Mac OS X Server

Mail Service Administration
Version 10.6 Snow Leopard

Apple Inc.
© 2009 Apple Inc. All rights reserved.

Under the copyright laws, this manual may not be copied, in whole or in part, without the written consent of Apple.

The Apple logo is a trademark of Apple Inc., registered in the U.S. and other countries. Use of the "keyboard" Apple logo (Option-Shift-K) for commercial purposes without the prior written consent of Apple may constitute trademark infringement and unfair competition in violation of federal and state laws.

Every effort has been made to ensure that the information in this manual is accurate. Apple is not responsible for printing or clerical errors.

Apple
1 Infinite Loop
Cupertino, CA 95014-2084
408-996-1010
www.apple.com

Apple, the Apple logo, AppleScript, FireWire, Keychain, Leopard, Mac, Mac OS, Quartz, Safari, Snow Leopard, Xcode, Xgrid, Xsan, and Xserve are trademarks of Apple Inc., registered in the U.S. and other countries.

Apple Remote Desktop and Finder are trademarks of Apple Inc.

AIX is a trademark of IBM Corp., registered in the U.S. and other countries, and is being used under license.

The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Apple is under license.

This product includes software developed by the University of California, Berkeley, FreeBSD, Inc., The NetBSD Foundation, Inc., and their respective contributors.

Java™ and all Java-based trademarks and logos are trademarks or registered trademarks of Sun Microsystems, Inc. in the U.S. and other countries.

PowerPC™ and the PowerPC logo™ are trademarks of International Business Machines Corporation, used under license therefrom.

UNIX® is a registered trademark of The Open Group.

Other company and product names mentioned herein are trademarks of their respective companies. Mention of third-party products is for informational purposes only and constitutes neither an endorsement nor a recommendation. Apple assumes no responsibility with regard to the performance or use of these products.

The product described in this manual incorporates copyright protection technology that is protected by method claims of certain U.S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

Apparatus Claims of U.S. Patent Nos. 4,631,603, 4,577,216, 4,819,098 and 4,907,093 licensed for limited viewing uses only.

Simultaneously published in the United States and Canada.

019-1412/2009-08-01

Contents

7 Preface: About This Guide
7 What's in This Guide
8 Using Onscreen Help
9 Document Road Map
10 Viewing PDF Guides Onscreen
10 Printing PDF Guides
11 Getting Documentation Updates
11 Getting Additional Information

12 Chapter 1: Understanding Mail Service
12 Mail Service Architecture
13 Mail Transfer Agent
14 Mail Screening
15 Where Mail Is Stored
16 Local Delivery Agent
17 User Interaction with Mail Service
18 Using Mailing Lists with Mail Service
18 Mailman-Based Mailing Lists
18 Wiki-Based Mailing Lists
19 Using Network Services with Mail Service

20 Chapter 2: Mail Service Setup
20 Managing Mail Service
20 Before You Begin
21 Using Mail Service Tools
21 Configuring DNS for Mail Service
22 How User Account Settings Affect Mail Service
22 Setup Overview
25 Administering Mail Service
25 Changing Mail Service Settings
26 Viewing Mail Service Settings from the Command Line
26 General Setup
26 Configuring Outgoing Mail Service

29 Configuring Incoming Mail Service
31 Restricting SMTP Relay
32 Restricted SMTP Relay and SMTP Authentication Interaction
32 Rejecting SMTP Connections from Specific Servers
33 Rejecting Mail from Blacklisted Senders
33 Filtering SMTP Connections
34 Limiting Junk Mail and Viruses
34 Connection Control
35 Mail Service Filtering
40 Managing Mail Quotas
40 Limiting Incoming Message Size
40 Enabling Mail Quotas for Users
41 Viewing a User's Quota Usage
41 Configuring Quota Warnings
41 Configure Quota Violation Responses
42 Mailing Lists
42 Setting Up a Wiki-Based Mailing List
43 About Mailman
44 Setting Up a Mailman Mailing List
50 Administering Mailing Lists
53 Working with Mailing List Subscribers
55 List Subscriber Options
58 Where to Find More Information
59 Setting Mail Service Logging Options
59 Setting the Mail Service Log Detail
59 Archiving Mail Service Logs by Schedule
60 Client-Specific Configuration for Mail Service
60 Configuring Mail Client Applications
61 Using Webmail
61 Vacation Notices

62 **Chapter 3: Mail Service Advanced Configuration**
62 Securing User Access to Mail Service
62 Designating Authorized Mail Service Users
63 Using Workgroup Manager for Mail Service Access
63 Using Access Control Lists for Mail Service Access
64 Choosing Authentication for Mail Service
64 SMTP Authentication
65 IMAP and POP Authentication
67 Securing Mail Service with SSL
68 Configuring SSL Transport for SMTP Connections
68 Configuring SSL Transport for IMAP and POP Connections
69 Using an SSL Certificate from an External Certificate Authority

71 Accessing Server Certificates from the Command Line
72 Creating a Password File from the Command Line
73 A Mail Service Virtual Host
73 Enabling Virtual Hosting
74 Adding or Removing Virtual Hosts
74 Associating Users to the Virtual Host
77 Creating Additional Mail Addresses for Users
78 Setting Up Forwarding Mail Addresses for a User
79 Working with Mail Service Data Storage
79 Viewing the Location of the Mail Store
79 Specifying the Location of the Mail Store
80 Creating Additional Mail Store Locations
81 Maximum Number of Mail Messages Per Volume
81 Backing Up and Restoring Mail Messages
82 Setting Up Mail Server Clustering with Xsan
82 Configuring Additional Mail Service Support for 8-Bit MIME

83 **Chapter 4: Monitoring and Maintaining Mail Service**
83 Starting or Stopping Mail Service
84 Reloading Mail Service
84 Holding Outbound Mail
85 Blocking Inbound Mail Connections
85 Allowing Administrator Access to Mail Folders
85 Creating an Administration Account
86 Monitoring Mail Service Activity
86 Viewing an Overview of Mail Service Activity
86 Viewing Mail Service Logs
87 Viewing the Mail Connections List
88 Viewing Mail Accounts
88 Monitoring the Outgoing Mail Queue
89 Viewing Mail Service Statistics

91 **Chapter 5: Troubleshooting Mail Service**
91 Improving Performance
92 When a Disk Is Full
92 When Mail Is Undeliverable
92 Forwarding Undeliverable Incoming Mail
92 Where to Find More Information
93 Books
93 Internet

94 Appendix A: Command-Line Parameters for the serveradmin Tool and Default Mail Service Settings

128 Appendix B: Sample Sieve Scripts

131 Index

About This Guide

This guide provides a starting point for administering Mail Service using its advanced administration tools. It contains information about configuring Mail Service using Server Admin.

Mail Service Administration might not be the only guide you need when administering Mail Service, but it gives you the basics beyond initial Mac OS X Server configuration.

What's in This Guide

This guide includes the following sections:

- Chapter 1, "Understanding Mail Service," gives an overview of the components of the Mac OS X Server Mail service.
- Chapter 2, "Mail Service Setup," includes everything you need to set up and configure Mail service and to support and configure mail users.
- Chapter 3, "Mail Service Advanced Configuration," builds on the basic setup instructions to help you fine tune your mail server, especially concerning security settings and data storage.
- Chapter 4, "Monitoring and Maintaining Mail Service," includes information for ongoing mail server maintenance and administration.
- Chapter 5, "Troubleshooting Mail Service," helps you to resolve some of the most common issues that may arise with Mail service.
- Appendix A, "Command-Line Parameters for the serveradmin Tool and Default Mail Service Settings," shows the default state of the settings you can configure from the command line.
- Appendix B, "Sample Sieve Scripts," provides examples of sieve scripts.

Note: Because Apple periodically releases new versions and updates to its software, images shown in this book may be different from what you see on your screen.

Using Onscreen Help

You can get task instructions onscreen in Help Viewer while you're managing Mac OS X Server v10.6. You can view help on a server or an administrator computer. (An administrator computer is a Mac OS X computer with Mac OS X Server v10.6 administration software installed on it.)

To get the most recent onscreen help for Mac OS X Server:

- Open Server Admin or Workgroup Manager and then:
  - Use the Help menu to search for a task you want to perform.
  - Choose Help > Server Admin Help or Help > Workgroup Manager Help to browse and search the help topics.

  The onscreen help contains instructions taken from *Server Administration* and other advanced administration guides described "Document Road Map"in next.

To see the most recent server help topics:

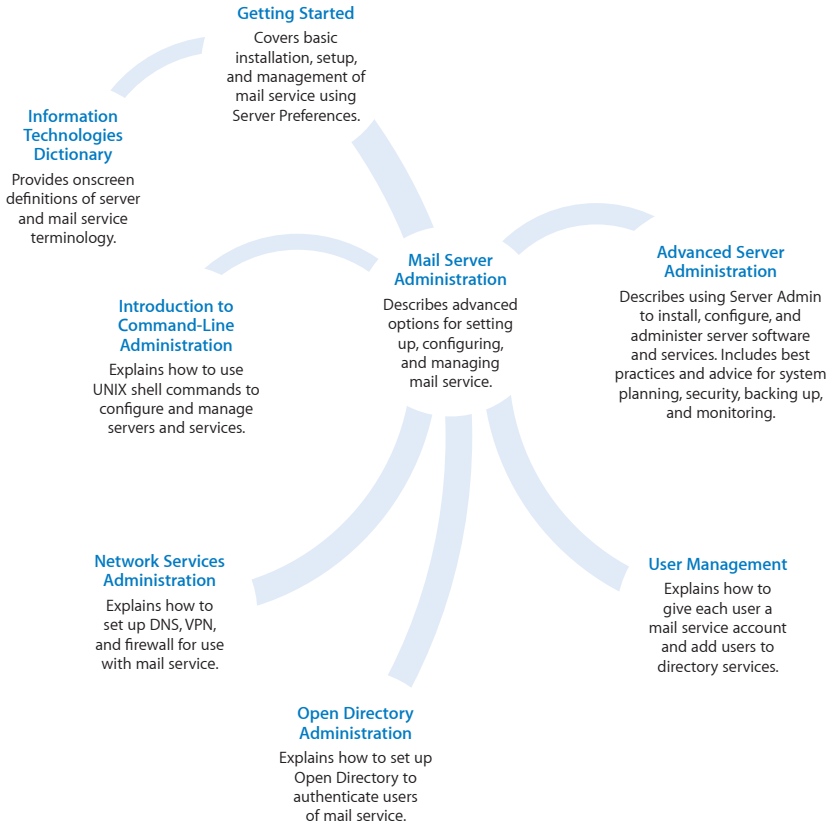
- Make sure the server or administrator computer is connected to the Internet while you're getting help.

  Help Viewer automatically retrieves and caches the most recent server help topics from the Internet. When not connected to the Internet, Help Viewer displays cached help topics.

Document Road Map

Mac OS X Server v10.6 has a suite of guides which can cover management of individual services. Each service may be dependent on other services for maximum utility. The road map below shows some related documentation that you may need to fully configure your desired service to your specifications. You can get these guides in PDF format from the Mac OS X Server documentation website:

www.apple.com/server/documentation



Viewing PDF Guides Onscreen

While reading the PDF version of a guide onscreen:

- Show bookmarks to see the guide's outline, and click a bookmark to jump to the corresponding section.
- Search for a word or phrase to see a list of places where it appears in the document. Click a listed place to see the page where it occurs.
- Click a cross-reference to jump to the referenced section. Click a web link to visit the website in your browser.

Printing PDF Guides

If you want to print a guide, you can take these steps to save paper and ink:

- Save ink or toner by not printing the cover page.
- Save color ink on a color printer by looking in the panes of the Print dialog for an option to print in grays or black and white.
- Reduce the bulk of the printed document and save paper by printing more than one page per sheet of paper. In the Print dialog, change Scale to 115% (155% for *Getting Started*). Then choose Layout from the untitled pop-up menu. If your printer supports two-sided (duplex) printing, select one of the Two-Sided options. Otherwise, choose 2 from the Pages per Sheet pop-up menu, and optionally choose Single Hairline from the Border menu. (If you're using Mac OS X v10.4 or earlier, the Scale setting is in the Page Setup dialog and the Layout settings are in the Print dialog.)

You may want to enlarge the printed pages even if you don't print double sided, because the PDF page size is smaller than standard printer paper. In the Print dialog or Page Setup dialog, try changing Scale to 115% (155% for *Getting Started,* which has CD-size pages).

Getting Documentation Updates

Periodically, Apple posts revised help pages and new editions of guides. Some revised help pages update the latest editions of the guides.

- To view new onscreen help topics for a server application, make sure your server or administrator computer is connected to the Internet and click "Latest help topics" or "Staying current" in the main help page for the application.
- To download the latest guides in PDF format, go to the Mac OS X Server documentation website:

  www.apple.com/server/documentation
- An RSS feed listing the latest updates to Mac OS X Server documentation and onscreen help is available. To view the feed use an RSS reader application, such as Safari or Mail:

  feed://helposx.apple.com/rss/snowleopard/serverdocupdates.xml

Getting Additional Information

For more information, consult these resources:

- *Read Me documents*—important updates and special information. Look for them on the server discs.
- *Mac OS X Server website* (www.apple.com/server/macosx)—gateway to extensive product and technology information.
- *Mac OS X Server Support website* (www.apple.com/support/macosxserver)—access to hundreds of articles from Apple's support organization.
- *Apple Discussions website* (discussions.apple.com)—a way to share questions, knowledge, and advice with other administrators.
- *Apple Mailing Lists website* (www.lists.apple.com)—subscribe to mailing lists so you can communicate with other administrators using email.

Understanding Mail Service

1

Mail service in Mac OS X Server is comprised of many different components that work together to provide incoming and outgoing Mail service, mail filtering, and mailing lists.

This chapter begins with a look at the standard protocols used for sending and receiving mail. Then it explains how Mail service works, discusses mailing lists, and concludes with information on how Mail service integrates with other network services.

Mail Service Architecture

Mail service in Mac OS X Server allows network users to send and receive mail over your network or across the Internet.

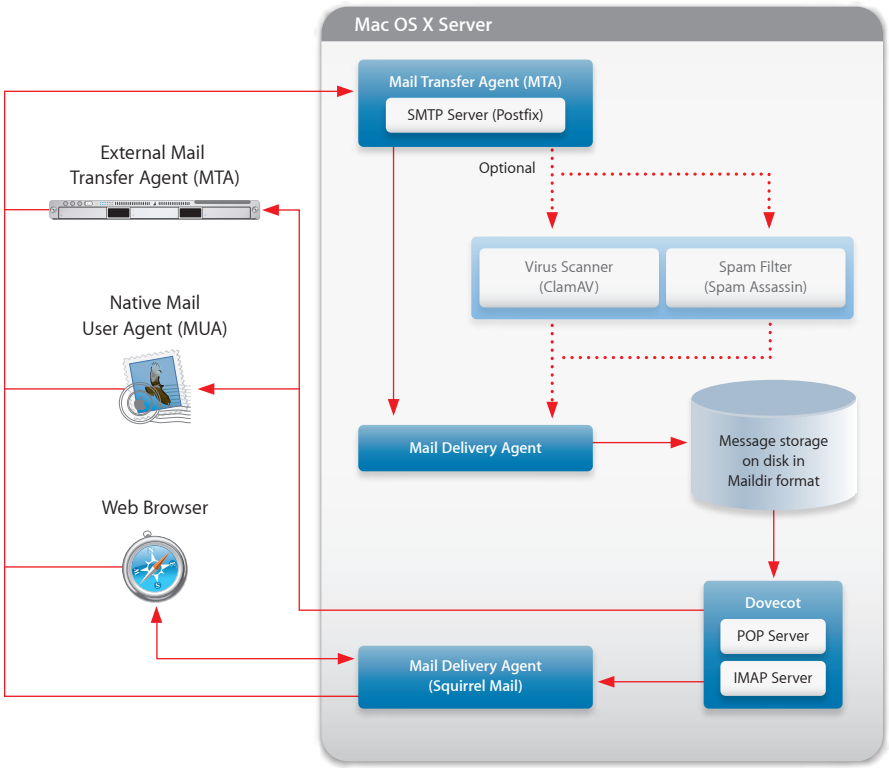
Mail service sends and receives mail using the following standard Internet mail protocols:

- Simple Mail Transfer Protocol (SMTP)
- Internet Message Access Protocol (IMAP)
- Post Office Protocol (POP)

A standard mail client setup uses SMTP to send outgoing mail and POP and IMAP to receive incoming mail. Mac OS X Server includes an SMTP service and a combined POP and IMAP service.

Mail service also uses a Domain Name System (DNS) service to determine the destination IP address of outgoing mail.

The following image gives an overview of how the components of Mac OS X Server Mail service interact:



Mail Transfer Agent

Simple Mail Transfer Protocol (SMTP) is a protocol used to send and transfer mail. SMTP queues outgoing mail messages from the user. These messages are transferred over the Internet to their destinations, to be picked up by incoming mail protocols.

Mac OS X Server uses Postfix as its mail transfer agent (MTA). Postfix fully supports SMTP. Your mail users will set their mail application's outgoing mail server to your Mac OS X Server running Postfix.

Postfix is easy to administer. Its basic configuration can be managed through Server Admin and therefore it does not rely on editing the configuration file.

Postfix uses multiple layers of defense to protect the server computer from intruders:

- There is no direct path from the network to the security-sensitive local delivery tools.
- Postfix does not trust the contents of its queue files or the contents of its IPC messages.
- Postfix filters sender-provided information before exporting it via environment variables.

- Nearly every Postfix application can run with fixed low privileges and no ability to change ID, run with root privileges, or run as any other user.

Postfix uses the configuration files main.cf and master.cf in /etc/postfix/. When Server Admin modifies Postfix settings, it overwrites the main.cf file.

If you make a manual change to the configuration file of Postfix, Server Admin overwrites your changes the next time you use it to modify the Mail service configuration.

The spool files for Postfix are located in /var/spool/postfix/ and the log file is /var/log/mail.log. For more information about Postfix, see www.postfix.org.

If you use another MTA (such as Sendmail), you can't configure Mail service with Mac OS X Server administration tools.

To use Sendmail instead of Postfix, disable the current SMTP service through Postfix, then install and configure Sendmail. For more information about Sendmail, see www.sendmail.org.

Mail Screening

After a mail delivery connection is made and the message is accepted for local delivery (relayed mail is not screened), the mail server can screen it before delivery. Mac OS X Server uses SpamAssassin (from spamassassin.apache.org) to analyze the text of a message, and gives it a probability rating for being junk mail.

No junk mail filter is 100% accurate in identifying unwanted mail. For this reason the junk mail filter in Mac OS X Server doesn't delete or remove junk mail from being delivered. Instead, it marks the mail as potential junk mail.

The user can then decide if it's really unsolicited commercial mail and deal with it accordingly. Many mail clients use the ratings that SpamAssassin adds as a guide in classifying mail for the user.

Mac OS X Server uses ClamAV (from www.clamav.net) to scan mail messages for viruses. If a suspected virus is found, you can deal with it in several ways, as described below. The virus definitions are kept up to date (if enabled) via the Internet using a process called freshclam.

Where Mail Is Stored

Mail is stored in an outgoing queue awaiting transfer to a remote server or in a local mail store accessible by local mail users.

Outgoing Mail Location

By default, outgoing mail messages are stored in the following spool directory on the startup disk in /var/spool/postfix/.

This location is temporary, and the mail is stored until it's transferred to the Internet. These locations can be moved to any accessible volume if you create a symlink link to the new location.

Incoming Mail Location

Mail service stores each message as a separate file in a mail folder for each user. Incoming mail is stored on the startup disk in /var/spool/imap/dovecot/mail/*GUID*.

You can change the location of mail folders and indexes to another folder, disk, or disk partition. You can even specify a shared volume on another server as the location of the mail folder, although using a shared volume negatively affects performance.

For remotely mounted file systems, NFS isn't recommended. The incoming mail remains on the server until deleted by a Mail User Agent (MUA).

Mail storage can also be split across multiple partitions or stored on an Xsan cluster. This can be done to scale Mail service or to facilitate data backup. For more information see "Setting Up Mail Server Clustering with Xsan" on page 82.

You can change where mail is stored. For more information, see "Working with Mail Service Data Storage" on page 79.

Local Delivery Agent

Mail is transferred from incoming mail storage to the mail recipient's inbox by a local delivery agent (LDA). The LDA handles local delivery, making mail accessible by the user's mail application. Two protocols are available from the Mac OS X Server LDA: POP and IMAP.

Mac OS X Server uses Dovecot to provide POP and IMAP service. Your mail users will set their mail application's incoming mail server to your Mac OS X Server running Dovecot.

More information about Dovecot can be found at: http://www.dovecot.org/.

Dovecot

Dovecot is an open-source enterprise mail system for use in small to large enterprise environments. Dovecot developers have focused on security, scalability, and ease of administration.

Each message is stored as a separate file in a mail folder for each user. This design gives the server advantages in efficiency, scalability, and administration. User access to mail is primarily through software using IMAP or POP3.

Dovecot uses the configuration file /etc/dovecot/dovecot.conf. Server Admin uses the defaults file /etc/dovecot/dovecot.conf.default. Dovecot logs its events in /var/log/mailaccess.log. The Dovecot mail store is located in /var/imap/ and user folders are located in /var/spool/imap/.

The Dovecot delivery application receives mail from the Postfix delivery agent and stores the mail in user spool files in /var/spool/imap/dovecot/mail/*GUID*, where *GUID* is the Globally Unique ID (GUID) of the mail user. The user can then use IMAP or POP to retrieve messages.

After receiving mail from external MTAs, you can apply virus filtering or junk mail filtering to the messages. Mac OS X Server uses ClamAV and Spam Assassin for these tasks. For more information on enabling these, see "Limiting Junk Mail and Viruses" on page 34.

For more information about Dovecot, see http://www.dovecot.org/.

Internet Message Access Protocol (IMAP)

IMAP is the solution for people who use more than one computer to receive mail. IMAP is a client-server mail protocol that allows users to access mail from anywhere on the Internet.

With IMAP, a user's mail is delivered to the server and stored in a remote mailbox on the server. To users, mail appears as if it were on the local computer.

A key difference between IMAP and POP is that with IMAP the mail isn't removed from the server until the user deletes it.

The IMAP user's computer can ask the server for message headers, ask for the bodies of specified messages, or search for messages that meet certain criteria. These messages are downloaded as the user opens them.

IMAP connections are persistent and remain open, maintaining load on the server and possibly the network as well.

Post Office Protocol (POP)

POP is used only for receiving mail, not for sending mail.

The POP service is like a post office, storing mail and delivering it to a specific address. Mail service stores incoming POP mail until users connect to Mail service and download their waiting mail.

After a user's computer downloads POP mail, the mail is stored only on the user's computer. The user's computer disconnects from Mail service, and the user can read, organize, and reply to the received POP mail.

An advantage of using POP is that your server doesn't need to store mail that users have downloaded. Therefore, your server doesn't need as much storage space as it would using IMAP.

However, because the mail is removed from the server, if the user's computer sustains hard disk damage and loses mail files, there's no way to recover these files without using data backups.

Another advantage of POP is that POP connections are transitory. After mail is transferred, the connection is dropped and the load on the network and mail server is removed.

POP isn't the best choice for users who access mail from more than one computer, such as a home computer, an office computer, and a laptop while on the road. When a user retrieves mail via POP, the mail is downloaded to the user's computer and is usually removed from the server. If the user logs in later from a different computer, the user can't see previously downloaded mail.

User Interaction with Mail Service

Mail is delivered to its final recipient using a mail user agent (MUA). MUAs are usually referred to as mail clients or mail applications. These mail clients often run on the user's local computer.

Each user's mail application must be configured to send messages to the outgoing server and receive messages from the incoming server. These configurations can affect your server's processing load and available storage space. For more information, see "Configuring Mail Client Applications" on page 60.

Users can also access mail through Webmail. For more information, see "Mail Service Filtering" on page 35.

