# Zimbra Collaboration Server Administrator’s Guide

ZCS 8.0

Network Edition

August 2013

## Legal Notices

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ZCS 8.0

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# Table of Contents

# 1 Introduction

Zimbra Collaboration Server (ZCS) is a full-featured messaging and collaboration solution that includes email, address book, calendaring, tasks, and Web document authoring.

Topics in this chapter include:

## Audience

This guide is intended for system administrators responsible for installing, maintaining, and supporting the server deployment of ZCS.

Readers of this guide should have the following recommended knowledge and skill sets:

- Familiarity with the associated technologies and standards Linux operating system, and open source concepts
- Industry practices for mail system management

## Third-Party Components

Where possible, Zimbra adheres to existing industry standards and open source implementations for backup management, user authentications, operating platform, and database management. However, Zimbra only supports the specific implementations described in the ZCS architecture overview in the Product Overview chapter as officially tested and certified for the ZCS. This document might occasionally note when other tools are available in the marketplace, but such mention does not constitute an endorsement or certification.

## Support and Contact Information

Visit **www.zimbra.com** to join the community and to be a part of building the best open source messaging solution. We appreciate your feedback and suggestions.

- Contact sales@zimbra.com to purchase Zimbra Collaboration Server

- Network Edition customers can contact support at support@zimbra.com
- Explore the Zimbra Forums for answers to installation or configurations problems
- Join the Zimbra Forums, to participate and learn more about the Zimbra Collaboration Server

Let us know what you like about the product and what you would like to see in the product. Post your ideas to the Zimbra Forum.

If you encounter problems with this software, go to http://bugzilla.Zimbra.com to submit a bug report. Make sure to provide enough detail so that the bug can be easily duplicated.

# 2 Product Overview

The Zimbra Collaboration Server (ZCS) architecture is built with well-known open source technologies and standards based protocols. The architecture consists of client interfaces and server components that can be ran in a single node configuration or deployed across multiple servers for high availability and increased scalability.

The architecture includes the following core advantages:

- **Open source integrations**. Linux®, Jetty, Postfix, MySQL®, OpenLDAP®.
- **Uses industry standard open protocols**. SMTP, LMTP, SOAP, XML, IMAP, POP.
- **Modern technology design**. HTML5, Javascript, XML, and Java.
- **Horizontal scalability**. Each Zimbra mailbox server includes its own mailbox accounts and associated message store and indexes. Zimbra has the flexibility to scale both vertically by adding more system resources or horizontally by adding more servers.
- **Browser based client interface**. Zimbra Web Client gives users easy access to all the ZCS features.
- Browser based administration console.

## Core Email, Calendar and Collaboration Functionality

ZCS is an innovative messaging and collaboration application that offers the following state-of-the-art solutions that are accessed through a browser based web client.

- Intuitive message management, search, tagging, and sharing.
- Personal, external, and shared calendar

- Personal and shared Address Books and Distribution Lists.
- Personal and Shared Task lists.

## Zimbra Components

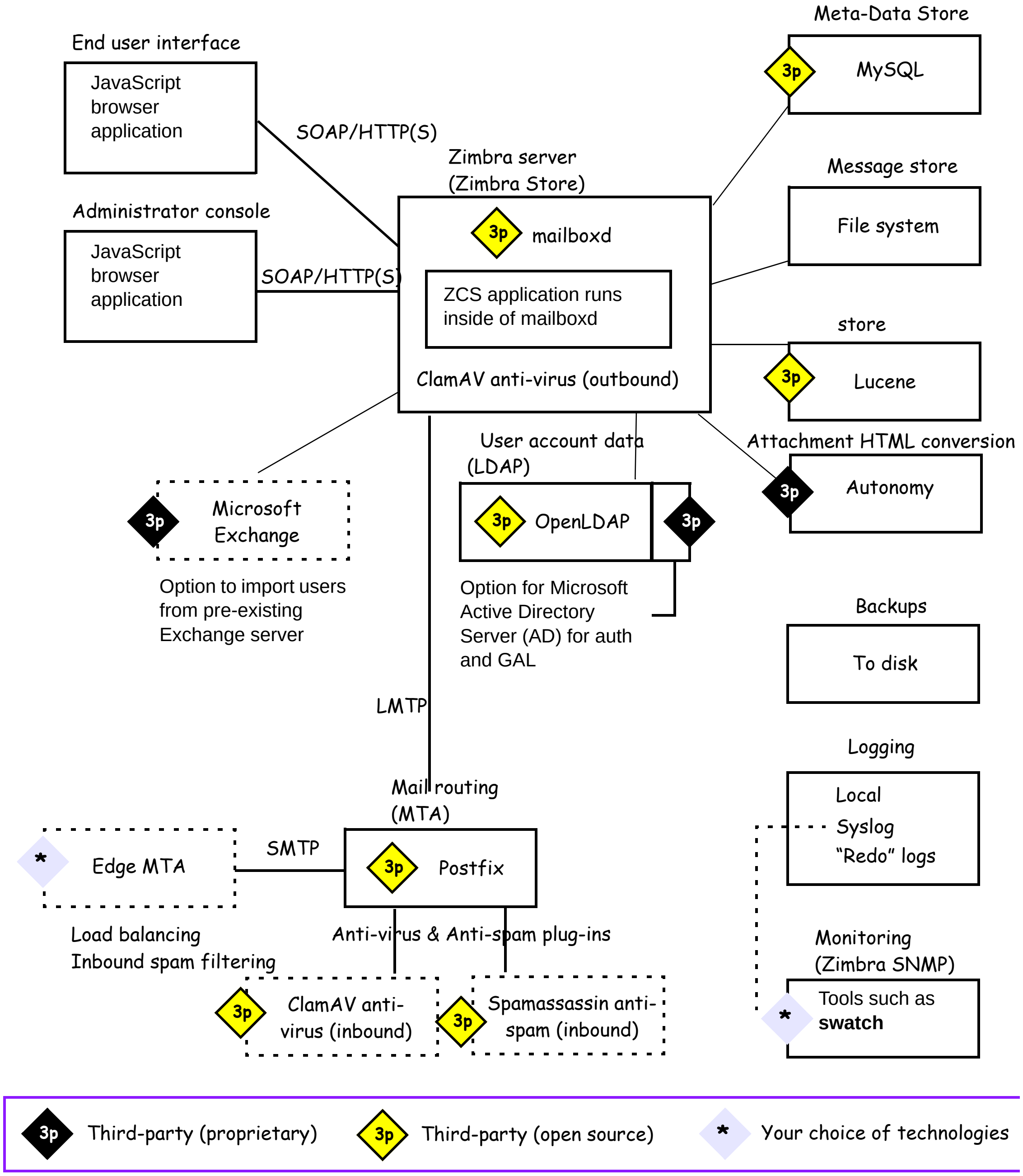
Zimbra architecture includes open-source integrations using industry standard protocols. The third-party software listed below is bundled with Zimbra software and installed as part of the installation process. These components have been tested and configured to work with the software.

- Jetty, the web application server that Zimbra software runs in.
- Postfix, an open source mail transfer agent (MTA) that routes mail messages to the appropriate Zimbra server
- OpenLDAP software, an open source implementation of the Lightweight Directory Access Protocol (LDAP) that stores Zimbra system configuration, the Zimbra Global Address List, and providers user authentication. Zimbra can also work with GAL and authentication services provided by external LDAP directories such as Active Directory
- MySQL database software
- Lucene, an open source full-featured text  and search engine
- Autonomy, Inc., a third-party source that converts certain attachment file types to HTML
- Anti-virus and anti-spam open source components including:
  - ClamAV, an anti-virus scanner that protects against malicious files
  - SpamAssassin, a mail filter that attempts to identify spam
  - Amavisd-new interfaces between the MTA and one or more content checkers
- James/Sieve filtering, used to create filters for email

## System Architecture

The ZCS architectural design is displayed in the ZCS Collaboration Server Architecture figure. This shows the open-source software bundled with the ZCS and other recommended third-party applications.

Zimbra Collaboration Server Architecture


Meta-Data Store
3p
MySQL
End user interface
JavaScript browser application
SOAP/HTTP(S)
Zimbra server (Zimbra Store)
Message store
File system
Administrator console
JavaScript browser application
SOAP/HTTP(S)
3p
mailboxd
ZCS application runs inside of mailboxd
store
3p
Lucene
ClamAV anti-virus (outbound)
User account data (LDAP)
Attachment HTML conversion
3p
Autonomy
3p
Microsoft Exchange
3p
OpenLDAP
3p
Option to import users from pre-existing Exchange server
Option for Microsoft Active Directory Server (AD) for auth and GAL
Backups
To disk
LMTP
Logging
Local
Syslog
"Redo" logs
Mail routing (MTA)
SMTP
*
Edge MTA
3p
Postfix
Load balancing
Inbound spam filtering
Anti-virus & Anti-spam plug-ins
Monitoring (Zimbra SNMP)
*
Tools such as swatch
3p
ClamAV anti-virus (inbound)
3p
Spamassassin anti-spam (inbound)
3p
Third-party (proprietary)
3p
Third-party (open source)
*
Your choice of technologies

## Zimbra Application Packages

ZCS includes the following application packages.

| | |
|---|---|
| Zimbra Core | Includes the libraries, utilities, monitoring tools, and basic configuration files.<br>**zmconfigd** is part of zimbra-core and is automatically enabled and runs on all systems. |
| Zimbra Convertd | Zimbra-convertd package is installed on the zimbra-store server. Only one Zimbra-convertd package needs to be present in the ZCS environment. |
| Zimbra LDAP | ZCS uses the OpenLDAP software, an open source LDAP directory server. User authentication, the Zimbra Global Address List, and configuration attributes are services provided through OpenLDAP. Note that the Zimbra GAL and authentication services can be provided by an external LDAP Directory such as Active Directory. |
| Zimbra MTA | Postfix is the open source mail transfer agent (MTA) that receives email via SMTP and routes each message to the appropriate Zimbra mailbox server using Local Mail Transfer Protocol (LMTP).<br>The Zimbra MTA also includes the anti-virus and anti-spam components. |
| Zimbra store (mailbox server) | The Zimbra store package installs the components for the mailbox server, including Jetty, which is the servlet container the Zimbra software runs within. Within ZCS, this servlet container is called **mailboxd**.<br>Each account is configured on one mailbox server, and this account is associated with a mailbox that contains all the mail messages, file attachments, contacts, calendar, and collaboration files for that mail account.<br>Each Zimbra server has its own standalone data store, message store, and index store for the mailboxes on that server.<br>As each email arrives, the Zimbra server (convertd) extracts the text from the attachments to be indexed along with the mail body.<br>Attachments are converted to HTML when users click on the **view as HTML** link on the Zimbra Web Client. |
| Zimbra-SNMP | Zimbra uses swatch to watch the syslog output to generate SNMP traps. |
| Zimbra-Logger | The Zimbra logger installs tools for syslog aggregation, reporting. If the Logger is not installed, the server statistics section of the administration console is not displayed. |
| Zimbra-Spell | Aspell is the open source spell checker used on the Zimbra Web Client. When zimbra-spell is installed, the Zimbra-Apache package is also installed. |

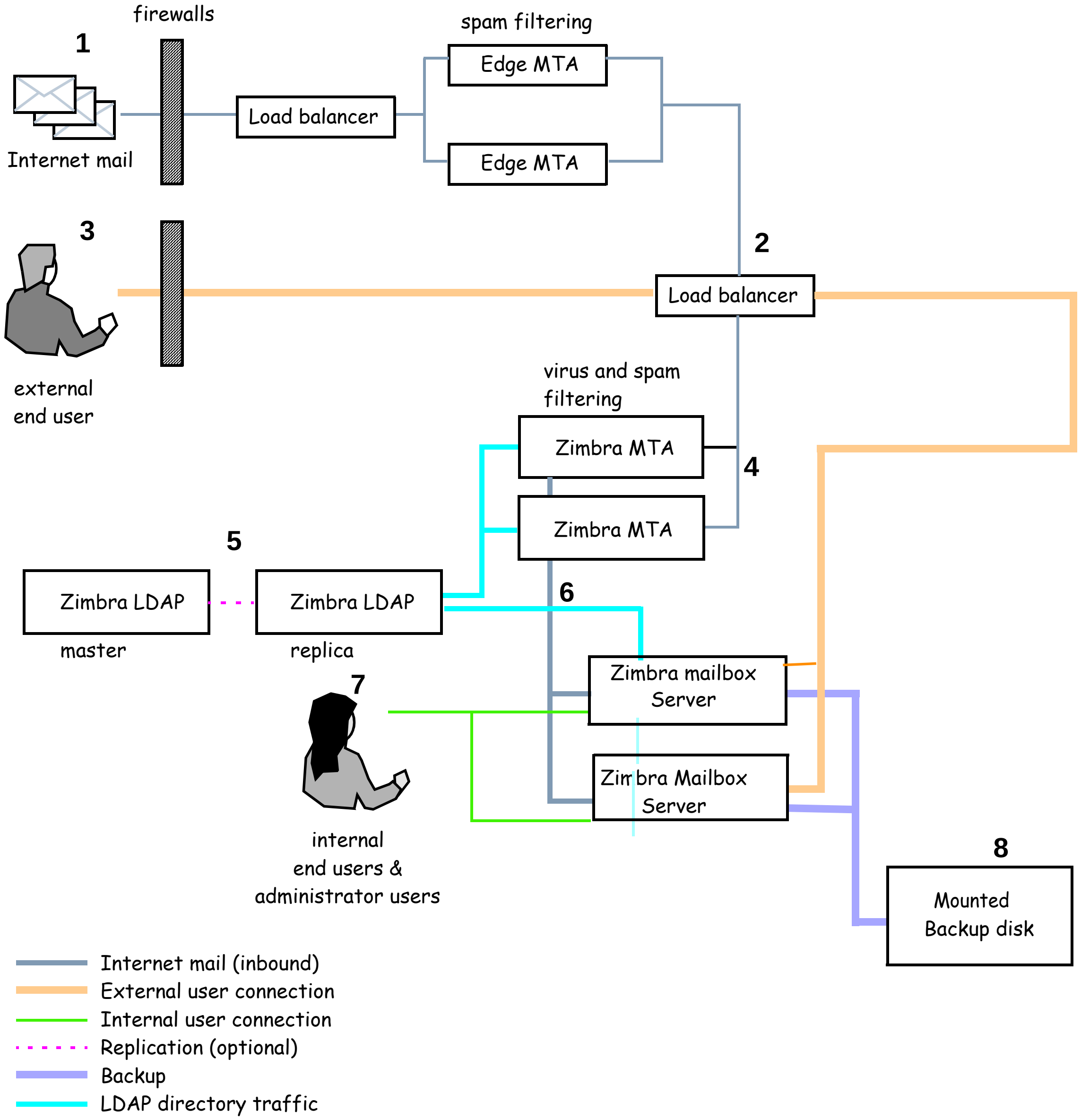
| | |
|---|---|
| Zimbra-Proxy | Use of an IMAP/POP proxy server allows mail retrieval for a domain to be split across multiple Zimbra servers on a per user basis.<br>The Zimbra Proxy package can be installed with the Zimbra LDAP, the Zimbra MTA, the Zimbra mailbox server, or on its own server.<br>Zimbra-Memcached is a separate package from zimbra-proxy and is automatically selected when the zimbra-proxy package is installed. One server must run zimbra-memcached when the proxy is in use. All installed zimbra-proxies can use a single memcached server |
| **Zimbra Archiving** | The Zimbra Archiving and Discovery package is an optional feature for Zimbra Network Edition.<br>Archiving and Discovery offers the ability to store and search all messages that were delivered to or sent by Zimbra. This package includes the cross mailbox search function which can be used for both live and archive mailbox searches.<br>Note: Using Archiving and Discovery can trigger additional mailbox license usage. To find out more about Zimbra Archiving and Discovery, contact Zimbra sales. |

## Example of a Typical Multiserver Configuration

The exact configuration for each deployment is highly dependent on variables including the number of mailboxes, mailbox quotas, performance requirements, existing network infrastructure, IT policies, security requirements, spam filtering requirements, and so forth.

The figure below shows a typical configuration with incoming traffic and user connection.

### Typical Configuration with Incoming Traffic and User Connections



1 Inbound Internet mail goes through a firewall and load balancing to the edge MTA for spam filtering.

2 The filtered mail then goes through a second load balancer.

3 An external user connecting to the messaging server also goes through a firewall to the second load balancer.

4 The inbound Internet mail goes to any of the Zimbra MTA servers and goes through spam and virus filtering.

5 The designated Zimbra MTA server looks up the addressee’s directory information from the Zimbra LDAP replica server.

6 After obtaining the user’s information from the Zimbra LDAP server, the MTA server sends the mail to the appropriate Zimbra mailbox server.

7 Internal end-user connections are made directly to any Zimbra mailbox server, which then obtains the user’s directory information from Zimbra LDAP and redirects the user as needed.

8 Server backup can be processed to a mounted disk.

## Zimbra System Directory Tree

The following table lists the main directories created by the Zimbra installation packages.

The directory organization is the same for any server in the ZCS, installing under /**opt/zimbra**.

***Note:*** *The directories not listed in this table are libraries used for building the core Zimbra software or miscellaneous third-party tools.*

| Parent | Directory | Description |
|---|---|---|
| /opt/<br>zimbra/ | | Created by all ZCS installation packages |
| | backup/ | Backup target contains full and incremental backup data |
| | bin/ | ZCS application files, including the utilities described in Appendix A, Command -Line Utilities |
| | cdpolicyd | Policy functions, throttling |
| | clamav/ | Clam AV application files for virus and spam controls |
| | conf/ | Configuration information |
| | contrib/ | Third-party scripts for conveyance |
| | convertd/ | Convert service |
| | cyrus-sasl/ | SASL AUTH daemon |
| | data/ | Includes data directories for LDAP, mailboxd, postfix, amavisd, clamav |
| | db/ | Data Store |
| | docs/ | SOAP txt files and technical txt files |
| | dspam/ | DSPAM antivirus |
| | extensions-extra/ | Server extensions for different authentication types |

| Parent | Directory | Description |
|---|---|---|
| | extensions-network-extra/ | Server extensions for different network version authentication types |
| | httpd/ | Contains the Apache Web server. Used for both aspell and convertd as separate processes |
| | index/ | Index store |
| | java/ | Contains Java application files |
| | jetty/ | mailboxd application server instance. In this directory, the **webapps/zimbra/skins** directory includes the Zimbra UI theme files |
| | lib/ | Libraries |
| | libexec/ | Internally used executables |
| | log/ | Local logs for ZCS server application |
| | logger/ | RRD and SQLite data files for logger services |
| | mysql/ | MySQL database files |
| | net-snmp/ | Used for collecting statistics |
| | openldap/ | OpenLDAP server installation, pre-configured to work with ZCS |
| | postfix/ | Postfix server installation, pre-configured to work with ZCS |
| | redolog/ | Contains current transaction logs for the ZCS server |
| | snmp/ | SNMP monitoring files |
| | ssl/ | Certificates |
| | store/ | Message store |
| | zimbramon/ | Contains control scripts and Perl modules |
| | zimlets/ | Contains Zimlet zip files that are installed with Zimbra |
| | zimlets-deployed/ | Contains Zimlets that are available with the Zimbra Web Client |
| | zimlets-network | Contains Zimlet zip files for features that are installed with the network edition |
| | zmstat/ | mailboxd statistics are saved as .csv files |

## Web Client Versions

Zimbra offers a standard HTML, advanced Javascript, and mobile web clients that users can log into that users can log into. The web clients include mail, calendar, address book, and task functionality. Users can select the client to use when they log in.

- Advanced web client includes Ajax capability and offers a full set of web collaboration features. This web client works best with newer browsers and fast Internet connections.
- Standard web client is a good option when Internet connections are slow or users prefer HTML-based messaging for navigating within their mailbox.
- Mobile web client provides an experience optimized for smaller screen formats available on mobile devices.

When users sign in, they view the advanced Zimbra Web Client, unless they use the menu on the login screen to change to the standard version. If ZWC detects the screen resolution to be 800 x 600, users are automatically redirected to the standard Zimbra Web Client. Users can still choose the advanced ZWC but see a warning message suggesting the use of the standard ZWC for better screen view. When connecting to Zimbra using a mobile web browser, Zimbra will automatically detect and default to the mobile web client.

# 3 Licensing

A Zimbra license is required in order to create accounts. When you purchase, renew, or change the Zimbra license, you update the Zimbra server with the new license information.

Topics in this chapter include:

## License Types

ZCS licensing gives administrators better visibility and control into the licensed features they plan to deploy. You can monitor usages and manage the following license types.

- **Accounts limit**. The maximum number of accounts you can create and the number of accounts created are shown.
- **Mobile accounts limit**. The maximum number of accounts that can have the mobile feature enabled.
- **MAPI accounts limit**. The maximum number of accounts that can use Zimbra Connector for Microsoft Outlook (ZCO).
- **Archiving Accounts limit**. The maximum number of archive accounts that can be created. The archive feature must be installed.

## License Requirements

Several types of licenses are available:

- **Trial**. You can obtain a free Trial license from the Zimbra website, at www.zimbra.com. The trial license allows you to create up to 50 users. It expires in 60 days.

- **Trial Extended**. You can obtain a Trial Extended license from Zimbra Sales by contacting sales@zimbra.com or calling 1-650-427-5701. This license allows you to create up to 50 users and is valid for an extended period of time.
- **Subscription**. You must purchase the Zimbra Subscription license. This license is valid for a specific ZCS system and is encrypted with the number of Zimbra accounts (seats) you have purchased, the effective date, and expiration date of the subscription license.
- **Perpetual**. You must purchase the Zimbra Perpetual license. This license is similar to a subscription license and is valid for a specific ZCS system, is encrypted with the number of Zimbra accounts (seats) you have purchased, the effective date, and an expiration date of 2099-12-31. When you renew your support agreement, no new perpetual license is sent to you, but your Account records in the systems is updated with your new support end date.

## License Usage by Account Type

Below is a description of ZCS accounts and if they impact your license limit.

- **System accounts**. System accounts are specific accounts used by ZCS. They include the spam filter accounts for junk mail (spam and ham), virus quarantine account for email messages with viruses, and GALsync account if you configure GAL for your domain. Do not delete these accounts! These accounts do not count against your license.
- **Administrator account**. Administrator and delegated administrator accounts count against your license.
- **User accounts**. User accounts count against your license account limit. When you delete an account, the license account limit reflects the change.
- **Alias account**. Aliases do not count against your license.
- **Distribution list**. Distribution lists do not count against your license.
- **Resource account.** Resource accounts (location and resources) do not count against your ZCS license.

## License Activation

All network edition installations require license activation. New installations have a 10 day grace period from the license issue date before requiring activation. Your license can be activated by selecting **Global Settings > License > Activate License**.

Upgraded ZCS versions require an immediate activation to maintain network feature functionality.

### Automatic License Activation

Licenses are automatically activated if the ZCS server has a connection to the Internet and can communicate with the Zimbra License server. If you are unable to automatically activate your license.

### Manual License Activation

For systems that do not have external access to the Zimbra License server, you can use the Zimbra Support Portal to manually activate your license. Go to the Zimbra website at www.zimbra.com and click **Support** to display the Zimbra Technical Support page. Click **Support Portal Login** to display the Zimbra Support Portal page. Enter your email and password to log in.

If you have problems accessing the Support Portal, contact Zimbra Sales at sales@zimbra.com.

### When Licenses are not Installed or Activated

If you fail to install or activate your ZCS server license, the following scenarios describe how your ZCS server will be impacted.

- **License is not installed**. If a license is not installed, the ZCS defaults to single user mode where all features limited by license are limited to one user.
- **License is not valid**. If the license could not be validated, the ZCS defaults to single user mode.
- **License is not activated**. A license activation grace period is 10 days. If for some reason the license is never activated, the ZCS defaults to single user mode after 10 days.
- **License is in future**. If the license starting date is still in the future, the ZCS defaults to single user mode.
- **License is in grace period**. If the license ending date has passed and is within the 30 day grace period, all features limited by license are still enabled, but administrators may see license renewal prompts.
- **License expired**. If the license ending date has passed and the 30 day grace period expired, the ZCS server defaults to the feature set of the Open Source Edition.

## Obtain a License

Go to Zimbra’s Website to obtain a trial license from the Network Downloads area. Contact Zimbra sales regarding a trial extended license, or to purchase a subscription license or perpetual license, by emailing sales@zimbra.com.

The subscription and perpetual license can only be installed on the ZCS system for which it is purchased. Only one Zimbra license is required for your ZCS environment. This license sets the number of accounts that can be created.

Current license information, including the number of accounts purchased, the number of accounts used, and the expiration date, can be viewed from **Global Settings > License**.

## Managing Licenses

The **Update License** wizard from the administration console's **Global Settings** page is used to upload and install a new license. The **Activate License** link on the toolbar activates the license.

Current license information, including the license ID, the issue date, expiration date, number of accounts purchased, and the number of accounts used can be viewed from **Global Settings > License**.

### License Information

You must have a ZCS license to create accounts. When you purchase, renew, or change the Zimbra license, you must update the Zimbra server with the new license information. The **Update License Wizard** from the administration console's Global Settings is used to upload and install a new license. The **Activate License** link on the toolbar activates the license.

Current license information, including the license ID, the issue date, expiration date, number of accounts purchased, and the number of accounts used can be viewed from the Global Settings > License page.

When the number of accounts created is equal to the number of accounts purchased you will not be able to create new accounts. You can purchase additional accounts or you can delete existing accounts. Contact Zimbra sales to purchase additional accounts.

You must renew your license within 30 days of the expiration date. Starting 30 days before the license expires, when you log on to the administration console, a reminder notice is displayed.

### License Expiration

When your ZCS Network Edition License expires, a license expiration warning appears in the administrative console and web interface for all users. From the date of the license expiration, there is a 30-day grace period during which the warning message is displayed, but no features are disabled.

Upon expiration of the grace period, the server reverts to the feature set of the Open Source Edition. The following is a list of some of the major functions that are no longer available upon license expiration:

- Backup/Restore
- Zimbra Mobile (ActiveSync)
- Zimbra Connector for Outlook
- Zimbra Connector for Blackberry

- S/MIME

If you maximize your licensed user limit, you are no longer able to create or delete accounts.

If you do not plan to renew your license, you can regain the ability to create or delete accounts by upgrading to ZCS free and open source software (FOSS). You should choose the same version of FOSS that you are currently running on the ZCS Network Edition for this transition, after which you can upgrade to the latest version of ZCS FOSS.

### Renewal

When the number of accounts created is equal to the number of accounts purchased you will not be able to create new accounts. You can purchase additional accounts or you can delete existing accounts. Contact Zimbra sales to purchase additional accounts.

You must renew your license within 30 days of the expiration date. Starting 30 days before the license expires, when you log on to the administration console, a reminder notice is displayed.

## Update Your License

When you renew or change the Zimbra license, you update ZCS mailbox servers with the new license information. This can be done from either the administration console or using the zmlicense CLI command.

From the administration console:

1. Save the license on the computer you use to access the administration console.
2. Log on to the administration console, go to **Global Settings > License** and on the toolbar click **Update License**. The License Installation Wizard opens.
3. Browse to select the ZCS license file. Click **Next**. The license file is uploaded.
4. Click **Install** to install the license file.
5. Click **Activate License**. Upgraded ZCS versions require an immediate activation to maintain network feature functionality.

   Your license information is updated automatically. The cached account license count is automatically refreshed on each mailbox server.

# 4 Zimbra Mailbox Server

The Zimbra mailbox server is a dedicated server that manages all the mailbox content, including messages, contacts, calendar, and attachments. In a ZCS single-server environment, all services are on one server. In a ZCS multi-server environment, the LDAP and MTA services can be installed on separate servers.

The Zimbra mailbox server receives the messages from the Zimbra MTA server and passes them through any filters that have been created. Messages are then indexed and deposited into the correct mailbox.

The Zimbra mailbox server has dedicated volumes for backup and log files. Each Zimbra mailbox server can see only its own storage volumes. Zimbra mailbox servers cannot see, read, or write to another server.

## Incoming Mail Routing

The MTA server receives mail via SMTP and routes each mail message to the appropriate ZCS mailbox server using LMTP. As each mail message arrives, it's content is indexed so that all elements can be searched.

## Mailbox Server

Each account is configured on one mailbox server and this account is associated with a mailbox that contains email messages, attachments, calendar, contacts and collaboration files for that account. Each Zimbra mailbox server has its own standalone message store, data store, and index store for the mailboxes on that server.

### Message Store

All email messages are stored in MIME format in the Message Store, including the message body and file attachments.

The message store is located on each mailbox server under **/opt/zimbra/store**. Each mailbox has its own directory named after its internal ZCS mailbox ID. Mailbox IDs are unique per server, not system-wide.

Messages with multiple recipients are stored as a single-copy on the message store. On UNIX systems, the mailbox directory for each user contains a hard link to the actual file.

When ZCS is installed, one index volume and one message volume are configured on each mailbox server. Each mailbox is assigned to a permanent directory on the current index volume. When a new message is delivered or created, the message is saved in the current message volume.

To manage your email storage resources, you can configure storage volumes for older messages by implementing a Hierarchical Storage Management (HSM) policy. See Chapter 8, Managing Configuration.

## Data Store

The ZCS data store is a MySQL database where internal mailbox IDs are linked with user accounts. All the message metadata including tags, conversations, and pointers to where the messages are stored in the file system. The MySQL database files are in **opt/zimbra/db**.

Each account (mailbox) resides only on one server. Each ZCS server has its own standalone data store containing data for the mailboxes on that server.

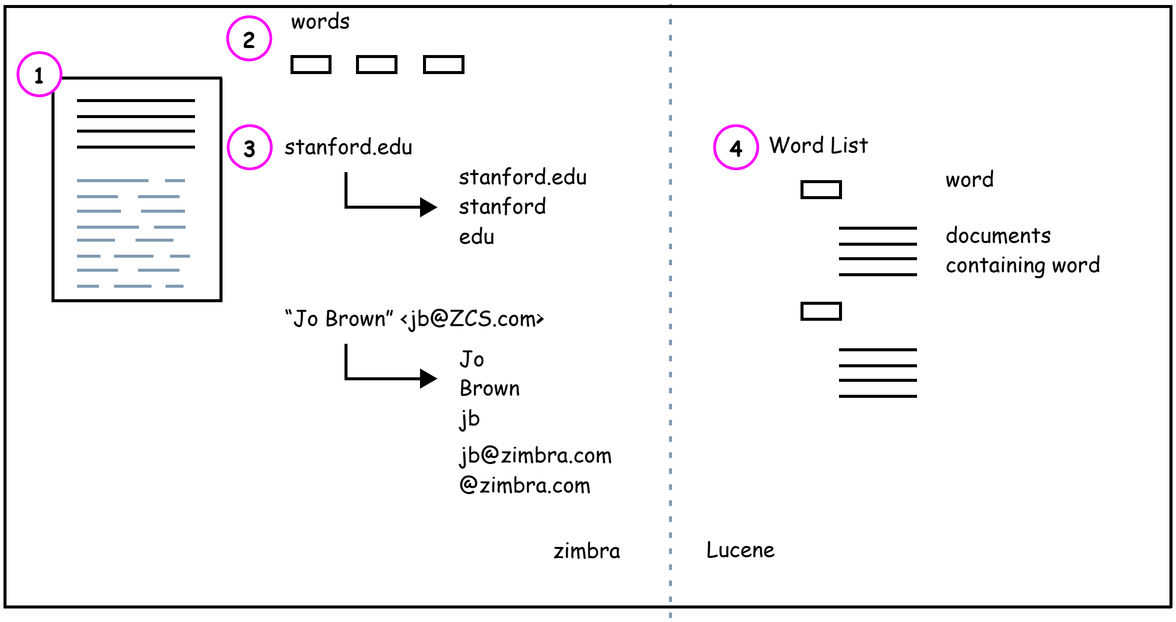
- The data store maps the ZCS mailbox IDs to the users' OpenLDAP accounts.The primary identifier within the ZCS database is the mailbox ID, rather than a user name or account name. The mailbox ID is only unique within a single mailbox server.
- Metadata including user's set of tag definitions, folders, contacts, calendar appointments, tasks, Briefcase folders, and filter rules are in the data store database.
- Information about each mail message, including whether it is read or unread, and which tags are associated is stored in the data store database.

## Index Store

The index and search technology is provided through Apache Lucene. Each email message and attachment is automatically indexed when the message arrives. An index file is associated with each account. Index files are in **opt/zimbra/index**.

The tokenizing and indexing process is not configurable by administrators or users.

Message Tokenization



The process is as follows:

1. The Zimbra MTA routes the incoming email to the ZCS mailbox server that contains the account's mailbox.
2. The mailbox server parses the message, including the header, the body, and all readable file attachments such as PDF files or Microsoft Word documents, in order to tokenize the words.
3. The mailbox server passes the tokenized information to Lucene to create the index files.

***Note:*** *Tokenization is the method for indexing by each word. Certain common patterns, such as phone numbers, email addresses, and domain names are tokenized as shown in the Message Tokenization figure.*

## Backing Up the Mailbox Server

ZCS includes a configurable backup manager that resides on every ZCS server and performs both backup and restore functions. You do not have to stop the ZCS server in order to run the backup process. The backup manager can be used to restore a single user, rather than having to restore the entire system in the event that one user's mailbox becomes corrupted. Full and incremental backups are in **opt/zimbra/backup**. See Chapter 16, Backup and Restore.

Each Zimbra mailbox server generates redo logs that contain current and archived transactions processed by the message store server since the last incremental backup. When the server is restored, after the backed up files are fully restored, any redo logs in the archive and the current redo log in use are replayed to bring the system to the point before the failure.

## Mailbox Server Logs

A ZCS deployment consists of various third-party components with one or more mailbox servers. Each of the components may generate its own logging output. Local logs are in **/opt/zimbra/log**.

Selected ZCS log messages generate SNMP traps, which you can capture using any SNMP monitoring software. See Chapter 15, Monitoring ZCS Servers.

***Note:*** *System logs, redo logs, and backup sessions should be on separate disks to minimize the possibility of unrecoverable data loss in the event that one of those disks fails.*

# 5 Zimbra LDAP Service

LDAP directory services provide a centralized repository for information about users and devices that are authorized to use your Zimbra service. The central repository used for Zimbra's LDAP data is the OpenLDAP directory server.

Topics in this chapter include:

- LDAP Traffic Flow
- ZCS LDAP Schema
- Account Authentication
- ZCS Objects
- Global Address List
- Flushing LDAP Cache

**Note:** *ZCS supports integration with Microsoft's Active Directory Server. Contact support for information on specific directory implementation scenarios.*

The LDAP server is installed when ZCS is installed. Each server has its own LDAP entry that includes attributes specifying operating parameters. In addition, a global configuration object sets defaults for any server whose entry does not specify every attribute.

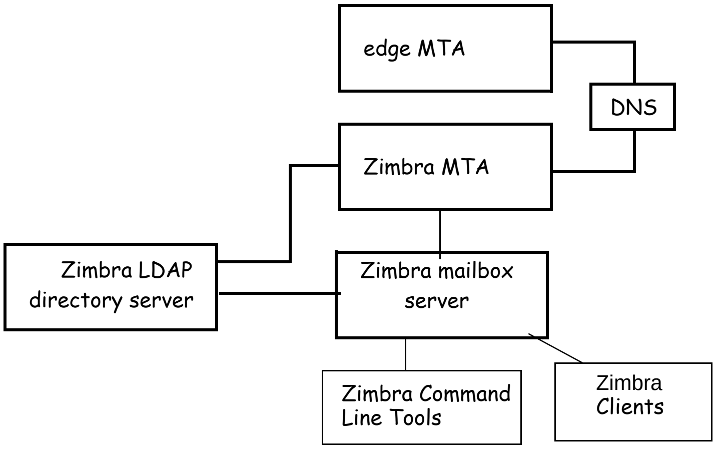
A subset of these attributes can be modified through the Zimbra administration console and others through the zmprov CLI utility.

## LDAP Traffic Flow

The LDAP Directory Traffic figure shows traffic between the Zimbra-LDAP directory server and the other servers in the ZCS system. The Zimbra MTA and the ZCS mailbox server read from, or write to, the LDAP database on the directory server.

The Zimbra clients connect through the Zimbra server, which connects to LDAP.

LDAP Directory Traffic

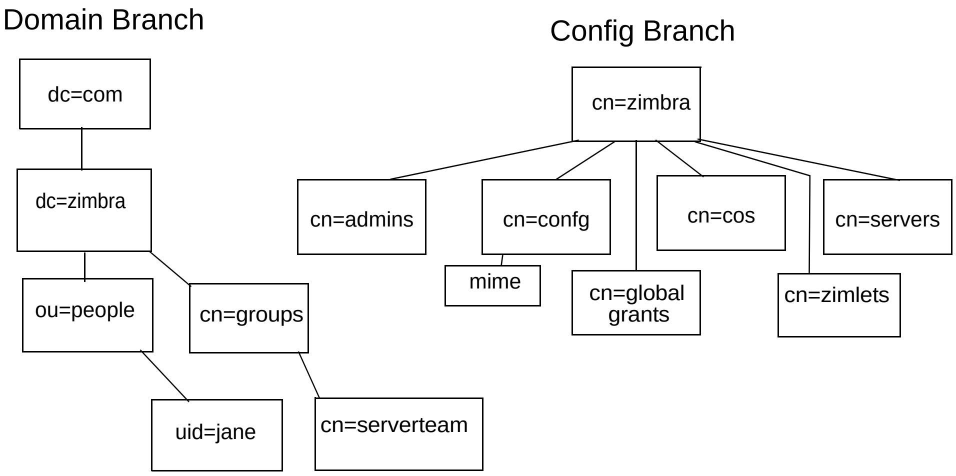


## LDAP Directory Hierarchy

LDAP directories are arranged in an hierarchal tree-like structure with two types of branches, the mail branches and the config branch. Mail branches are organized by domain. Entries belong to a domain, such as accounts, groups, aliases, are provisioned under the domain DN in the directory. The config branch contains admin system entries that are not part of a domain. Config branch entries include system admin accounts, global config, global grants, COS, servers, mime types, and zimlets.

The Zimbra LDAP Hierarchy figure shows the Zimbra LDAP hierarchy. Each type of entry (object) has certain associated object classes.

Zimbra LDAP Hierarchy



An LDAP directory entry consists of a collection of attributes and has a globally unique distinguished name (dn). The attributes allowed for an entry are determined by the *object classes* associated with that entry. The values of the object class attributes determine the schema rules the entry must follow.

An entry's object class that determines what kind of entry it is, is called a structural object class and cannot be changed. Other object classes are called auxiliary and may be added to or deleted from the entry.

Use of auxiliary object classes in LDAP allows for an object class to be combined with an existing object class. For example, an entry with structural object class **inetOrgPerson,** and auxiliary object class **zimbraAccount,** would be an account. An entry with the structural object class **zimbraServer** would be a server in the Zimbra system that has one or more Zimbra packages installed.

## ZCS LDAP Schema

At the core of every LDAP implementation is a database organized using a schema.

The Zimbra LDAP schema extends the generic schema included with OpenLDAP software. It is designed to coexist with existing directory installations.

All attributes and object classes specifically created for ZCS are prefaced by "zimbra.," such as, **zimbraAccount** object class or **zimbraAttachmentsBlocked** attribute.

The following schema files are included in the OpenLDAP implementation:

- core.schema
- cosine.schema
- inetorgperson.schema
- zimbra.schema
- amavisd.schema
- dyngroup.schema
- nis.schema

***Note:*** *You cannot modify the Zimbra schema.*

## ZCS Objects

| Object | Description | Object class |
|---|---|---|
| Accounts | Represents an account on the Zimbra mailbox server that can be logged into. Account entries are either administrators or user accounts. The object class name is **zimbraAccount**. This object class extends the **zimbraMailRecipient** object class.<br>All accounts have the following properties:<br>A name in the format of user@example.domain<br>A unique ID that never changes and is never reused<br>A set of attributes, some of which are user-modifiable (preferences) and others that are only configurable by administrators<br>All user accounts are associated with a domain, so a domain must be created before creating any accounts. | **zimbraAccount** |
| Class of Service (COS) | Defines the default attributes an account has and what features are allowed or denied. The COS controls features, default preference settings, mailbox quotas, message lifetime, password restrictions, attachment blocking, and server pools for creation of new accounts. | **zimbraCOS** |
| Domains | Represents an email domain such as **example.com** or **example.org**. A domain must exist before email addressed to users in that domain can be delivered. | **zimbraDomain** |
| Distribution Lists | Also known as mailing lists, are used to send mail to all members of a list by sending a single email to the list address. | **zimbraDistributionList** |

| Object | Description | Object class |
|---|---|---|
| Dynamic Groups | Are like distribution lists. The difference is members of a dynamic group are dynamically computed by a LDAP search. The LDAP search filter is defined in an attribute on the dynamic group entry.<br>**Note**: Both distribution lists and dynamic groups can be used as grantee or target in the delegated administrator framework. | **zimbraGroup** |
| Servers | Represents a particular server in the Zimbra system that has one or more of the Zimbra software packages installed.<br>Attributes describe server configuration information, such as which services are running on the server. | **zimbraServer** |
| Global Configuration | Specifies default values for the following objects: server and domain. If the attributes are not set for other objects, the values are inherited from the global settings.<br>Global configuration values are required and are set during installation as part of the Zimbra core package. These become the default values for the system. | **zimbraGlobalConfig** |
| Alias | Represents an alias of an account, distribution list or a dynamic group. The **zimbraAliasTarget** attribute points to target entry of this alias entry. | **zimbraAlias** |
| Zimlet | Defines Zimlets that are installed and configured in Zimbra. | **zimbraZimletEntry** |
| Calendar Resource | Defines a calendar resource such as conference rooms or equipment that can be selected for a meeting. A calendar resource is an account with additional attributes on the **zimbraCalendarResource** object class. | **zimbraCalendarResource** |
| Identity | Represents a persona of a user. A persona contains the user’s identity such as display name and a link to the signature entry used for outgoing emails. A user can create multiple personas. Identity entries are created under the user’s LDAP entry in the DIT. | **zimbraIdentity** |

| Object | Description | Object class |
|---|---|---|
| Data Source | Represents an external mail source of a user. Two examples of data source are POP3 and IMAP. A data source contains the POP3/IMAP server name, port, and password for the user's external email account. The data source also contains persona information, including the display name and a link to the signature entry for outgoing email messages sent on behalf of the external account. Data Source entries are created under the user's LDAP entry in the DIT. | **zimbraDataSource** |
| Signature | Represents a user's signature. A user can create multiple signatures. Signature entries are created under the user's LDAP entry in the DIT. | **zimbraSignature** |

## Account Authentication

Supported authentication mechanisms are Internal, External LDAP, and External Active Directory. The authentication method type is set on a per-domain basis. If **zimbraAuthMech** attribute is not set, the default is to use internal authentication.

The internal authentication method uses the Zimbra schema running on the OpenLDAP server.

The **zimbraAuthFallbackToLocal** attribute can be enabled so that the system falls back to the local authentication if external authentication fails. The default is FALSE.

### Internal Authentication Mechanism

The internal authentication method uses the Zimbra schema running on the OpenLDAP directory server. For accounts stored in the OpenLDAP server, the **userPassword** attribute stores a salted-SHA1 (SSHA) digest of the user's password. The user's provided password is computed into the SSHA digest and then compared to the stored value.

### External LDAP and External AD Authentication Mechanism

External LDAP and external Active Directory authentication can be used if the email environment uses another LDAP server or Microsoft Active Directory for authentication and Zimbra-LDAP for all other ZCS-related transactions. This requires that users exist in both OpenLDAP and in the external LDAP server.

The external authentication methods attempt to bind to the specified LDAP server using the supplied user name and password. If this bind succeeds, the connection is closed and the password is considered valid.

The **zimbraAuthLdapURL** and **zimbraAuthLdapBindDn** attributes are required for external authentication.

- **zimbraAuthLdapURL** attribute **ldap://ldapserver:port/** identifies the IP address or host name of the external directory server, and port is the port number. You can also use the fully qualified host name instead of the port number.

  For example:

  ```
  ldap://server1:3268
  ldap://exch1.acme.com
  ```

  If it is an SSL connection, use **ldaps**: instead of **ldap:**. The SSL certificate used by the server must be configured as a trusted certificate.

- **zimbraAuthLdapBindDn** attribute is a format string used to determine which DN to use when binding to the external directory server.

  During the authentication process, the user name starts out in the format:

  **user@domain.com**

  The user name might need to be transformed into a valid LDAP bind **DN** (distinguished name) in the external directory. In the case of Active Directory, that bind dn might be in a different domain.

## Custom Authentication

You can implement a custom authentication to integrate external authentication to your proprietary identity database. When an authentication request comes in, Zimbra checks the designated auth mechanism for the domain. If the auth mechanism is set to custom authentication, Zimbra invokes the registered custom auth handler to authenticate the user.

To set up custom authentication, prepare the domain for the custom auth and register the custom authentication handler.

### Preparing a domain for custom auth

To enable a domain for custom auth, set the domain attribute, **zimbraAuthMet to custom:{registered-custom-auth-handler-name}**.

In the following example, “sample” is the name that custom authentication is registered under.

```
zmprov modifydomain {domain|id} zimbraAuthMech custom:sample.
```

### Register a custom authentication handler.

To register a custom authentication handler, invoke **ZimbraCustomAuth.register [handlerName, handler]** in the init method of the extension.

- Class: **com.zimbra.cs.account.ldap.ZimbraCustomAuth**
- Method: public synchronized static void register [**String handlerName, ZimbraCustomAuth handler**]

  Definitions

  - **handlerName** is the name under which this custom auth handler is registered to Zimbra’s authentication infrastructure. This name is set in the domain’s zimbraAuthMech attribute of the domain.
  - **handler** is the object on which the authenticate method is invoked for this custom auth handler. The object has to be an instance of **ZimbraCustomAuth** (or subclasses of it).

Example

```
public class SampleExtensionCustomAuth implements ZimbraExtension {
public void init() throws ServiceException {
        /*
         * Register to Zimbra's authentication infrastructure
         *
         * custom:sample should be set for domain attribute zimbraAuthMech
         */
        ZimbraCustomAuth.register("sample", new SampleCustomAuth());
    }
...
}
```

### How Custom Authentication Works

When an authentication request comes in, if the domain is specified to use custom auth, the authenticating framework invokes the authenticate method on the **ZimbraCustomAuth** instance passed as the handler parameter to **ZimbraCustomAuth.register ()**.

The account object for the principal to be authenticated and the clear-text password entered by the user are passed to **ZimbraCustomAuth.authenticate** (). All attributes of the account can be retrieved from the account object.

## Kerberos5 Authentication Mechanism

Kerberos5 Authentication Mechanism authenticates users against an external Kerberos server.

1. Set the domain attribute **zimbraAuthMech** to kerberos5.
2. Set the domain attribute **zimbraAuthKerberos5Realm** to the Kerberos5 realm in which users in this domain are created in the Kerberos database.

When users log in with an email password and the domain, **zimbraAuthMech** is set to kerberos5, the server constructs the Kerberos5 principal by **{localpart-of-the-email}@{value-of-zimbraAuthKerberos5Realm}** and uses that to authenticate to the kerberos5 server.

To specify Kerberos5 for an individual account set the account's **zimbraForeignPrincipal** as **kerberos5:{kerberos5-principal}**. For example: kerberos5:user1@MYREALM.COM.

## Global Address List

The Global Address List (GAL) is a company directory of users, usually within the organization itself, that is available to all users of the email system. ZCS uses the company directory to look up user addresses from within the company.

For each ZCS domain you can configure GAL to use:

- External LDAP server
- ZCS internal LDAP server
- Both external LDAP server and OpenLDAP in GAL searches

The ZCS Web Client can search the GAL. When the user searches for a name, that name is turned into an LDAP search filter similar to the following example, where the string %s is the name the user is searching for.

```
(|(cn = %s*)(sn=%s*)(gn=%s*)(mail=%s*))
  (zimbraMailDeliveryAddress = %s*)
  (zimbraMailAlias=%s*)
  (zimbraMailAddress = %s*)
```

### GAL Attributes in ZCS

The Attributes Mapped to ZCS Contact table maps generic GAL search attributes to their ZCS contact fields.

LDAP attributes are mapped to GAL entry fields. For example, the LDAP attribute **displayName** and cn can be mapped to GAL entry field **fullName**. The mapping is configured in the **zimbraGalLdapAttrMap** attribute.

Table 1: Attributes Mapped to ZCS Contact

| Standard LDAP Attribute | ZCS Contact Field |
|---|---|
| co | workCountry |
| company | Company |
| givenName/gn | firstName |
| sn | lastName |

Table 1: Attributes Mapped to ZCS Contact

| Standard LDAP Attribute | ZCS Contact Field |
|---|---|
| cn | fullName |
| initials | initials |
| l | workCity |
| street, streetaddress | workStreet |
| postalCode | workPostalCode |
| telephoneNumber | workPhone |
| mobile | mobile |
| pager | pager |
| facisimileTelephoneNumber | faxNumber |
| st | workState |
| title | jobTitle |
| mail | email |
| objectClass | Not currently mapped |

### ZCS GAL Search Parameters

GAL is configured on a per-domain basis. To configure the attributes, you can run the GAL Configuration Wizard from the administration console.

### Modifying Attributes

Additions, changes and deletions to the GAL attributes are made through the Zimbra administration console or from the zmprov CLI utility.

Users can modify attributes for their account in the directory when users change their options from the Zimbra Web Client, they also modify the attributes when they change their preferences.

## Flushing LDAP Cache

When you modify the following type of entries in the Zimbra LDAP server, you might need to flush the LDAP cache to make the change available on the server.

- Themes
- Locales
- Account
- Groups
- COS

- Domains
- Global configuration
- Server
- Zimlet configuration

### Flush the Cache for Themes and Locales

When you add or change theme (skin) property files and locale resource files for ZCS on a server, you must flush the cache to make the new content available.

- To flush skins, type zmprov flushCache skin.
- To flush locales, type zmprov flushCache locale.

### Flush Accounts, Groups, COS, Domains, and Servers

When you modify the account, COS, groups, domain, and server attributes, the change is effective immediately on the server to which the modification is done. On the other servers, the LDAP entries are automatically updated after a period of time if the attributes are cached.

The default ZCS setting to update the server is 15 minutes. The caching period is configured on local config key.

- To change the setting, type
  zmlocalconfig ldap_cache_<object>_maxage.
- To make changes available immediately, type
  zmprov flushCache [account|cos|domain|group|server] [name|id].

  If you do not specify a name or ID along with the type, all entries in cache for that type are flushed and the cache is reloaded.

**Note:** *Some server attributes require a server restart even after the cache is flushed. For example, settings like bind port or number of processing threads.*

#### Flush Global Attributes

When you modify global config attributes, the changes are effective immediately on the server to which the modification is done. On other mailbox servers, you must flush the cache to make the changes available or restart the server. LDAP entries for global config attributes do not expire.

Some global config attributes are computed into internal representations only once per server restart. For efficiency reasons, changes to those attributes are not effective until after a server restart, even after the cache is flushed. Also, some global configuration settings and server settings that are inherited from global config are only read once at server startup, for example port or number of processing threads. Modifying these types of attributes requires a server restart.

To flush the cache for global config changes on all servers:

1. Modify the setting on the local server

   ```
   zmprov mcf zimbraImapClearTextLoginEnabled TRUE
   ```

   The change is only effective on the server **zimbra_zmprov_default_soap_server, port zimbra_admin-service_port**.

2. Flush the global config cache on all other servers, **zmprov flushCache** must be issued on all servers, one at a time. For example:

   ```
   zmprov –s server-2 flushcache config
   ```

   ```
   zmprov –s server-3 flushcache config
   ```

3. To determine if the action requires a restart

   ```
   zmprov desc -a <attributename>.
   ```

   The **requiresRestart** value is added to the output if a restart is required.

# 6 Zimbra Mail Transfer Agent

The Zimbra MTA (Mail Transfer Agent) receives mail via SMTP and routes each message using Local Mail Transfer Protocol (LMTP) to the appropriate Zimbra mailbox server.

Topics in this chapter include:

- Zimbra MTA Deployment
- SMTP Authentication
- Anti-Virus and Anti-Spam Protection
- Receiving and Sending Mail

The Zimbra MTA server includes the following programs:

- Postfix MTA for mail routing, mail relay, and attachment blocking.
- Clam AntiVirus for scanning email messages and attachments in email messages for viruses.
- SpamAssassin to identify unsolicited commercial email (spam).
- Amavisd-New used as an interface between Postfix and ClamAV / SpamAssassin.
- Zimbra Milter Server which enforces restrictions on which addresses can send to distribution lists and adds **Reply-To** and **X-Zimbra-DL** headers to messages sent from distribution lists.
- Zimbra Policy server can aid in protecting Alias Domains from Backscatter Spam

In the ZCS configuration, mail transfer and delivery are distinct functions. Postfix primarily acts as a MTA, and the Zimbra mail server acts as a Mail Delivery Agent (MDA).

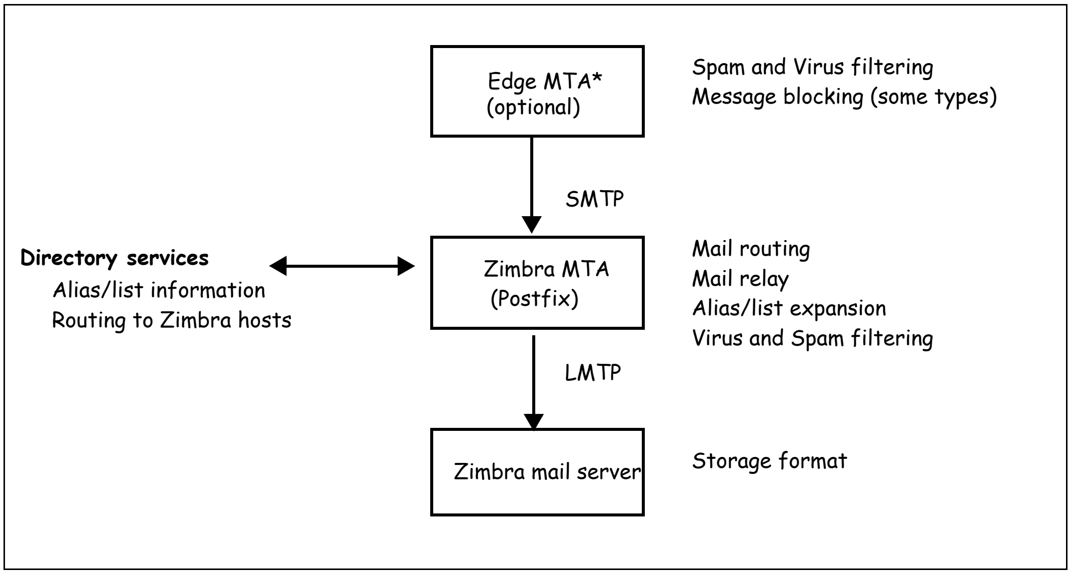
The MTA configuration is stored in LDAP. A configuration script polls the LDAP directory every two minutes for modifications and updates the Postfix configuration files with the changes.

## Zimbra MTA Deployment

ZCS includes a precompiled version of Postfix to route and relay mail and manage attachments. Postfix receives inbound messages via SMTP, performs anti-virus and anti-spam filtering and hands off the mail messages to the ZCS server via LMTP.

Postfix also plays a role in transferring outbound messages. Messages composed from the Zimbra Web Client are sent by the Zimbra server through Postfix, including messages sent to other users on the same server.

**Postfix in a Zimbra Environment**



*The Edge MTA can be any edge security solution for mail. You might already deploy such solutions for functions such as filtering. Some filtering might be duplicated between an edge MTA and the Zimbra MTA.

### Postfix Configuration Files

Zimbra modified the following Postfix files specifically to work with ZCS:

- **main.cf.** Modified to include the LDAP tables. The configuration script in the Zimbra MTA pulls data from the Zimbra LDAP and modifies the Postfix configuration files.
- **master.cf.** Modified to use Amavisd-New.

***Important:*** *Do not modify the Postfix configuration files! Changes you make will be overwritten.*

## SMTP Authentication

SMTP authentication allows authorized mail clients from external networks to relay messages through the Zimbra MTA. The user ID and password is sent to the MTA when the SMTP client sends mail so that the MTA can verify if the user is allowed to relay mail.

***Note:*** *User authentication is provided through the Zimbra LDAP directory server, or if implemented, through the Microsoft Active Directory Sever.*

### SMTP Restrictions

You can enable restrictions so that messages are not accepted by Postfix when non-standard or other disapproved behavior is exhibited by an incoming SMTP client. These restrictions provide some protection against spam senders. By default, clients that do not greet with a fully qualified domain name are restricted. DNS based restrictions are also available.

***Important:*** *Understand the implications of these restrictions before you implement them. You might have to compromise on these checks to accommodate people outside of your system who have poorly implemented mail systems.*

### Sending Non Local Mail to a Different Server

You can configure Postfix to send nonlocal mail to a different SMTP server, commonly referred to as a relay or smart host.

A common use case for a relay host is when an ISP requires that all your email be relayed through a designated host, or if you have filtering SMTP proxy servers.

The relay host setting must not be confused with Web mail MTA setting. Relay host is the MTA to which Postfix relays non-local email. Webmail MTA is used by the Zimbra server for composed messages and must be the location of the Postfix server in the Zimbra MTA package.

Configure **Relay MTA for external delivery** from the administration console, Global Settings>MTA page.

***Important:*** *Use caution when setting the relay host to prevent mail loops.*

## Anti-Virus and Anti-Spam Protection

The Amavisd-New utility is the interface between the Zimbra MTA and Clam AV and SpamAssassin scanners.

### Anti-Virus Protection

Clam AntiVirus software is the virus protection engine enabled for each ZCS server.

The anti-virus software is configured to put messages that have been identified as having a virus to the virus quarantine mailbox. By default, the Zimbra MTA checks every two hours for any new anti-virus updates from ClamAV. You can change this from the administration console, Global Settings>AS/AV page.

***Note:*** *Updates are obtained via HTTP from the ClamAV website.*

## Anti-Spam Protection

Zimbra uses SpamAssassin to identify unsolicited commercial email (spam) with learned data stored in either the Berkeley DB database or a MySQL database.

***Note:*** *For information about how to customize SpamAssassin, see the Zimbra wiki article SpamAssassin Customizations.*

SpamAssassin uses predefined rules as well as a Bayes database to score messages with a numerical range. Zimbra uses a percentage value to determine "spaminess" based on a SpamAssassin score of 20 as 100%. Any message tagged between 33%-75% is considered spam and delivered to the user's junk folder. Messages tagged above 75% are always considered spam and discarded.

By default, Zimbra uses the Berkeley DB database for spam training. You can also use a MySQL database.

- To use the MySQL method on the MTA servers, set

  **zmlocalconfig -e antispam_mysql_enabled=TRUE**

  When this is enabled, Berkeley DB database is not enabled.

***Note:*** *The DSPAM spam filter is also included with ZCS, but the default is to not enable DSPAM. You can enable DSPAM by setting the localconfig attribute* **amavis_dspam_enabled** *to TRUE on the MTA servers.*

**zmlocalconfig -e amavis_dspam_enabled=true**

### Training the Spam Filter

How well the anti-spam filter works depends on user input to recognize what is considered spam or ham. The SpamAssassin filter learns from messages that users specifically mark as spam by sending them to their junk folder or not spam by removing them from their junk folder. A copy of these marked messages is sent to the appropriate spam training mailbox.

At installation, a spam/ham cleanup filter is configured on only the first MTA. The ZCS spam training tool, **zmtrainsa,** is configured to automatically retrieve these messages and train the spam filter. The zmtrainsa script empties these mailboxes each day.

***Note:*** *New installs of ZCS limit spam/ham training to the first MTA installed. If you uninstall or move this MTA, you will need to enable spam/ham training on another MTA, as one host should have this enabled to run* *zmtrainsa --cleanup.*

*To set this on a new MTA server*
**zmlocalconfig -e zmtrainsa_cleanup_host=TRUE**

Initially, you might want to train the spam filter manually to quickly build a database of spam and non-spam tokens, words, or short character sequences that are commonly found in spam or ham. To do this, you can manually forward messages as message/rfc822 attachments to the spam and non-spam mailboxes. When **zmtrainsa** runs, these messages are used to teach the spam filter. Make sure you add a large enough sampling of messages to get accurate scores. To determine whether to mark messages as spam at least 200 known spams and 200 known hams must be identified.

SpamAssassin’s sa-update tool is included with SpamAssassin. This tool updates SpamAssassin rules from the SA organization. The tool is installed into **/opt/zimbra/zimbramon/bin**.

### Setting Up Trusted Networks

The ZCS configuration allows relaying only for the local network, but you can configure trusted networks that are allowed to relay mail. You set the MTA trusted networks as a global setting, but you can configure trusted networks as a server setting. The server setting overrides the global setting.

This can be configured from the administration console.

To set up MTA trusted networks as a global setting, go to the Configure > Global Settings > MTA page and in the MTA Trusted Networks field enter the trusted network addresses.

To set up MTA trusted networks on a per server basis, make sure that MTA trusted networks have been set up as global settings and then go the Configure > Servers > MTA page and in the MTA Trusted Networks field enter the trusted network addresses for the server.

Enter the network addresses separated by commas and/or a space. Continue long lines by starting the next line with space.

Examples of how to type the addresses:

- 127.0.0.0/8, 168.100.189.0/24
- No commas: 127.0.0.0/8 168.100.189.0/24 10.0.0.0/8 [::1]/128 [fe80::%eth0]/64

### Enabling a Milter Server

Milter server can be enabled to enforce restrictions on which addresses can send to distribution lists and add **Reply-To** and **X-Zimbra-DL** headers to messages sent from distribution lists. This can be enabled globally or for specific servers from the administration console.

***Note:*** *Only enable a Milter Server on a server where an MTA is running.*

To configure globally, enable the milter server from the Configure>Global Settings>MTA page.

