VMware Zimbra Collaboration Server Administrator’s Guide

ZCS 8.0

Open Source Edition

August 2012

Legal Notices

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1 Introduction

VMware 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 VMware Zimbra Collaboration Server
- Explore the Zimbra Forums for answers to installation or configurations problems
- Join the Zimbra Forums, to participate and learn more about the VMware 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 VMware 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

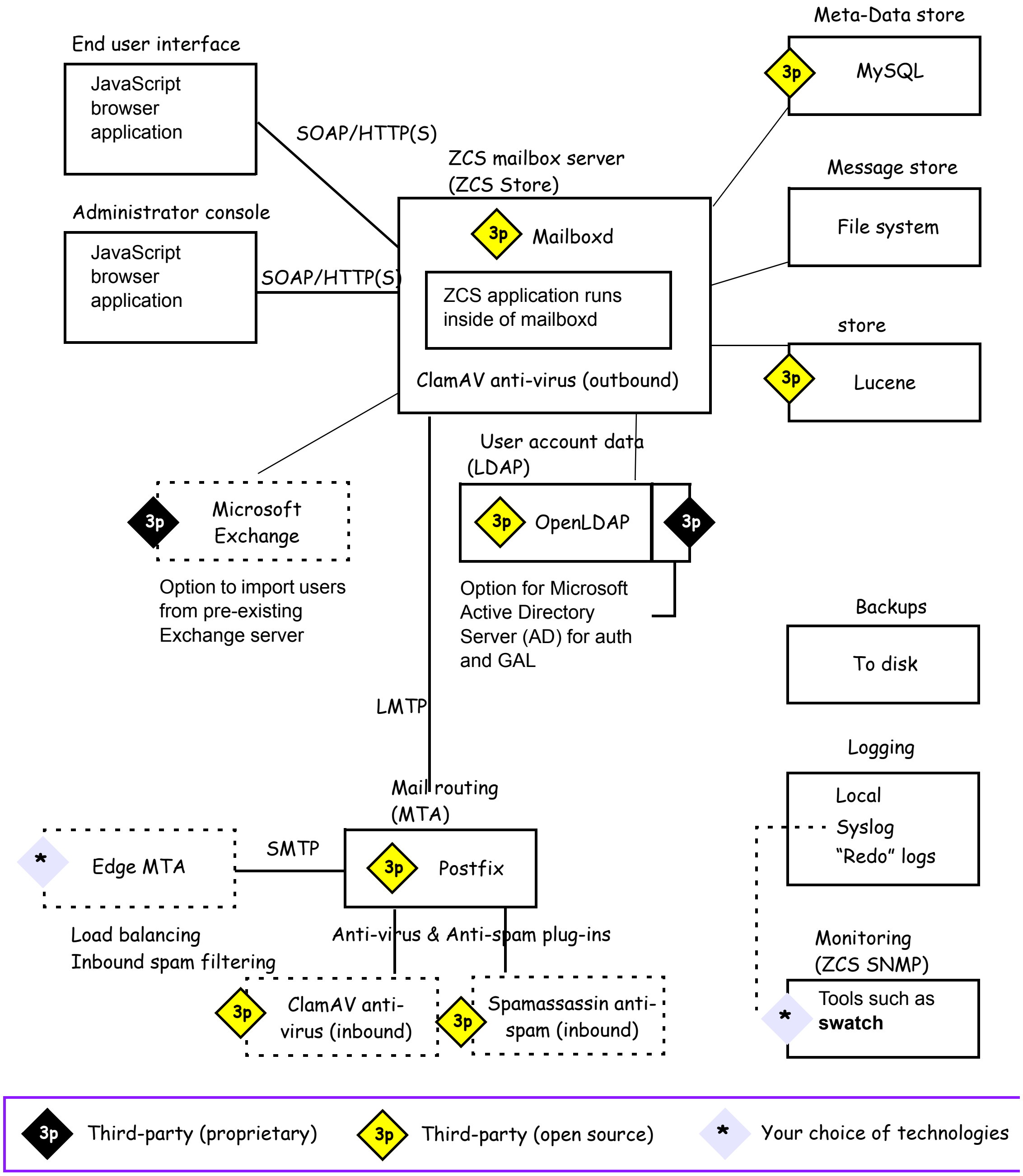
Zimbra architecture includes open-source integrations using industry standard protocols. The third-party software listed below is bundled with Zimbra software and installed as part of the installation process. These components have been tested and configured to work with the software.

- 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
- 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.