Using Mailing Lists with Mail Service

Mac OS X Server provides two types of mailing lists:

- A Mailman-based list where a single mail message is distributed to recipients who have subscribed to the list
- A wiki-based list that allows you to send a single message that is copied to each member of a Mac OS X Server wiki group

Mailman-Based Mailing Lists

Mac OS X Server uses Mailman for its traditional mailing list service.

Mailman is a mailing list service with support for built-in archiving, automatic bounce processing, content filtering, digest delivery, spam filters, and other features. Mailman provides a customizable web page for each mailing list.

Users can subscribe and unsubscribe themselves, as well as change list preferences. List and site administrators can use the web interface for common tasks such as account management, approvals, moderation, and list configuration. The web interface requires that you have the Apache web server running.

You can access Mailman at www.yourdomain.com/mailman/listinfo.

Mailman receives mail from the local postfix process by configuring alias maps. Messages destined for a mail list are piped by the local process to Mailman processes. The mapping is provided in /var/mailman/data/aliases.

You can find more information about configuring and administering mail lists using Mailman at www.list.org and at /Library/Documentation/Services/mailman.

Mailing lists differ from workgroups in a few fundamental ways:

- Mailing lists aren't linked to file or directory permissions.
- Mailing lists can be administered by someone other than the workgroup or server administrator.
- Mailing list subscribers do not need an account (mail or file access) on the list's server. Any mail address can be added to the list.
- Mailing list subscribers can often remove themselves from and add themselves to lists.

Wiki-Based Mailing Lists

A wiki-based mailing list is based on a Mac OS X wiki group. It differs from a Mailman-based mailing list in the following ways:

- Group members receive all messages sent to the group's address. No subscription is required.
- The recipients list is up-to-date with the wiki group, so only members of the group receive mail messages.
- The group administrator controls the membership of the group.

Using Network Services with Mail Service

Mail service makes use of network services to ensure delivery of mail. Before sending mail, your Mail service will probably have a DNS service determine the Internet Protocol (IP) address of the destination.

The DNS service is necessary because people typically address their outgoing mail by using a domain name, such as example.com, rather than an IP address, such as 198.162.12.12. To send an outgoing message, Mail service must know the IP address of the destination.

Mail service relies on a DNS service to look up domain names and determine the corresponding IP addresses. The DNS service can be provided by your Internet Service Provider (ISP) or by Mac OS X Server, as explained in *Network Services Administration*.

Additionally, a mail exchange (MX) record can provide redundancy by listing an alternate mail host for a domain. If the primary mail host isn't available, the mail can be sent to the alternate mail host. An MX record can list several mail hosts, each with a priority number. If the lowest priority host is busy, mail can be sent to the host with the next lowest priority, and so on.

Without a properly configured MX record in DNS, mail might not reach your intended server.

Mail service uses DNS like this:

1. The sending server reads the mail recipient's domain name (what comes after the @ in the To address).
2. The sending server looks up the MX record for that domain name to find the receiving server.
3. If the MX record is found, the message is sent to the receiving server.
4. If the lookup fails to find an MX record for the domain name, the sending server assumes that the receiving server has the same name as the domain name, so the sending server does an Address (A) lookup on that domain name and attempts to send the file there.

To configure DNS, see "Configuring DNS for Mail Service" on page 21.

Mail Service Setup

2

This chapter explains the basic configuration of Mail service.

You learn about tools used to manage Mail service and configuration steps to manually configure Mail service or make changes after using the Server Setup Assistant.

Managing Mail Service

This sections provides basic steps to set up Mail service on Mac OS X Server and explains the tools you use to manage Mail service.

Before You Begin

Before setting up Mail service for the first time:

- If you are upgrading from a previous version of Mac OS X Server, you might need to take special steps to upgrade Mail service. See "Viewing Mailing List Archives" on page 53.
- Decide whether to use POP, IMAP, or both for accessing mail.
- If your server will provide Mail service over the Internet, obtain a registered domain name.
- Determine whether your ISP will create your MX records or whether you'll create them using your own DNS service. See "Configuring DNS for Mail Service" on page 21.
- Identify the people who will use Mail service but who don't have user accounts in a directory domain accessible to Mail service. Then create user accounts for these mail users.
- Determine your authentication and transport security needs. See "Understanding SMTP Authentication" on page 26.

Using Mail Service Tools

Mac OS X Server provides two primary applications and one primary command-line tool to help you set up and manage Mail service:

- **Server Admin:** Use to start, stop, configure, maintain, and monitor Mail service when you install Mac OS X Server.
- **Workgroup Manager:** Use to create user accounts for mail users and configure each user's mail options.
- **`serveradmin`:** Use to manage Mail service from the command-line remotely via `ssh` or locally through the Terminal application. See "Viewing Mail Service Settings from the Command Line" on page 26 and *Introduction to Command-Line Administration*.

Configuring DNS for Mail Service

Configuring DNS for Mail service entails enabling MX records with your DNS server. If you have an ISP that provides DNS service, contact the ISP so they can enable your MX records.

To enable MX records:

Follow these steps if you provide your own DNS service using Mac OS X Server.

1. In Server Admin, choose a server, then select DNS.
2. Click the Zones button in the toolbar.
3. Select the zone that the MX record will be added to.

   If there are no zones, create one. If the mail server does not have a machine record (A), add one. For more information, see *Network Services Administration*.
4. Click the + button in the Mail Exchangers list.
5. Enter the mail server's hostname.
6. Set a mail server precedence number.

   Mail servers try to deliver mail at lower numbered mail servers first.
7. Click OK to Save.

   To set up multiple servers for redundancy, add MX records with different precedence numbers.

How User Account Settings Affect Mail Service

In addition to setting up Mail service as described in this chapter, you can also configure individual mail settings for anyone who has a user account on your server. For each user, you need to:

- Enable mail usage.
- Enter the DNS name or IP address of your mail server.
- Select the protocols for retrieving incoming mail (POP, IMAP, or both).
- Set a quota on disk space available for storing a user's mail.
- Configure any alternate mail storage location.

You configure these settings with the Workgroup Manager application. For more information, see *User Management*.

Setup Overview

You can have Mail service set up and start as part of the Mac OS X Server installation process. An option for setting up Mail service appears in the Setup Assistant application, which runs at the conclusion of the installation process. If you select this option, Mail service is set up as follows:

- SMTP, POP, and IMAP are active and use standard ports.
- Junk mail filter is on.
- Virus filtering is on.
- Quotas are not enforced.
- Incoming messages larger than 10 MB are refused.
- Mailing lists are inactive.
- Standard authentication methods are used (not Kerberos), with POP and IMAP set for clear-text passwords (APOP and CRAM MD-5 turned off) and SMTP authentication turned off.

  If your server is an Open Directory master, Kerberos, CRAM-MD5, and APOP are used.
- Mail is delivered only locally. (No mail is sent over the Internet.)
- Mail relay is unrestricted.

You can also use the configuration assistant to set up Mail service. This interactive assistant helps you select options and settings. If you use the configuration assistant, you should already have MX records set properly. After using the assistant, you can use Server Admin, Workgroup Manager, and the serveradmin command-line tool to customize your configuration.

To start the mail configuration assistant:

1 In Server Admin, select a computer in the Servers list, then select Mail.

If Mail is not listed beneath the server you selected, you must start Mail service. Click the + button at the bottom of the Servers lists, then select Add Service from the pop-up list.

2 Click the Configure Mail Service button to start the assistant.

3 Follow the onscreen instructions.

To configure Mail service manually:

To change Mail service manually, complete the following:

1 Make a plan.

For a list of items to think about before you start full-scale Mail service, see "Before You Begin" on page 20.

2 Set up MX records.

For users to send and receive mail over the Internet, make sure DNS service is set up with the relevant MX records for Mail service:

- If an ISP provides DNS service to your network, contact the ISP and have them set up MX records for you. Your ISP needs your mail server's DNS name (such as mail.example.com) and your server's IP address.
- If you use Mac OS X Server to provide DNS service, create MX records as described in "Configuring DNS for Mail Service" on page 21.
- If you do not set up an MX record for your mail server, your server might still be able to exchange mail with other mail servers. Some mail servers will find your mail server by looking in DNS for your server's A record. (You probably have an A record if you have a web server set up.)

Note: Your mail users can send mail to each other even if you do not set up MX records. Local Mail service doesn't require MX records.

3 Configure incoming Mail service.

Mail service has many settings that determine how it handles incoming mail. For instructions, see "Configuring Incoming Mail Service" on page 29.

4 Configure outgoing Mail service.

Mail service has many settings that determine how it handles outgoing mail. For instructions, see "Configuring Outgoing Mail Service" on page 26.

5 Secure your server.

If your server exchanges mail over the Internet, make sure you're not operating an open relay. An open relay is a security risk and enables junk mail senders to use your computer resources for sending unsolicited commercial mail. For instructions see "Restricting SMTP Relay" on page 31.

6 Configure additional settings for Mail service.

Additional settings that you can change affect how Mail service stores mail, limits junk mail, and handles undeliverable mail. See the following sections for instructions:

- "Working with Mail Service Data Storage" on page 79
- "Limiting Junk Mail and Viruses" on page 34
- "When Mail Is Undeliverable" on page 92

7 Set up accounts for mail users.

Each person who wants Mail service must have a user account in a directory domain accessible by your Mail service. The short name of the user account is the mail account name and is used to form the user's mail address.

In addition, each user account has settings that determine how Mail service handles mail for the user account. You can configure a user's mail settings when you create the user's account, and you can change an existing user's mail settings at any time. For instructions, see "How User Account Settings Affect Mail Service" on page 22 and "To create a list description:" on page 46.

8 Create a postmaster alias (optional, but recommended).

You should create an administrative alias named postmaster. Mail service or the mail administrators send reports to the postmaster account. An alias allows mail sent to postmaster@*yourdomain*.com to be forwarded to an account of your choice.

Set up forwarding of the postmaster's mail to a mail account that you check regularly. Other common postmaster accounts are named abuse (used to report abuses of your Mail service) and spam (used to report unsolicited commercial mail abuses by users).

To learn about creating an alias to an existing mail users, see "Creating Additional Mail Addresses for Users" on page 77.

9 Start Mail service.

Before starting Mail service, make sure the server computer shows the correct day, time, time zone, and daylight-saving settings in the Date & Time pane of System Preferences. Mail service uses this information to timestamp each message. An incorrect timestamp can cause other mail servers to handle a message incorrectly.

Also, make sure you've enabled Mail service protocols (SMTP, POP, or IMAP) in the Settings pane.

After you verify this information, you can start Mail service. If you selected the Server Assistant option to have Mail service start automatically, stop Mail service now, then start it again for your changes to take effect. For detailed instructions, see "Setting Up a Wiki-Based Mailing List" on page 42.

10 Set up each user's mail client software.

After you set up Mail service on your server, mail users must configure their mail client software. For details, see "Mail Screening" on page 14.

Administering Mail Service

You must turn on Mail service administration before you can use Server Admin to configure or enable it. This allows Server Admin to start, stop, and change settings for Mail service.

To enable Mail Service for administration:

1. Open Server Admin.
2. Select a server, click the Settings button in the toolbar, and then click the Services tab.
3. Select the checkbox for Mail service.

You can now configure and control Mail service using Server Admin.

You can also configure and control Mail service from the command line using the serveradmin command-line tool. For more information, see the serveradmin man page and *Introduction to Command-Line Administration*.

For advanced command-line configuration and maintenance, you may need to enable a specific mail administration account. For more information, see "Creating an Administration Account" on page 85.

Changing Mail Service Settings

Most settings are exposed in Server Admin and Workgroup Manager and can be changed in those applications. If you make a change, you may need to stop and restart the Mail service.

Many settings can also be accessed through the `serveradmin` command-line tool.

To change Mail service settings from the command line:
Find the name of the specific setting you need to change and then submit your setting as an argument to serveradmin. For example, to disable POP email service:

```
$ sudo serveradmin settings mail:imap:enable_pop = no
$ sudo serveradmin stop mail
$ sudo serveradmin start mail
```

To see all possible commands, see Appendix A, "Command-Line Parameters for the serveradmin Tool and Default Mail Service Settings," on page 94.

For more specific configuration of Postfix and Dovecot you might want to configure them directly. For information about configuring these tools, see the following:

- For Postfix, see www.postfix.org.
- For Dovecot IMAP/POP, see www.dovecot.org.

Viewing Mail Service Settings from the Command Line

To view Mail service configuration settings:

```
$ sudo serveradmin settings mail
```

To view a specific setting:

```
$ sudo serveradmin settings mail:setting
```

To view a group of settings:

You can view a group of settings that have part of their names in common by entering as much of the name as you want, stopping at a colon (:), and entering an asterisk (*) as a wildcard for the remaining parts of the name. For example:

```
$ sudo serveradmin settings mail:imap:*
```

General Setup

This section discusses basic configuration settings you make to use Mail service.

Configuring Outgoing Mail Service

Mail service includes an SMTP service for sending mail. Subject to restrictions that you control, the SMTP service also transfers mail to and from Mail service on other servers.

If your mail users send messages to another Internet domain, your SMTP service delivers the outgoing messages to the other domain's Mail service. Other Mail services deliver messages for your mail users to your SMTP service, which then transfers the messages to your POP service and IMAP service.

Understanding SMTP Authentication

If you don't choose a method of SMTP authentication or authorized specific SMTP servers to relay for, the SMTP server allow anonymous SMTP mail relay and is considered an open relay. Open relays are bad because junk mail senders can exploit the relay to hide their identities and send illegal junk mail without penalty.

There is a difference between *relaying mail* and *accepting delivery of mail*. Relaying mail means passing mail from one (possibly external) mail server or a local user's mail client to another (third) mail server. Accepting delivery means receiving mail from a (possibly external) mail server to be delivered to the server's mail users. Mail addressed to local recipients is still accepted and delivered.

Enabling authentication for SMTP *requires* authentication from any selected authentication method prior to *relaying mail*.

SMTP Authentication is used with restricted SMTP mail transfer to limit junk mail propagation. For more information about these settings, see "Understanding SMTP Authentication" on page 26.

Enabling SMTP Access

SMTP is used for transferring mail between Mail service and sending mail from users' mail clients. The SMTP Mail service stores outgoing mail in a queue until it has found the mail exchange server at the mail's destination. Then it transfers the mail to the destination server for handling and eventual delivery.

SMTP service is required for outgoing Mail service and for accepting delivery of mail from mail servers outside your organization.

To enable SMTP access:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the General tab.
4. Click Enable SMTP.
5. Select "Allow incoming mail," if wanted.
6. If you allow incoming mail, enter the domain name to accept mail for and the mail server's host name.
7. Click Save.

By default SMTP is enabled on port 25. If port 25 is blocked in your environment, you need to change the port SMTP uses.

Requiring SMTP Authentication

If your Mail service requires SMTP authentication, your server cannot be used as an open relay by anonymous users. Someone who wants to use your server as a relay point must first provide the name and password of a user account on your server.

Although SMTP authentication applies primarily to mail relay, your local mail users must also authenticate before sending mail. This means your mail users must have mail client software that supports SMTP authentication or they can't send mail to remote servers. Mail sent from external mail servers and addressed to local recipients is still accepted and delivered.

To require SMTP authentication, see "Requiring SMTP Authentication" on page 27.

Relaying SMTP Mail Through Another Server

Rather than delivering outgoing mail to its destinations, your SMTP Mail service can relay outgoing mail to another server.

Normally, when an SMTP server receives a message addressed to a remote recipient, it attempts to send that message to that server or the server specified in the MX record, if it exists. Depending on your network setup, this method of mail transport might not be wanted or even possible. You might then need to relay outbound messages through a specific server.

You might need to use this method to deliver outgoing mail through the firewall set up by your organization. In this case, your organization will designate a server for relaying mail through the firewall.

This method can be useful if your server has slow or intermittent connections to the Internet.

Do not attempt to relay mail through a mail server outside your organization's control without the relay administrator's permission. Trying to do so will label you as a Mail service abuser.

To relay SMTP mail through another server:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Click the General tab.
4. Click "Relay outgoing mail through host" and enter the DNS name or IP address of the server that provides SMTP relay.
5. Click Save.

Copying Undeliverable Incoming Mail

You can have Mail service copy messages that arrive for unknown local users to another person or a group in your organization, usually the postmaster. You can use this setting to track mail delivery failures such as SMTP connection rejections or misaddressed mail, or to determine the source of junk mail.

To keep a copy of undeliverable incoming mail:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the General tab.
4. Select "Copy undeliverable mail to" and enter a user, group name, or alias.
5. Click Save.

Saving Mail Messages for Monitoring and Archival Purposes

You can configure Mail service to send a blind carbon copy (Bcc) of each incoming or outgoing message to a user or group. You might want to do this to monitor or archive messages. Senders and receivers of mail don't know that copies of their mail are being archived.

You can set up the user or group to receive Bccs using POP, then set up a client mail application to log in periodically and clean out the account by retrieving all new messages. Otherwise, you might want to periodically copy and archive the messages from the destination directory using automated shell commands.

You can set up filters in the mail client to highlight types of messages. Additionally, you can archive all messages for legal reasons.

To save all messages:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the General tab.
4. Click the "Copy all mail to" checkbox and enter a user or group name.
5. Click Save.

Configuring Incoming Mail Service

When configuring incoming Mail service, you configure mail to be retrieved by users and mail client applications. It involves these basic steps:

- Choose and enable the type of access (POP, IMAP, or both).
- Choose a method for authentication of the mail client.
- Choose a policy for secure transport of mail data over SSL.

The following sections explain how to enable IMAP and POP access. For information on authentication and SSL, see "Securing User Access to Mail Service" on page 62.

Enabling IMAP Access

IMAP is a client-server mail protocol that allows users to access mail from the Internet. With IMAP, mail is delivered to the server and stored in a remote mailbox on the server. To users, mail appears as if it were on the local computer.

A key difference between IMAP and POP is that with IMAP the mail isn't removed from the server until the user deletes it. IMAP connections are persistent and remain open, maintaining load on the server and possibly the network as well.

To enable IMAP access:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the General tab.
4. Click Enable IMAP.
5. Enter the number of concurrent connections you want to allow, then click Save.
6. Click Save.
7. Continue and configure security for IMAP authentication and transport.

See the following to continue configuration:

- "IMAP and POP Authentication" on page 65
- "Securing Mail Service with SSL" on page 67

Enabling POP Access

POP is used for receiving mail. The POP Mail service stores incoming POP mail until users have their computers connect to Mail service and download their waiting mail. After a user's computer downloads POP mail, the mail is stored only on the user's computer.

An advantage of using POP is that your server doesn't need to store mail that users have downloaded.

POP isn't the best choice for users who access mail from more than one computer, such as a home computer, an office computer, and a laptop while on the road because after messages are accessed by one computer, they are deleted from the server.

To enable POP access:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the General tab.
4. Click Enable POP.
5. Click Save.
6. Continue and configure security for POP authentication and transport.

See the following to continue configuration:

- "IMAP and POP Authentication" on page 65
- "Securing Mail Service with SSL" on page 67

Choosing No Incoming Mail Retrieval

You can choose to enable SMTP Mail service but not supply POP or IMAP service for incoming mail retrieval. If neither POP nor IMAP is enabled, incoming mail from other mail servers is still delivered to users but they can't access their mail with their mail client applications.

Mail accepted for local delivery is queued until POP or IMAP services are enabled, delivery to /var/mail/ is enabled, or the message expires and a Non Delivery Receipt (NDR) is sent to the sender (after 72 hours by default).

If delivery to /var/mail/ is enabled, users can still access mail using UNIX mail tools such as PINE or ELM. Messages delivered to /var/mail/ are not available for delivery to users with Dovecot if POP or IMAP are enabled again.

If POP and IMAP are disabled, you can change where incoming mail is stored from its default location at /var/spool/imap/dovecot/mail/*GUID*to /var/mail/*GUID*.

To change the local delivery directory:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the General tab.
4. Click the "Deliver to /var/mail/" checkbox.
5. Click Save.

Restricting SMTP Relay

Your Mail service can restrict SMTP relay by allowing only approved hosts to relay mail. You create the list of approved servers.

Approved hosts can relay through Mail service without authenticating. Servers not on the list cannot relay mail through Mail service unless they authenticate first. All hosts, approved or not, can deliver mail to your local mail users without authenticating.

Mail service can log connection attempts made by hosts not on your approved list.

To restrict SMTP relay:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the Relay tab.
4. Click the "Accept SMTP relays only from these hosts and networks" checkbox.
5. Edit the list of hosts by choosing one of the following:
   - Click the Add (+) button to add a host to the list.
   - Click the Remove (-) button to delete the selected host from the list.
   - Click the Edit (/) button to change the selected host from the list.

   When adding to the list, Server Admin accepts a variety of notations. You can:
   - Enter a single IP address or the network/netmask pattern, such as 192.168.40.0/21.
   - Enter a host name, such as mail.example.com.
   - Enter an Internet domain name, such as example.com.

Restricted SMTP Relay and SMTP Authentication Interaction

The following table describes the results of using restricted SMTP relay and SMTP authentication (see "SMTP Authentication" on page 64) in various combinations.

SMTP requires authentication	Restricted SMTP relay	Result
On	Off	All mail servers must authenticate before Mail service accepts mail for relay. Your local mail users must also authenticate to send mail out.
On	On	Approved mail servers can relay without authentication. Servers you haven't approved can relay after authenticating with Mail service.
Off	On	Mail service can't be used for open relay. Approved mail servers can relay (without authenticating). Servers that you haven't approved can't relay unless they authenticate, but they can deliver to your local mail users. Your local mail users don't need to authenticate to send mail. This is the most common configuration.

Rejecting SMTP Connections from Specific Servers

Mail service can reject unauthorized SMTP connections from hosts on a disapproved-hosts list that you create. Mail traffic from hosts on this list is denied and the SMTP connections are closed after posting a 554 SMTP connection refused error.

To reject unauthorized SMTP connections from specific servers:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the Relay tab.
4. Click the "Refuse all messages from these hosts and networks" checkbox.
5. Edit the list of servers by choosing one of the following:
   - Click the Add (+) button to add a host to the list.
   - Click the Remove (-) button to delete the selected host from the list.
   - Click the Edit (/) button to change the selected host from the list.

When adding to the list, Server Admin accepts a variety of notations. You can:

- Enter a single IP address or the network/netmask pattern, such as 192.168.40.0/21.
- Enter a host name, such as mail.example.com.
- Enter an Internet domain name, such as example.com.

Rejecting Mail from Blacklisted Senders

Mail service can reject mail from SMTP servers that are blacklisted as open relays by a Real-time Blacklist (RBL) Server. Mail service uses an RBL server that you specify. RBLs are sometimes called *black-hole servers.*

Blocking unsolicited mail from blacklisted senders might not be completely accurate. Sometimes it prevents valid mail from being received.

To reject mail from blacklisted senders:

1. In Server Admin, select Mail in the Computers & Services pane.
2. Click Settings.
3. Select the Relay tab.
4. Click the "Use these junk mail rejection servers" checkbox.
5. Edit the list of servers by adding the DNS name of an RBL server:
   - Click the Add (+) button to add a server to the list, then enter the domain name of a RBL server, such as rbl.example.com.
   - Click the Remove (-) button to delete the selected server from the list.
   - Click the Edit (/) button to change the selected server.

Filtering SMTP Connections

You can use Mac OS X Server Firewall service to allow or deny access to your SMTP Mail service from specific IP addresses. Filtering disallows communication between an originating host and your mail server. Mail service doesn't receive the incoming connection and no SMTP error is generated or sent back to the client.

To filter SMTP connections:

1. In Server Admin, select Firewall in the Computers & Services pane.
2. Create a firewall IP filter using the instructions in *Network Services Administration,* using the following settings:
   - Access: denied
   - Port number: 25 (or your incoming SMTP port, if you use a nonstandard port)
   - Protocol: TCP
   - Source: the IP address or address range you want to block
   - Destination: your mail server's IP address

3 If you want, log the packets to monitor the SMTP abuse.

4 Add more filters for the SMTP port to allow or deny access from other IP addresses or address ranges.

For additional information about Firewall service, see *Network Services Administration*.

Limiting Junk Mail and Viruses

You can configure Mail service to decrease the volume of unsolicited commercial mail, also known as junk mail (or spam), and mail containing viruses. You can take steps to block junk mail or viruses that are sent to mail users. Additionally, you can secure your server against use by Mail service abusers who try to use your resources to send junk mail to others.