To enable milter server for a specific server, go to the Configure>Servers> MTA page. You can set milter server bind addresses for individual servers.

## Receiving and Sending Mail

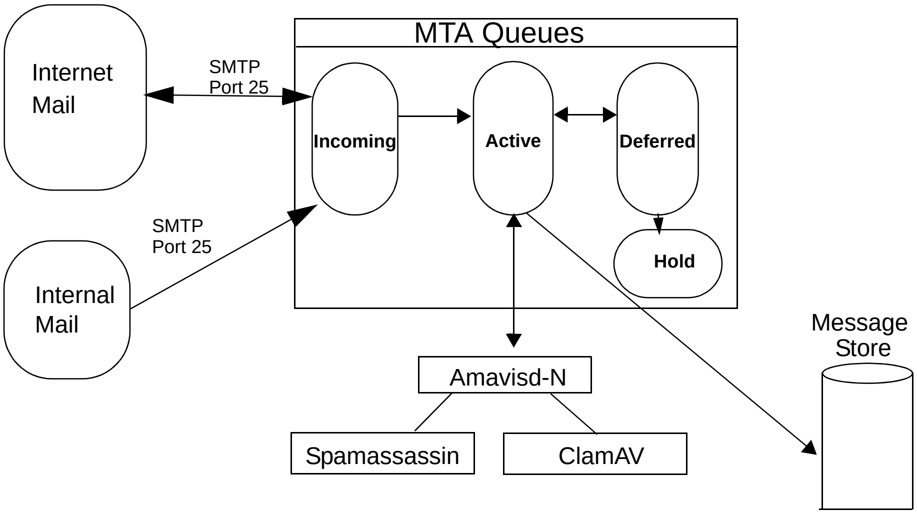
The Zimbra MTA delivers the incoming and the outgoing mail messages. For outgoing mail, the Zimbra MTA determines the destination of the recipient address. If the destination host is local, the message is passed to the Zimbra server for delivery. If the destination host is a remote mail server, the Zimbra MTA must establish a communication method to transfer the message to the remote host. For incoming messages, the MTA must be able to accept connection requests from remote mail servers and receive messages for the local users.

To send and receive email, the MTA must be configured in DNS with both an A record and an MX Record. For sending mail, the MTA uses DNS to resolve hostnames and email-routing information. To receive mail, the MX record must be configured correctly to route messages to the mail server.

You must configure a relay host if you do not enable DNS.

### Message Queues

When the Zimbra MTA receives mail, it routes the mail through a series of queues to manage delivery; incoming, active, deferred, hold, and corrupt.



The **incoming** message queue holds the new mail that has been received. Each message is identified with a unique file name. Messages are moved to the active queue when there is room. If there are no problems, message move through this queue very quickly.

The **active** message queue holds messages that are ready to be sent. The MTA sets a limit to the number of messages that can be in the active queue at any one time. From here, messages are moved to and from the anti-virus and anti-spam filters before being delivered to another queue.

Messages that cannot be delivered are placed in the **deferred** queue. The reasons for the delivery failures are documented in a file in the deferred queue. This queue is scanned frequently to resend the message. If the message cannot be sent after the set number of delivery attempts, the message fails and is bounced back to the original sender. You can choose to send a notification to the sender that the message has been deferred.

The **hold** message queue keeps mail that could not be processed. Messages stay in this queue until the administrator moves them. No periodic delivery attempts are made for messages in the hold queue.

The **corrupt** queue stores damaged unreadable messages.

You can monitor the mail queues for delivery problems from the administration console. See Chapter 15, Monitoring ZCS Servers.

# 7 Using the Administration Console

The Zimbra administration console is a browser-based user interface that allows you to centrally manage Zimbra servers and user accounts.

Topics in this chapter include:

- Administrator Accounts
- Log in to the Administration Console
- Message of the Day for Administrators
- Zimbra Search

## Administrator Accounts

When you log in to the administration console, the tasks you are authorized to perform display on the Navigation pane. These tasks are based on the rights assigned to the administrator role.

Two types of administrator accounts can be created to manage ZCS:

- **Global Administrators** have full privileges to manage servers, global settings, domains, and accounts as well as create other administrators. One global administrator account is created when the software is installed. Additional global administrator accounts can be created. You can perform administration tasks from the administration console or the command line.
- **Delegated Administrators** are granted customized administrator roles by the global administrator to manage different tasks from the administration console. See Chapter 13, Delegated Administration.

### Change Administrator Passwords

The first global administrator password is created at installation. You can change the password at any time.

- From the admin console **Accounts**, select the admin account and change the password.
- From the CLI, type `zmprov sp adminname@domain.com password`

## Log in to the Administration Console

1. To start the console in a typical installation, use the following URL pattern.

**https://server.domain.com:7071/**

Where **server.domain.com** is the current running Zimbra server name or IP address and 7071 is the **default** HTTP listen port.

2. Enter the complete administrator address as **admin@domain.com** and the password.The initial password is configured when ZCS is installed.

### Customize the Login and Logout Pages

A different login and logout page can be configured either as a global setting or as a domain setting.

- To specify a URL to redirect administrators if their log in is not authenticated or authentication has expired:

  **Global.** zmprov mcf zimbraAdminConsoleLoginURL <https:/example.com>

  **Domain.** zmprov md <domain> zimbraAdminConsoleLoginURL<https://example.com

- To specify a URL to redirect administrators when they log out:

  **Global.** zmprov mcf zimbraAdminConsoleLogoutURL <https:/example.com>

  **Domain.** zmprov md <domain> zimbraAdminConsoleLogoutURL<https://example.com

## Managing Tasks

You can manage most of the ZCS tasks from the administration console, This includes creating accounts, setting up COSs, monitoring server status, adding and removing domains, scheduling backup sessions, and more.

When you are working in the administration console to configure or edit an item, you can click on the text labels on the configuration pages to see which zimbra attribute is associated with the field you are configuring.

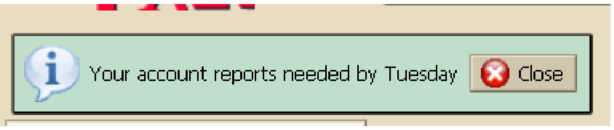
There are some configuration and maintenance tasks that you cannot perform from the administration console, such as starting and stopping services and managing the local server configuration. You perform these tasks with the CLI.

## Message of the Day for Administrators

Global administrators can create messages of the day (MOTD) that administrators view when logging into the administration console.

Every time the administrator logs in the message displays at the top left of the administration console. The message can be closed, replaced, or removed.

Example of a Message of the Day



Your account reports needed by Tuesday

### Create a Message of the Day

- To create a message globally or for a specific domain (the quotes must be used):

  zmprov md domainexample.com zimbraAdminConsoleLoginMessage “message to display”

- To create more than one message to display, run the command again to create additional messages, but add a plus sign (+) before the attribute:

  zmprov md domainexample.com +zimbraAdminConsoleLoginMessage “second message to display”

### Remove a Message of the Day

- To remove a specific message, type the attribute, adding a minus sign (-) before the attribute and type the message:

  zmprov md domainexample.com -zimbraAdminConsoleLoginMessage “message to display”

- To remove all messages, type the attribute and add a single quote at the end:

  zmprov md domainexample.com zimbraAdminConsoleLoginMessage ‘’

## Zimbra Search

You can use the search field on the administration console header to search for items by accounts, distribution lists, aliases, domains, or class of service or you can search through all object types.

If you do not know the complete name, you can enter a partial name. Partial names can result in a list that has the partial name string anywhere in the information. You can also use the Zimbra mailbox ID number to search for an account. To return a search from a mailbox ID, the complete ID string must be entered in the search.

In the search options section of the Search>Navigation pane you can create a more specific search The following search options open as individual search panes to let you select the criteria for the search.

| Option | Description |
|---|---|
| **Basic Attributes** | Search for a user by first name, last name, display name or account ID number. You can search for administrators or delegated administrators only. |
| **Status** | Search for accounts by status: Active, closed Locked, Lockout, Pending, Maintenance |
| **Last Login Time** | Search for accounts by the last login time. You can specify a data range to search. |
| **External Email Address** | Search for an account with an external email address. |
| **COS** | Search for objects by COS or for objects that are not assigned a COS. |
| **Server** | Search for accounts on selected servers. |
| **Domains** | Search for accounts on selected domains. |

You can also use the unified search from the Help link drop-down to find answers to common questions. When you use this search, the Zimbra wiki, forums and documents are searched. The results are displayed in a new window with links to the information.

Saved Searches section by default includes predefined common search queries. You can also create and save your own queries. After you enter the query syntax, click Save Search and give the search a name. The search is added to the Saved Searches section.

# 8 Managing Configuration

The ZCS components are configured during the initial installation of the software. After the installation, you can manage the following components from either the administration console or using the CLI utility.

Topics in this chapter include:

- Global Configuration
- Working With Domains
- Managing Server Settings
- Managing SSL Certificates for ZCS
- Using DKIM to Authenticate Email Message
- Anti-spam Settings
- Anti-virus Settings
- Zimbra Free/Busy Calendar Scheduling
- Storage Management
- Email Retention Management
- Customized Admin Extensions
- Setting System-wide Signatures

**Help** is available from the administration console about how to perform tasks from the administration console. If the task is only available from the CLI, see Zimbra CLI Commands for a description of how to use the CLI utility.

## Global Configuration

Global Settings apply to all accounts in the Zimbra servers. They are initially set during installation. You can modify the settings from the administration console.

Configurations set in Global Settings define inherited default values for the following objects: server, account, COS, and domain. If these attributes are set in the server, the server settings override the global settings.

To configure global settings, go to the administration console Configure > Global Settings page.

Configured global settings include:

- Default domain
- Maximum number of results returned for GAL searches. The default is 100.
- Setting how users view email attachments and what type of attachments are not allowed
- Configuring authentication process, setting the Relay MTA for external delivery, enabling DNS lookup and protocol checks
- Set the spam check controls and anti-virus options for messages received that may have a virus
- Set up free/busy scheduling across a mix of ZCS servers and third party email servers
- Customize themes color scheme and add your logo to the themes
- Configure the company name that displays when external guests log on to see a shared Briefcase folder
- Configure Backup default directory and backup notification information
- Set the global HSM schedule for when messages should be moved to a secondary storage space
- View the current Zimbra license information, update the license if necessary and view the number of accounts created

## General Global Settings

The General Information page includes the following settings.

| Option | Description |
|---|---|
| **Most results returned by GAL search** | The maximum number of GAL results returned from a user search. The default is 100. |
| **Default domain** | Domain that users’ logins are authenticated against. |
| **Number of scheduled tasks that can run simultaneously** | Number of threads used to fetch content from remote data sources. The default is 20. If set too low, users do not get their mail from external sources pulled down often enough. If set too high, the server may be consumed with downloading this mail and not servicing “main” user requests. |

| Option | Description |
|---|---|
| **Sleep time between subsequent mailbox purges** | The duration of time that the server should “rest” between purging mailboxes. By default, message purge is scheduled to run every 1 minute.<br>***Note:*** *If the message purge schedule is set to 0, messages are not purged, even if the mail, trash and spam message life time is set.* |
| **Maximum size of an uploaded file for Briefcase files (kb)** | The maximum size of a file that can be uploaded into Briefcase. **Note**: the maximum message size for an email message and attachments that can be sent is configured in the Global Settings MTA page |
| **Admin help URL** and **Delegated admin help URL** | If you do not want to use the ZCS Help, you can designate the URL that is linked from the administration console Help |

## Setting Up Email Attachment Rules

Global email attachment settings allow you to specify global rules for handling attachments to an email message. You can also set rules by COS and for individual accounts. When attachment settings are configured in Global Settings, the global rule takes precedence over COS and Account settings.

The following attachment setting options can be configured from the Global Settings Advanced page. To set by COS or account, go to their Advanced page, Attachment Settings section.

| Option | Description |
|---|---|
| **Attachments cannot be viewed regardless of COS** | Users cannot view any attachments. This global setting can be set to prevent a virus outbreak from attachments, as no mail attachments can be opened. |
| **Attachments are viewed in HTML regardless of COS** | Email attachments can only be viewed in HTML. The COS may have another setting but this global setting overrides the COS setting. |
| **Attachments are viewed according to COS** | This global setting states the COS sets the rules for how email attachments are viewed |

## Blocking Email Attachments by File Type

You can also reject messages with certain types of files attached. You select which file types are unauthorized from the **Common extensions** list. You can also add other extension types to the list. Messages with those type of files attached are rejected. By default the recipient and the sender are notified that the message was blocked. If you do not want to send a notification to the recipient when messages are blocked, you can disable this option from the Global Settings>Attachments page.

## Global MTA Settings

The Global Settings>MTA page is used to enable or disable authentication and configure a relay hostname, the maximum message size, enable DNS lookup, protocol checks, and DNS checks.

**Authentication**

- **Authentication** should be enabled, to support mobile SMTP authentication users so that their email client can talk to the Zimbra MTA.
- **TLS authentication only** forces all SMTP auth to use Transaction Level Security to avoid passing passwords in the clear.

**Network**

- **Web mail MTA Host name and Web mail MTA Port**. The MTA that the web server connects to for sending mail. The default port number is 25.
- The **Relay MTA for external delivery** is the relay host name. This is the Zimbra MTA to which Postfix relays non-local email.
- If your MX records point to a spam-relay or any other external non-Zimbra server, enter the name of that server in the **Inbound SMTP host name** field. This check compares the domain MX setting against the zimbraInboundSmtpHostname setting, if set. If this attribute is not set, the domain MX setting is checked against zimbraSmtpHostname.
- MTA Trusted Networks. Configure trusted networks that are allowed to relay mail. Specify a list of network addresses, separated by commas and/or a space.
- If **Enable DNS lookups** is checked, the Zimbra MTA makes an explicit DNS query for the MX record of the recipient domain. If this option is disabled, set a relay host in the Relay MTA for external delivery.
- If **Allow domain administrators to check MX records from Admin Console** is checked, domain administrators can check the MX records for their domain.

**Milter Server**

- If **Enable Milter Server** is checked, the milter enforces the rules that are set up for who can send email to a distribution list.

**Archiving Configuration**

- If you installed the Archiving feature, you can enable it here.

**Messages**

- Set the **Maximum messages size** for a message and it's attachments that can be sent. Note: To set the maximum size of an uploaded file to Briefcase, go to the General Information page.
- You can enable the **X-Originating-IP header to messages** checkbox. The X-Originating-IP header information specifies the original sending IP of the email message the server is forwarding.

**Policy Service Checks**

- Customize **zimbraMtaRestriction (**restrictions to reject some suspect SMTP clients).

**Protocol checks**

- To reject unsolicited commercial email (UCE), for spam control.

**DNS checks**

- To reject mail if the client's IP address is unknown, the hostname in the greeting is unknown, or if the sender's domain is unknown.
- Add other email recipient restrictions to the **List of RBLs** field.

***Note:*** *RBL (Real time black-hole lists) can be turned on or off from the Zimbra CLI.*

## Global IMAP and POP Settings

IMAP and POP access can be enabled as a global setting on the Global Settings>IMAP or POP pages or by editing a server's IMAP or POP pages.

When you make changes to the IMAP or POP settings, you must restart ZCS before the changes take effect.

IMAP and POP3 polling intervals can be set from the administration console COS Advanced page. The default is to not set the polling interval.

***Note:*** *If IMAP/POP proxy is set up, making sure that the port numbers are configured correctly.*

With POP3, users can retrieve their mail stored on the Zimbra server and download new mail to their computer. The user's POP configuration in their Preference>Mail page determines how their messages are downloaded and saved.

## Working With Domains

One domain is identified during the installation process. You can add domains after installation. From the administration console you can manage the following domain features.

- Global Address List
- Authentication
- Virtual hosts for the domain to establish a default domain for a user login
- Public service host name that is used for REST URLs, commonly used in sharing.
- Maximum number of accounts that can be created on the domain
- Free/Busy Interop settings for use with Microsoft Exchange.
- Domain SSL certificates

A domain can be renamed and all account, distribution list, alias and resource addresses are changed to the new domain name. The CLI utility is used to changing the domain name. See Renaming a Domain.

***Note:*** *Domain settings override global settings.*

### Domain General Information Settings

The Domain>General Information page includes the following options:

- The default time zone for the domain. If a time zone is configured in a COS or for an account, the domain time zone setting is ignored.
- Public service host name. Enter the host name of the REST URL. This is commonly used for sharing. See Setting up a Public Service Host Name.
- Inbound SMTP host name. If your MX records point to a spam-relay or any other external non-Zimbra server, enter the name of the server here.
- Default Class of Service (COS) for the domain. This COS is automatically assigned to accounts created on the domain if another COS is not set.
- Domain status. The domain status is active in the normal state. Users can log in and mail is delivered. Changing the status can affect the status for accounts on the domain also. The domain status is displayed on the Domain>General page. Domain status can be set as follows:
  - **Active.** Active is the normal status for domains. Accounts can be created and mail can be delivered. Note: If an account has a different status setting than the domain setting, the account status overrides the domain status.
  - **Closed**. When a domain status is marked as closed, Login for accounts on the domain is disabled and messages are bounced. The closed status overrides an individual account’s status setting.

- **Locked**. When a domain status is marked as locked, users cannot log in to check their email, but email is still delivered to the accounts. If an account's status setting is marked as maintenance or closed, the account's status overrides the domain status setting.
- **Maintenance.** When the domain status is marked as maintenance, users cannot log in and their email is queued at the MTA. If an account' status setting is marked as closed, the account's status overrides the domain status setting.
- **Suspended**. When the domain status is marked as suspended, users cannot log in, their email is queued at the MTA, and accounts and distribution lists cannot be created, deleted, or modified. If an account's status setting is marked as closed, the account's status overrides the domain status setting.

### Setting up a Public Service Host Name

You can configure each domain with the public service host name to be used for REST URLs. This is the URL that is used when sharing email folders and Briefcase folders, as well as sharing task lists, address books, and calendars.

When users share a ZCS folder, the default is to create the URL with the Zimbra server hostname and the Zimbra service host name. This is displayed as **http://server.domain.com/service/home/username/sharedfolder**. The attributes are generated as follows:

- Hostname is server.zimbraServiceHostname
- Protocol is determined from server.zimbraMailMode
- Port is computed from the protocol

When you configure a public service host name, this name is used instead of the server/service name, as **http://publicservicename.domain.com/home/username/sharedfolder**. The attributes to be used are:

- **zimbraPublicServiceHostname**
- **zimbraPublicServiceProtocol**
- **zimbraPublicServicePort**

You can use another FQDN as long as the name has a proper DNS entry to point at 'server' both internally and externally.

## Global Address List (GAL) Mode

The Global Address List (GAL) is your company-wide listing of users that is available to all users of the email system. GAL is configured on a per-domain basis. The GAL mode setting for each domain determines where the GAL lookup is performed.

The GAL Configuration Wizard in the administration console is used to configure the GAL attributes. The three GAL modes that can be configured include the following:

- **Internal**. The Zimbra LDAP server is used for directory lookups.
- **External**. External directory servers are used for GAL lookups. You can configure multiple external LDAP hosts for GAL. All other directory services use the Zimbra LDAP service (configuration, mail routing, etc.). When you configure an external GAL, you can configure different search settings and sync settings.You might want to configure different search settings if your LDAP environment is set up to optimize LDAP searching by setting up an LDAP cache server, but users also will need to be able to sync to the GAL.
- **Both**. Internal and external directory servers are used for GAL lookups.

### Using GAL sync accounts for faster access to GAL

A GAL sync account is created for the domain when an internal or external GAL is created, and if you have more than one mailbox server, you can create a GAL sync account for each mailbox server in the domain. Using the GAL sync account gives users faster access to auto complete names from the GAL.

When a GAL sync account is created on a server, GAL requests are directed to the server’s GAL sync account instead of the domain’s GAL sync account. The GalSyncResponse includes a token which encodes the GAL sync account ID and current change number. The client stores this and then uses it in the next GalSyncRequest. Users perform GAL sync with the GAL sync account they initially sync with. If a GALsync account is not available for some reason, the traditional LDAP-based search is run.

***Note:*** *The GAL sync accounts are system accounts and do not use a Zimbra license.*

When you configure the GAL sync account, you define the GAL datasource and the contact data is syncd from the datasource to the GAL sync accounts’ address books. If the mode **Both** is selected, an address book is created in the account for each LDAP data source.

The GAL polling interval for the GAL sync determines how often the GALsync account syncs with the LDAP server. The sync intervals can be in x days, hours, minutes, or seconds. The polling interval is set for each data source.

When the GAL sync account syncs to the LDAP directory, all GAL contacts from the LDAP are added to the address book for that GAL. During the sync, the address book is updated with new contact, modified contact and deleted contact information. You should not modify the address book directly. When the LDAP syncs the GAL to the address book, changes you made directly to the address book are deleted.

You create GALsync accounts from the administration console. The CLI associated with this feature is **zmgsautil.**

### Creating Additional GALsync Accounts

When ZCS is configured with more than one server, you can add an additional GAL sync account for each server.

1. In the administration console, select **Configure>Domains**.
2. Select the domain to add another GAL sync account.
3. In the gear box, select **Configure GAL**.
4. Click **Add a GAL account**.
5. In the GAL sync account name field, enter the name for this account. Do not use the default name.
6. Select the mailbox server that this account will apply to.
7. Enter the **GAL datasource name**, If the GAL mode is BOTH, enter the data source name for both the internal GAL and the external GAL.
8. Set the **GAL polling interval** to how often the GAL sync account should sync with the LDAP server to update.
9. Click **Finish**.

### Changing GAL sync account name.

The default name for the GAL sync account is **galsync**. When you configure the GAL mode, you can specify another name. After the GAL sync account is created, you cannot rename the account because syncing the data fails.

To change the account name delete the existing GAL sync account and configure a new GAL for the domain.

1. In the administration console, select **Configure>Domains**.
2. Select the domain where you want to change the GAL sync account name.
3. In the gear box, select **Configure GAL** to open the configuration wizard and change the GAL mode to internal. Do not configure any other fields. Click **Finish**.
4. In the domain’s account Content pane, delete the domain’s galsync account.
5. Select the domain again and select Configure GAL to reconfigure the GAL. In the GAL sync account name field, enter the name for the account. Complete the GAL configuration and click **Finish**. The new account is displayed in the Accounts Content pane.

## Authentication Modes

Authentication is the process of identifying a user or a server to the directory server and granting access to legitimate users based on user name and password information provided when users log in. ZCS offers the following three authentication mechanisms:

- **Internal**. The Internal authentication uses the Zimbra directory server for authentication on the domain. When you select Internal, no other configuration is required.
- **External LDAP**. The user name and password is the authentication information supplied in the bind operation to the directory server. You must configure the LDAP URL, LDAP filter, and to use DN password to bind to the external server.
- **External Active Directory**. The user name and password is the authentication information supplied to the Active Directory server. You identify the Active Directory domain name and URL.

The authentication method type is set on a per-domain basis. On the administration console, you use an authentication wizard to configure the authentication settings on your domain.

To configure authentication modes, go to the administration console Configure>Domains, and in the gear box select, Configure Authentication.

### Virtual Hosts

Virtual hosting allows you to host more than one domain name on a server. The general domain configuration does not change. When you create a virtual host, this becomes the default domain for a user login. Zimbra Web Client users can log in without having to specify the domain name as part of their user name.

Virtual hosts are entered on the administration console for a domain on the **Domains>Virtual Hosts** page. The virtual host requires a valid DNS configuration with an A record.

To open the Zimbra Web Client log in page, users enter the virtual host name as the URL address. For example, **https://mail.company.com**.

When the Zimbra login screen displays, users enter only their user name and password. The authentication request searches for a domain with that virtual host name. When the virtual host is found, the authentication is completed against that domain.

### Setting Account Limits

You can limit the number of accounts that can be provisioned on a domain. The maximum number of accounts that can be provisioned for the domain can be set when the domain is created. You can also edit the domain configuration to add or change the number.

In the administration console this is set for a domain in the Account Limits page. If this page is not configured, no limits on the domain are set.

Resources, spam, and ham accounts are not counted against this limit.

***Note:*** *You cannot exceed the account limit set by the* ZCS *license.*

When multiple Classes of Service (COS) are available, you can select which classes of service can be configured and how many accounts on the domain can be assigned to the COS. This is configured in the domain's Account Limits page. The number of COS account types used is tracked. The limits for all COSs cannot exceed the number set for the maximum accounts for the domain.

The number of COS assigned to accounts is tracked. You can see the number assigned/number remaining from any account's General Information page.

## Renaming a Domain

When you rename a domain you are actually creating a new domain, moving all accounts to the new domain and deleting the old domain. All account, alias, distribution list, and resource addresses are changed to the new domain name. The LDAP is updated to reflect the changes.

Before you rename a domain

- Make sure MX records in DNS are created for the new domain name
- Make sure you have a functioning and current full backup of the domain

After the domain has been renamed

- Update external references that you have set up for the old domain name to the new domain name. This may include automatically generated emails that were sent to the administrator's mailbox such as backup session notifications
- Immediately run a full backup of the new domain

Rename the domain

```
zmprov -l rd [olddomain.com] [newdomain.com]
```

### Domain Rename Process

When you run this zmprov command, the domain renaming process goes through the following steps:

1. The status of the old domain is changed to an internal status of shutdown, and mail status of the domain is changed to suspended. Users cannot login, their email is bounced by the MTA, and accounts, calendar resources and distribution lists cannot be created, deleted or modified.

2. The new domain is created with the status of shutdown and the mail status suspended.

3. Accounts, calendar resources, distribution lists, aliases, and resources are all copied to the new domain.

4. The LDAP is updated to reflect the new domain address.
5. The old domain is deleted.
6. The status for the new domain is changed to active. The new domain can start accepting email messages.

### Adding a Domain Alias

A domain alias allows different domain names to direct to a single domain address. For example, your domain is domain.com, but you want users to have an address of example.com, you can create example.com as the alias for the domain.com address. Sending mail to user@example.com is the same as sending mail to user@domain.com.

***Note:*** *A domain alias is a domain name just like your primary domain name. You must own the domain name and verify your ownership before you can add it as an alias.*

To add a domain alias, go to the administration console Configure>Domains, and in the gear box select, Add a Domain Alias.

### Zimlets on the Domain

All Zimlets that are deployed are displayed in the domain's **Zimlets** page. If you do not want all the deployed Zimlets made available for users on the domain, select from the list the Zimlets that are available for the domain. This overrides the Zimlet settings in the COS or for an account.

## Managing Server Settings

A server is a machine that has one or more of the Zimbra service packages installed. During the installation, the Zimbra server is automatically registered on the LDAP server.

In the administration console, you can view the current status of all the servers that are configured with Zimbra software, and you can edit or delete existing server records. You cannot add servers directly to LDAP. The ZCS Installation program must be used to add new servers because the installer packages are designed to register the new host at the time of installation.

The server settings that can be viewed from the admin console, Configure Servers link for a specific server include:

- General information about the service host name, and LMTP advertised name and bind address, and the number of threads that can simultaneously process data source imports.
- A list of enabled services. You can disable and enable the services.

- Authentication types enabled for the server, setting a Web mail MTA hostname different from global. Setting relay MTA for external delivery, and enabling DNS lookup if required. Enable the Milter Server and set the bind address.
- Enabling POP and IMAP and setting the port numbers for a server. If IMAP/POP proxy is set up, making sure that the port numbers are configured correctly.
- Index and message volumes configuration. Setting HSM policies.
- IP Address Bindings. If the server has multiple IP addresses, IP Address binding allows you to specify which interface to bind to.
- Proxy settings if proxy is configured.
- Backup and Restore configuration for the server. When backup and restore is configured for the server, this overrides the global backup and restore setting.

Servers inherit global settings if those values are not set in the server configuration. Settings that can be inherited from the Global configuration include MTA, SMTP, IMAP, POP, anti-virus, and anti-spam configurations.

## General Server Settings

The General Information page includes the following configuration information:

- Server display name and a description field
- Server hostname
- LMTP information including advertised name, bind address, and number of threads that can simultaneously process data source imports. The default is 20 threads.
- Purge setting. The server manages the message purge schedule. You configure the duration of time that the server should “rest” between purging mailboxes from the administration console, Global settings or Server settings, General Information page. By default, message purge is scheduled to run every 1 minute.
- When installing a reverse proxy the communication between the proxy server and the backend mailbox server must be in plain text. Checking **This server is a reverse proxy lookup target** automatically sets the following:
    - zimbraImapCleartextLoginEnabled=TRUE
    - zimbraReverseProxyLookupTarget=TRUE
    - zimbraPop3CleartextLoginEnabled=TRUE

The Notes text box can be used to record details you want to save.

### Change MTA Server Settings

The MTA page shows the following settings:

- Authentication enabled. Enables SMTP client authentication, so users can authenticate. Only authenticated users or users from trusted networks are allowed to relay mail. TLS authentication when enabled, forces all SMTP auth to use Transaction Level Security (similar to SSL) to avoid passing passwords in the clear.
- Network settings, including Web mail MTA hostname, Web mail MTA timeout, the relay MTA for external delivery, MTA trusted networks ID, and the ability to enable DNS lookup for the server.
- Milter Server. If **Enable Milter Server** is checked, the milter enforces the rules that are set up for who can send email to a distribution list on the server.

### Setting Up IP Address Binding

If the server has multiple IP addresses, you can use IP address binding to specify which specific IP addresses you want a particular server to bind to. You can configure the following from the administration console, Configure > Servers, IP Address Binding page.

| Option | Description |
|---|---|
| **Web Client Server IP Address** | Interface address on which the HTTP server listens |
| **Web Client Server SSL IP Address** | Interface address on which the HTTPS server listens |
| **Web Client Server SSL Client Cert IP Address** | Interface address on which HTTPS server accepting the client certificates listen |
| **Admin Console Server IP Address** | Administrator console Interface address on which HTTPS server listens |

## Managing SSL Certificates for ZCS

A certificate is the digital identity used for secure communication between different hosts or clients and servers. Certificates are used to certify that a site is owned by you.

Two types of certificates can be used - self-signed and commercial certificates.

- A **self-signed certificate** is an identity certificate that is signed by its own creator.

You can use the Certificate Installation Wizard to generate a new self-signed certificate. This is useful when you use a self-signed certificate and want to change the expiration date. The default is 1825 days (5 years). Self-signed certificates are normally used for testing.

- A **commercial certificate** is issued by a certificate authority (CA) that attests that the public key contained in the certificate belongs to the organization (servers) noted in the certificate.

When Zimbra Collaboration Server is installed, the self-signed certificate is automatically installed and can be used for testing Zimbra Collaboration Server. You should install the commercial certificate when Zimbra Collaboration Server is used in your production environment.

***Important:*** *ZCO users in a self-signed environment will encounter warnings about connection security unless the root CA certificate is added to the client's Window Certificate Store. See the Zimbra Wiki article ZCO Connection Security for more information.*

### Installing Certificates

To generate the CSR, you complete a form with details about the domain, company, and country, and then generate a CSR with the RSA private key. You save this file to your computer and submit it to your commercial certificate authorizer.

To obtain a commercially signed certificate, use the Zimbra Certificates Wizard in the administration console to generate the RSA Private Key and Certificate Signing Request (CSR). Go to **Home > Certificates** and in the gear icon select **Install Certificates**. The Certificate Installation Wizard dialog box displays.

You enter the following information in the wizard:

| Option | Description |
|---|---|
| **Common Name (CN)** | Exact domain name that should be used to access your Web site securely.<br>Are you going to use a wildcard common name?<br>If you want to manage multiple sub domains on a single domain on the server with a single certificate, check this box. An asterisk (*) is added to the Common Name field. |
| **Country Name (C)** | County name you want the certificate to display as our company location |
| **State/Province (ST)** | State/province you want the certificate to display as your company location. |
| **City (L)** | City you want the certificate to display as your company location. |

| Option | Description |
|---|---|
| **Organization Name (O)** | Your company name |
| **Organization Unit (OU)** | Unit name (if applicable) |
| **Subject Alternative Name (SAN)** | If you are going to use a SAN, the input must be a valid domain name. When SAN is used, the domain name is compared with the common name and then to the SAN to find a match. You can create multiple SANs. When the alternate name is entered here, the client ignores the common name and tries to match the server name to one of the SAN names. |

Download the CSR from the Zimbra server and submit it to a Certificate Authority, such as VeriSign or GoDaddy. They issue a digitally signed certificate.

When you receive the certificate, use the Certificates Wizard a second time to install the certificate on the ZCS. When the certificate is installed, you must restart the server to apply the certificate.

### Viewing Installed Certificates

You can view the details of certificates currently deployed. Details include the certificate subject, issuer, validation days and subject alternative name. To view installed certificates, go to **Home > Certificates** and select a service host name. Certificates display for different Zimbra services such as LDAP, mailboxd, MTA and proxy.

### Maintaining Valid Certificates

It is important to keep your SSL certificates valid to ensure clients and environments work properly, as the ZCS system can become non-functional if certificates are allowed to expire. You can view deployed SSL certificates from the ZCS administrator console, including their validation days. It is suggested that certificates are checked periodically, so you know when they expire and to maintain their validity.

### Install a SSL Certificate for a Domain

You can install an SSL certificate for each domain on a ZCS server. Zimbra Proxy must be installed on ZCS and correctly configured to support multiple domains. For each domain, a virtual host name and Virtual IP address are configured with the virtual domain name and IP address.

Each domain must be issued a signed commercial certificate that attests that the public key contained in the certificate belongs to that domain.

1. Configure the Zimbra Proxy Virtual Host Name and IP Address.

```
zmprov md <domain> +zimbraVirtualHostName {domain.example.com}
+zimbraVirtualIPAddress {1.2.3.4}
```

***Note:*** *The virtual domain name requires a valid DNS configuration with an A record.*

2. Go to the administration console and edit the domain. Copy the domain’s issued signed commercial certificate’s and private key files to the **Domain>Certificate** page.
3. Copy the root certificate and the intermediate certificates in descending order, starting with your domain certificate. This allows the full certificate chain to be validated.
4. Remove any password authentication from the private key before the certificate is saved.

   See your commercial certificate provider for details about how to remove the password.
5. Click **Save**.

The domain certificate is deployed to **/opt/zimbra/conf/domaincerts**

## Using DKIM to Authenticate Email Message

Domain Keys Identified Mail (DKIM) defines a domain-level authentication mechanism that lets your organization take responsibility for transmitting an email message in a way that can be verified by a recipient. Your organization can be the originating sending site or an intermediary. Your organization’s reputation is the basis for evaluating whether to trust the message delivery.

You can add a DKIM digital signature to outgoing email messages, associating the message with a domain name of your organization. You can enable DKIM signing for any number of domains that are being hosted by ZCS. It is not required for all domains to have DKIM signing enabled for the feature to work.

DKIM defines an authentication mechanism for email using

- A domain name identifier
- Public-key cryptography
- DNS-based public key publishing service.

The DKIM signature is added to the email message header field. The header information look like this example.

```
DKIM-Signature a=rsa-sha1; q=dns;
    d=example.com;
    i=user@eng.example.com;
    s=jun2005.eng; c=relaxed/simple;
    t=1117574938; x=1118006938;
    h=from:to:subject:date;
    b=dzdVyOfAKCdLXdJOc9G2q8LoXSlEniSb
    av+yuU4zGeeruD00lszZVoG4ZHRNiYzR
```

Receivers who successfully validate a DKIM signature can use information about the signer as part of a program to limit spam, spoofing, phising, or other undesirable behavior.

### Configure ZCS for DKIM Signing

DKIM signing to outgoing mail is done at the domain level. To set up DKIM you must run the CLI zmdkimkeyutil to generate the DKIM keys and selector. You then update the DNS server with the selector which is the public key.

1. Log in to the ZCS server and as zimbra, type

   /opt/zimbra/libexec/zmdkimkeyutil -a -d <example.com>

   The public DNS record data that must be added for the domain to your DNS server is displayed. The public key DNS record appears as a DNS TXT-record that must be added for the domain to your DNS server.

   Optional. To specify the number of bits for the new key, include **-b** in the command line, -b <####>. If you do not add the -b, the default setting is 1024 bits.

```
DKIM Data added to LDAP for domain example.com with selector
B534F5FC-EAF5-11E1-A25D-54A9B1B23156
Public signature to enter into DNS:
B534F5FC-EAF5-11E1-A25D-54A9B1B23156._domainkey IN TXT "v=DKIM1;
k=rsa; p=MIGfMA0GCSqGSIb3DQEBAQUAA4GNADCBiQKBgQC+ycHjGL/
mJXEVlRZnxZL/VqaN/
Jk9VllvIOTkKgwLSFtVsKC69kVaUDDjb3zkpJ6qpswjjOCO+0eGJZFA4aB4BQjFBHbl
97vgNnpJq1sV3QzRfHrN8X/
gdhvfKSIwSDFFl3DHewKDWNcCzBkNf5wHt5ujeavz2XogL8HfeL0bTwIDAQAB" ; --
--- DKIM B534F5FC-EAF5-11E1-A25D-54A9B1B23156 for example.com
```

   The generated DKIM data is stored in the LDAP server as part of the domain LDAP entry.

2. Work with your service provider to update your DNS for the domain with the DKIM DNS text record.

3. Reload the DNS and verify that the DNS server is returning the DNS record.

4. To verify that the public key matches the private key, type

```
/opt/zimbra/opendkim/sbin/opendkim-testkey -d <example.com> -s <0E9F184A-9577-11E1-AD0E-2A2FBBAC6BCB> -x /opt/zimbra/conf/opendkim.conf
```

- -d is the domain name
- -s is the selector name
- -x is the configuration file

### Update DKIM Data for a Domain

When the DKIM keys are updated, the DNS server must be reloaded with the new TXT record.

Good practice is to leave the previous TXT record in DNS for a period of time so that email messages that were signed with the previous key can still be verified.

1. Log in to the ZCS server and as zimbra, type

   ```
   /opt/zimbra/libexec/zmdkimkeyutil -u -d <example.com>
   ```

   Optional. To specify the number of bits for the new key, include **-b** in the command line, -b <####>. If you do not add the -b, the default setting is 1024 bits.

2. Work with your service provider to update your DNS for the domain with the DKIM DNS text record.

3. Reload the DNS and verify that the DNS server is returning the DNS record.

4. To verify that the public key matches the private key, type

   ```
   /opt/zimbra/opendkim/sbin/opendkim-testkey -d <example.com> -s <0E9F184A-9577-11E1-AD0E-2A2FBBAC6BCB> -x /opt/zimbra/conf/opendkim.conf
   ```

   - -d is the domain name
   - -s is the selector name
   - -x is the configuration file

### Remove DKIM Signing from ZCS

Removing DKIM signing deletes the DKIM data from LDAP. New email message no longer are signed for the domain. When you remove DKIM from the domain, good practice is to leave the previous TXT record in DNS for a period of time so that email messages that were signed with the previous key can still be verified.

1. To remove, type

   ```
   /opt/zimbra/libexec/zmdkimkeyutil -r -d example.com
   ```

### Retrieve DKIM Data for a Domain

1. To see the stored DKIM information for the domain, selector, private key, public signature and identity, type

   ```
   /opt/zimbra/libexec/zmdkimkeyutil -q -d example.com
   ```

## Anti-spam Settings

ZCS uses SpamAssassin to control spam. SpamAssassin uses predefined rules as well as a Bayes database to score messages. Zimbra evaulates spaminess based on percentage. Messages tagged between 33%-75% are considered spam and delivered to the user’s junk folder. Messages tagged above 75% are not sent to the user and are discarded.

You can change the anti-spam settings from the administration console Global Settings>AS/AV page.

When a message is tagged as spam, the message is delivered to the recipient’s junk folder. Users can view the number of unread messages that are in their junk folder and can open the junk folder to review the messages marked as spam. If you have the anti-spam training filters enabled, when users add or remove messages in the junk folder, their action helps train the spam filter. See Anti-Spam Protection.

RBL (Real time black-hole lists) can be turned on or off in SpamAssassin from the Zimbra CLI.

### Anti-Spam Training Filters

The automated spam training filter is enabled by default and two feedback system mailboxes are created to receive mail notification.

- **Spam Training User** for mail that was not marked as spam but should be.
- **Non-spam (referred to as ham) training user** for mail that was marked as spam but should not have been.

The mailbox quota and attachment indexing is disabled for these training accounts. Disabling quotas prevents bouncing messages when the mailbox is full.

How well the anti-spam filter works depends on recognizing what is considered spam. The SpamAssassin filter learns from messages that users specifically mark as spam by sending them to their junk folder or not spam by removing them from their junk folder. A copy of these marked messages is sent to the appropriate spam training mailbox.

When ZCS is installed, the spam/ham cleanup filter is configured on only the first MTA. The ZCS spam training tool, **zmtrainsa,** is configured to automatically retrieve these messages and train the spam filter. The **zmtrainsa script** is enabled through a crontab job to feed mail to the SpamAssassin application, allowing SpamAssassin to ‘learn’ what signs are likely to mean spam or ham. The zmtrainsa script empties these mailboxes each day.

***Note:*** *New installs of ZCS limit spam/ham training to the first MTA installed. If you uninstall or move this MTA, you will need to enable spam/ham training on another MTA, as one host should have this enabled to run zmtrainsa --cleanup.*

*To set this on a new MTA server*
**zmlocalconfig -e zmtrainsa_cleanup_host=TRUE**

### Disabling the Spam Training Mailboxes

The ZCS default is that all users can give feedback when they add or remove items from their junk folder. If you do not want users to train the spam filter you can disable this function.

1. Modify the global configuration attributes, **ZimbraSpamIsSpamAccount** and **ZimbraSpamIsNotSpamAccount**
2. Remove the account addresses from the attributes.

```
zmprov mcf ZimbraSpamIsSpamAccount ‘’
zmprov mcf ZimbraSpamIsNotSpamAccount ‘’
```

When these attributes are modified, messages marked as spam or not spam are not copied to the spam training mailboxes.

### Manually Training Spam Filters

Initially, you might want to train the spam filter manually to quickly build a database of spam and non-spam tokens, words, or short character sequences that are commonly found in spam or ham. To do this, you can manually forward messages as message/rfc822 attachments to the spam and non-spam mailboxes.

When **zmtrainsa** runs, these messages are used to teach the spam filter. Make sure you add a large enough sampling of messages to get accurate scores. To determine whether to mark messages as spam at least 200 known spams and 200 known hams must be identified.

### Protect Alias Domains from Backscatter Spam

To reduce the risk of backscatter spam, you can run a service that runs a Zimbra Access Policy Daemon that validates **RCPT To:** content specifically for alias domains.

***Note:*** *For information about creating domain aliases, see the Zimbra wiki article at http://wiki.zimbra.com/index.php?title=ManagingDomains.*

1. Set the Postfix LC key.

   ```
   zmlocalconfig -e postfix_enable_smtpd_policyd=yes
   ```

2. Type

   ```
   zmprov mcf +zimbraMtaRestriction "check_policy_service unix:private/policy"
   ```

The **postfix_policy_time_limit** key is set because by default the Postfix spawn (8) daemon kills its child process after 1000 seconds. This is too short for a policy daemon that might run as long as an SMTP client is connected to an SMTP process.

### Disable Postfix Policy Daemon

1. Type `zmlocalconfig -e postfix_enable_smtpd_policyd=no`
2. Type `zmprov mcf -zimbraMtaRestriction "check_policy_service unix:private/policy"`

### Set Email Recipient Restrictions

RBL (Realtime Blackhole Lists) can be turned on or off in the MTA from the administration console Global Settings>MTA page.

For protocol checks, the following three RBLs can be enabled:

- Hostname in greeting violates RFC - reject_invalid_hostname
- Client must greet with a fully qualified hostname - reject_non_fqdn_hostname
- Sender address must be fully qualified - reject_non_fqdn_sender

The following RBLs can also be set.

- reject_rbl_client cbl.abuseat.org
- reject_rbl_client bl.spamcop.net
- reject_rbl_client dnsbl.sorbs.net
- reject_rbl_client sbl.spamhaus.org

As part of recipient restrictions, you can also use the **reject_rbl_client <rbl hostname>** option.

To add RBLs from the administration console, go to the Global Settings>MTA>DNS checks section, List of RBLs.

For a list of current RBL's, see the *Comparison of DNS blacklists* article at http://en.wikipedia.org/wiki/Comparison_of_DNS_blacklists.

### Add RBLs Using the CLI

1. Log in to the server and go to the Zimbra directory. Type su -zimbra.
2. To view which RBLs are set, type

   ```
   zmprov gacf | grep zimbraMtaRestriction
   ```

3. To add any new RBL types, you must list the existing RBLs and the new RBLs all in one command.

   ```
   zmprov mcf zimbraMtaRestriction [RBL type]
   ```

   For example, to add all possible restrictions:

   ```
   zmprov mcf zimbraMtaRestriction reject_invalid_hostname
   zimbraMtaRestriction reject_non-fqdn_hostname zimbraMtaRestriction
   reject_non_fqdn_sender zimbraMtaRestriction “reject_rbl_client cbl.abuseat.org”
   zimbraMtaRestriction “reject_rbl_client bl.spamcop.net” zimbraMtaRestriction
   “reject_rbl_client dnsbl.sorbs.net” zimbraMtaRestriction “reject_rbl_client
   sbl.spamhaus.org”
   ```

***Note:*** *Use quotes when typing RBL types that are two words.*

### Setting Global Rule for Messages Marked as Both Spam and Whitelist

When you use a third-party application to filter messages for spam before messages are received by ZCS, the ZCS global rule is to send all messages that are marked by the third-party as spam to the junk folder. This includes messages that are identified as spam and also identified as whitelisted

If you do not want messages that are identified as whitelisted to be sent to the junk folder, you can configure **zimbraSpamWhitelistHeader** and **zimbraSpamWhitelistHeaderValue** to pass these messages to the user's mailbox. This global rule is not related to the Zimbra MTA spam filtering rules. Messages are still passed through a user's filter rules.

Procedure

1. To search the message for a whitelist header, type

   ```
   zmprov mcf zimbraSpamWhitelistHeader <X-Whitelist-Flag>
   ```

2. To set the value, type

   ```
   zmprov mcf zimbraSpamWhitelistHeaderValue <value_of_third-party_white-
   lists_messages>
   ```

## Anti-virus Settings

Anti-virus protection is enabled for each server when the Zimbra software is installed. The anti-virus software is configured to send messages that have been identified as having a virus to the virus quarantine mailbox.

An email notification is sent to recipients letting them know that a message has been quarantined. The quarantine mailbox message lifetime is set to 7 days.

The global settings for the anti-virus protection is configured with these options enabled:

- **Block encrypted archives**, such as password protected zipped files.
- **Send notification to recipient** to alert that a mail message had a virus and was not delivered.

You can change the anti-spam settings from the administration console Global Settings>AS/AV page.

During ZCS installation, the administrator notification address for anti-virus alerts is configured. The default is to set up the admin account to receive the notification. When a virus has been found, a notification is automatically sent to that address.

By default, the Zimbra MTA checks every two hours for any new anti-virus updates from ClamAV. The frequency can be set between 1 and 24 hours. You can change this from the Global Settings>AS/AV page.

***Note:*** *Updates are obtained via HTTP from the ClamAV website.*

## Zimbra Free/Busy Calendar Scheduling

The Free/Busy feature allows users to view each other’s calendars for efficiently scheduling meetings. You can set up free/busy scheduling across ZCS and Microsoft Exchange servers.

ZCS can query the free/busy schedules of users on Microsoft Exchange 2003, 2007, or 2010 servers and also can propagate the free/busy schedules of ZCS users to the Exchange servers.

To set free/busy interoperability, the Exchange systems must be set up as described in the Exchange Setup Requirements section, and the ZCS Global Config, Domain, COS and Account settings must be configured. The easiest way to configure ZCS is from the administration console.

### Exchange 2003/2007/2010 Setup Requirements.

The following is required to set up the free/busy feature:

- Either a single Active Directory (AD) must be in the system or the global catalog must be available.

- The ZCS server must be able to access the HTTP(S) port of IIS on at least one of the Exchange servers.
- Web interface to Exchange public folders needs to be available via IIS. (http://server/public/)
- ZCS users must be provisioned as a contact on the AD using the same administrative group for each mail domain. This is required only for ZCS to Exchange free/busy replication.
- For ZCS to Exchange free/busy replication, the Exchange user email address must be provisioned in the account attribute **zimbraForeignPrincipal** for all ZCS users.

### Configuring Free/Busy on ZCS

To set Free/Busy Interoperability up from the administration console, the global config, Domain, COS and Account settings must be configured as described here.

- Either globally or by domain configure the Exchange server settings.
    - Microsoft Exchange Server URL.  This is the Web interface to the Exchange.
    - Microsoft Exchange Authentication Scheme, either **Basic** or **Form**.
        - Basic is authentication to Exchange via HTTP basic authentication.
        - Form is authentication to Exchange as HTML form based authentication.
    - Microsoft Exchange Server Type, either **WebDav** or **ews**
        - Select WebDAV to support free/busy with Exchange 2003 or Exchange 2007.
        - Select ews (Exchange Web Service) to support free/busy with Exchange 2010, SP1.
- Include the Microsoft Exchange user name and password. This is the name of the account in Active Directory and password that has access to the public folders. These are used to authenticate against the Exchange server on REST and WebDAV interfaces.
- Add the **o** and **ou** values that are configured in the **legacyExchangeDN** attribute for Exchange on the Global Config Free/Busy Interop page, the Domain Free/Busy Interop page or on the Class of Service (COS) Advanced page. Set at the global level this applies to all accounts talking to Exchange.
- In the Account’s Free/Busy Interop page, configure the foreign principal email address for the account. This sets up a mapping from the ZCS account to the corresponding object in the AD.

**Note:** *To find these settings on the Exchange server, you can run the Exchange ADSI Edit tool and search the* **legacyExchangeDN** *attribute for the o= , ou= , and cn= settings.*

### ZCS to ZCS Free/Busy Interoperability

You can set up free/busy interoperability between ZCS servers. Free/Busy interoperability is configured on each server.

**Note:** *Each server must be running ZCS 8.0.x or later.*

1. From the CLI for one of the servers, enter the host names and ports.

   ```
   zmprov mcf zimbraFreebusyExternalZimbraURL http[s]://[user:pass@]host:port
   ```

   If the **user:pass** is not included, the server runs an anonymous free/busy lookup.

2. Restart the server.

   ```
   zmcontrol restart
   ```

3. Go to the other servers and run the commands in steps 1 and 2.

## Setting Up S/MIME

S/MIME is a standard to send secure email messages. S/MIME messages use digital signature to authenticate and encrypt messages.

### Prerequisites

- To use S/MIME, users must have a PKI certificate and a private key. The private key must be installed in the user’s local certificate store on Windows and Apple Mac and in the browser certificate store if they use the Firefox browser. See the appropriate computer or browser documentation for how to install certificates.
- Users can use any of the following browsers:
  - Mozilla Firefox 4 or later
  - Internet Explorer 8, 9
  - Chrome 12 or later
- Users computers must have Java 1.6 SE deployed to use S/MIME. If they do not, they see an error asking them to install it.

### S/MIME License

You must have a ZCS license that is enabled for S/MIME.

## Enable S/MIME Feature

The S/MIME feature can be enabled from either the COS or Account Features Tab.

1. Select the COS or account to edit.
2. In the Features tab S/MME features section, check **Enable S/MIME**.
3. Click **Save**.

## Importing S/MIME Certificates

Users can send encrypted messages to recipients if they have the recipients' public-key certificate stored in one of the following:

- recipient's contact page in their Address Book
- local OS or browser keystore
- external LDAP directory

The certificates should be published into the LDAP directory so that they can be retrieved from the GAL. The format of the S/MIME certificates must be X.509 Base64 encoded DER.

### Configure External LDAP Lookup for Certificates

If you use an external LDAP to store certificates, you can configure the Zimbra server to lookup and retrieve certificates from the external LDAP, on behalf of the client. You can configure the external LDAP server settings from either the **Global Settings>S/MIME** tab or the **Domains>S/MIME** tab.

***Note:*** *Global Settings override Domain settings*

1. From the administration console, edit the global settings page or select a domain to edit. Open the **S/MIME** tab.
2. In the **Configuration Name** field, enter a name to identify the external LDAP server. Example, **companyLDAP_1**
3. In the **LDAP URL** field, enter the LDAP server's URL.
   Example, **ldap://host.domain:3268**
4. To use DN to bind to the external server, in the **S/MIME LDAP Bind DN** field, enter the bind DN. Example, **administrator@domain**

   If you want to use anonymous bind, leave the Bind ND and Bind password fields empty.
5. In the **S/MIME Ldap Search Base** field, enter the specific branch of the LDAP server that should be searched to find the certificates.

   Example, **ou=Common Users, DC=host, DC=domain**

Or, check **Automatically discover search base** to automatically discover the search base DNs. For this to work, the S/MIME Search Base field must be empty.

6. In the **S/MIME Ldap filter** field, enter the filter template for the search. The filter template can contain the following conversion variables for expansion:

   - %n - search key with @ (or without, if no @ was specified)
   - %u - with @ removed (For example, mail=%n)

7. In the **S/MIME Ldap Attribute** field, enter attributes in the external LDAP server that contain users’ S/MIME certificates. Multiple attributes can be separated by a comma (,).

   Example, “userSMIMECertificate, UserCertificate”

8. Click **Save**.

To set up another external LDAP server, click **Add Configuration**.

## Storage Management

### Managing Storage Volumes

In the Volume page you manage storage volumes on the Zimbra Mailbox server. When ZCS is installed, one index volume and one message volume are configured on each mailbox server. You can add new volumes, set the volume type, and set the compression threshold.

***Note:*** *If Compress Blobs is enabled (YES), the disk space used is decreased, but memory requirements for the server increases.*

### Index Volumes

Each Zimbra mailbox server is configured with one current index volume. Each mailbox is assigned to a permanent directory on the current index volume. You cannot change which volume the account is assigned.

As volumes become full, you can create a new current index volume for new accounts. You can add new volumes, set the volume type, and set the compression threshold

Index volumes not marked current are still actively in use for the accounts assigned to them. Any index volume that is referenced by a mailbox as its index volume cannot be deleted.

### Message Volumes

When a new message is delivered or created, the message is saved in the current message volume. Message volumes can be created, but only one is configured as the current volume where new messages are stored. When the volume is full, you can configure a new current message volume. The current message volume receives all new messages. New messages are never stored in the previous volume.

A current volume cannot be deleted, and message volumes that have messages referencing the volume cannot be deleted.

## Implementing Hierarchical Storage Management

Hierarchical Storage Management (HSM) allows you to configure storage

volumes for older messages. HSM is a process of moving older data from the primary volume to the current secondary volume based on the age of the data.

To manage your disk utilization, implement a global HSM policy or a HSM policy for each mailbox server. The policy configured on individual servers overrides the policy configured as the global policy.

Email messages and the other items in the account are moved from the primary volume to the current secondary volume based on the HSM policy. Users are not aware of any change and do not see any noticeable differences when opening older items that have been moved.

The default global HSM policy moves messages and document files more than 30 days old to the secondary volume. You can also select to move tasks, appointments, and contacts. The schedule for moving can be set for items older than a specified number of days, months, weeks, hours, minutes.

In addition to selecting different items to move, you can use the search query language to set up other HSM policies.

For example: to include all messages marked as spam in messages moved to the current secondary volume, you would add the following to the policy: **message:in:junk before:-[x] days**.

***Note:*** *The search string can be added to the default policy or you can write a new policy.*

### Scheduling HSM Sessions

Sessions to move messages to the secondary volume are scheduled in your cron table. From the administration console, when you select a server, you can manually start a HSM session, monitor HSM sessions, and abort HSM sessions that are in progress from the Volumes page.

You can manually start an HSM session from the server’s gear icon menu.

When you abort a session and then restart the process, the HSM session looks for entries in the primary store that meet the HSM age criteria. Any entries that were moved in the previous run would be excluded, as they would no longer exist in the primary store.

HSM jobs can be configured to be a specific batch size. The **zimbraHsmBatchSize** attribute can be configured either as a global setting or per server to specify the maximum number of items to move during a single HSM operation. The default value is 10000. If the limit is exceeded the HSM operation is repeated until all qualifying items are moved.

- To change the batch size globaly

  ```
  zmprov mcf zimbraHsmBatchSize <num>
  ```

- To change the batch size on the server

  ```
  zmprov ms `hostname` zimbraHsmBatchSize <num>
  ```

## Email Retention Management

You can configure retention policies for user account’s email, trash, and junk folders. The basic email retention policy is to set the email, trash and spam message lifetime in the COS or for individual accounts.

You can set up specific retention policies that users can enable for the Inbox and other email folders in their account. Users can also create their own retention policies.

You can enable the dumpster feature to save messages that are deleted from Trash. When an message lifetime has been reached based on email lifetime rules or deletion policies, the message is moved to the dumpster if it is enabled. Users can recover deleted items from the dumpster until the threshold set in the **Visibility lifetime in dumpster for end user** setting. If dumpster is not enabled, messages are purged from the server when the email retention lifetime is reached.

You can also set up a legal hold on an account to prevent message from being deleted.

### Configure Email Lifetime Rules

You can configure when email messages should be deleted from an accounts folders, and the trash and junk folders by COS or for individual accounts.

| Feature Name | Description |
|---|---|
| Email message lifetime | Number of days a message can remain in a folder before it is purged. This includes data in RSS folders. The default is 0; email messages are not deleted. The minimum configuration for email message lifetime is 30 days. |
| Trashed message lifetime | Number of days a message remains in the Trash folder before it is purged. The default is 30 days. |
| Spam message lifetime | Number of days a message can remain in the Junk folder before it is purged. The default is 30 days. |

By default, the server purges email messages that have exceeded their lifetime every minute.You can change the duration of time that the server should “rest” between purging mailboxes in the administration console, Global settings or Server settings, General Information page.

For example, the purge interval is set to 1 minute, after mailbox1 is purged of messages that meet the message lifetime setting, the server waits 1 minute before beginning to purge mailbox2.

If the message purge schedule is set to 0, messages are not purged even if the mail, trash and spam message lifetime is set.

***Note:*** *Because users cannot see these message lifetime settings, if you set a purge limit, make the purge policy known to your users.*

## Configure Message Retention and Deletion Policies

Retention and deletion policies can be configured as a global setting or as a COS setting. Users can select these policies to apply to their message folders in their account. They can also set up their own retention and deletion policies. Users enable a policy you set up or create their own policies from their folders’ Edit Properties dialog box.

System wide retention and deletion policies can be managed from the administration console.

- To configure global retention or deletion policies, go to the **Configure>Global Settings>Retention Policy** page.
- To configure retention or deletion policies by COS, go to the **Configure>Class of Service><COS>, Retention Policy** page. Make sure **Enable COS-level policies instead of inheriting from the policy defined in Global Settings** is enabled.

The retention policy is not automatically enforced on a folder. If users delete an item in a folder that has not met the threshold of the retention policy, the following message is displayed, **You are deleting a message that is within its folder’s retention period. Do you wish to delete the message**?

When the threshold for the deletion policy is reached, items are deleted from the account. They are not sent to the Trash folder. If the dumpster feature is enabled, they are sent to the dumpster, if it is not enabled, they are purged from the server.

### How Lifetime and Retention/Deletion Policies Work Together

If the Email Message Lifetime is set to a value other than zero (0), this setting applies in addition to the disposal or retention policy values applied to a folder. For example:

Email Message Lifetime is set to 120 days

- Folder A has a policy with a disposal threshold of 360 days. Messages in Folder a are disposed of in 120 days.

- Folder B has a policy with disposal threshold of 90 days. Messages in Folder B are disposed of in 90 days.
- Folder C has a policy with retention range of 150 days. Messages in Folder C are disposed of in 120 days.

### Managing the Dumpster

When a message, trash or spam lifetime has been reached, the message is moved to the dumpster if the feature is enabled. When users right-click on Trash, they can click **Recover deleted items** to retrieve items from their trash that has been deleted in the last x days. This threshold is based on the **Visibility lifetime in dumpster for end user** setting.

The **Retention lifetime in dumpster before purging setting** sets retention lifetime for items in dumpster. Items in dumpster older than the threshold are purged and cannot be retrieved.

Administrators can access the individual dumpster's content, including spam, and they can delete data at any time before the message lifetime is reached.

To search for an item in the dumpster folder, type

```
zmmailbox -z -m <user@example.com> s --dumpster -l <#> --types
<message,contact,document> <search-field>
```

The search field can be a date range: 'before:mm/dd/yyyy and after:mm/dd/yyyy' or emails from or to a particular person: 'from: Joe', etc.

To delete items in the dumpster folder, type

```
zmmailbox -z -m <user@example.com> -A dumpsterDeleteItem <item-ids>
```

The dumpster folder feature can be managed from the administration console.

1. To enable this feature, go to the **Configure>Class of service>[COSname], Features** page, **General Features** section. Check Dumpster folder.
2. To set **Visibility lifetime in dumpster for end user**, go to the COS's, **Advanced** page, **Timeout Policy** section.
3. To set **Retention lifetime in dumpster before purging**, go to the COS's **Advanced** page**, Email Retention Policy** section.

### Configure Legal Hold on an Account

If the dumpster folder feature is enabled, you can set up a legal hold to preserve all items in user accounts.

When dumpster is enabled, **Can purge dumpster folder** is also enabled. Disabling this feature turns off purging of items in the user's dumpster. This can be set by a COS or for individual accounts. When **Can purge dumpster folder** is enabled, any deletion policies set up on the accounts' folders are ignored.

- To configure legal hold on an account from the administration console by COS, go to **Configure>Class of Service>Features** page and deselect **Can purge dumpster folder**.
- For individual accounts, go to **Manage>Accounts** and select the account. Disable the feature on the Features page.

## Customized Admin Extensions

You can create custom modules to add to the Zimbra administration console user interface. The admin extension framework allows developers to add new views to the administration console, manage new data objects in the administration console, extend existing objects with new properties, and customize existing views.

You upload and install your modules from the administration console

Go to the Zimbra Wiki, Extending Admin UI at *http://wiki.zimbra.com/ index.php?title=Extending_Admin_UI* for documentation about how to create an extended admin UI module.