ZCS Collaboration Server Architecture


End user interface
JavaScript browser application
SOAP/HTTP(S)
Administrator console
JavaScript browser application
SOAP/HTTP(S)
ZCS mailbox server (ZCS Store)
3p
Mailboxd
ZCS application runs inside of mailboxd
ClamAV anti-virus (outbound)
Meta-Data store
3p
MySQL
Message store
File system
store
3p
Lucene
User account data (LDAP)
3p
OpenLDAP
3p
Option for Microsoft Active Directory Server (AD) for auth and GAL
3p
Microsoft Exchange
Option to import users from pre-existing Exchange server
Backups
To disk
LMTP
Logging
Local
Syslog
"Redo" logs
Mail routing (MTA)
*
Edge MTA
SMTP
3p
Postfix
Load balancing
Inbound spam filtering
Anti-virus & Anti-spam plug-ins
3p
ClamAV anti-virus (inbound)
3p
Spamassassin anti-spam (inbound)
Monitoring (ZCS SNMP)
*
Tools such as swatch
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. **zmconfigd** is part of zimbra-core and is automatically enabled and runs on all systems.
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). 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**. 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. Each Zimbra server has its own standalone data store, message store, and index store for the mailboxes on that server. As each email arrives, the Zimbra server schedules a thread to have the message indexed (Index store).
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.

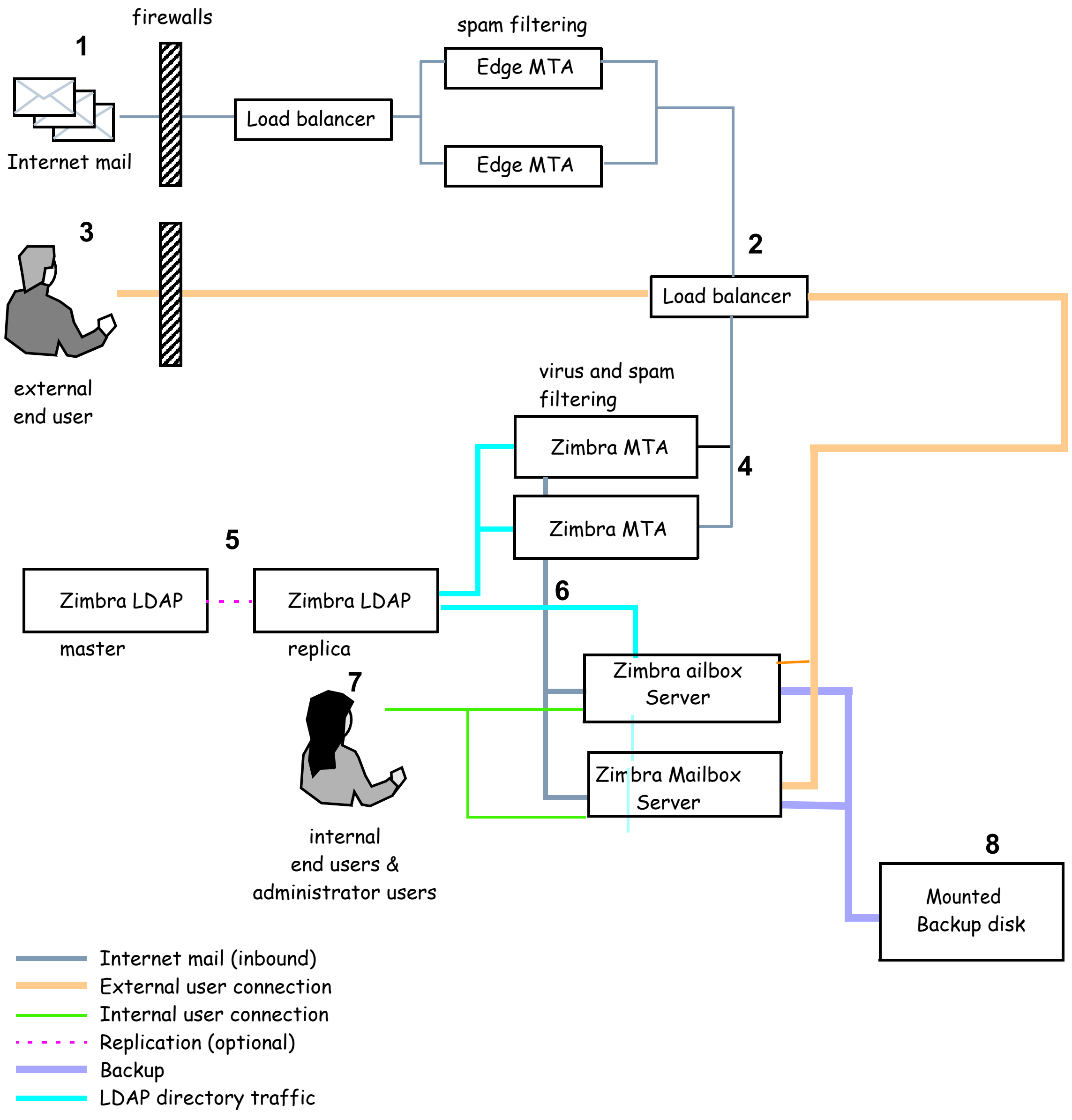
Zimbra-Proxy	Use of an IMAP/POP proxy server allows mail retrieval for a domain to be split across multiple Zimbra servers on a per user basis. The Zimbra Proxy package can be installed with the Zimbra LDAP, the Zimbra MTA, the Zimbra mailbox server, or on its own server. Zimbra-Memcached is a separate 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