You can also take steps to prevent senders of junk mail from using your server as a relay point. A relay point or open relay is a server that unselectively receives and forwards mail addressed to other servers. An open relay sends mail from any domain to any domain.

Junk mail senders exploit open relay servers to avoid having their SMTP servers blacklisted as sources of junk mail. You don't want your server blacklisted as an open relay because other servers might reject mail from your users.

There are two main methods of preventing viruses and junk mail passing through or into your mail system. Using both methods helps mail system integrity. The two points of control are explained in the following sections:

- "Connection Control" on page 34
- "Mail Service Filtering" on page 35

Connection Control

This method of prevention controls which servers can connect to your mail system and what those servers must do to send mail through your mail system. Your Mail service can do any of the following to exercise connection control:

- Require SMTP authentication. See "Requiring SMTP Authentication" on page 27.
- Restrict SMTP relay, allowing relay only by approved servers. See "Restricting SMTP Relay" on page 31.
- Reject all SMTP connections from disapproved servers. See "Rejecting SMTP Connections from Specific Servers" on page 32.
- Reject mail from blacklisted servers. See "Rejecting Mail from Blacklisted Senders" on page 33.
- Filter SMTP connections. See "Filtering SMTP Connections" on page 33.

Mail Service Filtering

Mail service uses SpamAssassin (spamassassin.apache.org) to filter spam, or junk mail, from incoming mail messages. Mail service uses ClamAV (www.clamav.net) to detect viruses in mail messages. Both tools are managed within the Filters pane of Mail Settings in Server Admin. Additional information on configuring the junk mail and spam filters follows in these sections:

- "Enabling Junk Mail Screening (Bayesian Filters)" on page 35
- "Training the Junk Mail Filter" on page 36
- "Filtering Mail by Language and Locale" on page 37
- "Enabling Virus Screening" on page 38

Enabling Junk Mail Screening (Bayesian Filters)

Before you can benefit from mail screening, it must be enabled. While enabling screening, you configure screening parameters.

Bayesian mail filtering is the classification of mail messages based on statistics. Each message is analyzed and word frequency statistics are saved. Mail messages that have more of the same words as those in junk mail receive a higher marking of probability that they are also junk mail. When the message is screened, the server adds a header ("X-Spam-Level") with the junk mail probability score.

For example, let's say you have 400 mail messages where 200 of them are junk mail and 200 are good mail. When a message arrives, its text is compared to the 200 junk mail and the 200 good messages. The filter assigns the incoming message a probability of being junk or good, depending on what group it most resembles.

Bayesian filtering has shown itself to be a very effective method of finding junk mail if the filter has enough data to compare. One strength of this method is the more mail you get and classify (a process called *training*), the more accurate the next round of classification is. Even if junk mail senders alter their mailings, the filter takes that into account the next time around.

To enable junk mail screening:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the Filters tab.
4. Select Scan Mail for Junk Mail.
5. Set the level of permissiveness (Cautious, Moderate, Aggressive).

   The permissiveness meter sets how many junk mail flags can be applied to a message before it is processed as junk mail. If you set it to "Least permissive," mildly suspicious mail is tagged and processed as junk mail. If you set it to "Most permissive," it takes a high score (in other words, many junk mail characteristics) to mark it as junk.

6 Choose from the following to deal with junk mail messages.

- **Bounced:** Sends the message back to the sender. You can optionally send a mail notification of the bounce to a mail account, probably the postmaster.
- **Deleted:** Deletes the message without delivery. You can optionally send a mail notification of the bounce to a mail account, probably the postmaster.
- **Delivered:** Delivers the message even though it's probably junk mail. You can optionally add text to the subject line, indicating that the message is probably junk mail, or encapsulate the junk mail as a MIME attachment.
- **Redirected:** Delivers the message to someone other than the intended recipient.

7 Choose how often to update the junk mail database updated, if desired.

8 Click Save.

For an explanation of other options, see "Filtering Mail by Language and Locale" on page 37.

Training the Junk Mail Filter

The junk mail filter must be told what is and isn't junk mail. Mac OS X Server provides a method of training the filter with the help of mail users. The server runs an automated command at 2:15 am (a cron job) that scans two specially named mail users' inboxes. It runs SpamAssassin's sa-learn tool on the contents of the inboxes and uses the results for its adaptive junk mail filter.

Training the junk mail filter with users' help:

1 Enable junk mail filtering.

See "Enabling Junk Mail Screening (Bayesian Filters)" on page 35.

2 Create two local accounts: junkmail and notjunkmail.

3 Use Workgroup Manager to enable them to receive mail.

4 Instruct mail users to redirect junk mail messages that have not previously been tagged as junk mail to junkmail@<yourdomain>.

5 Instruct mail users to redirect real mail messages that were wrongly tagged as junk mail to notjunkmail@<yourdomain>.

Each day at 2:15 am, the junk mail filter will learn what is junk and what was mistaken for junk.

6 Delete the messages in the junkmail and notjunkmail accounts daily.

Training the junk mail filter without user interaction:
You can also train the junk mail filter by giving it known junk and good mail messages. Accurate training requires a large sample, so a minimum of 200 messages of each type is advised.

1. Choose a mailbox of 200 messages made of only junk mail.
2. Use Terminal and the filter's command-line training tool to analyze and remember junk mail using the following command:

```
sa-learn --showdots --spam sample junk mail directory/*
```

3. Choose a mailbox of 200 messages made of only good mail.
4. Use Terminal and the filter's command-line training tool to analyze and remember good mail using the following command:

```
sa-learn --showdots --ham sample good mail directory/*
```

If the junk mail filter fails to identify a junk mail message, train it again so it can do better next time. Use `sa-learn` again with the `--spam` argument on the mislabeled message. Likewise, if you get a false positive (a good message marked as junk mail), use `sa-learn` again with the `--ham` argument to further train the filter.

Filtering Mail by Language and Locale

You can filter incoming mail based on locales or languages. Mail messages composed in foreign text encodings are often erroneously marked as junk mail. You can configure your mail server to not mark messages from designated originating countries or languages as junk mail.

To allow mail by language and locale:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the Filters tab.
4. Select Scan Email for Junk Mail.
5. Click the Edit (/) button next to Accepted Languages to change the list, select the language encodings to allow as non-junk mail, and click OK.
6. Click the Edit (/) button next to Accepted Locales to change the list, select the country codes to allow as non-junk mail, and click OK.
7. Click Save.

Enabling Virus Screening

Before you can benefit from mail screening, it must be enabled. While enabling screening, you configure screening parameters.

Mac OS X Server uses ClamAV (from www.clamav.net) to scan mail messages for viruses. If a suspected virus is found, you can deal with it several ways, described below. The virus definitions are kept up to date (if enabled) via the Internet using a process called freshclam.

To enable virus screening:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the Filters tab.
4. Select Scan Email for Viruses.
5. Choose from the following to deal with junk mail messages.
   - **Bounced:** Sends the message back to the sender. You can optionally send a mail notification of the bounce to a mail account (probably the domain's postmaster) and notify the intended recipient.
   - **Deleted:** Deletes the message without delivery. You can optionally send a mail notification to a mail account, probably the postmaster, as well as the intended recipient.
   - **Redirected:** Delivers the message to a designated address for further analysis.
6. Choose if you want to notify the intended recipient if the message was filtered.
7. Choose how often to update the virus database.

   A minimum of twice a day is suggested. Some administrators choose eight times a day.
8. Click Save.

Server-Side Mail Rules

Mac OS X Server supports Sieve scripts to process server-side mail rules. Sieve is an Internet standard mail filtering language for server-side filtering. Sieve scripts interact with incoming mail before final delivery.

Sieve acts much like rules in mail programs to sort or process mail based on user-defined criteria. Sieve can provide such functions as vacation notifications, message sorting, and mail forwarding.

Sieve scripts are kept for each user on the mail server at /var/spool/imap/dovecot/sieve-scripts/*GUID*. The directory is owned by Mail service, so users normally don't have access to it and can't put their scripts there for mail processing. For security purposes, users and administrators upload their scripts to a Sieve process, managesieve, which transports the scripts to the mail process for use.

To enable Sieve support:
For Sieve to function, you must enable its communications port.

By default, Sieve has the vacation extension.

Place scripts in the central script repository at /usr/sieve/.

Do not use Sieve scripts to process mail for mail aliases set up in Workgroup Manager. You must use Postfix-style aliases. See "Creating Additional Mail Addresses for Users" on page 77.

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the Filters tab.
4. Select Enable server side mail rules.

From the command line:
Add the following entry in /etc/services/:

```
...
sieve 2003/udp # Sieve mail filtering
Sieve 2003/tcp # Sieve mail filtering
...
```

Sieve's complete syntax, commands, and arguments are found in IETF RFC 3028 at www.ietf.org/rfc/rfc3028.txt?number=3028.

Other information about Sieve and a sample script archive can be found in Appendix B, "Sample Sieve Scripts" and atwww.cyrusoft.com/sieve.

For more information about managesieve, see http://wiki.dovecot.org/ManageSieve.

Managing Mail Quotas

Mail quotas define how much disk space a user's mail can use on the mail server. Quotas are set on a per-user basis in the user's record in Workgroup Manager. Although you don't set a mail user's quota in Server Admin, you do manage quota enforcement and your server's response to quota violation.

Mail quotas are especially important if the mail server hosts many IMAP accounts. IMAP doesn't require mail to be removed from the server when read, so IMAP users who get large attachments can fill their quotas quickly.

Limiting Incoming Message Size

You can set a maximum size for incoming messages. The default is 10 MB. You might not want to allow large attachments that add to the message size.

To set a maximum incoming message size:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Click the Quotas tab.
4. Click the "Refuse messages larger than" checkbox and enter the number of megabytes you want to set as the limit.
5. Click Save.

Enabling Mail Quotas for Users

You can enable limits to mail storage on server. This is especially important if you use IMAP for incoming messages because mail messages aren't necessarily deleted when downloaded to the user.

You use Workgroup Manager to enable a user's mail quota.

To enable a user's mail quota:

1. In Workgroup Manager, open the user account you want to work with, if it isn't open.

   To open the account, click the Accounts button, click the globe icon below the tool bar menu, and open the directory domain where the account resides. Click the lock to be authenticated. Select the user in the user list.
2. Click the Mail tab.

   If the user doesn't have mail enabled, enable it now.
3. Enter the number of MB for the user's mail storage in the Mail Quota box.
4. Click Save.

Viewing a User's Quota Usage

When a mail user is over quota, Server Admin (in the Mail> Maintenance > Accounts pane) reports a percent free which is negative. This percent is proportional to the amount the user is over quota.

For example, suppose a user has a 2 MB quota and has received 5 MB of mail. This is 3 MB over quota, which is 150% over quota. Server Admin reports this as "-150% of quota."

Configuring Quota Warnings

When a user's mailbox approaches its storage quota, you can warn users of an impending quota violation. You choose whether to warn the mail user, how often to warn him or her, and at what point to send the warning.

To configure quota warnings:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the Quotas tab.
4. Click Enable quota warnings.
5. Enter the maximum percentage of storage usage before a warning is sent.
6. Enter the frequency of the warning notice, in number of days.
7. If you want to customize the quota warning notification, click Edit Quota Warning Message and customize the message.
8. Click Save.

Configure Quota Violation Responses

When a mail user has more mail in storage than is allowed for his or her quota, the mail server recognizes a quota violation. There are typically two responses to quota violation: a violation notice, and suspension of Mail service.

To configure quota violation responses:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the Quotas tab.
4. Click Enable Quota Warnings.
5. To customize the quota violation notification, click Edit Quota Warning Message, then customize the message.
6. To suspend Mail service for users who exceed their quotas, select "Disable a user's incoming mail when they exceed 100% of quota."
7. To customize the over-quota message, click Edit Over Quota Error Message and then customize the message.
8. Click Save.

Mailing Lists

Use this section to determine how to configure and manage mailing lists with built-in mailing list functionality of Mac OS X Server.

Setting Up a Wiki-Based Mailing List

To send mail messages to all members of a wiki group, you can enable server group mailing lists. Each member of the wiki group receives a copy of messages sent to the group address.

To enable wiki-based mailing lists:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the Mailing Lists tab.
4. Click Enable Server Group Mailing Lists.
5. Enter an interval for how frequently the recipients list is updated.

   The mail server rescans the group membership periodically. Members added to the group between updates of the recipients list won't receive messages until the mail server reads the group membership record.
6. In Workgroup Manager, enable the Mailing List service for each group you want to have a mailing list address.

   The setting is located in the Basic group options in Workgroup Manager.

   For information about using Workgroup Manager, see *Open Directory Administration*.

   Note: The address for a group-based list is *group_shortname@ServerDNSname*.

About Mailman

Some of Mailman's main features include the following (from www.list.org/features.html):

- Web-based list administration for nearly all tasks, including list configuration, moderation (post approvals), and management of user accounts.
- Web-based subscribing and unsubscribing, and user configuration management. Users can temporarily disable their accounts, select digest modes, hide their mail addresses from other members, and so on.
- A customizable home page for each mailing list.
- Per-list privacy features, such as closed subscriptions, private archives, private membership rosters, and sender-based posting rules.
- Configurable (per-list and per-user) delivery mode.
- Integrated bounce detection within an extensible framework.
- Automatic disposition of bouncing addresses (disable, unsubscribe).
- Integrated spam filters.
- Built-in web-based archiving, with hooks for external archivers.
- Integrated Usenet gatewaying.
- Integrated autoreplies.
- Majordomo-style mail-based commands.
- Multiple list owners and moderators.
- Support for virtual domains.
- Compatibility with most web servers and browsers, and most SMTP servers. Requires Python 2.1.3 or later.
- An extensible mail delivery pipeline.
- High-performance mail delivery, with a scalable architecture.

For more information about Mailman, see: www.list.org.

Setting Up a Mailman Mailing List

This section describes the process of setting up a Mailman mailing list. To do this, you enable the service, define a list name, and add subscribers to the list.

When you create a mailing list, you must specify a master password that gives you control over all lists. Do not use an administrator's or user's login password. You must also specify the mail addresses of other administrators who need the master password.

The following topics explain how to set up a mailing list.

Enabling Mailing Lists

Before you can define mailing lists and subscribers, you must enable the list service and create the administrator's default mailing list. When you enable mailing lists, you also create a password that allows administration of all lists on the server and automatically create a special list for mailing list administrators. Mailing list administrators get a copy of the master list password and error notifications.

Note: This list (called Mailman) must exist for mailing lists to function. Do not remove the master list.

To enable mailing lists:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the Mailing Lists tab.
4. Click Enable Mailman Mailing Lists.
5. Enter the master list password.
6. Enter the mail addresses of the list administrators, then click OK.

   You must enter at least one administrator who will receive notifications about the mailing list service.
7. Click Save.

   The Mailman list is created and the master password is sent to the indicated administrators.

Creating a Mailing List

Mailing lists distribute a single mail message to multiple recipients. After you create a mailing list, mail sent to the list's address is sent to all subscribers. Mailing lists have list administrators who can change list membership and list features.

Lists can be self-subscribing, so list administrators don't need to add and remove subscribers. The subscribers can do so themselves.

Note: Mailing lists cannot be renamed or corrected after creation. This is a limitation of Mailman, the list software used by Mac OS X Server. Although you can change the case of a list name using Mailman's web interface, Server Admin doesn't allow changing the list name in any way.

To rename or correct a list name, you must create a list and add existing users to the new list. This results in a Welcome message being sent to all listed users.

To create a list:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the Mailing Lists tab.
4. Click the Add (+) button under the Lists pane.
5. Enter the list's name.

   The list name is the mail account name that mailing list users will send their mail to. The name isn't case sensitive, and cannot contain spaces.
6. Enter the list administrator's mail address, then click Edit.

   If you only enter a name, it must be a username on the server. If you enter username@domain, the administrator doesn't need to be a local user.
7. Click Users May Self Subscribe, if desired.
8. Choose the default language for the list.

   You can choose English, French, German, Japanese, Korean, Russian, or Spanish. This setting encodes the text generated by the list for the default language.
9. Choose additional languages you want to be supported by the list.

   This setting also encodes the text generated by the list for the default language.
10. Click OK.
11. Click Save.

    You can now add subscribers to the list. See "Maximum Number of Mail Messages Per Volume" on page 81.

    If you allow users to self-subscribe, they can subscribe using mail or the web administration page.

Setting a List's Maximum Message Length

You can set the maximum size message that the list accepts. You can disallow large attachments by setting a small maximum size, or you can allow file collaboration by setting an unlimited message size.

You use Server Admin to set the maximum message length.

To set a list's maximum message length:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the Mailing Lists tab.
4. Select the list whose message length you want to set.
5. Click the Edit (/) button under the Lists pane.
6. Enter the maximum message length (in KB).

   If you enter 0, the maximum length is unlimited.
7. Click OK.

Creating a Mailing List Description

Sometimes it's difficult to know the scope and subject matter of a mailing list from the short list name. The list information page contains a description of the list, the subject matter it covers, and (optionally) who is permitted to subscribe. These details are especially good for self-subscription lists. A potential subscriber can decide whether to subscribe from the list's description.

You use the web interface to set the mailing list description. Web services must be enabled to access the web-based interface.

To create a list description:

1. In a web browser, enter the URL of the list administration page.

   This is usually *server.domain.tld/*mailman/admin/*listname*.
2. Enter the master list password and click "Let me in."

   This is not the user's login password. The master list password was set when mailing lists were enabled on the server. It was mailed to list administrators designated at that time.
3. Make sure that General Options is selected from the Configuration Categories link section.
4. Enter a short phrase in the description text box.
5. In the info text box, enter information about the list, its rules, and its content expectations.
6. Click Submit Your Changes.

Customizing the Mailing List Welcome Message

When subscribers join a mailing list, by assignment or self-subscription, they receive an automated welcome message. The message explains where to find the list archives and how to unsubscribe. You can customize it by adding text, describing the list culture and rules, or including any other information you want subscribers to have.

You use the web interface to set the mailing list welcome message. Web services must be enabled to access the web interface.

To customize a welcome message:

1. In a web browser, enter the URL of the list administration page.

   This is usually *server.domain.tld/*mailman/admin/*listname*.

2. Enter the master list password.

   This is not the user's login password. The master list password was set when mailing lists were enabled on the server. It was mailed to list administrators designated at that time.

3. Make sure that General Options is selected from the Configuration Categories link section.
4. Enable "Send welcome message to newly subscribed members."
5. Enter the text you want to include in the "List-specific text prepended" text box.
6. Click Submit Your Changes.

Customizing the Mailing List Unsubscribe Message

When a user is unsubscribed from a mailing list, by the list administrator or by unsubscribing, the user receives an automated unsubscribe message. The message confirms the unsubscribing. You can customize it by adding information you want users to have upon leaving the list.

You use the web interface to set the mailing list welcome message. Web services must be enabled to access the web interface.

To customize the subscriber welcome message:

1. In a web browser, enter the URL of the list administration page.

   This is usually *server.domain.tld/*mailman/admin/*listname*.

2. Enter the master list password.

   This is not the user's login password. The master list password was set when mailing lists were enabled on the server. It was mailed to list administrators designated at that time.

3. Make sure that General Options is selected from the Configuration Categories link section.
4. Enable "Send goodbye message to members."
5. Enter the text you want to include in the "Text sent to people leaving the list" text box.
6. Click Submit Your Changes.

Enabling a Mailing List Moderator

You can create a moderated list where the posts must be approved by a list administrator before the post is sent. You designate list moderators, who have limited administrative privileges. They can't change list options but they can approve or reject subscription requests and postings.

When moderators enter their password in the list administration page, they get a page with their own moderating tasks available.

You use the web interface to set mailing list moderation. Web services must be enabled to access the web interface.

To enable list moderation:

1. In a web browser, enter the URL of the list administration page.

   This is usually *server.domain.tld/*mailman/admin/*listname*.

2. Enter the master list password.

   This is not the user's login password. The master list password was set when mailing lists were enabled on the server and was mailed to list administrators designated at that time.

3. Make sure that General Options is selected from the Configuration Categories link section.
4. Enter the list moderator addresses you want to include in the "The list moderator mail addresses" text box.
5. Click Submit Your Changes.
6. Select the Password Options in the Configuration Categories link section.
7. Enter a password in the moderator password field and confirm it.
8. Click Submit Your Changes.

Setting Mailing List Message Bounce Options

When a list message bounces and returns to the list server, you can choose how the list server handles the resulting bounce message.

You use the web interface to set the mailing list bounce options. Web services must be enabled to access the web interface.

To set bounce options:

1. In a web browser, enter the URL of the list administration page.

   This is usually *server.domain.tld/*mailman/admin/*listname*.

2. Enter the master list password.

   This is not the user's login password. The master list password was set when mailing lists were enabled on the server and was mailed to list administrators designated at that time.

3 Select Bounce Processing in the Configuration Categories link section.

4 Select the bounce processing options you want.

Each option section has a link to a help page that explains the option setting.

5 Click Submit Your Changes.

Designating a Mailing List as Private

You might not want to show some lists on the web list access page. To designate a list as "private" so it isn't shown, see *server.domain.tld/*mailman/listinfo.

You use the web-based interface to set a list's privacy options. Web services must be enabled to access the web-based interface.

To set privacy options:

1 In a web browser, enter the URL of the list administration page.

This is usually *server.domain.tld/*mailman/admin/*listname*

2 Enter the master list password.

This is not the user's login password. The master list password was set when mailing lists were enabled on the server. It was mailed to list administrators designated at that time.

3 In the Configuration Categories link section, select Privacy Options and then Subscription Rules.

4 Deselect "Advertise this list" in the privacy list.

5 Click Submit Your Changes.

Adding Subscribers

Use Server Admin to add mailing list subscribers to a list. Mailing list subscribers do not need an account (mail or file access) on the list's server. Any mail address can be added to the list. You must have an existing list to add a subscriber.

If the subscriber is a user on the mail server, you can use the Users and Groups button to add a local subscriber to the list.

To add subscribers:

1 In Server Admin, select Mail in the Computer & Services list.

2 Click Settings.

3 Select the Mailing Lists tab.

4 Select the list you want to add a subscriber to.

5 Click the Add (+) button under the Members pane.

6 Enter the recipient's mail address.

If you're entering multiple subscribers, enter the recipient mail addresses or drop a text list into the User Identifiers box.

If the subscribers are users on the mail server, you can use the Users and Groups button to add a local groups to the list.

7 Choose from the following subscriber privileges:

- **Users subscribed to list:** This means the user will receive mail sent to the list address.
- **Users may post to list:** This means the list will accept mail from the user.
- **Users can administer list:** This means the user has administrative privileges for the list.

8 Click OK.

Administering Mailing Lists

Mailing lists can be administered by designated list members, called list administrators or list managers. List administrators can add or remove subscribers and can designate other list administrators. List administrators can also designate list moderators, who have limited administrative privileges. They can't change list options, but they can approve or reject subscription requests and postings.

Mailman uses a web interface and mail-based administration. Web services must be enabled to access the web interface. Dozens of configuration options are available for Mailman mailing lists that are not accessible using Server Admin.

The Web-based administration interface is found at *server.domain.tld/*mailman/listinfo.

Information and access to a specific list is found at *server.domain.tld/*mailman/listinfo/*listname*.

For documentation of these functions for users, list administrators, and server administrators, see www.list.org/docs.html.

Viewing a Server's Mailing Lists

You can view public (not private) lists that are being run on a server through the server's web information portal. Web services must be enabled to access the portal.

To see the lists:

- Open a web browser, and enter the list's URL:

  *server.domain.tld/*mailman/listinfo

Viewing a Mailing List's Information Page

Each list has an information page on the server that shows basic information about the list, how to post to it, how to subscribe to it, and how to access subscription preferences. You access the list information page with a web browser.

Web services must be enabled to access the web interface.

To see the list's information page:

- Open a web browser, and enter the list's URL:

  *server.domain.tld/*mailman/listinfo/*listname*

Designating a List Administrator

When you set up a mailing list, you designate at least one user to administer it. This administrator has access to the other list settings pages for all lists on the server.