## Setting System-wide Signatures

You can create system-wide signatures that are added to every message sent out. These types of signatures can be used to set up company signatures, legal notices, and company disclaimers. The global signature is not visible when an email is composed, but displays in the recipient’s email message.

The following attributes are used to enable this feature:

- **zimbraDomainMandatoryMailSignatureEnabled (TRUE/FALSE)** TRUE enables this feature.
- **zimbraDomainMandatoryMailSignatureText.** This creates the plain text version.
- **zimbraDomainMandatoryMailSignatureHTML.** This creates the HTML version.

1. Create a system-wide mandatory signature

   ```
   zmprov mcf zimbraDomainMandatoryMailSignatureEnabled TRUE
   ```

   ```
   zmprov mcf zimbraDomainMandatoryMailSignatureText <“some text”>
   ```

   ```
   zmprov mcf zimbraDomainMandatoryMailSignatureHTML
   "<html><body>some html text</body></html>”
   ```

2. Restart Amavis to apply the configuration and global signature files.

   **/opt/zimbra/bin/zmamavisdctl restart**

# 9 Class of Services for Accounts

The Class of Service (COS) assigned to an account determines which default attributes users' accounts have and which features are enabled or denied. Each account is assigned a COS. The COS controls mailbox quotas, message lifetime, password restrictions, attachment blocking, and server pool usage.

Topics in this chapter include:

A COS is a global object and is not restricted to a particular domain or set of domains.

You can create and edit the classes of services from the administration console, Configure > Class of Service pages, and to edit an account's configuration go to Manage > Accounts pages.

## Managing Accounts Usage with a COS

A default COS is created when Zimbra is installed. You can modify the default COS and create new ones.

You can manage the following from a COS.

- Features and preferences that users can access
- Themes and Zimlets that users can access
- Advanced settings including attachment settings, quotas, and password log in policies
- Retention policies
- Mobile access

You could, for example, create an Executive COS which is configured to enable all features, have unlimited mailbox quotas and never purges messages and create another General-Employee COS which enables only the mail feature, sets the mailbox quota and purges messages every 60 days. Grouping accounts to a specific COS lets you update or change account features in block. When the COS is changed all accounts assigned to the COS are changed.

If a COS is not explicitly set for a new account, or if the COS assigned to a user no longer exists, the Zimbra default COS is automatically assigned.

You can create a domain COS and have all accounts created on that domain automatically be assigned this COS. You can create different COSs and specify which ones are available for the domain. If a domain does not have a COS defined, and you do not specify a COS, the original default COS is automatically assigned when an account is created.

Some COS settings can be overridden either by global settings or by user settings. For example:

- Whether outgoing messages are saved to **Sent** can be changed from the Zimbra Web Client in the user’s preferences.
- Attachment blocking set as a global setting can override the COS setting.

***Note:*** *Some COS settings assigned to an account are not enforced for IMAP clients.*

## Selecting Features and Preferences

All the features available for the COS are displayed in the Features page. Select or deselect any features you do not want included in the COS. Changes made at the account level override the rules in the COS assigned to the account.

Define the initial preferences for how messages are saved and viewed in the Preferences page. You can also select a specific locale for the ZWC view. If a locale is not specified, the browser locale is the default.

For a description of the features and preferences, see Chapter 10, Customizing Accounts.

### Disable Preferences

Preferences are enabled by default. Users can modify the default preferences that are configured for their account. You can disable preferences and the Preferences page does not display in users’ mailboxes. They cannot change the default configuration for features that are set up for their accounts.

### Set Default Time Zone

The default time zone setting displayed in account's Preferences folder is used to localize the time for received messages and calendar activities in the standard web client. When the standard web client is used, the time zone on the computer is not used to set the time a message is received or for calendar activities. The time zone setting in the Preferences >Calendar Options is used. When using the advanced web client, the time zone setting on the computer is used as the time stamp for received messages and for calendar activities, not the time zone setting on the General Information page.

Because the advanced web client and the standard web client do not use the same time zone source to render messages, you might notice that the same message has a different time when displayed in one or the other client. You can avoid this by having the computer time zone and the web client time zone set to the same time.

## Using Server Pools

In an environment with multiple mailbox servers, the COS is used to assign a new account to a mailbox server. When you configure the COS, you select which servers to add to the server pool. Within each pool of servers, a random algorithm assigns new mailboxes to any available server.

You can assign an account to a particular mailbox server when you create an account in the New Account Wizard, Mail Server field. Uncheck **auto** and enter the mailbox server in the Mail Server field.

## Setting Account Quota

An account quota is the storage limit allowed for an account. Email messages, address books, calendars, tasks, and Briefcase files contribute to the quota. Account quotas can be set by COS or for individual accounts from the administration console.

If you set the quota to 0, accounts do not have a quota.

You can set how message delivery is handled when a Zimbra user's mailbox exceeds the set quota. The default behavior is for the MTA to temporarily send the message to the deferred queue. When the mailbox has space, the message is delivered. You can change this behavior to either have messages bounce back to the sender instead of being sent to the deferred queue first or you can configure to send the message to the mailbox even if the quota has been exceeded

- To bounce messages instead of sending them to the deferred queue

  ```
  zmprov mcf zimbraLmtpPermanentFailureWhenOverQuota TRUE
  ```

- To send the message to the mailbox even if the quota has been exceeded

  ```
  zmlocalconfig -e zimbraMailAllowReceiveButNotSendWhenOverQuota=TRUE
  ```

When this attribute is set to TRUE, a mailbox that exceeds its quota is still allowed to receive new mail and calendar invites. This quote bypass is only implemented for messages. All other mail items are still affected by the quota

### View Account Quotas

To view account quotas for all accounts on a domain in the administration console, go to the Configure>Domains, domain, Mailbox Quota page.

### Notify Users When Maximum Quota is Near

Users can be notified that their mailboxes are nearing their quota. The quota percentage can be set and the warning message text can be modified in the Advanced page settings for COS and Accounts.

When this threshold is reached, a quota warning message is sent to the user.

## Set Quotas in Domains

You can set a maximum mailbox quota for a domain. The default for the domain mailbox quota is unlimited. The domain quota is the maximum amount of storage that can be used by all mailboxes within the domain.

You can set an aggregate quota as well. The sum of the quotas for all accounts in the domain can exceed the size of the aggregate.

An aggregate quota policy for how to handle messages that are sent or received once the aggregate quota has been reached can be set up. The policy options include:

- Continue to allow messages to be sent and received as usual
- Do not allow messages to be sent
- Do not allow messages to be sent or received.

Notifications can be automatically sent when the quota is within a configured percentage of the aggregate quota. A cron tab job runs daily to check the aggregate quota percentage and if the percentage has been reached, the quota warning email is sent.

**Note:** *When a domain quota is set, the effective quota for an account is the minimum quota setting of either the domain or account.*

To configure domain quotas, go to the administration console's Configure>Domains, domain Advanced page.

## Managing Passwords

If you use internal authentication, you can quickly change an account's password from the Account’s toolbar. The user must be told the new password to log on.

***Important:*** *If Microsoft Active Directory (AD) is used for user authentication, you must disable the Change Password feature in the COS. The AD password policy is not managed by Zimbra.*

If you want to make sure users change a password that you create, you can enable **Must Change Password** for the account. The user must change the password the next time he logs on.

Password restrictions can be set either at the COS level or at the account level. You can configure settings to require users to create strong passwords and change their passwords regularly, and you can set the parameters to lock out accounts when incorrect passwords are entered.

### Direct Users to Your Change Password Page

If your ZWC authentication is configured as external auth, you can configure ZCS to direct users to **your password change page** when users change their passwords. You can either set this URL as a global setting or a per domain setting.

Set the **zimbraChangePasswordURL** attribute to the URL of your password change page. In ZWC. **Change Password** in **Preferences > General** links to this URL, and when passwords expire, users are sent to this page.

This is changed from the zmprov CLI. For domains, type

```
zmprov md exampledomain.com zimbraChangePasswordURL http://
www.mysite.com
```

### Configure a Password Policy

If internal authentication is configured for the domain, you can require users to create strong passwords to guard against simple password harvest attacks Users can be locked out of their accounts if they fail to sign in after the maximum number of attempts configured.

The password settings that can be configured are listed below.

| Feature | Description |
|---|---|
| Minimum/Maximum password length | Specifies the required length of a password. The default minimum and maximum are 6 and 64 characters, respectively. |
| Minimum /Maximum password age | Configures the password expiration date. Users can change their passwords at any time between the minimum and maximum. They must change it when the maximum password age is reached. |

| | |
|---|---|
| Configuring the next settings requires users to create more complex passwords. | |
| Minimum upper case characters | Uppercase A - Z |
| Minimum lower case characters | Lowercase a - z |
| Minimum punctuation symbols | Non-alphanumeric, for example !, $, #, &, % |
| Minimum numeric characters | Base 10 digits 0 - 9 |
| Minimum number of unique passwords history | Number of unique new passwords that a user must create before an old password can be reused. |
| Password locked | Users cannot change their passwords.This should be set if authentication is external. |
| Must change password | User is required to change password at first sign in. |
| Change password | When enabled, users can change their password at any time within the password age settings from their account Preferences tab. |

## Configuring a Login Policy

You can set the maximum number of failed login attempts before the account is locked out for the specified lockout time. This type of policy is used to prevent password attacks.

| **Feature** | **Description** |
|---|---|
| Enable failed login lockout | This enables “failed login lockout” feature.<br>You can configure the following settings. |
| Number of consecutive failed logins allowed | Number of failed login attempts before the account is locked out. The default is 10. If set to 0, the account is never locked out. |
| Time to lockout the account | Amount of time the account is locked out. If this is set to 0, the account is locked out until the correct password is entered, or the administrator manually changes the account status and creates a new password. The default is 1 hour. |
| Time window in which the failed logins must occur within to lock the account | Duration of time after which the number of consecutive failed login attempts is cleared from the log. The default is 0, the user can continue attempts to authenticate, no matter how many consecutive failed login attempts have occurred. |

## Configuring a Session Timeout Policy

You can set how long a user session should remain open and when to close a session because the session is inactive.

| Feature | Description |
|---|---|
| Admin console auth token lifetime | Sets a browser cookie that contains the admin auth token. Administrators can open the administration console without having to log on again until the auth token expires. The default is 12 hours. |
| Auth token lifetime | Sets a browser cookie that contains the ZWC auth token. User can open ZWC without having to log on again until the auth token expires. The default is 2 days.When it expires, the log in page is displayed and the user must log in to continue. |
| Session idle lifetime | How long a user session remains active, if no activity occurs. Activity includes any clickable mouse action, such as viewing folder contents or clicking a button. The default is unlimited. |
| You can manually expire a user’s web client session from the administration console Expire Sessions link.This forces the current session of the account to expire immediately. | |

## Managing Default External COS

The defaultExternal COS is assigned to external virtual accounts that are created when external users accepts a ZCS provisioned users’ invitation to share their calendar or briefcase items.

This account is not provisioned on the server, but the external user can sign in to ZWC create a display name and set a password to view the shared items. The only folders available are for the content they have access to.

The defaultExternal COS is configured with the following general features: Change password, Change UI themes, HTML compose, Export and Search. None of the major features are configured.

# 10 Customizing Accounts

This chapter describes the features and user preferences that can be configured for an account either from the assigned COS or in an individual account.

Topics in this chapter include:

- Messaging and Collaboration Applications
- Email Messaging Features
- Set Up Address Book Features
- Set Up Calendar Features
- Setting Zimbra Web Client UI Themes
- Other Configuration Settings for Accounts

***Note:*** *Mailbox features are enabled for Zimbra Web Client users. When IMAP or POP clients are used, users might not have these features available.*

## Messaging and Collaboration Applications

Configuring the COS and assigning a COS to accounts lets you configure the default settings for account features and restrictions for groups of accounts. Individual accounts can be configured differently and any changes you make override the COS setting. When you update the COS, the changes are not reflected in accounts that have COS overrides.

### Email Messaging Features

You configure which email messaging features are enabled. Users can then manage many of the enabled features as preferences.

The default is to let users manage their preferences, but you can choose not to let users set account preferences. The following ZWC Features tables lists the features.

| Feature | Description | COS/ Account Tabs |
|---|---|---|
| Mail | Enables the email application. Enabled by default. | Features |
| Conversations | Messages can be grouped into conversations by a common thread. The default is to thread messages in a conversation by the References header. If there is no References header, the Subject is used to determine the conversation thread. To change the default, update attribute **zimbraMailThreadingAlgorithm** from the COS or for individual accounts. See zmprov (Provisioning).<br>If this feature is enabled, conversation view is the default. You can change the default on the COS Preferences page.<br>Users can also change the default. | Features |
| HTML compose | Users can compose email messages with an HTML editor. They can specify default font settings as a preference. | Features |
| Draft auto save interval | Frequency of saving draft messages.The default is every 30 seconds. Users cannot change the frequency, but they can turn off the save draft feature. | Preferences |
| Mail send later | When enabled, users can choose **Send Later** to send a message at a later time. The user configures the data and time for sending. Messages are saved in the Draft folder. | Features |
| Message priority | When enabled, users can set the priority of the message. The recipient viewing from ZWC sees the priority flag if it is high or low. | Features |
| Enable attachment indexing | Attachments are indexed. Indexed attachments can be searched. | Advanced |

| | | |
|---|---|---|
| Allow the user to specify a forwarding address | You can specify a default forwarding address that the user can use. Users can change the forwarding address from their account Preferences tab.<br>You can also specify forwarding addresses that are hidden from the user. A copy of a message sent to the account is immediately forwarded to the designated forwarding address. | Features page in COS<br>Forwarding page in Accounts |
| Out of office reply | Users can create an email message that automatically replies to incoming messages. By default a message is sent to each recipient only once every seven days, regardless of how many messages that person sends to the address. This setting can be changed in the COS Preferences page, **Out of office cache lifetime** field. | Features<br>Preferences |
| New mail notification | Allows users the option to specify an address to be notified of new mail. They can turn this feature on or off and designate an address from their account Preferences tab.<br>**Note**: See zmprov (Provisioning) in Appendix A CLI commands, for information about how to change the email template. | Features page in COS<br>Preferences page in Accounts |
| Persona | When enabled, users can create additional account names to manage different roles. Account aliases can be selected for the **From** name of messages sent from that persona account and a specific signature can be set for the persona account.<br>The number of personas that can be created is set to 20. You can change this from the CLI zmprov mc zimbraIdentityMaxNumEntries | Features |
| Maximum length of mail signature | The maximum number of characters that can be in a signature. The default is 1024 characters.<br>The number of signatures users can create is configured in zimbraSignatureMaxNumEntries | Preferences |
| Advanced Search | Allows users to build a complex search by date, domain, status, tags, size, attachment, Zimlets, and folders. | Features |
| Saved searches | Users can save a search that they have previously executed or built. | Features |

| | | |
|---|---|---|
| Initial search preference | When enabled, the default search mailbox can be changed.<br>This is the folder that is searched when the Get Mail link in ZWC is clicked. The default is Inbox. | Preferences |
| External POP access | When enabled, users can retrieve their POP accounts' email messages directly from their ZWC account. They add the external account address to their account settings. | Features |
| External IMAP Access | When enabled, users can retrieve their IMAP accounts' email messages directly from their ZWC account. They can add the external account address to their account settings. | Feature |
| Aliases for this account | You can create an aliases for the account. Users cannot change this. | Alias page in Accounts |
| Mail filters | Users can define a set of rules and corresponding actions to apply to incoming and outgoing mail and calendar appointments. When an incoming email message matches the conditions of a filter rule, the corresponding actions associated with that rule are applied.<br>***Note:*** *Spam check on a received message is completed before users' mail filters are run. Messages identified as spam are moved to the junk folder. To avoid having mail incorrectly marked as spam, users can create a spam whitelist from the Preferences Mail folder to identify email addresses that should not be marked as spam.* | Features |
| Tagging and Flagging | Users can create tags and flags and assign them to messages, contacts, and files in Briefcase folders. | Feature |
| Enable keyboard shortcuts | Users can use keyboard shortcuts within their mailbox.<br>The shortcut list can be printed from the Preferences Shortcuts folder. | Preferences |
| Dumpster folder | When enabled, users can right-click on their Trash folder and select **Recover Deleted Items** to recover items deleted up to 30 days before. | Feature |

| | | |
|---|---|---|
| GAL access | Users can access the company directory to find names for their email messages. | Features |
| Autocomplete from GAL | When enabled, users enter a few letters in their compose header and names listed in the GAL are displayed ranked by usage. See Autocomplete Ranks Names. | Features |
| IMAP access | Users can use third party mail applications to access their mailbox using the IMAP protocol.<br>You can set the polling interval from the COS/Account Advanced page, Data Source>IMAP polling interval section. The polling interval is not set by default. | Features |
| POP3 access | Users can use third party mail applications to access their mailbox using the POP protocol. When they retrieve their POP email messages, the messages and attachments are saved on the Zimbra server.<br>Users can configure from their Preferences>Mail page<br>• How messages are download<br>• Whether to include their junk messages. Junk messages are downloaded to their Inbox.<br>• How to delete messages from their POP account.<br>You can set the polling interval from the COS/Account Advanced page, Data Source>POP3 polling interval section. The polling interval is not set by default. | Features |

### Autocomplete Ranks Names

The autocomplete feature displays names ranked with the most frequently recalled contact listed at the top. If the contact name that appears first should not be listed at the top, the user can click **Forget** and the contact names are re-ranked.

### Email Preferences Users Manage

The default behavior for many of these preferences can be set from either the COS or the Accounts Preferences page. Users can modify the following mail preferences from their account Preferences Mail page.

- How often, in minutes, that the Web Client checks for new messages, **Check for new mail every...**
- Set or change email message alerts. Alerts can be set up to play a sound, highlight the Mail tab when a message arrives, and flash the browser.
- Set the display language for ZWC. If more than one language locale is installed on ZCS, users can select the locale that is different from the browser language settings.
- Whether to save copies of outbound messages to the Sent folder
- Whether to save a local copy of a message that is forwarded or to have it deleted from their mailbox
- Whether to compose messages in a separate window
- Whether to view mail as HTML for messages that include HTML or to view messages as plain text
- Whether to send a read receipt when it is requested.
- Adjust the default font size for printed messages. The default is 12 points.
- Users can set up their own Spam mail options of whitelist and blacklist email addresses that is used to filter incoming message from their Preferences Mail folder. The default maximum number of whitelist and blacklist addresses is 100 on each list. This value can be changed using CLI zmprov for accounts and COS. The attributes are **zimbraMailWhitelistMaxNumEntries** and **zimbraMailBlacklistMaxNumEntries.**
- Users can modify the following mail preferences from their Preferences Signatures page.
  - Whether to automatically append a signature to outgoing messages.
  - Preferences for how messages that are replied to or forwarded are composed.

### Use Import and Export to Save User’s Data

The Preferences Import/Export page lets users export all of their account data, including mail, contacts, calendar, and tasks. They can export specific items in their account and save the data to their computer or other location. The account data is saved as a tar-gzipped (tgz) archive file so that it can be imported to restore their account. Individual contacts are saved as .csv files, and individual calendar files are saved as .ics files. The data are copied, not removed from the user’s account.

The exported account data file can be viewed with an archive program such as WinRAR archiver. Any of these files can be imported into their account from the same page.

You can turn the Import/Export feature off from the COS or Account Features page, General Features section.

### Set Up RSS Polling Intervals

Users can subscribe to Websites that provide RSS and podcast feeds and receive updated information directly to their mailboxes. The maximum number of feeds that can be returned is 50. RSS feeds count against users' account quota.

The default is to update the RSS data every 12 hours. Users can right-click on an RSS feed folder to manually load new feed.

You can change the polling interval from the administration console the Class of Server or Account Advanced page, Data Source>RSS polling interval section.

## Set Up Address Book Features

Zimbra Address Book allows users to create multiple contact lists and add contact names automatically when mail is received or sent. Users can import contacts into their Address Book.

***Important:*** *To allow users to share their mail folders, address books, and calendars, enable Sharing on the Features page.*

| **Feature** | **Description** | **COS/ Account Tabs** |
|---|---|---|
| Address Book | Users can create personal contacts lists. By default, a Contacts list and Emailed Contacts list are created. | Features |
| Address book size limit | Maximum number of contacts a user can have in all address books. 0 means unlimited. | Advanced |

Users can modify the following Address Book preferences from their account Preferences Address Book page. The default behavior can be set from the COS or Accounts>Preferences page.

- Enable auto adding of contacts to automatically add contacts to their Emailed Contact list when they send an email to a new address.
- Enable the ability to use the Global Access List when using the contact picker to look up names.
- Enable the options to include the GAL addresses and names in shared address books when using autocomplete to address a message.

## Set Up Calendar Features

Zimbra Calendar lets users schedule appointments and meetings, establish recurring activities, create multiple calendars, share calendars with others, and delegate manager access to their calendars. They can subscribe to external calendars and view their calendar information from Zimbra Web Client. They can also use search for appointments in their calendars.

***Important:*** *To allow users to share their calendars, address books, and Briefcase files, enable Sharing in the Features page.*

| **Feature** | **Description** | **COS/ Account Tabs** |
|---|---|---|
| Calendar | Les users maintain their calendar, schedule meetings, delegate access to their calendar, create multiple personal calendars, and more. | Features |
| Group Calendar | When Group Calendar is not checked, users can create personal appointments and accept invitations to meetings only. The Find Attendees, Schedule and Find Resources tabs are not displayed. | Features |
| Nested Calendars | Calendars can be nested within ZCS folders like Mail, Contact, and Calendar folders. The administrator creates a nested list of calendars using CLI. A nested calendar grouping can be imported through migration as well.<br>The CLI command to define the grouping is<br>**zmmailbox -z -m user1 cf -V appointment /<Calendar Name>/ <sub-calendar name**>.<br>This creates a calendar nested under the Calendar Name folder. | |
| Time zone | Sets the time zone to use for Calendar scheduling. Domain admins set this in the Accounts, General Information page. | Preferences |
| Forward calendar invitation to specific addresses | You can specify email addresses to forward a user’s calendar invitations. Users can also specify forwarding address from the Preferences Calendar folder.<br>The account the invitation is forwarded to must have admin privileges on the shared calendar to reply to the invitation. | Accounts Forwarding |

### Troubleshooting Calendar Appointment Problems

The CLI **zmcalchk** command is used to check for discrepancy between different users' calendars for the same meeting and send an email notification regarding the discrepancies.

You can also use this command to notify the organizer and/or all attendees when an appointment is out of sync.

### Change Remote Calendar Update Interval

Remote calendars are updated every 12 hours by default. You can change the frequency of these updates in the administration console Class of Service or Account Advanced page, Data Source>Calendar polling interval.

### Disable Attendee Edits to Appointments

Attendees can edit appointments in their calendars, but their changes do not affect anyone else. If the appointment organizer makes changes, these changes overwrite the attendees edits. You can modify the COS attribute **zimbraPrefCalendarApptAllowAtendeeEdit to** prevent attendees from editing appointments in their calendar.

```
zmprov mc <cosname> zimbraPrefCalendarApptAllowAtendeeEdit= FALSE
```

### Other User Calendar Preferences

Users can modify the Calendar preferences listed in the Calendar Preference table. You can set the default behavior in the COS or Accounts Preferences page.

| | |
|---|---|
| **Time zone** | Time zone displayed in the user's Preferences. See Set Default Time Zone. If the time zone is configured in the COS, the time zone configured in the domain is ignored. |
| **Number of minutes before an appointment to show reminder** | Sets the minutes before the meeting to send a reminder notice. |
| **Initial calendar view** | Sets the default view. Options are Day, Work Week, 7-Day Week, Month, List, or Schedule. |
| **First day of the week** | Sets the default first day of a user's work week. |
| **Default appointment visibility** | Options are Public or Private. Sets the default visibility options on the new appointment page.<br>The default is Public, appointments details can be viewed by others.<br>When the default is Private, all incoming calendar invites are marked as private on the user's calendar and details are hidden. |

| | |
|---|---|
| **Use iCal delegation model for shared calendars for CalDAV interface**. | Apple iCal can be configured to access users' calendars using the CalDAV protocol. When enabled, shared calendars are displayed in users' iCal account's Delegation tab and they can delegate access to their calendars.<br>For automatic polling, the polling interval can be set up in the COS/Account Advanced page, Data Source>CalDAV polling interval field |
| **Enable past due reminders** | Users log into the ZWC, the reminder notifications for the last two weeks pop up for meeting reminders that were not dismissed. When this is disabled, ZCS silently dismisses the old reminders. |
| **Enable toaster notification for new calendar events.** | A popup displays in ZWC when new calendar events are received |
| **Allow sending cancellation email to organizer**. | When users receive an invitation they cannot attend at the scheduled time, they have the option to click **Propose New Time** and select another time. The meeting organizer receives an email with the proposed time. |
| **Automatically add invites with PUBLISH method**. | A calendar invitation email should have method=REQUEST in the calendar object but some third-party email clients incorrectly set method=PUBLISH. These emails are not processed as invitations by default. You can relax the rules by enabling this option. |
| **Automatically add forwarded invites to calendar** | Invites that have been forward to users are automatically added to the forwarded recipient's calendar. |
| **Flash browser title on appointment reminder**. | When appointment reminders pop up, the browser flashes until the user closes the pop-up. |
| **Enable audible appointment notification**. | When an appointment reminder pops up, users can be notified by a beep on their computer. Users must have either QuickTime or Windows Media installed. |
| **Auto-decline invites from users who are denied from inviting this user**. | Users can configure who can send them calendar invites. When enabled, an auto-reply message is sent to those users to let them know they do not have permission to invite the user. |
| **Automatically add appointments when invited**. | When enabled, appointments are automatically added to user's default calendar and declined appointments display on the ZWC calendar in a faded view.<br>**Note**: When viewing appointments from mobile devices users do not see the deleted invite information in a faded view and they might not know that the invite was deleted. |
| **Notify of changes made via delegated access** | Users that delegated their calendar are notified of changes made to an appointment by a delegated access grantee. |
| **Always show the mini-calendar**. | The mini-calendar automatically displays in the Calendar view. |

| | |
|---|---|
| **Use the QuickAdd dialog when creating new appointments**. | When is enabled, the QuickAdd dialog displays when users double-click or drag on the calendar. |
| **Show time zone list in appointment view**. | When enabled, a time zones list displays in their appointment dialog, giving them the opportunity to change time zones while making appointments. |

### Set Up Zimbra Tasks

Zimbra Tasks lets users create to-do lists and manage tasks through to completion.

***Important:*** *To allow users to share their Task lists, enable Sharing in the Features page. Task lists can be shared with individuals, groups, and the public.*

The Tasks feature is enabled from either the COS or the Accounts Preferences page.

## Setting Zimbra Web Client UI Themes

The appearance of the Zimbra Web Client user interface can be changed. A number of Zimbra themes are included with ZCS, and you can create others. You can select a theme to be the default and the themes that users can select to customize their user experience. To develop themes, see Chapter 21, Changing ZWC Theme Colors and Logo.

The following theme usage options can be configured either from COS or by individual accounts.

- **Limit users to one theme**. On the Features page, remove the check mark from **Change UI Themes**. The ZWC theme is the theme listed in Current UI theme field on the Themes page.
- **Let users access any of the installed Zimbra themes**. If the **Change UI Themes** is checked, users can access any of the themes that are listed in the Available UI themes list.

## Other Configuration Settings for Accounts

### Enable Sharing

When the Sharing feature is enabled, users can share any of their folders, including their mail folders, calendars, address books, task lists, and Briefcase folders.

A users specifies the type of access permissions to give the grantee. A users can share with internal users who can be given complete manager access, external guests who must use a password to view the folder content, as well as public access so that anyone who has the URL can view the folder’s content.

When internal users share a mail folder, a copy of the shared folder is put in the grantee’s folder list on the Overview pane. Users can manage their shared folders from their ZWC Preferences Sharing page.

### Configure SMS Notification

The ZWC Preferences>Notification page lets users configure an email address or SMS alert to their mobile device to receive a reminder message for a task or a meeting on their calendar. Notification by SMS is disabled by default.

SMS notification can be configured by domain, COS or for individual accounts. SMS notification set in a COS overrides SMS notifications set on a domain. In the administration console, this is set on the domain, COS or account’s Feature page.

Users select a region and a carrier when setting up their SMS alert. The list of SMS/email gateways is in **ZmSMS.properties**. You can customize this list to add SMS/email gateways that are not listed.

### Configure Attachment Viewing

You can set attachment viewing rules as a global setting, by COS, or for a specific account. The global setting takes precedence over COS and account Settings. You can select from four options.

| Feature Name | Description | COS/ Account Tabs |
|---|---|---|
| Disable attachment viewing from web mail UI. | Attachments cannot be viewed. This can also be set as a global setting. | Advanced |
| Attachments can be viewed in HTML only. | Attachments received in another format are opened in HTML view | Advanced |
| Attachments can be viewed in their original format only | Note: Users might not be able to open attachments that require a specific application that is not on their computer. | Advanced |
| Attachments can be viewed in HTML and their original format. | Users can select to open either in the original format or as HTML. | Advanced |

### Display a Warning When Users Try to Navigate Away.

It is easy for users to click the Back and Forward arrows in the browser or close their browser without logging out of their account. If this preference is checked, users are asked if confirm that they want to navigate away from there account. If this preference is not checked, the question is not asked.

### Enabling the Check Box for the Web Client

If **Show selection checkbox for selecting email, contact, voicemail items in a list view for batch operations** is enabled, when users view email messages, contacts, and tasks lists in the Content pane, a check box displays for each item. Users can select items and then perform an action such as mark as read/unread, move to a specific folder, drag and drop to a folder, delete, and tag for all those selected items.

### Preferences Import/Export

The Preferences Import/Export page lets users export all of their account data, including mail, contacts, calendar, tasks, and Briefcase folders. They can export specific items in their account and save the data to their computer or other location. The account data is saved as a tar-gzipped (tgz) archive file so that it can be easily imported to restore their account. Individual contacts are saved as .csv files, and individual calendar files are saved as .ics files. The data are not removed from their accounts. The exported account data file can be viewed with an archive program such as WinRAR archiver. Any of these files can be imported into their account from the same page.

If you do not want users to the Import/Export capability, you can disable the feature from the COS or Admin Features page.

### Add Words to Spell Dictionary

If ZWC users frequently uses words, abbreviations or acronyms that are marked as spelled incorrectly with the ZWC spell check, you can update the COS or domain attribute **zimbraPrefSpellIgnoreWord** with the words that should be ignored when spell check is run.

To configure words to ignore for a domain, type

```
zmprov md domainexample.com +zimbraPrefSpellIgnoreWord <word>
+zimbraPrefSpellIgnoreWord <word2>
```

# 11 Provisioning User Accounts

When an account is provisioned, you create the mailbox, assign the primary account email address, and assign a class of service (COS) to enable ZCS applications and features.

You can configure one account at a time or migrate multiple existing accounts from a server.

Topics in this chapter include:

## Creating a Single User Accounts

Before adding a user account, determine which features and access privileges should be assigned. You can either assign a class of service (COS) with the features enabled when you create the account or you can configure the features for the individual accounts. For a description of the features, see Chapter 9, Class of Services for Accounts.

If the COS you assign has the correct functionality for the account, you do not need to perform any additional configuration.

Creating an account sets up the appropriate entries on the Zimbra LDAP directory server. When the user logs in for the first time or when an email is delivered to the user's account, the mailbox is created on the mailbox server.

Create a Basic Account

1. In the administration console on the Home page, **Add Accounts** section, click **Add Account**.
2. In the **Account Name** section, enter the account name and the last name as a minimum to configure the account.

   The default COS is assigned to the account.
3. Click **Finish** to create the account,

You can continue to configure features and functionality for the individual account. Changes you make to the account override the COS that is assigned to the account.

## Migrate Existing Accounts and Import Account Email

You can provision multiple accounts at one time using the Account Migration Wizard from the administration console. You can import accounts from either a generic IMAP server or from another ZCS server.

***Note:*** *Only accounts on ZCS 7.2 or later can be migrated to ZCS 8.0.*

You can also import account names to provision from an XML file that you create.

***Note:*** *To migrate from other types of server, see the ZCS Migration Guides for Exchange and for Lotus Domino servers.*

You can run the migration wizard one time to provision accounts and import data or you can run the migration wizard the first time to provision the accounts and then run the wizard again to import the provisioned accounts' data.

Whether you get the account records from an LDAP directory or use an XML file, you need to set the password requirements for the newly provisioned accounts. The options are to have ZCS randomly create passwords for each account or to set the same password on each account. You have the option to force users to change the password when they sign in the first time.

When the provisioning is complete, the wizard generates a .csv file with a list of new accounts. This includes the passwords that are generated. You should download this file for future reference. Choose a secure location to store the file as it can contain password information for the user accounts you provisioned.

If you running a split domain configuration, you can set the SMTP host and port in the wizard. For more information about split domains, see the wiki article about split domains at http://wiki.zimbra.com/wiki/Split_Domain.

### Migrate Accounts from a Zimbra Server

You can migrate accounts from a server running ZCS 7.2.0 or later to ZCS 8.0.

1. In the administration console, on the Home page, Add Accounts section**,** click **Migration and Co-existence.**

2. In the **Type of mail server** field, select **Zimbra Collaboration.**

3. If you are provisioning accounts, select **Yes** to import the account's records. If you are not going to import the data at this time, in the Would you like to import mail, select No.

4. Click **Next**.

5. On the **Overview** dialog, Import from another Zimbra LDAP directory is selected. Click **Next**.

6. On the **Bulk provisioning options** page, select whether to generate random passwords or to assign the same password for each account.

| Option | Description |
|---|---|
| **Generate random password** | If you select Generate a random password for each account, set the length for the password. The default is 8 characters. The password can be from 6 to 64 characters.<br>If you select to generate a random password, you must download the .csv file that is created so that you can give the password information to each user. |
| **Use same password** | If you select Use same password for all new accounts, enter the password to use. |
| **Require users to change password after first login** | It is recommended that this is checked to force users to change their passwords when they log on the first time. |
| **SMTP Host**<br>**SMTP Port** | For split domain configurations, set the SMTP Host name and port. |

7. Click **Next.**

8. On the **Directory connection** dialog enter the information to connect to the server.

| Option | Description |
|---|---|
| **Automatically create missing domains** | Enable this option to create a domain when an account is imported and the domain they were on is not created.<br>If you do not enable this, accounts from domains that do not exist on the server are not created. Disabling this option makes it easy to import accounts from specific domains that have been pre-created. |

| Option | Description |
|---|---|
| **Maximum records to fetch** | Enter the maximum number of accounts to import at one time. The default is 0, which means that no limits are set. |
| **Server name, LDAP URL, Port, and Use of SSL** | • The LDAP URL is entered as ldap:// <ldapdirectory.example.com>.<br>• The default port is 389, but you can change this.<br>• Check SSL if this is used. |
| **Bind DN** | The Zimbra setting is in the field by default as uid=zimbra,cn=admins,cn=zimbra |
| **Bind password** | Enter the password for the server. |
| **LDAP filter** | In this field enter the LDAP search filter to run. Here you can define search criteria to collect the type of account information you want to import. The default filter in the field is **(objectclass-zimbraAccount**). This filter includes the email address, the account ID, and attributes for the account. |
| **LDAP search base** | Configure the subsections of the LDAP forest to search. |

9. Click **Next.**

   The Account Migration Wizard connects to the directory server and generates a report showing the number of domains found; number of accounts found on the server and how many of those accounts are already created on ZCS. This dialog also shows the password options you configured.

10. Review the report generated and then click **Next**. The accounts are provisioned on the ZCS server.

11. Download the .csv file that lists the provisioned accounts and their passwords. The .csv file is deleted when you close the wizard. If you do not download the file, you cannot access the report later.

## Migrate Accounts from Generic IMAP Servers

These steps provision accounts on the Zimbra server.

1. In the administration console, on the Home page, Add Accounts section**,** click **Migration and Co-existence.**

2. In the **Type of mail server** field, select **Generic IMAP Server.**

3. If you are provisioning accounts, select **Yes** to import the account's records. If you are not going to import the data at this time, in the Would you like to import mail, select No.
4. Click **Next**.
5. On the **Overview** dialog, Import from another LDAP directory is selected. Click **Next**.
6. On the **Bulk provisioning options** page, select whether to generate random passwords or to assign the same password for each account.

| Option | Description |
|---|---|
| **Generate random password** | If you select Generate a random password for each account, set the length for the password. The default is 8 characters. The password can be from 6 to 64 characters.<br>If you select to generate a random password, you must download the .csv file that is created so that you can give the password information to each user. |
| **Use same password** | If you select Use same password for all new accounts, enter the password to use. |
| **Require users to change password after first login** | It is recommended that this is checked to force users to change their passwords when they log on the first time. |
| **SMTP Host**<br>**SMTP Port** | For split domain configurations, set the SMTP Host name and port. |

7. Click **Next**.
8. On the **Directory connection** dialog enter the information to connect to the server.

| Option | Description |
|---|---|
| **Automatically create missing domains** | Enable this option to create a domain when an account is imported and the domain they were on is not created.<br>If you do not enable this, accounts from domains that do not exist on the server are not created. Disabling this option makes it easy to import accounts from specific domains that have been pre-created. |

| Option | Description |
|---|---|
| **Maximum records to fetch** | Enter the maximum number of accounts to import at one time. The default is 0, which means that no limits are set. |
| **Server name, LDAP URL, Port, and Use of SSL** | • The LDAP URL is entered as ldap:// <ldapdirectory.example.com>.<br>• The default port is 389, but you can change this.<br>• Check SSL if this is used. |
| **Bind DN** | Enter the bind DN<br>(uid= <>,cn=<>,cn=<> |
| **Bind password** | Enter the password for the server. |
| **LDAP filter** | In this field enter the LDAP search filter to run. Here you can define search criteria to collect the type of account information you want to import. The default filter in the field is **(objectClass=organizationalPerson)**. This filter gathers account information, including email address, individual first, middle, last names, postal and phone number information if available. You can change the filter. |
| **LDAP search base** | Configure the subsections of the LDAP forest to search. |

9. Click **Next**.

   The Migration Wizard connects to the directory server and generates a report showing the number of domains found; number of accounts found on the server and how many of those accounts are already created on ZCS. This dialog also shows the password options you configured.

10. Review the report generated and then click **Next**. The accounts are provisioned on the ZCS server.

11. Download the .csv file that lists the provisioned accounts and their passwords. The .csv file is deleted when you close the wizard. If you do not download the file, you cannot access the report later.

### Migrate Accounts using an XML File

Create an XML file with the account information and save it to a computer you can access.

1. In the administration console, on the Home page, Add Accounts section**,** click **Migration and Co-existence.**

2. In the **Type of mail server** field, select the type of server your are migrating from**.**
3. If you are provisioning accounts, select **Yes** to import the account's records. If you are not going to import the data at this time, in the Would you like to import mail, select No.
4. Click **Next**.
5. On the **Overview** dialog, select **Import from an XML** file. Click **Next**.
6. The **Review** options dialog displays the number of domains; number of accounts and the password options configured in the XML file.
7. If this information is correct, click **Next**. If this information is not correct, fix your XML file before proceeding.

   If you clicked Next, the accounts are provisioned on the ZCS server.
8. Download the .csv file that lists the provisioned accounts and their passwords. The .csv file is deleted when you close the wizard. If you do not download the file, you cannot access the report later.

### Importing Email for Selected Accounts

You can specify the list of accounts whose mail you want to import by either selecting the accounts to import data or by using an XML file to select the accounts. The accounts must be provisioned on the ZCS server.

1. In the administration console, on the Home page, Add Accounts section**,** click **Migration and Co-existence.**
2. In the **Type of mail server** field, select the type of server your are importing the data from**.**
3. In the **Would you like to import account records** menu, select **No**.
4. In the **Would you like to import mail menu**, select **Yes**.
5. Click **Next**.
6. On the **Import options** dialog box, select which way you are going to specify the accounts whose mail is being imported. Click **Next**.

   If you are selecting accounts, go to step 7. If you are using an XML file go to step 8.
7. If you are selecting the accounts to import, on the Selected Accounts dialog box, search for the accounts to add. You can search by domain or user name. If you click Search without entering text, all accounts are returned.

   Add the accounts to the **Accounts for data import** column.

   Click **Next**.

8. If you are using an XML file with the accounts listed, browse to the XML file to use. Click **Next**.

9. In the IMAP Connection details dialog box, enter the information necessary to connect to the exporting server's IMAP, this includes the IMAP host name, port and administrator login information. Click **Next**.

10. Review the data import options. If the information is correct, click **Next**.

## Examples of XML Files

Below are three examples of the XML file structure to provision accounts and import data.

**Example of provisioning accounts**. The following example shows an XML file that is used to provision multiple email accounts without importing mail:

```
<?xml version="1.0" encoding="UTF-8"?>
<ZCSImport>
<ImportUsers>
<User>
<sn>Sample</sn>
<givenName>Sam</givenName>
<displayName>Sam Sample</displayName>
<RemoteEmailAddress>ssample@example.com</RemoteEmailAddress>
<password>test123</password>
<zimbraPasswordMustChange>TRUE</zimbraPasswordMustChange>
</User>
<User>
<sn>Zackry</sn>
<givenName>Zak</givenName>
<displayName>Zak Zackry</displayName>
<RemoteEmailAddress>zzackry@example.com</RemoteEmailAddress>
<password>test123</password>
<zimbraPasswordMustChange>TRUE</zimbraPasswordMustChange>
</User>
</ImportUsers>
</ZCSImport>
```

**Example of provisioning accounts from externally hosted domains**. The following example shows an XML file that is used to provision multiple email accounts for externally hosted domain without importing mail. In this example, the zimbraMailTransport attribute of newly provisioned accounts will be set to point to external SMTP server instead of the ZCS server.

```
<?xml version="1.0" encoding="UTF-8"?>
<ZCSImport>
<SMTPHost>smtp.example.com</SMTPHost>
<SMTPPort>25</SMTPPort>
<ImportUsers>
<User>
<sn>Sample</sn>
<givenName>Sam</givenName>
<displayName>Sam Sample</displayName>
<RemoteEmailAddress>sam@example.com</RemoteEmailAddress>
</User>
<User>
<sn>Zackry</sn>
<givenName>Zak</givenName>
<displayName>Zak Zackry</displayName>
<RemoteEmailAddress>zzackry@example.com</RemoteEmailAddress>
</User>
</ImportUsers>
</ZCSImport>
```

**Example of importing email**. The following example shows an XML file that is used to import email for one account via IMAP from a gmail account without provisioning the email account in ZCS. The account must be provisioned on ZCS before running this type of XML file.

```
<?xml version="1.0" encoding="UTF-8"?>
<ZCSImport>
<IMAPHost>imap.gmail.com</IMAPHost>
<IMAPPort>993</IMAPPort>
<ConnectionType>ssl</ConnectionType>
<UseAdminLogin>0</UseAdminLogin>
<ImportUsers>
<User>
<sn>Sample</sn>
<givenName>Sam</givenName>
<displayName>Sam Sample</displayName>
<RemoteEmailAddress>sam@example.com</
RemoteEmailAddress><RemoteIMAPLogin>sam@example.com</
RemoteIMAPLogin><remoteIMAPPassword>test123</remoteIMAPPassword></
User>
</ImportUsers>
</ZCSImport>
```

## Auto Provisioning New Accounts from External LDAP

When an external LDAP authentication mechanism, such as external LDAP authentication, preauth, or SPNEGO, is configured for a ZCS domain, you can set up ZCS to automatically create users accounts on ZCS. Primary email address and account attributes are mapped from an external directory.

You can configure how and when new accounts should be created from the external directory data.

- **LAZY mode**. When users log into ZWC the first time through one of the authentication mechanisms supported for auto provisioning and when the user does not exist in the ZCS directory, a new account is automatically created in ZCS for the user.
- **EAGER mode**. ZCS polls the external directory for accounts to auto provision. You configure how often the external directory is polled for new users, the maximum number of users to process at each interval, and which domains are scheduled for account auto provision on which servers.

When an account is created, the account name (characters before @) is mapped from a user attribute on the external directory that you define in **zimbraAutoProvAccountNameMap**. Other account information, such as first and last name, phone numbers, address, is populated from the attributes mapped from the external directory based on **zimbraAutoProvAttrMap**. Review the external directory's attributes to determine which ones should be mapped to a zimbra attribute.

COS assignment for auto-provisioned accounts is exactly the same as how COS is determined for manually provisioned accounts.  That is, if a COS is set for the domain, this COS is assigned to the accounts that are created. If a domain COS is not set, the ZCS default COS is assigned.

You can configure a **Welcome** email messages that is sent to the new accounts when it is created. The subject and body of the email can be configured on **AutoProvNotification*** attributes on the domain.

## Auto-Provision Attributes

The following attributes are used with zmprov to configure auto provisioning of new accounts with an external LDAP directory. Most of the auto-provision attributes are on the domain level.

| Attribute | Description |
|---|---|
| **Domain**<br>**zimbraAutoProvMode** | Enables the auto provision mode to use.  Multiple modes can be enabled on a domain.<br>Value: EAGER, LAZY |
| **Domain**<br>**zimbraAutoProvAuthMech** | Type of authentication mechanisms enabled for auto provision in LAZY mode.<br>When a user authenticates via one of these external authentication mechanisms, and when the user account does not yet exist in Zimbra directory, an account is automatically created in Zimbra directory.<br>Value: **LDAP**, **PREAUTH**, **KRB5**, **SPNEGO** |
| **Domain**<br>**zimbraAutoProvLdapURL** | LDAP URL of the external LDAP source for auto provision. |

| Attribute | Description |
|---|---|
| **Domain**<br>**zimbraAutoProvLdapStartTlsEnabled** | Whether to use the StartTLS protocol when accessing the external LDAP server for auto provision. The default is FALSE. |
| **Domain**<br>**zimbraAutoProvLdapAdminBindDn** | Defines the LDAP search bind DN for auto provision. |
| **Admin**<br>**zimbraAutoProvLdapAdminBindPassword** | Sets the LDAP search admin bind password for auto provision |
| **Domain**<br>**zimbraAutoProvLdapSearchBase** | Defines the LDAP search base for auto provision, used in conjunction with **zimbraAutoProvLdapSearchFilter**. If not set, LDAP root DSE will be used. |
| **Domain**<br>**zimbraAutoProvLdapSearchFilter** | Defines the LDAP search filter template for account auto provisioning.<br>For LAZY mode, either **zimbraAutoProvLdapSearchFilter** or **zimbraAutoProvLdapBindDn** must be set. If both are set, **zimbraAutoProvLdapSearchFilter** will take precedence.<br>Supported place holders:<br>■ %n = username with @ symbol. Returns user1@domain.com<br>■ %u = username with @ removed. Returns user1<br>■ %d = domain, returns domain.com<br>■ %D = domain as dc=domain,dc=com |

| Attribute | Description |
|---|---|
| **Domain**<br>**zimbraAutoProvLdapBindDn** | Defines the LDAP external DN template for account auto provisioning. For LAZY mode, either **zimbraAutoProvLdapSearchFilter** or **zimbraAutoProvLdapBindDn** must be set. If both are set, **zimbraAutoProvLdapSearchFilter** will take precedence.<br>Supported place holders:<br>■ %n = username with @<br>■ %u = username with @ removed<br>■ %d = domain as domain.com<br>■ %D = domain as dc=domain,dc=com |
| **Domain**<br>**zimbraAutoProvAccountNameMap** | Defines the attribute name in the external directory that contains local part of the account name. This is the name used to create the Zimbra account. If this is not specified, the local part of the account name is the principal user used to authenticated to Zimbra. |
| **Domain**<br>**zimbraAutoProvAttrMap** | Defines the attribute map for mapping attribute values from the external entry to Zimbra account attributes. Values are in the format of {external attribute}={zimbra attribute}. If this is not set, no attributes from the external directory are populated in Zimbra account.<br>**Note**: Invalid mapping configuration will cause the account creation to fail.<br>Examples of bad mapping:<br>- invalid external attribute name.<br>- invalid Zimbra attribute name.<br>- external attribute has multiple values but the zimbra attribute is single-valued.<br>- syntax violation. e.g. Value on the external attribute is a String but the Zimbra attribute is declared an integer |

| Attribute | Description |
|---|---|
| **Domain**<br>**zimbraAutoProvNotificationFromAddress** | Defines the email address to put in the **From** header for the Welcome email sent to the newly created account. If not set, no notification email is sent to the newly created account. |
| **Domain**<br>**zimbraAutoProvNotificationSubject** | Template used to construct the subject of the notification message sent to the user when the user's account is auto provisioned.<br>Supported variables: ${ACCOUNT_ADDRESS}, ${ACCOUNT_DISPLAY_NAME} |
| **Domain**<br>**zimbraAutoProvNotificationBody** | Template used to construct the subject of the notification message sent to the user when the user’s account is auto provisioned.<br>Supported variables ${ACCOUNT_ADDRESS}, ${ACCOUNT_DISPLAY_NAME} |

| Attribute | Description |
|---|---|
| **Domain**<br>**zimbraAutoProvListener-Class** | Class name of auto provision listener.  The class must implement the **com.zimbra.cs.account.Account.AutoProvisionListener** interface. The singleton listener instance is invoked after each account is auto created in Zimbra. Listener can be plugged in as a server extension to handle tasks like updating the account auto provision status in the external LDAP directory.<br>At each eager provision interval, ZCS does an LDAP search based on the value configured in **zimbraAutoProvLdapSearchFilter**.  Returned entries from this search are candidates to be auto provisioned in this batch.   The **zimbraAutoProvLdapSearchFilter** should include an assertion that will only hit entries in the external directory that have not yet been provisioned in ZCS, otherwise it's likely the same entries will be repeated pulled in to ZCS.  After an account is auto provisioned in ZCS, **com.zimbra.cs.account.Account.AutoProvisionListener.postCreate**<br>(Domain domain, Account acct, String external DN) will be called by the auto provisioning framework.   Customer can implement the AutoProvisionListener interface in a ZCS server extension and get their **AutoProvisionListener.postCreate()** get called. The implementation of customer's post Create method can be, for example, setting an attribute in the external directory on the account just provisioned in ZCS.  The attribute can be included as a condition in the **zimbraAutoProvLdapSearchFilter**, so the entry won't be returned again by the LDAP search in the next interval. |
| **Domain, Global Config**<br>**zimbraAutoProvBatchSize** | Sets the maximum number of accounts to process in each interval for EAGER auto provision. |
| **Server**<br>**zimbraAutoProvScheduled-Domains** | Lists the domains scheduled for EAGER auto provision on this server.  Scheduled domains must have EAGER mode enabled in **zimbraAutoProvMode**.  Multiple domains can be scheduled on a server for EAGER auto provision. Also, a domain can be scheduled on multiple servers for EAGER auto provision. |

| Attribute | Description |
|---|---|
| **Server, Global Config**<br>**zimbraAutoProvPollingInterval** | Sets the interval between successive polling and provisioning accounts in EAGER mode. The actual interval might take longer since it can be affected by two other factors: **zimbraAutoProvBatchSize** and number of domains configured in **zimbraAutoProvScheduledDomains**.<br>At each interval, the auto provision thread iterates through all domains in **zimbraAutoProvScheduledDomains** and auto creates accounts up to domain.**zimbraAutoProvBatchSize**. If that process takes longer than **zimbraAutoProvPollingInterval** than the next iteration starts immediately instead of waiting for **zimbraAutoProvPollingInterval** amount of time.<br>■ If set to 0 when server starts up, the auto provision thread will not start.<br>■ If changed from a non-0 value to 0 while server is running, the auto provision thread will be shutdown.<br>■ If changed from 0 to a non-0 value while server is running, the auto provision thread will be started. |

### Configure Eager Mode Auto-Provisioning

ZCS polls the external directory for accounts to auto provision. You configure how often the external directory is polled for new users, the maximum number of users to process at each interval, and which domains are scheduled for account auto provision on which servers.

1. Log in to the ZCS server and as zimbra, type

   ```
   zmprov
   ```

2. Enable the EAGER mode,

   ```
   md <domain.com> zimbraAutoProvMode EAGER
   ```

3. Configure the maximum number of accounts to process in each interval. Type,

   ```
   md <domain.com> zimbraAutoProvBatchSize <#>
   ```

4. Configure the interval between polling and provisioning of accounts. This must be set to a non-0 value for the auto provisioning thread to start. Only enter the numeric value for the number of minutes. The default is 15 minutes. Type

   ```
   ms <server.com> zimbraAutoProvPollingInterval <x minutes>
   ```

5. Select the domains to be scheduled for auto provisioning. Multiple domains can be scheduled on the server. A domain can be scheduled on multiple servers as well.

   ```
   ms <server.com> +zimbraAutoProvScheduledDomains <domain1.com>
   +zimbraAutoProvScheduledDomains <domain2.com>
   ```

6. Configure the external LDAP settings

   a. LDAP URL:

   ```
   md <domain.com> zimbraAutoProvLdapURL “ldap://
   xxx.xxx.xxx.xxx:<port>
   ```

   The LDAP port is usually 389.

   b. Enable StartTls (optional).

   ```
   md <domain.com> zimbraAutoProvLdapStartTlsEnabled TRUE
   ```

   c. LDAP Admin bind DN for auto provision in the format **cn=<LDAPadmin_name>, dc=autoprov, dc=<company_name>, dc=<com>**

   ```
   md <domain.com> zimbraAutoProvLdapAdminBindDn “cn=admin,
   dc=autoprov, dc=company, dc=com”
   ```

   d. Administrator’s LDAP search bind password for auto provision.

   ```
   md <example.com> zimbraAutoProvLdapAdminBindPassword <password>
   ```

   e. Define the search template to use when searching for users to auto provision. Supported search terms to use include:

   - **%n** - User name with the @.
   - **%u** - User name with the @ removed.
   - **%d** - Domain as domain.com
   - %D - Domain as dc=domain,dc=com

   To use the LDAP search filter, type

   ```
   md <domain.com> zimbraAutoProvLdapSearchFilter
   “(uid=<%placeholder>)”
   ```

   f. Define the LDAP search base for auto provision. This is the location in the directory from which the LDAP search begins. This is used with **zimbraAutoProvLdapSearchFilter**. If this is not set, the LDAP directory root, **rootDSE,** is the starting point. Type

   ```
   md <domain.com> zimbraAutoProvLdapSearchBase <“location”>
   ```

   For example, “dc=autoprov,dc=company,dc-com”

g. Define the LDAP external DN template for account provisioning. Supported place holders include

- **%n** - User name with the @
- **%u** - User name with the @ removed
- **%d** - Domain as domain.com
- %D - Domain as dc=domain,dc=com

```
md <domain.com> zimbraAutoProvLdapBindDn <“placeholder1”>
```

7. (Optional). Define the attribute name that is mapped to the local part of the account name on the external directory . This is used to define the account name on ZCS. If this is not specified, the local part of the account name is the principal user name used to authenticate to ZCS.

```
md <domain.com> zimbraAutoProvAccountNameMap < value>
```

8. (Optional). Map the attribute values from the external entry to the ZCS account attributes. If this is not set up, no attributes from the external directory are populated in the ZCS directory. The value is mapped in the form of {external attribute}={zimbra attribute}.

   IMPORTANT: Invalid mapping configuration will cause the account creating to fail.

   To map the “sn” value on the external entry to “displayName” on the Zimbra account and map description value on the external entry to description on the ZCS account, type

```
md <domain.com> +zimbraAutoProvAttrMap sn=displayName
+zimbraAutoProvAttrMap description=description
```

9. (Optional) If you want to send a Welcome email to new accounts, enter the from address of the originator. Type

```
md <domain.com> zimbraAutoProvNotificationFromAddress
<name@domain.com>
```

10. To exit zmprov, type

```
exit
```

### Configure Lazy Mode Auto-Provisioning

Lazy mode auto provisioning automatically creates a new account when a user authenticates from a one of the following external authentication mechanisms: LDAP, preauth, Kerberos 5, Spnego.

1. Log in to the ZCS server and as zimbra, type

```
zmprov
```

2. Enable the LAZY mode,

```
md <domain.com> zimbraAutoProvMode LAZY
```

3. Select the external authentication mechanism for the LAZY mode: LDAP, PREAUTH, KRB5, SPNEGO. You can select more than one.

   ```
   md <example.com> zimbraAutoProvAuthMech <type>
   +zimbraAutoProvAuthMech <type2>
   ```

4. Configure the external LDAP settings

   a. LDAP URL:

      ```
      md <domain.com> zimbraAutoProvLdapURL “ldap://
      xxx.xxx.xxx.xxx:<port>
      ```

      The LDAP port is usually 389.

   b. Enable StartTls (optional).

      ```
      md <domain.com> zimbraAutoProvLdapStartTlsEnabled TRUE
      ```

   c. LDAP Admin bind DN for auto provision in the format **cn=<LDAPadmin_name>, dc=autoprov, dc=<company_name>, dc=<com>**

      ```
      md <domain.com> zimbraAutoProvLdapAdminBindDn <“bindDN”
      ```

      For example, “cn=admin, dc=autoprov, dc=company, dc=com”

   d. Administrator’s LDAP search bind password for auto provision.

      ```
      md <example.com> zimbraAutoProvLdapAdminBindPassword <password>
      ```

   e. (Optional) Define the search template to use when searching for users to auto provision.

      Note: Either zimbraAutoProvLdapSearchFilter or zimbraAutoProvLdapBindDn must be configured for the LAZY mode.

      Supported search terms to use include:

      - **%n** - User name with the @.
      - **%u** - Username with the @ removed.
      - **%d** - Domain as domain.com
      - %D - Domain as dc=domain,dc=com

      To use the LDAP search filter, type

      ```
      md <domain.com> zimbraAutoProvLdapSearchFilter <“placeholder”>
      ```

   f. Define the LDAP search base for auto provision. This is the location in the directory from which the LDAP search begins. This is used with **zimbraAutoProvLdapSearchFilter**. If this is not set, the LDAP directory root, **rootDSE,** is the starting point. Type

      ```
      md <domain.com> zimbraAutoProvLdapSearchBase <“location”
      ```

      For example, “dc=autoprov,dc=company,dc-com”

   g. (Optional) Define the LDAP external DN template for account provisioning. Supported place holders include

- **%n** - User name with the @, or without, if no @ was specified.
- **%u** - Username with the @ removed
- **%d** - Domain as foo.com
- %D - Domain as dc=foo,dc=com

```
md <domain.com> zimbraAutoProvLdapBindDn “uid=%<placeholder1>,
%<placeholder2>”
```

5. (Optional). Identify the attribute name on the external entry that contains the local part of the account name to be provisioned in ZCS. If this is not specified, the local part of the account name is the principal user used to authenticate to ZCS.

   ```
   md <domain.com> zimbraAutoProvAccountNameMap < value>
   ```

6. (Optional). Map the attribute values from the external entry to the ZCS account attributes. If this is not set up, no attributes from the external directory are populated in the ZCS directory. Value is in the form of {external attribute}={zimbra attribute}.

   To map the **sn** value on the external entry to **displayName** on the Zimbra account and map description value on the external entry to description on the ZCS account, type as

   ```
   md <domain.com> +zimbraAutoProvAttrMap sn=displayName
   +zimbraAutoProvAttrMap description=description
   ```

7. (Optional) If you want to send a **Welcome** email to new accounts, enter the from address of the originator. Type

   ```
   md <domain.com> zimbraAutoProvNotificationFromAddress
   <name@domain.com>
   ```

8. Exit zmprov, type

   ```
   exit.
   ```

## Manage Resources

A resource is a location or equipment that can be scheduled for a meeting. Each meeting room location and other non-location specific resources such as AV equipment is set up as a resource account. The **Addresses> Resources** section in the administration console shows all resources that are configured for ZCS.

User accounts with the Calendar feature can select these resources for their meetings. The resource accounts automatically accept or reject invitations based on availability.

Administrators do not need to monitor these mailboxes on a regular basis. The contents of the resource mailboxes are purged according to the mail purge policies.

A Resource Wizard guides you through the resource configuration. You can configure the account with the following details about the resource:

- Type of resource, either location or equipment
- Scheduling policy
- Forwarding address to receive a copy of the invite
- Description of the resource
- Contact information, which can be a person to contact if there are issues
- Location information, including room name, specific building location including building and address, and room capacity
- Customize auto response message and signatures to be used in the reply email messages

When you create a resource account, a directory account is created in the LDAP server.

To schedule a resource, users invite the equipment resource and/or location to a meeting. When they select the resource, they can view the description of the resource, contact information and free/busy status for the resource, if these are set up.

When the meeting invite is sent, an email is sent to the resource account, and, based on the scheduling policy, if the resource is free the meeting is automatically entered in the resource's calendar and the resource is shown as Busy.

### Set Up the Scheduling Policy

The scheduling policy establishes how the resource's calendar is maintained. The following resource scheduling values can be set up:

- **Auto decline all recurring appointments**. This value is enabled when the resource can be scheduled for only one meeting at a time. No recurring appointments can be scheduled for this resource.
- **Auto accept if available, auto-decline on conflict**. When this option is selected, the resource account automatically accepts appointments unless the resource is already scheduled. The free/busy times can be viewed. You can modify the auto-decline rule to accept some meetings that conflict.
- **Manual accept, auto decline on conflict**. When this option is selected, the resource account automatically declines all appointments that conflict. Appointment requests that do not conflict are marked as tentative in the resource calendar and must be manually accepted. If you set this up, configure the forwarding address so a copy of the invite is sent to the account that can manually accept the invitation. You can modify the auto-decline rule to accept some meetings that conflict.

- **Auto accept always**. The resource account automatically accepts all appointments that are scheduled. In this case, free/busy information is not maintained, thus more than one meeting could schedule the resource at the same time. Because the resource always accepts the invitation, the suggested use for this policy would be for a frequently used location off premises that you want the location address to be included in the invite to attendees.
- **No auto accept or decline**. The resource account is manually managed. A delegated user must log into the resource account and accept or decline all requests.