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 requirments, 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/ zimbra/		Created by all ZCS installation packages
	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

Parent	Directory	Description
	docs/	SOAP txt files and technical txt files
	dspam/	DSPAM antivirus
	extensions-extra/	Server extensions for different authentication types
	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
	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 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.

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.

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.

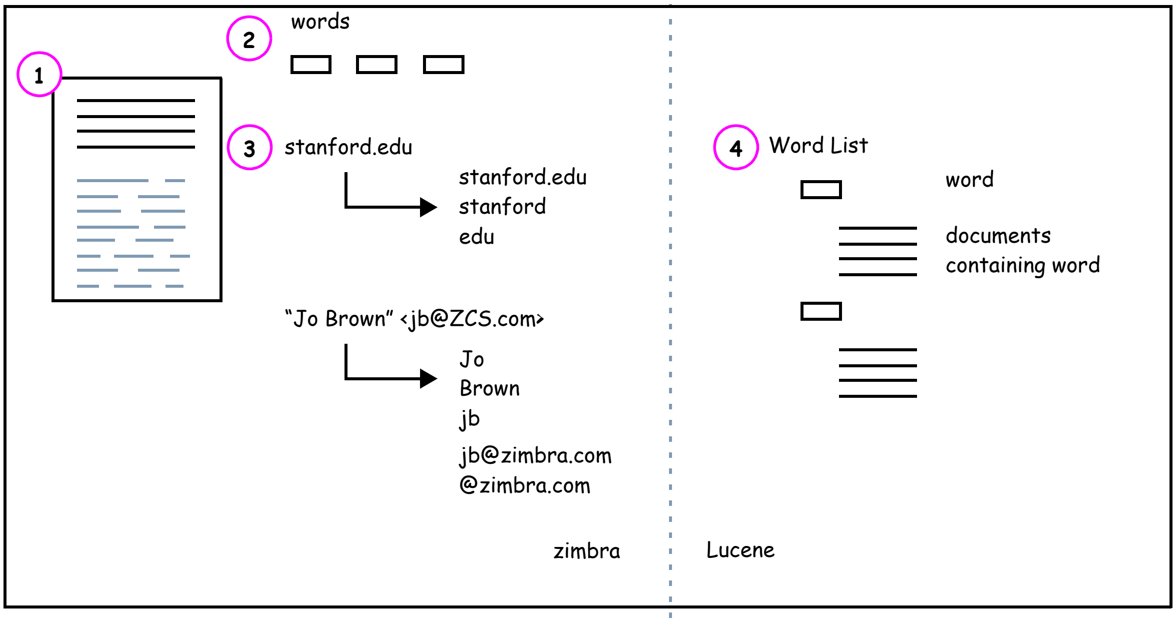
- The data store maps the ZCS mailbox IDs to the users’ OpenLDAP accounts.The primary identifier within the ZCS database is the mailbox ID, rather than a user name or account name. The mailbox ID is only unique within a single mailbox server.
- Metadata including user’s set of tag definitions, folders, 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.*

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 12, Monitoring ZCS Servers.

4 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

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.

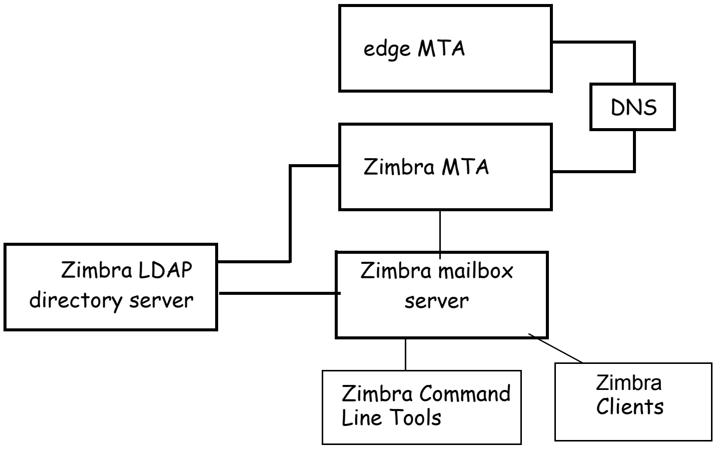
A subset of these attributes can be modified through the Zimbra administration console and others through the zmprov CLI utility.