You can designate more than one list administrator and change any subscriber to or from being a list administrator. You can add, remove, or change the list administrator using these instructions.

List administrators do not need to be users (neither administrator nor regular) on the server. They are listed as mail addresses. Giving list administrator privileges to a subscriber does not give them privileges on the mailing list server other than making and removing lists and editing list preferences.

To designate a list administrator:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the Mailing Lists tab.
4. Select the list that has the subscriber to be given list administrator privileges.

   If the user isn't subscribed to the list, you must add him or her first. For more information, see "Maximum Number of Mail Messages Per Volume" on page 81.
5. Select the subscriber.
6. Click the Admin checkbox in the subscriber list, if wanted.
7. Click OK.

Accessing Web-Based Administrator Options

List administrators set preferences for mailing list behavior. They also view pending moderation requests for mailing lists that are being run on a server. These and other tasks are accomplished through the server's web-administration portal. Web services must be enabled to access the web portal.

Server Admin does not give access to the wide range of preferences available for a mailing list. List administrators are encouraged to use the web interface for all but the most basic setup tasks.

Information about what options are available via the web interface can be found at www.list.org/docs.html.

To access a list's web-based options:

1. In a web browser, enter the URL of the list administration page.

   This is usually *server.domain.tld/*mailman/admin/*listname*.
2. Enter the master list password.

This is not the user's login password. The master list password was set when mailing lists were enabled on the server. It was mailed to list administrators designated at that time.

3 Change list settings as desired.

Designating a List Moderator

When you set up a list, you can designate another user to moderate the list.

To designate a list moderator:

1 In Server Admin, select a computer in the Servers list, then select Mail.

2 Click Settings.

3 Select the Mailing Lists tab.

4 Select the list that has the subscriber.

5 Click the Edit (/) button under the Lists pane.

Hold down the Shift or Command key to select multiple subscribers.

6 Select or deselect "User can administer the list" as necessary.

7 Click OK.

Archiving a List's Mail

Messages sent to a mailing list can be archived and viewed at a later time. The messages are grouped into archival volumes by time and date. You can choose whether a list's archive is accessible by nonsubscribers, and how often the archives are updated.

By default, the archives are found at *server.domain.tld/*pipermail/*listname*.

You use the web interface to set mailing list archive preferences. Web services must be enabled to access the web interface.

To archive a list's mail:

1 In a web browser, enter the URL of the list administration page.

This is usually *server.domain.tld/*mailman/admin/*listname*.

2 Enter the master list password.

This is not the user's login password. The master list password was set when mailing lists were enabled on the server. It was mailed to list administrators designated at that time.

3 Select "Archiving Options" from the Configuration Categories section.

4 Select Yes next to "Archive messages?"

5 Select whether the archive will be public or private.

6 Select how often to start a new archive volume.

7 Click Submit Your Changes.

Viewing Mailing List Archives

If the list administrator has enabled message archiving, you can access and search the archived messages.

To view a list's archives:

1. In a web browser, enter the URL of the list information page.

   This is usually *server.domain.tld/*mailman/archives/*listname*.

2. Select the year and month of the archive you'd like to browse.

Working with Mailing List Subscribers

After a mailing list is created, you can add or remove people from it. You might want to give list administration privileges to a user or change a user's ability to receive or post to the list.

Adding a Subscriber to a List

This is the same procedure as adding a user to a new list.

To add a subscriber to a list:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the Mailing Lists tab.
4. Select the List to add a subscriber to.
5. Click the Add (+) button under the Members pane.
6. Enter the recipient's mail address.

   The mail address must match the return address of the recipient to post messages without administrator approval.

   If a user was added via the Users and Groups button, the mail address in the list is in the form of user@server.domain.com. If necessary, change the mail address in the mailing lists panel of Server Admin to match the return address used by the client.

7. Assign the subscriber privileges.
8. Click OK.

Removing a List Subscriber

You can remove a subscriber from a mailing list forcibly or by request.

To remove a list subscriber:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the Mailing Lists tab.

4 Select the list to remove the subscriber from.

5 Select the subscriber from the User pane.

To select multiple subscribers, hold down the Shift or Command key.

6 Click the Remove (-) button under the Email Address pane.

Changing Subscriber Posting Privileges

Sometimes you might want an announce-only list, where recipients can't post messages. You can limit the subscriber's ability to post and create announce-only lists.

To add or remove a subscriber's posting privileges:

1 In Server Admin, select a computer in the Servers list, then select Mail.

2 Click Settings.

3 Select the Mailing Lists tab.

4 Select the list that has the subscriber.

5 Click the Edit (/) button under the Mailing Lists pane.

To select multiple subscribers, hold down the Shift or Command key.

6 Select or deselect the Post checkbox as necessary.

This setting determines whether the user can send messages to the list.

7 Click OK.

Suspending a Subscriber

You can keep a user on a mail list and still allow him or her to post to a list without receiving list messages. In this case, you temporarily suspend a user's subscription to a list.

To suspend a user's subscription to a list:

1 In Server Admin, select a computer in the Servers list, then select Mail.

2 Click Settings.

3 Select the Mailing Lists tab.

4 Select the List that has the subscriber.

5 Click the Edit (/) button under the Mailing Lists pane.

Hold down the Shift or Command key to select multiple subscribers.

6 Deselect or select "Subscribe" as necessary.

7 Click OK.

List Subscriber Options

A subscriber can customize their mailing list subscriptions. Without being designated a list administrator or having user privileges on the server, the user has control of a number of aspects of his or her subscriptions.

The following section gives instructions on common settings your users can customize. A full list of possible configurable options, and instructions for use, can be found on Mailman's documentation page at www.list.org/docs.html.

Subscribing to a Mailing List Via Mail

You can subscribe to lists using mail. You do so by sending a message to the list subscription address. Depending on the list's settings, you might need to confirm your subscription or wait for moderator approval.

You do not need to subscribe using both mail and the web.

If the list allows self-subscription, you can subscribe yourself.

To subscribe via mail:

1. Open your mail program that sends from the address you want to subscribe.
2. Send a message to the list subscription address, which is usually *listname*-join@*domain*.

   The subject and body of the message are ignored. Replace *listname* with the name of the list and the domain where the list is hosted.

Subscribing to a Mailing List Via Web

You can subscribe to lists using the web interface. You go to the information page for the list and provide your mail address and a password for your list preferences. Depending on the list's settings, you might need to confirm your subscription or wait for moderator approval. You do not need to subscribe using both the web and mail.

You can subscribe only yourself, if the list allows self-subscription.

To subscribe via web:

1. In a web browser, enter the URL of the list information page.

   This is usually *server.domain.tld/*mailman/listinfo/*listname*.
2. In the Subscriber section of the web page, enter your mail address and name (optional).
3. Specify a password for use with the list and enter it twice to confirm it.

   The password should not be one that you use for other purposes because it is sent in plain text as a reminder periodically from the lists you are subscribed to.
4. Select your digest message mode preference.

   If you receive a daily digest, instead of getting each list posting separately, you will get one daily post.
5. Click Subscribe.

Unsubscribing from a Mailing List Via Mail

Unsubscribing from a mailing list via mail is similar to subscribing to a mailing list via mail. Depending on the list's settings, you might need to confirm your subscription removal or wait for moderator response.

To unsubscribe via mail:

1. Open the mail program that sends from the address that receives mailing list posts.
2. Send a mail message to the list subscription address, which is usually *listname*-leave@*domain*.

   Replace listname with the name of the mailing list.

   The subject and body of the message are ignored.
3. Follow the directions in the confirmation mail.

Unsubscribing from a Mailing List Via Web

Unsubscribing from a mailing list via the web is similar to subscribing to a mailing list via the web. Depending on the list's settings, you might need to confirm your subscription removal or wait for moderator response.

To unsubscribe via web:

1. In a web browser, enter the URL of the list information page.

   This is usually *server.domain.tld/*mailman/listinfo/*listname*.
2. In the Subscriber section of the web page, enter your mail address and click Unsubscribe Or Edit Options.
3. Click Unsubscribe.

Setting and Changing Your Mailing List Password

You use your mailing list password to alter preferences for a list. The password should not be one that you use for other purposes because it is sent in plain text as a reminder periodically from the lists you are subscribed to.

To set or change your password:

1. In a web browser, enter the URL of the list information page.

   This is usually *server.domain.tld/*mailman/listinfo/*listname*.
2. In the Subscriber section of the web page, enter your mail address and click Unsubscribe Or Edit Options.
3. Enter your password, and click Log In.

   This is not your user password. If you subscribed using the web interface, you chose a list password. If you subscribed via mail or were subscribed via Server Admin, your password is blank.
4. Find the password section of the subscription page.

5 Enter a new password in the indicated field, and enter it again to confirm it.

To change your password for all lists that you belong to on this server, select Change Globally.

6 Click Change My Password.

Disabling List Mail Delivery

You can temporarily disable delivery of mailing list messages (for example, to stop mail while on vacation).

To disable list delivery:

1 In a web browser, enter the URL of the list information page.

This is usually *server.domain.tld/*mailman/listinfo/*listname*.

2 In the Subscriber section of the web page, enter your mail address and click Unsubscribe Or Edit Options.

3 Enter your password, and click Log In.

This is not your user password. If you subscribed using the web interface, you chose a list password. If you subscribed via mail or were subscribed via Server Admin, your password is blank.

4 In the Mail Delivery section, select Disabled.

To disable delivery for all lists you belong to on this server, select Change Globally.

5 Click Submit My Changes.

Changing Digest Mode

Digest mode sends only one message per day regardless of list mail volume. You can switch between getting each message or a single digest message.

If your digest mode is *On* you receive a single digest message per day.

To toggle digest mode:

1 In a web browser, enter the URL of the list information page.

This is usually *server.domain.tld/*mailman/listinfo/*listname*.

2 In the Subscriber section of the web page, enter your mail address and click Unsubscribe Or Edit Options.

3 Enter your password and click Log In.

This is not your user password. If you subscribed using the web interface, you chose a list password. If you subscribed via mail or were subscribed via Server Admin, your password is blank.

4 In the Set Digest Mode section, select whether you want a daily digest by clicking On or Off.

5 Click Submit My Changes.

Choosing MIME or Plain Text Digests

If you subscribe to a mailing list and receive digests (a single mail with all of a day's postings in it), you can choose whether to receive them as a MIME digest (a collection of individual posts) or as a plain text digest (one message with the text of all posts).

To change message types:

1. In a web browser, enter the URL of the list information page.

   This is usually *server.domain.tld/*mailman/listinfo/*listname*.

2. In the Subscriber section of the web page, enter your mail address and click Unsubscribe Or Edit Options.

3. Enter your password and click Log In.

   This is not your user password. If you subscribed using the web interface, you chose a list password. If you subscribed via mail or were subscribed via Server Admin, your password is blank.

4. In the Get MIME Or Plain Text Digests section, select a digest type.

   To set the digest type for all your lists on this server, select Change Globally.

5. Click Submit My Changes.

Setting Additional Subscriber Options

Subscribers can change other list membership options, including these:

- Mail address
- Name on the list
- Posting acknowledgments
- Message copy handling

These options are available on your subscription options page.

To access additional options:

1. In a web browser, enter the URL of the list information page.

   This is usually *server.domain.tld/*mailman/listinfo/*listname*.

2. In the Subscriber section of the web page, enter your mail address and click Unsubscribe Or Edit Options.

3. Find the option you want to change and follow the instructions on screen.

Where to Find More Information

Mailman's features and its capabilities, can be found at www.list.org.

You will also find the following information at www.list.org/docs.html:

- Web-based administration and subscriber commands
- Mail-based administration and subscriber commands
- Frequently Asked Questions (FAQ) lists

Setting Mail Service Logging Options

Mail service logs can show the following levels of reported detail:

- **Debug:** All debugging information
- **Information:** Connection transactions, delivery attempts, authentication attempts
- **Notice:** Authentication failures
- **Critical:** Errors that require prompt administration attention
- **Warning:** All warnings and errors
- **Errors:** All errors
- **Critical:** Errors that require prompt administration attention

Setting the Mail Service Log Detail

You can choose log detail for each service category (outgoing, incoming, or junk mail filter).

To set the Mail service log detail:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the Logging tab.
4. Select the service whose log detail you want to set:
   - SMTP for outgoing mail and connections from external mail servers
   - POP/IMAP for incoming mail retrieval for users
   - Junk Mail/Virus for the junk Mail service
5. Choose a detail level from the Log Detail Level pop-up menu.
6. Click Save.

Archiving Mail Service Logs by Schedule

Mac OS X Server archives Mail service logs after a specified time. Each archive log is compressed and uses less disk space than the original log file. You can customize the schedule to archive the logs after a set period of time, measured in days.

To archive logs by schedule:

1. In Server Admin, select Mail in the Computer & Services list.
2. Click Settings.
3. Select the Logging tab.
4. Click "Archive Logs Every ____ Days."
5. Enter the number of days.
6. Click Save.

For information about viewing Mail service logs, see "Viewing Mail Service Logs" on page 86.

Client-Specific Configuration for Mail Service

Client Access to your Mail service requires:

- Enabling users to access your Mail service. See "Designating Authorized Mail Service Users" on page 62.
- Configuring and managing the tools they use to access Mail service. Some of these topics are discussed below.

Configuring Mail Client Applications

Users must configure their mail client software to connect to Mail service. The following table details the information most mail clients need and the source of the information in Mac OS X Server.

Mail client software	Mac OS X Server	Example
User name	Full name of the user	Steve Macintosh
Account name or Account ID	Short name of user account	steve
Password	Password of user account	
Host name Mail server Mail host	Mail server's full DNS name or IP address, as used when you log in to the server in Server Admin	mail.example.com 192.168.50.1
Mail address	User's short name, followed by the @ symbol, followed by one of the following: • Server's Internet domain (if the mail server has an MX record in DNS) • Mail server's full DNS name • Server's IP address in brackets	steve@example.com steve@mail.example.com steve@[192.168.50.1]
SMTP host SMTP server	Same as host name	mail.example.com 192.168.50.1
POP host POP server	Same as host name	mail.example.com 192.168.50.1
IMAP host IMAP server	Same as host name	mail.example.com 192.168.50.1
SMTP user	Short name of user account	steve
SMTP password	Password of user account	

Using Webmail

WebMail is a web-based mail user agent (MUA). It allows a web browser such as Apple's Safari to compose, read, and forward mail like any other mail client. Mac OS X Server's WebMail functionality is provided by a software package called SquirrelMail at www.squirrelmail.org.

WebMail relies on your mail server to provide the Mail service. WebMail cannot provide Mail service independent of the mail server. WebMail uses the Mail service of your Mac OS X Server computer.

WebMail uses standard mail protocols and requires your mail server to support them. These protocols are:

- IMAP, for retrieving incoming mail
- SMTP, for exchanging mail with other mail servers (sending outgoing mail and receiving incoming mail)

WebMail doesn't support retrieving incoming mail via POP. Even if your mail server has POP enabled, WebMail doesn't use it.

To use WebMail:

1. Enable and configure your mail server.
2. After the mail server is configured, enable the WebMail software.

For instructions on setting up WebMail, see *Web Technologies Administration,* available at www.apple.com/server/documentation.

Vacation Notices

If you enable server-side mail rules and the Wiki Server, mail users can add vacation notices through a web interface.

How a user modifies their vacation notices:

1. Log into any wiki page they have access to.
2. Select My Page.
3. Select "settings."
4. Select Vacation Notice.
5. To enable vacation notices, for Enabled, select On; to disable vacation notices, select Off.
6. Click the date next to Vacation Begins and then select the date when notifications will start being sent.
7. Click the date next to Returning On and then select the date when notifications will stop being sent.
8. In the Email Subject field, enter the subject line of the mail that will be sent.
9. In the Vacation Message area, enter the body of the mail that will be sent.
10. Click Save.

Mail Service Advanced Configuration

3

Use this chapter to tune Mail service beyond a basic setup.

This chapter discusses topics beyond the basic configuration to get Mail service running. It includes information about using Mail service virtual hosting environments, more specific security tuning, information about managing the data store, and information about using the Xsan cluster file system with Mail service.

Securing User Access to Mail Service

You secure user access to your Mail service by:

- Authorizing only specified users to access your Mail service
- Authenticating those users with the highest level of authentication that your environment affords
- Encrypting communications between the Mail service and clients with Secure Sockets Layer

These sections describe these procedures in more detail:

- "Designating Authorized Mail Service Users" on page 62
- "Choosing Authentication for Mail Service" on page 64
- "Securing Mail Service with SSL" on page 67

Designating Authorized Mail Service Users

Mac OS X Server allows you to enable mail access for users using:

- Workgroup Manager. See "Using Workgroup Manager for Mail Service Access" on page 63.
- The Access tab in a server's Server Admin listing (using Access Control Lists). See "Using Access Control Lists for Mail Service Access" on page 63.

If you enabled user access via Server Admin and traditional mail access using Workgroup Manager, the settings interact in the following manner:

Access via ACL	Access via Workgroup Manager	Result
Off	On	User has mail access granted according to his or her user record settings in Workgroup Manager. This is the default.
Off	Off	User has no mail access.
On	On	User has mail access granted according to the IMAP or POP settings in the General Settings Mail panel in Server Admin.
On	Off	User has mail access granted according to the IMAP or POP settings in the General Settings Mail panel in Server Admin.

Using Workgroup Manager for Mail Service Access

By default, you use Workgroup Manager to designate which users can use Mail service. You can do this on an individual basis as discussed below, or you can use templates that have mail access enabled when you set up the users.

To enable a user's mail access using Workgroup Manager:

1. In Workgroup Manager, open the user account you want to work with, if it isn't open.

   To open the account, click the Accounts button, click the globe icon below the tool bar menu, and open the directory domain where the account resides. Click the lock to be authenticated. Select the user in the user list.
2. Click the Mail tab.
3. If the user doesn't have mail enabled, enable it now.
4. Click Save.

Using Access Control Lists for Mail Service Access

Access Control Lists (ACLs) are a method of designating service access to users or groups on an individual basis. For example, you can use an ACL to allow only one user access to a file server or shell login, without allowing any other user on the server to access it.

Mail service is different from other services that traditionally use ACLs for determining service access. Mail service is already specified on a per-user basis. Either you have a mail account on a server or you don't. Being a user on a server doesn't automatically confer access to mail storage and retrieval.

Some administrators find it easier to designate mail access using ACLs if they do all their other configuration using ACLs. They also might have mixed network environments that necessitate using ACLs to assign mail access.

To enable mail access using ACLs:

1. In Server Admin, select the server that has Mail service running.
2. Select Access, then click Services.
3. Select Mail from the Services list.
4. Select "For selected services below."
5. Select "Allow only users and group below."
6. Click the Add (+) button to reveal a Users and Groups list.
7. Drag the user or group to the access list.
8. Click Save.

Choosing Authentication for Mail Service

SMTP Authentication

You can protect your server from being an open relay (which indiscriminately relays mail to other mail servers) by requiring SMTP authentication. Requiring authentication ensures that only known users—people with user accounts on your server—can send mail from your mail servers.

You can configure Mail service to require secure authentication using CRAM-MD5 or Kerberos or less secure authentication methods using plain text or login.

Plain authentication sends mail passwords as plain text over the network. Login authentication sends a minimally secure crypt hash of the password over the network. You might allow these less secure authentication methods, which don't encrypt passwords, if some users have mail client software that doesn't support the secure methods.

If you configure Mail service to require CRAM-MD5, mail users' accounts must be set to use a password server that has CRAM-MD5 enabled.

Before enabling Kerberos authentication for incoming Mail service, you must integrate Mac OS X with a Kerberos server. If you're using Mac OS X Server for Kerberos authentication, this is already done for you.

Enabling SMTP Authentication will:

- Make your users authenticate with their mail client before accepting mail to send.
- Frustrate mail server abusers who are trying to send mail through your system without your consent.

Enabling multiple methods allows a client to use any of the enabled methods. If you want to *require* any of these authentication methods, enable only one method.

To allow secure SMTP authentication:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the Advanced tab.
4. Select Security.
5. Click the CRAM-MD5 or Kerberos checkbox in the SMTP section.
6. Click Save.

To allow less secure authentication:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the Advanced tab.
4. Select Security.
5. In the SMTP section, click the Plain or Login checkbox.
6. Click Save.

If you use the Server Setup Assistant and make your server and Open Directory Master, Kerberos and CRAM-MD5 are enabled automatically. If you want to force only one of these methods to be used for authentication, deselect the one you do not want used.

IMAP and POP Authentication

Your IMAP/POP Mail service (Dovecot) can protect user passwords by requiring that connections use a require secure authentication using Kerberos, CRAM-MD5 (for IMAP), or APOP (for POP) or less secure authentication methods using plain text or login. When a user connects with secure authentication, the user's mail client software encrypts the user's password before sending it to your IMAP service.

Plain authentication sends mail passwords as plain text over the network. Login authentication sends a minimally secure crypt hash of the password over the network. You might allow these less secure authentication methods, which don't encrypt passwords, if some users have mail client software that doesn't support the secure methods.

Make sure your users' mail applications and user accounts support the method of authentication you choose. If you configure Mail service to require CRAM-MD5, you must set mail accounts to use a Mac OS X Server Password Server that has CRAM-MD5 enabled.

Before enabling Kerberos authentication for incoming Mail service, you must integrate Mac OS X with a Kerberos server. If you're using Mac OS X Server for Kerberos authentication, this is already done for you.

Enabling multiple methods allows a client to use any of the enabled methods. If you want to *require* any of these authentication methods, enable only one method.

To set secure IMAP and POP authentication:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the Advanced tab.
4. Select Security.
5. Select CRAM MD-5 or Kerberos (as needed) in the IMAP section.
6. Click Save.

To set less secure IMAP and POP authentication:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the Advanced tab.
4. Select Security.
5. Click the Login, PLAIN, or Clear checkbox in the IMAP list.
6. Click Save.

If you use the Server Setup Assistant and make your server and Open Directory Master, Kerberos, CRAM-MD5 (for IMAP), and APOP (for POP) are enabled automatically. If you want to force only one method to be used for authentication, deselect the one you do not want used.

Securing Mail Service with SSL

Secure Sockets Layer (SSL) connections ensure that the data sent between your mail server and your users' mail clients is encrypted. This allows secure and confidential transport of mail messages across a local network.

SSL transport doesn't provide secure authentication. It only provides secure transfer from your mail server to your clients. For secure authentication information, see "Choosing Authentication for Mail Service" on page 64.

For incoming mail, Mail service supports secure mail connections with mail client software that requests them. If a mail client requests an SSL connection, Mail service can comply if that option is enabled.

Mail service still provides non-SSL (unencrypted) connections to clients that don't request SSL. The configuration of each mail client determines whether it connects with SSL or not.

For outgoing mail, Mail service supports secure mail connections between SMTP servers. If an SMTP server requests an SSL connection, Mail service can comply if that option is enabled. Mail service can still allow non-SSL (unencrypted) connections to mail servers that don't request SSL.

Configuring SSL for mail transport

Mail service requires some configuration to provide SSL connections automatically. The basic steps are as follows:

1. Obtain a security certificate.

   This can be done in the following ways:

   - Get a certificate from an external Certificate Authority. See "Using an SSL Certificate from an External Certificate Authority" on page 69.
   - Create a self-signed certificate in Server Admin's Certificate Manager.
   - Locate an existing certificate from a previous installation of Mac OS X Server v10.3 or later.

2. Import the certificate into Server Admin's Certificate Manager.

   You can use Certificate Manager to drag and drop certificate information or you can provide Certificate Manager with the path to an existing installed certificate. You can also import certificates from the command line as outlined in "Accessing Server Certificates from the Command Line" on page 71.

3. Configure the service to use the certificate.

   For instructions for allowing or requiring SSL transport, see the following sections:

   - "Configuring SSL Transport for SMTP Connections" on page 68
   - "Configuring SSL Transport for IMAP and POP Connections" on page 68

Configuring SSL Transport for SMTP Connections

SSL transport enables mail transmitted over the network to be securely encrypted. You can choose Require, Use, or Don't Use SSL for IMAP connections. Before using SSL connections, you must have a security certificate for mail use.