**Conflict Rules** For accounts that include the auto decline on conflict value, you can set up a threshold, either as a number of conflicts or as a percentage of all the recurring appointments to partially accept recurring appointments. **Maximum allowed number of conflicts** and/or **Maximum allowed percent of conflicts** are configured to allow a recurring resource to be scheduled even if it is not available for all the requested recurring appointment dates.

The resource accepts appointments even if there are conflicts until either the number of conflicts reaches the maximum allowed or the maximum percentage of conflicts allowed. In order for partial acceptance of a series to work, both fields must be set to nonzero values.

### Manage Resource Accounts

You can log on to the resource account and set preferences for the resource. The **Resource Accounts Preference>Calendar** can be configured to let users manage the Resource’s Calendar. You can configure the following options to manage the resource.

- An address to forward invites. If the forwarding address was set up when the account was provisioned, you can change the address
- Who can use this resource. In the Permissions section, Invites, select **Allow only the following internal users to invite me to meetings** and add the appropriate users’ email addresses to the list.

You can share the resource calendar with a user and give the user Manager rights. Users delegated as Manager have full administrative rights for that calendar. They can view, edit, add, remove, accept or decline the invites.

# 12 Managing User Accounts

Topics in this chapter include:

## Change Status of Accounts

The status of an account determines whether a user can log in and receive mail. The account status displays on the Accounts Content pane in the administration console.

An account’s status can be one of the following:

- **Active**. Active is the normal status for a mailbox account. Mail is delivered and users can log into the client interface.
- **Maintenance**. When a mailbox status is set to maintenance, login is disabled, and mail addressed to the account is queued at the MTA.

***Note:*** *Maintenance status is automatically set on an account when a backup is being run, or when importing/exporting or restoring an account.*

- **Pending**. Pending is a status that can be assigned when a new account is created and not yet ready to become active. The login is disabled and messages are bounced.
- **Locked**. When a mailbox status is locked, the user cannot log in, but mail is still delivered to the account. The locked status can be set if you suspect that a mail account has been hacked or is being used in an unauthorized manner.

- **Closed**. When a mailbox status is closed, the login is disabled, and messages are bounced. This status is used to soft-delete an account before deleting the account from the server. A closed account does not change the account license.
- **LockOut**. This is set automatically when users who try to log in do not enter their correct password and are then locked out of their account. You cannot set this status manually. You set up a login policy with a specified number of consecutive failed login attempts that are allowed before they are locked out. How long the account is locked out is set by COS or account configuration, but you can remove the locked out status at any time.

## Delete an Account

You can delete accounts from the administration console. This removes the account from the server, deletes the messages in the message store, and changes the number of accounts used against your license.

Before you delete an account, run a full backup of that account to save the account information. See the Backup and Restore chapter.

## View an Accounts Mailbox

You can view a selected account's mailbox content, including all folders, calendar entries, and tags from the administration console. Select an account and from the gear icon drop down menu select **View Mail**. The user's ZWC account opens in a new browser window.

This feature can be used to assist users who are having trouble with their mail account as you and the account user can be logged on to the account at the same time.

Any View Mail action to access an account is logged to the *audit.log* file.

## Use an Email Alias

An email alias is an email address that redirects all mail to a specified mail account. An alias is not an email account. Each account can have unlimited numbers of aliases.

When you select Aliases from the Manage Aliases navigation pane, all aliases that are configured are displayed in the content pane. You can created an alias, view the account information for a specific alias, move the alias from one account to another, and delete the alias.

## Work with Distribution Lists

A distribution list is a group of email addresses contained in a list with a common email address. When users send to a distribution list, they are sending the message to everyone whose address is included in the list. The address line displays the distribution list address; the individual recipient addresses cannot be viewed.

You can create distribution lists that require an administrator to manage the member list and you can create dynamic distribution lists that automatically manages adding and deleting members in the list. For more information about dynamic distribution lists, see Using Dynamic Distribution Lists on page 144.

You can see which distribution lists a user is a member of from the user's account Member of page. When a Zimbra user's email address is added to a distribution list, the user's account Member Of page is updated with the distribution list name. When a distribution list is deleted, the distribution list name is automatically removed from the account's Member Of page.

### Setting Subscription Policies for Distribution Lists

Subscription policies can be set up to manage a distribution list's membership. Owners of the list manage the subscription policy from the Properties page of a distribution list.

| Option | Description |
|---|---|
| **New Subscription Requests** | • **Automatically accept**. Membership is open to anyone who subscribes.<br>• **Require list owner approval.** To subscribe, users send an email to the owner of the distribution list and the owner replies to this email request.<br>• **Automatically reject.** No one can be added to this distribution list. |
| **Unsubscription Requests** | • **Automatically accept**. Anyone can remove their name from the list.<br>• **Require list owner approval** To be removed from the distribution list, users send an email to the owner. The owner must accept the email request to remove the name.<br>• **Automatically reject.** Users cannot remove themselves from the list. |

### Management Options for Owners of Distribution Lists

You can add owners to distribution lists and they manage the list from their ZWC account's Address Book, Distribution List folder. Owners of a list can right click a distribution list and click the **Edit Group** link to edit a list.

Besides adding and deleting members, distribution list properties that owners can configure include:

- Marking the list as private so it is hidden in the Global Address List

- Managing who can send messages to the list
- Setting a member subscription policy
- Adding additional owners

### Creating a Distribution List

1. In the administration console, go to **Manage>Distribution Lists**.
2. In the gear icon, click **New**.
3. On the **Members** page, add the distribution list name. Do not use spaces. The other fields are optional.
4. Find members to add to the distribution list in the right column. Select the members to add and click **Add Selected**. If you want to add all addresses on the page, click **Add This Page**. If you want to add members that are not in the company list, in the **Or enter addresses below** section, type a complete mail address.
5. Click **Next** to configure the Properties page.

| Option | Description |
|---|---|
| **Can receive mail** | Enabled by default. If this distribution list should not receive mail select this box. |
| **Hide in GAL** | Enable to create distribution lists that do not display in the Global Address List (GAL). You can use this feature to limit the exposure of the distribution list to only those that know the address. |
| **Mail Server** | This is set to auto by default. To select a specific mail server, uncheck **auto** and select a specific server from the list. |
| **Dynamic Group** | If you check this box, the **Member URL** field displays and you create a dynamic distribution list.<br>See Create Dynamic Distribution Lists from the Administration Console on page 144. |
| **New Subscription Requests** | Select from<br>• Automatically accept<br>• Require list owner approval<br>• Automatically reject |

| Option | Description |
|---|---|
| **Unsubscription Requests** | Select from<br>• Automatically accept<br>• Require list owner approval<br>• Automatically reject. |

6. In the **Members Of** page, select distribution lists that should be direct or indirect members of the list.
7. If the distribution list should have alias, create it.
8. If this distribution list can be managed by other users, enter these email addresses in the **Owners** page.
9. Set how messages received to the distribution list should be replied to.
10. Click **Finish**. The distribution list is enabled and the URL is created.

## Managing Access to Distribution Lists

After a distribution list is created, you can manage who can view members of a distribution list and who can send messages to a distribution list. The default is all users have access to all distribution lists. This section describes how to use the CLI to manage access.

To limit who can access distribution lists, grant rights to individual users on a domain or if you want only members of a domain to access distribution lists, you can grant rights on the domain. When you grant the right on the domain, all distribution lists on the domain inherit the grant.

You can grant the right on individual distribution lists and configure specific users that are allowed to access the distribution list.

You can restrict access to a distribution list from the CLI **zmprov grant rights** (**grr**) command.

***Note:*** *For more information about how granting rights works, see Delegated Administration.*

### Who Can View Members of a Distribution List

The default is that all users can view members addresses in a distribution list. A distribution list address displays a **+** in the address bubble. Users can click on this to expand the distribution list. A list of the addresses in the distribution list is displayed. Users can select individual addresses from the expanded list.

To restrict who can view addresses in a distribution list to individuals or to a domain:

- For individual users: zmprov grr domain <domain_name> usr <user1@example.com> viewDistList
- For all users in a domain: zmprov grr domain <domain_name> dom <example.com> viewDistList

To grant rights on a distribution list and let specific users view the list: zmprov grr dl <dll_name@example.com> usr <user1@example.com>

### Who Can Send to a Distribution List

The default is that all users can send messages to all distribution lists. You can grant rights to a distribution list or to a domain that defines who can send messages to a distribution list. When users attempt to send to a distribution list that they are not authorized to use, a message is sent stating that they are not authorized to send messages to the recipient distribution list.

***Note:*** *The* **Milter Server** *must be enabled from* **Global Settings>MTA**.

Restrict who can send messages to a distribution list to individuals or to a domain:

- Grant rights to an individual user in a domain to send messages to all distribution lists.

  ```
  zmprov grr domain <domain_name> usr <user1@example.com> sendToDistList
  ```

- Grant rights to all users in a domain to send messages to all distribution lists.

  ```
  zmprov grr domain <domain_name> dom <example.com> sendToDistList
  ```

Restrict access and to remove the restriction to individual distribution lists for different user types.

- Access to specific internal users:

  ```
  zmprov grr dl <dlname@example.com> usr <username@example.com> sendToDistList
  ```

  Revoke access

  ```
  zmprov rvr dl <dlname@example.com> usr <username@example.com> sendToDistList
  ```

- Access to only members of the distribution list:

  ```
  zmprov grr dl <dlname@example.com> grp <dlname2@example.com> sendToDistList
  ```

  Revoke access

  ```
  zmprov rvr dl <dlname@example.com> grp <dlname2@example.com> sendToDistList
  ```

- Access to only all users in a domain:

  ```
  zmprov grr dl <dlname@example.com> dom <example.com> sendToDistList
  ```

Revoke access

```
zmprov rvr dl <dlname@example.com> dom <example.com> sendToDistList
```

- Access to only all users in an external domain:

  ```
  zmprov grr dl <dlname@example.com> edom <example.com> sendToDistList
  ```

  Revoke access

  ```
  zmprov rvr dl <dlname@example.com> edom <example.com> sendToDistList
  ```

- Access to only internal users:

  ```
  zmprov grr dl <dlname@example.com> all sendToDistList
  ```

  Revoke access

  ```
  zmprov rvr dl <dlname@example.com> all sendToDistList
  ```

- Access to only all public email addresses:

  ```
  zmprov grr dl <dlname@example.com> pub sendToDistList
  ```

  Revoke access

  ```
  zmprov rvr dl <dlname@example.com> pub sendToDistList
  ```

- Access to only specific external email address:

  ```
  zmprov grr dl <dlname@example.com> gst <someone@foo.com> ""
  sendToDistList
  ```

  Revoke access

  ```
  zmprov rvr dl <dlname@example.com> gst <someone@foo.com> ""
  sendToDistList
  ```

### Enable Viewing of Distribution List Members for AD Accounts

To view Active Directory distribution list members in messages or in the address book, the GAL group handler for Active Directory must be configured in the ZCS GALsync account for each Active Directory.

To update the GALsync account for each Active Directory, you must know the GALsync account name and all data sources on that GALsync account.

1. To find the GALsync account name:

   ```
   zmprov gd {domain} zimbraGalAccountId
   ```

   The above command displays the zimbra ID of the GALsync account. To find the name:

   ```
   zmprov ga {zimbraId-of-the-GAL-sync-account} | grep "# name"
   ```

2. To find the data sources for the GALsync account:

   ```
   zmprov gds {gal-sync-account-name-for-the-domain}
   ```

3. To enable the group handler for the Active Directory:

```
zmprov mds {gal-sync-account-name-for-the-domain} {AD-data-source-name}
zimbraGalLdapGroupHandlerClass com.zimbra.cs.gal.ADGalGroupHandler
```

## Using Dynamic Distribution Lists

Dynamic distribution lists automatically manage the membership. Users are added and removed from the distribution list automatically. When you create a dynamic distribution list, a member URL is specified. This member URL is used to identify who should be members of the list. You can view this URL from the administration console distribution list's Properties page.

You can create dynamic distribution lists from the administration console or from the CLI. In the URL, you specify specific object classes that identifies the type of users to be added to the dynamic distribution list. For example, you can configure a dynamic distribution list with the object class= zimbraAccount. In this case, when accounts are provisioned or accounts are deleted, the dynamic distribution list is updated.

You can create dynamic distribution lists for all mobile users or POP/IMAP users.

You can modify a distribution list to change the filter rules. When you modify a distribution list, the members in the list are changed to reflect the new rule.

### Create Dynamic Distribution Lists from the Administration Console

1. In the administration console, go to **Manage>Distribution Lists**.
2. In the gear icon, click **New**.
3. On the **Members** page, add the dynamic distribution list name. Do not use spaces. Do not add members to the list.
4. Click **Next** to configure the Properties page.

| Option | Description |
|---|---|
| **Can receive mail** | Enabled by default. If this distribution list should not receive mail select this box. |
| **Hide in GAL** | Enable to create distribution lists that do not display in the Global Address List (GAL). You can use this feature to limit the exposure of the distribution list to only those that know the address. |
| **Mail Server** | This is set to auto by default. To select a specific mail server, uncheck **auto** and select a specific server from the list. |
| **Dynamic Group** | Check this box. |

| Option | Description |
|---|---|
| **Can be used in right management** | Uncheck this box. |
| **Member URL** | The Member URL is the type of LDAP URL filter that determine which type of users are added and removed in the list.<br>Type the URL for this list. In the command, **ldap:///??sub?** is the URL. You can add any combination of filters to this to create different types of dynamic distribution lists.<br>Examples of type of URLs.<br>**All users, GAL account names, and spam/ham account list**<br>ldap:///??sub?(objectClass=zimbraAccount)<br>**Delegated administrators list**<br>ldap:///??sub?(&(objectClass=zimbraAccount)(zimbraIsDelegatedAdminAccount=TRUE))<br>**All active accounts**<br>ldap:///??sub?(&(objectClass=zimbraAccount)(ZimbraAccountStatus=active))<br>**All users with the title manager**. The title is taken from the account's **Contact Information Job Title** field. In this example, this field would be set to "Manager".<br>ldap:///??sub?(&(objectClass=zimbraAccount)(title=Manager)) |
| **New Subscription Requests** | Select **Automatically reject**. |
| **Unsubscription Requests** | Select **Automatically reject**. |

5. If the dynamic distribution list should have an alias, create it.

6. If this dynamic distribution list can be managed by other users, enter these email addresses in the **Owners** page.

7. If you want to set up a reply to address, enter it here. Any replies to this distribution list are sent to this address.

8. Click **Finish**. The dynamic distribution list is created.

Users are added automatically to the list based on the filter you specified. If you add or delete users, the list is updated.

**Note:** *If you use the CLI to modify a dynamic distribution list originally created on the administration console, you must set* **zimbraIsACLGroup FALSE** *for that dynamic distribution list.*

### Using CLI to Manage Dynamic Distribution Lists

Use the zmprov CLI command to manage dynamic distribution lists. In the command, **ldap:///??sub?** is the URL. You can add any combination of filters to this to create different types of dynamic distribution lists.

#### Create a dynamic distribution list of all new and existing accounts

All users, GAL account names, and spam/ham account names are included. When user accounts are deleted, they are removed from the list.

```
zmprov cddl <all@domain.com> memberURL ‘ldap:///
??sub?(objectClass=zimbraAccount)’ zimbraIsACLGroup FALSE
```

#### Create a COS and Assign Users

If you create COSs and assign users to the COS based on specific criteria, such as all managers, you can quickly modify a dynamic distribution list to be used for a specific COS.

Examples of creating dynamic distribution lists for specific user types.

- Create a dynamic distribution list that includes all users that have active accounts in a specific COS.

  ```
  zmprov cddl <allusers@domain.com> memberURL ‘ldap:///
  ??sub?(&(objectClass-zimbraAccount) (zimbraCOSId=513e02e-9abc-4acf-863a-
  6dccf38252e3) (zimbraAccountStatus=active) )’ zimbraIsACLGroup FALSE
  ```

- Create a dynamic distribution list that includes all users based on job titles. To use this, the account’s Contact Information **Job Title** field must include the title. In this example it would be set to “Manager”.

  ```
  zmprov cddl <allmanagers@domain.com> memberURL ‘ldap:///
  ??sub?(&(objectClass-zimbraAccount) (zimbraCOSId=513e02e-9abc-4acf-863a-
  6dccf38252e3) (title=Manager) )’ zimbraIsACLGroup FALSE
  ```

- Create a dynamic distribution list for all delegated administrators.

  ```
  zmprov cddl <alldelegatedadmins@domain.com> memberURL ‘ldap:///??sub?(&
  (objectClass-zimbraAccount) (zimbraCOSId=513e02e-9abc-4acf-863a-
  6dccf38252e3) (zimbraIsDelegatedADminAccount=TRUE) )’
  zimbraIsACLGroup FALSE
  ```

## Moving a Mailbox

Mailboxes can be moved between Zimbra servers that share the same LDAP server.

You can move a mailbox from either the administration console or use the CLI command, **zmmboxmove** to move a mailbox from one server to another without taking down the servers.

The destination server manages the mailbox move process. The move runs in the background and the account remains in active mode until most of the data has been moved. The account is locked briefly to move the last data and then returned to active mode.

The mailbox move process goes through the following steps:

- Mailbox blobs are moved to the new server
- When most of the content has been moved, the account is put into maintenance mode
- Database tables, index directories and any changed blobs are moved
- Account is put back into active mode

After the mailbox is moved to a new server, a copy still remains on the older server, but the status of the old mailbox is closed. Users cannot log on and mail is not delivered. Check to see that all the mailbox content was moved successfully before purging the old mailbox.

- Move a mailbox to a new server

  ```
  zmmboxmove -a <email@address> --from <servername> --to <servername>
  ```

- Purge the mailbox from the old server

  ```
  zmpurgeoldmbox -a <email@address> -s <servernamee>
  ```

### Global Configuration Option for Moving Mailboxes

Global configuration options for moving a mailbox can be set to exclude search indexes, blobs, and HSM blobs when mailboxes are moved. The following configuration options can be set on either the exporting server or the destination server:

- **zimbraMailboxMoveSkipSearchIndex**. If you do not include the search index data, the mailbox will have to be reindexed after the move.
- **zimbraMailboxMoveSkipBlobs**. Blobs associated with the mailbox, including primary and secondary volumes (HSM) are excluded.
- **zimbraMailboxMoveSkipHsmBlobs**. This is useful when HSM blobs for the mailbox being moved already exists. Set this if zimbraMailboxMoveSkipBlobs is not set, but you want to skip blobs on HSM volumes.

# 13 Delegated Administration

The global administrator can create different delegated administrator roles.

Delegated administrator roles can be as simple as having the rights to manage one or more distribution lists or reset forgotten passwords for one or more users, to having domain administration rights on one or more domains.

Two frequently used delegated administrator roles, domain administrator and distribution list administrator, are already defined. You can add administrators to these pre-defined roles with no other configuration necessary.

Topics in this chapter include:

## Target Types for Granting Administrative Rights

Delegated administration provides a way to define access control limits on targets and grant rights to administrators to perform tasks on the target.

A target is a ZCS object on which rights can be granted. Each target is associated with a target type that identifies the type of access control entries you can grant on the target.

When selecting a target type for a target consider the following:

- Target. Which specific target are you granting rights? For example, if the target type you select is “domain”, which domain do you mean? You specify a specific domain’s name (Target Name = example.com). Access Control
  Entries (ACE) are granted on that target. An ACE is stored in an LDAP attribute on the target entry.

- Is the right you want to grant applicable to the selected target type? A right can only be applied on the relevant target type. For example, creating an account can only apply to a domain target type, and the setting passwords can only apply to accounts and calendar resources target types. If a right is granted on a target that is not applicable to the target, the grant is ignored.
- When defining rights, you need to consider the scope of targets in which granted rights are effective. For example, the right to set the password is applicable only to accounts and calendar resources, but if this right is included in the domain targets list of rights, it is effective for all accounts or calendar resource in the domain.

| Target Type | Description of Target Scope |
|---|---|
| Account | An account entry (a specific user) |
| Calendar Resource | A calendar resource entry |
| COS | COS entry |
| Distribution List | Includes the distribution list and all distribution lists under this distribution list.<br>If the right is applicable to accounts and calendar resources, all accounts and calendar resources that are direct or indirect members of this distribution list. |
| Domain | Applicable to a specific domain, not to any sub-domains.<br>Sub-domains must be explicitly marked as targets.<br>When domain is the target, the rights are granted for all accounts, calendar resources and distribution lists in the domain. |
| Config | Grants specific to global config |
| Global ACL | Administrator rights for all entries in a target type. For example, you could add an ACE to the Global Access Control List (ACL) that grants the right to create accounts on domains.<br>Delegated administrator accounts that are granted this right can create accounts in all domains in the system. |
| Server | Server entry |
| Zimlet | Zimlet entry |

## Rights

Rights are the functions that a delegated administrator can or cannot perform on a named target. Right can be either system-defined or attribute.

### System-defined rights

Types of system defined rights include:

- Preset rights (**preset**). For example, **createAccount** creates an account; **renameDomain**, renames the domain.

  Preset rights are associated with a fixed target type. For example, createAccount is a right only on a domain; renameAccount is a right on an account; see Server is a right on a server

  No other rights are required to administer that action on the target.

  Preset rights could involve accessing multiple targets. The grantee needs to have adequate rights on all pertinent targets. For example, to create an alias for an account, the grantee must have rights to add an alias to an account and to create an alias on a domain.

## Attribute Right

Granting rights at the attribute level allow a delegated administrator/ administrator group to modify or view (or not modify or view) a specific attribute on a target.

Types of attributes rights include:

- Attribute (**setAttrs**) rights allow the domain administrator to modify and view an attribute value. For example, the **modifyAccount** right allows the domain administrator to modify all attributes of the account.
- Get attribute rights (**getAttrs**) let the domain administrator view an attribute value. For example, the getAccount right shows all the attributes for a user's account.

The specific attribute being granted is configured on the target and the type of permission, read (get) or write (set), is specified.

Attribute rights can be granted in any combination of attributes to grant positive or negative rights. This lets you negate some attributes from a grant.

### Combo Rights

Combo rights can be assigned to any target type and can include preset rights and attribute rights.You can use combo right to grant multiple attribute rights quickly on targets.

### Negative Rights

Rights can be either positive or negative. Negative rights are rights specifically denied to a grantee.

- When a negative right is granted to an admin group, all administrators in the group are denied that right for the target and sub-targets on which the right is granted.
- When a negative right is granted to an administrator who may or may not be in an admin group, the specific administrator is denied that right for the target and sub-targets on which the right is granted.

An admin group is granted domain administrator rights, including the right to create accounts on Domain1. AdminA is in this admin group, but you want AdminA to have all domain administrator rights, except the right to create accounts. You would grant a negative **createAccount** right to AdminA on the target Domain1.

For grants on the same level, negative rights always take precedence. For example, AdminGroup1 is granted a positive right to view accounts in a domain; AdminGroup2 is granted a negative right to view accounts in the same domain. AdminA is a member in both admin groups. AdminA cannot view any account in this domain because the negative right takes precedence.

For grants on different levels, the most specific grant takes precedence. For example, AdminA is granted the negative right to view accounts in GroupDistributionList1, which User1 is a member. AdminA is also granted the positive right to view account directly on User1's account. In this case, AdminA can view User1's account as the grant on the account target is more specific than the grant on the distribution list.

### Using the Rights List

System rights are listed and described in the Rights folder in the administration console Overview pane. You can use the Rights folder to help you define which system-defined rights to grant to delegated administrators. This folder displays the name of the right, the target types associated with that right, the right type and a brief description.

When you select a right on the page and click on it, another page displays more information

- For combo rights, a list of the rights associated with the combo right are listed.
- For the other system rights, a list of attributes associated with the right are listed

You can use the zmprov CLI to see combo rights.

- Direct sub rights of a combo right, type as zmprov gr adminConsoleDLRights
- Second level sub-rights of the combo, type as zmprov gr adminConsoleDLRights -e

**System Defined Rights Lists.** You can use the zmprov CLI to see system defined rights for a specific target.

- Account, type as zmprov gar -t account
- Calendar Resources, type as zmprov gar -t calresource
- COS, type as zmprov gar -t cos
- Distribution List, type as zmprov gar -t dl

All rights for account and calendar resources can also be granted on distribution list targets. When these rights are granted on a distribution list, the ACEs apply the right to all direct or indirect account or calendar resource members of the distribution list.

- Domain, type as `zmprov gar -t domain`

  All rights for accounts and calendar resources can also be granted on domain targets.

  All rights for distribution list can also be granted on domain targets.

  When rights are granted on a domain, the ACEs apply the right to all direct or indirect account calendar resource, and members of the distribution list in the domain.

- Global Config, type `zmprov gar -t config`
- Global Grant, type `zmprov gar -t global`

  All rights for all other targets can also be granted on the global targets. When any rights are granted on a global grant entry, the ACEs apply the right to all entries on the system. For example, if you grant a createAccount (which is a domain right) to AdminA on the global grant entry, AdminA can create accounts in all domains on the system.

- Server, type `zmprov gar -t server`
- Zimlets, type, `zmprov gar -t zimlet`

## Implementing Delegated Administration

Before you create delegated administrators and grant rights, define the role and which rights to assign to the targets the administrator will manage.

For more efficient management of delegated administrators, create administrator groups and add individual administrator accounts to the group. An administrator group allows you to create role-based access control. Administrators with the same or almost the same responsibilities can be grouped into an admin group.

Delegated administration rights can be set up in one of the following methods:

- Create an administrator or an administrator group and grant rights to the account using the Administrator Wizard.
- Configure grants on existing administrator accounts. Add new rights or modify rights to an existing delegated administrator or administrator group account.
- Add, modify and delete rights directly in a target’s Access Control List page.

### Administrator Groups and Administrators

Administrator and group administrator accounts are created in the administration console.

Use the administration wizard to

1. Create the create either an Admin Group or an Admin Account.
   - **Admin Groups** are distribution lists (DL) that have Admin Group enabled, which flags it as a delegated administrator DL. After the admin group administrator is created and configured with rights and admin views, you add administrator user accounts to the admin group.
   - **Admin Account** is a user account that has Administrator enabled on the account.
2. Configure the admin views for the account. You select the views from the Directly Assigned Admin views list. An admin view represent the items the delegated administrator sees when logged on to the administration console.

   A directly assigned admin view is the view set on the admin account. An inherited admin view is the view set on the admin group the account belongs to.
3. **Configure the Grants.** The Grants dialog displays a list the grants required to display the items you selected in the Directly Assigned Views column. You can accept these rights and add additional rights, skip this page to not configure these rights, or click **Finish** to accept these rights and quit the wizard.

### Configure Grants on Administrator Accounts or Admin Groups

You can manage the rights granted to an administrator or an administrator group through the Configure Grants link on the accounts toolbar. When you click **Configure Grant** on the Manage Accounts Addresses toolbar, the Content pane shows a list of direct and inherited grants. You can grant rights, modify rights or delete rights on existing administrator accounts.

### Grant ACLs to a Target

When you want to add a specific grantee or specific rights on a target you can edit the target directly. Each target has an ACL page which lists the granted ACLs. You can add, edit or delete the target’s grants. The administration account (grantee) is updated to reflect the change.

## Revoking Rights

Global administrators can revoke any rights granted to an administrator.

1. Open the administrator account and click **Configure Grants**.
2. Select the right to revoke and click **Delete**.
3. When the dialog asks if are sure, click **Yes**.

Delegated administrators can revoke rights if the right was created with the **Can Grant the right to other admins** enabled.

#### Temporarily Revoke Delegated Admin Rights

To temporarily revoke rights to a delegated administrator account, you can edit the administrator account and remove the check next to the Administrator field. The ACLs are not removed from the account.

## View Rights Granted to Administrators

The View Rights link from an admin account or admin group account toolbar displays the granted rights, readable attributes and modifiable attributes associated with a specific target. Click on the tabs to view rights for different targets.

## Predefined Delegated Administrator Role

The following preconfigured administrator groups are created automatically. You can assign administrator accounts to these groups.

### Domain Administration Group

The **zimbradomainadmins delegated** admin group grants all the rights necessary to support ZCS domain administration for accounts, aliases, distribution lists and resources.

Administrators who are part of the **zimbradomainadmins** group can create and manage accounts including setting the account quota, aliases, distribution lists, and resources accounts in their domain.

When domain administrators log onto the administration console, only the functions they are authorized to manage are displayed on the console's Navigation pane.

#### Create Link from Zimbra Web Client Account to Admin Console

For domain administrators, all tasks are performed from the administration console. To facilitate easy log in, when a delegated administrator account is created, their ZWC account can have a link to the administration console.

The link is created from the zmprov CLI

- zmprov md <server. domainexample.com> zimbraWebClientAdminReference <https://server.domainexample.com:7071/

### Distribution List Administration Group

The **zimbradladmin delegated** admin group grants all the rights necessary to log on to the administration console and manage distribution lists.

Administrators who are part of this group can

- View the account list
- Create new distribution lists and delete distribution lists

- Add, edit and remove members in a distribution list

## Creating Delegated Administrator Roles

### Manage multiple domains

To have one domain administrator manage more than one domain, you assign the rights to manage individual domains to the administrator account or administrator group.

For example, to set up domanadministrator1@example.com to manage domainexample1 and domainexample2.com. Create a new administrator account on one of the domains to be managed.

1. Create the administrator account on one of the domains to be managed (domainexample1.com)
2. Select the views that domain administrators need to manage a domain. When the views are selected, the rights associated with these views automatically display on the Configure the Grants dialog.
3. Configure the grants for this domain if they are different from the grants associated with the views you select.
4. To add another domain to be managed (domainexample2.com).
   - On the Configure Grants page, click **Add**
   - Select the target type as **domain**
   - Enter the target’s domain name (domainexample2.com)
   - For Right Type, select System Defined Right
   - For Right Name type, adminConsoleAccountRights. **Is Positive Right** should be selected.
   - Click **Add and More**
   - The **Add ACE** page displays again and the Right Name field is empty. Type, **adminConsoleDLRights** and click **Add and More.**
   - Continue to add the following right names:
     - **adminConsoleAliasRights**
     - **adminConsoleResourceRights**
     - **adminConsoleSavedSearchRights**
     - **adminConsoleDomainRights**
   - After the last right, click **Add and Finish**. The Configure the Grants dialog displays these rights associated with the target domain. If you are adding another domain to manage, click **Add and More.** Repeat Step 4. If not, click **Finish**.

### Manage Distribution Lists

To assign a user to manage a distribution list, you create a distribution list and enable Admin Group, select the view, grant the distribution list rights, add the user to the list and make that user an administrator.

1. Create a new distribution list:
   - **Check Admin Group**
   - Add the user who will be the administrator as a member of the DL.
   - **Go to the Admin Views page and check Distribution List View** so the admin can view the distribution list.
   - Click **Save**.
2. In the **Configure Grants** page, add the following rights.

| Right Name | Target Type | Target | Right Type |
|---|---|---|---|
| The following right let the administrator manage distribution lists. | | | |
| listdistributionlist | dl | DL email address | SD Right |
| adddistributionlistalias | dl | DL email address | SD Right |
| adddistributionlistmember | dl | DL email address | SD Right |
| modifyDistributionlist | dl | DL email address | SD Right |
| getdistributionlistmembership | dl | DL email address | SD Right |
| RemoveDistributionlistmember | dl | DL email address | SD Right |
| This domain right displays user account list that the administrator can select from to add to a distribution list. | | | |
| listAccount | domain | DL email address | SD Right |

### Change Passwords

To create delegated administrators who only change passwords, you create the admin or admin group, select the views and grant the taskSetPassword combo right.

1. Select the following views
   - **Account List** view to be able to select accounts to change passwords
   - **Alias List** view to be able to find users who use an alias instead of account name.

2. The Configure the Grants page displays recommended grants for the views you have chosen. For Change Password rights, do not configure these grants. Select **Skip**. Click **Add** to add the following right:

| Right Name | Target Type | Target | Right Type |
|---|---|---|---|
| taskSetPassword | domain | domain address | SD Right |

### View Mail Access Right

View Mail access right can be granted on accounts, domains, and distribution lists.

| Right Name | Target Type | Target | Right Type |
|---|---|---|---|
| adminLoginAs | **Either**:<br>account<br>domain<br>dl | account, domain, or distribution list address | SD Right* |

*To deny the View Mail right on the target, check the box for **Is Negative Right (Deny)**

To prevent administrators from viewing an account with a domain or distribution list, assign the **Is Negative Right** to the account.

### Manage Class of Service Assigned to Users

You can expand the domain administrator role to be able to view and change the class of service (COS) assigned to a user. To add the rights to manage the COS for a domain, add the following rights to the domain administrator account or domain administrator admin group.

Add the System Defined Rights to each COS in the domain.

| Right Name | Target Type | Target | Right Type |
|---|---|---|---|
| listCos | cos | COS name | SD Right |
| getCos | cos | COS name | SD Right |
| assignCos | cos | COS name | SD Right |
| This domain right displays the COS information in the user account’s General Information page. | | | |
| zimbraCOSId | domain | domain address | Attribute Right<br>Verb: **Write**<br>AR Target: **account** |

### Manage Cross Mailbox Search

This role creates a delegated administrator role that can run the Search Mail tool to search mail archives or live mail for accounts. This also allows the administrator to create, abort, delete, purge or get status of a cross mailbox search request.

**Note:** *The Archiving and Discovery feature must be installed for this feature to work.*

| Right Name | Target Type | Target | Right Type |
|---|---|---|---|
| adminConsoleCrossMailboxSearchRights | (combo) | server name where cross mailbox searches can be run | SD Right |

For full functionality, this role includes the ability to create new accounts so that the admin can create the target mailbox to receive the search results. If you do not want this role to have the ability to create accounts, grant the following negative right as well.

| Right Name | Target Type | Target | Right Type |
|---|---|---|---|
| CreateAccount | domain | domain address | SD Right* |

*To deny the Create Account right on the target, check the box for **Is Negative Right (Deny)**

If you want this admin to also view the target mailbox with the results of the cross mailbox search, grant the right to view that mailbox only.

| Right Name | Target Type | Target | Right Type |
|---|---|---|---|
| adminLoginAs | account | cross mailbox search target account name | SD Right* |

### Manage Zimlets

This role creates a delegated administrator role that can create, deploy and view Zimlets.

| Right Name | Target Type | Target | Right Type |
|---|---|---|---|
| adminConsoleZimletRights | server<br>domain | server name or domain address | SD Right |
| adminConsoleAccountsZimletsTabRights | server<br>domain | server name or domain address | SD Right |

### Manage Resources

This role creates a delegated administrator that can create and manage resources.

| Right Name | Target Type | Target | Right Type |
|---|---|---|---|
| adminConsoleResourceRights | combo | server name or domain address | SD Right |

### Access to the Saved Searches

This role creates a delegated administrator that can access all the searches saved in the administration console Navigation pane, Search section.

| Right Name | Target Type | Target | Right Type |
|---|---|---|---|
| adminConsoleSavedSearchRights | combo | server name or domain address | SD Right |

### Access to the Server Status Pages

This role creates a delegated administrator that can access the Server Status page. In addition to granting this right, you must also select the Admin View, **Global Server Status View**.

| Right Name | Target Type | Target | Right Type |
|---|---|---|---|
| adminConsoleServerStatusRights | global |  | SD Right |

***Note:*** *Accounts that are configured as global administrator accounts cannot be granted ACLs. Global administrator accounts automatically have full rights on ZCS. If an ACL is added to a global administrator account, it is ignored. If a delegated administrator account is changed to a* *global administrator account, any ACLs associated with the account are ignored.*

# 14 Using the Voice Service

Unified Communications (UC) is the integration of multiple modes of communication services, allowing users to receive communication from one service, such as voice mail, and respond using another service, such as Click-to-Call.

Topics in this chapter include:

- Order of Configuration
- Voice Service Requirements
- Using a Third-Party Unified Communications Server

Zimbra uses real-time communications services such as voice, telephony and presence to inter-operate with non-real-time services such as email and voice mail. The Zimbra Collaboration Server (ZCS) Voice Service feature includes Visual Voice Mail, Click-to-Call, and Presence (Cisco only). ZCS uses Cisco or Mitel servers, as a third-party voice server, or UC server, to bridge calls between ZCS and the Zimbra Web Client (ZWC).

***Note:*** *UC system administrators are responsible for configuring the UC server based on that UC server's documentation.*

You enable the voice service from the administration console. Users use the voice service feature from the Voice tab in the ZWC.

When users sign into the voice service from their ZWC account, they are actually logging into a UC server. After the initial user set-up, the voice service is seamless and requires no additional account configuration.

Voice service features include:

- **Visual Voice Mail:** From the Voice tab, users can easily view and listen to voice mails and view details such as caller name, time details, and length of message. Users can call back the person that left the message, forward or reply to the message by email, save or delete the message, and select how to be notified of a new voice message. Supported audio formats include WAV and MP3.

- **Click-to-Call:** The ability to make a phone call from a ZWC account. Users can highlight and click phone number in their email to dial, or select a contact's phone number from their contact lists. The call is bridged from the registered physical or soft phone the user selects to use to call the recipient. Click-to-Call eliminates the use for a dial pad on a phone.
- **Click-to-Chat:** (Cisco clients only) The ability to chat with a contact using the Cisco Jabber client and ZCS. Users must have the recipient's IM address stored in their contact information. They can then access the recipient's contact card and click the IM link to initiate a chat session.
- **Presence**: (Cisco clients only) The ability to display in real time the availability information about users or contacts. When using Cisco Jabber, users can manually set their presence status or it is automatically set for them. For example, when users are on a phone call their presence status is automatically set to "on a call". Presence status is displayed as **available**, **away**, **on a call**, or **do not disturb**.

## Order of Configuration

To create voice service, follow the order of configuration as follows:

1. Access URLs, as described in Using a Third-Party Unified Communications Server.
2. Create the voice service, as described in Creating the Voice/Chat Service.
3. Enable the voice service and the voice feature, as described in Enabling the Voice/Chat Service. Enabling the voice feature allows the Voice tab to display in the ZWC.
4. Enable the appropriate Zimlets for the vendor server you are using, as described in Enabling the Voice/Chat Zimlets.

## Voice Service Requirements

The following are required for ZCS voice service:

- **Voice Service license**: A ZCS license with the voice service feature is required. To obtain this license, see the Zimbra Collaboration Server License section for more information.
- **Unified Communications Server**: Third-Party Unified Communications server requirements for either Cisco or Mitel are listed below. URLs from the UC server are used in the configuration of the ZCS voice service, as described in Using a Third-Party Unified Communications Server.
  - **For Cisco**:
    - **Cisco Unity Connection (UC) 8.5 and above**. Cisco UC generates the Voice URL used in the voice service configuration.

    - **Cisco Unified Communications Manager (CUCM) 7.1(3)**: Enable Web Dialer service for Click-to-Call functionality. Cisco CUCM generates the Call URL used in the voice service configuration.
    - **Cisco Unified Presence Server (CUPS) 8.0**: Cisco CUPS requires Presence Web Service to be enabled, and an application user must be created for viewing the presence. This is done in Cisco Communications Manager (CUCM) > User Management. Cisco CUPS generates the Presence URL used in the voice service configuration.
    - **Cisco Jabber** client provided to users for UC collaboration.
  - **For Mitel**:
    - **Mitel Unified Communicator Advanced (Mitel UCA) 5.0.23.0** release and above. Mitel UCA generates the URLs used in the voice service configuration.
- **ZCS Zimlets**: Voice Preferences Zimlet, Cisco Click2Call Zimlet or Mitel Click2Call Zimlet

## Using a Third-Party Unified Communications Server

The ZCS Voice Service uses a third-party Unified Communications (UC) server to bridge calls between ZCS and the UC server. UC server domain information is added to the ZCS administrator console as a Proxy Allowed Domain. This allows Zimlets that are used in the configuration of the voice service to send requests to the UC servers, such as for the Click-To-Call and/ or Presence feature. The following URLs from the UC server are used to configure the voice service.

### Cisco URLs

- **Voice URL**: The Voice URL is the URL of the Cisco UC server. For example, https://xx.xx.xxx.xx. This URL is used by the ZCS server to fetch user’s voice mails from the Cisco UC server on behalf of users.
- **Call URL**: The Call URL is the URL of the Cisco CUCM server. For example, https://xx.xx.xxx.xx/webdialer/services/WebdialerSoapService70. This URL is used by the ZCS Cisco Click2Call Zimlet to send requests to the Cisco CUCM server to bridge calls.
- **Presence URL**: The Presence URL is the URL of the Cisco CUPS server and used to generate a session ID. For example, http://xx.xx.xxx.xx:8082/presence-service/users.This URL is used by the ZCS Email Zimlet to send fetch requests to the contact’s presence from the Cisco CUPS server.

***Note:*** *Provision an application user name and password using the Cisco Unified Presence Server (CUPS).*

### Mitel URLs

- **Voice URL**: The Voice URL is the URL of the Mitel server. For example https://xx.xx.xxx.xx. This URL is used by the ZCS server to fetch user's voice mails from the Mitel Voice server on behalf of users.
- **Call URL**: The Call URL is the URL of the Mitel server. For example, https://xx.xx.xxx.xx/webdialer/services/WebdialerSoapService70. This URL is used by the ZCS Mitel Click2Call Zimlet to send requests to the Mitel server to bridge calls.
- **User URL**: The User URL is the URL of the Mitel server. This URL is used by ZCS for user identification/authentication.

## Creating the Voice/Chat Service

When creating the voice/chat service in ZCS, you are enabling the bridge between ZCS and a third-party UC server. You create a service for a domain, Class of Service (COS), or user.

1. In the ZCS administrator console, go to the **Home>Configure>Voice/Chat Service** page.
2. From the gear icon menu, select **New.**
3. On the Choose Voice/Chat Vendor, select your vendor from the drop-down menu.
4. Click **OK**.
5. Add a **Display name** for the domain, COS, or user you are creating.
6. Add the URLs for the voice services you want to enable.
7. Click **OK**.

### Configure Presence (Cisco only)

If configuring Presence, you must generate a Presence Session ID.

1. Go to **Configure>Voice/Chat Service** page.
2. Select the voice service for which you want to generate a Presence Session ID.
3. Click the gear icon drop down menu and select **Generate Session ID** from the menu.
4. Enter the **Presence User Name** and **Presence Password**, which are the credentials for the presence server to authenticate the voice connection between ZCS and the UC server. This allows ZCS to retrieve presence information for users.
5. Click **OK**. A presence session ID is generated and displays as the **Presence Session ID**.

## Enabling the Voice/Chat Service

After you create the voice/chat service for a domain, COS, or user, you must enable the voice/chat service. For COS and User accounts, you also enable the voice feature which displays the Voice tab in the ZWC.

### Enable Voice/Chat Service on a Domain

For Voice/Chat service on a domain, enable the service on the Domains>General Information page.

1. Go to the **Configure>Domains** page.
2. Select the domain for which you want to enable voice service.
3. Click the gear icon menu and select **Edit.**
4. Scroll down to **Voice and Chat** section and from the **Voice/Chat Service** drop-down menu select the voice service to enable.
5. Click **Save**.

### Enable Voice/Chat Service on a COS

For Voice/Chat service on a COS, you must first enable the voice/chat service and then enable the voice feature.

1. Go to the **Configure>Class of Service** page.
2. Select the COS for which you want to enable the voice service.
3. Click the gear icon drop and select **Edit.**
4. On the General Information page, scroll down to **Voice and Chat** section and from the **Voice/Chat Service** drop-down menu select the voice service to enable.
5. In the Navigation pane, click **Features**.
6. On the Features page, scroll down to **Voice and Chat Features** section and click **Enable Voice Feature**. This displays the Voice tab in the ZWC.
7. Click **Save**.

### Enable Voice/Chat Service on a User Account

For Voice/Chat service on a User Account, you must first enable the voice/chat service and then enable the voice feature.

1. Go to the **Home>Manage>Accounts** page.
2. Select the account for which you want to enable voice service.
3. Click the gear icon drop and select **Edit.**

4. On the General Information page, scroll down to **Voice and Chat** section.
5. From the **Voice/Chat Service** menu select the voice service to enable.
6. Enter a **Chat/Voice Username** for the user. This is the user account name in the third-party UC server. If you do not provide a name, the default name is used. For example for email account “user1@domain.com”, the default voice username is “user1”.
7. From the **Voice/Chat Service** menu select the voice service to enable.
8. In the Navigation pane, click **Features**.
9. On the Features page, scroll down to **Voice and Chat Features** section and click **Enable Voice Feature**. This displays the Voice tab in the ZWC.
10. Click **Save**.

## Enabling the Voice/Chat Zimlets

Zimlets are used in the configuration of the voice service to enable the service and send requests to the UC servers. The Voice Preferences Zimlet adds a voice page to the user interface, and the vendor specific Click2Call Zimlets provide the click to call capability.

1. Go to the **Home>Configure>Zimlets** page.
2. Enable the Voice Preferences Zimlet.
   a. Select the **Voice Preferences** Zimlet in the Content pane.
   b. Go to the gear icon menu and select **Deploy**.
3. Enable the vendor Zimlet for Click2Call.
   a. Select the Zimlet appropriate to the vender server you are using:
      - If you are using Cisco, select the **Cisco Click2Call** Zimlet.
      - If you are using Mitel, select the **Mitel Click2Call** Zimlet.

   b. Go to the gear icon menu and select **Deploy**.

If you want to undeploy a Zimlet, select the Zimlet and go to the gear icon drop down menu and select **Undeploy**, or you can toggle the Zimlet.

# 15 Monitoring ZCS Servers

The Zimbra Collaboration Server (ZCS) includes the following to help you monitor the Zimbra servers, usage, and mail flow:

- Zimbra Logger package to capture and display server statistics and server status, and to create nightly reports
- Mailbox quota monitoring
- MTA mail queue monitoring
- Log files

Also, selected error messages generate SNMP traps, which can be monitored using an SNMP tool.

Topics in this chapter include:

***Note:*** *Checking the overall health of the system as a whole is beyond the scope of this document.*

## Zimbra Logger

The Logger includes tools for syslog aggregation and reporting. Installing the Logger is optional, but if you do not install it, server statistics and server status information are not captured.

In environments with more than one ZCS server, Logger is enabled on one mailbox server only. This server is designated as the monitor host. The ZCS monitor host is responsible for checking the status of all the other ZCS servers and presenting this information on the Zimbra administration console. Real-time service status, MTA, spam, virus traffic and performance statistics can be displayed. The Logger creates a daily report about mail activity, such as the number of messages, average delivery delay, and errors generated.

***Note:*** *In a multi-server installation, you must set up the syslog configuration files on each server to enable Logger to display the server statistics on the administration console, and you must enable the Logger host. If you did not configure this when you installed ZCS, do so now.*

### Enable Server Statistics

Enable server statistics to show both system-wide and server specific data about the inbound message volume, inbound message count, anti-spam/antivirus activity and disk usage for messages processed in the last 48 hours, 30 days, 60 days, and the last year.

1. On each server, as root, type /opt/zimbra/libexec/zmsyslogsetup. This enables the server to display statistics.
2. On the logger monitor host, you must enable **syslog** to log statistics from remote machines.
   a. Edit the /etc/sysconfig/syslog file, add -r to the SYSLOGD_OPTIONS setting, SYSLOGD_options=”-r -m 0”
   b. Stop the syslog daemon. Type /etc/init.d/syslogd stop.
   c. Start the syslog daemon. Type /etc/init.d/syslogd start.

***Note:*** *These steps are not necessary for a single-node installation.*

### Review Server Status

The **Monitor>Server Status** page lists all servers and services, their status, and when the server status was last checked. The servers include the MTA, LDAP, and mailbox server. The services include MTA, LDAP, Mailbox, SNMP, Anti-Spam, Anti-Virus, Spell checker, and Logger.

To start a server if it is not running, use the zmcontrol CLI command. You can stop and start services from the administration console,

## Enable or Disable Server Services

Server services are enabled or disabled from the **Configure>Servers** page. Select **Services** in the Navigation pane and select to enable or disable services.

## Server Performance Statistics

If the Logger package is installed on a Zimbra mailbox server, Server Statistics shows bar graphs of the message count, message volume, anti-spam, and anti-virus activity. The information is displayed for the last 48 hours, and 30 days, 60 days, and 365 days.

When Server Statistics is selected in the Navigation pane, consolidated statistics for all mailbox servers is displayed. Selecting a specific server in the expanded view shows statistics for that server only. Server specific information also includes disk usage, session information, and mailbox quota details.

The following display system-wide information:

- **Message Count** counts message transactions. A transaction is defined as either the SMTP receipt of a message per person (by Postfix) or a LMTP delivery of it (by mailboxd) per person. For example, if a message is sent to three people, six transactions are displayed. Three for SMTP to Postfix and three for LMTP to mailboxd. The message count is increased by six.
- **Message Volume** displays the aggregate size in bytes of transactions sent and received per hour and per day. Graphs show the total inbound data by volume in bytes.
- **Anti-Spam/Anti-Virus Activity** displays the number of messages that were checked for spam or viruses and the number of messages that were tagged as spam or deemed to contain a virus. The AS/AV count is increased by one per message scanned. One message sent to three people counts as only one message processed by AS/AV.

  The Message Count and the Anti-spam/Anti-virus Activity graphs display a different message count because:

  - Outbound messages may not go through the Amavisd filter, as the system architecture might not require outbound messages to be checked.
  - Messages are received and checked by Amavisd for spam and viruses before being delivered to all recipients in the message. The message count shows the number of recipients who received messages.

Server-specific statistics also include the following:

- **Disk** for a selected server displays the disk used and the disk space available. The information is displayed for the last hour, day, month, and year.

- **Session** displays information about the active Web client, administrator and IMAP sessions. You can see how many active sessions are opened, who is logged on, when the session was created and the last time the session was accessed.
- **Mailbox Quota** displays information about each account sorted by mailbox size in descending order. See Monitoring Mailbox Quotas.

### Configure Logger Mail Reports

The Logger generates a report about mail activity daily at 11:30 p.m. and sends it to the administrator’s email address.

You can configure the number of accounts to include in the report. The default is 25 sender and 25 recipient accounts.

- Change the number of recipients to add to the report:

  ```
  zmlocalconfig -e zimbra_mtareport_max_recipients=<number>
  ```

- Change the number of senders to add to the report:

  ```
  zmlocalconfig -e zimbra_mtareport_max_senders=<number>
  ```

## Configuring Disk Space Notifications

You should regularly review your disk capacity and when disks are getting full, take preventative measures to maintain service. A warning alert email notification is sent to the administrator account when disk space is low. The default is to send a warning alert when the threshold reaches 85% and a critical alert when the threshold reaches 95%.

You can change these values. Use zmlocalconfig to configure the disk warning thresholds.

- Warning alerts: **zmdisklog_warn_threshold**
- Critical alert: **zmdisklog_critical_threshold**

When starting services with zmcontrol, if the threshold is exceeded, a warning is displayed before the services are started. You should clean up your disk to free up space.

## Monitoring Servers

The ZCS server collects many performance-related statistics that can help you diagnose problems and load issues.

The **Monitor>Advanced Statistics** page includes advanced graphing options that lets you generate various charts based on statistical information for the CPU, IO, mailboxd, MTA queue, MySQL and other components.

To chart the graphics in Advanced Statistics, select one of these groups and then select from the list of specific counters for the type of information to display.

The information covers a wide array of data:

- **cpu.csv**: CPU utilization. This group contains counters to keep track of CPU usage (iowait, idle, system, user, time etc.). CPU information can be tracked both at the server level and the process level.
- **df.csv:** Captures disk usage. Disk utilization is tracked for each disk partition.
- **fd.csv**: file descriptor count. Keeps track of system file descriptor usage over time. This is primarily used to track down “out-of-file descriptor” errors.
- **mailboxd.csv**: ZCS server and JVM statistics. Mailboxd stores almost all of its statistics here. Interesting numbers to keep track of are heap_used, heap_free, imap_conn, soap_sessions, pop_conn, db_conn_count.
- **mtaqueue.csv**: Postfix queue. This measures the mail queue size in number of messages and the size in bytes.
- **proc.csv**: Process statistics for Zimbra processes. For example mailboxd/ java, MySQL, OpenLDAP, etc.)
- **soap.csv**: SOAP request processing time.
- **threads.csv**: JVM thread counts. Counts the number of threads with a common name prefix.
- **vm.csv**: Linux VM statistics (from the vmstat command).
- **io-x.csv** and **io.csv** store data from the iostat(1) command (io-x.csv with iostat -x).

## Configuring Denial of Service Filter Parameters

The denial-of-service filter (DoSFilter) limits exposure to requests flooding. The DoSFilter throttles clients sending a large number of requests over a short period of time.

The DoSFilter is enabled by default on ZCS and is applied to all requests. You can modify the configuration to accommodate your specific environmental needs. Disabling the DoSFilter is not recommended.

### Identifying False Positives

Sometimes Zimbra Connector for Outlook (ZCO), mobile ActiveSync clients, or running some zmprov commands trigger the DoSFilter. When this happens, the Zimbra mailbox service is unavailable. You can review the following logs to see if the DoSFilter was applied.

- **/opt/zimbra/log/sync.log.**

  Example of a log entry showing the DoSFilter

```
2013-01-15 15:52:20,426 WARN [qtp1635701107-91:https://x.x.x.x/
Microsoft-Server-
ActiveSync?User=zsupport2&DeviceId=Appl5ddddd3NR&DeviceType=iPhone&
Cmd=FolderSync][name=zsupport2@domain.com;mid=64;ip=71.194.89.54;Cm
d=FolderSync;DeviceID=Appl5K0113UN3NR;Version=12.1;] sync - Service
exception com.zimbra.common.service.ServiceException: error while
proxying request to target server: HTTP/1.1 503 Service Unavailable
ExceptionId:qtp1635701107-91:https://10.10.0.54:443/Microsoft-
Server-
ActiveSync?User=zsupport2&DeviceId=Appl5K0113UN3NR&DeviceType=iPhon
e&Cmd=FolderSync:1358286740426:c5ca7f36bb0a038f
Code:service.PROXY_ERROR Arg:(url, STR,"http://mail.domain.com:80/
service/soap/SyncRequest"
```

- **/opt/zimbra/log/zmmailboxd.out**

```
2013-01-15 15:57:32.537:WARN:oejs.DoSFilter:DOS
ALERT:ip=127.0.1.1,session=null,user=null
```

## Customizing DoSFilter Configuration

The following attributes are used with zmprov to configure the DoSFilter. These attributes can be configured as global settings and as server settings. If these attributes are set in the server, the server settings override the global settings.

You can modify these settings, but the default configuration is recommended.

| Attribute | Description |
|---|---|
| **DoSFilter Delay**<br>**zimbraHttpDosFilterDelayMillis** | The delay given to all requests over the rate limit before they are considered. The default is -1.<br>■ -1 = Reject request<br>■ 0 = No delay<br>■ Any other value = Delay is in ms<br>Enter as<br>zmprov mcf zimbraHttpDosFilterDelayMillis [x] |
| **DoSFilter Maximum Requests Per Second**<br>zimbraHttpDosFilterMaxRequestsPerSec | The maximum number of requests from a connection per second. Requests in excess of this are throttled. The default is 30 and the minimum is 1.<br>Enter as<br>zmprov mcf zimbraHttpDosFilterMaxRequestsPerSec [X] |

| Attribute | Description |
|---|---|
| **DoSFilter IP Addresses Whitelist**<br>zmprov mcf zimbraHttpThrottleSafeIPs [x.x.x.x,192.168.x.x] | IP addresses to ignore when applying the DosFilter. This attribute does not have a default value, however the following loopback IPs are whitelisted by default.<br>• 127.0.0.1<br>• ::1<br>The IP addresses should be comma separated.<br>Enter as<br>zmprov mcf zimbraHttpThrottleSafeIPs [addresses] |

A mailbox server restart is required after modifying these attributes. Type

```
zmmailboxdctl restart
```

### Tuning Considerations for ZCS 8.0.3 and later

- **ZCS Member Servers**: ZCS servers under the control of a single master LDAP server are automatically whitelisted by IP address. These hosts are discovered using a **GetAllServersRequest** . Type as `zmprov gas`.
- **External Provisioning Hosts/SOAP API**: External provisioning hosts can be added to the IP whitelist to ensure that the DoSFilter does not block some requests. For example, a mailbox reindex might make several calls per second that can trigger the DoSFilter.

***Note:*** *For ZCS servers at 8.0.0 to 8.0.2, see the Denial of Service workaround located at http://www.zimbra.com/forums/announcements/60397-zcs-dosfilter-workaround-zcs-8-0-1-8-0-2-a.html.*

## Working with Mail Queues

When the Zimbra MTA receives mail, it routes the mail through a series of queues to manage delivery; incoming, active, deferred, held, and corrupt.

The **incoming** message queue holds the new mail that has been received. Each message is identified with a unique file name. Messages are moved to the active queue when there is room. If there are no problems, message move through this queue very quickly.

The **active** message queue holds messages that are ready to be sent. The MTA sets a limit to the number of messages that can be in the active queue at any one time. From here, messages are moved to and from the anti-virus and anti-spam filters before being delivered to another queue.

Messages that cannot be delivered are placed in the **deferred** queue. The reasons for the delivery failures are documented in a file in the deferred queue. This queue is scanned frequently to resend the message. If the message cannot be sent after the set number of delivery attempts, the message fails. The message is bounced back to the original sender. The default for the bounce queue lifetime is five days.

The **held** message queue keeps mail that could not be processed. Messages stay in this queue until the administrator moves them. No periodic delivery attempts are made for messages in the held queue.

The **corrupt** queue stores damaged unreadable messages.

### Change the Bounce Queue Lifetime

- The MTA server’s bounce queue lifetime is set for five days. To change the default queue lifetime setting

  ```
  zmlocalconfig -e bounce_queue_lifetime=[#]
  ```

- To permanently have messages bounced back to the sender, instead of being sent to the deferred queue first

  ```
  zmlocalconfig -e zimbraLmtpPermanentFailureWhenOverQuota=TRUE
  ```

### Notify Senders of Bounced Messages

Before the bounce queue lifetime sends the message back to the sender, senders can be notified that the message they sent is in the deferred queue and has not been delivered.

Configure the following attributes to send a warning message to the sender.

- Configure the time after which the sender receives the message headers of email that is still queued.

  ```
  zmlocalconfig -c postfix_delay_warning_time=0h
  ```

- Configure the recipient of postmaster notifications with the message headers of mail that the MTA did not deliver.

  ```
  zmlocalconfig -c postfix_bounce_notice_recipient=postmaster
  ```

- Configure the list of error classes that are reported to the postmaster.

  ```
  zmlocalconfig -c postfix_notify_classes=resource,software
  ```

***Note:*** *See Postfix documentation for details on the impact of changes to these Postfix attributes.*

You can monitor the mail queues for delivery problems from the administration console.

### View Mail Queues

If you are having problems with mail delivery, you can view the mail queues from the administration console **Monitor>Mail Queues** page to see if you can fix the mail delivery problem. When you open mail queues, the content of the deferred, incoming, active, hold, and corrupt queues at that point in time can be viewed. You can view the number of messages and where they are coming from and going to.

For each queue, the Summary pane shows a summary of messages by receiver domain, origin IP, sender domain, receiver address, sender address, and for the deferred queue, by error type. You can select any of the summaries to see detailed envelope information by message in the Messages pane.

The Messages pane displays individual message envelope information for search filters selected from the Summary pane.

The following mailbox queue functions can be performed for all the messages in a queue:

- **Hold** to select a set of messages that you want to hold. Incoming, active, deferred, and corrupt messages can be moved to the Held queue. Messages stay in this queue until the administrator moves them.
- **Release** to remove all message from the Held queue. Messages are moved to the Deferred queue.
- **Requeue** all messages in the queue being viewed. Requeuing messages can be used to send messages that were deferred because of a configuration problem that has been fixed. Messages are re-evaluated and earlier penalties are forgotten.
- **Delete** all messages in the queue being viewed.

The Zimbra MTA, Postfix queue file IDs are reused. If you requeue or delete a message, note the message envelope information, not the queue ID. It is possible that when you refresh the mail queues, the queue ID could be used on a different message.

### Flush Message Queues

You can flush the server of all messages. When you click Flush on the Mail Queue toolbar, delivery is immediately attempted for all messages in the Deferred, Incoming and Active queues.

## Monitoring Mailbox Quotas

Mailbox quotas apply to email messages, attachments, calendar appointments, and tasks in a user’s account. When an account quota is reached, all mail messages are rejected. Users must delete mail from their account to get below their quota limit - this includes emptying their Trash, or you can increase their quota.

### View Quota

You can check mailbox quotas for individual accounts from Server Statistics on the administration console. Mailbox Quota gives you an instant view of the following information for each account:

1. On the administrator console, go to the **Monitor>Server Statistics** page.
2. Select the server for which you want to view statistics.
3. In the Navigation pane, select **Mailbox Quota**. The Mailbox Quota page displays with the following information:
   - Quota column shows the mailbox quota allocated to the account. Quotas are configured either in the COS or by account.
   - Mailbox Size column shows the disk space used.
   - Quota Used column shows what percentage of quota is used.

### Increase or Decrease Quota

From a COS or Account, you can configure a quota threshold that, when reached, sends a message alerting users that they are about to reach their mailbox quota.

1. On the administrator console, go to the **Configure>Class of Service>Advanced** page. Scroll down to the Quota section.
2. Modify the quota settings.
3. Click **Save**.

## Viewing MobileSync Statistics

The **MobileSync Statistics** page in the Monitor section in the admin console displays the number of currently connected ActiveSync devices that are on the ZCS system.

## Monitoring Authentication Failures

To protect against dictionary-based and distributed attacks, you can configure the zmauditwatch. The script attempts to detect more advanced attacks by looking at where the authentication failures are coming from and how frequently they are happening for all accounts on a Zimbra mailbox server and sends an email alert to the administrator’s mailbox.

The types of authentication failures checked include:

- **IP/Account hash check**. The default is to send an email alert if 10 authenticating failures from an IP/account combination occur within a 60 second window.