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

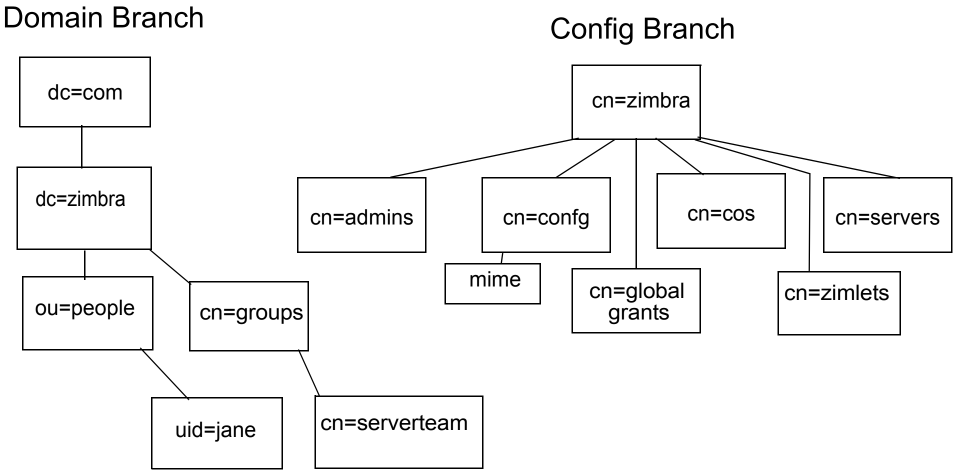


LDAP Directory Hierarchy

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 entrees are either administrators or user accounts. The object class name is **zimbraAccount**. This object class extends the **zimbraMailRecipient** object class. All accounts have the following properties: A name in the format of user@example.domain A unique ID that never changes and is never reused A set of attributes, some of which are user-modifiable (preferences) and others that are only configurable by administrators 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. **Note**: Both distribution lists and dynamic groups can be used as grantee or target in the deligated administrator framework.	**zimbraGroup**
Servers	Represents a particular server in the Zimbra system that has one or more of the Zimbra software packages installed. 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. 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**

Object	Description	Object class
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**
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 Active Directory 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
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.

5 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.
- Milter servers to filter email ReciptTo content for alias domains and to filter restricted sender addresses for distribution lists.

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).

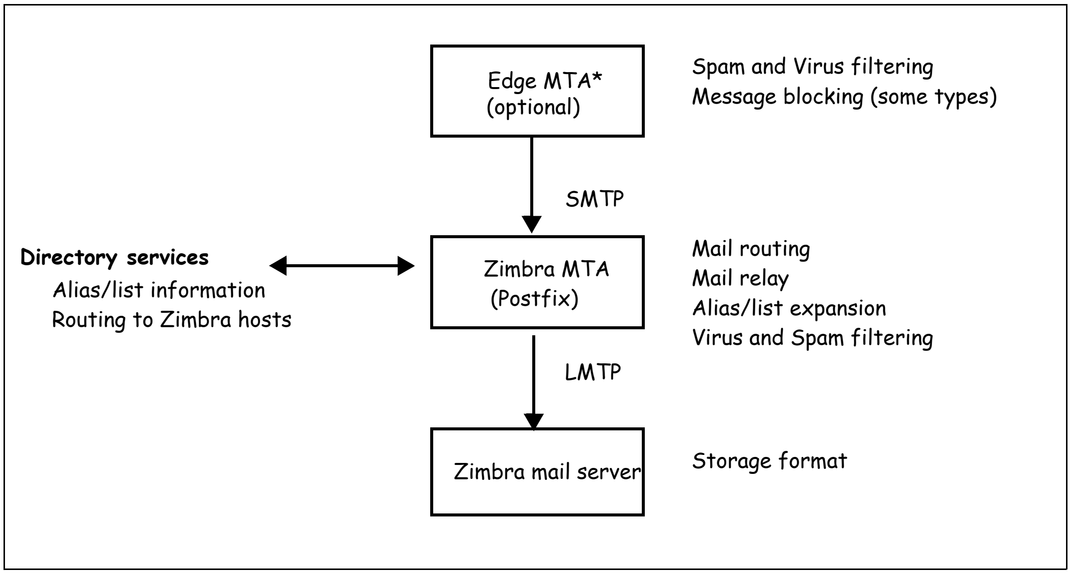
The MTA configuration is stored in LDAP. A configuration script polls the LDAP directory every two minutes for modifications and updates the Postfix configuration files with the changes.