For more information about certificates, see Certificates in Server Admin.

To configure SSL transport for SMTP connections:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the Advanced tab.
4. Select Security.
5. In the SMTP SSL section, click Require or Use to enable (or Don't Use to disable).
6. If you are using or requiring SSL, select the certificate you want to use from the corresponding pop-up menu.
7. Click Save.

Configuring SSL Transport for IMAP and POP Connections

SSL transport enables mail transmitted over the network to be securely encrypted. You can choose Require, Use, or Don't Use SSL for IMAP connections. Before using SSL connections, you must have a security certificate for mail use.

For more information about certificates, see Certificate Manager in Server Admin.

Setting SSL transport for IMAP also sets it for POP.

To configure SSL transport for IMAP and POP connections:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the Advanced tab.
4. Select Security.
5. From the pop-up menus in the IMAP and POP SSL section, click Require or Use to enable (or Don't Use to disable).
6. If you are using or requiring SSL, select the Certificate you want to use from the corresponding pop-up menu.
7. Click Save.

Using an SSL Certificate from an External Certificate Authority

If you do not have a valid certificate, you can acquire one from a certificate authority and add it to the System keychain:

Generate a Certificate Signing Request (CSR)

A CSR is a file that provides information needed to issue an SSL certificate.

1. Log in to the server as root locally through Terminal or remotely via ssh.
2. Enter the following commands:

```
$ cd /private/var/root/Library/Keychains/
$ /usr/bin/certtool r csr.txt k=certkc c
```

   This use of the `certtool` tool begins an interactive process that generates a CSR in the file csr.txt and creates a keychain named certkc.

3. In the New Keychain Passphrase dialog that appears, enter a password for the keychain you're creating, enter the password a second time to verify it, and click OK.

   Remember this password, because later you must supply it again.

4. When "Enter key and certificate label" appears in the Terminal window, enter a one-word key, a blank space, and a one-word certificate label, and then press Return.

   For example, you could enter your organization's name as the key and `mailservice` as the certificate label.

   The following output appears.

```
Please specify parameters for the key pair you will generate.
 r RSA
 d DSA
 f FEE
Select key algorithm by letter:
```

5. Enter `r`, and then press Return.

   The following output appears.

```
Valid key sizes for RSA are 512..2048; default is 512
Enter key size in bits or CR for default:
```

6. Enter a key size, and then press Return.

   Larger key sizes are more secure, but they require more processing time on your server. Key sizes smaller than 1024 aren't accepted by some certificate-issuing authorities.

   The following output appears.

```
You have selected algorithm RSA, key size (size entered above) bits.
OK (y/anything)?
```

7. Enter `y`, and then press Return.

   The following output appears.

```
Enter cert/key usage (s=signing, b=signing AND encrypting):
```

8 Enter `b`, and then press Return.

The following output appears.

```
...Generating key pair...
Please specify the algorithm with which your certificate will be signed.
 5 RSA with MD5
 s RSA with SHA1
Select signature algorithm by letter:
```

9 Enter `s`, and then press Return.

The following output appears.

```
You have selected algorithm RSA with SHA1.
OK (y/anything)?
```

10 Enter `y`, and then press Return.

The following output appears.

```
...creating CSR...
Enter challenge string:
```

11 Enter a phrase or random text, and then press Return.

The following output appears.

```
For Common Name, enter the server's DNS name, such as server.example.com.
For Country, enter the country in which your organization is located.
For Organization, enter the organization to which your domain name is
     registered.
For Organizational Unit, enter something similar to a department name.
For State/Province, enter the full name of your state or province.
```

12 Enter the correct information for each prompt, which requests the components of the certificate's Relative Distinguished Name (RDN), and press Return after each entry.

The following output appears.

```
Is this OK (y/anything)?
```

13 Enter `y`, and then press Return.

The following output appears.

```
Wrote (n) bytes of CSR to csr.txt
```

When you see a message about writing to csr.txt, you have generated a CSR and created the keychain that Mail service needs for SSL connections.

14 Log out from the server.

Note: You can use the `security` command to administer keychains and manipulate keys and certificates. For more information about this command, see the security man page.

Importing an SSL Certificate into the Keychain from the Command Line

You can import your SSL certificate into the Keychain using Keychain Access or from the command line with `certtool`. To import an SSL certificate using `certtool`:

1. Log in to the server as root.
2. Open the Terminal application.
3. Go to the folder where the saved certificate file is located.

   For example, if the certificate file is saved on the desktop of the root user, enter `cd /private/var/root/Desktop` and press Return.
4. Enter the following command, and then press Return:

   ```
   $ certtool i sslcert.txt k=certkc
   ```

   Using `certtool` this way imports a certificate from the file named `sslcert.txt` into the keychain named `certkc`.

   A message confirms that the certificate was imported.

   ```
   ...certificate successfully imported.
   ```
5. Log out from the server.

After generating a CSR and a keychain, you continue configuring Mail service for automatic SSL connections by purchasing an SSL certificate from a certificate authority such as Verisign or Thawte. You can do this by completing a form on the certificate authority's website.

When prompted for your CSR, open the csr.txt file using a text editor, such as TextEdit. Then, copy and paste the contents of the file into the appropriate field on the certificate authority's website. The websites for these certificate authorities are at:

- www.verisign.com
- www.thawte.com

When you receive your certificate, save it in a text file named sslcert.txt. You can save this file with the TextEdit application. Make sure that the file is plain text, not rich text, and that it contains only the certificate text.

Accessing Server Certificates from the Command Line

Server Admin keeps a centralized store of your server's certificates for ease of use and management. Use `certadmin` to access this information from the command line. `certadmin` directly manipulates the list of certificates stored in the System keychain.

- To view the certificates in the System keychain:

  ```
  $ sudo certadmin list
  ```

  By default, `certadmin` prints the Common Name field of each certificate separated by newlines. Adding the option `-x` or `--xml` prints the certificate list to screen as an XML property list (plist).

- To export a certificate to OpenSSL:

  ```
  $ sudo certadmin export
  ```

  For more information, see the `certadmin` man page. You can also access the System keychain locally from Keychain Access.

Creating a Password File from the Command Line

The password file contains the password you specified when you created the keychain. Mail service uses the password file to unlock the keychain that contains the SSL certificate.

Creating the Password File in the Keychain

1. Log in to the server as root.
2. In TextEdit, create a file and enter the password as you entered it when you created the keychain.

   Don't press Return after entering the password.
3. Make the file plain text by choosing Make Plain Text from the Format menu.
4. Save the file, naming it cerkc.pass.
5. Move the file to the root keychain folder.

   The path is /private/var/root/Library/Keychains/.

   To see the root keychain folder in the Finder, choose Go to Folder from the Go menu, enter /private/var/root/Library/Keychains/, and then click Go.
6. In the Terminal application, change the access privileges to the password file so only root can read and write to this file.

   Do this by entering the following commands, pressing Return after each one:

   ```
   cd /private/var/root/Library/Keychains/
   chmod 600 certkc.pass
   ```

   Mail service can now use SSL for secure IMAP connections.
7. Log out from the server.

   Note: If Mail service is running, stop it and start it again so it recognizes the new certificate keychain.

Mail service is now configured for automatic SSL connections.

A Mail Service Virtual Host

Virtual hosting is a method you can use to host more than one domain name on the same computer and IP address, with overlapping mail user names.

For example, a mail server can receive mail transfer requests for two domains, mail.example1.com and mail.example2.com, both of which resolve to the same IP address. For mail.example1.com, the server delivers mail to "bob@example1.com" to a user mailbox for "bob," while it also delivers mail to "bob@example2.com" to a *different* user mailbox. Virtual hosts are essentially the converse of local host aliases.

Enabling Virtual Hosting

Before you can enable virtual hosting, you must add a list of locally hosted virtual domains to your mail server.

If you enable virtual domains, mail aliases (described in "Creating Additional Mail Addresses for Users" on page 77) as well as mail addresses associated with the virtual name (described in "Associating Users to the Virtual Host" on page 74) must be fully qualified. This means that additional mail user names entered into the Short Names field of a user's Workgroup Manager record must contain the user name as well as the "@domainname" portion.

If you enable hosted virtual domains, you must include (in Workgroup Manager's Short Name field for a user) the user's full mail address for all mail hosts you expect the user to receive mail, for all aliases, and for virtual host addresses.

To enable virtual hosting:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the Advanced tab.
4. Select Hosting.
5. Add at least one virtual host.

   For more information, see "Adding or Removing Virtual Hosts" on page 74.
6. Select Enable Virtual Hosting.

   You can now add or remove virtual hosts using the Add (+) or Remove (-) button.
7. Click Save.

Adding or Removing Virtual Hosts

Before you can enable virtual hosting, you must add a list of locally hosted virtual domains to your mail server. Virtual hosting must be enabled to add or remove virtual hosts. If virtual hosting is not enabled, see "Enabling Virtual Hosting" on page 73.

If you enable virtual host domains, all mail aliases, addresses for local host aliases, and mail addresses associated with the virtual name must be fully qualified. This means that additional mail user names entered into the Short Names field of a user's Workgroup Manager must contain the user name as well as the @domainname portion.

If you enable virtual domains, you must include the full mail address for user aliases *and* virtual users.

To add or remove virtual hosts:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the Advanced tab.
4. Select Hosting.
5. Click the Add (+) button next to the Locally Hosted Virtual Domain box and enter the domain name of a virtual host you want your server to be responsible for.

   To change a virtual domain, select it and click the Edit (/) button.

   To remove an item from the list, select it and click the Remove (-) button.
6. Click Save.

   Note: Set up MX records for each virtual domain. If a domain name in this list doesn't have an MX record, only your Mail service recognizes it. External mail sent to this domain name is returned.

Associating Users to the Virtual Host

Associating users to a virtual host requires creating an alias in their user records that contain the entire mail address (such as bob@example.com, where example.com isn't the domain name of the mail server, but a virtual host).

There are two types of creating aliases for virtual host users: Mac OS X Server-style, and Postfix-style. Each has its advantages and disadvantages:

- Mac OS X Server–style aliases are easy to make, and are listed with a user's login name. You can easily see the alias that refers to each user. The downside is that Mail service's Sieve functionality doesn't understand Mac OS X Server-style aliases and will not filter mail based on the Mac OS X Server-style alias.
- Postfix-style aliases require command-line administration and are less obvious to audit. However, Postfix-style aliases are compatible with Sieve scripting. Only aliases generated by the Postfix-style method can be acted upon by Sieve scripts.

To associate a user to a virtual host using Mac OS X Server–style aliases:

1. Add a Virtual Host Name using the directions in "Adding or Removing Virtual Hosts" on page 74.
2. In Workgroup Manager, open the user account you want to work with, if it isn't open.

   To open the account, click the Accounts button, click the globe icon below the toolbar menu, and open the directory domain where the account resides. Click the lock to be authenticated. Select the user in the user list.
3. Click Basic, then double-click under the last entry in the Short Names field.
4. Enter the user name and the fully qualified mail address at the virtual host (*name@virtualhostdomain*).

   For example, if your domain is example.com, the virtual host domain is server.com, and you want mail addressed to postmaster@server.com to be delivered to user bob, open bob's user record in Workgroup Manager, and enter:

   ```
   postmaster@server.com
   ```

   Note: You must use the entire mail address for this to work for a virtual mail host. If you only enter the new user name without the remainder of the address, you might create an alias for the user on the default domain, rather than on the virtually hosted domain.
5. Click Save.

To associate a user to a virtual host using Postfix-style aliases:

1. Add a Virtual Host Name using the directions in "Adding or Removing Virtual Hosts" on page 74.
2. Log in to Terminal as the root user.
3. Save the original virtual user file to be used as a future template by entering:

   ```
   cp /etc/postfix/virtual /etc/postfix/virtual.original
   ```
4. Using a text editor as the root user, open and edit the file /etc/postfix/virtual by adding the following line at the beginning of each section (one section for each virtual host):

   ```
   virtual_host_domain virtual
   ```

   Fill in the virtual host domain name. For example, if your virtual host domain is server.com, substitute that domain name for virtual_host_domain above. This distinguishes the section as belonging to a specific virtual domain.

   This is necessary if you only have one virtual domain, or if you enabled Mailing Lists for your virtual domains.
5. For each virtual user, add a line in the file with the following format:

   name@virtual_host_domain local_user_name

For example, if your domain is example.com, you are running a virtual host for "server.com," and you want to have user bob get mail sent to "postmaster@server.com," you should enter:

```
postmaster@server.com bob
```

This causes mail sent to your mail server for postmaster@server.com to be sent to user "bob." Mail sent to postmaster@example.com is sent to some other designated recipient.

You can make a catch-all address to get all mail not sent to an existing user by using the following format:

@virtual_host_domain local_user_name

This is not recommended because it can increase the amount of junk mail you receive.

6 Save your file changes.

7 Using a text editor as the root user, add a configuration line to /etc/postfix/main.cf so Postfix knows where to look for the virtual user file, if the line doesn't exist:

```
virtual_alias_maps = hash:/etc/postfix/virtual
```

8 At the prompt, enter the following command:

```
postmap /etc/postfix/virtual
```

The virtual user file is processed for access by Postfix.

9 At the prompt, reload mail server settings by entering the following command:

```
postfix reload
```

This causes mail sent to your mail server for postmaster@server.com to be sent to the real mail account for user bob. Meanwhile, mail to postmaster@example.com goes to another designated mail account.

Creating Additional Mail Addresses for Users

Mail service allows each user to have more than one mail address. These additional addresses are called aliases. Every user has one mail address that's formed from the short name of the user account.

In addition, you can define more names for any user account by creating an alias file. Each additional name is an alternate mail address for the user at the same domain. These additional mail addresses aren't additional accounts and don't require separate quotas or passwords.

Most often, alias files are used to map postmaster users to a real account and give a "firstname.lastname@example.com" mail address to a user with a short login account name.

There are two types of mail aliases: Mac OS X Server-style, and Postfix-style. Each has its advantages and disadvantages.

- Mac OS X Server–style aliases are easy to make and are listed with a user's login name. You can easily see the alias that refers to each user. The disadvantage of this is that Mail service's Sieve functionality doesn't understand Mac OS X Server-style aliases and can't filter mail based on the Mac OS X Server-style alias.
- Postfix-style aliases require command-line administration and are less obvious to audit. However, the major benefit to using Postfix-style aliases is their compatibility with Sieve scripting. Only aliases generated Postfix-style can be acted upon by Sieve scripts.

  If you are using this feature with virtual mail hosting and are using Mac OS X v10.4.3 or later, you must enter a fully-qualified mail address (i.e. *username@domain_name*) in the location indicated in Workgroup Manager.

To create a Mac OS X Server–style alias:

1. In Workgroup Manager, open the user account you want to work with, if it isn't open.

   To open the account, click the Accounts button, click the globe icon below the toolbar menu and open the directory domain where the account resides. Click the lock to be authenticated. Select the user in the user list.
2. Click the Basic tab.
3. Double-click under the last entry in the Short Names field.
4. Enter the alias.

   For example, if your domain is example.com and you want to give user name bob an alias of robert.fakeuser you should enter:

   ```
   robert.fakeuser
   ```

   If virtual hosting is enabled, enter the fully qualified mail address:

   ```
   robert.fakeuser@example.com
   ```
5. Click Save.

To create a Postfix-style alias:

1. Create the file /etc/postfix/aliases, if none exists.
2. For each alias, make a line in the file with the following format:

   alias:localaddress1,localaddress2,...

   For example, for your domain example.com, if you want to give user name bob"an alias of robert.fakeuser you enter:

   ```
   robert.fakeuser: bob
   ```

   This takes mail sent to your mail server for robert.fakeuser@example.com and sends it to the real mail account, bob@example.com.
3. Save your file changes.
4. In the Terminal application, enter the following command:

   ```
   postalias /etc/postfix/aliases
   ```

   The text file is processed into a database for faster access.
5. At the prompt, enter the following command:

   ```
   newaliases
   ```

   The alias database will reload.

   As a result, mail to robert.fakeuser@example.com is sent to user bob, giving Bob two effective mail addresses, bob@example.com and robert.fakeuser@example.com.

   For further information about creating and maintaining mail aliases, see /etc/postfix/aliases.

Setting Up Forwarding Mail Addresses for a User

You can use forwarding to provide a mail redirection service for users. Any mail sent to a user's mail account is forwarded to the specified account.

There is an additional method of mail forwarding using Sieve scripting. To learn more about that method, see "Server-Side Mail Rules" on page 39.

To forward a user's mail:

1. In Workgroup Manager, open the user account you want to work with, if it isn't open.

   To open the account, click the Accounts button, click the globe icon below the toolbar menu and open the directory domain where the account resides. Click the lock to be authenticated. Select the user in the user list.
2. Click the Mail tab.
3. Select Forward.
4. Enter the forwarding mail address in the Forward To field.

   You can enter multiple addresses but they must be separated by a comma.

Working with Mail Service Data Storage

Mail service stores each message as a separate file in a mail folder for each user. This is the user's mailbox.

Incoming mail is stored on the startup disk in the /var/spool/imap/dovecot/mail/ folder. Dovecot mail storage can also be split across multiple partitions. This can be done to scale Mail service, or to facilitate data backup.

You can do the following with the mail files:

- View and specify where the mail files are stored.
- Backup and restore the mail store.
- Convert mail files from a previous version of Mac OS X Server.
- Create additional mail stores.

These tasks are described in this section.

Viewing the Location of the Mail Store

You can view the location of the mail store as well as the size of the mail store. You might need to track the current size of the mail store to plan mail server resources.

To change the location of the mail store, see "Specifying the Location of the Mail Store" on page 79.

To view the location of the mail store:

1. In Server Admin, select Mail in the Computers & Services pane.
2. Click Advanced.
3. Select the Data Store tab.

Specifying the Location of the Mail Store

If you're starting Mail service for the first time and you have no mail store, you can specify where the mail message files will be stored. By default, the mail store location is /var/spool/imap/dovecot/mail.

Note: Changing the mail store location of an existing mail system doesn't move the mail from the old location to the new one.

If this server is part of a mail server cluster, the mail store is kept on the Xsan cluster and their locations cannot be changed.

To specify where mail is stored on the server:

1. If Mail service is running, stop Mail service.

   See "Managing Mail Service" on page 20.

When Mail service starts for the first time, it creates an empty mail store at the default location. You can ignore this or delete it after you specify an alternate mail storage location and restart Mail service.

2. In Server Admin, select a computer in the Servers list, then select Mail.
3. Click Settings.
4. Click the Advanced tab.
5. Click Data Store.

   You'll see the current location of the mail store.
6. In the Mail store location field, enter the path of the location where you want mail files to be stored.

   You can browse for a location by clicking Choose next to the Location field.

Creating Additional Mail Store Locations

Mail service can scale well as your storage needs change. You can spread the mail store across several disks or file systems. You can add partitions to the mail store without requiring downtime, or even users' knowledge.

To use new mail store locations, you designate the partition where the mail store resides. Enter the mail store path in the user's mail settings using Workgroup Manager. For more instructions, see *User Management*.

The mail store partitions can be additional hard disk partitions or remotely mounted file systems. For remotely mounted file systems, NFS isn't recommended.

Note: Creating locations doesn't put mail in those locations. Edit the user records in Workgroup Manager to start delivering mail to the partitions. Deleting a location doesn't delete the mail at that location, but makes those mail folders inaccessible.

To split the mail store:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Click the Advanced tab.
4. Click Data Store.

   You'll see the current location of the mail store.
5. To add a location, click the Add (+) button below the Additional Mail Store Locations box and complete the following:

   a. Enter a name for the mail store location (for example, "Marketing" or "Executive").

   b. Enter the path to the new location (such as /Volumes/mailstore2).

   c. Click OK.

6 To change a location, click the Edit (/) button below the Additional Mail Store Locations box, edit the path to the new location, and click OK.

7 To remove a location, select the location to be deleted and click the Remove (-) button next to the Additional Mail Store Locations box.

8 Click Save.

Maximum Number of Mail Messages Per Volume

Because Mail service stores each mail message in a separate file, the number of messages that can be stored on a volume is determined by the total number of files that can be stored on the volume.

The total number of files that can be stored on a volume that uses Mac OS Extended format (sometimes referred to as *HFS Plus format*) depends on the following factors:

- The size of the volume
- The sizes of the files
- The minimum size of a file, which by default is one 4 KB block

For example, a 4 GB HFS Plus volume with the default block size of 4 KB has one million available blocks. This volume can hold up to a million 4 KB files, which means it can hold a million mail messages that are 4 KB or less each. If some mail messages are larger than 4 KB, this volume holds fewer of them. A larger volume with the same default block size can hold proportionately more files.

Backing Up and Restoring Mail Messages

You can back up Mail service data by making a copy of the Mail service folder. If you need to restore Mail service data, you can replace the Mail service folder with a backup copy.

You can back up individual mail storage folders or the entire mail store as needed. One command line tool you can use to back up your mail messages is `ditto`. See ditto's man page for information.

Important: Before backing up or restoring the Mail service folder, stop Mail service. If you back up the Mail service folder while Mail service is active, the backup mail store might go out of sync with the backup folder. If you restore the folder while Mail service is active, the active mail store might go out of sync with the active folder.

An incremental backup of the Mail service folder can be fast and efficient. If you back up mail data incrementally, the only files copied are the message files that are new or changed since the last backup.

After restoring the Mail service folder, notify users that messages stored on the server have been restored from a backup copy.

Setting Up Mail Server Clustering with Xsan

With Xsan, you can cluster multple mail servers that share the mail store. This provides mission-critical redundancy and high performance and allows you to easily maintain the pooled storage using Xsan tools and software.

Each server also has a primary SMTP spool file. If a server goes offline, another node in the cluster takes over processing of the failed sever's spool file. This happens automatically, but you will see it noted in log files.

You can configure your mail server to join an existing mail cluster as a new member of the cluster, or you can migrate a mail server's mail store to another server that is a member of the cluster.

If Xsan software is installed, you can also create a cluster, with the current server becoming the cluster's first member.

Configuring Mail Clustering

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Advanced.
3. Click Clustering.
4. Click the Change button, then follow the onscreen instructions that appear.

Note: After a server has joined a cluster, changes to mail server settings, such as SMTP, POP, IMAP, and logging, will affect all servers in the cluster.

When you remove the last member of a cluster, you must designate a server to take over as a standard mail server.

Configuring Additional Mail Service Support for 8-Bit MIME

By default, many mail systems that use 8-bit character encoding for text (like Asian language mail systems) convert from 8-bit MIME to 7-bit characters. This has the unfortunate effect of garbling the mail.

To receive 8-bit character-encoded mail messages, disable the default conversion that Postfix performs. Use the postconf command-line tool to disable the setting.

To disable the default conversion:

1. Log in to your server as the administrator.
2. In Terminal, enter the following command:

```
sudo postconf -e disable_mime_output_conversion=yes
```

This disables the special processing of Content-Type headers while delivering mail.

Monitoring and Maintaining Mail Service

4

Use this chapter to monitor and maintain Mail service.

This chapter discusses how to watch over Mail Service and the mail store, including archiving, logging, and handling undeliverable mail.

Starting or Stopping Mail Service

Normally, Mail service starts after you finish using the Server Assistant, but you can use Server Admin to start and stop Mail service.

In some situations, you might not want to stop Mail service entirely, but instead hold outbound mail or block incoming mail connections. If you want to only partially disable Mail service, see the following:

- "Holding Outbound Mail" on page 84
- "Blocking Inbound Mail Connections" on page 85

You don't need to stop and start Mail service to load settings into the mail software. If you want only new settings to take effect, see the following:

- "Setting Up a Mailman Mailing List" on page 44

To start or stop the service:

1. Open Server Admin.
2. Select a server, then click the service disclosure triangle to show the services for administration.

   These instructions assume Mail service has been enabled in the service administration list of Server Admin. If not, see "To enable Mail Service for administration:" on page 25.
3. In the service list beneath the server, select Mail service.
4. Click Settings.
5. Select the General tab.
6. Make sure at least one protocol (SMTP, POP, or IMAP) is enabled.
7. Click Start Mail, the service start button below the server list.