- **Account check**. The default is to send an email alert if 15 authentication failures from any IP address occur within a 60 second window. This check attempts to detect a distributed hijack based attack on a single account.
- **IP check**. The default is to send an email alert if 20 authentication failures to any account occur within a 60 second window. This check attempts to detect a single host based attack across multiple accounts.
- **Total authentication failure check**. The default is to send an email alert if 1000 auth failures from any IP address to any account occurs within 60 seconds. The default should be modified to be 1% of the active accounts on the mailbox server.

The default values that trigger an email alert are changed in the following zmlocalconfig parameters:

- IP/Account value, change **zimbra_swatch_ipacct_threshold**
- Account check, change **zimbra_swatch_acct_threshold**
- IP check, change **zimbra_swatch_ip_threshold**
- Total authentication failure check, change **zimbra_swatch_total_threshold**

Configure **zimbra_swatch_notice_user** with the email address that should receive the alerts**.**

## Viewing Log Files

ZCS logs its activities and errors to a combination of system logs through the syslog daemon as well as Zimbra specific logs on the local file system. The logs described below are the primary logs that are used for analysis and troubleshooting.

Local logs containing Zimbra activity are in the **/opt/zimbra/log** directory.

- **audit.log**. This log contains authentication activity of users and administrators and login failures. In addition, it logs admin activity to be able to track configuration changes.
- **clamd.log**. This log contains activity from the antivirus application clamd.
- **freshclam.log**. This log contains log information related to the updating of the clamd virus definitions.
- **mailbox.log**. This log is a mailboxd log4j server log containing the logs from the mailbox server. This includes the mailbox store, LMTP server, IMAP and POP servers, and Index server.
- **myslow.log**. This slow query log consists of all SQL statements from the mailbox server that took more then long_query_time seconds to execute. Note: long_query_time is defined in /opt/zimbra/conf/my.cnf.
- **spamtrain.log**. This log contains output from zmtrainsa during regularly scheduled executions from the cron.
- **sync.log**. This log contains information about ZCS mobile sync operations.

Other logs include:

- **/opt/zimbra/jetty/logs/**. This is where Jetty-specific activity is logged.
- **/opt/zimbra/db/data**. <hostname>.err. This is the message store database error log.
- **/opt/zimbra/logger/db/data.** <hostname>.err. This is the Logger database error log.

ZCS activity logged to System syslog

- **/var/log/zimbra.log.** The Zimbra syslog details the activities of the Zimbra MTA (Postfix, amavisd, antispam, antivirus), Logger, Authentication (cyrus-sasl), and Directory (OpenLDAP). By default LDAP activity is logged to Zimbra.log.

## Syslog

Zimbra modifies the systems syslog daemon to capture data from the mail and local syslog facility to **/var/log/zimbra.log**. This allows syslogd to capture data from several ZCS components including Postfix, Amavis, ClamAV, mailboxd, zmconfigd, and logger. The SNMP module uses the data from the log file to generate traps for critical errors. The zmlogger daemon also collects a subset of the data in this file to provide statistics on the utilization of ZCS via the administration console.

By default, mailboxd is configured to log its output to **/opt/zimbra/log/ mailbox.log**. You can enable mailboxd to take advantage of a centralized syslogd infrastructure by enabling the following either globally or by server

```
zmprov mcf zimbraLogToSysLog True
```

## Use log4j to Configure Logging

The ZCS server uses log4j, a Java logging package as the log manager. By default, the ZCS server has log4j configured to log to the local file system. You can configure log4j to direct output to another location. Go to the Log4j website for information about using log4j.

ZCS does not check the log4j changes. To remove all account loggers and reloads in /opt/zimbra/conf/log4j.properties, use the **zmprov resetAllLoggers** command.

## Logging Levels

The default logging level is set to include logs that are generated for INFO, WARNING, ERROR and FATAL. When problems start to occur, you can turn on the DEBUG or TRACE log levels.

To change the logging levels, edit the log4j properties, **log4j properties, log4j.logger.zimbra**.

When enabling DEBUG, you can specify a specific category to debug. For example, to see debug details for POP activity, you would type **logger.zimbra.pop=DEBUG**.

The following categories are predefined in log4j:

| | |
|---|---|
| **zimbra.account** | Account operations |
| **zimbra.acl** | ACL operations |
| **zimbra.backup** | Backup and restore |
| **zimbra.cache** | Inmemory cache operations |
| **zimbra.calendar** | Calendar operations |
| **zimbra.dav** | DAV operations |
| **zimbra.dbconn** | Database connection tracing |
| **zimbra.extensions** | Server extension loading |
| **zimbra.filter** | Mail filtering |
| **zimbra.gal** | GAL operations |
| **zimbra.imap** | IMAP protocol operations |
| **zimbra.index** | Index operations |
| **zimbra.io** | Filesystem operations |
| **zimbra.ldap** | LDAP operations |
| **zimbra.lmtp** | LMTP operations (incoming mail) |
| **zimbra.mailbox** | General mailbox operations |
| **zimbra.misc** | Miscellaneous |
| **zimbra.op** | Changes to mailbox state |
| **zimbra.pop** | POP protocol operations |
| **zimbra.redolog** | Redo log operations |
| **zimbra.security** | Security events |
| **zimbra.session** | User session tracking |
| **zimbra.smtp** | SMTP operations (outgoing mail) |
| **zimbra.soap** | SOAP protocol |
| **zimbra.sqltrace** | SQL tracing |
| **zimbra.store** | Mail store disk operations |
| **zimbra.sync** | Sync client operations |
| **zimbra.system** | Startup/shutdown and other system messages |
| **zimbra.wiki** | Wiki operations |
| **zimbra.zimlet** | Zimlet operations |

Changes to the log level take affect immediately.

### Logging Levels

Table 2:

| Level | Local? | Syslog | SNMP Trap | When Used |
|---|---|---|---|---|
| FATAL | Y | Y | Y | Designates very severe error events that the application to abort or impact a large number of users. For example, being unable to contact the MySQL database. |
| ERROR | Y | Y | N | Designates error events that might still allow the application to continue running or impact a single user. For example, a single mailbox having a corrupt index or being unable to delete a message from a mailbox. |
| WARN | Y | N | N | Designates potentially harmful situations but are usually recoverable or can be ignored. For example, user log in failed. |
| INFO* | Y | N | N * | Designates information messages that highlight the progress of the application, basic transaction-level logging. For example, server start-ups, mailbox creation/deletion, account creation. |
| DEBUG | Y | N | N | Events that would generally be useful to help a customer debug problems. |

* A few non-critical messages such, as service startup messages, will generate traps.

### Protocol Trace

Protocol trace is available in the following logging categories:

- zimbra.smtp
- zimbra.lmtp
- zimbra.soap
- zimbra.imap
- zimbra.imap-client
- zimbra.pop
- zimbra.pop-client

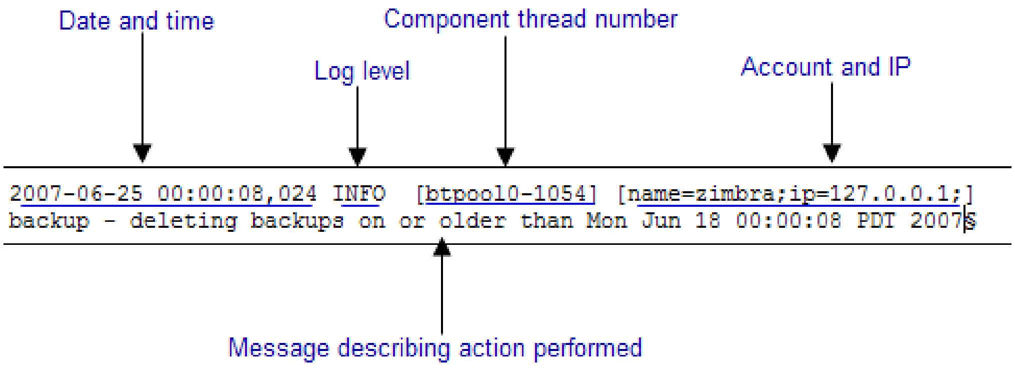
## Review mailbox.log Records

The mailbox.log file contains every action taken on the mailbox server, including authentication sessions, LMTP, POP3, and IMAP servers, and Index server. Review the mailbox.log to find information about the health of your server and to help identify problems.

Mailbox.log records valid and invalid login attempts, account activity such as opening email, deleting items, creating items, indexing of new mail, server activities including start and stop. The progress of an activity on the mail server is logged as INFO. If the expected results of the activity fails and errors occurs, an exception is written to the log.

You can set up logging options for a single account in order to trace account activity for one user without filling up mailbox.log with log messages for unrelated accounts. See Appendix A Command-Line Utilities, the zmprov miscellaneous section.

**Reading records in the log** The example below is a record showing that on June 25, 2007, the zimbra server with an IP address of 127.0.0.1 was in the process of deleting backups that were created on Monday, June 18, 2007 at 8 seconds after midnight Pacific Daylight Time (PDT) or older than that date.



```
2007-06-25 00:00:08,024 INFO  [btpool0-1054] [name=zimbra;ip=127.0.0.1;]
backup - deleting backups on or older than Mon Jun 18 00:00:08 PDT 2007$
```

**Note:** ***Component thread number*** *identifies which thread managed by mailboxd is performing the action logged.*

### Handler Exceptions and Stack Traces

If an error occurs during the progress of an activity, a handler exception is added to the end of the log record to notify you that an event occurred during the execution of the process that disrupted the normal flow. This signals that some type of error was detected.

```
007-06-25 00:00:10,379 INFO  [btpool0-1064] [name=nriers@example.com;
mid=228;ip=72.255.38.207;ua=zimbra Desktop/0.38;] SoapEngine - handler
exception
```

Sometimes a stack trace is displayed after the exceptions notification. A stack trace reports the threads and monitors in the zimbra’s **mailboxd** service. This information aids in debugging, because the trace shows where the error occurred. The last few entries in the stack often indicate the origin of the problem. When the **caused by** descriptor is included in the log line, this is the root of the error. In the example below, the error was caused by 501, bad address syntax.

```
com.example.cs.mailbox.MailServiceException: Invalid address: Jon R
at com.example.cs.mailbox.MailServiceException.internal_SEND_FAILURE
(MailServiceException.java:412)
at com.example.cs.mailbox.MailServiceException.SEND_ABORTED_ADDRESS_
FAILURE MailServiceException.java:416)
.
.
.
at org.mortbay.thread.BoundedThreadPool$PoolThread.run(BoundedThread
Pool.java:442)
Caused by: com.example.cs.mailbox.MailSender$SafeSendFailedException
:501 Bad address syntax
; chained exception is:
com.sun.mail.smtp.SMTPAddressFailedException: 501 Bad address syntax
at com.sun.mail.smtp.SMTPTransport.rcptTo(SMTPTransport.java:1196)
at
com.sun.mail.smtp.SMTPTransport.sendMessage(SMTPTransport.java:584)
at javax.mail.Transport.send0(Transport.java:169)
at javax.mail.Transport.send(Transport.java:98)
at
com.example.cs.mailbox.MailSender.sendMessage(MailSender.java:409)
at
com.example.cs.mailbox.MailSender.sendMimeMessage(MailSender.java:26
2)
... 30 more
```

### Mailbox log files

The mailbox.log files rotate daily. The mailbox log files are saved in **/opt/zimbra/log**. Previous mailbox.log file names include the date the file was made. The log without a date is the current log file. You can back up and remove these files.

### Troubleshoot Mail Problems

To review the mailbox.log for errors, search for the email address or the service that is experiencing the problem. Also, search for WARN or ERROR log levels, read the text of the message. When you find the error, review the records, tracing the events that happened before the problem was recorded.

### System Crashing

When your system crashes, locate the startup message and then look for errors before the startup message date. This example shows an out-of-memory error on June 17, 2007.

```
2007-06-25 01:56:18,725 INFO  [main] [] soap - Servlet SoapServlet
starting up
```

Look for errors before the startup message.

```
2007-06-17 20:11:34,194 FATAL [btpool0-3335]
[name=samd@example.com;aname=abcadmin@example.com;mid=142;ip=66.92.2
5.194;ua=zimbraConnectorForBES/5.0.207;] system - handler exception
java.lang.OutOfMemoryError: PermGen space
```

### Mail Delivery Problem

Locate the “LmtpServer” service. This example includes a stack trace report with a **caused by** explanation that the recipient address was rejected as the address must be a fully-qualified address.

```
2007-06-25 10:47:43,008 INFO  [LmtpServer-250]
[name=bigen@example.com;mid=30;msgid=<1291804360.35481182793659172.J
avaMail.root@dogfood.example.com>;] lmtp - rejecting message
bigen@example.com: exception occurred
com.zimbra.cs.mailbox.MailServiceException: redirect to too failed
at com.zimbra.cs.mailbox.MailServiceException.internal_SEND_FAILURE
(MailServiceException.java:412)
at com.zimbra.cs.mailbox.MailServiceException.SEND_FAILURE(MailServi
ceException.java:424)
at com.zimbra.cs.filter.zimbraMailAdapter.executeActions(zimbraMailA
dapter.java:286)
at org.apache.jsieve.SieveFactory.evaluate(SieveFactory.java:151)
at com.zimbra.cs.filter.RuleManager.applyRules(RuleManager.java:177)
at com.zimbra.cs.lmtpserver.zimbraLmtpBackend.deliverMessageToLocal
Mailboxes(zimbraLmtpBackend.java:325)
at com.zimbra.cs.lmtpserver.zimbraLmtpBackend.deliver(zimbraLmtpBack
end.java:140)
at com.zimbra.cs.lmtpserver.LmtpHandler.doDATA(LmtpHandler.java:441)
at com.zimbra.cs.lmtpserver.LmtpHandler.processCommand(LmtpHandler.
java:205)
at com.zimbra.cs.tcpserver.ProtocolHandler.processConnection(Protoc
olHandler.java:231)
at com.zimbra.cs.tcpserver.ProtocolHandler.run(ProtocolHandler.java
:198)
at EDU.oswego.cs.dl.util.concurrent.PooledExecutor$Worker.run(Unkn
own Source)
at java.lang.Thread.run(Thread.java:619)
```

```
Caused by: com.zimbra.cs.mailbox.MailSender$SafeSendFailedException:
504 <too>: Recipient address rejected: need fully-qualified address
; chained exception is:
com.sun.mail.smtp.SMTPAddressFailedException: 504 <too>: Recipient
address rejected: need fully-qualified address
at com.sun.mail.smtp.SMTPTransport.rcptTo(SMTPTransport.java:1196)
at
com.sun.mail.smtp.SMTPTransport.sendMessage(SMTPTransport.java:584)
at javax.mail.Transport.send0(Transport.java:169)
at javax.mail.Transport.send(Transport.java:120)
at
com.zimbra.cs.filter.zimbraMailAdapter.executeActions(zimbraMailAdap
ter.java:281)
... 10 more
```

### Account Error- Log in error

Mailbox.log logs any successful or unsuccessful login attempts from IMAP, POP3 or ZWC. When you are looking for a login error, start by looking for “Auth.” This example shows that someone from IP address 10.10.131.10 was trying to log in as admin on the Zimbra Web Client, using Firefox in a Windows OS. Permission was denied because it was not an admin account.

```
2007-06-25 09:16:11,483 INFO  [btpool0-251]
[ip=10.10.131.10;ua=zimbraWebClient - FFX.X (Win);] SoapEngine -
handler exception
com.zimbra.common.service.ServiceException: permission denied: not
an admin account
at com.zimbra.common.service.ServiceException.PERM_DENIED(ServiceExc
eption.java:205)
at com.zimbra.cs.service.admin.Auth.handle(Auth.java:103)
```

### Account Errors - IMAP or POP related

When you are looking for a log because of an IMAP or POP issue, look for “ImapServer/Pop3Server.” This example shows a fatal IMAP server error occurred while trying to connect siress@example.com.

```
mailbox.log.2007-06-19:2007-06-19 15:33:56,832 FATAL [ImapServer-
2444] [name=sires@example.com;ip=127.0.0.1;] system - Fatal error
occurred while handling connection
```

## Reading a Message Header

Each email message includes a header that shows the path of an email from its origin to destination. This information is used to trace a message’s route when there is a problem with the message. The Zimbra email message header can be viewed from the Zimbra Web Client Message view. Right-click on a message and select **Show Original**.

The following lines are in the message header:

- **Date** - The date and time the message was sent. When you specify time, you can specify range by adding start and stop time to search for messages.
- **From** - The name of the sender and the email address
- **To** - The name of the recipient and the email address. Indicates primary recipients.
- **Message-ID** - Unique number used for tracing mail routing
- **In-Reply-To** - Message ID of the message that is a reply to. Used to link related messages together.
- **Received: from** - The name and IP address the message was sent from. The header displays Received: from information from the MTA to the LMTP and from the local host.

## Fixing Corrupted Mailbox Index

Mail messages and attachments are automatically indexed before messages are deposited in a mailbox. Each mailbox has an index file associated with it. This index file is required to retrieve search results from the mailbox.

If a mailbox's index file becomes corrupt or is accidentally deleted, you can re-index the messages in the mailbox from the administration console.

Text searches on an account might or might not fail with errors when the index is corrupt. You cannot count on a user reporting a failed text search to identify that the index is corrupt. You must monitor the index log for messages about corrupt indexes. If the server detects a corrupt index, a message is logged to the Zimbra mailbox.log at the WARN logging level. The message starts with **Possibly corrupt index**. When this message is displayed, the administrator must correct the problem. In many cases correcting the problem might mean reindexing the mailbox.

Reindexing a mailbox's content can take some time, depending on the number of messages in the mailbox. Users can still access their mailbox while reindexing is running, but because searches cannot return results for messages that are not indexed, searches may not find all results.

### Check if an Index is Corrupt

Run a sanity check on a specific mailbox index using the command **zmprov verifyIndex**.

To check if an index is corrupt, run

```
zmprov verifyIndex <user@example.com>
```

If problems are detected, a failure status is returned and a repair can be performed on the index.

### Repair and Reindex a Corrupt Index

To repair and reindex an index, run

```
zmprov reIndexMailbox <user@example.com> start
```

This returns a status of "started".

## SNMP Monitoring and Configuration

### SNMP Monitoring Tools

You will probably want to implement server monitoring software in order to monitor system logs, CPU and disk usage, and other runtime information.

ZCS uses swatch to watch the syslog output to generate SNMP traps.

### SNMP Configuration

ZCS includes an installer package with SNMP monitoring. This package should be run on every server (ZCS, OpenLDAP, and Postfix) that is part of the ZCS configuration.

The only SNMP configuration is the destination host to which traps should be sent.

### Errors Generating SNMP Traps

The ZCS error message generates SNMP traps when a service is stopped or is started. You can capture these messages using third-party SNMP monitoring software and direct selected messages to a pager or other alert system.

## Checking MySQL

The MySQL database is automatically checked weekly to verify the health of the database. This check takes about an hour. If any errors are found, a report is sent to the administrator’s account. The report name that runs the MySQL check is **zmbintegrityreport,** and the crontab is automatically configured to run this report once a week.

***Note:*** *When the MySQL database is checked, running this report can consume a significant amount of I/O. This should not present a problem, but if you find that running this report does affect your operation, you can change the frequency with which zmbintegrityreport is run. See Appendix C ZCS Contrab Jobs.*

## Checking for ZCS Software Updates

When ZCS is installed, the ZCS software update utility is automatically configured to check for the latest ZCS version once a day and if there is an update, to send notification to the address that is configured in the administration console's **Server Updates.**

The dates and times ZCS checked for updates is saved to the **Updates** tab and an email notification is sent out until you update the ZCS version. If you do not want to receive an email notification of updates, disable **Send notification email when updates are available**.

You can configure the following:

- **Server that checks for updates**. Available servers are listed and only one server is configured. The selected server checks for updates and the result of the update response from www.zimbra.com is stored in LDAP.
- **Check for updates every x**. The default is to check once a day. You can change the frequency interval to check every x hours, minutes, or seconds. A cron job is configured to check for new updates. If the frequency interval is less than 2 hours, the crontab file must be modified.
- **Updates URL**. This address is the URL that the server connects to when checking for updates. When a ZCS server checks for updates, it transmits its version, platform, and build number to Zimbra. Normally, this URL is not changed.
- To be notified of updates, check the **Send notification email when updates are available** and enter the send to and send from addresses. The default address is the administrator's address.
- A generic email is created. The subject and content of the email can be changed.
- When a server polls the URL specified, the response is displayed

## Updating Zimbra Connector for Microsoft Outlook

The Zimbra Connector for Microsoft Outlook (ZCO) msi file is available from the Zimbra Utilities Downloads page on the administration console. When a newer version of ZCO is released before a new version of ZCS, you can upload the newer ZCO msi file to the ZCS server from the administration console. The file is uploaded to the **/opt/zimbra/jetty/webapps/zimbra/downloads** directory.

1. Download the new ZCO file to a computer that you can access from the administration console.
2. Go to **Tools and Migration > Client Upload**.
3. Click **Browse** to locate the ZCO file to upload.
4. Restart ZCS. From the command line, type **zmcontrol restart**.

The downloads/index.html file is updated with the latest ZCO client version. This new file can be downloaded from the ZCO link on the administration console Tools and Migration > Download page.

**Note:** *If you do not restart the server, the ZCO download link on the Zimbra Utilities Download page does not select the newer version to download.*

## Types of Notifications and Alerts Sent by ZCS

The following is a list of notifications that are sent by ZCS.

### Service status change notification

This notification is sent when service are stopped or restarted

#### Server Start Notification Message

Subject:  Service <service_name> started on <zimbra_host>

Service status change: <zimbra_host> <service> changed from stopped to running

#### Server Stop Notification Message

Subject:  Service <service_name> stopped on <zimbra_host>

Service status change: <zimbra_host> <service> changed from running to stopped

### Disk usage notification

A warning alert email notification is sent to the admin account when disk space is low. The default is to send a warning alert when the threshold reaches 85% and a critical alert when the threshold reaches 95%

Subject: Disk <volume> at ##% on <zimbra_host>

Disk warning: <zimbra_host> <volume> on device <device_name> at ##%

### Duplicate mysqld processes running notification

A script is executed to see if mysqld process is running to detect cases where corruption is likely to be caused. An email is generated if it finds more than 1 mysqld process running.

Subject: ZCS: Duplicate mysqld processes detected!

PID:$pid PPID:$ppid PGRP:$pgrp

CMD:  $cmdline

More then $maxcnt mysqld processes are running Parent processes include: $procs
This should be investigated immediately as it may lead to database corruption

### SSL certificates expiration notification

A report runs on the first of each month and warns of certificates expiring with the next 30 days.

Subject: ZCS: SSL Certificates approaching expiration!

The Administration Console and CLI Certificate Tools guide provides instructions on how to replace you self-signed or commercial certificate.

http://wiki.zimbra.com/
index.php?title=Administration_Console_and_CLI_Certificate_Tools SSL Certificate expiration checked with $0 on <zimbra_host>.

### Daily report notification

When the logger package is installed, a daily mail report is automatically scheduled in the crontab. The report is sent daily to the administrator's mailbox.

Subject: Daily mail report for <day>

<daily report data>

### Database integrity check notification

The MySQL database can be checked by running the zmdbintegrityreport automatically scheduled in the crontab to run on a weekly basis. A report is sent to the administrator’s mailbox.

Subject: Database Integrity check report for <zimbra_host>

Generating report can't run $cmd: $!

Database errors found.

$cmd --password=XXXXXXXX

<cmd output>

No errors found

command failed $!

### Backup completion notification

When configuring the type of backups that should be run, you can set up to receive notification about the results of a backup session.

Subject: ZCS BackupReport:SUCCESS

Server: <server>

Type: incremental

Status: completed

```
Started: Fri, 2012/07/13 01:00:05.488 PDT
Ended:   Fri, 2012/07/13 01:10:09.842 PDT
Redo log sequence range: 2 .. 2
Number of accounts: 500
```

# 16 Backup and Restore

Zimbra Collaboration Server (ZCS) includes a configurable backup manager that resides on every ZCS server and performs both backup and restore functions. You do not have to stop the ZCS server in order to run the backup process.

Topics in this chapter include:

This chapter describes how data is backed up and restored and how to use the CLI tools to backup or restore your ZCS mailbox server. In addition, this chapter also provides information and general guidelines for disaster recovery.

## Backing Up the Mailbox Server

ZCS includes a configurable backup manager that resides on every ZCS server and performs both backup and restore functions. You do not have to stop the ZCS server in order to run the backup process. The backup manager can be used to restore a single user, rather than having to restore the entire system in the event that one user’s mailbox becomes corrupted. Full and incremental backups are saved in in **opt/zimbra/backup**.

### Redo Log

Each Zimbra mailbox server generates redo logs that contain current and archived transactions processed by the message store server since the last incremental backup.

When the server is restored, after the backed up files are fully restored, any redo logs in the archive and the current redo log in use are replayed to bring the system to the point before the failure.

When the current redo log file size reaches 100MB, the current redo log rolls over to an archive directory. At that point, the server starts a new redo log. All uncommitted transactions from the previous redo log are preserved. In the case of a crash, when the server restarts, the current redo logs are read to re-apply any uncommitted transactions.

When an incremental backup is run, the redo logs are moved from the archive to the backup directory.

## Backup Methods

Two backup methods are available:

- The **standard backup method** is appropriate for enterprise deployments where full backups are run during non-working days.
- The **auto-grouped backup method** is recommended for large ZCS environments where running a full backup of all accounts at one time would take too long.

### Standard Backup

The standard backup method runs a weekly full backup and daily incremental backups. A full backup process backs up all the information needed to restore mailboxes, including the LDAP directory server, database, index directory, and message directory for each mailbox.

When backing up shared messages, if a file representing a message already exists in the backup, it flags this object as such and does not copy its content again.

An incremental backup process backs up the LDAP data and gathers all the redo logs written since the last incremental backup. If the incremental backup process finds no previous full backup for a mailbox, a full backup is performed on that mailbox.

Incremental backups move the redo logs to the backup directory. The redo logs are a journal of every activity that has taken place. They contain a full copy of all messages delivered, as well as metadata such as tags, contacts, and conversations.

These backup files can be used to restore the complete mailbox server or individual mailboxes so that account and message data is completely restored.

The LDAP directory is backed up as part of either the full or incremental backup process. All accounts, domains, servers, COS, and other data are backed up.

Each mailbox server generates redo logs that contain every transaction processed by that server. If an unexpected shutdown occurs to the server, the redo logs are used for the following:

- To ensure that no uncommitted transactions remain, the server reads the current redo log upon startup and re-executes and completes any uncommitted transactions.
- To recover data written since the last full backup in the event of a server failure.

When the server is restored, after the backed up files are fully restored, any redo logs in the archive and the current redo log in use are replayed to bring the system to the point before the failure.

The Zimbra MTA is not backed up, as the data is only on the server for a very short time.

Custom configurations, such as mailboxd’s server.xml, are not backed up.

#### Backup Notifcation

A backup report is sent to the admin mailbox when full and incremental backups are performed. This report shows the success or failure of the backup and includes information about when the backup started and ended, the number of accounts backed up and redo log sequence range.

If the backup failed, additional error information is included.

### Auto-Grouped Backup Method

The auto-grouped backup method runs a full backup for a different group of mailboxes at each scheduled backup. The auto-grouped backup method is designed for very large ZCS environments where backing up all accounts can take a long time. Because auto-grouped backups combine full and incremental backup functions, there is no need for incremental backups. Each auto-grouped session runs a full backup of the targeted group of mailboxes. It is not recommended to run auto-grouped backups manually since they are scheduled from the CLI and run automatically at the scheduled times.

## Directory Structure for Backup Files

The backup destination is known as a backup target. To the backup system, it is a path in the file system of the mail server. The Zimbra default backup directory is **/opt/zimbra/backup**.

The backup directory structure created by the standard backup process is shown in Standard Backup directory structure. You can run regularly scheduled backups to the same target area without overwriting previous backup sessions.

The **accounts.xml** file lists all accounts that are in all the backups combined. For each account, this file shows the account ID, the email address, and the label of the latest full backup for that account. If you save your backup sessions to another location, you must also save the latest accounts.xml file to that location. The accounts.xml file is used to look up the latest full Backup for an account during restore. If the accounts.xml file is missing you must specify the backup label to restore from.

The redo log directory is located at **/opt/zimbra/redolog/redo.log**. When the current redo log file size reaches 100MB, the current redo log rolls over to an archive directory**, /opt/zimbra/redolog/archive**. At this point the server starts a new redo log. All uncommitted transactions from the previous redo log are preserved. In the case of a crash, when the server restarts, the current redo logs are read to re-apply any uncommitted transactions.

Redo operations are time critical, therefore a directory move is performed instead of a copy-then-delete function. This directory move can only be performed if the source and destination paths are on the same file system volume. In other words, the redo log and redo-archive log must be on the same file system volume because the archive files are a subdirectory of the redo log file system.

All incremental and auto-grouped backup sessions must be saved to the same directory as all the redo logs must be found in the same backup target. Standard full backup sessions can use a different target directory.

**Standard Backup directory structure**

| | |
|---|---|
| ***/opt/zimbra/backup*** | Default root of backups |
| ***accounts.xml/*** | List of all accounts, each with email file address, Zimbra ID, and latest full backup label. The accounts.xml maintains the mapping of email addresses to their current zimbraIds and also the most recent full backup for each account. |
| ***sessions/*** | Root of backup sessions. |
| ***full-<timestamp>/*** | A full backup directory. The timestamp for a session is the backup start time in GMT, including milliseconds. GMT is used rather than local time to preserve visual ordering across daylight savings transitions. |
| ***session.xml*** | Metadata about this backup label for full or incremental session, such as start and stop times. |
| ***shared_blobs/*** | Contains message files that are shared among accounts in this backup. |
| ***sys/*** | Global database tables and localconfig. |
| ***db_schema.xml*** | Database schema information for global tables. Each table dump file has a .csv format. |
| ***localconfig.xml*** | Copy of /opt/zimbra/conf/localconfig.xml at the time of the backup. |
| ***<table name>.dat*** | Database table data dump. |
| ***LDAP/ldap.bak*** | LDAP dumps. |
| ***accounts/*** | Each account's data is saved in a subdirectory of this. |

| | |
|---|---|
| ***<.../zimbraId>/*** | Root for each account. |
| ***meta.xml*** | Metadata about this account's backup. |
| ***ldap.xml*** | Account's LDAP information, including aliases, identities, data sources, distribution lists, etc. |
| ***ldap_latest.xml*** | If this is present, this files links to ldap.xml of the most recent incremental backup. |
| ***db/*** | Account-specific database table dumps. |
| ***db_schema.xml*** | Database schema information for this account's tables. |
| ***<table name>.dat*** | Database table data dump. |
| ***blobs/*** | Contains blob files. |
| ***index/*** | Contains Lucene index files. |
| ***incr-<timestamp>*** | An incremental backup directory. This directory is similar to the full backup directory schema and includes these meta files. |
| ***session.xml*** | |
| ***sys/db_schema.xml*** | |
| ***accounts/..../<zimbraID>/ldap.xml*** | |
| | *incr-<timestamp> does not include accounts/.../<zimbraId>/db/ db_schema.xml because incremental backup does not dump account tables.* |

***Note:*** *For auto-grouped backups, the directory structure saves the redo log files to the full backup session. There are no incremental backup sessions.*

## Backup and Restore Using the Administration Console

Many of the backup and restore procedures can be run directly from the administration console. In the Navigation pane, **Monitoring>Backup** lists each of the servers.

### Configure Backup from the Admin Console

Backups can be configured from the administration console as a global settings configuration and as a server-specific configuration. Server settings override global settings.

In the global settings, you can configure the email addresses to receive notification about the results of the backup. The default is to send the notification to the admin account.

For Auto-grouped, you configure the number of groups to divide the backups into.

The standard backup is the default and is automatically scheduled. You do not need to make any additional changes. But when running the auto-grouped backup you must manually configure the backup schedule. Access the CLI and follow the steps under Schedule Auto-Group Backups to run **zmschedulebackup -D** to set the default schedule for auto-grouped backups.

**Throttling option with auto-grouped backup.** The auto-grouped backup method automatically backs up mailboxes that have never been backed up when the next backup is scheduled. This might not be the best option every time a full backup is required on all mailboxes, such as immediately after massive mailbox migrations or after a major upgrade. Enabling **Throttle automatic backups** limits the mailbox count in a daily backup to T/N. This breaks the constraint of backing up all mailboxes in N days, but it helps backup to finish during off hours.

When all mailboxes are backed up at least once, disable throttling.

```
zmprov mcf zimbraBackupAutoGroupedThrottled TRUE
```

## Backup and Restore Using the Command Line Interface

The Zimbra backup and restore procedures can be run as CLI commands. The following utilities are provided to create backup schedules, perform full and incremental backups, restore the mail server, or restore the LDAP server.

- **zmschedulebackup**. This command is used to schedule full backups, incremental backups, and deletion of old backups.
- **zmbackup**. This command executes full or incremental backup of the mail server. This is run on a live server, while the mailboxd process and the mailbox server are running. This command also has an option to manually delete old backups when they are no longer needed.
- **zmbackupabort**. This command stops a full backup that is in process.
- **zmbackupabort -r**. This command stops an ongoing restore.
- **zmbackupquery**. This command lists the information about ongoing and completed backups, including labels and dates.
- **zmrestore**. This command executes a full or incremental restore to the Zimbra mail server. The **zmrestore** command is performed on a server that is running.
- **zmrestoreoffline.** This command restores the Zimbra mail server when the mailboxd process is stopped.
- **zmrestoreldap.** This command restores the complete LDAP directory server, including accounts, domains, servers, COS and other data.

Refer to Zimbra CLI commands on chapter for usage and definitions for each of these commands.

## Backing up using the Standard Method

When you initiate a backup, you can issue the command from the same server being backed up, run the command remotely and specify the target server on the command line, or use the administration console to start a backup session.

## Scheduling a Standard Backup

When ZCS was installed, the backup schedule for the standard method of full and incremental backups was added to the crontab. Under the default schedule, the full backup is scheduled for 1:00 a.m., every Saturday. The incremental backups are scheduled for 1:00 a.m., Sunday through Friday.

By default, backups older than a month are deleted every night at 12 a.m.

You can change the backup schedule using the **zmschedulebackup** command.

Specify the fields as follows, separate each field with a blank space:

- minute — 0 through 59
- hour — 0 through 23
- day of month — 1 through 31
- month — 1 through 12
- day of week — 0 through 7 (0 or 7 is Sunday, or use names)

Type an asterisk (*) in the fields you are not using.

### Example of zmschedulebackup options

- Replace the existing full backup, incremental backup and delete backup schedule. When you use -R, the complete backup schedule is replaced. If you use this command, remember to set the delete schedule, if you want backup sessions to be scheduled for automatic deletion. This example replaces the existing schedule to have full backups run on Sunday at 1 a.m., incremental backups to run Monday through Saturday at 1 a.m., and old backups deleted at 12:00 a.m. every day.

  ```
  zmschedulebackup -R f “0 1 * * 7” i “0 1 * * 1-6” d 1m “0 0 * * *”
  ```

- Add an additional full backup time to your current schedule. This example adds a full backup on Thursday at 1 a.m.

  ```
  zmschedulebackup -A f “0 1 * * 4”
  ```

- Review your backup schedule. The schedule is displayed.

  ```
  zmschedulebackup -q
  ```

- Save the schedule command to a text file. This would allow you to easily recreate the same schedule after reinstall or upgrade

  ```
  zmschedulebackup -s
  ```

***Note:*** *If you change the default schedule and want to return to it, enter the command* zmschedulebackup -D*.*

### Default Standard Backup Schedule

The default backup schedule looks like this in the cron table:

```
0 1 * * 6 /opt/zimbra/bin/zmbackup -f - all
0 1* * 0-5 /opt/zimbra/bin/zmbackup -i
0 0 * * * /opt/zimbra/bin/zmbackup -del 1m
```

Read as follows:

- 0 1 * * * 6 /opt/zimbra/bin/zmbackup -f - all means that the full backup runs on 1 a.m. on Saturdays.
- 0 1* * 0-5 /opt/zimbra/bin/zmbackup -i means that an incremental backup runs at 1 a.m. from Sunday through Friday.
- 0 0 * * * /opt/zimbra/bin/zmbackup -del 1m means that backup sessions are deleted at midnight 1 month after they were created.

How to read the crontable

Each crontab entry contains six fields that appear in this order:

**Field**

```
 1   2   3    4   5      6
 0   1   *    *   6       /opt/zimbra/bin/zmbackup -f -all
```

1 - minute (0-59 allowed)

2 - hour (0-23)

3 - day of month (1-31)

4- month (1-12 or names)

5 -day of week (0-7 or names allowed, with both 0 and 7 representing Sunday

6 - string to be executed

The asterisk character works as a wild card, representing every occurrence of the field’s value.

You can add additional recipient addresses or change the notification email address in the administration console Global Settings>Backup/Restore page.

## Full Backup Process

The full backup process goes through the following steps to backup the mailbox, the database, the indexes, and the LDAP directory:

1. Backs up the global system data including system tables and the local config.xml file.
2. Iterates through each account to be backed up and backs up the LDAP entries for those accounts.

3. Places the account’s mailbox in maintenance mode to temporarily block mail delivery and user access to that mailbox.
4. Backs up the mailbox.
   a. Creates MySQL dump for all data related to that mailbox.
   b. Backs up the message directory for that mailbox.
   c. Creates a backup of the index directory for that mailbox.
5. Returns that account’s mailbox to active mode and moves on to the next one.
6. Backs up the LDAP directory.

Full backup is usually run asynchronously. When you begin the full backup, the label of the ongoing backup process is immediately displayed. The backup continues in the background. You can use the **zmbackupquery** command to check the status of the running backup at any time.

Backup files are saved as zip files without compression. To change the default zip option, see Appendix A Command Line Interface, zmbackup section.

## Incremental Backup Process

Incremental backups are run using the CLI command, **zmbackup**. The process for incremental backup is as follows:

1. Backs up the global system data including system tables and the local config.xml.
2. Iterates through each account to be backed up and backs up the LDAP entries for those accounts.
3. Moves the archive redo logs, created since the last backup, to the <backup target>/redologs directory.

   Archived logs that are less than an hour old at the time of incremental backup are copied to the backup and are not deleted. These redologs are deleted one hour after the backup. The interval is set by the localconfig key **backup_archived_redolog_keep_time**. The default is 3600 seconds.

   If no full backup for this account is found, the backup process performs a full backup on this account, even if only an incremental backup was specified.
4. Backs up the LDAP directory.

### Perform Manual Backups

- Manually backup all mailboxes on server1

  ```
  zmbackup -f -s server1.domain.com -a all
  ```

- Manually backup incremental backup of all mailboxes on **server1** since last full backup

```
zmbackup -i -s server1.domain.com -a all
```

- Manually backup full backup of only **user1**'s mailbox on **server1**

  ```
  zmbackup -f -s server1.domain.com -a user1@domain.com
  ```

### Delete Backup Sessions

Delete backup sessions either by label or by date. Deleting by label deletes that session and all backup sessions before that session. Deleting by date deletes all backup session prior to the specified date.

For example, `zmbackup -del 7d` deletes backups older than 7 days from now. You can specify day (d), month (m), or year (y).

## Find a Specific Backups

Each full or incremental backup is a backup session.

Each backup session is labeled with date and time. For example, the label **full-20070712.155951.123** says this is a backup from July 12, 2007 at 3:59:51.123.

**Note:** *The times set in the session label are GMT, not the local time. GMT is used rather than local time to preserve visual ordering across daylight savings transitions.*

The **zmbackupquery** command is used to find full backup sessions.

- To find a specific full backup session

  ```
  zmbackupquery -lb full-20070712.155951.123
  ```

- To find a full backup sessions since a specific date

  ```
  zmbackupquery --type full --from “2007/01/01 12:45:45”
  ```

- To find all full backup sessions in the backup directory

  ```
  zmbackupquery --type full
  ```

- To find the best point in time to restore for an account specify a time window

  ```
  zmbackupquery -a user1@example.com --type full --from “2007/07/05 12:01:15”
  --to “2007/07/12 17:01:45”
  ```

**Note:** *If a backup session is interrupted because the server crashes during backup (not aborted), the interrupted backup session is saved as a temporary session. The temporary backup session is put in <backup target>/sessions_tmp directory. You can use the* **rm** *command to delete the directory.*

## Abort Full Backup in Progress

1. Before you can abort a backup, you must know the backup session label. This label is displayed when **zmbackup** first starts. If you do not know the full backup label, use **zmbackupquery** to find the label.

2. You can use the CLI command, **zmbackupabort** to stop a backup that is in progress. The backup is immediately stopped and becomes a partially successful backup.

   - Stop the backup, if you know the label name

   ```
   zmbackupabort -lb full-20070712.155951.123 -s server1
   ```

   - Stop the backup, if you do not know the label

   a. `zmbackupquery`

   b. `zmbackupabort -s server1 -lb full-20070712.155951.123`

## Backing up using the Auto-Grouped Method

The auto-grouped backup method is configured either from the administration console or from the CLI.

In the administration console, go to Configure>Global Settings, Backup/ Restore page, or set it by servers, go to Configure>Servers, server, Backup/ Restore page.

### Configure Auto-Grouped Backup from the CLI

Set the backup method in the global configuration, and you can override the configuration on a per server basis if you do not want a particular server to use the auto-grouped backup method.

To set up auto-grouped backup, you modify LDAP attributes using the zmprov CLI. Type the command as

**zmprov mcf <ldap_attribute> <arg>**

You can also set the attributes at the server level using **zmprov ms**.

The following LDAP attributes are modified:

- **zimbraBackupMode**. Set it to be **Auto-Grouped.** The default is Standard.
- **zimbraBackupAutoGroupedInterval**. Set this to the interval in either days or weeks that backup sessions should run for a group. The default is 1d. Backup intervals can be 1 or more days, entered as xd (1d); or 1 or more weeks, entered as xw (1w).
- **zimbraBackupAutoGroupedNumGroups**. This is the number of groups to spread mailboxes over. The default is 7 groups.

### Schedule Auto-Group Backups

You must configure the auto-group backup schedule.

Run **zmschedulebackup -D** to set the default schedule for auto-grouped backups based on your **zimbraBackupAutoGroupedInterval** setting.

One group is backed up each interval. The auto-grouped backup automatically adjusts for changes in the number of mailboxes on the server. Each backup session backs up the following:

- All mailboxes that have never been backed up before. These are newly provisioned mailboxes.
- All mailboxes that have not been backed within the number of scheduled backup days. For example, if backups are scheduled to run over six days, mailboxes that have not been backed up in the past 5 days are backed up.
- More mailboxes, the oldest backup first. This is done so that the daily auto-grouped backup load is balanced.

  For example, if you configured the auto-grouped backup interval to be daily (1d) and the number of groups to be 7, the first time auto-grouped backup runs, all accounts are backed up. After the initial backup, auto-grouped backup runs again the next day. This time accounts that have been newly provisioned and a percentage of accounts close to one-seventh of the total are backed up again. Accounts with the oldest backup date are backed up first. The backup continues with newly provisioned account and approximately one-seventh of accounts being backed up daily over seven days.

When backing up shared messages, if a file representing a message already exists in the backup, it flags this object as such and does not copy its content again.

Backup files are saved as zip files without compression. To change the default zip option, see Appendix A Command Line Interface, zmbackup section.

These backup files can be used to restore the complete ZCS system or individual mailboxes so that account and message data is completely restored. Archived redo logs are moved to the backup session as part of the full backup. When the server is restored from an auto-grouped backup, redo logs are replayed to bring the system to the point before the failure.

## Backup Options

The backup process can be configured to selectively back up content and to backup the MySQL database.

### Backup Up content Options

You can configure these backup options so that search indexes, blobs, and HSM blobs are not backed up during a full backup session.

- **zimbraBackupSkipSearchIndex**. Default is **FALSE**. If set to **TRUE**, search index is not backed up. The mailbox will have to be reindexed after restoring from a backup without the search index.
- **zimbraBackupSkipBlobs**. The default is **FALSE**. If this is set to **TRUE**, blobs are not backed up. This might be useful for getting a quicker backup of just database data when the blobs reside on a fault-tolerant storage. This configuration applies to all blobs, those on the primary volumes as well as secondary (HSM) volumes.
- **zimbraBackupSkipHsmBlobs**. The default is false. If this is set to true**,** blobs on HSM volumes are no backed up. Set this if **zimbraBackupSkipBlobs** is false but you want to skip blobs on HSM volumes.

### Back Up the MySQL Database

You can configure ZCS backups to run mysqldump to backup your MySQL database during backup sessions. When this is enabled, a mysqldump backup runs with each full, incremental, and auto-grouped backup.

The mysqldump is a backup of your MySQL database at a specific time. Data changes that occur later than the dump file are written to the binary log.To recover to a specific point in time, binary logging must be enabled. See the Zimbra wiki article, MySQL Backup and Restore at http://wiki.zimbra.com/wiki/MySQL_Backup_and_Restore.

The MySQL dump files are gzipped and placed in the backup target directory, or to /opt/zimbra/backup, if no directory is specified.

These files can be quite large. Make sure that the free disk space is at least three times greater than the actual mySQL database file for each mySQL database backup file that is saved.

- Enable mysqldump to run automatically with your backups, type

  ```
  zmlocalconfig edit mysql_backup_retention=<N>.
  ```

  **N** is the number of copies of the mySQL database backups that are retained.

***Note:*** *To restore a MySQL database, contact Zimbra support for assistance.*

## Managing Disk Space for Backups

Backup sessions fail if the target disk does not have enough space. All data backed up in the backup session is discarded and deleted.

You can choose to receive notification when your disk might not have enough space to complete the backup

Configuring the **zimbraBackupMinFreeSpace** attribute helps you manage running backup session by notifying you

Set the value for attribute **zimbraBackupMinFreeSpace** to the amount of free space required on the backup target disk before a backup session is run. If the disk has less space than the value set in the attribute, the backup session will not run and an email notification is sent to the administrator.

***Note:*** *If you are also backing up the MySQL database, make sure you set the value large enough to include the myslqdump file size.*

The value for this attribute can be specified as a percentage of the total disk space, for example 25%, or as number of bytes, for example 300MB, 50GB, etc. The default value is 0, meaning the check is disabled and backup is always allowed to start.

The attribute can be set globally or by server.

- As global, type `zmprov mcf zimbraBackupMinFreeSpace <value>`
- By server, type `zmprov ms <server hostname> zimbraBackupMinFreeSpace <value>`

Backup sessions run if the free disk space is at least the value you set. If your backup file is larger than the value, the backup session fails. You should monitor the size of the backup files and adjust the attribute value if the backup require more space than the configured value.

## Restoring Data

Three types of restore procedures can be run:

- The **zmrestore** command is used to restore the mailboxes while the ZCS mailbox server is running.
- The **zmrestoreoffline** is used to restore the mail server when the mail server is down. This command is run for disaster recovery.
- The **zmrestoreldap** is used to restore the content of the LDAP directory server.

The restore process allows all accounts or individual accounts to be specified.

### Restore Process

The **zmrestore** process goes through the following steps to restore the mailbox, the database, the indexes, and the LDAP directory.

1. Retrieves specified accounts to be restored, or specify **all** for all accounts that have been backed up.
2. Iterates through each mailbox:
   a. Deletes the mailbox on the server to clear any existing data
   b. Restores the last full backup of the MySQL data, the index directory, and the message directory for that mailbox

c. Replays redo logs in all incremental backups since last full backup

d. Replays all archived redo logs for that mailbox, from the redo log archive area on the mailbox server

e. Replays the current redo log

***Note:*** *Accounts are restored, even if the account exceeds its quota. The next time the user performs an action that affects quota, they receive a warning that they have exceeded their quota.*

***Important:*** *Users using the Zimbra Connector for Microsoft Outlook must perform an initial sync on the Outlook client when they log on after the Zimbra server is restored.*

### Examples

- Perform a full restore of all accounts on server1, including last full backup and any incremental backups since last full backup

  ```
  zmrestore -a all
  ```

- Perform a single account restore on server1

  ```
  zmrestore -a account@company.com
  ```

- Restore to a specific point in time (PIT). The following restore options affect redo log replay. If you do not specify one of these options, all redo logs since the full backup you're restoring from are replayed

  **Important**: After you perform any of the following point-in-time restores, you should immediately run a complete backup for those accounts to avoid future restore problems with those accounts.

  A restore that is run using any of the following options is a point-in-time restore:

  - **-restoreToTime <arg>-** Replay the redo logs until the time specified.
  - **-restoreToIncrLabel <arg>** - Replay redo logs up to and including this incremental backup.
  - **-restoreToRedoSeq <arg>** - Replay up to and including this redo log sequence.
  - **-br -** Replays the redo logs in backup only, therefore excluding archived and current redo logs of the system.
  - **-rf -** Restores to the full backup only. This does not include any incremental backups at all.

- Specify an exact time, the incremental backup label, or the redo log sequence to restore to. Restore stops at the earliest possible point in time if more than one point in time restore options are specified.

  ```
  zmrestore -a account@company.com-restoreToTime <arg>
  ```

Two common ways to write the <timearg> are

- “YYYY/MM/DD hh:mm:ss”
- YYYYMMDD.hhmmss

- Perform an incremental restore only to last full backup, excluding incremental backups since then, for all accounts

  ```
  zmrestore -rf --a all
  ```

- Restore mailbox and LDAP data for an account

  ```
  zmrestore -ra -a account@company.com
  ```

- Restore to a new target account. A prefix is prepended to the original account names

  ```
  zmrestore -ca -a account@company.com -pre restore
  ```

  The result from the above example would be an account called restoreaccount@company.com.

- Restore system tables in the database (db) and the local config

  ```
  zmrestore -sys
  ```

- Include --contineOnError (-c) to the command so that the restore process continues if an error is encountered.

  ```
  zmrestore -a all -c
  ```

  When -c is designated, accounts that could not be restored are displayed when the restore process is complete

- To restore a specific account. Can also be used to restore deleted accounts

  ```
  zmrestore -a account@company.com
  ```

- To avoid restoring accounts that were deleted

  ```
  zmrestore -a account@company.com -skipDeletedAccounts
  ```

- To restore a mailbox, but exclude all the delete operations that were in the redolog replay. When the mailbox is restored it will contain messages that were deleted. This is useful if users use POP and remove messages from the server

  ```
  zmrestore -a account@company.com --skipDeletes
  ```

***Note:*** *When the latest point in time is requested, do not add a backup label (-lb). Without specifying the label, the most recent full backup before the requested point is automatically used as the starting point.*

## Stop a Restore Process

The **zmbackupabort -r** command interrupts a restore that is in process. The restore process stops after the current account finishes being restored. The command displays a message showing which accounts were not restored .

- To stop the restore type:

  ```
  zmbackupabort -r
  ```

## Restore Mailboxes When Mail Server Is Down

The offline restore process can only be run when the mailboxd server is not running. In general, offline restore is run under the following circumstances:

- Certain components of the Zimbra server are corrupted, and the server cannot be started. For example, the data in LDAP or the database are corrupted.
- A disaster requires the Zimbra software to be reinstalled on the server.

The offline restore must be run before the ZCS mailbox store server is started to keep the redo logs in sequence.

In a disaster recovery when the Zimbra software is reinstalled, if mailboxd is started before the backup files are restored, the mail server would begin to accept email messages and perform other activities, producing redo logs in the process. Since the pre-disaster data have not been restored to the server, the redo logs would be out of sequence. Once mailboxd is running, it would be too late to restore the pre-disaster data.

The offline restore process goes through the following steps.

1. Specified accounts to be restored are retrieved. If the command-line does not specify any mailbox address, the list of all mailboxes on the specified mail host are retrieved from Zimbra LDAP directory server.
2. Iterates through each mailbox:
   a. Deletes the mailbox on the server to clear any existing data
   b. Restores the last full backup of the MySQL data, the index directory, and the message directory for that mailbox
   c. Replays redo logs in all incremental backups since last full backup
   d. Replays all archived redo logs for that mailbox, from the redo log archive area on the mailbox server
   e. Replays the current redo log

### Restore All Accounts

1. Restore all accounts on server1 when mailboxd is stopped

   ```
   zmrestoreoffline -a all
   ```

2. Start mailboxd after the offline restore is complete

   ```
   zmcontrol startup
   ```

## Restore Individual Accounts on a Live System

Use the **zmrestore** command to restore one or more selected accounts. In the event that a user's mailbox has become corrupted, you might want to restore that user from the last full and incremental backup sets.

1. For each account to be restored, put the account into maintenance mode, type

   ```
   zmprov ma <account> zimbraAccountStatus maintenance
   ```

   Maintenance mode prevents delivery of new emails during the restore. Otherwise, the emails would be overwritten during the restore process.

2. Run the **zmrestore** command to restore the accounts

   ```
   zmrestore -a (account@abc.com account@abc.com)
   ```

3. For each account that was restored, put the account back into active mode, type

   ```
   zmprov ma <account> zimbraAccountStatus active
   ```

***Important:*** *If a user account is restored and the COS that the account was assigned no longer exists, the default COS is assigned to the account.*

## Exclude Items from a Restore

When you restore from a full backup, you can exclude the search index and blobs.

- **Search index**. If you do not restore the search index data, the mailbox will have to be reindexed after the restore.

  ```
  zmrestore <all or account> --exclude-search-index
  ```

- **Blobs**. This is a useful option when all blobs for the mailbox being restored already exists.

  ```
  zmrestore <all or account>|--exclude-blobs
  ```

- **HSM-blobs**. This is useful when all HSM blobs for the mailbox being restored already exists.

  ```
  zmrestore <all or account> --exclude-hsm-blobs
  ```

## Restore the LDAP Server

In a disaster recovery where you need to restore the entire system, restore the LDAP directory server first.

The **zmrestoreldap** command restores the global LDAP data including COS, distribution lists, etc. You can restore the complete LDAP server, which recreates the entire schema or you can restore specific accounts. You specify the session to restore. The restore command has to be run on the LDAP server being restored.

**Example**s

- To find the LDAP session labels type

  ```
  zmrestoreldap -lbs
  ```

- Restore the complete LDAP directory server

  ```
  zmrestoreldap -lb full20061130135236
  ```

- Restore LDAP data for specific accounts

  ```
  zmrestoreldap -lb full20061130135236 -a tac@abc.com jane@abc.com
  ```

## General Steps for Disaster Recovery

Use the following steps to restore a mailbox store server in a general disaster scenario involving multiple machines.

**Preparation**

1. Restore the LDAP directory server to a known good state before doing anything with the mailbox store server.
2. Put all mailboxes into maintenance mode to prevent mail delivery and user login while restoring the mailboxes.
3. Stop the mailbox store server if it is running.

**Recovery**

1. Reinstall the ZCS software on the mailbox server, if necessary.
2. Restore mailboxes.
3. Start the ZCS server.
4. Put all ZCS mailboxes back in active mode.
5. Run a full backup of the server.

### Crash Recovery Server Startup

When your system unexpectedly stops and then restarts on startup, the server searches the redo log for uncommitted transactions and replays any that it finds. Replaying the redo logs brings the system to a consistent state.

### Restore the Zimbra Collaboration Server

If a complete machine failure occurs, use the following steps to restore to a new server.

***Important:** The ZCS version you install on the new server **must be the same version** as installed on the old server. The server can have a different operating system.*

The new server hardware must meet the requirements described in the Installation Prerequisites section of the ZCS Single Server Installation guide. Install the new operating system, making any necessary OS configuration modifications as described in the installation guide.

You do the following to restore to a new server:

1. Prepare the new server.
2. Block client access to the old server’s IP address with firewall rules.
3. Mount any volumes that were in use on the older server.
4. Delete the MySQL data that is set up in the initial installation of ZCS.
5. Copy the backup files to the new server.
6. Run **zmrestoreldap** to restore the global LDAP data.
7. Run **zmrestoreoffline** to restore account data from the backup sessions.
8. Prepare and run a new backup.

### Old Server Status

Two scenarios for disaster recovery are the server has died and the ZCS files cannot be accessed, or ZCS is still running, but the server hardware needs to be replaced.

**If the server is not running:**

1. Block client access to the server IP address with firewall rules.
2. Find the latest full ZCS backup session to use.

If server is still running, to prepare the move to the new server:

1. Block client access to the server’s IP address with firewall rules.
2. Run a full backup of the old service, or if the backup is recent, run an incremental backup to get the most current incremental backup session.
3. Run **zmcontrol stop**, to stop ZCS. In order to restore to the most current state, no new mail should be received after the last incremental backup has run.
4. Change the hostname and IP address on the old server to something else. Do not turn off the server.

### Install ZCS on a New Server

Before you begin, make sure that the new server is correctly configured with the IP address and hostname and that ZCS is installed and configured with the same domain, hostname, passwords, etc. as the previous server. See the Zimbra Collaboration Server installation guide for more information about preparing the server. Before you begin to install ZCS, note the information you need from the old server including: admin account name and password, LDAP, Amavis, and Postfix passwords, spam training and non-spam training user account names, exact domain name, and the global document account name.

**Note:** *Make sure the computer time is set to the same time as the old server. Verify that the old hostname and MX DNS records resolve to the new server.*

1. Copy the ZCS License.xml file to a directory on the new server. You cannot complete the ZCS installation if the license is not on the new server.
2. Run ./install.sh and follow the directions in the installation guide to install ZCS. Make sure that you configure the same domain, hostname, passwords as on the old server. During ZCS install, the following settings must be changed to match the original server settings:

   a. **Zimbra LDAP Server**. For **Domain to create**, identify the same default domain as on the old server.

   b. **Zimbra Mailbox Server**. An administrator's account is automatically created.

      - Make sure that the account name for **Admin user to create** is the same name as on the original server.
      - Set the admin password to be the same as on the old server.
      - Set the LDAP password to be the same as on the old server.
      - Set the Postfix user and Amavis user passwords to be the same as on the old server
      - Change the **Spam training user** and the **Non-spam (HAM) training user** account names to be the same as the spam account names on the old server.
      - **Global Document Account** – This account name is automatically generated and is usually named wiki. If you changed this, change the Global Document Account name to be the same account name as on the original server.

   c. Change any other settings on the new server to match the configuration on the original server.

   d. In the main menu, set the default backup schedule and the automatic starting of servers after the configuration is complete to **NO**.

### Restoring a Backup to a New Server

1. Stop the new server

   ```
   zmcontrol stop
   ```

2. If the old server had additional storage volumes configured, mount the additional volumes now.

3. Delete the mysql data and reinitialize an empty data directory. If you do not do this, zmrestoreoffline will have errors. As zimbra, type

   ```
   rm -rf /opt/zimbra/db/data/*
   ```

   ```
   /opt/zimbra/libexec/zmmyinit
   ```

   The mySQL service is now running.

4. Copy all the files in the /backup directory from the old server or from an archive location to **/opt/zimbra/backup**.

5. Restore the LDAP.

   ```
   zmrestoreldap -lb <latest_label>
   ```

   If you are restoring a large number of accounts, you might run a command such as the UNIX command, nohup, so that the session does not terminate before the restore is complete.

***Note:*** *To find the LDAP session label to restore, type* `zmrestoreldap –lbs`*.*

6. Because some ZCS services are running at this point, type `zmconvertctl start`. This is required before running zmrestoreoffline.

7. Sync your LDAP password from backup directory to the new production servers LDAP config.

   ```
   zmlocalconfig -f -e zimbra_ldap_password=<password>.
   ```

8. Start the offline restore.

   ```
   zmrestoreoffline -sys -a all -c -br.
   ```

   You might run a command such as **nohup** here also. To watch the progress, tail **/opt/zimbra/log/mailbox.log**.

***Note:*** *Use –c on the command line so that accounts are restored, even if some accounts encounter errors during the offline restore process.*

9. Because some ZCS services are running at this point, type `zmcontrol stop` to stop all services.

10. Remove any old backup sessions because these sessions are no longer valid.

    ```
    rm -rf /opt/zimbra/redolog/* /opt/zimbra/backup/*
    ```

11. Start ZCS.

    ```
    zmcontrol start.
    ```

12. Run a full backup.

    ```
    zmbackup -f -a all.
    ```

13. Remove the firewall rules and allow client access to the new server.

## Restoring from Different Failure Scenarios

The restoration steps are similar for most server failures you may encounter. If a failure occurs, review the disaster recovery section to understand the process and then follow the steps below for the specific type of failure.

### Restore When LDAP is Corrupted

1. Reinstall the LDAP server. See the Zimbra Collaboration Server Installation guide.
2. Find the label for the LDAP session to restore. Run the **zmrestoreldap -lb <label>** command, with no arguments to restore all accounts, domains, servers, COS, etc. for the LDAP server.
3. Make sure that all accounts are in active mode. From the command line, type `zmprov ma zimbraAccountStatus active`

### Restore After Replacing Corrupted Partitions

1. If a partition becomes corrupted, replace the failed disk.
2. To restore the latest full and incremental backup files, run

   ```
   zmrestore -a all
   ```

   The **zmrestore** process automatically retrieves the list of all mailboxes on the specified mail host from the backup date and iterates through each mailbox to restore the mailboxes to the last known good state.

### Restore After Corrupted or Unreadable Redo Log

If the redo log becomes unreadable, the mailboxd service stops and cannot restart. If this happens, inspect the hardware and software to find the source of the problem before proceeding.

Without the latest redo log, the Zimbra mailbox server cannot be returned to the most current state. The Zimbra mailbox data can be restored to the latest archived redo log state. A new redo log for current transactions is created after the Zimbra mailbox server is restored.

***Important:*** *The mailboxd service must not be running, and all accounts must be in maintenance mode before beginning.*

1. Put all accounts into maintenance mode.

```
zmprov md <domain> zimbraDomainStatus maintenance
```

2. With the mailboxd service not running, type

   ```
   zmrestoreoffline
   ```

   The offline restore process begins by retrieving the list of all mailboxes on the specified mail host from the backup.