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.

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

You can configure trusted networks that are allowed to relay mail. Specify a list of network addresses, separated by commas and/or a space. Continue long lines by starting the next line with space.

For example, enter as 127.0.0.0/8, 168.100.189.0/24 or as
127.0.0.0/8 168.100.189.0/24 (no comma)

This can be done either from the administration console's Configure>Global Settings>MTA page or from the Configure>Servers>MTA page.

Enabling a Milter Server

Milter server can be enabled to run a Postfix SMTP Access Policy Daemon that validates **RCPT To:** content specifically for alias domains to reduce the risk of backscatter spam. This can be enabled globally or for specific servers from the administration console.

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

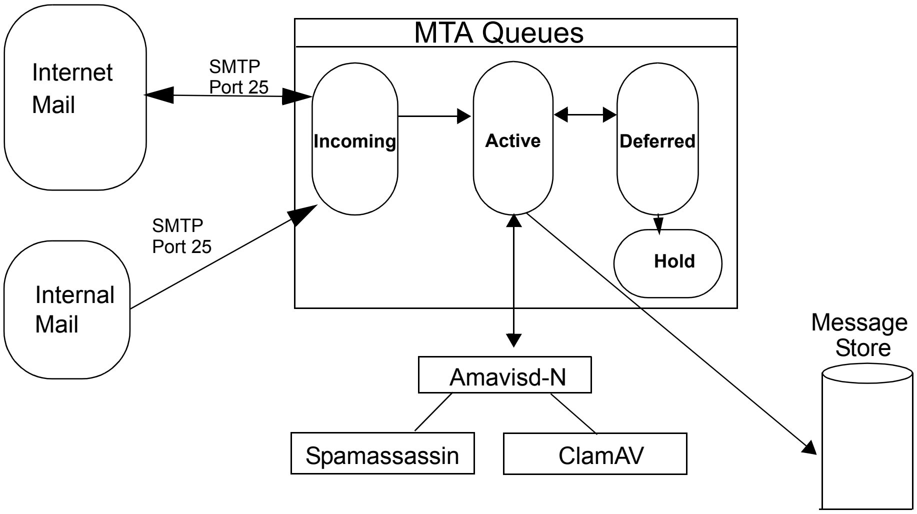
The Zimbra MTA delivers the incoming and the outgoing mail messages. For outgoing mail, the Zimbra MTA determines the destination of the recipient address. If the destination host is local, the message is passed to the Zimbra server for delivery. If the destination host is a remote mail server, the Zimbra 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 12, Monitoring ZCS Servers.

6 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.*

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 4, 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
   ```

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 installed ZCS, one global administrator account is created. Global administrator can log into the administration console to manage accounts and server configurations. Additional administrator accounts can be created. All administrator accounts have equal privileges.

To give administrator privileges to an account, check the Global Administrator box on the General Information page in the user's account.

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.

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.

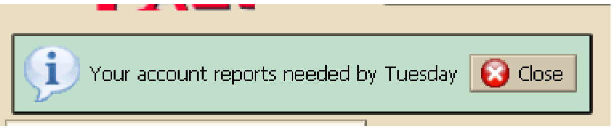
There are some configuration and maintenance tasks that you cannot perform from the administration console, such as starting and stopping services and managing the local server configuration. You perform these tasks with the CLI.

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:

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

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.
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. ***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.*

Option	Description
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 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. 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. Not required for Virtual Hosts.

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.

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.
- 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

Option	Description
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 generate install the commercial certificate when Zimbra Collaboration Server is used in your production environment.

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. Are you going to use a wildcard common name? 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.
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+0eGJZFA4aB4BQjFBHbl97vgNnpJq
1sV3QzRfHrN8X/
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 milter that runs a Postfix SMTP 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. Stop Postfix.

   ```
   postfix stop
   ```

3. Type

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

4. Restart Postfix.

   ```
   postfix start
   ```

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"`
3. Stop Postfix, type `postfix stop`.
4. Restart, type `postfix start`.

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 dnsbl.njabl.org
- reject_rbl_client cbl.abuseat.org
- reject_rbl_client bl.spamcop.net
- reject_rbl_client dnsbl.sorbs.net

- reject_rbl_client sbl.spamhaus.org
- reject_rbl_client relays.mail-abuse.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 dnsbl.njabl.org”
   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”
   zimbraMtaRestriction “reject_rbl_client relays.mail-abuse.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.*

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.

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 --dumpster --types <message,converstation,contact,document>
```