If the service is running, click Stop Mail.

From the command line:
Start and stop the Mail service using the `serveradmin` command.

- To start the Mail service:

```
sudo serveradmin start mail
```

- To stop the Mail service:

```
sudo serveradmin stop mail
```

If you plan to turn off Mail service for an extended period of time, notify users before you stop the service.

You can determine whether your Mail service is running via *`ssh`* or using Terminal by typing `sudo serveradmin status mail`.

Reloading Mail Service

Sometimes it's necessary to reload the mail server for Mail service setting changes to take effect (for example, after restoring from backup, or altering the alias file). Reloading Mail service can be done without interrupting current Mail service.

To reload Mail service from the command line:

```
$ sudo postfix reload
```

Holding Outbound Mail

You can prevent Mail service from sending outgoing mail. You might do this to isolate a problem or to prevent conflicts with another Mail service running on your network. You might also do this to stop virus propagation or a spam relay originating with your server.

Holding mail isn't the same as disabling SMTP service. Disabling prevents user connections from sending outgoing mail, but holding queues the mail for later sending. Mail is held in the outbound mail queue for inspection or deletion until you stop the hold.

To hold outbound mail:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the General tab.
4. Click Hold Outbound Mail.
5. Click Save.

Blocking Inbound Mail Connections

You can prevent Mail service from receiving inbound mail from external servers. You might do this to isolate a problem or to prevent conflicts with another Mail service running on your network. You might also do this to stop virus propagation or a spam relay originating from external servers.

Blocking inbound mail isn't the same thing as disabling SMTP service. Disabling prevents queued mail from being sent out, but blocking inbound mail stops accepting connections to add mail to the queue. Attempted mail deliveries are bounced and returned to the sender.

To block inbound connections:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Settings.
3. Select the General tab.
4. Deselect Allow Incoming Mail.
5. Click Save.

Allowing Administrator Access to Mail Folders

You can configure IMAP to allow the server administrator to view the Mail service hierarchy. Administrators cannot view mail itself; they can only view user folder locations.

When you connect as the IMAP administrator, you see user mail folders stored on the server. Each user's mailbox appears as a separate folder in your mail client. You can remove inactive mailbox folders that belong to deleted user accounts.

For more information, see the man page for imapd.conf.

Creating an Administration Account

You might want to create a separate mail administrator account to maintain and watch mail folders, remove defunct user accounts, and archive mail. This administrator account doesn't need to be a server administrator. Also, this administrator account shouldn't receive mail. It isn't a normal mail account.

To create a mail administrator account:

1. Designate a user to be mail administrator.

   You can create a new user in System Preferences > Accounts if you don't want to use an existing user.
2. Open /etc/imapd.conf in a text editor.

   If you aren't comfortable using a Terminal-based text editor like emacs or vi, you can use TextEdit.

3 Find the line that reads "admins:"

4 Edit the line to add the short name of the administrator account after the colon.

5 Save your changes.

For more information see the man page for imapd.conf.

Monitoring Mail Service Activity

This section describes how to use Server Admin and the command line to monitor Mail server activity, logs, and connected mail users, active accounts, and the mail queue.

Viewing an Overview of Mail Service Activity

You can obtain an overview of Mail service that reports whether the service is running, when Mail service started, and incoming and outgoing connections by protocol.

To see an overview of Mail service activity:

1 In Server Admin, select Mail in the Computer & Services list.

2 Click the Overview button.

From the Command Line

- To see a summary status of Mail service:

```
$ sudo serveradmin status mail
```

- To see a detailed status of Mail service:

```
$ sudo serveradmin fullstatus mail
```

Viewing Mail Service Logs

This section also describes how Mac OS X Server reclaims disk space used by logs and how to reclaim space manually.

Mail service maintains the following logs:

- **Mail Access:** General Mail service information is stored in this log.
- **IMAP log:** IMAP activity is stored in this log.
- **POP log:** POP activity is stored in this log.
- **SMTP log:** SMTP activity is stored in this log.
- **Mailing List logs:** These record the Mailmain activity, including service, error, delivery, delivery failures, postings, and subscriptions.
- **Junk Mail and Virus logs:** These record activity for mail filtering, including virus definition updates (freshclam log), virus scanning (clamav log), and mail filtering (amavis log).

To search for specific entries, use the text filter box in the window.

To view a Mail service log:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click the Logs button.
3. From the View pop-up menu, choose a log type.
4. Click Save.

From the command line:

You can use `tail` or another file-listing tool to view the contents of Mail service logs.

1. Use the `serveradmin getLogPaths` command to see where Mail service logs are located.

```
$ sudo serveradmin command mail:command = getLogPaths
```

2. View the latest entries in your selected log with the tail command.

   To view the last 10 entries in the Junk Mail/Virus Scanning log:

```
$ tail /var/log/amavis.log
```

   To view any number of entries:

```
$ tail -n lines /var/log/amavis.log
```

   Replace *`lines`* with the number of lines you want to view.

   To watch new additions to the log file:

```
$ tail -f /var/log/amavis.log
```

   Control-C stops the `tail` command from watching the log file and returns your command prompt.

   For more information on the `tail` command, see its man page.

Reclaiming Disk Space Used by Mail Service Log Archives

Mac OS X Server reclaims disk space used by Mail service logs when they reach a specified size or age. You can use the command-line tool `diskspacemonitor` to monitor disk space when you want, and delete or move the log archives. For additional information, see the `diskspacemonitor` man page.

Viewing the Mail Connections List

Server Admin can list the users who are connected to Mail service. For each user, you see the user name, IP address of the client computer, type of mail account (IMAP or POP), number of connections, and connection length.

To view a list of connected mail users:

1. In Server Admin, select Mail in the Computer & Services list.
2. Click the Connections button.

Viewing Mail Accounts

You can use Server Admin to see a list of users who have used their mail accounts at least once. For each account, you see the user name, disk space quota, disk space used, and percentage of space available to the user.

Mail accounts that have never been used aren't listed.

To view a list of mail accounts:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Maintenance.
3. Click the Accounts button.

Monitoring the Outgoing Mail Queue

You might need to check mail that is waiting to be sent. If you have a message backlog, or if you have interrupted outbound mail, you might have a number of items in the queue. Additionally, you might want to monitor mail delivery to ensure that mail is being delivered to local and remote hosts.

Checking the Outgoing Mail Queue

When checking the queue, you see the message ID number, sender, recipients, date, and message size. You can select a message in the queue and inspect the message headers.

To check the outgoing mail queue:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Maintenance.
3. Click the Mail Queue tab.
4. To inspect amessage, select it.

Clearing Messages from the Outgoing Mail Queue

Your outgoing mail queue might have a backlog of messages. These are messages that can't be sent for any number of reasons: the message might be improperly addressed, the destination server might be unresponsive, or the destination account might be over quota. In such circumstances, you might want to clear messages from the queue backlog.

To clear a message from the outgoing queue:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Maintenance.
3. Click the Mail Queue tab.
4. Select the message to be deleted.
5. Click Delete.

Retrying Undelivered Outgoing Messages

Sometimes the outgoing mail queue has undelivered messages that are properly addressed, but for some reason the messages aren't sent (for example, if the destination server is down, or if the firewall is blocking the outgoing port for SMTP).

You can attempt to send the messages again. Normally, the mail server attempts to resend, but you can activate it manually instead of waiting.

To try to resend an outgoing message:

1. In Server Admin, select a computer in the Servers list, then select Mail.
2. Click Maintenance.
3. Click the Mail Queue tab.
4. Select the message to retry sending.

   To select more than one message, hold down the Shift key or the Command key.
5. Click Retry.

While doing this you can monitor the logs to see what is might be causing the problem. See "Viewing Mail Service Logs" on page 86.

Viewing Mail Service Statistics

You can use the `serveradmin getHistory` command to display a log of periodic samples of the number of user connections and the data throughput. Samples are taken once each minute.

To view samples:

```
$ sudo serveradmin command
mail:command = getHistory
mail:variant = statistic
mail:timeScale = scale
Control-D
```

Parameter	Description
statistic	The value you want to display. Valid values: `v1`—Number of connected users (average during sampling period) `v2`—Data throughput (bytes/sec)
scale	The length of time in seconds, ending with the current time you want to see samples for. For example, to see 24 hours of data, you would specify `mail:timeScale = 86400`.

The computer responds with the following output:

```
mail:nbSamples = <samples>
mail:v2Legend = "throughput"
mail:samplesArray:_array_index:0:vn = <sample>
mail:samplesArray:_array_index:0:t = <time>
mail:samplesArray:_array_index:1:vn = <sample>
mail:samplesArray:_array_index:1:t = <time>
[...]
mail:samplesArray:_array_index:i:vn = <sample>
mail:samplesArray:_array_index:i:t = <time>
mail:v1Legend = "connections"
afp:currentServerTime = <servertime>
```

Value displayed by `getHistory`	Description
`<samples>`	The total number of samples listed.
`<sample>`	The numerical value of the sample. For connections (`v1`), this is integer average number of users. For throughput, (`v2`), this is integer bytes per second.
`<time>`	The time when the sample was measured. A standard UNIX time (number of seconds since September 1, 1970). Samples are taken every 60 seconds.

Troubleshooting Mail Service 5

Use this chapter to find information about how to work with Mail service when it is not performing as expected.

This chapter discusses situations where Mail service is not performing optimally. It also includes links to other resources for more information and advanced configuration techniques for the technologies and protocols underlying Mail service in Mac OS X Server.

Improving Performance

Mail service must act very fast for a short period of time. It sits idle until a user reads or sends a message, then it transfers the message immediately. Therefore, it puts intense but brief demands on the server.

As long as other services do not place heavy continuous demands on a server (for example, as a QuickTime streaming server would), the mail server can typically handle several hundred connected users.

As the number of connected mail users increases, the demand of Mail service on the server increases. If Mail service performance needs improvement, try the following:

- Move the mail storage location to its own hard disk or hard disk partition. For instructions, see "Setting Mailing List Message Bounce Options" on page 48.
- Run other services on a different server, especially services that place frequent heavy demands on the server. (Each server requires a separate Mac OS X Server license.)

When a Disk Is Full

Mail service becomes erratic if the disk storing your mail reaches maximum capacity. When your disk reaches full capacity, you'll experience the following:

- **Postfix:** If the operating system can still spawn the smtpd process, Postfix tries to function and attempts to accept the message. The message is then rejected with a "disk full" error. Otherwise, its behavior is unpredictable.
- **Dovecot:** If the operating system can still spawn an imapd or pop3d process, the server attempts to open the user's mail account. Upon success, the user can access mail as normal.

When Mail Is Undeliverable

Mail messages might be undeliverable for several reasons. Incoming mail might be undeliverable because it has a misspelled address or is addressed to a deleted user account. Outgoing mail might be undeliverable because it's misaddressed or the destination mail server isn't working.

You can configure Mail service to:

- Forward undeliverable incoming mail
- Limit the number of attempts to deliver problematic outgoing mail
- Report failed delivery attempts
- Use a different timeout value to increase the chance of connection success

Forwarding Undeliverable Incoming Mail

Mail service can forward messages that arrive for unknown local users to another real local person or a group in your organization. Whoever receives forwarded mail that's incorrectly addressed (with a typo in the address, for example) can forward it to the correct recipient.

If forwarding of these undeliverable messages isn't explicitly enabled, the messages are returned to sender.

To forward undeliverable mail, see "Unsubscribing from a Mailing List Via Web" on page 56.

Where to Find More Information

You can find more information about Mail service in books and on the Internet.

Books

For general information about mail protocols and other technologies, see these books:

- A good introduction to internet Mail service can be found in *Internet Messaging,* by David Strom and Marshall T. Rose (Prentice Hall, 1998).
- For more information about MX records, see "DNS and Electronic Mail" in *DNS and BIND,* third edition, by Paul Albitz, Cricket Liu, and Mike Loukides (O'Reilly and Associates, 1998).
- Also of interest is *Removing the Spam: Email Processing and Filtering,* by Geoff Mulligan (Addison-Wesley Networking Basics Series, 1999).
- To learn about mail standards, see *Essential email Standards: RFCs and Protocols Made Practical,* by Pete Loshin (John Wiley & Sons, 1999).
- To learn more about Postfix, see *Postfix,* by Richard Blum (Sams; 1st edition, 2001)
- To learn more about Dovecot, see *Pro Open Source Mail: Building an Enterprise Mail Solution,* by Curtis Smith (Apress, 2006).

Internet

There is an abundance of information about mail protocols, DNS, and other related topics on the Internet.

Request for Comments (RFC) documents provide an overview of a protocol or service and details about how the protocol should behave.

If you're a novice server administrator, you might find RFC background information helpful. If you're an experienced server administrator, you'll find all the technical details about a protocol in its RFC document.

You can search for RFC documents by number at www.faqs.org/rfcs.

For technical details about how mail protocols work, see these RFC documents:

- *POP:* RFC 1725
- *IMAP:* RFC 2060
- *SMTP:* RFC 821 and RFC 822
- *Sieve:* RFC 3028

For more information about Postfix, go to www.postfix.org.

For more information about Dovect, go to www.dovecot.org

For more information about Sendmail, go to www.sendmail.org.

For more information about SquirrelMail, go to www.squirrelmail.org.

For more information about Sieve, go to http://wiki.dovecot.org/LDA/Sieve.

Command-Line Parameters for the serveradmin Tool and Default Mail Service Settings

A Appendix

The following table provides the parameters for use with the `serveradmin` tool to change settings for Mail service from the command line.

It also gives the default values after configuration with the Server Setup Assistant on a server that is an Open Directory Master.

Parameter	Default Value
`mail:mailman:default_email_host`	`"example.com"`
`mail:mailman:default_language`	`"en"`
`mail:mailman:lists:_array_ id:mailman:members:_array_ id:ladmin@example.com:owner`	`yes`
`mail:mailman:lists:_array_ id:mailman:members:_array_ id:ladmin@example.com:post`	`yes`
`mail:mailman:lists:_array_ id:mailman:members:_array_ id:ladmin@example.com:group`	`no`
`mail:mailman:lists:_array_ id:mailman:members:_array_ id:ladmin@example.com:subscribe`	`yes`
`mail:mailman:lists:_array_ id:mailman:list_admin`	`"ladmin@example.com"`
`mail:mailman:lists:_array_ id:mailman:preferred_language`	`"en"`
`mail:mailman:lists:_array_ id:mailman:available_languages`	`"['en']"`
`mail:mailman:lists:_array_ id:mailman:list_name`	`"Mailman"`
`mail:mailman:lists:_array_ id:mailman:subscribe_policy`	`"confirm+approve"`
`mail:mailman:lists:_array_ id:mailman:max_message_size`	`40`

Parameter	Default Value
mail:mailman:enable_mailman	yes
mail:imap:lmtp_over_quota_perm_failure	no
mail:imap:srvtab	"/etc/srvtab"
mail:imap:imap_auth_cram_md5	yes
mail:imap:imap_auth_clear	no
mail:imap:loginuseacl	no
mail:imap:popexpiretime	0
mail:imap:notifysocket	"/var/imap/socket/notify"
mail:imap:timeout	30
mail:imap:max_imap_connections	1000
mail:imap:sieve_maxscripts	5
mail:imap:logtimestamps	no
mail:imap:quota_enforce_restrictions	no
mail:imap:tls_imap_key_file	""
mail:imap:mupdate_authname	""
mail:imap:newsprefix	""
mail:imap:proxyservers	_empty_array
mail:imap:singleinstancestore	yes
mail:imap:mupdate_password	""
mail:imap:tls_cert_file	"/etc/certificates/example.com.0571FAFAA0BFDC76BADA66D200C44FD4FBEBCD87.cert.pem"
mail:imap:lmtp_admins	_empty_array
mail:imap:poptimeout	10
mail:imap:postuser	""
mail:imap:imap_auth_plain	no
mail:imap:imap_admins	_empty_array
mail:imap:quota_custom_error:subject	""
mail:imap:quota_custom_error:body	""
mail:imap:quota_custom_error:from	""
mail:imap:tls_imap_cert_file	""

Parameter	Default Value
mail:imap:sieve_proxyservers	_empty_array
mail:imap:lmtp_luser_relay_enabled	no
mail:imap:unixhierarchysep	no
mail:imap:partition-default	"/var/spool/imap/dovecot/mail"
mail:imap:imap_auth_gssapi	yes
mail:imap:allowanonymouslogin	no
mail:imap:quota_custom_warning_ message_path	""
mail:imap:quota_custom_error_ message_path	""
mail:imap:imapidlepoll	60
mail:imap:enable_pop	no
mail:imap:enable_quota_warnings	no
mail:imap:tls_session_timeout	1440
mail:imap:mupdate_server	""
mail:imap:mupdate_realm	""
mail:imap:idlesocket	"/var/imap/socket/idle"
mail:imap:enable_sieve	yes
mail:imap:lmtpsocket	"/var/imap/socket/lmtp"
mail:imap:deleteright	"c"
mail:imap:mupdate_port	""
mail:imap:postmaster	"postmaster"
mail:imap:pop_auth_gssapi	yes
mail:imap:pop_auth_apop	yes
mail:imap:proxyd_allow_status_ referral	no
mail:imap:sharedprefix	"Shared Folders"
mail:imap:sasl_auto_transition	no
mail:imap:tls_ca_file	""
mail:imap:sasl_minimum_layer	0
mail:imap:sievedir	""
mail:imap:debug_command	""
mail:imap:duplicatesuppression	yes

Parameter	Default Value
mail:imap:tls_lmtp_key_file	""
mail:imap:servername	"example.com"
mail:imap:partitions	_empty_array
mail:imap:tls_imap_require_cert	no
mail:imap:sieve_admins	_empty_array
mail:imap:mupdate_retry_delay	20
mail:imap:quota_custom_warning:subject	""
mail:imap:quota_custom_warning:body	""
mail:imap:quota_custom_warning:from	""
mail:imap:enable_imap	yes
mail:imap:popminpoll	0
mail:imap:tls_pop3_key_file	""
mail:imap:sendmail	"/usr/lib/sendmail"
mail:imap:tls_lmtp_cert_file	""
mail:imap:tls_require_cert	no
mail:imap:tls_sieve_require_cert	no
mail:imap:defaultpartition	"default"
mail:imap:allowallsubscribe	no
mail:imap:pop_auth_clear	no
mail:imap:sasl_pwcheck_method	"auxprop"
mail:imap:sieve_maxscriptsize	32
mail:imap:tls_sieve_key_file	""
mail:imap:tls_ca_path	""
mail:imap:defaultacl	"anyone lrs"
mail:imap:reject8bit	no
mail:imap:tls_key_file	"/etc/certificates/example.com.0571FAFAA0BFDC76BADA66D200C44FD4FBEBCD87.key.pem"
mail:imap:tls_pop3_require_cert	no
mail:imap:sasl_maximum_layer	256
mail:imap:autocreatequota	0

Parameter	Default Value
mail:imap:tls_sieve_cert_file	""
mail:imap:userprefix	"Other Users"
mail:imap:mupdate_admins	_empty_array
mail:imap:mupdate_username	""
mail:imap:quota_warn_frequency_days	0
mail:imap:tls_pop3_cert_file	""
mail:imap:quotawarn	80
mail:imap:plaintextloginpause	0
mail:imap:lmtp_overquota_perm_failure	no
mail:imap:tls_server_options	"use"
mail:imap:allowplaintext	yes
mail:imap:loginrealms	_empty_array
mail:imap:lmtp_luser_relay	""
mail:imap:imapidresponse	yes
mail:imap:tls_cipher_list:_array_index:0	"DEFAULT"
mail:imap:imap_auth_login	no
mail:imap:admins	_empty_array
mail:imap:altnamespace	no
mail:imap:sieveusehomedir	no
mail:imap:tls_lmtp_require_cert	no
mail:imap:log_level	"crit"
mail:imap:umask	"077"
mail:imap:hashimapspool	no
mail:imap:imap_proxyservers	_empty_array
mail:cluster:hostname	"example.com"
mail:cluster:cluster_info	_empty_array
mail:postfix:nested_header_checks	"$header_checks"
mail:postfix:smtp_connection_cache_time_limit	"2s"
mail:postfix:required_hits	6
mail:postfix:lmtp_rcpt_timeout	"300s"

Parameter	Default Value
mail:postfix:strict_rfc821_envelopes	no
mail:postfix:tls_export_cipherlist	"ALL:+RC4:@STRENGTH"
mail:postfix:smtp_sasl_auth_cache_name	""
mail:postfix:check_for_od_forward	"yes"
mail:postfix:default_verp_delimiters	"+="
mail:postfix:spam_ok_locales	"en"
mail:postfix:mydestination:_array_index:0	"localhost"
mail:postfix:mydestination:_array_index:1	"example"
mail:postfix:showq_service_name	"showq"
mail:postfix:smtpd_delay_reject	yes
mail:postfix:smtp_enforce_tls	"no"
mail:postfix:milter_macro_daemon_name	"$myhostname"
mail:postfix:smtpd_tls_security_level	""
mail:postfix:ignore_mx_lookup_error	no
mail:postfix:command_expansion_filter	"1234567890!@%-_=+:,./abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ"
mail:postfix:smtpd_tls_mandatory_exclude_ciphers	""
mail:postfix:milter_connect_timeout	"30s"
mail:postfix:local_destination_concurrency_negative_feedback	"$default_destination_concurrency_negative_feedback"
mail:postfix:default_delivery_slot_loan	3
mail:postfix:smtp_destination_recipient_limit	"$default_destination_recipient_limit"
mail:postfix:default_transport	"smtp"
mail:postfix:lmtp_defer_if_no_mx_address_found	"no"

Parameter	Default Value
mail:postfix:lmtp_pix_workaround_maps	""
mail:postfix:local_recipient_maps	"proxy:unix:passwd.byname $alias_maps"
mail:postfix:lmtp_tls_enforce_peername	"yes"
mail:postfix:lmtp_tls_fingerprint_digest	"md5"
mail:postfix:flush_service_name	"flush"
mail:postfix:non_fqdn_reject_code	504
mail:postfix:smtpd_tls_req_ccert	"no"
mail:postfix:lmtp_destination_concurrency_negative_feedback	"$default_destination_concurrency_negative_feedback"
mail:postfix:ipc_idle	"5s"
mail:postfix:smtp_discard_ehlo_keyword_address_maps	""
mail:postfix:proxy_read_maps	"$local_recipient_maps $mydestination $virtual_alias_maps $virtual_alias_domains $virtual_mailbox_maps $virtual_mailbox_domains $relay_recipient_maps $relay_domains $canonical_maps $sender_canonical_maps $recipient_canonical_maps $relocated_maps $transport_maps $mynetworks $sender_bcc_maps $recipient_bcc_maps $smtp_generic_maps $lmtp_generic_maps"
mail:postfix:spam_log_level	"crit"
mail:postfix:address_verify_map	""
mail:postfix:lmtp_tls_key_file	"$lmtp_tls_cert_file"
mail:postfix:smtpd_enforce_tls	"no"
mail:postfix:smtpd_sasl_auth_enable	yes
mail:postfix:connection_cache_status_update_time	"600s"
mail:postfix:always_bcc_enabled	no
mail:postfix:smtpd_starttls_timeout	"300s"

Parameter	Default Value
mail:postfix:berkeley_db_create_buffer_size	16777216
mail:postfix:forward_expansion_filter	"1234567890!@%-_=+:,./abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ"
mail:postfix:smtpd_client_port_logging	"no"
mail:postfix:myorigin	"$myhostname"
mail:postfix:smtp_tls_per_site	""
mail:postfix:default_recipient_refill_delay	"5s"
mail:postfix:virus_notify_recipients	no
mail:postfix:lmtp_pix_workaround_delay_time	"10s"
mail:postfix:lmtp_sasl_type	"cyrus"
mail:postfix:deliver_lock_delay	"1s"
mail:postfix:virtual_alias_maps	""
mail:postfix:lmtp_tls_loglevel	"0"
mail:postfix:local_destination_concurrency_failed_cohort_limit	"$default_destination_concurrency_failed_cohort_limit"
mail:postfix:group_expansion:start_interval	10
mail:postfix:group_expansion:enable_group_expansion	yes
mail:postfix:lmtp_send_xforward_command	"no"
mail:postfix:smtp_tls_secure_cert_match	"nexthop, dot-nexthop"
mail:postfix:undisclosed_recipients_header	"To: undisclosed-recipients:;"
mail:postfix:inet_interfaces	"all"
mail:postfix:dont_remove	0
mail:postfix:sender_canonical_maps	""