   The offline restore than iterates through each mailbox to:

   - Delete the mailboxes on the server
   - Restore the last full backup from the backup area
   - Restore all incremental backups for that mailbox in order, since the last full backup. This involves replaying the redo logs from the backup target area
   - Replay all archived redo logs

   Because the redo log for current transactions is not available, the mailbox server is returned to the state of the last archived redo log.

3. After the offline restore is complete, start ZCS.

   ```
   zmcontrol startup
   ```

4. When the Zimbra mailbox server is up, run a full backup of the Zimbra server. The full backup must be run immediately to have the latest data backed up, because the latest redo log is not available.

### Change Local Configuration Files After Restoring Zimbra

The **localconfig.xml** file, located in the **/opt/zimbra/conf** directory, includes the core Zimbra server configuration, such as paths and passwords, This file is backed up in full and incremental backups. When you run an incremental or full restore, the backed-up version of the localconfig.xml is renamed **localconfig.xml.restore** and is copied to the **/opt/zimbra/conf** directory.

If you have made changes since the last backup, you might need to replace the localconfig.xml file with the restored copy. Compare these files, and if the **.restore** file has the latest local configuration data, delete the localconfig.xml file and rename the file with the **.restore** extension to localconfig.xml.

## Using snapshots to Backup and Restore

You can back up and restore a server using the snapshot feature provided by the storage layer rather than using Zimbra’s backup and restore feature. Using snapshots, you can maintain a standby site if the primary site fails and reroute users to the standby site to keep operations running.

Snapshots are taken for all volumes of data and are transferred to the standby site periodically. Data volumes that are backed up using snapshots include mysql, blobs, lucene index, and redologs.

When the primary site is down, the **zmplayredo** command is used to bring consistency to the snapshots and to reapply any changes in data to minimize data loss across volumes

There are four volumes of data:

- Mysql
- Blob
- Lucene index
- Redologs

Sets of snapshots are taken every hour and transferred to the remote standby site. However, all snapshots are not taken at one instant and could be a second to a minute apart from each other. Also, snapshots of redologs may be taken more frequently. The sequence of events could look like:

`8:00:00` - snapshot mysql

`8:00:01` - snapshot blob

`8:00:02` - snapshot index

`8:00:03` - snapshot redolog

`8:05:00` - transfer the snapshot set to remote site completed
---

`8:15:00` - snapshot redolog

`8:15:05` - transfer of redolog snapshot to remote site completed
---

`8:30:00` - snapshot redolog

`8:30:05` - transfer of redolog snapshot to remote site completed
---

`8:35:00` - primary site fails

On the remote site, there are snapshots from the 8:00 set of data as well as subsequent snapshots of the redologs. They all have to be brought together so that the most recent information is available on the standby site once users are rerouted to it.

You can now run the **zmplayredo** command to replay changes from 8:00:00.

**zmplayredo --fromTime ‘2008/10/17 08:00:00:000’**

All data is brought forward to the current time and the standby site is set up and running. Data from 8:30:00 to 8:35:00 is lost but that is expected when the restore process is being carried out.

# 17 Zimbra Mobile

Zimbra Mobile provides over-the-air synchronization of mail, contacts, calendar and task data and device security policy enforcement between the mobile device and an account on the mailbox server.

Topics in this chapter include:

The ActiveSync protocol is used to configure and sync the Zimbra mailbox server with the native client that is used on a user's device.

Zimbra Mobile is compatible with IPhone, IPod Touch, Windows Mobile 5 (WM5), and 6 (WM6) devices, and many other phones that support the ActiveSync™ protocol.

## Mobile Device Security Policies

The administrator can configure mobile security policies to enforce security rules on compliant mobile devices that sync with ZCS accounts.

The following features can be configured to enhance the security of mobile devices.

- Remote wipe to erase all data from the device if the mobile device is lost or stolen.
- Device password policies to set up strong password enforcement including minimum password length, inactivity time, enforce password history, and wipe device after configured failed sign in attempts
- S/MIME encryption policies to enable S/MIME usage and set the policies for sending and signing encrypted messages.

In addition, you can manage the following device usage options.

- Sync settings for past calendar and email items, message size, formatting
- Device settings, such as cameras, desktop sync, bluetooth, use of removable storage can be disabled.

***Note:*** *Only WM6 devices and IPhones support security policies set by the server. Older devices do not respond to security policies.*

## Setting Up Mobile Policies on ZCS

You can manage mobile device policies from the administration console as a Class of Service or for individual accounts.

1. To set mobile policies from a COS, go to the **Configure>Class of Service>Mobile Access** page.
2. In order for mobile devices to sync to ZCS, check mark **Enable Mobile Sync**.
3. Check **Enable Mobile Policy** to set up mobile security policies that enforce security rules.
4. If old devices that do not support device security policies can be used, check **Allow non-provisionable devices**.
5. If device does not acknowledge all policies that are downloaded, but you want to allow the device to download messages, check **Allow partial policy enforcement on devices.**
6. The refresh interval for policy refresh on a device is 24 hours. You can change this.
7. Configure the appropriate policies in the other sections. See Mobile Device Security Policies for a description of the settings you can configure.
8. Click **Save**.

## Mobile Device Security Policies

The following attributes can be configured from the administration console to establish mobile policies.

| Setting | Description |
|---|---|
| **General Settings** | |
| **Enable Mobile Sync** | In order for mobile devices to sync to Zimbra Collaboration Server, **Enable Mobile Sync** must be checked. Users have two-way, over the air synchronization of mail, contacts, and calendar data between mobile devices and the Zimbra server. |

| | |
|---|---|
| **Enable Mobile Policy** | Check this box to set up mobile security policies that enforce security rules on compliant mobile devices. You can enforce general security policies including password rules and set up local wipe capability on compliant devices.<br>After the mobile policy is set up, the next time a mobile device sends a request to the server, mobile devices that are capable of enforcing security policies automatically set up the rules you implement and immediately enforces them. |
| **Allow non-provisionable devices** | If this is enabled, old devices that do not support device security policy enforcement can still access the server. |
| **Allow partial policy enforcement on device** | If a device does not acknowledges all policies that are downloaded, ZCS still allows the device to continue downloading messages. |
| **Refresh Interval (hours):** | Specifies the amount of time in minutes before ZCS enforces the policy refresh on the device by sending "449 Retry after Provision" response to Sync request. Default is 24 hours. |
| **Password Settings** | |
| **Require password** | User must create a password on the mobile device. |
| **Minimum password length** | Minimum number of characters for the password. Default is 4. The maximum length is 16 characters. |
| **Require alphanumeric password** | Requires that the password include both numeric and alpha characters. |
| **Minimum complex characters required** | Minimum number of complex characters that must be in the password. This is any character that is not a letter. Default is 0 (none) |
| **Allow simple password** | Simple passwords can be created. A simple device password is a password that has a specific pattern, such as 2468, 1111. Not enabled by default. |
| **Enable password recovery** | Device password is stored n the server and can be recovered. Enabled by default. |
| **Allow device encryption** | If enabled, device encryption is enabled on the mobile phone. Enabled by default |
| **Require device encryption** | If enabled, encryption must be implement on the device to synchronize with the server. Not enabled by default. |
| **Password re-entry required after inactivity (min)** | Length of time the device remains inactive before the password must be entered to reactivate the device. Default is 15 minutes |

| | |
|---|---|
| **Failed attempts allowed:** | Specifies the number of failed log in attempts to the device before the device automatically initiates a local wipe. The device does not need to contact the server for this to happen. Default is 4 |
| **Expiration (days)** | Length of time in days that a password can be used. After this number of days, a new password must be created. Default is 0, the password does not expire. |
| **Passwords stored to prevent reuse** | Number of unique passwords that a user must create before an old password can be used. Default is 8. |
| **S/MIME Settings** | |
| **Enable S/MIME public key encryption and signing** | In order to use S/MIME encryption on a mobile device this must be checked. The S/MIME feature must also be enabled in the COS Features page. |
| **Require device to send signed messages** | Device must send signed S/MIME messages. Not enabled by default. |
| **Require S/MIME algorithm for signing** | Algorithm must be used when signing a message. Not enabled by default. |
| **Require device to send encrypted messages** | Specifies whether S/MIME messages must be encrypted. Not enabled by default. |
| **Require S/MIME algorithm for encrypting** | A required algorithm must be used when signing a message. Not enabled by default. |
| **Algorithm negotiation** | How a messaging application on the device can negotiate the encryption algorithm if a recipient's certificate does not support the specified encryption algorithm. Select from **Block Negotiation**; **Strong Algorithm Only**, or **Allow Any Algorithm**. Default is Allow Any Algorithm. |
| **Allow S/MIME software certificates** | Allow S/MIME software certificates. Default is to allow. |
| **Sync Settings** | |
| **Past calendar items sync'd** | Maximum range of calendar days that can be synchronized to the device. Default is two weeks. |
| **Past email items sync'd** | Maximum number of days of email items to synchronize to the device. Default is 3 days. |
| **Limit plain text message size (KB)** | Maximum size at which email messages are truncated when synchronized to the device. Default is to not set a maximum size. |

| | |
|---|---|
| **Allow direct push while roaming** | Mobile device must synchronize manually while roaming. Default is not to. |
| **Allow HTML formatted messages** | Enables HTML email on the device. If this is disabled, all email is converted to plain text before synchronization occurs. Default is to enable HTML formatting. |
| **Limit HTML message size (KB** | Maximum size at which HTML-formatted email messages are synchronized to the devices. The value is specified in KB. Default is to not set a maximum size. |
| Device Settings | |
| **Allow removable storage** | Mobile device can access information stored on a storage card. Default is TRUE. |
| **Allow camera** | Specifies that the camera on the device can be used. Default is TRUE. |
| **Allow Wi-Fi** | Specifies that wireless Internet access is allowed on the device. Default is TRUE. |
| **Allow Infrared** | Specifies that an infrared connection is allowed on the device. Default is TRUE. |
| **Allow sharing** | Specifies that the mobile device can be used as a modem to connect a computer to the Internet. Default is TRUE. |
| **Allow remote desktop** | Specifies that the mobile device can initiate a remote desktop connection. Default is TRUE. |
| **Allow desktop sync** | Specifies that the mobile device can synchronize with a desktop computer through a cable. Default is TRUE. |
| **Allow bluetooth** | By default Bluetooth capabilities are allowed on the device. Select from **Allow**, **Disable**, **Hands-Free Only**. |
| Device Applications | |
| **Allow browser** | Microsoft® Pocket Internet Explorer is allowed on the mobile device by default. This does not affect third-party browsers. |
| **Allow consumer mail** | Users can configure a personal email account on the mobile device. This parameter does not control access to emails using third-party mobile device email programs. |
| **Allow POP or IMAP mail** | Users can configure a POP3 or IMAP4 email account on the device. This parameter doe not control access by third-party email programs. |
| **Allow text messaging** | Allow users to use text messaging on the device. |

| | |
|---|---|
| **Allow unsigned applications** | Allows unsigned applications to be used on the device. |
| **Allow unsigned install packages** | Allows unsigned installation packages on the device. |
| **Approved Application Lists** | |
| **Approved Applications** | This setting stores a list of approved applications that can be run on the mobile device. |
| **Blocked Applications** | This setting specifies a list of applications that cannot be run. |

## Managing Mobile Devices

After the mobile policy is set up, the next time a mobile device sends a request to the server, mobile devices that are capable of enforcing security policies automatically set up the rules and immediately enforces them.

For example, if a password has not been set up on the device or the password is not as strong as required by the mobile policy, the user must fix the password before syncing with the server. Once the server confirms that the policy is enforced on the mobile device, the device can sync.

If a mobile device is lost or stolen, the device is protected by the following policy rules:

- When the **Password re-entry required after inactivity (min)** is configured, after the number of minutes configured, the device is locked. To unlock the device, users must re enter their password.
- When the **Failure attempts allowed** is configured, after the password is entered incorrectly more than the specified number of times, a locally (generated by the device) initiated wipe of the device is performed. This erases all data on the device.

In addition to the rules set up from the administration console to perform a local device wipe, users can initiate a remote wipe from their ZWC account to erase all data on lost, stolen, or retired devices.

### Supporting Autodiscover

ZCS supports the Autodiscover service so that users can provision mobile devices for their Zimbra accounts without having to know the server settings. Autodiscover returns the required server settings after users enter their email address and password.

Autodiscover is enabled by default. For autodiscover to work, you must configure a valid SSL certificate from a certification authority.

The recommended type of certificate to use is a Unified Communications Certificate or UCC. This certificate lets you add multiple host names in the

Subject Alternative Name field. For autodiscover to work, the Subject Alternative Name field must include the hostnames users are connecting to.

You must have a valid domain name service (DNS SRV record) for **autodiscover.<domain>.com** so that the client devices can locate and connect to the autodiscover service.

Use the Install Certificates wizard on the administration console to generate the certificate signing request and to install the signed certificate when received. Unified Communications Certificates can be issued by many certification authorities.

When you complete the request you must have a valid domain name service (DNS SRV record) for **autodiscover.<domain>.com**. Configure the **Subject Alternative Name** (SAN) field with the valid domain names that you use. The alternative name should include the domain **autodiscover.<company>.com**. Include all the domain names required for your environment in the Subject Alternative Name field.

***Note:*** *Make sure that the web server mode is https, both, redirect, or mixed as the autodiscover and other communications from devices is HTTPS.*

### Set Up Mobile Synchronization for User Accounts

Mobile sync is enabled either in the COS profiles for the account or on individual accounts. In most cases, no additional plug-ins are required.

Users might need to configure the following on their in the mobile device to sync to their Zimbra account if they don’t have auto discover.

- **Server name (address)**. Enter the fully qualified host name of the user’s ZCS mailbox server.
- **User name**. Enter the user’s primary ZCS account name.
- **Domain**. Enter the user’s ZCS domain name (DNS).
- **SSL certificate** from the server might have to be added to the device as trusted if SSL is used when the certification is self-signed.

Users can sync their ZCS account to their mobile device. They can send email, create appointments, and add contacts to their address book.

For details about specific device setup, see the Mobile Device Setup pages on the Zimbra Wiki.

### Change Mobile Device Password Policy

If a mobile device is locked by the ZCS mobile password policy, the PIN requirement must be removed to resync the device.

1. In the administration console, open the user account to be modified.

2. On the **Mobile Access** page, uncheck **Force pin on device**.

   After the password policy has been disabled, the user must resync the device:

   - If the device is a WM6 device, the user syncs to the account. After the sync has completed, instruct the user to go to the **Lock** setting on the device and **turn off the device PIN.**
   - If the device is an iPhone/iPod Touch 3.0 or above, the user syncs to the account. After the sync, instruct the user to go to the **Settings>General** properties and **turn off Passcode Lock**.

***Note:*** *If the iPhone/iPod Touch is prior to 3.0, there is an Apple software bug that prevents downloading new device policies to take effect. The user must delete the ZCS account from the iPhone/iPod Touch, turn the PIN off, and then re-setup sync with the ZCS. Because the password requirement was turned off, a PIN is not asked for.*

## User’s Mobile Device Self-Care Features

Users can directly manage the following device functions.

- Perform a remote wipe of a device. If a mobile device is lost, stolen, or no longer being used, users can initiate a remote wipe from their ZWC account to erase all data from the mobile device. The device is returned to its original factory settings.
- Suspend a sync that has been initiated from the mobile device and resume the sync to the device.
- Delete the device from their list. If a device is deleted from the list and the device attempts to sync after that, the server forces the device to fetch the the policy again on the next sync.

# 18 Archiving and Discovery

Zimbra Archiving and Discovery is an optional feature that enables you archive messages that were delivered to or sent by ZCS and to search across mailboxes.

Topics in this chapter include:

- How Archiving Works
- How Discovery Works
- Installing the Archiving Package
- Manage Archiving From the Administration Console
- Archive Mailboxes
- Searching Across Mailboxes

The installation of the archiving feature provides the ZCS discovery tool (also known as cross mailbox search) and sets the attributes that allow archiving to be enabled on the Zimbra MTAs.

Archiving is configured on a per account basis. Each account enabled for archiving requires a Zimbra archive license. When archiving is enabled for an account, a copy of all email from or to that account is forked at the MTA, and a copy of the message is delivered to a predefined archive mailbox. The archiving process is transparent to account users.

Discovery allows you to conduct a search for email messages across live and archived mailboxes and copy the results to a specified mailbox.

## How Archiving Works

When a message is sent or received by a user, the message is always routed through the Postfix MTA. The Postfix MTA allows integrating software that can perform actions on messages that are in flight. When archiving is enabled for the sender or the recipient of messages, Zimbra Archiving integrates with an MTA hook and the Amavisd-New utility to fork a copy of the message.

The “**does recipient or sender have archiving enabled**” check is performed on the SMTP standard envelope and not on the From or To/Cc headers. Since checks are performed on the envelope, Bcc copies and messages sent to distribution lists are captured.

For example, if User A sends a message to User B, and if User B has archiving enabled, the MTA delivers two messages — one to User B's mailbox and one to User B's archive mailbox. The message received in User B's mailbox looks normal, as shown in the following example:

```
Received: from localhost (localhost.localdomain
[127.0.0.1])…
From: userA@example.com
To:userB@example.com
Subject: New License Key
Message-ID: <015f01c717fe$70f042d1$b1d6f61d@thom>
Date: Mon, 04 Nov 2008 23:48:18 -0000

Hi B,
Can you send me the license key for the software
again?
Thanks, A
```

The message received in User B's archive mailbox contains additional **X-Envelope-From** and **X-Envelope-To** headers. These headers show the real email address the message was sent from and each of the email addresses that the message was sent to.

```
Received: from localhost (localhost.localdomain
[127.0.0.1])…
From: userA@example.com
To:userB@example.com
Subject: New License Key
Message-ID: <015f01c717fe$70f042d1$b1d6f61d@thom>
X-Envelope-From: userA@example.com
X-Envelope-To: userB@example.com
Date: Mon, 04 Nov 2008 23:48:18 -0000

Hi B,
Can you send me the license key for the software again?
Thanks, A
```

Zimbra archiving can be set up to create archiving accounts that are maintained within ZCS or to work with third-party archiving systems using SMTP forwarding to send messages to a third-party archive server. For third-party archiving, ZCS is configured to act as the forwarding agent.

## How Discovery Works

The discovery feature of Archiving and Discovery is used to search across live* and archive mailboxes for email messages and attachments. The discovery tool can be run from the administration console and the results are copied to a target mailbox that you specify.

* A live mailbox is an account on the system other than archive accounts and system accounts.

You can search outgoing and incoming email by date, from, to, cc, subject, keywords, and attachments. You can also create queries to search by name, dates and time ranges, distribution list, aliases.

Search results are placed in a target mailbox. You can organize your search results by creating different target mailboxes or by creating individual folders within a target mailbox for each search you run. **X-zimbra-Source** header information is added to each message header that is copied to the targeted mailbox. This header label includes the account ID, the account name, and the server that the account resides on.

You can see the results of the search by logging on to the target mailbox address.

## Installing the Archiving Package

You can install the archiving package on an existing single-server deployment or on a multi-server deployment.

If the mailbox server and the MTA server reside on the same node, you configure and enable archiving as a single process. If your mailbox and MTA servers are on separate nodes, the zimbra-archive package is installed first on at least one mailbox server and then the archiving component is enabled on each MTA in the deployment.

### Install Archiving in a Single-Server Environment

The following scenario assumes that the LDAP, MTA, mailstore and archiving servers are on the same node.

1. Refer to the Zimbra Collaboration Server Single Server Installation Guide to open an SSH connection to the ZCS server. Log on to the server as **root** and run the **./install.sh** command to begin the upgrade process.

2. Accept the license agreement and type **Yes** to run the upgrade.

3. Type **Yes** for zimbra-archiving when presented with the packages to be installed.

   The upgrade process begins and the archiving package is installed. At this point, the Discovery feature is installed and can be used.

4. To enable archiving, switch user to **zimbra** and enable archiving on the MTA server.

   ```
   zmprov ms <zmhostname> +zimbraServiceEnabled archiving
   ```

5. Restart the server.

```
zmcontrol restart
```

### Install zimbra-archiving in a Multi-Server Environment

The following upgrade scenario is adding a new server that is dedicated as a archiving server to your ZCS environment.

Before beginning the install process, record the following information. You need this information when you install the archiving server. Run the **zmlocalconfig -s** command to find the information.

LDAP Admin Password ____________

LDAP Hostname _____________

LDAP Port _____________

Refer to the Multiple-Server Installation chapter in the Zimbra Collaboration Server Multi-Server Installation guide for detailed steps on installing the packages.

1. Open an SSH connection to the mailbox server that is being configured for archiving. Log on to the server as **root** and unpack the Zimbra software. Run the **./install.sh** command to begin the install process.
2. Type **y** and press **Enter** to install the following packages:
   - zimbra-store
   - zimbra-archiving

   The zimbra-core package is installed by default.
3. Type **y** and press **Enter** to modify the system.
4. The Main menu displays the default entries for the Zimbra component you are installing. To expand the menu, type **x** and press **Enter.**
5. Select the **Common Configuration** menu and configure the LDAP Hostname, LDAP password, and LDAP port.
6. Select the **zimbra-store** menu and configure the Admin password and the License file location.

Complete the installation process following the steps in the Multi-server Installation guide, under Installing Zimbra Mailbox Server.

At this point, the Discovery feature is installed and can be used.

## Manage Archiving From the Administration Console

After Archiving is installed, you can set up archiving and manage it from the administration console.

### Enable Archiving

1. Go to the **Global Settings>MTA** page and in the Archiving Configuration section, check **Enable archiving**.

2. Restart ZCS from the command line

   ```
   zmcontrol restart
   ```

### Creating a Dedicated Archive COS

You can configure attributes in the COS to set mailbox features, quotas, and passwords, turn off spam and virus checks, and hide the archive accounts from GAL

1. Go to **Configure>Class of Service** and in the gear icon menu select New.

2. Change Features and Preferences as required for an Archiving COS.

3. If you have a dedicated archive server, in the Server Pool page, deselect the archiver server from the list. In a multi-server deployment with a dedicated archive server, the server should be removed from the COS server pool so that the archive server is not randomly assigned to new accounts.

***Note:*** *These steps to remove the server from the server pool are not done in a single-server deployment. Creating a dedicated archiving COS is a good idea as this makes it easy to create archive mailboxes that are configured the same.*

4. Modify the options on the **Advanced** page if required.

5. In the **Archiving** page, check the **Enable archiving** box to make this COS an archiving cos.

6. If you want to change the format for the naming scheme for archive accounts, modify the two template fields. See the Set Up Archive Account Name section for more information.

7. Click **Finish**.

### Set Up Archive Account Name

You use attributes to create and manage the naming scheme for archive accounts. You can set up these attributes either by COS or by account. For COS, these attributes can be changed from the administration console, COS or individual account's Archiving page.

- **Account date template**. Sets the date format used in the name template. The default is yyyyMMdd. Adding the date to the account name makes it easier to roll off older data from the system to backups.

- **Account name template**. Sets up how the archive mailbox name is created. The default value is **${USER} ${DATE}@${DOMAIN}.archive.** The archive account address would be like this example: **user-20070510@example.com.archive**. If you change the default value, you must use syntax that creates a valid email address. We recommend that you add **.archive** to all archive accounts to create archive mailboxes in a non-routable domain to prevent spoofing of the archives.

When the template based on the **zimbraArchiveAccountDateTemplate** attribute is set up, **amavisArchiveQuarantineAccount** is updated to the new template name when **zmconfigarchive** is run.

#### Administering the archive server

The **amavisd-new** server process controls account archiving as well as antivirus and antispam processes. The **zmarchivectl** command can be used to start, stop, restart or obtain the status of the amavisd-new server process that controls account archiving. Caution should be taken when starting or stopping the archiving process as it is a shared server process between archiving, antivirus, and antispam processes. Performing actions on any of them affect any of the other services that may be enabled in your deployment.

If you want to disable archiving and not antivirus, or antispam services, disable the respective service either through the CLI or through the administration console.

### Set Up Archiving for a Users Mailbox

Four attributes are related to the archive feature for accounts. Two that configure a mailbox and two template attributes to construct the archive account names.

To set up archiving for a mailbox two attributes are configured on the primary user’s mailbox. One attributed enables archiving and the second shows where messages are being archived.

- **Currently archived to** — The current archive address. Archiving is to a single account. If this is unset, archiving is not enabled.
- **Archived accounts** — Any previous and current archive addresses that this mailbox was archived to. containing all the accounts that have been archived for the given account.

## Archive Mailboxes

You can create an archive mailbox with or without an assigned COS. You can also forward archive email to a third-party.

***Note:*** *Accounts with archiving enabled are counted against the number of Zimbra licenses purchased for archiving. To see current license information, go to the administration console, Global Settings>License* *page. Archive mailboxes are listed in the administration console along with the live accounts.*

### Create an archive mailbox and assign a COS

Archive accounts are created based on the Zimbra Archive name templates.

- The attribute **zimbraIsSystemResource** is added to the archive account and set to TRUE.
- The archive account is displayed in the administration console.
- When a message is received in a mailbox with archiving enabled, a copy of the message is sent to the archive mailbox.

1. Log on as zimbra.
2. Type zmarchiveconfig enable <account@example.com> archive-cos <archive>

### Create an Archive Mailbox with No COS or Password

If the archive account is not assigned a COS, the following settings are set by default.

- Mailbox quota is set to 0, unlimited quota.
- Spam and virus checks are disabled.
- Hide in GAL is enabled, so the archive account does not display in the GAL

1. Log on as zimbra
2. Type zmarchiveconfig enable <user@example.com>

### Enable Archive Forwarding to a Third-party Archiving Server

If the archive account is not maintained within ZCS, you do not need to set a password, COS, or other attributes.

1. Log on as zimbra.
2. Type zmarchiveconfig enable <account@example.com> archive-address account-archive@offsiteserver.com archive-create false.

## Searching Across Mailboxes

When the archiving and discovery feature is installed, you can search across mailboxes either from the administration console or through the command line interface.

***Note:*** *You do not need to have any archive mailboxes configured to search across mailboxes, but the Archive package must be installed.*

You can assign a user to run the mailbox searches from the administration console by creating a delegated administrator with rights to access the mailbox search tool.

## Cross Mailbox Search from the Administration Console

The discovery tool, **Search Mail**, is added to **Tools and Migration** on the Navigation pane when the archiving package is added. To set up a cross mailbox search, in Search Mail, go to the gear icon and select New. You configure the following information.

- **Server name**. The server name to be searched.
- **Target mailbox and folders**. One target mailbox and folder are created automatically. You can use this mailbox for all your search results and create new folders for each search, or you can create a new target mailbox for each separate search.

  A target mailbox is like any other mailbox and can have any features or preferences that are defined by the COS or by account. Target mailboxes are listed in the administration console Accounts list. You might want to give the target mailboxes account names that identifies them as target mailboxes for cross-mailbox searches and configure a COS specific for target mailboxes to be able to manage access.
- **Limit the number of messages returned by the search**. The default is 500 results.
- You can select to send an email notification when the search is completed. The email notification includes the search task ID and status on the subject line and you can specify the type of information to include in the message, such as the number of messages found, the list of addresses resulting from the search and the search query used.
- Select which mailboxes to search. When you check **Select accounts to search**, you select which account addresses to search.
- **Create the search query**. You can search outgoing and incoming email by date, from, to, cc, subject, keywords, and attachments. Advanced can be used to quickly create a query to search by name, dates and time ranges, distribution list, aliases.

  When searching archive messages, you can search by the envelope address using the **envfrom** and **envto** query language extensions.

As the search runs, the Search Mailbox Content pane lists the search and the status. Click **Refresh** to update this page.

Delete the search task when it is completed because it occupies server memory. When the server is restarted, past searches are deleted.

When you use the discovery feature in the administration console, the tool makes copies of messages in the target mailbox you create. The messages occupy server space, increasing the size of your server. You might want to delete these messages from the target mailbox when they are no longer needed.

# 19 Legal Requests for Information

The legal intercept feature makes copies of email messages that are sent, received, or saved as drafts from targeted accounts and sends these messages to a designated “shadow” email address.

Topics in this chapter include:

Legal Intercept can be configured to send the complete content of the message or to send only the header information. When a targeted account sends, receives, or saves a draft message, an intercept message is automatically created to forward copies of the messages as attachments to the specified email address.

## Legal Intercept Settings

The legal intercept feature can be configured either for a Class of Service or for individual accounts. The feature is configured from the CLI, using **zmprov**.

The only required configuration to set up legal intercept is to enable the feature, **zimbraInterceptAddress,** on target accounts or COS.

You can enable the attribute **zimbraInterceptSendHeadersOnly** to send only the header information of the email message instead of sending the complete message.

### Set Up Legal Intercept

■ Specify the intercept address where the intercepted messages are sent.

- If enabling intercept by COS:

```
zmprov mc <cosname> zimbraInterceptAddress
<account@intercept_example.gov>
```

- If enabling intercept for an account:

```
zmprov ma <accountname@example.com> zimbraInterceptAddress
<account@intercept_example.gov>
```

If you are going to use the default intercept message template and From address (postmaster@<youraddress.com>), legal intercept is set up.

### Set Up Legal Intercept to Forward Message Header

- To forward the header information, not the complete message for an account:

  ```
  zmprov mc <accountname@example.com> zimbraInterceptSendHeadersOnly TRUE
  ```

### Modify the Intercept Cover Email Message

An email message is automatically created to forward copies of the intercepted messages as attachments. The default message includes:

- **From** address is Postmaster@<address.com>
- **Subject** line “Intercept message for <account@address.com <intercepted message subject>”
- **Message** “Intercept message for <account@address.com>. Operation=<type of message>, folder=<foldername>, folder ID=<#>.

The cover email message can be modified. Use the following parameters to modify the email message.

| | |
|---|---|
| **ACCOUNT_DOMAIN** | Domain of the account being intercepted. |
| **ACCOUNT_ADDRESS** | Address being intercepted |
| **MESSAGE_SUBJECT** | Subject of the message being intercepted. |
| **OPERATION** | Operation that the user is performing, “add message”, “send message”, or “save draft”. |
| **FOLDER_NAME** | Name of the folder to which the message was saved. |
| **FOLDER_ID** | ID of the folder to which the message was saved. |
| **NEWLINE** | Used for formatting multi-line message bodies. |

1. To change the **From** name:

   ```
   zmprov mc <accountname@example.com> zimbraInterceptFrom <newname@example.com>
   ```

2. To change the text of the **Subject** line:

   ```
   zmprov mc <accountname@example.com> zimbraInterceptSubject <Intercepted message subject text> parameter <text> parameter
   ```

3. To change the text in the message body:

   ```
   zmprov mc <accountname@example.com> zimbraInterceptBody <Intercepted message text> parameter <text> parameter
   ```

***Note:*** *To modify by account, type* **zmprov ma**.

## Create Mailbox Snapshots for Legal Discovery

You can create a query for the user's mailbox using the REST URL format to search for specific types of email messages and attachments and have these messages zipped and saved to your computer. This zip file can be forwarded to a requesting law enforcement agency.

Email message is displayed as an .eml file name after the subject line. The attachments are saved in the format that they were delivered.

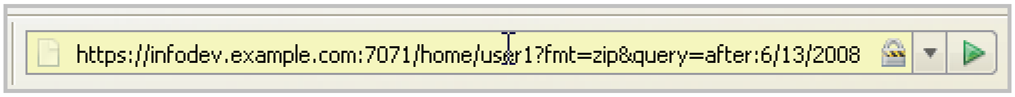
### Create a Mailbox Snapshot Zip File

You must be logged into the ZCS administration console to create the zip file. You create a query for one account at a time.

1. In the administration console address field of the browser, after **7071/,** type:

   home/<username>?fmt=zip&query=<searchquerystring>

   For example:



https://infodev.example.com:7071/home/user1?fmt=zip&query=after:6/13/2008

   In the above example, the search query is requesting a zip file of all email messages and attachments in the Inbox after June 13, 2008 for an account called user1.

   You can use any search operators that are used for searching in ZCS. For example, you can search by folder (in:folder_name), by sender's name (from:<someone>), and you can use multiple search terms. See the Search Tips wiki page for keyword examples, http://wiki.zimbra.com/ .php?title=Search_Tips.

2. Press **Enter** or the arrow to create the zip. A **Confirm** box displays, asking if you want to navigate away from this page.

3. Click **OK**.

4. Choose where you want to save the zip file.

   This zip file is ready to be delivered.

# 20 Zimbra Proxy Server

Zimbra Proxy is a high-performance proxy server that can be configured as a POP and IMAP proxy server and for reverse proxy HTTP requests.

The Zimbra Proxy package is installed and configured during the ZCS installation. You can install this package on a mailbox server, MTA server, or on its own independent server. When the Zimbra Proxy package is installed, the proxy feature is enabled. In most cases, no modification is necessary.

Topics in this chapter include:

- Proxy Components
- Proxy Architecture and Flow
- Change the Zimbra Proxy Configuration
- Zimbra IMAP/POP Proxy
- Configure ZCS HTTP Proxy
- Configure Zimbra Proxy for Kerberos Authentication

## Proxy Components

Zimbra Proxy components include:

- **Zimbra Nginx**. An IMAP/POP3 proxy server that handles all incoming POP/IMAP requests.
- **Memached**. A distributed memory object caching system. Route information is cached for further use to increase performance.
- **Zimbra Proxy Route Lookup Handler**. Servlet that handles queries for the user account route information.

## Proxy Architecture and Flow

The following sequence describes the architecture and flow of Zimbra Proxy.

1. End clients connect to Zimbra Proxy using a POP or IMAP or HTTP requests to a backend server. Nginx handles the incoming POP and IMAP requests.

2. When Zimbra Proxy receives an incoming connection, Nginx sends an HTTP request to the Route Lookup Handler, a servlet located on the mailbox server. this servlet processes the server and port information of the user account.

3. The Route Lookup Handler locates the route information for the account and returns this information to Nginx.

4. The Memcached component stores the route information for a configured period of time. By default, this time is one hour. Nginx uses this route information until the time expires, instead of querying the Route Lookup Handler.

5. Nginx uses the route information to connect to Zimbra Mailbox.

6. Zimbra Proxy connects to Zimbra Mailbox and initiates the mail proxy session. The end client behaves as if it is connecting directly to Zimbra Mailbox.

## Change the Zimbra Proxy Configuration

When Zimbra proxy is configured, the Zimbra proxy config performs keyword substitution as necessary with values from the ZCS LDAP configuration and localconfig.

If changes are required after the Zimbra Proxy is set up, modify the Zimbra LDAP attributes or localconfig values and run **zmconfigd** to generate the updated Zimbra Proxy configuration. The Zimbra proxy configuration file is in **/opt/zimbra/conf/nginx.conf**. The nginx.conf includes the main config, memcache config, mail config, and web config files.

Common changes to Zimbra Proxy configuration are IMAP/POP configuration changes from the original default setup

- HTTP reverse proxy configuration changes from the original default setup
- GSSAPI authentication for Kerberos. In this case you manually identify the location of the Kerberos Keytab file, including Zimbra Proxy password

## Zimbra IMAP/POP Proxy

Zimbra IMAP/POP Proxy allows end users to access their ZCS account using end clients such as Microsoft Outlook, Mozilla Thunderbird, or other POP/IMAP end-client software. End users can connect using POP3, IMAP, POP3S (Secure POP3), or IMAPS (Secure IMAP).

For example, proxying allows users to enter imap.example.com as their IMAP server. The proxy running on imap.example.com inspects their IMAP traffic, does a lookup to determine which backend mailbox server a user’s mailbox lives on and transparently proxies the connection from user’s IMAP client to the correct mailbox server.

## Zimbra Proxy Ports for POP and IMAP

The following ports are used either by Zimbra Proxy or by Zimbra Mailbox. If you have any other services running on these ports, turn them off.

End clients connect directly to Zimbra Proxy, using the Zimbra Proxy Ports. Zimbra Proxy connects to the Route Lookup Handler or Zimbra Mailbox using the Zimbra Mailbox Ports.

| Zimbra Proxy Ports | Port |
|---|---|
| POP3 | 110 |
| POP3S (Secure POP3) | 995 |
| IMAP | 143 |
| IMAPS (Secure IMAP) | 993 |
| **Zimbra Mailbox Ports** | **Port** |
| Route Lookup Handler | 7072 |
| POP3 Proxy | 7110 |
| POP3S Proxy | 7995 |
| IMAP Proxy | 7143 |
| IMAPS Proxy | 7993 |

## Setting Up IMAP and POP Proxy After HTTP Proxy Installation

Zimbra IMAP proxy is installed with ZCS and set up during installation from the ZCS configuration menus. To set up the HTTP proxy, Zimbra proxy must be installed on the identified proxy nodes in order to set up HTTP proxy. No other configuration is usually required.

If you need to set up IMAP/POP proxy after you have already installed Zimbra HTTP proxy, and set up the Zimbra mailbox server and the proxy node.

***Note:*** *You can run the command as* **zmproxyconfig -r,** *to run against a remote host. This requires the server to be properly configured in the LDAP master.*

### Set Up IMAP/POP Proxy with Separate Proxy Node

If your configuration includes a separate proxy server, you must do the following.

1. On each Zimbra mailbox server that you want to proxy with, enable the proxy for IMAP/POP proxy.

   ```
   /opt/zimbra/libexec/zmproxyconfig -e -m -H mailbox.node.service.hostname
   ```

   This configures the following:

   - **zimbraImapBindPort** to 7143

- **zimbraImapProxyBindPort** to 143
- **zimbraImapSSLBindPort** to 7993
- **zimbraImapSSLProxyBindPort** to 993
- **zimbraPop3BindPort** to 7110
- **zimbraPop3ProxyBindPort** to110
- **zimbraPop3SSLBindPort** to 7995
- **zimbraPop3SSLProxyBindPort** to 995
- **zimbraImapCleartextLoginEnabled** to TRUE
- **zimbraReverseProxyLookupTarget** to TRUE
- **zimbraPop3CleartextLoginEnabled** to TRUE

2. Restart services on the proxy and mailbox servers.

```
zmcontrol restart
```

### Set Up Proxy Node

1. On each proxy node that has the proxy service installed, enable the proxy for the web.

```
/opt/zimbra/libexec/zmproxyconfig -e -m -H proxy.node.service.hostname
```

This configures the following:

- **zimbraImapBindPort** to 7143
- **zimbraImapProxyBindPort** to 143
- **zimbraImapSSLBindPort** to 7993
- **zimbraImapSSLProxyBindPort** to 993
- **zimbraPop3BindPort** to 7110
- **zimbraPop3ProxyBindPort** to110
- **zimbraPop3SSLBindPort** to 7995
- **zimbraPop3SSLProxyBindPort** to 995
- **zimbraReverseProxyMailEnabled** to TRUE

### Set Up a Single Node

If Zimbra proxy is installed with ZCS on the same server, do the following.

1. Enable the proxy for the web.

```
/opt/zimbra/libexec/zmproxyconfig -e -m -H mailbox.node.service.hostname
```

This configures the following:

- **zimbraImapBindPort** to 7143

- **zimbraImapProxyBindPort** to 143
- **zimbraImapSSLBindPort** to 7993
- **zimbraImapSSLProxyBindPort** to 993
- **zimbraPop3BindPort** to 7110
- **zimbraPop3ProxyBindPort** to110
- **zimbraPop3SSLBindPort** to 7995
- **zimbraPop3SSLProxyBindPort** to 995
- **zimbraImapCleartextLoginEnabled** to TRUE
- **zimbraReverseProxyLookupTarget** to TRUE
- **zimbraPop3CleartextLoginEnabled** to TRUE
- **zimbraReverseProxyMailEnabled** to TRUE

2. Restart services on the proxy and mailbox servers.

```
zmcontrol restart
```

## Configure ZCS HTTP Proxy

Zimbra Proxy can reverse proxy HTTP requests to the right back-end server.

For example, users can use a web browser to connect to the proxy server at http://mail.example.com. The connection from users whose mailboxes live on mbs1. example.com is proxied to mbs1.example.com by the proxy running on the mail.example.com server,. REST and CalDAV clients, Zimbra Connector for Outlook, Zimbra Connector for BES, and Zimbra Mobile Sync devices are also supported by the proxy.

***Note:*** *When ZCB is configured in ZCS, the proxy configuration must be changed from the directions here. See the Zimbra wiki article Installing Blackberry Enterprise Server in a Zimbra Proxy Environment at http://wiki.zimbra.com/wiki/Installing_Blackberry_Enterprise_Server_%28ZCB/BES%29_in_a_Zimbra_Proxy_Environment.*

HTTP reverse proxy routes requests as follows:

- If the requesting URL can be examined to determine the user name, then the request is routed to the backend mailbox server of the user in the URL. REST, CalDAV, and Zimbra Mobile Sync are supported through this mechanism.
- If the request has an auth token cookie (**ZM_AUTH_TOKEN**), the request is routed to the backend mailbox server of the authenticated user.

- If the above methods do not work, the IP hash method is used to load balance the requests across the backend mailbox servers which are able to handle the request or do any necessary internal proxying.

## Setting Up HTTP Proxy

To set up HTTP proxy, Zimbra Proxy must be installed on the identified nodes.

***Note:*** *You can run the command as* **zmproxyconfig -r,** *to run against a remote host. Note that this requires the server to be properly configured in the LDAP master.*

### Set Up HTTP Proxy as a Separate Proxy Node

When your configuration includes a separate proxy server follow these steps.

1. On each Zimbra mailbox server that you want to proxy with, enable the proxy for the web.

   ```
   /opt/zimbra/libexec/zmproxyconfig -e -w -H mailbox.node.service.hostname
   ```

   This configures the following:

   - **zimbraMailReferMode** to reverse-proxied. See Note below.
   - **zimbraMailPort** to 8080, to avoid port conflicts.
   - **zimbraMailSSLPort** to 8443, to avoid port conflicts.
   - **zimbraReverseProxyLookupTarget** to TRUE
   - **zimbraMailMode** to http. This is the only supported mode.

2. Restart services on the proxy and mailbox servers.

   ```
   zmcontrol restart
   ```

3. Configure each domain with the public service host name to be used for REST URLs, email, and Briefcase folders.

   ```
   zmprov modifyDomain <domain.com> zimbraPublicServiceHostname
   <hostname.domain.com>
   ```

#### Set Up Proxy Node

1. On each proxy node that has the proxy service installed, enable the proxy for the web.

   ```
   /opt/zimbra/libexec/zmproxyconfig -e -w -H proxy.node.service.hostname
   ```

   This configures the following:

   - **zimbraMailReferMode** to reverse-proxied. See Note below.
   - **zimbraMailProxyPort** to 80, to avoid port conflicts.
   - **zimbraMailSSLProxyPort** to 443, to avoid port conflicts.

- **zimbraReverseProxyHttpEnabled** to TRUE to indicate that Web proxy is enabled.
- **zimbraReverseProxyMailMode** defaults to HTTP.

To set the proxy server mail mode, add the **-x** option to the command with the specific mode: **http, https, both, redirect, mixed**.

### Set Up a Single Node for HTTP Proxy

If Zimbra proxy is installed along with ZCS on the same server, follow this step.

1. On each zimbra mailbox server that you want to proxy with, enable the proxy for the web.

   ```
   /opt/zimbra/libexec/zmproxyconfig -e -w -H mailbox.node.service.hostname
   ```

   This configures the following:

   - **zimbraMailReferMode** to reverse-proxied. See Note below.
   - **zimbraMailPort** to 8080, to avoid port conflicts.
   - **zimbraMailSSLPort** to 8443, to avoid port conflicts.
   - **zimbraReverseProxyLookupTarget** to TRUE
   - **zimbraMailMode** to http. This is the only supported mode.
   - **zimbraMailProxyPort** to 80, to avoid port conflicts.
   - **zimbraMailSSLProxyPort** to 443, to avoid port conflicts.
   - **zimbraReverseProxyHttpEnabled** to TRUE to indicate that Web proxy is enabled.
   - **zimbraReverseProxyMailMode** defaults to HTTP.

   To set the proxy server mail mode, add the **-x** option to the command with the specific mode: **http, https, both, redirect, mixed**.

2. Restart services on the proxy and mailbox servers.

   ```
   zmcontrol restart
   ```

   Configure each domain with the public service host name to be used for REST URLs, email and Briefcase folders.

   ```
   zmprov modifyDomain <domain.com> zimbraPublicServiceHostname
   <hostname.domain.com>
   ```

### REST URL Generation

For REST URL, you set the host name, service protocol, and services port globally or for a specific domain from the following attributes.

- **zimbraPublicServiceHostname**
- **zimbraPublicServiceProtocol**

- **zimbraPublicServicePort**

When generating REST URL's:

- If domain.**zimbraPublicServiceHostname** is set, use **zimbraPublicServiceProtocol** + **zimbraPublicServiceHostname** + **zimbraPublicServicePort**
- Otherwise it falls back to the server (account's home server) attributes:
  - protocol is computed from server.zimbraMailMode
  - hostname is **server.zimbraServiceHostname**
  - port is computed from the protocol.

***Note:*** **Why use zimbraMailReferMode** *- In earlier versions, a local config variable called* **zimbra_auth_always_send_refer** *determined which action the back-end server took when a user's mailbox did not reside on the server that the user logged in to. The default value of FALSE redirected the user if the user was logging in on the wrong backend host.*

On a multiserver ZCS, if a load balanced name was needed to create a friendly landing page, a user would always have to be redirected. In that case, **zimbra_auth_always_send_refer** was set to TRUE.

Now with a full-fledged reverse proxy, users do not need to be redirected. The localconfig variable **zimbraMailReferMode** is used with nginx reverse proxy.

## Set Proxy Trusted IP Addresses

When a proxy is configured with ZCS, each proxy server's IP address must be configured in LDAP attribute **zimbraMailTrustedIP** to identify the proxy addresses as trusted when users log in through the proxy. The proxy IP address is added to the X-Forwarded-For header information. The **X-Forwarded-For** header is automatically added to the localconfig **zimbra_http_originating_ip_header** attribute. When a user logs in, this IP address and the user's address are verified in the Zimbra mailbox log.

Set each proxy IP address in the attribute. For example, if you have two proxy servers:

```
zmprov mcf +zimbraMailTrustedIP {IP of nginx-1} +zimbraMailTrustedIP {IP of nginx-2}
```

***Note:*** *To verify that X-Forwarded-For was correctly added to the localconfig, type* `zmlocalconfig | grep -i http`. *You should see* **zimbra_http originating_ip_header = X-Forwarded-For**.

## Configure Zimbra Proxy for Kerberos Authentication

If you use the Kerberos5 authenticating mechanism, you can configure it for the IMAP and POP proxy.

***Note:*** *Make sure that your Kerberos5 authentication mechanism is correctly configured. See Chapter 5, Zimbra LDAP Service.*

1. On each proxy node, set the **zimbraReverseProxyDefaultRealm** server attribute to the realm name corresponding to the proxy server. For example:

   ```
   zmprov ms [DNS name.isp.net] zimbraReverseProxyDefaultRealm [ISP.NET]
   ```

2. Each proxy IP address where email clients connect must be configured for GSSAPI authentication by the mail server. On each proxy node for each of the proxy IP addresses:

   ```
   zmprov mcf +zimbraReverseProxyAdminIPAddress [IP address]
   ```

3. On each proxy server:

   ```
   zmprov ms [proxyexample.net] zimbraReverseProxyImapSaslGssapiEnabled
   TRUE
   ```

   ```
   zmprov ms proxyl.isp.net zimbraReverseProxyPop3SaslGssapiEnabled TRUE
   ```

4. Restart the proxy server

   ```
   zmproxyctl restart
   ```

# 21 Changing ZWC Theme Colors and Logo

You can change the logo and base colors of the Zimbra Web Client themes without having to customize individual ZCS themes. This can be done from the CLI or from the administration console.

Topics in this chapter include:

- Customizing Base Theme Colors
- Replacing the ZWC Logo
- Using Command Line Interface
- Changing Theme Colors and Logo on Admin Console

Changing the base colors for themes and adding a custom logo can be configured as a global setting or as a domain setting. When the global settings are changed, the changes apply to themes on all servers. When the domain settings are changed, the base color and logos for themes on the domain are changed.

If global settings and domain-level settings for theme base colors or logos are not the same, the domain values are displayed for the domain.

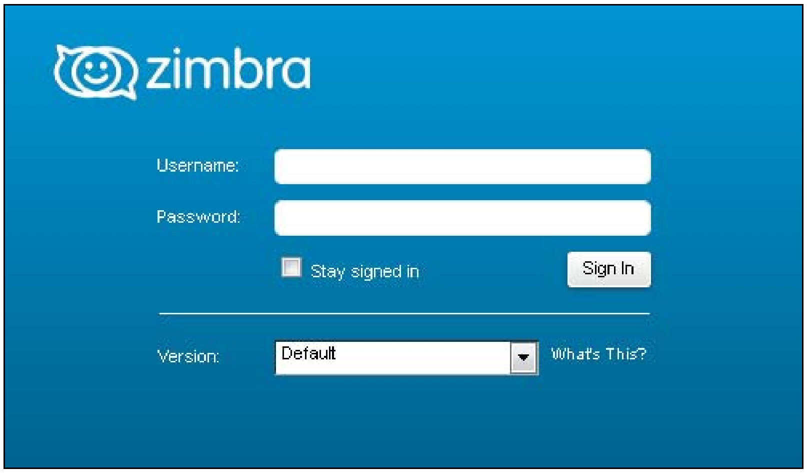
***Important:*** *If the logo and base colors are customized in multi-domain* ZCS *environments, you must set a virtual host as the base color and logo attributes are displayed based on the Host header sent by the browser. See Virtual Hosts.*

***Note:*** *A number of Zimbra themes are included with* ZCS*. Some of these themes, such as lemongrass, Hot Rod, and Waves, have been designed with graphics or color codes that are not changed, when you change the base color. You might want to disable those themes from user’s Theme preferences selection.*

## Customizing Base Theme Colors

The following base colors in ZWC themes can be changed:

- The primary background color displayed in the client. This color is the background of the page. Variants of the color are used for buttons, background color of the Content and Navigation panes, tabs, and selection highlight. In the following image, the background color displays with the logo, the variant of the background color displays in the login area.

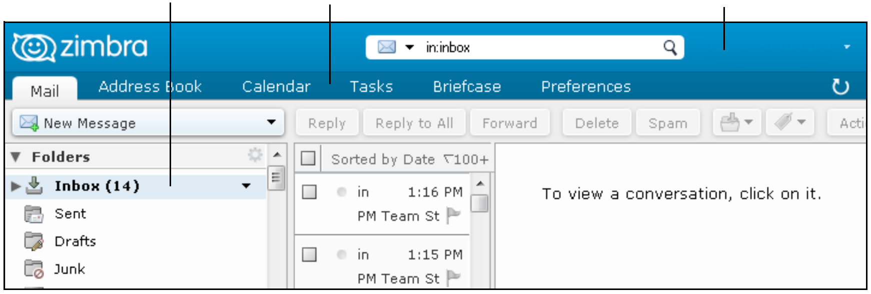


- The secondary color is the color used for the toolbar.
- The selection color is the color displayed for a selected item such as a message or an item in the Overview pane.

Selection color

Secondary

Background color and variants



To view a conversation, click on it.

- The foreground color is the text color displayed. The default text color is black. The text color usually does not need to be changed.

## Replacing the ZWC Logo

You can replace the Zimbra log with your company's logo globally or per domain.

***Note: License Policy for Logo Replacement***
*The Zimbra Public License does not allow removing the Zimbra logo in the Zimbra Web Client. Only Network Edition customers can replace Zimbra logos that display in the Zimbra Web Client. Therefore, only customers of the Network Edition should use these instructions. Additional information about the license usage can be found at http:/www.zimbra.com/license/index.html.*

### Graphics to Replace

The following Zimbra logo files can be changed. Your logos must be the same size as the specified here or the image might not display correctly. These graphic files can be saved on another server or in a directory that is not overwritten when ZCS is upgraded.

- Company logo that displays on the login and splash screens for ZWC and the ZCS administration console. The dimension of the graphic must be exactly 300 x 30.
- Small company logo in the upper-left of the ZWC application and the administration console. The dimension of the graphic must be exactly 170 x 35.
- Company Web address that links from the company logos.

### Graphics not replaced

The Zimbra icon that displays in the Advanced search toolbar and the favicon.ico that displays in the URL browser address field cannot be changed at this time.

## Using Command Line Interface

Changing the ZWC theme base colors and logos is performed from the command line using the **zmprov** command.

Change Theme Colors

The color code is entered as a six-digit hexadecimal code.

### Attributes

The following attributes are configured either as a global config setting or as a domain setting:

- **zimbraSkinBackgroundColor.** Enter the hex color number for the primary background color displayed in the client.

- **zimbraSkinSecondaryColor.** Enter the hex color number for the toolbar and selected tabs.
- **zimbraSkinSelectionColor.** Enter the hex color number for the color of the selected item.
- **zimbraSkinForegroundColor.** Enter the hex color number for the text. This usually does not need to be changed as the default is black.

### How to change base colors for themes

Before you begin, identify the six-digit hexadecimal base color values for the various elements you are changing. The commands are entered as:

- For Global:
  **zmprov modifyConfig <attribute-name> [“#HEX_6digit_colorcode”]**
- For Domain**:**
  **zmprov modifyDomain <domain> <attribute-name> [“#HEX_6digit_colorcode”]**

### Modifying a domain

In this example, the following base colors are being changed:

- Background color to Coral, #ff7F50
- Secondary color to turquoise, #ADEAEA
- Selection color to yellow, #FFFF00.

1. As the Zimbra user, type the following

   ```
   zmprov modifyDomain domainexample.com zimbraSkinBackgroundColor “#FF7F50” zimbraSkinSecondaryColor “#ADEAEA” zimbraSkinSelectionColor “#FFFF00”
   ```

   The quote marks, “”, are required so the use of the # sign does not comment out the text that follows.

2. To apply the changes, type

   ```
   zmmailboxdctl
   ```

ZCS themes for that domain now display these colors.

## Add Your Logos

### Attributes

You add the company logo information and URL by modifying these attributes:

- **zimbraSkinLogoURL**. Enter the company Web address that you want linked from the logo.

- **zimbraSkinLogoLoginBanner.** Enter the company logo file name that is displayed on the login and splash screens for the ZWC and the ZCS administration console.
- **zimbraSkinLogoAppBanner.** Enter the logo graphic file name for the graphic in the upper-left of the ZWC application and the administration console.

#### To add logos for a domain

1. As the Zimbra user, type the following

   ```
   zmprov modifyDomain domainexample.com zimbraSkinLogoURL http://
   example.com
   ```

   ```
   zmprov modifyDomain domainexample.com zimbraSkinLogoLoginBanner
   http://imageserverexample.com/directory/logo_banner_name.png
   ```

   ```
   zmprov modifyDomain domainexample.com zimbraSkinLogoAppBanner
   http://imageserverexample.com/directory/banner_app_logo.png
   ```

2. To apply the changes, type

   ```
   zmmailboxdctl reload
   ```

## Changing Theme Colors and Logo on Admin Console

On the administration console, the Global Settings and the Domains settings include a Themes page that can be configured to customize the color scheme and to add a company logo and logo URL. You upload your company logo to be used on the Zimbra Web Client and administration console pages.

### Changing Base Theme Colors

You change the same fields as changed from the CLI. You can either select colors from a color pallet table of defined colors or enter the six-digit hexadecimal color value for an exact color match.

On the Themes page, you can select a color from the pallet for each of the following areas.

- Foreground, which is the text color.
- Background, which is the primary background color displayed in the client.
- Secondary, which is the color used for the toolbar and selection headers in the Navigation pane.
- Selection, which is the color displayed for a selected item such as a message, right-click, or drop down menu selection.

### Adding Your Logo

You can replace the Zimbra logo with your company’s logo globally or per domain from the appropriate Themes page. Your logos must be the same size as specified in the Graphics to Replace section or the images might not display correctly. The graphic files are saved on another server or in a directory that is not overwritten when ZCS is upgraded.

***Note:*** *When you configure the* **Customize the logo of the themes** *section in the Global Settings > Theme page, all fields in this section must be completed to display the graphics correctly.*

The Zimlet icon that displays in the Advanced search toolbar and the favicon.ico that displays in the URL browser address field are not changed.

# 22 Zimlets

Zimlets are a mechanism to integrate ZCS with different third-party applications to enhance the user experience from the Zimbra Web Client. With Zimlets, users can look at information and interact with the third-party application from within their email messages. Zimlets can be made available from the Zimbra Web Client Overview Pane to users by modifying the Class of Service (COS).

Topics in this chapter include:

- Manage Zimlets from the Administration Console
- Managing Zimlets from the Command Line Interface

ZCS includes several predefined Zimlets. You can also create Zimlets or download them from the Zimlet Gallery located on the Zimbra Web site.

Predefined Zimlets when enabled let users preview the following:

- Mouse over a date or time and see what is in calendar.
- Mouse over a name or email address and see details from the address book for this name.
- Right-click on a phone number to make a call with your soft-phone.
- Right-click on a date to schedule a meeting.
- Right-click on a name, address, or phone number to update address book information.

For information about creating Zimlets, see the Zimlet Development section on the Zimbra Wiki.

## Manage Zimlets from the Administration Console

The following Zimlet management tasks are available from the Zimbra administration console.

- Deploy a Zimlet, which creates the Zimlet entry in the LDAP server, installs the Zimlet files on the server, enables the Zimlet and makes it available to the members of the default COS.
- Make a Zimlet available or not available per COS or account.
- Make a Zimlet mandatory.
- Disable a Zimlet, which leaves it on the server, but the Zimlet is not used.

- Undeploy a Zimlet, which removes it from the COS listings and the Zimlets list but does not uninstall the Zimlet from the server.

You cannot uninstall the Zimlet from the administration console.

### Deploy Custom Zimlets

You can download and deploy custom Zimlets from the Zimlet Gallery located on the Zimbra Web site. When a Zimlet is deployed, it is available immediately to everyone in the default COS. If a Zimlet is not deployed to another COS directly, the COS displays the Zimlets but they are not enabled.

1. From **Configure > Zimlets** gear icon menu select **Deploy**.
2. Browse to the Zimlet you want to deploy, and click **Deploy**.

   The Zimlet deploys to the server. A dialog displays indicating the server name where the Zimlet is deployed and the status of the deployment.
3. Click **Finish**.

   Verify the Zimlet is enabled by viewing the Zimlets page.

### Enable, Disable, or Make Zimlets Mandatory

You can enable or disable Zimlets, or make them mandatory. You can also use the toggle feature to enable or disable an installed Zimlet.

On a class of service Zimlets page select the default Zimlets you want to enable, disable, or make mandatory to users in the COS.

- **Mandatory**. Select mandatory if you want a Zimlet to always be enabled in users' accounts. Users do not see these Zimlets on their Zimlet page.
- **Disabled**. Disable the Zimlet if you do not want a Zimlet immediately available to users in this COS.
- **Enabled**. All Zimlets that are deployed are enabled.

***Note:*** *Users can enable or disable Zimlets from their account's Preferences > Zimlets page, but only optional Zimlets. If you select a Zimlet as mandatory, it cannot be disabled by the user.*

### Undeploy a Zimlet

When a Zimlet is undeployed, it is removed from all COSs and then removed from the LDAP.

1. Go to **Configure > Zimlets** page and select the Zimlet to undeploy.
2. In the gear icon menu select **Undeploy.**
3. Click **Yes** to confirm.

### Add Proxy-Allowed Domains to a Zimlet

Proxy Allowed Domains lets you configure which external domains can be accessed through a Zimlet. For the Zimlets that are included in ZCS, proxy allowed domains are already configured. If you download and deploy other Zimlets, you can add additional proxy domain names.

1. Go to **Configure > Class of Service**, select the COS to edit.
2. In the Advanced page, scroll down to the **Proxy Allowed Domains** section.
3. Click **Add Domain** to add domains.
4. Click **Save**.

### Upgrading a Zimlet

Use the same steps as deploying a new Zimlet to upgrade a customized Zimlet.

The new Zimlet zip file should have the same name as the existing Zimlet zip file.

1. From **Configure > Zimlets** gear icon menu select **Deploy**.
2. Check **Flush Zimlet cache** so the upgraded zimlet will be used.
3. Browse to the Zimlet you want to upgrade, and click **Deploy.**
4. Click **Finish**.

## Managing Zimlets from the Command Line Interface

### Deploying Zimlets

When a Zimlet is deployed, it is available immediately to everyone in the default COS. If a Zimlet is not deployed to another COS directly, the COS displays the Zimlets but they are not enabled.

Deploy a Zimlet using the CLI, including modifying the COS before deploying.

1. Select a Zimlet and copy the Zimlet zip file to **/tmp** folder on your Zimbra server.
2. Login as the zimbra user

   ```
   su - zimbra
   ```

3. Deploy the Zimlet

   ```
   zmzimletctl deploy /tmp/<zimlet>.zip
   ```

### Add Proxy Allowed Domains to a Zimlet

When deploying a Zimlet, the COS attributes, **zimbraProxyAllowedDomains,** must be set for the domain address that the Zimlet might call to get information.

1. To set this attribute, type:

```
zmprov mc <COSname> +zimbraProxyAllowedDomains <*.domain.com>
```

The * must be added before the domain.com.

This must be applied to all COSs that have your Zimlet enabled.

### Deploying a Zimlet and Granting Access to a COS

To deploy a Zimlet to one or more COSs other than the default:

4. Login as zimbra user:

   ```
   su – zimbra
   ```

5. Copy the Zimlet file from Gallery to **/tmp** folder.
6. Run **zmzimletctl deploy <path-to-zimlet.zip>**. For example:

   ```
   zmzimletctl deploy /tmp/<zimlet>.zip
   ```

   This installs the Zimlet just to the **default** COS.

7. To deploy the zimlet to additional COSs, run:

   ```
   zmzimletctl acl <zimletname> <cosname1> grant
   ```

   This will grant permission to cosname1. You can also grant access to more than one COS on the same command line. Enter as:

   ```
   zmzimletctl acl <zimletname> <cosname1> grant <cosname2> grant
   ```

8. To have this zimlet use the allowed proxy domains run the following on each COS and add the allowed domains.

   ```
   zmprov mc <COSname1> +zimbraProxyAllowedDomains <*. domain.com>
   zmprov mc <COSname2> +zimbraProxyAllowedDomains <*. domain.com>
   ```

### Viewing Zimlet List

At the CLI comment prompt, enter

```
zmzimletctl listZimlets all
```

This displays Zimlets installed on the server, installed in LDAP and available by COS,

### Changing Zimlet Configurations

Some Zimlets may require additional configuration after they are deployed.