To delete items in the dumpster folder, type

```
zmmailbox 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 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

Backing Up the System

Backing up the mailbox server on a regular basis can help you quickly restore your email service if there is an unexpected crash. You should include backing up the ZCS server in your system-wide backup process. Only full backups of the ZCS data can be created.

Before backing up the ZCS data, all servers must be stopped. To stop the servers, use the CLI command, **zmcontrol stop**. After the backup is complete, to restart the servers, use **zmcontrol start**. See Appendix A, for more information about these command.

To restore the ZCS data, you must delete the existing data and then restore the backup files. The servers must be stopped before restoring the data.

9 Managing User Accounts

You create accounts and configure features and access privileges.

Topics in this chapter include:

- View Mail on the Accounts Toolbar
- Change an Account’s Status
- Use an Email Alias
- Distribution Lists

View Mail on the Accounts Toolbar

View Mail in the Accounts toolbar lets you view the selected account’s mailbox content, including all folders, calendar entries, and tags. When you are in an account, you can mouse over or right click on a folder to see the number of messages in the folder and the size of the folder. 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.

Any View Mail action to access an account is logged to the *audit.log* file.

Change an Account’s Status

Account status determines whether a user can log in and receive mail. The account status is displayed when account names are listed on the Accounts Content pane.

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 change the lockout status at any time.

Delete an Account

You can delete accounts from the administration console. This removes the account from the server, deletes 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 Chapter 16, Backup and Restore.

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 Addresses Navigation pane, all aliases that are configured are displayed in the Content pane. From the Aliases page 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.

You can view and edit alias names from the Internet service provider (ISP) page.

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.

When a Zimbra user's email address is added to a distribution list, the user's account **Member Of** page is updated with the list name. When a distribution list is deleted or the removed, the distribution list is automatically removed from the **Member Of** page.

The **Hide in GAL** check box can be enabled 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.

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. The other fields are optional.
4. On the right, in the **Add Members to this list** section, either search for names from the company address book, or in the Or enter addresses below section, type a complete mail address.
5. Click **Next** to configure the other pages.
6. Click **Save** when all names have been added to the list. The distribution list is enabled and the URL is created.

Management Options for Owners of Distribution Lists

You can add owners to distribution lists and they manage the list from their accounts. Owners manage distribution lists from their account's Address Book, Distribution List folder. If they are the owner, when they right click a distribution list, the Edit Group link is available.

Additional options that users can configure when they manage a distribution list from their account include:

- Marking the list as private so it hidden in the Global Address List
- Limiting who can send to the list to members only, to internal users, or to a specific list of users
- Letting users subscribe to and unsubscribe from the list
- Adding additional owners to help manage the list

Adding an Owner to a Distribution List

1. Go to M**anage>Distribution Lists** and select the distribution list to edit.
2. Open the **Owners** page and click **Add** and enter the owner's email address. Only internal accounts can be made owners.

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.

If you want to limit who can access distribution list, you can grant rights to individuals users on a domain or if you want only member 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 in the domain inherit the grant.

Or 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 distribution lists 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 DL.

To 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
  ```

To restrict access and to revoke access to individual distribution lists for different user types.

- Specific internal users:

  ```
  zmprov grr dl <dlname@example.com> usr <username@example.com>
  sendToDistList
  ```

  To revoke access

  ```
  zmprov rvr dl <dlname@example.com> usr <username@example.com>
  sendToDistList
  ```

- Only to members of the distribution list:

  ```
  zmprov grr dl <dlname@example.com> grp <dlname2@example.com>
  sendToDistList
  ```

  To revoke access

  ```
  zmprov rvr dl <dlname@example.com> grp <dlname2@example.com>
  sendToDistList
  ```

- All users in a domain:

  ```
  zmprov grr dl <dlname@example.com> dom <example.com> sendToDistList
  ```

  To revoke access

  ```
  zmprov rvr dl <dlname@example.com> dom <example.com> sendToDistList
  ```

- All internal users:

  ```
  zmprov grr dl <dlname@example.com> all sendToDistList
  ```

  To revoke access

  ```
  zmprov rvr dl <dlname@example.com> all sendToDistList
  ```

- All public email addresses:

  ```
  zmprov grr dl <dlname@example.com> pub sendToDistList
  ```

  To revoke access

  ```
  zmprov rvr dl <dlname@example.com> pub sendToDistList
  ```

- Specific external email address:

  ```
  zmprov grr dl <dlname@example.com> gst <someone@foo.com> ""
  sendToDistList
  ```

  To revoke access

  ```
  zmprov rvr dl <dlname@example.com> gst <someone@foo.com> ""
  sendToDistList
  ```

In addition to granting rights, the **Milter Server** must be enabled from **Global Settings>MTA**.