Parameter	Default Value
mail:postfix:spam_notify_admin_email	"junk-admin@example.com"
mail:postfix:smtpd_policy_service_max_idle	"300s"
mail:postfix:smtpd_authorized_verp_clients	"$authorized_verp_clients"
mail:postfix:smtpd_null_access_lookup_key	"<>"
mail:postfix:bounce_size_limit	50000
mail:postfix:tls_random_exchange_name	"${data_directory}/prng_exch"
mail:postfix:milter_connect_macros	"j {daemon_name} v"
mail:postfix:smtp_sasl_tls_verified_security_options	"$smtp_sasl_tls_security_options"
mail:postfix:virtual_initial_destination_concurrency	"$initial_destination_concurrency"
mail:postfix:smtp_sasl_mechanism_filter	""
mail:postfix:mailq_path	"/usr/bin/mailq"
mail:postfix:lmtp_sasl_password_maps	no
mail:postfix:alias_database	"hash:/etc/aliases"
mail:postfix:smtp_sasl_auth_soft_bounce	"yes"
mail:postfix:enable_var_mail	no
mail:postfix:fallback_transport_maps	""
mail:postfix:reject_code	554
mail:postfix:cleanup_service_name	"cleanup"
mail:postfix:log_level	"crit"
mail:postfix:lmtp_tls_session_cache_database	""
mail:postfix:unverified_recipient_reject_code	"450"
mail:postfix:lmtp_lhlo_name	"$myhostname"

Parameter	Default Value
mail:postfix:qmgr_message_recipient_minimum	10
mail:postfix:relayhost	""
mail:postfix:smtpd_banner	"$myhostname ESMTP $mail_name"
mail:postfix:virtual_alias_domains	"$virtual_alias_maps"
mail:postfix:mail_release_date	"20080902"
mail:postfix:lmtp_mail_timeout	"300s"
mail:postfix:tls_server_options	"use"
mail:postfix:lmtp_pix_workaround_threshold_time	"500s"
mail:postfix:mydomain	"example.com"
mail:postfix:tls_high_cipherlist	"ALL:!EXPORT:!LOW:!MEDIUM:+RC4:@STRENGTH"
mail:postfix:transport_maps	""
mail:postfix:message_size_limit_enabled	yes
mail:postfix:always_bcc	""
mail:postfix:smtp_bind_address6	""
mail:postfix:resolve_numeric_domain	"no"
mail:postfix:default_recipient_refill_limit	"100"
mail:postfix:virus_notify_admin	yes
mail:postfix:tls_daemon_random_bytes	"32"
mail:postfix:smtp_rset_timeout	"20s"
mail:postfix:log_rolling_days_enabled	yes
mail:postfix:smtpd_discard_ehlo_keywords	""
mail:postfix:home_mailbox	no
mail:postfix:smtp_sasl_type	"cyrus"
mail:postfix:cyrus_sasl_config_path	""
mail:postfix:qmqpd_timeout	"300s"

Parameter	Default Value
mail:postfix:virus_action	"delete"
mail:postfix:anvil_rate_time_unit	"60s"
mail:postfix:smtpd_tls_key_file	"/etc/certificates/example.com.0571FAFAA0BFDC76BADA66D200C44FD4FBEBCD87.key.pem"
mail:postfix:smtpd_sasl_authenticated_header	"no"
mail:postfix:virtual_mailbox_base	""
mail:postfix:virtual_uid_maps	""
mail:postfix:tls_low_cipherlist	"ALL:!EXPORT:+RC4:@STRENGTH"
mail:postfix:reject_unauth_piplining_enabled	no
mail:postfix:relay_domains	"$mydestination"
mail:postfix:relay_domains_reject_code	554
mail:postfix:address_verify_negative_cache	"yes"
mail:postfix:lmtp_nested_header_checks	""
mail:postfix:show_user_unknown_table_name	yes
mail:postfix:tls_random_prng_update_period	"3600s"
mail:postfix:smtp_pix_workaround_threshold_time	"500s"
mail:postfix:virus_quarantine	"virus-quarantine@example.com"
mail:postfix:relay_clientcerts	""
mail:postfix:smtp_tls_dcert_file	""
mail:postfix:smtpd_authorized_xforward_hosts	""
mail:postfix:sun_mailtool_compatibility	no
mail:postfix:delay_notice_recipient	"postmaster"
mail:postfix:lmtp_tls_dkey_file	"$lmtp_tls_dcert_file"

Parameter	Default Value
mail:postfix:anvil_status_update_time	"600s"
mail:postfix:virtual_destination_concurrency_positive_feedback	"$default_destination_concurrency_positive_feedback"
mail:postfix:lmtp_tls_mandatory_protocols	"SSLv3, TLSv1"
mail:postfix:smtpd_tls_exclude_ciphers	"SSLv2, aNULL, ADH, eNULL"
mail:postfix:local_initial_destination_concurrency	"$initial_destination_concurrency"
mail:postfix:append_dot_mydomain	yes
mail:postfix:smtp_connection_reuse_time_limit	"300s"
mail:postfix:helpful_warnings	yes
mail:postfix:duplicate_filter_limit	1000
mail:postfix:queue_file_attribute_count_limit	100
mail:postfix:mail_spool_directory	"/var/mail"
mail:postfix:local_command_shell	""
mail:postfix:proxy_interfaces	""
mail:postfix:unknown_relay_recipient_reject_code	550
mail:postfix:address_verify_relay_transport	"$relay_transport"
mail:postfix:smtp_generic_maps	""
mail:postfix:smtpd_policy_service_max_ttl	"1000s"
mail:postfix:readme_directory	no
mail:postfix:virtual_gid_maps	""
mail:postfix:smtp_fallback_relay	"$fallback_relay"
mail:postfix:relay_destination_recipient_limit	"$default_destination_recipient_limit"
mail:postfix:local_header_rewrite_clients	"permit_inet_interfaces"

Parameter	Default Value
mail:postfix:smtp_tls_note_starttls_offer	"no"
mail:postfix:lmtp_sasl_tls_verified_security_options	"$lmtp_sasl_tls_security_options"
mail:postfix:bounce_notice_recipient	"postmaster"
mail:postfix:default_destination_concurrency_negative_feedback	"1"
mail:postfix:authorized_mailq_users	"static:anyone"
mail:postfix:disable_mime_input_processing	no
mail:postfix:smtpd_expansion_filter	"t40!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~"
mail:postfix:smtp_helo_timeout	"300s"
mail:postfix:smtpd_client_event_limit_exceptions	"${smtpd_client_connection_limit_exceptions:$mynetworks}"
mail:postfix:tls_random_bytes	"32"
mail:postfix:local_destination_recipient_limit	1
mail:postfix:smtp_sasl_password_maps	no
mail:postfix:mail_name	"Postfix"
mail:postfix:smtpd_discard_ehlo_keyword_address_maps	""
mail:postfix:enable_virtual_domains	no
mail:postfix:allow_min_user	no
mail:postfix:client_permit_mynetworks	yes
mail:postfix:mailbox_delivery_lock	"flock, dotlock"
mail:postfix:sender_canonical_classes	"envelope_sender, header_sender"
mail:postfix:debug_peer_list	""
mail:postfix:smtp_tls_mandatory_ciphers	"medium"

Parameter	Default Value
mail:postfix:strict_mailbox_ownership	"yes"
mail:postfix:lmtp_header_checks	""
mail:postfix:unknown_hostname_reject_code	450
mail:postfix:spam_ok_languages	"en fr de ja"
mail:postfix:command_directory	"/usr/sbin"
mail:postfix:message_strip_characters	""
mail:postfix:smtp_destination_concurrency_negative_feedback	"$default_destination_concurrency_negative_feedback"
mail:postfix:lmtp_tls_CApath	""
mail:postfix:process_id_directory	"pid"
mail:postfix:smtpd_client_connection_rate_limit	"0"
mail:postfix:smtpd_client_connection_count_limit	"50"
mail:postfix:owner_request_special	no
mail:postfix:address_verify_service_name	"verify"
mail:postfix:non_smtpd_milters	""
mail:postfix:maximal_backoff_time	"4000s"
mail:postfix:smtpd_tls_CAfile_content	"-----BEGIN CERTIFICATE----- nMIIC7TCCAdWgAwIBAgIBATALBgkqhkiG9w 0BAQUwJTEWMBQGA1UEAwwNcHlnbXlmnYXJt -----END CERTIFICATE-----n"
mail:postfix:transport_retry_time	"60s"
mail:postfix:luser_relay_enabled	no
mail:postfix:qmgr_clog_warn_time	"300s"
mail:postfix:lmtp_tls_verify_cert_match	"hostname"
mail:postfix:config_directory	"/etc/postfix"
mail:postfix:smtpd_recipient_overshoot_limit	"1000"

Parameter	Default Value
mail:postfix:milter_unknown_command_macros	""
mail:postfix:hash_queue_depth	1
mail:postfix:address_verify_transport_maps	"$transport_maps"
mail:postfix:defer_service_name	"defer"
mail:postfix:reject_unknown_client_enabled	no
mail:postfix:smtpd_sasl_tls_security_options	"$smtpd_sasl_security_options"
mail:postfix:smtpd_tls_CAfile	"/etc/certificates/example.com.0571FAFAA0BFDC76BADA66D200C44FD4FBEBCD87.chain.pem"
mail:postfix:tls_random_reseed_period	"3600s"
mail:postfix:luser_relay	""
mail:postfix:prepend_delivered_header	"command, file, forward"
mail:postfix:qmqpd_error_delay	"1s"
mail:postfix:virtual_transport	"virtual"
mail:postfix:smtpd_junk_command_limit	100
mail:postfix:log_rolling_days	1
mail:postfix:line_length_limit	2048
mail:postfix:smtpd_sasl_path	"smtpd"
mail:postfix:resolve_null_domain	"no"
mail:postfix:smtpd_tls_ccert_verifydepth	"9"
mail:postfix:mydomain_fallback	"localhost"
mail:postfix:lmtp_body_checks	""
mail:postfix:smtp_tls_exclude_ciphers	""
mail:postfix:smtpd_tls_dkey_file	"$smtpd_tls_dcert_file"
mail:postfix:disable_vrfy_command	no
mail:postfix:lmtp_randomize_addresses	"yes"

Parameter	Default Value
mail:postfix:virtual_destination_concurrency_failed_cohort_limit	"$default_destination_concurrency_failed_cohort_limit"
mail:postfix:queue_minfree	0
mail:postfix:milter_helo_macros	"{tls_version} {cipher} {cipher_bits} {cert_subject} {cert_issuer}"
mail:postfix:virtual_domains	_empty_array
mail:postfix:alternate_config_directories	no
mail:postfix:lmtp_tls_security_level	""
mail:postfix:forward_path	"$home/.forward${recipient_delimiter}${extension}, $home/.forward"
mail:postfix:bounce_template_file	""
mail:postfix:application_event_drain_time	"100s"
mail:postfix:smtp_send_xforward_command	"no"
mail:postfix:smtpd_helo_restrictions	no
mail:postfix:virtual_minimum_uid	100
mail:postfix:lmtp_tls_cert_file	""
mail:postfix:lmtp_sasl_path	""
mail:postfix:smtp_use_tls	"no"
mail:postfix:smtpd_noop_commands	""
mail:postfix:lmtp_host_lookup	"dns"
mail:postfix:canonical_classes	"envelope_sender, envelope_recipient, header_sender, header_recipient"
mail:postfix:daemon_timeout	"18000s"
mail:postfix:data_directory	"/var/lib/postfix"
mail:postfix:address_verify_default_transport	"$default_transport"
mail:postfix:daemon_directory	"/usr/libexec/postfix"

Parameter	Default Value
mail:postfix:lmtp_connection_cache_time_limit	"2s"
mail:postfix:smtp_tls_enforce_peername	"yes"
mail:postfix:smtpd_soft_error_limit	10
mail:postfix:default_rbl_reply	"$rbl_code Service unavailable; $rbl_class [$rbl_what] blocked using rbl_domain{rbl_reason?; $rbl_reason}"
mail:postfix:smtp_auth_relay_dict:smtp_auth_relay_userid	""
mail:postfix:smtp_auth_relay_dict:smtp_auth_relay_pwd	""
mail:postfix:smtp_auth_relay_dict:smtp_auth_relay_host	""
mail:postfix:ipc_timeout	"3600s"
mail:postfix:recipient_canonical_classes	"envelope_recipient, header_recipient"
mail:postfix:smtpd_sasl_type	"cyrus"
mail:postfix:resolve_dequoted_address	yes
mail:postfix:masquerade_exceptions	""
mail:postfix:mynetworks_enabled	no
mail:postfix:proxy_write_maps	"$smtp_sasl_auth_cache_name $lmtp_sasl_auth_cache_name"
mail:postfix:spam_notify_admin	no
mail:postfix:frozen_delivered_to	"yes"
mail:postfix:expand_owner_alias	no
mail:postfix:spam_action	"deliver"
mail:postfix:relay_destination_concurrency_positive_feedback	"$default_destination_concurrency_positive_feedback"
mail:postfix:lmtp_destination_recipient_limit	"$default_destination_recipient_limit"
mail:postfix:spam_domain_name	"example.com"
mail:postfix:smtpd_tls_mandatory_protocols	"SSLv3, TLSv1"
mail:postfix:smtp_quit_timeout	"300s"

Parameter	Default Value
mail:postfix:default_extra_recipient_limit	1000
mail:postfix:mime_header_checks	"$header_checks"
mail:postfix:smtp_sasl_tls_security_options	"$smtp_sasl_security_options"
mail:postfix:bounce_service_name	"bounce"
mail:postfix:ipc_ttl	"1000s"
mail:postfix:address_verify_positive_refresh_time	"7d"
mail:postfix:lmtp_tcp_port	24
mail:postfix:lmtp_initial_destination_concurrency	"$initial_destination_concurrency"
mail:postfix:pickup_service_name	"pickup"
mail:postfix:receive_override_options	""
mail:postfix:smtpd_recipient_restrictions	"permit_sasl_authenticated permit_mynetworks reject_unauth_destination check_policy_service unix:private/policy permit"
mail:postfix:smtp_tls_session_cache_database	""
mail:postfix:virtual_alias_expansion_limit	"1000"
mail:postfix:virus_scan_enabled	yes
mail:postfix:default_delivery_slot_discount	50
mail:postfix:fast_flush_domains	"$relay_domains"
mail:postfix:relocated_maps	""
mail:postfix:smtp_tls_fingerprint_digest	"md5"
mail:postfix:relay_destination_concurrency_failed_cohort_limit	"$default_destination_concurrency_failed_cohort_limit"
mail:postfix:html_directory	"/usr/share/doc/postfix/html"
mail:postfix:smtpd_delay_open_until_valid_rcpt	"yes"

Parameter	Default Value
mail:postfix:lmtp_sasl_security_options	"noplaintext, noanonymous"
mail:postfix:lmtp_destination_rate_delay	"$default_destination_rate_delay"
mail:postfix:import_environment	"MAIL_CONFIG MAIL_DEBUG MAIL_LOGTAG TZ XAUTHORITY DISPLAY LANG=C"
mail:postfix:smtp_line_length_limit	990
mail:postfix:header_size_limit	102400
mail:postfix:lmtp_connection_cache_on_demand	"yes"
mail:postfix:header_checks	0
mail:postfix:tls_random_source	""
mail:postfix:smtp_sasl_path	""
mail:postfix:fallback_transport	""
mail:postfix:enable_smtp	yes
mail:postfix:smtpd_history_flush_threshold	100
mail:postfix:backwards_bounce_logfile_compatibility	"yes"
mail:postfix:smtpd_tls_mandatory_ciphers	"medium"
mail:postfix:mailbox_size_limit	0
mail:postfix:smtp_tls_CApath	""
mail:postfix:qmgr_message_recipient_limit	20000
mail:postfix:enable_smtp_in	yes
mail:postfix:connection_cache_service_name	"scache"
mail:postfix:smtp_skip_quit_response	yes
mail:postfix:relay_destination_concurrency_limit	"$default_destination_concurrency_limit"
mail:postfix:in_flow_delay	"1s"

Parameter	Default Value
mail:postfix:milter_end_of_header_macros	"i"
mail:postfix:lmtp_sasl_auth_enable	no
mail:postfix:smtp_initial_destination_concurrency	"$initial_destination_concurrency"
mail:postfix:lmtp_tls_per_site	""
mail:postfix:smtpd_proxy_timeout	"100s"
mail:postfix:lmtp_discard_lhlo_keywords	""
mail:postfix:lmtp_tls_scert_verifydepth	"9"
mail:postfix:smtp_pix_workarounds	"disable_esmtp,delay_dotcrlf"
mail:postfix:soft_bounce	no
mail:postfix:smtp_sasl_auth_enable	no
mail:postfix:smtp_starttls_timeout	"300s"
mail:postfix:tls_null_cipherlist	"eNULL:!aNULL"
mail:postfix:unverified_sender_reject_code	"450"
mail:postfix:smtp_uce_controlls	1
mail:postfix:lmtp_enforce_tls	"no"
mail:postfix:hopcount_limit	50
mail:postfix:smtpd_forbidden_commands	"CONNECT GET POST"
mail:postfix:smtpd_sasl_local_domain	no
mail:postfix:message_reject_characters	""
mail:postfix:lmtp_sasl_auth_cache_time	"90d"
mail:postfix:unknown_address_reject_code	450
mail:postfix:maps_rbl_domains_enabled	no

Parameter	Default Value
mail:postfix:smtp_tls_security_level	""
mail:postfix:mynetworks_style	"subnet"
mail:postfix:lmtp_quote_rfc821_envelope	"yes"
mail:postfix:lmtp_tls_note_starttls_offer	"no"
mail:postfix:default_destination_concurrency_limit	20
mail:postfix:local_transport	"local:$myhostname"
mail:postfix:myhostname	"example.com"
mail:postfix:permit_mx_backup_networks	""
mail:postfix:smtp_tls_policy_maps	""
mail:postfix:lmtp_mime_header_checks	""
mail:postfix:lmtp_line_length_limit	"990"
mail:postfix:broken_sasl_auth_clients	no
mail:postfix:lmtp_tls_mandatory_exclude_ciphers	""
mail:postfix:enable_server_options	"yes"
mail:postfix:smtp_nested_header_checks	""
mail:postfix:lmtp_xforward_timeout	"300s"
mail:postfix:smtp_bind_address	no
mail:postfix:send_cyrus_sasl_authzid	"no"
mail:postfix:recipient_canonical_maps	no
mail:postfix:smtp_xforward_timeout	"300s"
mail:postfix:lmtp_mx_session_limit	"2"
mail:postfix:address_verify_negative_expire_time	"3d"
mail:postfix:strict_8bitmime	no
mail:postfix:smtpd_client_message_rate_limit	"0"

Parameter	Default Value
mail:postfix:smtp_mx_session_limit	"2"
mail:postfix:header_address_token_limit	10240
mail:postfix:spam_subject_tag	"***JUNK MAIL*** "
mail:postfix:smtp_rcpt_timeout	"300s"
mail:postfix:smtpd_tls_dcert_file	""
mail:postfix:smtp_never_send_ehlo	no
mail:postfix:mime_nesting_limit	100
mail:postfix:lmtp_bind_address6	""
mail:postfix:relay_destination_concurrency_negative_feedback	"$default_destination_concurrency_negative_feedback"
mail:postfix:connection_cache_protocol_timeout	"5s"
mail:postfix:smtpd_tls_cert_file	"/etc/certificates/example.com.0571FAFAA0BFDC76BADA66D200C44FD4FBEBCD87.cert.pem"
mail:postfix:error_service_name	"error"
mail:postfix:mynetworks:_array_index:0	"127.0.0.0/8"
mail:postfix:virtual_destination_concurrency_limit	"$default_destination_concurrency_limit"
mail:postfix:lmtp_rset_timeout	"20s"
mail:postfix:smtp_tls_session_cache_timeout	"3600s"
mail:postfix:notify_classes	"resource, software"
mail:postfix:smtpd_timeout	"300s"
mail:postfix:virtual_mailbox_maps	""
mail:postfix:alias_maps	"hash:/etc/aliases,hash:/var/mailman/data/aliases"
mail:postfix:sender_bcc_maps	""
mail:postfix:execution_directory_expansion_filter	"1234567890!@%-_=+:,./abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ"
mail:postfix:lmtp_tls_dcert_file	""
mail:postfix:unknown_local_recipient_reject_code	550

Parameter	Default Value
mail:postfix:virus_notify_admin_email	"virus-admin@example.com"
mail:postfix:default_recipient_limit	20000
mail:postfix:virtual_mailbox_lock	"fcntl, dotlock"
mail:postfix:authorized_flush_users	"static:anyone"
mail:postfix:lmtp_connection_reuse_time_limit	"300s"
mail:postfix:double_bounce_sender	"double-bounce"
mail:postfix:relay_recipient_maps	""
mail:postfix:smtp_pix_workaround_maps	""
mail:postfix:maximal_queue_lifetime	"5d"
mail:postfix:smtpd_tls_always_issue_session_ids	"yes"
mail:postfix:smtp_defer_if_no_mx_address_found	"no"
mail:postfix:address_verify_sender	"$double_bounce_sender"
mail:postfix:lmtp_mx_address_limit	"5"
mail:postfix:spam_scan_enabled	yes
mail:postfix:smtpd_tls_CApath	""
mail:postfix:stale_lock_time	"500s"
mail:postfix:smtpd_tls_dh1024_param_file	""
mail:postfix:trace_service_name	"trace"
mail:postfix:enable_smtp_out	yes
mail:postfix:default_destination_concurrency_positive_feedback	"1"
mail:postfix:smtp_mx_address_limit	"5"
mail:postfix:default_privs	"nobody"
mail:postfix:deliver_lock_attempts	20
mail:postfix:lmtp_starttls_timeout	"300s"

Parameter	Default Value
mail:postfix:parent_domain_matches_subdomains	"debug_peer_list,fast_flush_domains,mynetworks,permit_mx_backup_networks,qmqpd_authorized_clients,relay_domains,smtpd_access_maps"
mail:postfix:lmtp_cname_overrides_servername	"no"
mail:postfix:smtp_tls_dkey_file	"$smtp_tls_dcert_file"
mail:postfix:smtp_data_xfer_timeout	"180s"
mail:postfix:disable_verp_bounces	no
mail:postfix:smtpd_client_new_tls_session_rate_limit	"0"
mail:postfix:lmtp_sasl_auth_cache_name	""
mail:postfix:lmtp_tls_secure_cert_match	"nexthop"
mail:postfix:smtp_tls_loglevel	"0"
mail:postfix:milter_end_of_data_macros	"i"
mail:postfix:smtpd_reject_unlisted_recipient	"yes"
mail:postfix:command_execution_directory	""
mail:postfix:authorized_submit_users	"static:anyone"
mail:postfix:syslog_name	"postfix"
mail:postfix:smtpd_pw_server_security_options:_array_index:0	"gssapi"
mail:postfix:smtpd_pw_server_security_options:_array_index:1	"cram-md5"
mail:postfix:smtpd_end_of_data_restrictions	""
mail:postfix:lmtp_generic_maps	""
mail:postfix:recipient_delimiter	no
mail:postfix:default_minimum_delivery_slots	3
mail:postfix:smtp_helo_name	"$myhostname"

