identical alert to the user.
<b>Delayed Bounce</b>	A bounce that occurs within the SMTP conversation. The recipient host accepts the message for delivery, only to bounce it at a later time.



<b>Delivery</b>	<p>The act of delivering email messages to recipient domains or internal mail hosts from the IronPort appliance from a specific IP interface. The IronPort appliance can deliver messages from multiple IP interfaces within same physical machine using Virtual Gateway technology. Each Virtual Gateway contains a distinct IP address, hostname and domain, and email queue, and you can configure different mail flow policies and scanning strategies for each.</p> <p>You can tailor the configuration of the delivery that the IronPort appliance performs, including the maximum simultaneous connections to remote hosts, the per-Virtual Gateway limit of maximum simultaneous connections to the host, and whether the conversations to remote hosts are encrypted.</p>
<b>DLP</b>	<p>Data loss prevention. RSA Security DLP scanning engine protects your organization's information and intellectual property and enforces regulatory and organizational compliance by preventing users from unintentionally emailing sensitive data.</p>
<b>DLP Incident</b>	<p>A data loss prevention incident occurs when a DLP policy detects one or more DLP violations that merit attention in an outgoing message.</p>
<b>DLP Policy</b>	<p>A data loss prevention policy is a set of conditions used to determine whether an outgoing message contains sensitive data and the actions that AsyncOS takes on a message that contains such data.</p>
<b>DLP Risk Factor</b>	<p>A score of 0 to 100 that represents the security risk of the DLP violations detected in an outgoing message. Based on the risk factor, the DLP policy determines the actions to take on the message.</p>
<b>DLP Violation</b>	<p>An instance of data being found in a message that violates your organization's DLP rules.</p>
<b>DNS</b>	<p>Domain Name System. See RFC 1045 and RFC 1035. DNS servers on a network resolve IP addresses to hostnames, and vice versa.</p>
<b>DoS attack</b>	<p>Denial of Service attack, can also be in the form of DDos (Distributed Denial of Service Attack). An attack on a network or computer, the primary aim of which is to disrupt access to a given service.</p>
<b>DSN</b>	<p>Delivery Status Notification, a bounced message.</p>

---

## E

<b>Email Security Manager</b>	A single, comprehensive dashboard to manage all email security services and applications on IronPort appliances. Email Security Manager allows you to manage Virus Outbreak Filters, Anti-Spam, Anti-Virus, and email content policies — on a per-recipient or per-sender basis, through distinct inbound and outbound policies. See also <i>Content Filters</i> .
<b>Envelope Recipient</b>	The recipient of an email message, as defined in the RCPT TO: SMTP command. Also sometimes referred to as the “Recipient To” or “Envelope To” address.
<b>Envelope Sender</b>	The sender of an email message, as defined in the MAIL FROM: SMTP command. Also sometimes referred to as the “Mail From” or “Envelope From” address.

---

## F

<b>False Negative</b>	A spam message or a message containing a virus or a DLP violation that was not detected as such.
<b>False Positive</b>	A message falsely categorized as spam or as containing a virus or DLP violation.
<b>Fully-Qualified Domain Name (FQDN)</b>	A domain name including all higher level domain names up to the top-level domain name; for example: <code>mail3.example.com</code> is a fully qualified domain name for the <i>host</i> at 192.168.42.42; <code>example.com</code> is the fully qualified domain name for the <code>example.com</code> <i>domain</i> . The fully qualified domain name must be unique within the Internet.

---

## H

**Hard Bounced Message**

A message that is permanently undeliverable. This can happen during the SMTP conversation or afterward.

**HAT**

Host Access Table. The HAT maintains a set of rules that control incoming connections from remote hosts for a listener. Every *listener* has its own HAT. HATs are defined for public and private listeners, and contain *mail flow policies* and *sender groups*.

---

**IDE File**

Virus Definition File. An IDE file contains signatures or definitions used by anti-virus software to detect viruses.

---

**L****LDAP**

Lightweight Directory Access Protocol. A protocol used to access information about people (including email addresses), organizations, and other resources in an Internet directory or intranet directory.

**Listener**

A listener describes an email processing service that will be configured on a particular IP interface. Listeners only apply to email entering the IronPort appliance — either from the internal systems within your network or from the Internet. IronPort AsyncOS uses listeners to specify criteria that messages must meet in order to be accepted and relayed to recipient hosts. You can think of a listener as an “email injector” or even a “SMTP daemon” running for each IP address you specify.

IronPort AsyncOS differentiates between *public* listeners — which by default have the characteristics for receiving email from the Internet — and *private* listeners that are intended to accept email only from internal (groupware, POP/IMAP, and other message generation) systems.

**Log Subscription**

Creation of log files that monitor the performance of the IronPort appliance. The log files are stored in local disk(s) and can also be transferred and stored in a remote system. Typical attributes of a log subscription include: name, component to monitor (email operations, server), format, and transfer method.