The Zimlet configuration template allows you to make changes on the configuration template and then install the new configuration file on the Zimbra server.

See the Zimlet Development section on the Zimbra Wiki at http://wiki.zimbra.com/index.php?title=Main_Page, including the Zimlet Developers Guide at http://wiki.zimbra.com/wiki/ZCS_6.0:Zimlet_Developers_Guide:Introduction for details about developing and deploying Zimlets.

To change a Zimlet configuration:

1. Extract the configuration template

   ```
   zmzimletctl getConfigTemplate <zimlet.zip>
   ```

2. Make the required changes in the template. Be careful to change only the required areas. Save the file.

***Note:*** *If you have more than one custom Zimlet, rename the config_template.xml file before updating the configuration in LDAP so that files are not overwritten.*

3. Type the following command to update the configuration in the LDAP. If you changed the name of the configuration template, replace **config_template.xml** with the new name.

   ```
   zmzimletctl configure config_template.xml
   ```

## Upgrading a Zimlet

Upgrading a customized Zimlet is performed by using the same steps as deploying a new Zimlet.

1. The new Zimlet zip file should have the same name as the existing Zimlet zip file.

2. Copy the Zimlet zip file to the **/opt/zimbra/zimlets-extra** directory, replacing the older version.

3. Deploy the Zimlet

   ```
   zmzimletctl deploy <zimlet.zip file name>
   ```

   The Zimlet is copied to the **/opt/zimbra/zimlets-deployed** directory. If your Zimlet included a .jsp file, the .jsp file is coped to the **/opt/zimbra/jetty/webapps/zimlet/<zimletnamefolder>**.

4. In order for the newer version to be available, flush the cache

   **zmprov flushCache zimlet**.

   You do not enter the Zimlet name.

## Zimbra Gallery

You can download and deploy Zimlets from the Zimlet Gallery located on the Zimbra web site. Go to www.zimbra.com/downloads and scroll through the Extensions from the Zimbra Gallery section or select View More to access the Zimbra Gallery.

## Customized Zimlets

To develop your own custom Zimlets, see the Zimlet Developers Guide on the Zimbra Wiki at http://wiki.zimbra.com/index.php?title=Main_Page.

# Appendix A  Command Line Utilities

Command Line Interface (CLI) can be used to create, modify and delete certain features and functions of the ZCS. The administration console is the main tool for maintaining the ZCS, but some functions can only be changed from the CLI utility.

The CLI utility can be used for the following:

- Provisioning accounts*
- Backup and Restore
- Starting and stopping a service
- Move mailboxes
- Cross-mailbox searches
- Installing self-signed certificates
- Local configuration

*In general, provisioning and managing accounts should be performed from the administration console.

## General Tool Information

The ZCS command-line utilities follow standard UNIX command-line conventions.

Follow these guidelines when using the commands

- CLI commands are run as the zimbra user, that is **su - zimbra**.
- The actual CLI commands are case-sensitive. You must type them in lower case.
- Press **ENTER** after you type a command.
- Typing the CLI command and then - h displays the usage options for the command. Example: **zmprov - h** lists all the options available for the zmprov utility.
- Each operation is invoked through command-line options. Many have a long name and a short name. For example, these two commands are equivalent:

  ```
  zmprov createAccount joe@domain.com test123
  ```

```
zmprov ca joe@domain.com test123
```

### Syntax Conventions

When demonstrating the syntax of each tool, the following conventions indicate required, optional, and alternate values:

- {attribute} in curly brackets is required information.
- [attribute] in square brackets are optional arguments or information.
- {a|b|c} or [a|b|c] options separated by the pipe character | means “a” OR “b” OR “c”
- For attribute names that may contain spaces, surround the name with double quotes.

### Location of Command-Line Utilities

The command-line tools available for administrators are all located in the /opt/zimbra/bin directory on the ZCS server.

## Zimbra CLI Commands

The table below lists the CLI commands in /opt/zimbra/bin.

| CLI | Description |
|---|---|
| **antispam-mysqladmin** | Send admin commands to anti=spam MySQL server |
| **antispam-mysql** | Enters interactive command-line MySQL session with the mailbox mysql |
| **antispam-mysql.server** | Start, stop the SQL instance for the mailbox package |
| **ldap** | Start, stop, or find the status of Zimbra LDAP |
| **ldapsearch** | Perform a search on an LDAP server |
| **logmysqladmin** | Send myslqadmin commands to the logger mysql |
| **mysql** | Enters interactive command-line MySQL session with the mailbox mysql |
| **mysql.server** | Start, stop the SQL instance for the mailbox package |
| **mysqladmin** | Send admin commands to MySQL |
| **postconf** | Postfix command to view or modify the postfix configuration |
| **postfix** | Start, stop, reload, flush, check, upgrade-configuration of postfix |
| **qshape** | Examine postfix queue in relation to time and sender/ recipient domain |

| CLI | Description |
|---|---|
| **zmaccts** | Lists the accounts and gives the status of accounts on the domain |
| **zmamavisdctl** | Start, stop, restart, or find the status of the Amavis-D New |
| **zmantispamctl** | Start, stop, reload, status for anti-spam service |
| **zmantivirusctl** | Start, stop, reload, status for the anti-virus service |
| **zmantispamdbpasswd** | Changes anti-spam MySQL database password |
| **zmapachectl** | Start, stop, reload, or check status of Apache service (for spell check) |
| **zmarchiveconfig** | Command to view, modify, or configure archiving |
| **zmarchivectl** | Start, stop, reload, status for archiving |
| **zmarchivesearch** | Search archives on the account |
| **zmauditswatchctl** | Start, stop, restart, reload, status of the auditswatch |
| **zmbackup** | Performs full backups and incremental backups for a designated mail host. |
| **zmbackupabort** | Stops a backup that is in process. |
| **zmbackupquery** | Find a specific full backup set |
| **zmblobchk** | Check consistency of the Zimbra blob store |
| **zmcalchk** | Check consistency of appointments and attendees in the Zimbra calendar |
| **zmcbpolicydctl** | Start, stop, and restart the cluebringer policyd service if enabled |
| **zmconfigdctl** | Start, stop, kill, restart status of the MTA configuration daemon. |
| **zmcertmgr** | Manage self-signed and commercial certificates |
| **zmclamdctl** | Start, stop, or find the status of Clam AV |
| **zmcleaniplanetics** | Clean iPlanet ICS calendar files |
| **zmcontrol (Start/Stop/ Restart Service)** | Start, stop, restart, status of the Zimbra servers. Also can use to find the Zimbra version installed |
| **zmconvertctl** | Start, stop, the conversion server or find the status of the converted attachments conversion/indexing |
| **zmdevicesstats** | Number of unique ActiveSync device IDs per server |
| **zmgdcutil** | (get devices count) gives the total devices system wide without the need of specifying individual servers. |

| CLI | Description |
|---|---|
| **zmdumpenv** | General information about the server environment is displayed |
| **zmgsautil** | Global Address Book (GAL) synchronization command line utility.<br>Create, delete the GAL sync account and initiate manual syncs. |
| **zmhostname** | Find the hostname of the Zimbra server |
| **zmhsm** | Start, stop and status of a HSM session. |
| **zmitemdatafile** | Extracts and packs tgz files that ZCS uses for REST import/export |
| **zmjava** | Execute Java with Zimbra-specific environment settings |
| **zmjavaext** | Execute Java and Zimbra-specific environment settings including extension based jars. |
| **zmldappasswd** | Changes the LDAP password |
| **zmlicense** | View and install your Zimbra license |
| **zmlmtpinject** | Testing tool |
| **zmlocalconfig** | Used to set or get the local configuration of a Zimbra server |
| **zmloggerctl** | Start, stop, reload, or find the status of the Zimbra logger service |
| **zmloggerhostmap** | Used to manually map a DNS hostname to a zmhostname. |
| **zmlogswatchctl** | Start, stop, status of the swatch that is monitoring logging |
| **zmmailbox** | Performs mailbox management tasks |
| **zmmailboxdctl** | Start, stop, reload, or find the status of the mailbox components (zmmailboxd, MySQL, convert) |
| **zmmboxsearch (Cross Mailbox Search)** | Search across mailboxes to find messages and attachments |
| **zmmboxmove** | 7.1.3 and later. Used to move selected mailboxes from one Zimbra server to another. |
| **zmmboxmovequery** | 7.1.3 and later. Used to query ongoing mailbox moves on a server |
| **zmpurgeoldmbox** | 7.1.3 and later. Purges a mailbox from the old server after a mailbox move |

| CLI | Description |
|---|---|
| **zmmemcachedctl** | Start, stop, and restart |
| **zmmetadump** | Support tool that dumps an item’s metadata in a human-readable form |
| **zmmilterctl** | Start, stop, and restart the zimbra milter server if enabled |
| **zmmtaconfigdctl** | Beginning in ZCS 7.0, this command is not used. Use **zmconfigdctl**. |
| **zmmtactl** | Start, stop, or find the status of the MTA |
| **zmmypasswd** | Change MySQL passwords |
| **zmmysqlstatus** | Status of mailbox SQL instance |
| **zmnginxconf** | Command line utility to output the reverse proxy configuration |
| **zmnginxctl** | Start, stop, and restart the zimbra reverse proxy |
| **zmplayredo** | Performs data restore using backed up snapshots taken periodically. Users who use snapshots to backup and restore their information from a standby site use this command. |
| **zmprov (Provisioning)** | Performs all provisioning tasks in Zimbra LDAP, including creating accounts, domains, distribution lists and aliases |
| **zmproxyconfgen** | Generates configuration for the nginx proxy |
| **zmproxyctl** | Start, stop, restart, and find the status of the IMAP proxy service |
| **zmproxypurge** | Purges POP/IMAP routing information from one or more memcached servers |
| **zmpython** | Ability to write Python scripts that access Zimbra Java libraries. It sets the ZCS class path and starts the Jython interpreter. |
| **zmredodump** | Support tool for dumping contents of a redolog file for debugging purposes |
| **zmrestore** | Performs full restores and incremental restores for a designated mail host |
| **zmrestoreldap** | Restore accounts from the LDAP backup |
| **zmrestoreoffline (Offline Restore)** | Performs full restore when the Zimbra server (i.e., the mailboxd process) is down |
| **zmsaslauthdctl** | Start, stop, or find the status of saslauthd (authentication) |

| CLI | Description |
|---|---|
| **zmschedulebackup** | Schedule backups and add the command to your cron table |
| **zmshutil** | Used for other zm scripts, do not use |
| **zmskindeploy** | Deploy skins for accounts from the command line |
| **zmsoap** | Print mail, account, and admin information in the SOAP format |
| **zmspellctl** | Start, stop, or find the status of the spell check server |
| **zmsshkeygen** | Generate Zimbra's SSH encryption keys |
| **zmstat-chart** | Generate charts from zmstat data collected in a directory |
| **zmstat-chart-config** | Outputs an XML configuration that describes the current state of the data gathered from zmstat-chart to generate charts on the administration console. |
| **zmstatctl** | Start, stop, check status, or rotate logs of zmstat data collectors |
| **zmstorectl** | Start, stop, or find the status of Zimbra store services |
| **zmswatchctl** | Start, stop, or find the status of the Swatch process, which is used in monitoring |
| **zmsyncreverseproxy** | Decodes the sync request/responses and logs them when verbose mode is turned on. |
| **zmthrdump** | Initiate a thread dump and save the data to a file with a timestamp |
| **zmtlsctl** | Set the Web server mode to the communication protocol options: HTTP, HTTPS or mixed |
| **zmtrainsa** | Used to train the anti-spam filter to recognize what is spam or ham |
| **zmtzupdate** | Provides mechanism to process time zone changes from the command line |
| **zmupdateauthkeys** | Used to fetch the ssh encryption keys created by zmsshkeygen |
| **zmvolume** | Manage storage volumes on your Zimbra Mailbox server |
| **zmzimletctl** | Deploy and configure Zimlets |

### Using non-ASCII Characters in CLIs

If you use non-ASCII characters in the CLI, in order for the characters to display correctly, you must change this setting to the desired UTF-8 before running the CLI command. To change this, type

```
export LC_All=<UTF_locale>
```

***Important:*** *The default locale on the zimbra user system account is LANG=C. This setting is necessary for starting ZCS services. Changing the default LANG=C setting may cause performance issues with amavisd-new.*

## zmprov (Provisioning)

The **zmprov** tool performs all provisioning tasks in Zimbra LDAP, including creating accounts, aliases, domains, COS, distribution lists, and calendar resources. Each operation is invoked through command-line options, each of which has a long name and a short name.

The syntax is `zmprov [cmd] [argument]`.

The syntax for modify can include the prefix “+” or “-” so that you can make changes to the attributes affected and do not need to reenter attributes that are not changing.

- Use + to add a new instance of the specified attribute name without changing any existing attributes.
- Use - to remove a particular instance of an attribute.

The following example would add the attribute **zimbraZimletUserProperties** with the value “blue” to user 1 and would not change the value of any other instances of that attribute.

```
    zmprov ma user1 +zimbraZimletUserProperties
   "com_company_testing:favoriteColor:blue"
```

The attributes for the tasks zmprov can be used with are listed when you type zmprov -h. The task area divided into the following sections:

- Accounts
- Calendar
- Commands
- Config
- COS
- Domain
- Free/busy
- Distribution list
- Logging

- Miscellaneous commands
- Mailbox
- Reverse proxy
- Right - for delegated administration
- Search
- Server
- Share
- Unified Communication Service

| Short Name | Long Name | Syntax, Example, and Notes |
|---|---|---|
| -h | --help | display usage |
| -f | --file | use file as input stream |
| -s | --server | {host}[:{port}]  server hostname and optional port |
| -l | --ldap | provision via LDAP instead of SOAP |
| -L | --log property file | log 4j property file, valid only with -l |
| -a | --account {name} | account name to auth as |
| -p | --password {pass} | password for account |
| -P | --passfile {file} | read password from file |
| -z | --zadmin | use Zimbra admin name/password from localconfig for admin/password |
| -y | --authtoken (authtoken) | use auth token string (has to be in JSON format) from command line |
| -Y | --authtoken (authtoken file) | use auth token string (has to be in JSON format) from command line |
| -v | --verbose | verbose mode (dumps full exception stack trace) |
| -d/ | --debug | debug mode (dumps SOAP messages) |
| -m | --master | use LDAP master. This only valid with -l |
| -r | --replace | allow replacement of safe-guarded multi-value attribute configured in localconfig key **zmprov_saveguarded_attrs** |

The commands in the following table are divided into the tasks types.

| Long Name | Short Name | Syntax, Example, and Notes |
|---|---|---|
| **Account Provisioning Commands** | | |
| addAccountAlias | aaa | {name@domain\|id\|adminName} {alias@domain}<br>zmprov aaa joe@domain.com joe.smith@engr.domain.com |
| checkPasswordStrength | **cps** | Syntax: {name@doman\|id} {password}<br>**Note:** This command does not check the password age or history.<br>zmprov cps joe@domain.com test123 |
| createAccount | ca | Syntax:{name@domain} {password} [attribute1 value1 etc]<br>Type on one line.<br>zmprov ca joe@domain.com test123 displayName JSmith |
| createDataSource | **cds** | {name@domain} {ds-type} {ds-name} zimbraDataSourceEnabled {TRUE\|FALSE} zimbraDataSourceFolderId {folder-id} [attr1 value1 [attr2 value2...]] |
| createIdentity | **cid** | {name@domain} {identity-name} [attr1 value1 [attr2 value2...]] |
| createSignature | **csig** | {name@domain} {signature-name} [attr1 value1 [attr2 value2...]] |
| deleteAccount | da | Syntax:{name@domain\|id\|adminName}<br>zmprov da joe@domain.com |
| deleteDataSource | **dds** | {name@domain\|id} {ds-name\|ds-id} |
| deleteIdentity | **did** | {name@domain\|id} {identity-name} |
| deleteSignature | **dsig** | {name@domain\|id} {signature-name} |
| getAccount | ga | Syntax:{name@domain\|id\|adminName}<br>zmprov ga joe@domain.com |
| getAccountMembership | **gam** | {name@domain\|id} |
| getAllAccounts | gaa | Must include -l/--ldap<br>Syntax: [-v] [{domain}]<br>zmprov -l gaa<br>zmprov -l gaa -v domain.com |

| Long Name | Short Name | Syntax, Example, and Notes |
|---|---|---|
| getAllAdminAccounts | gaaa | Syntax: gaaa<br>zmprov gaaa |
| getDataSources | **gds** | {name@domain \| id} [arg 1 [arg 2...]] |
| getIdentities | **gid** | {name@domain \| id} [arg 1 [arg 2...]] |
| getSignatures | **gsig** | {name@domain \| id} [arg 1 [arg 2...]] |
| modifyAccount | ma | {name@domain\|id\|adminName} [attribute1 value1 etc]<br>zmprov ma joe@domain.com zimbraAccountStatus maintenance |
| modifyDataSource | **mds** | {name@domain \| id} {ds-name \|ds-id} [attr 1 value 1 [attr2 value 2...]] |
| modifyIdentity | **mid** | {name@domain \|id} {identity-name} [attr 1 value 1 [attr 2 value 2...]] |
| modifySignature | **msig** | {name@domain \|id} {signature-name \| signature-id} [attr 1 value 1 [attr 2 value 2...]] |
| removeAccountAlias | raa | {name@domain\|id\|adminName} {alias@domain}<br>zmprov raa joe@domain.com joe.smith@engr.domain.com |
| renameAccount | ra | {name@domain\|id} {newname@domain}<br>zmprov ra joe@domain.com joe23@domain.com<br>Note: After you rename an account, you should run a full backup for that account. zmbackup -f - <servername.com> -a <newaccountname@servername.com> |
| setAccountCOS | sac | {name@domain\|id\|adminName} {cos-name\|cos-id}<br>zmprov sac joe@domain.com FieldTechnician |
| setPassword | sp | {name@domain\|id\|adminName} {password}<br>**Note**: Passwords cannot included accented characters in the string. Example of accented characters that cannot be used: ã, é, í, ú, ü, ñ.<br>zmprov sp joe@domain.com test321 |
| **Calendar Resource Provisioning Commands** | | |

| Long Name | Short Name | Syntax, Example, and Notes |
|---|---|---|
| **createCalendarResource** | **ccr** | {name@domain} [attr1 value1 [attr2 value2...]] |
| **deleteCalendarResource** | **dcr** | {name@domain\|id} |
| **getAllCalendarResources** | **gacr** | [-v] [{domain}] |
| **getCalendarResource** | **gcr** | {name@domain\|id} |
| **modifyCalendarResource** | **mcr** | {name@domain\|id} [attr1 value1 {attr2 value2...]] |
| **purgeAccountCalendarCache** | **pacc** | {name@domain\id} [...] |
| **renameCalendarResource** | **rcr** | {name@domain\|id} {newName@domain} |
| **Free Busy Commands** | | |
| **getAllFbp** | **gafbp** | [-v] |
| **getFreebusyQueueInfo** | **gfbqi** | [{provider-name}] |
| **pushFreebusy** | **pfb** | {domain \| account-id} [account-id...] |
| **pushFreebusyDomain** | **pfbd** | {domain} |
| **purgeFreebusyQueue** | **pfbg** | [{provider-name}] |
| **Domain Provisioning Commands** | | |
| **countAccount** | **cta** | {domain\|id}<br>This lists each COS, the COS ID and the number of accounts assigned to each COS |
| **createAliasDomain** | **cad** | {alias-domain-name} {local-domain-name\|id} [attr1 value1 [attr2 value2...]] |
| createDomain | cd | {domain} [attribute1 value1 etc]<br>zmprov cd mktng.domain.com zimbraAuthMech zimbra |
| deleteDomain | dd | {domain\|id}<br>zmprov dd mktng.domain.com |
| getDomain | gd | {domain\|id}<br>zmprov gd mktng.domain.com |
| **getDomainInfo** | **gdi** | name\|id\|virtualHostname {value} [attr1 [attr2...]] |
| getAllDomains | gad | [-v] |

| Long Name | Short Name | Syntax, Example, and Notes |
|---|---|---|
| modifyDomain | md | {domain\|id} [attribute1 value1 etc]<br>zmprov md domain.com zimbraGalMaxResults 500<br>***Note:*** *Do not modify* **zimbraDomainRenameInfo** *manually. This is automatically updated when a domain is renamed.* |
| **renameDomain** | **rd** | {domain\|id} {newDomain}<br>***Note:*** *renameDomain can only be used with "***zmprov -l/--ldap***"* |
| **COS Provisioning Commands** | | |
| **copyCos** | **cpc** | {src-cos-name\|id} {dest-cos-name} |
| createCos | cc | {name} [attribute1 value1 etc]<br>zmprov cc Executive zimbraAttachmentsBlocked FALSE zimbraAuthTokenLifetime 60m zimbraMailQuota 100M zimbraMailMessageLifetime 0 |
| deleteCos | dc | {name\|id}<br>zmprov dc Executive |
| getCos | gc | {name\|id}<br>zmprov gc Executive |
| getAllCos | gac | [-v]<br>zmprov gac -v |
| modifyCos | mc | {name\|id} [attribute1 value1 etc]<br>zmprov mc Executive zimbraAttachmentsBlocked TRUE |
| renameCos | rc | {name\|id} {newName}<br>zmprov rc Executive Business |
| **Server Provisioning Commands** | | |
| createServer | cs | {name} [attribute1 value1 etc] |

| Long Name | Short Name | Syntax, Example, and Notes |
|---|---|---|
| deleteServer | ds | {name\|id}<br>zmprov ds domain.com |
| getServer | gs | {name\|id}<br>zmprov gs domain.com |
| getAllServers | gas | [-v]<br>zmprov gas |
| modifyServer | ms | {name\|id} [attribute1 value1 etc]<br>zmprov ms domain.com zimbraVirusDefinitionsUpdateFrequency 2h |
| getAllMtaAuthURLs | gamau | Used to publish into saslauthd.conf what servers should be used for saslauthd.conf MTA auth |
| getAllMemcachedServers | gamcs | Used to list memcached servers (for nginix use). |
| **Config Provisioning Commands** | | |
| getAllConfig | gacf | [-v]<br>All LDAP settings are displayed |
| getConfig | gcf | {name} |
| modifyConfig | mcf | attr1 value1<br>Modifies the LDAP settings. |
| createXMPPComponent | cxc | {short-name} {domain} {server} {classname} {category} {type} [attr value1 [attr2 value2...]] |
| deleteXMPPComponent | dxc | {xmpp-component-name} |
| getXMPPComponent | gxc | {name@domain} [attr1 [attr2 value2]] |
| modifyXMPPComponent | mxc | {name@domain} [attr1 [attr2 value2]] |
| **Distribution List Provisioning Commands** | | |
| createDistributionList | cdl | {list@domain}<br>zmprov cdl needlepoint-list@domain.com |
| addDistributionListMember | adlm | {list@domain\|id} {member@domain}<br>zmprov adlm needlepoint-list@domain.com singer23@mail.free.net |

| Long Name | Short Name | Syntax, Example, and Notes |
|---|---|---|
| removeDistributionListMember | rdlm | {list@domain\|id}<br>zmprov rdlm needlepoint-list@domain.com singer23@mail.free.net |
| getAlldistributionLists | gadl | [-v] |
| get DistributionListmembership | gdlm | {name@domain\|id}<br>Note: gdlm can not be used for gynamic groups, as dynamic groups cannot be nested. |
| getDistributionList | gdl | {list@domain\|id}<br>zmprov gdl list@domain.com |
| modifyDistributionList | mdl | {list@domain\|id} attr1 value1 {attr2 value2...}<br>zmprov md list@domain.com |
| deleteDistributionList | ddl | (list@domain\|id} |
| addDistributionListAlias | adla | {list@domain\|id} {alias@domain} |
| removeDistributionListAlias | rdla | {list@domain\|id} {alias@domain} |
| renameDistributionList | rdl | {list@domain\|id} {newName@domain} |
| **Mailbox Commands** | | |
| getMailboxInfo--- | gmi | {account} |
| getQuotaUsage--- | gqu | {server} |
| reIndexMailbox | rim | {name@domain\|id} {start\|status\|cancel} [{reindex-by} {value1} [value2...]] |
| RecalculateMailboxCounts | rmc | {name@domain\|id}<br>When unread message count and quota usage are out of sync with the data in the mailbox, use this command to immediately recalculate the mailbox quota usage and unread messages count.<br>***Important:*** *Recalculating mailbox quota usage and message count should be schedule to run in off peak hours and used on one mailbox at a time.* |
| reIndexMailbox | rim | {start\|status\|cancel} [{types\|ids} {type or id} [,type or id...]] |

| Long Name | Short Name | Syntax, Example, and Notes |
|---|---|---|
| compactIndexMailbox | cim | {name@domain\|id} {start\|status} |
| verifyIndex | vi | {name@domain\|id} |
| getIndexStats | gis | {name@domain\|id} |
| selectMailbox | sm | {account-name} [{zmmailbox commands}] |
| **Logs** | | |
| addAccount Logger | aal | {name@domain\|id} {logging-category} {debug\|info\|warn\|error}<br>Creates custom logging for a single account |
| getAccountLoggers | gal | [-s/--server hostname] {name@domain\|id} {logging-category} {debug\|info\|warn\|error} |
| getAllAccountLoggers | gaal | [-s/--server hostname]<br>Shows all individual custom logger account |
| removeAccountLogger | ral | [-s/ --server hostname] {name@domain\|id} {logging-category}<br>When name@domain is specified, removes the custom logger created for the account otherwise removes all accounts all account loggers from the system. |
| resetAllLoggers | rlog | This command removes all account loggers and reloads /opt/zimbra/conf/log4j.properties.<br>[-s/--server hostname] |
| See the zmprov Log Categories for a list of logging categories. | | |
| **Search** | | |
| searchGAL | sg | {domain} {name}<br>zmprov sg joe |
| autoCompleteGal | acg | {domain} {name} |
| searchAccounts | sa | [-v] {ldap-query} [limit] [offset] [sortBy {attribute} [sortAscending 0\|1] [domain {domain}] |
| searchCalendarResources | scr | [-v] domain attr op value {attr op value...] |
| **Share Provisioning Commands** | | |
| getShareInfo | gsi | {owner-name\|owner-id} |

| Long Name | Short Name | Syntax, Example, and Notes |
|---|---|---|
| **Miscellaneous Provisioning Commands** | | |
| countObjects | cto | {type} [-d {domain\|id}].<br>countObjects can only be used with zmprov -l/--ldap |
| createBulkAccounts | cabulk | {domain} {namemask} {number of accounts to create} |
| describe | desc | [[-v] [-ni] [{entry-type}]] \| [-a {attribute-name}]<br>Prints all attribute names (account, domain, COS, servers, etc.). |
| flushCache | fc | [-a] {acl\|locale\|skin\|uistrings\|license\|all\|account\|config\|globalgrant\|cos\|domain\|galgroup\|group\|mime\|server\|zimlet\|<extension-cache-type>} [name1\|id1 [name2\|i d2...]]<br>Flush cached LDAP entries for a type. See Chapter 5, Zimbra LDAP Service |
| generateDomainPreAuthKey | gdpak | {domain\|id}<br>Generates a pre-authentication key to enable a trusted third party to authenticate to allow for single-sign on. Used in conjunction with GenerateDomainPreAuth. |
| generateDomainPreAuth | gdpa | {domain\|id} {name} {name\|id\|foreignPrincipal} {timestamp\|0} {expires\|0}<br>Generates preAuth values for comparison. |
| syncGal | syg | {domain} [{token}] |
| getAccountLogger | gal | [-s /--server hostname] {name@domain \| id} |
| **UnfiedCommunication Service Commands** | | |
| createUCService | cucs | {name} [attr1 value1 [attr2 value2...]] |
| deleteUCService | ducs | {name\|id} |
| getAllUCServices | gaucs | [-v] |
| getUCService | gucs | [-e] {name\|id} [attr1 [attr2...]] |
| modifyUCService | mucs | {name\|id} [attr1 value1 [attr2 value2...]] |
| renameUCService | rucs | {name\|id} {newName} |

| Long Name | Short Name | Syntax, Example, and Notes |
|---|---|---|
| **The following are zmprov commands that are specific to Zimbra IMAP/ POP proxy.** | | |
| --getAllReverseProxyURLs | -garpu | Used to publish into nginx.conf the servers that should be used for reverse proxy lookup. |
| --getAllReverseProxyBackends | -garpb | Returns the list of servers that have **zimbraReverseProxyLookupTarget=TRUE.** Basically if a mailbox server is available for lookup requests from the proxy. |
| --getAllReverseProxyDomains | -garpd | Returns a list of all domains configured with **ZimbraSSLCertificate zimbraVirtualHostname** and **zimbraVirtualIPAddress** configured. This allows the proxy to configure a list of domains to serve customized/domain certificates for. |

### zmprov Examples

- Create one account with a password that is assigned to the default COS.

  zmprov ca name@domain.com password

- Create one account with a password that is assigned to a specified COS. You must know the COS ID number. To find a COS ID, type zmprov gc <COSname>.

  zmprov ca name@domain.com password zimbraCOS cosIDnumberstring

- Create one account when the password is not authenticated internally.

  zmprov ca name@domain.com ‘’

  The empty single quote is required and indicates that there is no local password.

- Using a batch process to create accounts, see Chapter 11, Provisioning User Accounts for the procedure.

- Add an alias to an account.

  zmprov aaa accountname@domain.com aliasname@domain.com

- Create distribution list. The ID of the distribution list is returned.

  zmprov cdl listname@domain.com

- Add a member to a distribution list. Tip: You can add multiple members to a list from the administration console.

  zmprov adlm listname@domain.com member@domain.com

- Change the administrator's password. Use this command to change any password. Enter the address of the password to be changed.

  ```
  zmprov sp admin@domain.com password
  ```

- Create a domain that authenticates against zimbra OpenLDAP.

  ```
  zmprov cd marketing.domain.com zimbraAuthMech zimbra
  ```

- Set the default domain.

  ```
  zmprov mcf zimbraDefaultDomain domain1.com
  ```

- To list all COSs and their attribute values.

  ```
  zmprov gac -v
  ```

- To list all user accounts in a domain (domain.com)

  ```
  zmprov gaa domain.com
  ```

- To list all user accounts and their configurations

  ```
  zmprov gaa -v domain.com
  ```

- To enable logger on a single server

  ```
  zmprov ms server.com +zimbraServiceEnabled logger
  ```

  Then type zmloggerctl start, to start the logger.

- To query if a value is set for a multi-valued attribute.

  ```
  zmprov gs server.com attribute=value
  ```

  For example, **zmprov gs example.com zimbraServiceEnabled=ldap** to find out if the ldap service is enabled.

- To modify the purge interval, set **zimbraMailPurgeSleepInterval** to the duration of time that the server should "sleep" between every two mailboxes. Type:

  ```
  zmprov ms server.com zimbraMailPurgeSleepInterval <Xm>
  ```

  **X** is the duration of time between mailbox purges; **m** represents minutes. You could also set **<xh>** for hours.

- Modify **zimbraNewMailNotification** to customize the notification email template. A default email is sent from Postmaster notifying users that they have received mail in another mailbox. To change the template, you modify the receiving mailbox account. The variables are

  - ${SENDER_ADDRESS}
  - ${RECIPIENT_ADDRESS}
  - ${RECIPIENT_DOMAIN}
  - ${NOTIFICATION_ADDRESSS}
  - ${SUBJECT}
  - ${NEWLINE}

You can specify which of the above variables appear in the **Subject**, **From**, or **Body** of the email. The following example is changing the appearance of the message in the body of the notification email that is received at **name@domain.com**. You can also change the template in a class of service, use zmprov mc. The command is written on one line.

```
zmprov ma name@domain.com zimbraNewMailNotificationBody 'Important
message from ${SENDER_ADDRESS}.${NEWLINE}Subject:${SUBJECT}'
```

- Enable the SMS notification by COS, account or domain
    - **zmprov mc <default> zimbraFeatureCalendarReminderDeviceEmailEnabled TRUE**
    - **zmprov ma <user1> zimbraFeatureCalendarReminderDeviceEmailEnabled TRUE**
    - **zmprov md <domain> zimbraFeatureCalendarReminderDeviceEmailEnabled TRUE**
- Enable the Activity Stream feature for a COS or set of users
    - **zmprov mc <default> zimbraFeaturePriorityInboxEnabled TRUE**
    - **zmprov ma <user1> zimbraFeaturePriorityInboxEnabled TRUE**

### Configure Auto-Grouped Backup from the CLI

Set the backup method in the global configuration, and you can override the configuration on a per server basis if you do not want a server to use the auto-grouped backup method.

To set up auto-grouped backup, you modify LDAP attributes using the zmprov CLI. Type the command as

```
zmprov mcf <ldap_attribute> <arg>
```

You can also set the attributes at the server level using **zmprov ms**.

The following LDAP attributes are modified:

- **zimbraBackupMode**. Set it to be **Auto-Grouped.** The default is Standard.
- **zimbraBackupAutoGroupedInterval**. Set this to the interval in either days or weeks that backup sessions should run for a group. The default is 1d. Backup intervals can be 1 or more days, entered as xd (1d); or 1 or more weeks, entered as xw (1w).
- **zimbraBackupAutoGroupedNumGroups**. This the number of groups to spread mailboxes over. The default is 7 groups.

### Changing Conversations Thread Default

Messages can be grouped into conversations by a common thread. The default is to thread messages in a conversation by the References header. If there is no References header, the Subject is used to determine the conversation thread. The default options can be changed from the COS or for individual accounts.

```
zmprov mc [cosname] zimbraMailThreadingAlgorithm [type]
```

The types include:

- **none**. no conversation threading is performed.
- **subject**. the message will be threaded based solely on its normalized subject.
- **strict**. only the threading message headers (References, In-Reply-To, Message-ID, and Resent-Message-ID) are used to correlate messages. No checking of normalized subjects is performed.
- **references**. the same logic as "strict" with the constraints slightly altered so that the non-standard Thread-Index header is considered when threading messages and that a reply message lacking References and In-Reply-To headers will fall back to using subject-based threading.
- **subjrefs**. the same logic as "references" with the further caveat that changes in the normalized subject will break a thread in two.

### Detect Corrupted Indexes

Run **zmprov verifyIndex** as a sanity check for the specified mailbox index. Diagnostic information is written to stdout. If problems are detected, a failure status is returned.

VerifyIndex locks the index while it's running, and checks every byte in the index. Therefore, it's not recommended to run this on a regular basis such as in a cron job. The zmprov verifyIndex command should be used only when you need to make a diagnosis.

```
zmprov verifyIndex <user@example.com>
```

If VerifyIndex reports that the index is corrupted, you can repair the mailbox index by running **reIndexMailbox (rim).**

zmprov rim <user@example.com> start

### zmprov Log Categories

| | |
|---|---|
| **zimbra.account** | Account operations |
| **zimbra.acl** | ACL operations |
| **zimbra.backup** | Backup and restore |
| **zimbra.cache** | Inmemory cache operations |
| **zimbra.calendar** | Calendar operations |
| **zimbra.dav** | DAV operations |
| **zimbra.dbconn** | Database connection tracing |

| | |
|---|---|
| **zimbra.extensions** | Server extension loading |
| **zimbra.filter** | Mail filtering |
| **zimbra.gal** | GAL operations |
| **zimbra.imap** | IMAP protocol operations |
| **zimbra.index** | Index operations |
| **zimbra.io** | Filesystem operations |
| **zimbra.ldap** | LDAP operations |
| **zimbra.lmtp** | LMTP operations (incoming mail) |
| **zimbra.mailbox** | General mailbox operations |
| **zimbra.misc** | Miscellaneous |
| **zimbra.op** | Changes to mailbox state |
| **zimbra.pop** | POP protocol operations |
| **zimbra.redolog** | Redo log operations |
| **zimbra.security** | Security events |
| **zimbra.session** | User session tracking |
| **zimbra.smtp** | SMTP operations (outgoing mail) |
| **zimbra.soap** | SOAP protocol |
| **zimbra.sqltrace** | SQL tracing |
| **zimbra.store** | Mail store disk operations |
| **zimbra.sync** | Sync client operations |
| **zimbra.system** | Startup/shutdown and other system messages |
| **zimbra.wiki** | Wiki operations |
| **zimbra.zimlet** | Zimlet operations |

## zmaccts

This command runs a report that lists all the accounts, their status, when they were created and the last time anyone logged on. The domain summary shows the total number of accounts and their status.

### Syntax

```
zmaccts
```

## zmarchiveconfig

This command is used for configuring the archiving mailbox. It has the option of using short commands or full names for commands that lead to the same function being carried out.

### Syntax

```
zmarchiveconfig [args] [cmd] [cmd-args...]
```

### Description

| Long Name | Short Name | Description |
|---|---|---|
| --help | -h | Displays the usage options for this command |
| --server | -s | (host)[:(port)] Displays the server hostname and optional port |
| --account | -a | (name) Returns the value of the account name to be authorized |
| --ldap | -l | Allows archiving to be provisioned via LDAP |
| --password | -p | (pass) Returns the password for auth account |
| --passfile | -P | (file) Allows password to be read from file |
| --zadmin | -z | Allows use of Zimbra admin/password from local |
| --debug | -d | Activates debug mode (dumps SOAP messages) |
| Command in... | | |
| enable <account> | | [archive-address <aaddr> [archive-cos <cos>]<br>[archive-create <TRUE/FALSE>] [archive-password <pa<br>[zimbraAccountAttrName <archive-attr-value]+ |
| disable <account> | | |

## zmarchivectl

This command is used to start, stop, reload, or check the status of the Zimbra account archive.

### Syntax

```
/opt/zimbra/bin/zmarchivectl start|stop|reload|status
```

## zmarchivesearch

This command is used to search across account archives. You can search for archives that match specific criteria and save copies to a directory.

### Syntax

```
zmarchivesearch {-m <user@domain.com>} {-q <query_string>} [-o <offset>] [-l <limit>] [-d <output_directory>]
```

### Description

| Long Name | Short Name | Description |
|---|---|---|
| --dir | -d | <arg> Directory to write messages to. If none is specified, then only the headers are fetched. Filenames are generated in the form<br>RESULTNUM_ACCOUNT-ID_MAILITEMID |
| --help | -h | Displays help messages |
| --limit | -l | <arg> Sets the limit for the number of results returned. The default is 25 |
| --mbox | -m | <arg> Name of archive account to search |
| --offset | -o | <arg> Specifies where the hit list should begin. The default is 0 |
| --query | -q | <arg> The query string for archive search |
| --server | -s | <arg> Mail server hostname. Default is localhost |
| --verbose | -v | Allows printing of status messages while the search is being executed |

### Example

This example is to search archives on a specified server and put a copy of the archive in a specified directory.

```
zmarchivesearch -m user1@yourdomain.com -q “in:sent” -o 0 -l 30 -d /var/tmp
```

## zmbackup

This tool performs full backups and incremental backups for a designated mail host.

This utility has short option names and full names. The short option is preceded by a single dash, while the full option is preceded by a double dash. For example, -f is the same as --fullBackup.

### Syntax

One of -f, -i, or -del must be specified.

```
    zmbackup {-f | -i | del} {-a <arg>} [options]
```

## Description

| Long Name | Short Name | Description |
|---|---|---|
| --account | -a | <arg> Account email addresses separated by white space or all for all accounts. This option is not specified for auto-grouped backups since the system knows which accounts to backup every night. |
| --debug | **-d** | Display diagnostics for debugging purposes. |
| --delete | **-del** | <arg> Deletes the backups including and prior to the specified label, date (YYYY/MM/DD[-hh:mm:ss]) or period (nn(d\|m\|y]). |
| --excludeBlobs | | Exclude blobs from full backup. If unspecified, use server config |
| --excludeHsmBlobs | | Exclude blobs on HSM volumes from full backup; if unspecified, use server config |
| --excludeSearchIndex | | Exclude search index from full backup; if unspecified, use server config |
| --fullBackup | -f | Starts a full backup. In auto-grouped backup mode, this option also copies the redologs since the last backup (which is the main function of an incremental backup). |
| --help | -h | Displays the usage options for this command. |
| --incrementalBackup | -i | Starts an incremental backup. This option is not available in the auto-grouped backup mode. |
| --includeBlobs | | Include blobs in full backup. If this is unspecified, the server config is used. |
| --includeHsmBlobs | | Include blobs on HSM volumes in full backup. If this is unspecified, the server config is used. |
| **--includeSearchIndex** | | Include search index in full backup. If this is unspecified, the server config is used. |
| **--noZip** | | Backs up blobs as individual files rather than in zip files. |
| --server | -s | <arg> Mail server host name. For format, use either the plain host name or the server.domain.com name. The default is the localhost name. |
| **--sync** | **-sync** | Runs full backup synchronously. |

| | | |
|---|---|---|
| --target | -t | <arg> Specifies the target backup location. The default is <zimbra_home>/ backup. |
| **--zip** | **-z** | Backs up blobs in compressed zip files. Ignored if --zipStore is specified. |
| **--zipStore** | | Backup blobs in zip file without compression. (default) |

### Examples

In these examples, the server (-s) is server1.domain.com. The (-t) is not required if the target is the default directory, (zimbra_home/backup).

- Perform a full backup of all mailboxes on **server1**

  ```
  zmbackup -f -a all -s server1.domain.com
  ```

- Perform incremental backup of all mailboxes on **server1** since last full backup

  ```
  zmbackup -i -a all -s server1.domain.com
  ```

- Perform full backup of only **user1**’s mailbox on **server1**. Note that hostname does not need full domain if account is used.

  ```
  zmbackup -f -a user1@domain.com -s server1
  ```

- Perform incremental backup of **user1**’s mailbox on **server1**

  ```
  zmbackup -i -a user1@domain.com -s server1
  ```

## zmblobchk

Checks the consistency of the Zimbra blob store (/opt/zimbra/store). This command checks and records notes of files without matching database metadata. It also checks to make sure that size information is correct for the files.

### Syntax

```
zmblobchk [options] start
```

The start command is required to avoid unintentionally running a blob check. The ID values are separated by commas.

### Description

| Long Name | Short Name | Description |
|---|---|---|
| --export-dir | | <path> Target directory for database export files. |
| --help | -h | Displays help messages |

| Long Name | Short Name | Description |
|---|---|---|
| --mailboxes | -m | <mailbox-ids> Specify which mailboxes to check. If not specified, check all mailboxes. |
| --missing-blob-delete-item | | Delete any items that have a missing blob. |
| --no-export | | Delete items without exporting |
| --skip-size-check | | Skip blob size check |
| --unexpected-blob-list | | <path> Write the paths of any unexpected blobs to a file |
| --verbose | -v | Display verbose output; display stack trace on error |
| --volumes | | <volume-ids> Specify which volumes to check. If not specified, check all volumes |

## zmcalchk

This command checks the consistency of appointments on the Zimbra calendar and sends an email notification regarding inconsistencies. For example, it checks if all attendees and organizers of an event on the calendar agree on start/stop times and occurrences of a meeting.

See the output of **zmmailbox help appointmen**t for details on time-specs.

### Syntax

```
zmcalchk [-d] [-n <type>] <user> <start-time-spec> <end-time-spec>
```

### Description

| Short Name | Description |
|---|---|
| -d | Debugs verbose details |
| -m | Allows the user to specify the maximum number of attendees to check. The default value is 50. |
| -n | -n none \|user \|organizer \|attendee \|all<br>Send email notifications to selected users if they are out of sync for an appointment |

## zmschedulebackup

This command is used to schedule backups and add the command to your cron table.

The default schedule is as follows:

- Full backup, every Saturday at 1:00 a.m. (0 1 * * 6)
- Incremental backup, Sunday through Friday at 1:00 a.m. (0 1 * * 0-5)

Each crontab entry is a single line composed of five fields separated by a blank space. Specify the fields as follows:

- minute — 0 through 59
- hour — 0 through 23
- day of month — 1 through 31
- month — 1 through 12
- day of week — 0 through 7 (0 or 7 is Sunday, or use names)

Type an asterisk (*) in the fields you are not using.

This command automatically writes the schedule to the crontab.

### Syntax

```
zmschedulebackup {-q|-s|-A|-R|-F|-D}[f|i|d|] [“schedule”]
```

### Description

| Name | Command Name | Description |
|---|---|---|
| help | -h | Displays the usage options for this command. |
| query | -q | Default command. Displays the existing Zimbra backup schedule. |
| save | -s | Save the schedule. Allows you to save the schedule command to a text file so that you can quickly regenerate the backup schedule when the system is restored. |
| flush | -F | Removes the current schedule and cancels all scheduled backups. |
| append | -A | Adds an additional specified backup to the current schedule. |
| replace | -R | Replaces the current schedule with the specified schedule. |
| default | -D | Replaces the current schedule with the default schedule. |
| Options that will be passed to zmbackup | | |
| no compression | -n | Backs up blobs as individual files rather than in zip files |
| compress | -z | Backs up blobs in compressed zip files. Ignored if --zipStore is specified. |
| --zipStore | | Backs up blobs in zip file without compression. |

| Name | Command Name | Description |
|---|---|---|
| target | -t | Can be used only to designate a full back target location. The default is /opt/zimbra/backup.<br>**Note:** *You cannot designate a target for incremental backups. If a target (-t) location is added for incremental scheduled backups, it is ignored.* |
| account | -a | Account specific. The default is all accounts. |
| --mail-report | | Send an email report to the admin user. |
| --server | | server - Mail server hostname. Default is localhost. |
| --sync | | Runs full backup synchronously. |
| --excludeBlobs | | Exclude blobs from full backup. If unspecified, server config is used. |
| --includeBlobs | | Include blobs in full backup. If unspecified, the server config is used. |
| --excludeHsmBlobs | | Exclude blobs on HSM volumes from full backup. If unspecified, the server config is used. |
| --includeHsmBlobs | | Include blobs on HSM volumes in full backup. If unspecified, the server config is used. |
| --excludeSearchIndex | | Exclude search index form full backup. If unspecified, the server config is used. |
| --includeSearchIndex | | Include search index in full backup. If unspecified, the server config is used. |
| Cron schedule | | backup-type: <i \| f \| d arg> |
| incremental backup | i | <time specifier> Incremental backup. Incremental backup is not used with the auto-grouped backup mode. |
| full backup | f | Full backup |
| delete | d <arg> | Delete backups. <arg> is n(d\|m\|y) |

### Backup Scheduling Examples

- To schedule the default full and incremental backup

  `zmschedulebackup -D`

- To replace the existing schedule with a new schedule

```
zmschedulebackup -R f [“schedule”]
```

- To add an additional full backup to the existing schedule

```
zmschedulebackup -A f [“schedule”]
```

- To add an additional incremental backup to the existing schedule

```
zmschedulebackup -A i [“schedule”]
```

- To display the existing schedules a

```
zmschedulebackup -q
```

- To display the schedules on one line as a command, so that they can be copied to a text file and saved to be used if the application needs to be restored.

```
zmschedulebackup -s
```

## zmbackupabort

This command can be used to stop a backup process. Before you can abort an account you must know its backup label. This label is displayed after you start the backup procedure. If you do not know the label, use **zmbackupquery** to find the label name.

**To stop the restore process.** The **zmbackupabort -r** interrupts an on going restore. The restore process is stopped after the current account is restored. The command displays message showing which accounts were not restored.

### Syntax

```
zmbackupabort [options]
```

### Description

| Long Name | Short Name | Description |
|---|---|---|
| **--debug** | **-d** | Display diagnostics for debugging purposes |
| --help | -h | Displays the usage options for this command |
| --label | -lb | <arg> Label of the full backup to be aborted. Use the zmbackupquery, to find the label name. |
| --restore | -r | Abort the restore in process |

| Long Name | Short Name | Description |
|---|---|---|
| --server | -s | <arg> Mail server host name. For format, use either the plain host name or the server.domain.com name. The default is the localhost name. |
| --target | -t | <arg> Specifies the target backup location. The default is <zimbra_home>/backup. |

## zmbackupquery

The **zmbackupquery** command is used to find full backup sets. The command can be used to find a specific full backup set or full backup sets since a specific date, or all backup sets in the backup directory.

To find out the best full backup to use as the basis for point-in-time restore of an account, run a command like this:

```
$ zmbackupquery -a <account email> --type full --to <restore-to time>
```

### Syntax

```
zmbackupquery [options]
```

### Description

| Long Name | Short Name | Description |
|---|---|---|
| --account | -a | <arg> Account email addresses separated by white space or all for all accounts |
| **--debug** | **-d** | Display diagnostics for debugging purposes |
| --help | -h | Displays the usage options for this command |
| **--from** | | <arg> List backups whose start date/time is at or after the date/time specified here. |
| **--label** | **-lb** | <arg> The label of the full backup session to query. An example of a label is backup200507121559510. |
| --server | -s | <arg> Mail server host name. For format, use either the plain host name or the server.domain.com name. The default is the localhost name. |
| **--target** | **-t** | <arg> Specifies the backup target location (The default is <zimbra_home>/backup.) |

| Long Name | Short Name | Description |
|---|---|---|
| **--to** | | <arg> List backups whose start date/time is at or before the date/time specified here. |
| --type | | <arg> Backup set type to query. “full” or “incremental”, both are queried if one is not specified. |
| **--verbose** | **-v** | Returns detailed status information |

Specify date/time in one of these formats:

2008/12/16 12:19:23
2008/12/16 12:19:23 257
2008/12/16 12:19:23.257
2008/12/16-12:19:23-257
2008/12/16-12:19:23
20081216.121923.257
20081216.121923
20081216121923257
20081216121923

Specify year, month, date, hour, minute, second, and optionally millisecond.

Month/date/hour/minute/second are 0-padded to 2 digits, millisecond to 3 digits.

Hour must be specified in 24-hour format, and time is in local time zone.

## zmrestore

This tool performs full restores and incremental restores for a designated mail host. You can either specify specific accounts, or, if no accounts are specified, all accounts are in the backup are restored. In addition, you can restore to a specific point in time.

This utility has short option names and full names. The short option is preceded by a single dash, the full option is proceeded by a double dash. For example, **-rf** is the same as **--restorefullBackupOnly**.

### Syntax

```
zmrestore [options]
```

## Description

| Long Name | Short Name | Description |
|---|---|---|
| --account | **-a** | <arg> Specifies the account email addresses. Separate accounts with a blank space or type all to restore all accounts. |
| --backedupRedologs Only | **-br** | Replays the redo logs in backup only, which excludes archived and current redo logs of the system |
| --continueOnError | **-c** | Continue to restore other accounts when an error occurs |
| --createAccount | **-ca** | Restores accounts to target accounts whose names are prepended with prefix. (Can only be used in commands that use the -pre option.) |
| --debug | **-d** | Display diagnostics for debugging purposes |
| --excludeBlobs | | Do not restore blobs (HSM or not) |
| --excludeHsmBlobs | | Do not restore HSM blobs |
| --excludeSearchIndex | | Do not restore search index |
| --help | -h | Displays the usage options for this command |
| --label | -lb | <arg> The label of the full backup to restore. Restores to the latest full backup if this is omitted. |
| --prefix | **-pre** | <arg> The prefix to pre-pend to the original account names |
| --restoreAccount | -ra | Restores the account in directory service |
| -restoreToIncrLabel | | <arg> Replay redo logs up to and including this incremental backup |
| -restoreToRedoSeq | | <arg> Replay up to and including this redo log sequence |
| -restoreToTime | | **<arg>** Replay rodo logs until this time |
| --restorefullBackup Only | -rf | Restores to the full backup only, not any incremental backups since that backup. |
| --server | -s | <arg> Mail server host name. For format, use either the plain host name or the server.domain.com name. The default is the localhost name. |
| --skipDeletes | | If true, do not execute delete operation during redo log replay |

| Long Name | Short Name | Description |
|---|---|---|
| --skipDeletedAccounts | | Do not restore if named accounts were deleted or did not exist at backup time. (This option is always enabled with -a all) |
| --systemData | **-sys** | Restores global tables and local config |
| --target | -t | <arg> Specifies the backup target location. The default is <zimbra_home>/ backup. |

### Examples

- Perform complete restore of all accounts on **server1**, including last full backup and any incremental backups since last full backup.

  ```
  zmrestore -a all -s server1.domain.com
  ```

- Perform restore only to last full backup, excluding incremental backups since then, for all accounts on **server1**.

  ```
  zmrestore -rf -a all -s server1.domain.com
  ```

- Create a new account from a backup of the target account. The name of the new account will be new_user1@domain.com.

  ```
  zmrestore -a user1@domain.com -ca -pre new_
  ```

## zmrestoreoffline (Offline Restore)

This tool is run when the Zimbra server (i.e., the mailbox process) is down. The MySQL database for the server and the OpenLDAP directory server must be running before you start the **zmrestoreoffline** command.

### Syntax

zmrestoreoffline [options]

### Description

| Long Name | Short Name | Description |
|---|---|---|
| **--account** | **-a** | <arg> Specifies the account email addresses. Separate accounts with a blank space or state all for restoring all accounts. Required. |
| **--backedupRedologsOnly** | **-br** | Replays the redo logs in backup only, which excludes archived and current redo logs of the system |
| **--continueOnError** | **-c** | Continue to restore other accounts when an error occurs |

| Long Name | Short Name | Description |
|---|---|---|
| **--createAccount** | **-ca** | Restores accounts to new target accounts whose names are pre-pended with prefix |
| **--debug** | **-d** | Display diagnostics for debugging purposes |
| --help | -h | Displays the usage options for this command |
| **--ignoreRedoErrors** | | If true, ignore all errors during redo log replay |
| --label | -lb | <arg> The label of the full backup to restore. Type this label to specify a backup file other then the latest. |
| **--prefix** | **-pre** | <prefix> The prefix to pre-pend to the original account names. |
| --restoreAccount | -ra | Restores the account in directory service. |
| -restoreToIncrLabel | | <arg> Replay redo logs up to and including this incremental backup |
| -restoreToRedoSeq | | <arg> Replay up to and including this redo log sequence |
| **-restoreToTime** | | <**arg**> Replay rodo logs until this time |
| --restoreFullBackupOnly | -rf | Restores to the full backup only, not any incremental backups since that backup. |
| --server | -s | <arg> Mail server host name. For format, use either the plain host name or the server.domain.com name. The default is the localhost name. If -s is specified, this must be localhost. |
| **--skipDeletedAccounts** | **-skipDeletedAccounts** | Do not restore if named accounts were deleted or did not exist at backup time. (This option is always enabled with -a all) |
| **--systemData** | **-sys** | Restores global tables and local config. |
| --target | -t | <arg> Specifies the backup target location. The default is <zimbra_home>/backup. |

## Examples

Before you begin zmrestoreoffline, the LDAP directory server must be running

- Perform a complete restore of all accounts on **server1**, including last full backup and any incremental backups since last full backup.

  ```
  zmrestoreoffline -s server1.domain.com
  ```

## zmrestoreldap

This tool is run to restore accounts from the LDAP backup.

### Syntax

```
zmrestoreldap {-lb <arg>} {-t <arg>} [options]
```

### Description

| Short Name | Description |
|---|---|
| -lb | <arg> Session label to restore from. For example, full200612291821113. |
| -t | <arg> Specifies the backup target location. The default is /opt/zimbra/backup. |
| -lbs | Lists all session labels in backup |
| **-l** | Lists accounts in file. |
| **-a** | <arg> Restores named account(s). List account names separated by white space. |

## zmcontrol (Start/Stop/Restart Service)

This command is run to start, to stop, or to restart services. You can also find which version of the ZCS is installed.

### Syntax

```
zmcontrol [ -v -h ] command [args]
```

### Description

| Long Name | Short Name | Description |
|---|---|---|
| | -v | Displays ZCS software version. |
| | -h | Displays the usage options for this command. |
| | -H | Host name (localhost). |
| Command in... | | |
| maintenance | | Toggle maintenance mode. |
| restart | | Restarts all services and manager on this host. |
| shutdown | | Shutdown all services and manager on this host. When the manager is shutdown, you cannot query that status. |

| Long Name | Short Name | Description |
|---|---|---|
| start | | Startup manager and all services on this host. |
| startup | | Startup manager and all services on this host. |
| status | | Returns services information for the named host. |
| stop | | Stop all services but leaves the manager running. |

## zmmboxsearch (Cross Mailbox Search)

The CLI command **zmmboxsearch** is used to search across mailboxes. You can search across mailboxes to find messages and attachments that match specific criteria and save copies of these messages to a directory.

### Syntax

```
zmmboxsearch {-m <arg>} {-q <arg>} [-o <arg>] [-l <arg>] [-d <arg>] [options]
```

### Description

| Long Name | Short Name | Description |
|---|---|---|
| --dir | -d | <arg> Directory to write the messages to. If none is specified, then only the headers are fetched. Files names are generated in the form RESULTNUM_ACCOUNT-ID_ MAILITEMID. |
| --help | -h | Displays help information |
| --limit | -l | Sets the limit for the number of results returned. The default is 25. |
| --mbox | -m | <arg> Comma-separated list of mailboxes to search. UIDs or email-address or / SERVER/MAILBOXID or *. |
| --offset | -o | <arg> Specify where the hit list should start. The default is 0 |
| --query | -q | <arg> The query string for the search |
| --server | -s | <arg> Mail server hostname. default is the localhost |
| --verbose | -v | Request that the status message print while the search is being executed |

### Example

The following example is to do a cross-mailbox search in the inbox folder of two different mailboxes on the specified server and put a copy of the message in to the specified directory.

```
  zmmboxsearch -m user1@yourdomain.com,user2@yourdomain.com -q
"in:inbox" -d /var/tmp
```

## zmmboxmove

The CLI command **zmmboxmove** is used to move mailboxes. The destination server manages the overall move process. Using the zmmboxmove command significantly reduces the account lockout time.

The CLI command **zmmboxmove** is used to move mailboxes from one Zimbra server to another. Mailboxes can be moved between Zimbra servers that share the same LDAP server. All the files are copied to the new server and the LDAP is updated. After the mailbox is moved to a new server a copy still remains on the older server, but the status of the old mailbox is closed. Users cannot log on and mail is not delivered. You should check to see that all the mailbox content was moved successfully before purging the old mailbox.

### Syntax

```
zmmboxmove -a <email> --from <src> --to <dest> [--sync]
```

### Description

| Long Name | Short Name | Description |
|---|---|---|
| --account | -a | <arg> Email address of account to move |
| --help | -h | Displays the usage options for this command |
| --from | -f | <arg> Mail server hostname. Server where the --account mailbox is located |
| --to | -t | <arg> Destination server |
| --sync | -sync | Run synchronously |

## zmmboxmovequery

The CLI command, **zmmboxmovequery,** is used to query ongoing mailbox moves on a server, both move-ins and move-outs.

### Syntax

```
zmmboxmovequery -a <account email> [-s <server to query>]
```

## zmpurgeoldmbox

The CLI command, **zmpurgeoldmbox**, purges the mailbox from the older server after a mailbox move.

### Syntax

```
zmpurgeoldmbox -a <account email> [-s <server to purge>]
```

### Description

| Long Name | Short Name | Description |
|---|---|---|
| --account | -a | <arg> Email address of account to purge |
| --help | -h | Displays the usage options for this command |
| --server | -s | <arg> Mail server hostname. Old server where the account existed |

## zmgsautil

The CLI command **zmgsautil** can be used to create or delete the GAL sync account and to force syncing of the LDAP data to the GAL sync account.

A GAL sync account is created when the GAL is configured on a domain. This account is created and the polling interval for performing a full sync is managed from the administration console.

To see attributes and settings for a GAL sync account, run **zmprov gds** against the account.

| Long Name | Description |
|---|---|
| createAccount | Creates the GAL sync account. This should be done from the administration console.<br>The parameter “server” is required.<br>-a {account-name} -n {datasource-name} --domain {domain-name} -t zimbra\|ldap -s {server} [-f {folder-name}] [-p {polling-interval}] |
| addDataSource | When configuring a datasource for a server, specify a folder name other than /Contacts. The datasource folder name must be unique.<br>-a {account-name} -n {datasource-name} --domain {domain-name} -t zimbra\|ldap [-f {folder-name}] [-p {polling-interval}] |

| Long Name | Description |
|---|---|
| deleteAccount | Deletes the GAL sync account and the references to the LDAP server. The account can also be deleted from the administration console.<br>deleteAccount [-a {galsynceaccountname}\|-i {account-id}] |
| trickleSync | This syncs new and updated contact data only.<br>[-a {galsynceaccountname}\|-i {account-id}] [-d {datasource-id}] [-n {datsource-name}]<br>The datasource ID the LDAP datasource ID. The datasource name is the name of the address book (folder) in the GAL account created to sync LDAP to.<br>A cron job can be set up to run trickleSync. |
| fullSync | This syncs all LDAP contact data. You can also set this from the administration console.<br>[-a {galsynceaccountname}\|-i {account-id}] [-d {datasource-id}] [-n {datsource-name}] |
| forceSync | This should be used to reload the entire GAL if there is change in the filter, attribute mapping or LDAP server parameters.<br>[-a {galsynceaccountname}\|-i {account-id}] [-d {datasource-id}] [-n {datsource-name}] |

## zmldappasswd

The CLI command **zmldappasswd** changes the LDAP password on the local server. In multi node environments, this command must be run on the LDAP master server only.

This CLI command used with options changes other passwords.

For better security and audit trails the following passwords are generated in ZCS:

- **LDAP Admin password**. This is the master LDAP password.
- **LDAP Root password**. This is used for internal LDAP operations.
- **LDAP Postfix password**. This is the password used by the postfix user to identify itself to the LDAP serve and must be configured on the MTA server to be the same as the password on the LDAP master server.
- **LDAP Amavis password**. This is the password used by the amavis user to identify itself to the LDAP server and must be configured on the MTA server to be the same as the password on the LDAP server.
- **LDAP Replication password**. This is the password used by the LDAP replication user to identify itself to the LDAP master and must be the same as the password on the LDAP master server.