Parameter	Default Value
mail:postfix:access_map_reject_code	554
mail:postfix:lmtp_sasl_mechanism_filter	""
mail:postfix:lmtp_sasl_auth_soft_bounce	"yes"
mail:postfix:lmtp_sender_dependent_authentication	"no"
mail:postfix:address_verify_relayhost	"$relayhost"
mail:postfix:disable_mime_output_conversion	no
mail:postfix:smtpd_tls_received_header	"no"
mail:postfix:smtp_mime_header_checks	""
mail:postfix:message_size_limit	10485760
mail:postfix:lmtp_sasl_tls_security_options	"$lmtp_sasl_security_options"
mail:postfix:smtpd_tls_dh512_param_file	""
mail:postfix:rewrite_service_name	"rewrite"
mail:postfix:mailbox_transport_maps	""
mail:postfix:error_notice_recipient	"postmaster"
mail:postfix:milter_content_timeout	"300s"
mail:postfix:smtpd_error_sleep_time	"1s"
mail:postfix:destination_concurrency_feedback_debug	"no"
mail:postfix:fault_injection_code	0
mail:postfix:internal_mail_filter_classes	""
mail:postfix:smtpd_helo_required	yes
mail:postfix:smtpd_peername_lookup	"yes"
mail:postfix:strict_7bit_headers	no

Parameter	Default Value
mail:postfix:lmtp_destination_concurrency_positive_feedback	"$default_destination_concurrency_positive_feedback"
mail:postfix:propagate_unmatched_extensions	"canonical, virtual"
mail:postfix:unknown_virtual_mailbox_reject_code	550
mail:postfix:smtp_mail_timeout	"300s"
mail:postfix:smtpd_authorized_xclient_hosts	""
mail:postfix:address_verify_positive_expire_time	"31d"
mail:postfix:delay_logging_resolution_limit	"2"
mail:postfix:qmgr_fudge_factor	100
mail:postfix:lmtp_data_xfer_timeout	"180s"
mail:postfix:max_use	100
mail:postfix:milter_data_macros	"i"
mail:postfix:maps_rbl_reject_code	554
mail:postfix:qmqpd_authorized_clients	""
mail:postfix:allow_mail_to_commands	"alias, forward"
mail:postfix:relay_transport	"relay"
mail:postfix:setgid_group	"_postdrop"
mail:postfix:bounce_queue_lifetime	"5d"
mail:postfix:masquerade_domains	""
mail:postfix:smtp_sender_dependent_authentication	"no"
mail:postfix:smtpd_sender_login_maps	""
mail:postfix:swap_bangpath	yes
mail:postfix:smtp_reject_list_enabled	no
mail:postfix:lmtp_tls_CAfile	""
mail:postfix:address_verify_poll_delay	"3s"

Parameter	Default Value
mail:postfix:smtp_discard_ehlo_keywords	""
mail:postfix:delay_warning_time	"0h"
mail:postfix:smtp_connect_timeout	"30s"
mail:postfix:smtp_tls_mandatory_exclude_ciphers	""
mail:postfix:service_throttle_time	"60s"
mail:postfix:milter_default_action	"tempfail"
mail:postfix:black_hole_domains:_array_index:0	"zen.spamhaus.org"
mail:postfix:sample_directory	"/usr/share/doc/postfix/examples"
mail:postfix:allow_untrusted_routing	no
mail:postfix:smtp_data_init_timeout	"120s"
mail:postfix:detect_8bit_encoding_header	"yes"
mail:postfix:biff	no
mail:postfix:2bounce_notice_recipient	"postmaster"
mail:postfix:default_delivery_slot_cost	5
mail:postfix:smtp_tls_verify_cert_match	"hostname"
mail:postfix:qmqpd_client_port_logging	"no"
mail:postfix:smtpd_tls_ask_ccert	"no"
mail:postfix:mailbox_transport	"dovecot"
mail:postfix:masquerade_classes	"envelope_sender, header_sender, header_recipient"
mail:postfix:qmgr_message_active_limit	20000
mail:postfix:address_verify_local_transport	"$local_transport"
mail:postfix:append_at_myorigin	yes

Parameter	Default Value
mail:postfix:lmtp_tls_fingerprint_cert_match	""
mail:postfix:connection_cache_ttl_limit	"2s"
mail:postfix:smtpd_etrn_restrictions	""
mail:postfix:virtual_destination_rate_delay	"$default_destination_rate_delay"
mail:postfix:export_environment	"TZ MAIL_CONFIG LANG"
mail:postfix:lmtp_tls_exclude_ciphers	""
mail:postfix:virus_db_update_days	4
mail:postfix:virtual_alias_recursion_limit	"1000"
mail:postfix:stress	""
mail:postfix:smtpd_hard_error_limit	20
mail:postfix:smtp_destination_concurrency_failed_cohort_limit	"$default_destination_concurrency_failed_cohort_limit"
mail:postfix:debug_peer_level	2
mail:postfix:smtpd_tls_cert_file_content	"-----BEGIN CERTIFICATE----- nMIIC7TCCAdWgAwIBAgIBATALBgkqhkiG9w 0BAQUwJTEWMBQGA1UEAwwNcHlnbXlmnYXJt -----END CERTIFICATE-----n"
mail:postfix:smtp_connection_cache_on_demand	"yes"
mail:postfix:smtp_tls_key_file	"$smtp_tls_cert_file"
mail:postfix:trigger_timeout	"10s"
mail:postfix:address_verify_poll_count	"3"
mail:postfix:fast_flush_refresh_time	"12h"
mail:postfix:queue_directory	"/private/var/spool/postfix"
mail:postfix:smtp_tls_mandatory_protocols	"SSLv3, TLSv1"
mail:postfix:smtpd_proxy_ehlo	"$myhostname"

Parameter	Default Value
mail:postfix:relay_destination_rate_delay	"$default_destination_rate_delay"
mail:postfix:lmtp_pix_workarounds	"disable_esmtp,delay_dotcrlf"
mail:postfix:lmtp_destination_concurrency_limit	"$default_destination_concurrency_limit"
mail:postfix:mail_version	"2.5.5"
mail:postfix:relay_initial_destination_concurrency	"$initial_destination_concurrency"
mail:postfix:remote_header_rewrite_domain	""
mail:postfix:max_idle	"100s"
mail:postfix:mailbox_command_maps	""
mail:postfix:empty_address_relayhost_maps_lookup_key	"<>"
mail:postfix:default_destination_concurrency_failed_cohort_limit	"1"
mail:postfix:multi_recipient_bounce_reject_code	"550"
mail:postfix:smtpd_sasl_exceptions_networks	""
mail:postfix:smtpd_tls_auth_only	"no"
mail:postfix:use_od_delivery_path	"no"
mail:postfix:verp_delimiter_filter	"-=+"
mail:postfix:smtpd_sender_restrictions	""
mail:postfix:spam_rewrite_subject	yes
mail:postfix:allow_percent_hack	yes
mail:postfix:smtp_pix_workaround_delay_time	"10s"
mail:postfix:smtp_data_done_timeout	"600s"
mail:postfix:smtpd_restriction_classes	""
mail:postfix:mailbox_command	""
mail:postfix:lmtp_data_init_timeout	"120s"
mail:postfix:require_home_directory	no
mail:postfix:recipient_bcc_maps	""

Parameter	Default Value
mail:postfix:smtpd_tls_session_cache_database	""
mail:postfix:virtual_destination_concurrency_negative_feedback	"$default_destination_concurrency_negative_feedback"
mail:postfix:smtpd_tls_key_file_content	"-----BEGIN RSA PRIVATE KEY-----nProc-Type: 4,ENCRYPTEDnDEK-Info: DES-EDE3-CBC,D28A2B435987A569nnJY QPUId+S+aSbxkptE9RJpIrzOs544X2Bl ==n-----END RSA PRIVATE KEY-----n"
mail:postfix:allow_mail_to_files	"alias, forward"
mail:postfix:strict_8bitmime_body	no
mail:postfix:address_verify_negative_refresh_time	"3h"
mail:postfix:smtpd_tls_loglevel	"0"
mail:postfix:lmtp_tls_policy_maps	""
mail:postfix:lmtp_lhlo_timeout	"300s"
mail:postfix:lmtp_tls_session_cache_timeout	"3600s"
mail:postfix:lmtp_tls_mandatory_ciphers	"medium"
mail:postfix:plaintext_reject_code	"450"
mail:postfix:initial_destination_concurrency	5
mail:postfix:lmtp_quit_timeout	"300s"
mail:postfix:smtpd_client_recipient_rate_limit	"0"
mail:postfix:smtpd_proxy_filter	""
mail:postfix:tls_medium_cipherlist	"ALL:!EXPORT:!LOW:+RC4:@STRENGTH"
mail:postfix:default_database_type	"hash"
mail:postfix:smtp_destination_concurrency_limit	"$default_destination_concurrency_limit"
mail:postfix:address_verify_sender_dependent_relayhost_maps	"$sender_dependent_relayhost_maps"
mail:postfix:smtpd_use_pw_server	"yes"
mail:postfix:spam_quarantine	"junk-quarantine@example.com"
mail:postfix:smtp_sasl_auth_cache_time	"90d"

Parameter	Default Value
mail:postfix:fast_flush_purge_time	"7d"
mail:postfix:local_destination_concurrency_positive_feedback	"$default_destination_concurrency_positive_feedback"
mail:postfix:body_checks_size_limit	51200
mail:postfix:smtp_body_checks	""
mail:postfix:smtp_header_checks	""
mail:postfix:smtpd_use_tls	"yes"
mail:postfix:unknown_client_reject_code	450
mail:postfix:lmtp_discard_lhlo_keyword_address_maps	""
mail:postfix:empty_address_recipient	"MAILER-DAEMON"
mail:postfix:lmtp_skip_5xx_greeting	"yes"
mail:postfix:smtp_destination_rate_delay	"$default_destination_rate_delay"
mail:postfix:berkeley_db_read_buffer_size	131072
mail:postfix:virtual_mailbox_limit	51200000
mail:postfix:invalid_hostname_reject_code	501
mail:postfix:smtpd_sasl_security_options:_array_index:0	"noanonymous"
mail:postfix:address_verify_virtual_transport	"$virtual_transport"
mail:postfix:inet_protocols	"ipv4"
mail:postfix:default_process_limit	100
mail:postfix:smtp_sasl_security_options	"noplaintext, noanonymous"
mail:postfix:smtp_host_lookup	"dns"
mail:postfix:fork_delay	"1s"
mail:postfix:sendmail_path	"/usr/sbin/sendmail"
mail:postfix:smtpd_reject_unlisted_sender	"no"
mail:postfix:smtp_always_send_ehlo	yes

Parameter	Default Value
mail:postfix:defer_code	450
mail:postfix:lmtp_connect_timeout	"0s"
mail:postfix:local_destination_rate_delay	"$default_destination_rate_delay"
mail:postfix:lmtp_data_done_timeout	"600s"
mail:postfix:mail_owner	"_postfix"
mail:postfix:milter_protocol	"2"
mail:postfix:newaliases_path	"/usr/bin/newaliases"
mail:postfix:lmtp_connection_cache_destinations	""
mail:postfix:smtpd_data_restrictions	""
mail:postfix:text_only_attachments	no
mail:postfix:strict_mime_encoding_domain	no
mail:postfix:smtp_tls_scert_verifydepth	"9"
mail:postfix:smtp_tls_CAfile	""
mail:postfix:milter_command_timeout	"30s"
mail:postfix:smtpd_tls_session_cache_timeout	"3600s"
mail:postfix:smtpd_milters	""
mail:postfix:syslog_facility	"mail"
mail:postfix:smtp_tls_fingerprint_cert_match	""
mail:postfix:defer_transports	""
mail:postfix:enable_original_recipient	"yes"
mail:postfix:fork_attempts	5
mail:postfix:use_getpwnam_ext	"yes"
mail:postfix:milter_mail_macros	"i {auth_type} {auth_authen} {auth_author} {mail_addr}"
mail:postfix:default_destination_rate_delay	"0s"
mail:postfix:smtp_randomize_addresses	yes

Parameter	Default Value
mail:postfix:milter_rcpt_macros	"i {rcpt_addr}"
mail:postfix:maps_rbl_domains:_array_index:0	""
mail:postfix:smtp_skip_5xx_greeting	yes
mail:postfix:smtp_quote_rfc821_envelope	"yes"
mail:postfix:command_time_limit	"1000s"
mail:postfix:default_destination_recipient_limit	50
mail:postfix:lmtp_use_tls	"no"
mail:postfix:smtp_destination_concurrency_positive_feedback	"$default_destination_concurrency_positive_feedback"
mail:postfix:smtp_tls_cert_file	""
mail:postfix:smtpd_policy_service_timeout	"100s"
mail:postfix:manpage_directory	"/usr/share/man"
mail:postfix:queue_service_name	"qmgr"
mail:postfix:hash_queue_names:_array_index:0	"deferred"
mail:postfix:hash_queue_names:_array_index:1	"defer"
mail:postfix:relayhost_enabled	no
mail:postfix:smtp_cname_overrides_servername	"no"
mail:postfix:virus_db_update_enabled	yes
mail:postfix:smtpd_tls_fingerprint_digest	"md5"
mail:postfix:lmtp_bind_address	""
mail:postfix:milter_macro_v	"$mail_name $mail_version"
mail:postfix:smtpd_recipient_limit	1000
mail:postfix:mime_boundary_length_limit	2048
mail:postfix:smtp_connection_cache_destinations	""
mail:postfix:canonical_maps	no

Parameter	Default Value
mail:postfix:smtpd_tls_wrappermode	"no"
mail:postfix:queue_run_delay	"300s"
mail:postfix:minimal_backoff_time	"300s"
mail:postfix:local_destination_concurrency_limit	2
mail:postfix:virtual_mailbox_domains	"$virtual_mailbox_maps"
mail:postfix:disable_dns_lookups	no
mail:postfix:lmtp_destination_concurrency_failed_cohort_limit	"$default_destination_concurrency_failed_cohort_limit"
mail:postfix:unknown_virtual_alias_reject_code	550
mail:postfix:virtual_destination_recipient_limit	"$default_destination_recipient_limit"
mail:postfix:best_mx_transport	""
mail:postfix:sender_dependent_relayhost_maps	""
mail:postfix:rbl_reply_maps	""

Sample Sieve Scripts

The following are examples of common sieve scripts a user might want to use.

Vacation Notification Script

```
#--------
# This is a sample script for vacation rules.
# Read the comments following the pound/hash to find out
# what the script is doing.
#---------
#
# Make sure the vacation extension is used.
require "vacation";
# Define the script as a vacation script
 vacation
# Send the vacation response to any given sender only once every seven
     days no matter how many messages are sent from him.
 :days 7
#For every message sent to these addresses
 :addresses ["bob@example.com", "robert.fakeuser@server.com"]
# Make a message with the following subject
 :subject "Out of Office Reply"
# And make the body of the message the following
"I'm out of the office and will return on December 31. I won't be able to
     reply until 6 months after that. Love, Bob.";
# End of Script
```

Self-Defined Forwarding

```
#--------
# This is a sample script to illustrate how Sieve could be used
# to let users handle their own mail forwarding needs.
# Read the comments following the pound/hash to find out what the
# script is doing.
#---------
#
# No need to add any extension. 'redirect' is built-in.
# Redirect all my incoming mail to the listed address
redirect "my-other-address@example.com";
# But keep a copy of it on the IMAP server
 keep;
# End of script
```

Basic Sort and Antijunk Mail Filter

```
#--------
# This is a sample script to show discarding and filing.
# Read the comments following the pound/hash to find out
# what the script is doing
#---------
#
# Make sure filing and rejection are enabled
require "fileinto";
#
# If it's from my mom...
if header ["From"] :contains ["Mom"]{
# send it to my home email account
 redirect "home-address@example.com";
 }
#
# If the subject line has a certain keyword...
else if header "Subject" :contains "daffodil" {
# forward it to the postmaster
 forward "postmaster@server.edu";
 }
#
# If the junk mail filter has marked this as junk...
else if header :contains ["X-Spam-Flag"] ["YES"]{
# throw it out
 discard;
```

```
 }
#
# If the junk mail filter thinks this is probably junk
else if header :contains ["X-Spam-Level"] ["***"]{
# put it in my junkmail box for me to check
 fileinto "INBOX.JunkMail";
 }
#
# for all other cases...
else {
# put it in my inbox
 fileinto "INBOX";
 }
# End of script
```

Index

A

access
- ACLs 63
- administrator 85
- anonymous 26, 27
- connection control 32, 33, 34
- frequency of user 88
- Mailman 18
- *See also* IMAP

accounts, administrator 85
- *See also* user accounts

ACLs (access control lists) 63
addresses. *See* email addresses, IP addresses
administrator
- account for 85
- folder access 85
- mailing list 44, 50, 51

aliases, user email 24, 73, 74, 77
anonymous user access 26, 27
APOP (authenticated POP) 66
archiving 29, 52, 53, 59, 87
authenticated POP. *See* APOP
authentication
- IMAP 65
- Kerberos 64, 66
- plain text 64
- POP 65, 66
- SMTP 26, 27, 31, 32, 64

B

backups, mail 81
bayesian filters 35
Bcc (blind carbon copies) 29
blacklisted servers 34
bounced message options 48

C

certadmin tool 71
Certificate Signing Request. *See* CSR
certificates 68, 69, 71, 72
certtool tool 69, 71
ClamAV 14, 38
clear text passwords 65
clients
- mail configuration 60
- security 67, 69
- *See also* users

command-line tools 84
- certificates 69, 71, 72
- ditto 81
- logs 87
- MIME support 82
- Postfix email aliases 77
- *See also* serveradmin tool

configuration
- access control 63
- administrator 85
- incoming mail 29, 30, 65, 66, 68
- outgoing mail 26, 27, 28, 40, 64, 68
- overview 12, 21, 22, 23
- users 22, 60, 77, 78
- virtual hosting 73, 74
- WebMail 61
- *See also* Mailman

CRAM-MD5 authentication 64, 65
CSR (Certificate Signing Request) 69, 71

D

disks
- full disk errors 92
- mail quotas 40, 41
- reclaiming space from logs 87

ditto tool 81
DNS (Domain Name System) service 19, 21
documentation 9, 10, 11
Domain Name System. *See* DNS
Dovecot mail service 15, 16, 92

E

email. *See* mail service
email addresses 77, 78
email client software 60
encryption 66, 68

F

file systems, mail storage 16, 81

filters
blacklisted mail senders 33, 34
junk mail 14, 35, 36, 37
virus 34, 38
Firewall service, sending mail through 33
forwarding mail 78, 92, 129

G
groups, blind carbon copies 29
groups-based mailing lists 18, 42

H
help, using 8
hosts. *See* servers

I
IMAP (Internet Message Access Protocol)
administrator access 85
authentication 65
enabling 29
log 86
mail quotas 40
overview 16
SSL transport 68
WebMail 61
incoming mail
blocking 85
Dovecot 16
filtering messages 34
mail location 15, 79
message size limits 40
overview 16
protocols 16, 17, 29
security 67
setup 29, 30, 65, 66, 68
Sieve scripting support 39, 128, 129
undeliverable 28, 92
information page, mailing list 50
Internet Message Access Protocol. *See* IMAP
Internet service provider. *See* ISP
IP addresses 19, 33
ISP (Internet service provider) 19, 21

J
junk mail screening
connection control 32, 33, 34
filters 14, 35, 36, 37
log 86
open relay dangers 26
overview 34
Sieve scripting 129

K
Kerberos 64, 66
keychain services 69, 71, 72

L
list manager 50
logs 59, 86, 87

M
Mac OS X Server
email aliases 77
moving mail messages 79
mail exchange. *See* MX
mail message, subscribing to lists by 55
mail servers, clustering 82
mail service
access control 63
administrator 85
backups 81
connections 87
filtering messages 34
improving performance 91
logs 59, 86, 87
mail store 79, 80
management of 25
monitoring of 29, 86, 88, 89
network services 19, 21
preparation 20
protocols for 13, 16, 17
quota management 40, 41
reloading 84
resources 92, 93
restoring data 81
saving messages 29
security 67, 69, 71, 72
settings 22, 25, 26, 94
setup 12, 22, 23
starting 24, 83
statistics 89
stopping 81, 83
storage of mail 15, 79, 80, 81
undeliverable mail 89
users 22, 60, 77, 78
virtual hosting 73, 74
WebMail 17, 61
See also incoming mail, mailing lists, outgoing mail
Mail service
starting 83
stopping 83
mail store 79, 80
mail transfer agent. *See* MTA
mail user agent. *See* MUA
mailing lists
administration of 50, 51
archiving 52, 53
groups-based 18, 42
log 86
overview 18

viewing 50
vs. workgroups 18
See also Mailman, subscribers
Mailman
access 18
adding subscribers 49
administrator 50
as mailing list service 18
bounced message options 48
creating mailing list 45
enabling 44
list description 46
maximum message length 46
moderator 48, 52
naming list 45
overview 43, 44
privacy option 49
unsubscribe message 47
welcome message 47
managesieve process 39
maximum message length 46
messages. *See* mail service
MIME (Multipurpose Internet Mail Extensions) 58, 82
moderator, mailing list 48, 52
MTA (mail transfer agent) 13
MUA (mail user agent) 17
Multipurpose Internet Mail Extensions. *See* MIME
MX (mail exchange) 19, 21, 23

N

network services 19, 21

O

open relay 26
outgoing mail
clearing messages from queue 88
holding 84
mail location 15
protocol overview 13
queue checking 88
security 67
setup 26, 27, 28, 40, 64, 68
undelivered 89

P

passwords
clear text 65
creating file 72
IMAP 65
mailing list 44, 56
POP authentication 66
plain text authentication 64
plain text for mailing list messages 58
POP (Post Office Protocol)
enabling 30, 65
introduction 16
log 86
secure 65, 68
workings of 17
Post Office Protocol. *See* POP
postconf tool 82
Postfix transfer agent 13, 77, 92
postmaster alias 24
privacy option, mailing list 49
protocols
overview 13, 16, 17
POP 16, 17, 30, 65, 68, 86
settings 29
WebMail 61
See also IMAP, SMTP

Q

quotas, mail 40, 41

R

RBL (Real-time Blacklist) 33
relay server, mail 26

S

screening. *See* junk mail screening, virus screening
Secure Sockets Layer. *See* SSL
security 33, 67
See also authentication, passwords, SSL
Sendmail transfer agent 14
Server Admin 21, 23, 62, 83, 86
server administrator 85
serveradmin tool 84
mail parameters 94
service management 25
service settings 25, 26
starting service 84
statistics 89
status checking 86
stopping service 84
servers
blacklisted 33, 34
clustering of 82
IMAP 16
mail demands on 91
POP 17
relay 26
SMTP 27, 28, 31
virtual hosting 73, 74
short name 73
Sieve scripting 39, 77, 128, 129
SMTP (Simple Mail Transfer Protocol)
authentication 26, 27, 31, 32, 64
connection control 27, 31, 33
enabling 27

junk mail screening 27, 31, 32
log 86
overview 13
relay through intermediate server 28
restricting relay 31, 32
SSL transport 68
spam. *See* junk mail screening
SpamAssassin. *See* junk mail screening
SquirrelMail. *See* WebMail
SSL (Secure Sockets Layer)
certificates 69, 71
IMAP 68
password file 72
POP 68
setup 67
SMTP 68
subscribers, mailing list
adding 49, 53
creating list 45
digest mode 57, 58
disabling list delivery 57
password changes 56
posting privileges 54
removing 53
subscribing options 55, 58
suspending 54
unsubscribing options 47, 56

T

tail tool 87

U

UCE (unsolicited commercial email). *See* junk mail screening
undeliverable mail 28, 89, 92
unsolicited mail. *See* junk mail screening
unsubscribing, mailing list 47, 56
user accounts
access frequency checking 88
email aliases 24, 73, 74, 77
settings' effect on service 22
setup 22, 60
user name 45
users
blind carbon copies 29
disk quotas 40, 41
forwarding mail 78
mail storage 79
mail user agent 17
network routing of mail 19, 21
server demand 91
Sieve scripting support 39, 128, 129
subscriber options for mailing lists 55, 58
undeliverable mail 28, 89, 92
viewing list of 87
virtual hosting 73, 74

V

vacation notification script 128
virtual hosting 73, 74
virus screening 14, 34, 35, 38, 86
volumes, mail storage 16, 81

W

web service, mail considerations 61
web-based interface, mailing lists 50, 51, 55, 56
WebMail 17, 61
welcome message, mailing list 47
Workgroup Manager 21, 62
workgroups vs. mailing lists 18

X

Xsan, clustering mail server 82