---

## M

<b>Mail Flow Policies</b>	A mail flow policy is a way of expressing a group of <i>Host Access Table</i> (HAT) parameters (an access rule, followed by <i>rate limiting</i> parameters and custom SMTP codes and responses) for a <i>listener</i> . Together, <i>sender groups</i> and mail flow policies are defined in a listener's HAT. Your IronPort appliance ships with the predefined mail flow policies and sender groups for listeners.
<b>MAIL FROM</b>	See <i>Envelope Sender</i> .
<b>Maximum Number of Retries</b>	The maximum number of times that redelivery of a <i>soft bounced</i> message will be attempted before being <i>hard bounced</i> .
<b>Maximum Time in Queue</b>	The maximum length of time that a <i>soft bounced</i> message will stay in the email queue for <i>delivery</i> before being <i>hard bounced</i> .
<b>MTA</b>	Mail Transfer Agent, or Messaging Transfer Agent. The program responsible for accepting, routing, and delivering email messages. Upon receiving a message from a Mail User Agent or another MTA, the MTA stores a message temporarily locally, analyses the recipients, and routes it to another MTA (routing). It may edit and/or add to the message headers. The IronPort appliance is an MTA that combines hardware, a hardened operating system, application, and supporting services to produce a purpose-built, rack-mount server appliance dedicated for enterprise messaging.
<b>MUA</b>	Mail User Agent. The program that allows the user to compose and read email messages. The MUA provides the interface between the user and the Message Transfer Agent. Outgoing mail is eventually handed over to an MTA for delivery.
<b>MX Record</b>	Specifies the MTA on the Internet responsible for accepting mail for a specified domain. A Mail Exchange record creates a mail route for a domain name. A domain name can have multiple mail routes, each assigned a priority number. The mail route with the lowest number identifies the primary server responsible for the domain. Other mail servers listed will be used as backup.

---

## N

**Non-Conversational Bounce** A bounce that occurs due to a message being returned after the message was accepted for delivery by the recipient host. These can be soft (4XX) or hard (5XX) bounces. You can analyze these bounce responses to determine what to do with the recipient messages (e.g. re-send soft bounced recipient messages and remove hard bounced recipients from database).

**NTP** Network Time Protocol. The `ntpconfig` command configures IronPort AsyncOS to use Network Time Protocol (NTP) to synchronize the system clock with other computers.

---

## O

**Open Relay** An open relay (sometimes called an “insecure relay” or a “third party” relay) is an SMTP email server that allows unchecked third-party relay of email messages. By processing email that is neither for nor from a local user, an open relay makes it possible for an unknown senders to route large volumes of email (typically *spam*) through your *gateway*. The `listenerconfig` and `systemsetup` commands prevent you from unintentionally configuring your system as an open relay.

---

## Q

**Queue** In the IronPort appliance, you can delete, bounce, suspend, or redirect messages in the email queue. This email queue of messages for destination domains is also referred to as the *delivery queue*. The queue of messages waiting to be processed by IronPort Anti-Spam or message filter actions is referred to as the *work queue*. You can view the status of both queues using the `status detail` command.

---

## R

<b>RAT</b>	Recipient Access Table. The Recipient Access Table defines which recipients will be accepted by a public listener. The table specifies the address (which may be a partial address or hostname) and whether to accept or reject it. You can optionally include the SMTP response to the RCPT TO command for that recipient. The RAT typically contains your local domains.
<b>Rate Limiting</b>	Rate limiting limits the maximum number of messages per session, the maximum number of recipients per message, the maximum message size, the maximum recipients per hour, and the maximum number of concurrent connections you are willing to accept from a remote host.
<b>RCPT TO</b>	See <i>Envelope Recipient</i> .
<b>Receiving</b>	The act of receiving email messages on a specific listener configured on an IP interface. The IronPort appliance configures listeners to receive email messages — either inbound from the Internet, or outbound from your internal systems.
<b>Reputation Filter</b>	A way of filtering suspicious senders based on their reputation. The SenderBase Reputation Service provides an accurate, flexible way for you to reject or “throttle” suspected <i>spam</i> based on the connecting IP address of the remote host.

---

## S

<b>Sender Group</b>	A sender group is simply a list of senders gathered together for the purposes of handling email from those senders in the same way (that is, applying a mail flow policy to a group of senders). A sender group is a list of senders (identified by IP address, IP range, host/domain, SenderBase Reputation Service classification, SenderBase Reputation score range, or DNS List query response) separated by commas in a listener’s Host Access Table (HAT). You assign a name for sender groups, as well as <i>mail flow policies</i> .
<b>Soft Bounced Message</b>	A message whose delivery will be reattempted at a later time base on the configured <i>maximum number of retries</i> or <i>maximum time in queue</i> .

**Spam** Unwanted, Unsolicited Commercial bulk Email (UCE/UBE). Anti-spam scanning identifies email messages that are suspected to be spam, according to its filtering rules.

**STARTTLS** Transport Layer Security (TLS) is an improved version of the Secure Socket Layer (SSL) technology. It is a widely used mechanism for encrypting SMTP conversations over the Internet. The IronPort AsyncOS operating system supports the STARTTLS extension to SMTP (Secure SMTP over TLS), described in RFC 2487.

---

## T

**TOC** Threat Operations Center. This refers to all the staff, tools, data and facilities involved in detecting and responding to virus outbreaks.

---

## V

**Virus Outbreak Filters** IronPort's Virus Outbreak Filters feature provides an additional layer of protection from viruses. The Virus Outbreak Filters feature quarantines suspicious email messages, holding the messages until an updated virus IDE is available. or until they are deemed not a threat.

---

## V

**Whitelist** A list of known good senders. Add senders you trust to the Whitelist *sender group*. The \$TRUSTED mail flow policy is configured so that email from senders you trust has no *rate limiting* enabled, and the content from those senders is not subject to anti-spam scanning.







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