Enable View of Distribution List Members for Active Directory 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 zimbraId 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.account.grouphandler.ADGroupHandler
   ```

Create Dynamic Distribution Lists

When ZCS is configured to use an internal LDAP server, dynamic distribution lists can be created. When an account is provisioned, the account is added to the dynamic distribution list. When the account is deleted, the account is deleted from the dynamic distribution list. A dynamic distribution list cannot include other distribution lists.

When a dynamic distribution list is created, an member URL is created that is used to identify legitimate members of the list.

Creating Dynamic Distribution Lists

Dynamic distribution lists are created in the same way as regular distribution lists but you check the Dynamic Group check box. When you save the DL, the member URL is created.

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. The other fields are optional.

4. Select **Dynamic Group**. When this is selected **Can be used in right management** is displayed as enabled. The URL field is blank.
5. On the right, in the **Add Members to this list** section, either search for names from the company address book, or in the Or enter addresses below section, type a complete mail address.
6. Click **Next** to configure the other pages.
7. Click **Save** when all names have been added to the list. The distribution list is enabled and the URL is created.

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). If this feature is enabled, conversation view is the default. You can change the default on the COS Preferences page. 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
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. 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 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 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. **Note**: See zmprov (Provisioning) in Appendix A CLI commands, for information about how to change the email template.	Features page in COS 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. 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. 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. 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. **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. 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. 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. Users can configure from their Preferences>Mail page • How messages are download • Whether to include their junk messages. Junk messages are downloaded to their Inbox. • How to delete messages from their POP account. 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 Contactgs 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. The CLI command to define the grouping is **zmmailbox -z -m user1 cf -V appointment /<Calendar Name>/ <sub-calendar name**>. This creates a calendar nested under the Calendar Name folder.	
Time zone	Sets the time zone to use for Calendar scheduling.	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. 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 the changes do not affect anyone else, unless the user is the appointment organizer. If the organizer makes changes, these changes overwrite the attendees edits. You can not allow attendees to edit appointments in their calendars from the COS attribute, **zimbraPrefCalendarApptAllowAtendeeEdit**.

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. The default is Public, appointments details can be viewed by others. 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. 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. **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.

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 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, including the Zimlet Developers Guide 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 secton 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.

12 Monitoring ZCS Servers

The VMware 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.*

Enable Remote Syslogging on Mac OS X

1. Back up the daemon file to the desktop.

   ```
   sudo cp /System/Library/LaunchDaemons/com.apple.syslogd.plist ~/Desktop/
   ```

2. Edit the list using the nano Unix editor.

   ```
   sudo nano /system/Library/LaunchDaemons/com.apple.syslogd.plist
   ```

3. Scroll down to this line

```
<sting>/usr/sbin/syslogd</string>
```

Add the following directly below this line

```
<string>-u</string>
```

4. Save and exit.
5. Stop and start the daemon.

```
sudo launchctl unload /System/Library/LaunchDaemons/com.apple.syslogd.plist
sudo launchctl load /System/Library/LaunchDaemons/com.apple.syslogd.plist
```

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).

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/ZCS/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

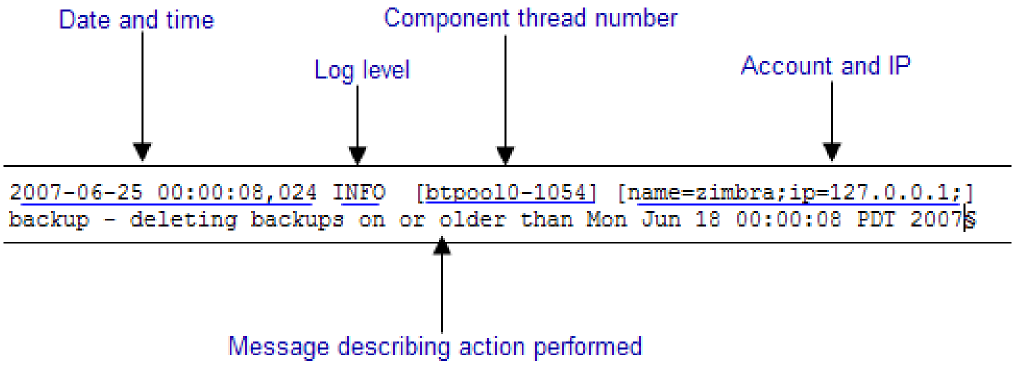
Review mailbox.log Records

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

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
```

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
mailboxd	Start, stop, find the status of the mailboxd server
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