### Syntax

```
opt/zimbra/bin/zmldappasswd [-h] [-r] [-p] [-l] new password
```

### Description

| Name | Syntax, Example, Notes |
|---|---|
| -h | Displays the help |
| -a | Changes **ldap_amavis-password** |
| -b | change **ldap_bes_searcher_password** |
| -l | Changes **ldap_replication_password** |
| -p | Changes **ldap_postfix_password** |
| -n | change **ldap_nginx_password** |
| -r | Changes **ldap_root_passwd** |
| -c | Updates the password in the config database on replicas. Must be used with -1 and must be run on a replica after changing the password on the master |
| **Only one of a, l, p, or r can be specified. If options are not included, the zimbra_ldap_password is changed.** | |

## zmlocalconfig

This command is used to set or get the local configuration for a zimbra server. Use zmlocalconfig -i to see a list of supported properties that can be configured by an administrator.

Syntax

```
zmlocalconfig [options]
```

To see the local config type zmlocalconfig

### Description

| Long Name | Short Name | Description |
|---|---|---|
| --config | -c | <arg> File in which the configuration is stored |
| --default | -d | Show default values for keys listed in [args] |
| --edit | -e | Edit the configuration file, change keys and values specified. The [args] is in the key=value form. |
| --force | -f | Edit the keys whose change is known to be potentially dangerous |

| Long Name | Short Name | Description |
|---|---|---|
| --help | -h | Shows the help for the usage options for this tool |
| --info | -i | Shows the list of supported properties. |
| --format | -m | <arg> Shows the values in one of these formats: plain (default), xml, shell, nokey. |
| --changed | -n | Shows the values for only those keys listed in the [args] that have been changed from their defaults |
| --path | -p | Shows which configuration file will be used |
| --quiet | -q | Suppress logging |
| --random | -r | This option is used with the edit option. Specified key is set to a random password string. |
| --show | -s | Forces the display of the password strings |
| --unset | -u | Remove a configuration key. If this is a key with compiled-in defaults, set its value to the empty string. |
| --expand | -x | Expand values |

## zmmailbox

The **zmmailbox** tool is used for mailbox management. The command can help administrators provision new mailboxes along with accounts, debug issues with a mailbox, and help with migrations.

You can invoke the zmmailbox command from within the zmprov command. You enter **selectMailbox** within zmprov to access the zmmailbox command connected to that specified mailbox. You can then enter zmmailbox commands until you type **exit**. Exit returns you to zmprov. This is useful when you want to create accounts and also pre-create some folders, tags, or saved searches at the same time.

### Syntax

```
zmmailbox [args] [cmd] [cmd-args ...]
```

### Description

| Short Name | Long Name | Syntax, Example, and Notes |
|---|---|---|
| -h | --help | display usage |
| -f | --file | use file as input stream |

| Short Name | Long Name | Syntax, Example, and Notes |
|---|---|---|
| -u | --url | http[s]://{host}[:{port}] server hostname and optional port. Must use admin port with -z/-a |
| -a | --account {name} | account name to auth as |
| -z | --zadmin | use zimbra admin name/password from localconfig for admin/password |
| -y | --authtoken (authtoken) | use authtoken string (has to be in JSON format) from command line |
| -Y | --authtoken (authtoken file) | use authtoken string (has be in JSON format) from command line |
| -m | --mailbox {name} | mailbox to open. Can be used as both authenticated and targeted unless other options are specified. |
|  | --auth {name} | account name to authorize as. Defaults to --mailbox unless --admin-priv is used |
| -A | --admin-priv | execute requests with admin privilege |
| -p | --password {pass} | password for admin account and or mailbox |
| -P | --passfile {file} | read password from file |
| -t | --timeout | timeout (in seconds) |
| -v | --verbose | verbose mode (dumps full exception stack trace) |
| -d | --debug | debug mode (dumps SOAP messages) |

Specific CLI tools are available for the different components of a mailbox. Usage is described in the CLI help for the following.

| | |
|---|---|
| **zmmailbox help admin** | help on admin-related commands |
| **zmmailbox help commands** | help on all commands |
| **zmmailbox help appointment** | help on appointment-related commands |
| **zmmailbox help commands** | help on all zmmailbox commands |
| **zmmailbox help contact** | help on contact-related commands (address book) |
| **zmmailbox help conversation** | help on conversation-related commands |
| **zmmailbox help filter** | help on filter-related commands |
| **zmmailbox help folder** | help on folder-related commands |
| **zmmailbox help item** | help on item-related commands |
| **zmmailbox help message** | help on message-related commands |
| **zmmailbox help misc** | help on miscellaneous commands |
| **zmmailbox help right** | help on right commands |

| | |
|---|---|
| **zmmailbox help search** | help on search-related commands |
| **zmmailbox help tag** | help on tag-related commands |

## Examples

- When you create an account, you may want to pre-create some tags and folders. You can invoke zmmailbox inside of zmprov by using “selectMailbox(sm)”

```
domain.example.com$ /opt/zimbra/bin/zmprov
prov> ca user10@domain.example.com test123
9a993516-aa49-4fa5-bc0d-f740a474f7a8
prov> sm user10@domain.example.com
mailbox: user10@domain.example.com, size: 0 B, messages: 0,
unread: 0
mbox user10@domain.example.com> createFolder /Archive
257
mbox user10@domain.example.com> createTag TODO
64
mbox user10@domain.example.com> createSearchFolder /unread
"is:unread"
258
mbox user10@domain.example.com> exit
prov>
```

- To find the mailbox size for an account

```
zmmailbox -z-m user@example.com gms
```

- To send requests to a mailbox using the admin auth token. This is required when using the command emptyDumpster. Use --admin-priv to skip delegated auth as the target mailbox.

```
zmmailbox -z --admin-priv -m foo@example.com emptyDumpster
```

- Use --admin-priv with select Mailbox command

```
zmmailbox -z mbox> sm --admin-priv foo@domain.com
```

- To authenticate as a delegated admin user. This lets one user login to another user's mailbox. The authenticating user must be a delegated admin account and must have **adminLoginAs** right on the target mailbox. This auth option uses a non-admin auth token. Use the --auth option to specify the authenticating account. To login as user bar and open mailbox foo:

```
$ zmmailbox --auth bar@example.com -p password -m foo@example.com
```

- To find the mailbox size for an account

```
zmmailbox -z-m user@example.com gms
```

- To find the mailbox size for an account

```
zmmailbox -z-m user@example.com gms
```

- When you use zmmailbox to backup individual mailboxes, you can save the file as either a zip file or a tgz file. The default settings for the information that is saved in these formats is different.

| File | TGZ | ZIP |
|---|---|---|
| Briefcase | X | X |
| Calendar |  | X |
| Conversations |  | X |
| Contacts | X | X |
| Deleted Messages | X | X |
| Emailed Contacts |  | X |
| Inbox | X | X |
| Sent | X | X |
| Sent Messages | X | X |
| Tasks |  | X |

To include all the mailbox content in a zip file, you must enable the meta data. Type as

```
zmmailbox -z-m user@example.com gru "?fmt=zip&meta=1" > /
<filename.zip>
```

## zmtlsctl

This command is used to set the Web server zimbraMailMode to the communication protocol options: HTTP, HTTPS, Mixed, Both and Redirect. The default setting is HTTPS.

***Important:*** *The zmtlsctl setting also impacts the ZCO’s* ***Use Secure Connection*** *setting. ZCO users in a self-signed environment will encounter warnings about connection security unless the root CA certificate is added to the client’s Window Certificate Store. See the Zimbra Wiki article ZCO Connection Security for more information.*

- **HTTP**. HTTP only, the user would browse to http://zimbra.domain.com.
- **HTTPS.** HTTPS only (default), the user would browse to https:/ zimbra.domain.com. http:// is denied.
- **Mixed** If the user goes to http:// it will switch to https:// for the login only, then will revert to http:// for normal session traffic. If the user browses to https://, then the user will stay https://
- **Both** A user can go to http:// or https:// and will keep that mode for the entire session.
- **Redirect** Like mixed if the user goes to http:// it will switch to https:// but they will stay https:// for their entire session.

All modes use SSL encryption for back-end administrative traffic.

***Important:*** *Only zimbraMailMode HTTPS can ensure that no listener will be available on HTTP/port 80, that no client application will try to auth over HTTP, and that all data exchanged with the client application will be encrypted.*

**Mailboxd** has to be stopped and restarted for the change to take effect.

***Note:*** *If you switch to HTTPS, you use the self-signed certificate generated during ZCS installation in /opt/zimbra/ssl/zimbra/server/server.crt. For ZCO users, secure ZCO profiles will display Certificate Trust dialogs unless the root CA certificate is deployed to the server. For more information about ZCO certificates, see the Zimbra Wiki page ZCO Connection Security.*

### Syntax

```
zmtlsctl [mode]
```

mode = http, https, mixed, both, redirect

#### Steps to run

1. Type `zmtlsctl [mode]` and press **ENTER.**
2. Type `zmmailboxdctl stop` and press **ENTER.**
3. When mailboxd is stopped, type `zmmailboxdctl start` and press **ENTER.**

#### Limitations When Using Redirect

- Many client applications send an auth request in the initial HTTP request to the Server (“blind auth”). The implications of this are that this auth request is sent in the clear/unencrypted prior to any possible opportunity to redirect the client application to HTTPS.
- Redirect mode allows for the possibility of a man-in-the-middle attack, international/unintentional redirection to a non-valid server, or the possibility that a user will mis type the server name and not have certificate-based validity of the server.
- In many client applications, it is impossible for users to tell if they have been redirected (for example, ActiveSync), and therefore the users continue to use HTTP even if the auth request is being sent unencrypted.

## zmhsm

This command is to start, stop (abort), and see the status of a HSM session. The threshold for when messages are moved to a storage volume is configured from the administration console, Servers>Volumes page.

### Syntax

```
zmhsm {abort|start|status} {server} <name>
```

### Description

| Long Name | Short Name | Description |
|---|---|---|
| --abort | -a | Aborts the current HSM session.If all the messages in a mailbox being processed were not moved before you clicked **Abort**, no messages from that mailbox are moved from the primary volume. Messages for mailboxes that have completed the move to the secondary volume are not moved back to the primary volume. |
| --help | -h | Shows the help for the usage options for this tool. |
| --server | -s | <arg> The mail server host name. The default is the localhost [args]. |
| --start | -t | Manually starts the HSM process. |
| --status | -u | The status of the last HSM session is displayed. |

## zmlicense

This command is used to view and install your Zimbra license. The license can be viewed and installed from the administration console, Global Settings> License page.

### Syntax

```
zmlicense [options]
```

| Long Name | Short Name | Description |
|---|---|---|
| --check | -c | Check to see if a valid license is installed. |
| --help | -h | Shows the help for the usage options for this tool. |
| --install | --i | <arg> Installs the specified license file.[arg] This is the Zimbra license file that you received. |
| -l | --ldap | Install on LDAP only |
| --print | -p | Displays the license information. |

## zmmetadump

This command is a support tool that dumps the contents of an item's metadata in a human readable form.

### Syntax

```
zmmetadump -m <mailbox id/email> -i <item id>
```

or `zmmetadump -f <file containing encoded metadata>`

## zmmypasswd

This command is used to change **zimbra_mysql_password**. If the --root option is specified, the **mysql_root_passwd** is changed. In both cases, MySQL is updated with the new passwords. Refer to the MySQL documentation to see how you can start the MySQL server temporarily to skip grant tables, to override the root password. This requires a restart for the change to take effect.

### Syntax

```
zmmypasswd [--root] <new_password>.
```

## zmplayredo

Users who maintain a backup and restore mechanism using the snapshot facility of the storage layer use this command to restore backed up data. This command brings all backed up data to the current state so that there is no loss of information during the restore process.

### Syntax

```
zmplayredo <option>
```

Time is specified in the local time zone. The year, month, date, hour, minute, second, and optionally millisecond should be specified. Month/date/hour/minute/second are 0-padded to 2 digits, millisecond to 3 digits. The hour must be specified in a 24- hour format.

### Description

| Long Name | Short Name | Description |
|---|---|---|
| --fromSeq | | <arg> Replays snapshots from the specified redolog sequence |
| --fromTime | | <arg> Replays snapshots from the specified time |

| Long Name | Short Name | Description |
|---|---|---|
| --help | -h | Shows the help information for this command |
| --logfiles | | <arg> Replays the specified logfiles in order |
| --mailboxId | | <arg> Replays snapshots for the specified mailbox |
| --queueCapacity | | <arg> Used for specifying the queue capacity per player thread. The default value is 100 |
| --stopOnError | | Stops the replay on occurrence of any error |
| --threads | | <arg> Specifies the number of parallel redo threads. The default value is 50 |
| --toSeq | | <arg> Replays snapshots to the specified redolog sequence |
| --toTime | | <arg> Replays snapshots to the specified time |

## zmproxyconfgen

This command generates the nginx proxy configuration files. It reads LDAP settings to replace template variables and generates the final nginx configuration.

### Syntax

ProxyConfGen [options]

### Description

| Long Name | Short Name | Description |
|---|---|---|
| --config | -c | <arg> Overrides a config variable. The <arg> format should be name=value. To see a list of names, use -d or -D |
| --defaults | -d | Prints the default variable map |
| --definitions | -D | Prints the Definitions variable map after loading LDAP configuration and processing overrides |
| --help | -h | Displays help information |
| --include-dir | -i | <arg> Displays the directory path (relative to $workdir/conf), where included configuration files are written |

| Long Name | Short Name | Description |
|---|---|---|
| --dry-run | -n | Specifies not to write configuration and only display the files that would be written |
| --prefix | -p | <arg> Displays the config file prefix. The default value is nginx.conf |
| --template-prefix | -P | <arg> Displays the template file prefix. The default value is $prefix |
| --server | -s | <arg> Specifies a valid server object. Configuration is generated based on the specified server's attributes. The default is to generate configuration based on global configuration values |
| --templatedir | -t | <arg>Specifies the proxy template directory. The default value is $workdir/ conf/nginx/templates |
| --verbose | -v | Displays verbose data |
| --workdir | -w | <arg> Specifies the proxy working directory. The default value is /opt/zimbra |

## zmproxypurge

This command purges POP/IMAP proxy routing information from one or more memcached servers. Available memcached servers are discovered by the zmprov gamcs function. Others can be specified if necessary using the server port.

### Syntax

ProxyPurgeUtil [-v] [-i] -a account [-L accountlist] [cache1 [cache2...]]

### Description

| Long Name | Short Name | Description |
|---|---|---|
| --help | -h | Shows the help for the usage options for this tool. |
| --verbose | -v | Displays verbose data |
| --info | -i | Displays account routing information |
| --account | -a | Displays account name |
| --list | -L | Displays file containing list of accounts, one per line |

| Long Name | Short Name | Description |
|---|---|---|
| --output | -o | Specifies the format to be used for printing routing information with information. The fields that display by default are<br>• cache server<br>• account name<br>• route information |
| cacheN | | (optional command) Specifies additional memcache server in the form of server:port |

## zmredodump

This command is mainly used for debugging purposes and dumps the contents of a redolog file. When users are debugging a problem, Zimbra support might ask them to run zmredodump with specific options.

Multiple log files/directories can be specified with all redolog files under each directory being sorted in ascending order and processed.

### Syntax

```
zmredodump [options] <redolog file/directory> [...]
```

### Description

| Long Name | Short Name | Description |
|---|---|---|
| --help | -h | Displays help messages |
| | -m | Specifies the mailbox ids separated by a comma or a space. The entire list of mailbox ids must be quoted if using space as a separator.<br>To dump contents of all the redolog files, omit this option. |
| --no-offset | | Specifies if file offsets and size for each redolog dump should not be shown |
| --quiet | -q | Activates the quiet mode. Used to only print the log filename and errors, if any. Useful for verifying integrity of redologs with minimal output |
| --show-blob | | Shows blob content. The specified item’s blob is printed with <START OF BLOB> and <END OF BLOB> marking the start and end of the blob |

## zmskindeploy

This command simplifies the process of deploying skins in ZWC. This tool processes the skin deployment, enables the skin for all users of the ZWC deployment, and restarts the web server so that it recognizes the new skin.

For more information about this tool, see http://wiki.zimbra.com/index.php?title=About_Creating_ZCS_Themes

### Syntax

```
zmskindeploy <path/to/skin/dir/or/zipfile>
```

## zmsoap

Prints mail, account, and admin information in the SOAP format.

### Syntax

```
zmsoap [options] <path1 [<path2>...]
```

### Description

| Long Name | Short Name | Description |
|---|---|---|
| --help | -h | Prints usage information |
| --mailbox | -m | <name> Displays mailbox account name. Mail and account requests are sent to this account.<br>This attribute is also used for authentication if -a and -z are not specified |
| --target | | <name>Displays the target account name to which the requests are sent. Used only for non-admin sessions |
| --admin name | -a | <name>Displays the admin account name to authenticate as |
| --zadmin | -z | Displays the Zimbra admin name and password to authenticate as |
| --password | -p | <pass>Displays account password |
| --passfile | -P | <path> Reads password from a file |
| --element | -e | <path> Displays the root element path. If specified, all path arguments that do not start with a slash (/) are relative to this element |
| --type | -t | <type> Displays the SOAP request type. Can either be mail, account, or admin |

| Long Name | Short Name | Description |
|---|---|---|
| --url | -u | <http[s]://...> Displays the server hostname and optional port value |
| --verbose | -v | Prints the SOAP request and other status information |
| path | | <[path...]> Displays the element or attribute path and value. Roughly follows the XPath syntax as:<br>[/]element1[/element2][/@attr][=value] |

## zmstat-chart

This command is used to collect statistical information for the CPU, IO, mailboxd, MTAqueue, MySQL, and other components and to run a script on the csv files to display the usage details in various charts. These csv files are saved to **/opt/zimbra/zmstat/**.

You must enable zmstat to collect the performance charts data.

#### To enable zmstat for charting on each server

1. Enter zmprov ms {hostname} zimbraServerEnable : stats.
2. Restart the server, enter

   zmcontrol stop

   zmcontrol start

### Syntax

zmstat-chart -s <arg> -d <arg> [options]

### Description

| Long Name | Short Name | Description |
|---|---|---|
| --aggregate-end-at | | <arg> If this is specified, the aggregate computation ends at this timestamp. Usage is MM/dd/yyyy HH:mm:ss. |
| --aggregate-start-at | | <arg> If this is specified, the aggregate computation starts at this timestamp. Usage is MM/dd/yyyy HH:mm:ss. |
| --end-at | | <arg> If this is specified, all samples after the specified timestamp are ignored. Usage is MM/dd/yyyy HH:mm:ss. |
| --start-at | | <arg> If this is specified, all samples before this timestamp are ignored. |

| Long Name | Short Name | Description |
|---|---|---|
| --title | | <arg> This gives the chart a title that displays. Defaults to the last directory name of srcdir. |
| --no-summary | | Summary data generation is not included. |
| --conf | -c | <arg> Chart the configuration xml files. |
| --destdir | -d | <arg> The directory where the generated chart files are saved. |
| --srcdir | | One or more directories where the csv files are located. The csv files are moved to directories listed by date under zmstat/. |

## zmstat-chart-config

This command generates an xml file **/opt/zimbra/conf/zmstat-chart.xml** from a template, taking into account the server setup including the LDAP node and the processes run, among other specifications.

## zmstatctl

This is a control script for checking zmstat data collectors. It starts or stops monitoring processes, checks status or rotates logs.

### Syntax

```
zmstatctl start|stop|status|rotate
```

## zmthrdump

This command invokes a thread dump in the ZCS server process and prints the output file. It also gives the option of saving the thread dump to a file and inserts a timestamp on the logfile.

### Syntax

```
zmthrdump [-h] [-i] [-t <timeout seconds>] [-p <pid file>] [-f <file>] [-o <out-file>]
```

### Description

| Short Name | Description |
|---|---|
| -h | Displays help messages |
| -i | Appends the timestamp to the LOGFILE before invoking SIGQUIT |

| Short Name | Description |
|---|---|
| -p | Returns the PID to send SIGQUIT. The default value can be found in zmmailboxd_java.pid |
| -f | Specifies the LOGFILE to save the thread dump output in. The default value is zmmailbox.out |
| -o | Specifies the output file of the thread dump. The default value is stdout |
| -t | Specifies the timeout value (in seconds) to exit if the process becomes unresponsive. The default value is 30 seconds. |

## zmtrainsa

This command is used to train the anti-spam filter. This command is run automatically every night to train the SpamAssasin filter from messages users mark as “junk” “not junk” from their mailbox. See SpamAssassin’s sa-update tool is included with SpamAssassin. This tool updates SpamAssassin rules from the SA organization. The tool is installed into /opt/zimbra/zimbramon/bin.

The zmtrainsa command can be run manually to forward any folder from any mailbox to the spam training mailboxes. If you do not enter a folder name when you manually run zmtrainsa for an account, for spam, the default folder is Junk. For ham, the default folder is Inbox.

### Syntax

```
zmtrainsa <user> spam|ham [folder]
```

## zmtzupdate

This command is used to update time zone changes in existing appointments for specific users or all users. A .ics rule file should first be created to run with this command. A rule file lists a series of rules to match a time zone and the replacement time zone definitions. More information about this command can be found at http://wiki.zimbra.com index.php?title=Changing_ZCS_Time_Zones

### Syntax

```
zmtzupdate --rulefile <rule file> -a <“all” or list of specific email addresses> [--sync]
[--after <date/time stamp>]
```

### Description

| Long Name | Short Name | Description |
|---|---|---|
| --account | -a | <arg> account email addresses separated by a white space. Use “all” for all accounts to be updated |
| --after | | <arg> Appointments occurring after the specified date/time in this field are updated. The default cut off time is January 1st, 2008 |
| --help | -h | Displays help information |
| --rulefile | | Specifies the .ics XML file that should be used to update time zone definitions |
| --server | -s | <arg> Specifies the mail server hostname. The default value is localhost |
| --sync | | If specified, this option causes the zmtzupdate command to block till the server processes all requested accounts. The default value is no. |

## zmvolume

This command can be used to manage storage volumes from the CLI. Volumes can be easily managed from the administration console, Server> Volumes page.

### Syntax

```
zmvolume {-a|-d|-l|-e|-dc|-sc} [options]
```

### Description

| Long Name | Short Name | Description |
|---|---|---|
| --add | -a | Adds a volume |
| --compress | -c | <arg> Compress BLOBs; “true” or “false” |
| --compressionThreshold | -ct | Compression threshold; default 4KB |
| --delete | -d | Deletes a volume |
| --displayCurrent | -dc | Displays the current volume |
| --edit | -e | Edits a volume |
| --help | -h | Shows the help for the usage options for this tool. |

| Long Name | Short Name | Description |
|---|---|---|
| --id | -id | <arg> Volume ID |
| --list | -l | Lists volumes |
| --name | -n | <arg> Volume name |
| --path | -p | <arg> Root path |
| --server | -s | <arg> Mail server hostname. Default is localhost. |
| --setCurrent | -sc | Sets the current volume |
| --type | -t | <arg> Volume type (primaryMessage, secondaryMessage, or index) |
| --turnOffSecondary | -ts | Turns off the current secondary message volume |

## zmzimletctl

This command is used to manage Zimlets and to list all zimlets on the server. See Chapter 22, Zimlets. Most Zimlet deployment can be competed from the zimbra administration console.

### Syntax

```
zmzimletctl {-l} {command} <zimlet.zip|config.xml|zimlet>
```

### Description

| Long Name | Short Name | Description |
|---|---|---|
| deploy | | <zimlet.zip> Creates the Zimlet entry in the LDAP server, installs the zimlet files on the Server, grants, access to the members of the default COS, and turns on the Zimlet |
| undeploy | | <zimlet> Uninstall a zimlet from the zimbra server |
| install | | <zimlet.zip> Installs the Zimlet files on the host |
| ldapDeploy | | <zimlet> Adds the Zimlet entry to the LDAP |
| enable | | <zimlet> Enables the Zimlet |
| disable | | <zimlet> Disables the Zimlet |
| acl | | <zimlet> <cos1> {grant\|deny} [<cos2> {grant\|deny}...] Sets the access control, grant\|deny, to a COS |
| listAcls | | <zimlet> Lists the ACLs for the Zimlets |
| listZimlets | | View details about all Zimlets on the server |
| getConfigTemplate | | <zimlet.zip> Extracts the configuration template from the Zimlet.zip file |
| configure | | <config.xml>Installs the configuration |
| listPriority | | Shows the current Zimlet priorities (0 is high, 9 is low) |
| setPriority | | <zimlet> Sets the Zimlet priority |

## zmproxyconfig

This command is used to manage Zimbra proxy and should only be used when you have to make changes to Zimbra proxy after it has been installed. See Chapter 20, Zimbra Proxy Server.

***Note:*** *Previous to ZCS 6.0, this command was called zmproxyinit.*

### Syntax

```
./zmproxyconfig [-h] [-o] [-m] [-w] [-d [-r] [-s] [-a w1:w2:w3:w4] [-i p1:p2:p3:p4] [-p p1:p2:p3:p4] [-x mailmode]] [-e [-a w1:w2:w3:w4] [-i p1:p2:p3:p4] [-p p1:p2:p3:p4] [-x mailmode]] [-f] -H hostname
```

## Description

| Short Name | Description |
|---|---|
| -h | Displays help messages |
| -H | Hostname of the server on which enable/disable proxy functionality |
| -a | Colon separated list of Web ports to use. Format: **HTTP-STORE:HTTP-PROXY:HTTPS-STORE:HTTPS-PROXY** (Ex: 8080:80:8443:443) |
| -d | Disable proxy |
| -e | Enable proxy |
| -f | Full reset on memcached port and search queries and POP/IMAP throttling |
| -i | Colon separated list of IMAP ports to use. Format: **IMAP-STORE:IMAP-PROXY:IMAPS-STORE:IMAPS-PROXY** (Ex: 7143:143:7993:993) |
| -m | Toggle mail proxy portions |
| -o | Override enabled checks |
| -p | Colon separated list of POP ports to use. Format: **POP-STORE:POP-PROXY:POPS-STORE:POPS-PROXY** (Ex: 7110:110:7995:995) |
| -r | Run against a remote host. Note that this requires the server to be properly configured in the LDAP master |
| -s | Set Cleartext to FALSE (secure mode) on disable |
| -t | Disable reverse proxy lookup target for the store server. Only valid with -d. Make sure that you intend for all proxy functions for the server to be disabled. |
| -w | Toggle Web proxy portions |

| Short Name | Description |
|---|---|
| -x | zimbraMailMode to use on disable (Default is HTTP) |

hostname is the value of the **zimbra_server_hostname** LC key for the server being modified.

Required options are -f by itself, or -f with -d or -e

**Note that**

- -d or -e require one or both of -m and -w.
- -i or -p require -m.
- -a requires -w.
- -x requires -w and -d for store.
- -x requires -w for proxy.

The following are the defaults for -a, -i, -p, and -x if they are not supplied as options.

-a default on enable: 8080:80:8443:443

-a default on disable: 80:0:443:0

-i default on enable: 7143:143:7993:993

-i default on disable: 143:7143:993:7993

-p default on enable: 7110:110:7995:995

-p default on disable: 110:7110:995:7995

-x default on store disable: http

-x default on proxy enable/disable: http

## zmsyncreverseproxy

The CLI command zmsyncreverseproxy is used to reserve proxies mobile sync HTTP traffic between the source and forwarding server and port. Decodes the sync requests/responses and logs them when verbose mode is turned on.

### Syntax

```
zmsyncreverseproxy [-v] [-d] [-L log4j.properties] -p <port number> -fs <fwd server>
-fp <fwd port> [-sv syncversions]
```

### Description

| Long Name | Short Name | Description |
|---|---|---|
| --help | -h | Displays help |
| --verbose | -v | Verbose mode, dumps full exception stack trace. |

| Long Name | Short Name | Description |
|---|---|---|
| --debug | -d | Debug mode, dumps decoded sync messages |
| --port | -p | The port this service listens on |
| --forwardserver | -fs | The server host to forward requests to |
| --forwardport | -fp | The server port to forward requests to |
| --syncversions | -sv | Active sync versions supported |
| --logpropertyfile | -L | log4j property file, valid only with -l |

# Appendix B Configuring SPNEGO Single Sign-On

The SPNEGO protocol mechanism can be configured on ZCS for single sign-on authentication to the Zimbra Web Client and to the Zimbra Connector for Outlook (ZCO). For ZCO configuration see Setting Up Single Sign-On Options for ZCO.

From ZWC, when users log on to their Intranet through Active Directory, they can enter their ZWC mailbox without having to re-authenticate to Zimbra.

The ZCS server is configured to redirect users attempting to log on to ZWC to a URL under SPNEGO protection. The server asks for authentication with Kerberos through SPNEGO and users are redirected to their ZWC mailbox. When users log out, they are redirected to a logout URL that displays a Launch button.  When users click **Launch**, they are directed to the ZWC entry page.

***Note:*** *When users log on to their ZWC accounts from the Internet, the ZWC log in page displays and they must enter their ZWC password to log on.*

***Important:*** *If SPNEGO SSO is enabled on a domain, the browsers must be configured correctly. See Configure Your Browser. Improperly configured browsers may pop up a user/pass dialog and if a user enters his correct AD domain username/password, he can still log into the Zimbra mailbox, and some browsers may display a “401 Unauthorized” error.*

## Configuration Process

1. Create the Kerberos keytab file.
   - Create an Active Directory service account. This account is used to generate the Kerberos keytab file.
   - Add the service Principal Names (SPN) directory property for an Active Directory service account.
   - Create the keytab file.
2. Enable and configure the SPNEGO protocol on the ZCS server.
3. Configure browsers

## Create the Kerberos Keytab File

An Active Directory service account is created in Domain for each ZCS mailstore server.

1. Create an Active Directory service account. This is the account used to generate the Kerberos keytab file that is added to the Zimbra server.

   a. Go to the Active Directory **Start> Programs>Administrative Tools>Active Directory Users and Computers** console.

   b. To create the service account, click the AD Domain name and from the expanded content right-click **Users** and select **New >User**. Complete the New Object – User dialog.

   - **Full name**:  Enter the user display name for the AC service account. Recommend that the full name be the ZCS mailbox server name. Example: **mail1**
   - **User Logon Name**:  This name is the value that is set for the **zimbraSpnegoAuthTargetName** server attribute in LDAP. Write it down. Example: **HTTP/mail1.example.com**
   - **User Logon Name (pre-Windows2000):**  This name is used for the **–mapUser**  parameter in the **setspn** and **ktpass** commands. Example: **mail1**.
   - Click **Next**.

   c. Enter and confirm the password.  This password is used for the **–pass {AD-user-password}** parameter in the **ktpass** command, configured below.

   d. Check **Password never expires** and **User cannot change password**, and click **Next**.

   e. Click **Finish** to create the user. The service account name displays in the Users directory.

2. Use the **setspn** command to map the mailbox server name as the service Principal Names (SPN) to the user account. The SPN is used in the process of mutual authentication between the client and the server hosting a particular service.

   a. From the command prompt, type  **setspn –a {userlogonname} {serviceaccountname}**

   Example

```
setspn –a HTTP/mail1.example.com mail1
```

   b. To verify that the SPN is registered,  type
   **C:\>setspn –l  {accountname}**
   A list of registered SPNs is displayed.

3. Create the keytab file used when signing into the Kerberos domain. Use the ktpass tool from the Windows Server toolkit to create the Kerberos keytab.

***Note:*** *A Kerberos keytab file contains a list of keys that are analogous to user passwords. Restrict and monitor permissions on any keytab files you create.*

The command to type follows:

```
ktpass -out {keytab-file-to-produce} -princ {Service-Principal-Name}@{the-
kerberos-realm} -mapUser {AD-user} -mapOp set -pass {AD-user-password} -
crypto RC4-HMAC-NT -pType KRB5_NT_PRINCIPAL
```

| | |
|---|---|
| **Ktpass -out** | The key is written to this output file.<br>Enter the directory location and keytab file name. The keytab file name is **jetty.keytab**.<br>For example, C: \Temp\spnego\**jetty.keytab** |
| **-princ** | This is the principal name.<br>Enter the service Principal Name as used in **Step 2** in Setting up the Microsoft Windows Active Directory Domain Controller section. For example, HTTP/mail1.example.com@COMPANY.COM |
| **-mapUser** | This maps –princ value to this user account.<br>Enter the AD service account user name entered in the **User Logon Name (pre-Windows2000)** set in **Step 1.b** in Setting up the Microsoft Windows Active Directory Domain Controller section. |
| **-mapOp** | This sets the mapping. The value for this parameter is **set** |
| **-pass** | This is the password to use.<br>Enter the password entered in the **User Logon Name (pre-Windows2000)** set in **Step 1.c** in Setting up the Microsoft Windows Active Directory Domain Controller section. |
| **-crypto** | This is the cryptosystem to use.<br>Enter **RC4-HMAC-NT** |
| **-pType** | Enter<br>**KRB5_NT_PRINCIPAL**<br>To avoid warning messages from the toolkit enter this value. |

Example:

```
ktpass -out C: \Temp\spnego\jetty.keytab -princ HTTP/
mail1.example.com@COMPANY.COM -mapUser mail1 -mapOp set -pass
password123 -crypto RC4-HMAC-NT -pType KRB5_NT_PRINCIPAL
```

The command is confirmed with something similar to the example below.

```
Targeting domain controller: …
   Using legacy password setting method
   Successfully mapped HTTP/mail1.example.com to mail1.
   Key created.
   Output keytab to c:\Temp\spnego\jetty.keytab:
   Keytab version: 0x502
   keysize 71 HTTP HTTP/mail1.example.com@COMPANY.COM
ptype 1 (KRB5_NT_PRINCIPAL) vno3 etype 0x17 (RC4-HMAC)
keylength 16 (0xc383f6a25f1e195d5aef495c980c2bfe)
```

4. Transfer the keytab file (jetty.keytab) to the Zimbra server. Copy the file created in step 3 to the following Zimbra server location: **/opt/zimbra/data/mailboxd/spnego/jetty.keytab**.

***Important:*** *Do not rename the jetty.keytab file. This file name is referenced from various configuration files.*

Repeat steps 1 to 4 to create an create the keytab file (**jetty.keytab**) for each Zimbra mailstore server.

## Configure ZCS

SPNEGO attributes in Global Config and on each Zimbra server are configured and pre-authentication is set up for the domain. Use the zmprov CLI to modify the Zimbra server.

***Note:*** *Only one Kerberos REALM is supported per ZCS installation*

1. Modify the following global config attributes, with the **zmprov mcf** command.

| | |
|---|---|
| **zimbraSpnegoAuthEnabled** | Set to TRUE. |
| **zimbraSpnegoAuthErrorURL** | This is the URL users are redirected to when spnego auth fails. Setting it to **/zimbra/?ignoreLoginURL=1** will redirect user to the regular Zimbra login page, where user will be prompted for their zimbra user name and password. |
| **zimbraSpnegoAuthRealm** | The Kerberos realm in the domain controller This is the domain name in the Active Directory. (COMPANY.COM) |

To modify the global config attributes, type:

a. zmprov mcf zimbraSpnegoAuthEnabled TRUE

b. zmprov mcf zimbraSpnegoAuthErrorURL '/zimbra/?ignoreLoginURL=1'

c. zmprov mcf zimbraSpnegoAuthRealm <COMPANY.COM>

2. On each Zimbra server, modify the following global config attributes with the **zmprov ms** command.

| | |
|---|---|
| **zimbraSpnegoAuthTargetName** | This is the user logon name from Step 1 B , User Logon Name. |
| **zimbraSpnegoAuthPrincipal** | Enter the user logon name set in zimbraSpnegoAuthTargetName and the address set in global config zimbraSpnegoAuthRealm<br>Type as **zimbraSpnegoAuthTargetName@zimbraSpnegoAuthRealm**<br>For example, **HTTP/mail1.example.com@COMPANY.COM** |

To modify the server global config attributes, type:

a. zmprov ms mail1.example.com zimbraSpnegoAuthTargetName HTTP/mail1.example.com

b. zmprov ms mail1.example.com zimbraSpnegoAuthPrincipal HTTP/mail1.example.com@COMPANY.COM

3. The following is set up on the domain.

- Kerberos Realm
- Virtual host
- Web client login URL and UAs
- Web client logout URL and UAs

a. Set up Kerberos Realm for the domain. This is the same realm set in the global config attribute **zimbraSpnegoAuthRealm** . Type zmprov md {domain} zimbraAuthKerberos5Realm {kerberosrealm}

b. Set up the virtual hosts for the domain. Virtual-hostname-***** are the hostnames you can browse to for the Zimbra Web Client UI. Type zmprov md {domain} +zimbraVirtualHostname {virtual-hostname-1} +zimbraVirtualHostname {virtual-hostname-2} ...

c. Setup the web client log in URL and UAs allowed for the login URL on the domain.

- Set the login URL. The login URL is the URL to redirect users to when the Zimbra auth token is expired. Zmprov md {domain} zimbraWebClientLoginURL '../service/spnego’
- Honor only supported platforms and browsers. **zimbraWebClientLoginURLAllowedUA** is a multi-valued attribute, values are regex. If this is not set, all UAs are allowed. If multiple values are set, an UA is allowed as long as it matches any one of the

values. **zmprov md {domain} +zimbraWebClientLoginURLAllowedUA {UA-regex-1} +zimbraWebClientLoginURLAllowedUA {UA-regex-2} ...**

For example, to honor zimbraWebClientLoginURL only for Firefox, Internet Explorer, Chrome, and Safari on computers running Windows, and Safari on Apple Mac computers, type the following commands.

- zmprov md {domain} +zimbraWebClientLoginURLAllowedUA '.*Windows.*Firefox/3.*'
- zmprov md {domain} +zimbraWebClientLoginURLAllowedUA '.*MSIE.*Windows.*'
- zmprov md {domain} +zimbraWebClientLoginURLAllowedUA '.*Windows.*Chrome.*'
- zmprov md {domain} +zimbraWebClientLoginURLAllowedUA '.*Windows.*Safari.*'
- zmprov md {domain} +zimbraWebClientLoginURLAllowedUA '.*Macintosh.*Safari.*'

d. Setup the web client logout URL and UAs allowed for the logout URL on the domain.

- Set the logout URL. The logout URL is the URL to redirect users to when users click Logout. Zmprov md {domain} zimbraWebClientLogoutURL '../?sso=1'
- Honor only supported platforms and browsers. **zimbraWebClientLogoutURLAllowedUA** is a multi-valued attribute, values are regex. If this is not set, all UAs are allowed. If multiple values are set, an UA is allowed as long as it matches any one of the values. zmprov md {domain} +zimbraWebClientLogoutURLAllowedUA {UA-regex-1} +zimbraWebClientLogoutURLAllowedUA {UA-regex-2} ...

For example, to honor zimbraWebClientLogoutURL only for Firefox, Internet Explorer, Chrome, and Safari on computers running Windows, and Safari on Apple Mac computers, type the following commands.

- zmprov md {domain} +zimbraWebClientLogoutURLAllowedUA '.*Windows.*Firefox/3.*'
- zmprov md {domain} +zimbraWebClientLogoutURLAllowedUA '.*MSIE.*Windows.*'
- zmprov md {domain} +zimbraWebClientLogoutURLAllowedUA '.*Windows.*Chrome.*'
- zmprov md {domain} +zimbraWebClientLogoutURLAllowedUA '.*Windows.*Safari.*'

## Configure Your Browser

When the SPNEGO SSO feature is enabled on your domain, user's browsers must be configured properly. Improperly configured browsers will behave differently depending on the browser.

The following browsers are supported:

- For computers running Windows: Internet Explorer 6.0 or later, Firefox 3.0 or later, Chrome, Safari
- Apple Mac computer: Safari

1. Firefox  browser for computers running Windows
   a. In Firefox browse to **about:config**. In the Firefox browser address field, type **about:config**.  The  **This might void your warrant** warning displays.
   b. Click **I'll be careful, I promise!**
   c. Search in Filters, type **network.n**. Enter a comma-delimited list of trusted domains or URLs.

   Double-click **network.negotiate-auth.delegation-uris**.  Enter **http://,https://**

   Double-click **network.negotiate-auth.trusted-uris**. Enter **http://,https://**

   *Or, to set specific URLs,*

   Double-click  **network.negotiate-auth.delegation-uris**. Enter the domain addresses. For example,  http://mail1.example.com,https://mail2.example.com

   Double-click **network.negotiate-auth.trusted-uris**.  Enter the domain addresses. For example,  http://mail1.example.com,https://mail2.example.com

2. Internet Explorer, Chrome, and Safari for computers running Windows
   a. In these browsers, go to **Tools>Internet Options>Security > Local Intranet>Sites**. On the Sites dialog make sure all items are checked.
   b. Select **Advanced**. Add the domain server (hostname) URL, both http:// and https://
   c. Click **OK** to close the file.
   d. Go to **Tools > Options > Advanced > Security**. Locate and check  **Enable Integrated Windows Authentication.**
   e. Click **OK** and close the browser.

3. Safari for Apple Mac computers.  No configuration is necessary.

## Test your setup

1. On a Windows computer or an Apple Mac computer, log in to the computer as a domain user.

Your ticket as a domain user will be saved on the computer. The token will be picked up by the spnego-aware browser and sent in the Authorization header to the Zimbra server.

2. Browse to the Zimbra Web Client log on page. You should be redirected to your ZWC inbox without being prompted for user name and password.

   If spnego auth fails, the user is redirected to an error URL.

## Troubleshooting setup

Make sure the following are true.

- The browser is in the Intranet zone.
- The user is accessing the server using a Hostname rather than IP address.
- Integrated Windows authentication in Internet Explorer is enabled, and the host is trusted in Firefox.
- The server is not local to the browser.
- The client’s Kerberos system is authenticated to a domain controller.

- If the browser display the "401 Unauthorized", it's most likely that the browser either did not send another request with Authorization in response to the 401, or had sent an Authorization which is not using the GSS-API/SPNEGO scheme.

  Check your browser settings, and make sure it is one of the supported browsers/platforms

- If you are redirected to the error URL specified in **zimbraSpnegoAuthErrorURL**, that means The SPNEGO authentication sequence does not work.

  Take a network trace, make sure the browser sends Authorization header in response to the 401. Make sure the Negotiate is using GSS-API/ SPNEGO, not NTLM (use a network packet decoder like Wireshark) .

  After verifying that the browser is sending the correct Negotiate, if it still does not work, turn on the following debug and check Zimbra logs:

  - ADD "-DDEBUG=true -Dsun.security.spnego.debug=all" (note, not replace) to localconfig key spnego_java_options
  - Add log4j.logger.org.mortbay.log=DEBUG in log4j

  Then restart the mailbox server.

  Browse to the debug snoop page: http://{server}:{port}/spnego/snoop.jsp. See if you can access the snoop.jsp

  Check zmmailboxd.out and mailox.log for debug output.

***** One of the errors at this stage could be because of clock skew on the jetty server. If this is the case, it should be shown in zmmailboxd.out. Fix the clock skew and try again.

## Configure Kerberos Auth with SPNEGO Auth

Kerberos auth and SPNEGO can co-exists on a domain. Use case is using Kerberos as the mechanism for verifying user principal/password against a KDC, instead of the native Zimbra LDAP, when user cannot get in by SPNEGO.

When SPNEGO auth fails, users are redirected to the Zimbra sign in page if the browser is configured properly. Users can enter their Zimbra username and password on the sign in page to sign in manually. The Domain attribute **zimbraAuthMech** controls the mechanism for verifying passwords. If **zimbraAuthMech** is set to "kerberos5", The user name the user enters is used to first identify a valid Zimbra user (users must be provisioned in the Zimbra LDAP), then from Zimbra user is mapped to a Kerberos principal, the Kerberos principal + password is then validated against a KDC. This KDC could be different from, or the same as, the KDC that the Active Directory domain controller (for SPNEGO auth) is running as.

***Note:*** *Every Microsoft Active Directory domain controller acts as Kerberos KDC. For SPNEGO auth, KDC is not contacted from the mailbox server. The Kerberos token sent from the Authorization http header along with jetty's keytab file can identify/authenticate the user.*

For kerberos auth (**zimbraAuthMech**="kerberos5"), the mailbox server needs to contact KDC to validate principal+password. For the java kerberos client (i.e. Zimbra mailbox server), the default realm and KDC for the realm is specify in a Kerberos config file. The location of this config file can be specified in JVM argument **java.security.krb5.conf**. If it is not specified, the default is **/etc/krb5.conf**. When SPNEGO is enabled in Zimbra, **java.security.krb5.conf** for the mailbox server is set to **/opt/zimbra/jetty/etc/krb5.ini**. Therefore, that is the effective file for configuring kerberos auth.

**/opt/zimbra/jetty/etc/krb5.ini** is rewritten from **/opt/zimbra/jetty/etc/krb5.ini.in** each time when the mailbox server restarts. To configure, you need to modify the **/opt/zimbra/jetty/etc/krb5.ini.in** file, not **/opt/zimbra/jetty/etc/krb5.ini**.

Under [realms] section, kdc and admin_server are not set for SPNEGO auth, but they are required for kerberos auth.

To configure:

1. Edit **/opt/zimbra/jetty/etc/krb5.ini.in**
2. Change:

   [realms]

   %%zimbraSpnegoAuthRealm%% = {

```
        default_domain = %%zimbraSpnegoAuthRealm%%
}
```

to:

```
%%zimbraSpnegoAuthRealm%% = {
        kdc = YOUR-KDC
        admin_server = YOUR-ADMIN-SERVER
        default_domain = %%zimbraSpnegoAuthRealm%%
}
```

3. Replace YOUR-KDC and YOUR-ADMIN-SERVER to the hostname on which the kdc/admin_server for kerberos auth is running.

4. Save the file and restart mailbox server.

The restriction is the realm for SPNEGO and Kerberos auth must be the same. For SPNEGO auth, the Kerberos principal in the Authorization header is mapped to a unique Zimbra account. For Kerberos auth, the Zimbra account is mapped to a unique Kerberos principal. The mapping (by domain attribute **zimbraAuthKerberos5Realm**) is the same for both.

## Setting Up Single Sign-On Options for ZCO

***Note:*** *To use SSO, SPNEGO must be configured on the ZCS server to use this option.*

The single sign-on option works with a specific server. The server name used in the ZCO profile must match that in the SPNEGO configuration. Make sure that the server name is incorporated into the .msi file prior to installation.

To set up the single sign-on option in the .msi customization script:

1. Set the server name to be the server name configured for SPNEGO, enter **-sn <spnegoserver.example.com>**

2. Set the password rule, enter **-pw 0**

Example :

```
cscript ZmCustomizeMsi.js <path/msi-filename> -sn <spnegoserver.example.com> -pw 0
```

# Appendix C ZCS Crontab Jobs

The crontab is used to schedule commands to be executed periodically on the Zimbra servers.

## How to read the crontab

Each entry in a crontab file consists of six fields, specified in the following order

**minute hour day month weekday command**

The fields are separated by blank spaces or tabs.

Table 3:

| Field | Description |
|---|---|
| • minute | 0 through 59 |
| • hour | 0 through 23 |
| • day of month | 1 through 31 |
| • month | 1 through 12 |
| • day of week | 0 through 7 (0 or 7 is Sunday, 1 is Monday, etc., or use names) |
| • command | This is the complete sequence of commands to be executed for the job |

When an asterisk (*) is displayed, it means all possible values for the field. For example, an asterisk in the hour time field would be equivalent to “every hour”

## ZCS Cron Jobs

You can view the ZCS crontab by logging on as zimbra and typing **crontab -l**.

The following cron jobs are scheduled to run for ZCS

### Log pruning

The log pruning deletes logs from **/opt/zimbra/log** that are over eight days old. The job runs at 2:30 a.m.

### Status logging

**zmstatuslog** calls zmcontrol status and outputs it data into syslog.
This is primarily so that logger can read the data and keep the administration console status up-to-date.
Status logging job runs every 2 minutes.

### Backups

Full and increment backups are scheduled to run according to the schedule defined by **zmschedulebackup** command. By default the full backup is scheduled for 1:00 a.m., every Saturday. The incremental backups are scheduled for 1:00 a.m., Sunday through Friday.
By default, backups older then a month are deleted on the first of each month at 12 a.m.

## Jobs for crontab.store

### Log pruning

The log pruning deletes logs from **/opt/zimbra/mailboxd/logs** that are over eight days old. The job runs at 2:30 a.m.

### Clean up the quarantine dir

Mail identified with a virus or spam are not dropped immediately, but are put in quarantine. Messages older than seven days are deleted at 1:00 a.m daily.

### Table maintenance

The ANALYZE TABLE statement is run on all tables in the database to update the statistics for all indexes. This is done to make sure that the MySQL query optimizer picks the correct es when executing SQL statements. This script is run 1:30 a.m.on Sunday.

### Report on any database inconsistencies

**zmdbintegrityreport** is run weekly to check the MySQL database for corruption and will notify the administrator if any corruption is found. When this is run, it may consume a significant amount of I/O. If you find that it is an issue, you may want to change the frequency with which **zmdbintegrityreport** is run by editing the ZCS crontab entry. This report runs at 11:00 p.m. Sundays.
Large sites may opt to disable this by setting **zmlocalconfig -e zmdbintegrityreport_disabled=TRUE**.
If you choose to disable this, it is recommended that the integrity report be run by hand during the normal maintenance windows and prior to running any ZCS upgrades.

### Monitor for multiple mysqld tp prevent corruption

A script is executed to see if mysqld process is running to detect cases where corruption is likely to be caused. An email is generated if it finds more than 1 mysqld process running. The script runs every 5 minutes.

## Jobs for crontab.logger

### process logs

**zmlogprocess** runs every 10 minutes to parse logs and produce MTA metrics (as/av, volume, count, etc).

### Daily reports

When the logger package is installed, a daily mail report is automatically scheduled in the crontab. The report runs every morning at 11:30 and is sent to the administrator’s email address.

## Jobs for crontab.mta

### Queue logging

The zmqueue report status via the syslog is reviewed. This is logger data. The status is updated every 10 minutes.

### Spam training

The **zmtrainsa** script is enabled to feed mail that has been classified as spam or a non-spam to the SpamAssassin application. SpamAssassin learns what signs are likely to mean spam or ham. This job should run only on one Zimbra MTA. The job runs at 11:00 p.m.

### Spam training cleanup

zmtrainsa empties the spam and ham mailboxes each day. The job runs at 11:45 p.m.

### DSPAM cleanup

This job does not run at this time.

### Spam Bayes auto-expiry

Spam bayes auto-expiry maintains the spam-assassin Bayes database. This keeps the database to manageable size ensuring spam processing remains as quick as possible. This runs every day at 11:20 p.m.

### Clean up amavisd/tmp

This job is used to clean up the amavisd temp files. It runs at 5:15 a.m. and at 8:15 p.m.

## Single Server Crontab -l Example

```
[zimbra@example ~]$ crontab -l
# ZIMBRASTART -- DO NOT EDIT ANYTHING BETWEEN THIS LINE AND ZIMBRAEND
#
# Log pruning
#
30 2 * * * find /opt/zimbra/log/ -type f -name \*.log\* -mtime +8 -exec rm {} \;
> /dev/null 2>&1
35 2 * * * find /opt/zimbra/log/ -type f -name \*.out.???????????? -mtime +8 -ex
ec rm {} \; > /dev/null 2>&1
#
# Status logging
#
*/2 * * * * /opt/zimbra/libexec/zmstatuslog
#
# Backups
#
# BACKUP BEGIN
0 1 * * 6 /opt/zimbra/bin/zmbackup -f   -a all
0 1 * * 0-5 /opt/zimbra/bin/zmbackup -i
0 0 * * * /opt/zimbra/bin/zmbackup -del 1m
# BACKUP END
#
# crontab.ldap
#
#
#
# crontab.store
#
# Log pruning
#
30 2 * * * find /opt/zimbra/mailboxd/logs/ -type f -name \*log\* -mtime +8 -exec
rm {} \; > /dev/null 2>&1
30 2 * * * find /opt/zimbra/log/ -type f -name stacktrace.\* -mtime +8 -exec rm
{} \; > /dev/null 2>&1
#
# Table maintenance
#
30 1 * * 7 /opt/zimbra/libexec/zmmaintaintables >> /dev/null 2>&1
#

# # Report on any database inconsistencies
#
0 23 * * 7 /opt/zimbra/libexec/zmdbintegrityreport -m
#
# Monitor for multiple mysqld to prevent corruption
#
*/5 * * * * /opt/zimbra/libexec/zmcheckduplicatemysqld -e > /dev/null 2>&1
#
```

```
# crontab.logger
#
# process logs
#
00,10,20,30,40,50 * * * * /opt/zimbra/libexec/zmlogprocess > /tmp/logprocess.out
2>&1
#
# Graph generation
#
10 * * * * /opt/zimbra/libexec/zmgengraphs >> /tmp/gengraphs.out 2>&1
```

```
#
# Daily reports
#
10 1 * * * /opt/zimbra/libexec/zmdailyreport -m
#

#
crontab.mta
#
#
# Queue logging
#
0,10,20,30,40,50 * * * * /opt/zimbra/libexec/zmqueuelog
#
# Spam training
#
0 23 * * * /opt/zimbra/bin/zmtrainsa >> /opt/zimbra/log/spamtrain.log 2>&1
#
# Spam training cleanup
#
45 23 * * * /opt/zimbra/bin/zmtrainsa --cleanup >> /opt/zimbra/log/spamtrain.log
2>&1
#
# Dspam cleanup
#
0 1 * * * [ -d /opt/zimbra/data/dspam/data/z/i/zimbra/zimbra.sig ] && find /opt/
zimbra/dspam/var/dspam/data/z/i/zimbra/zimbra.sig/ -type f -name \*sig -mtime +7
-exec rm {} \; > /dev/null 2>&1
8 4 * * * [ -f /opt/zimbra/data/dspam/system.log ] && /opt/zimbra/dspam/bin/dspa
m_logrotate -a 60 -l /opt/zimbra/data/dspam/system.log
8 8 * * * [ -f /opt/zimbra/data/dspam/data/z/i/zimbra/zimbra.log ] && /opt/zimbra
a/dspam/bin/dspam_logrotate -a 60 -l /opt/zimbra/data/dspam/data/z/i/zimbra/zimb
ra.log
#
# Spam Bayes auto-expiry
#
20 23 * * * /opt/zimbra/libexec/sa-learn -p /opt/zimbra/conf/salocal.cf --dbpath
/opt/zimbra/data/amavisd/.spamassassin --siteconfigpath /opt/zimbra/conf/spamas
sassin --force-expire --sync > /dev/null 2>&1
#
# Clean up amavisd/tmp
#
15 5,20 * * * find /opt/zimbra/data/amavisd/tmp -maxdepth 1 -type d -name 'amavi
s-*' -mtime +1 -exec rm -rf {} \; > /dev/null 2>&1
#
# Clean up the quarantine dir
#
0 1 * * * find /opt/zimbra/data/amavisd/quarantine -type f -mtime +7 -exec rm -f
{} \; > /dev/null 2>&1

# ZIMBRAEND -- DO NOT EDIT ANYTHING BETWEEN THIS LINE AND ZIMBRASTART
[zimbra@example ~]$
```

# Appendix D Glossary

The Glossary lists terms and acronyms used in this document, and includes both industry terms and application-specific terms. If a general industry concept or practice has been implemented in a specific way within the product, that is noted as well.

### A record

A (Address) records map the hostname to the numeric IP address. For zimbra, the A record is the IP address for the zimbra server.

### Account Policy

Class of Service as exposed in Zimbra administration console.

### AD

Microsoft Active Directory Server. Used in ZCS as an optional choice for authentication and GAL, along with OpenLDAP for all other ZCS functions.

### Alias

An “also known as” email address, which should be routed to a user at a different email address.

### Attribute

Contains object-related data for directory server entries. Attributes store information such as a server host name or email forwarding address.

### Authentication

Process by which user-supplied login information is used to validate that user’s authority to enter a system.

### Blacklist

Anti-spam term, indicates a known bad IP address. This could be one that has been hijacked by spammers, or also one from a poorly maintained but legitimate site that allows mail relaying from unauthorized parties.

### BLOB

Binary Large Object.

### Class of Service (COS)

Describes an object in the ZCS LDAP data schema, which contains settings for things like user mail quotas. Each ZCS account includes a COS, and the account inherits all the settings from the selected COS.

### CLI

Command-Line Interface. Used to refer to the collective set of ZCS command-line tools, such as zmprov.

### Cluster

A type of network configuration for high availability, using clusters of servers (nodes). If one server fails or drops off the network, a spare takes over.

### Contacts

Within ZCS, Contacts are a user-interface feature listing that user's personal collection of address and contact information.

### Conversation

Within ZCS, Conversations are a user-interface feature that presents email threads (emails sharing the same subject line) as a single Conversation listing. Users can expand the Conversation to view all emails within it.

### DHTML

Dynamic HTML. A technology employed in the Zimbra Web Client.

### DNS

Domain Name System is an Internet directory service. DNS is how domain names are translated into IP addresses and DNS also controls email delivery. Correctly configured DNS is required for Postfix to route messages to remote destinations

### Edge MTA

Generic term used to refer to any mail transfer agent that is the first line of defense in handling incoming email traffic. Functions that may occur on the Edge MTA include spam filtering.

### Entry

An item in the directory server, such as an account or mail host.

### Failover

Takeover process where a spare server machine detects that a main server is unavailable, and the spare takes over processing for that server.

### FQDN

Fully qualified domain name. The hostname and the path to the host. For example, www.Zimbra.com is a fully qualified domain name. www is the host, Zimbra is the second-level domain, and .com is the top level domain.

### GAL

Global Address List, the Outlook version of a company directory. Lists contact information, including email addresses, for all employees within an organization.

### Global Configuration

A ZCS object containing default settings for servers and Class of Service.

### High Availability

Abbreviated as HA, high availability refers to the availability of resources in a computer system in the wake of component failures in the system.

### HTTP

HyperText Transfer Protocol, used along with SOAP for UI integration.

### IMAP

Internet Message Access Protocol is a method of accessing mail from a remote message store as if the users were local.

### Store

Within ZCS, a directory area that stores all the indexing information for mail messages on a particular mailbox server.

### Indexing

The process of parsing incoming email messages for search words.

### Java

Java is an industry standard object-oriented programming language. Used for the core ZCS application server.

### JavaScript

Scripting largely developed by Netscape that can interact with HTML source code. Technology used in the Zimbra Web Client.

### LDAP

Lightweight Directory Access Protocol, an industry standard protocol used for authentication.

### Zimbra administration console

The ZCS administrator interface.

### Zimbra Web Client

The ZCS end-user interface.

### LMTP

Local Mail Transfer Protocol, used for transferring messages from Postfix MTA to the ZCS server for final delivery.

### Mailbox Server

Alternative term for ZCS server.

### MAPI

Messaging Application Programming Interface. A system built into Microsoft Windows to enable different email applications to work together.

### Message Store

Within ZCS, a directory area that stores the mail messages on a particular mailbox server.

### MDA

Mail Delivery Agent, sometimes known as a mail host. The ZCS server functions as an MDA.

### Metadata

Data that describes other data, rather than actual content. Within ZCS, metadata consists of user folders, threads, message titles and tags, and pointers.

### MIME

Multipurpose Internet Mail Extensions, a specification for formatting non-ASCII Internet message content such as image files. Format used to store messages in Message Store.

### MTA

Message Transfer Agent. MTA is a program that delivers mail and transports it between machines. A ZCS deployment assumes both the Postfix MTA and an edge MTA.

### MX Record

Mail eXchange. An MX record is an entry in a domain name database that identifies the mail server that is responsible for handling emails for that domain name. The email system relies on DNS MX records to transmit emails between domains. When mail is processed, the MX record is checked before the A record for the destination address.

### OOTO

Common shorthand for “out of the office”, used when sending vacation messages.

### Open Source

Refers to software created by groups of users for non-commercial distribution, where source code is published rather than proprietary.

### OS

Operating system, such as Linux, UNIX, or Microsoft Windows.

### POP

Post Office Protocol is used to retrieve email from a remote server over TCP/IP and save it to the local computer.

### Provisioning

The process of creating accounts or other data, usually in batch or automated fashion.

### RBH

Real-time black hole. Usually refers to web sites that, as a public service, provide lists of known bad IP addresses from which mail should be blocked, because the servers are either known to be spammers, or are unsecured and exploited by spammers.

### Redo Logs

Detailed transaction log for the . server, used for replay and replication.

### SAN

Storage Array Network. A high-availability data storage area.

### Schema

Describes the data structures in use for by directory services at a particular organizational site.

### SMTP

Simple Mail Transfer Protocol. Used in ZCS deployments between the Edge MTA and the Postfix MTA.

### SNMP

Simple Network Monitoring Protocol. Used by monitoring software to pick up critical errors from system logs.

### SOAP

Simple Object Access Protocol, an XML-based messaging protocol used for sending requests for Web services. The ZCS servers use SOAP for receiving and processing requests, which can come from ZCS command-line tools or ZCS user interfaces.

### Spam

Unsolicited commercial email. Spammers refer to their output as “bulk business email”.

### SQL

Structured Query Language, used to look up messages in the Message Store.

### SSL

Secure Sockets Layer.

### Tags

A Zimbra Web Client feature. Users can define tags and apply them to mail messages for searching.

### TCO

Total Cost of Ownership. ZCS reduces total cost of ownership (TCO) by reducing requirements for server hardware, OS licensing fees, supporting application license fees, disk storage requirements, and personnel (IT, help desk, consulting).

### TLS

Transport Layer Security.

### UCE

Unsolicited commercial email, also known as spam.

### Virtual Alias

A type of mail alias recognized in the Postfix MTA.

### Whitelist

Anti-spam term for a known good mail or IP address. Mail coming from such an address may be “automatically trusted”.

### XML

eXtended Markup Language.

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