CLI	Description
qshape	Examine postfix queue in relation to time and sender/ recipient domain
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)
zmauditswatchctl	Start, stop, restart, reload, status of the auditswatch
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.
zmdumpenv	General information about the server environment is displayed
zmgsautil	Global Address Book (GAL) synchronization command line utility. Create, delete the GAL sync account and initiate manual syncs.
zmhostname	Find the hostname of the Zimbra server

CLI	Description
zmitemdatafile	Extracts and packs tgz files that ZCS uses for REST import/export
zmjava	Execute Java with Zimbra-specific environment settings
zmgavaext	Execute Java and Zimbra-specific environment settings including extension based jars.
zmldappasswd	Changes the LDAP password
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 (mailboxd, MySQL, convert)
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
zmproxyctl	Start, stop, or find the status of the perdition IMAP proxy

CLI	Description
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
zmpurgeoldmbox	Purges POP/IMAP routing information from one or more memached servers
zmpython	Ability to write Python scripts that access Zimbra Java libraries. It sets the ZCS class path and starts the Jython interpreter.
zmsaslauthdctl	Start, stop, or find the status of saslauthd (authentication)
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

CLI	Description
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 and the IM services may fail to start.*

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
- Search
- Server
- Share

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)

Short Name	Long Name	Syntax, Example, and Notes
-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} zmprov aaa joe@domain.com joe.smith@engr.domain.com
checkPasswordStrength	**cps**	Syntax: {name@doman|id} {password} **Note:** This command does not check the password age or history. zmprov cps joe@domain.com test123
createAccount	ca	Syntax:{name@domain} {password} [attribute1 value1 etc] Type on one line. 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} 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}

Long Name	Short Name	Syntax, Example, and Notes
getAccount	ga	Syntax:{name@domain|id|adminName} zmprov ga joe@domain.com
getAccountMembership	**gam**	{name@domain|id}
getAllAccounts	gaa	Must include -l/--ldap Syntax: [-v] [{domain}] zmprov -l gaa zmprov -l gaa -v domain.com
getAllAdminAccounts	gaaa	Syntax: gaaa 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] 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} zmprov raa joe@domain.com joe.smith@engr.domain.com
renameAccount	ra	{name@domain|id} {newname@domain} zmprov ra joe@domain.com joe23@domain.com
setAccountCOS	sac	{name@domain|id|adminName} {cos-name|cos-id} zmprov sac joe@domain.com FieldTechnician

Long Name	Short Name	Syntax, Example, and Notes
setPassword	sp	{name@domain|id|adminName} {password} **Note**: Passwords cannot included accented characters in the string. Example of accented characters that cannot be used: ã, é, í, ú, ü, ñ. zmprov sp joe@domain.com test321
Calendar Resource Provisioning Commands		
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} 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] zmprov cd mktng.domain.com zimbraAuthMech zimbra
deleteDomain	dd	{domain|id} zmprov dd mktng.domain.com

Long Name	Short Name	Syntax, Example, and Notes
getDomain	gd	{domain|id} zmprov gd mktng.domain.com
getDomainInfo	**gdi**	name|id|virtualHostname {value} [attr1 [attr2...]]
getAllDomains	gad	[-v]
modifyDomain	md	{domain|id} [attribute1 value1 etc] zmprov md domain.com zimbraGalMaxResults 500 ***Note:*** *Do not modify* **zimbraDomainRenameInfo** *manually. This is automatically updated when a domain is renamed.*
renameDomain	**rd**	{domain|id} {newDomain} ***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] zmprov cc Executive zimbraAttachmentsBlocked FALSE zimbraAuthTokenLifetime 60m zimbraMailQuota 100M zimbraMailMessageLifetime 0
deleteCos	dc	{name|id} zmprov dc Executive
getCos	gc	{name|id} zmprov gc Executive
getAllCos	gac	[-v] zmprov gac -v
modifyCos	mc	{name|id} [attribute1 value1 etc] zmprov mc Executive zimbraAttachmentsBlocked TRUE

Long Name	Short Name	Syntax, Example, and Notes
renameCos	rc	{name|id} {newName} zmprov rc Executive Business
Server Provisioning Commands		
createServer	cs	{name} [attribute1 value1 etc]
deleteServer	ds	{name|id} zmprov ds domain.com
getServer	gs	{name|id} zmprov gs domain.com
getAllServers	gas	[-v] zmprov gas
modifyServer	ms	{name|id} [attribute1 value1 etc] 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] All LDAP settings are displayed
getConfig	gcf	{name}
modifyConfig	mcf	attr1 value1 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		

Long Name	Short Name	Syntax, Example, and Notes
createDistributionList	cdl	{list@domain} zmprov cdl needlepoint-list@domain.com
addDistributionListMember	adlm	{list@domain|id} {member@domain} zmprov adlm needlepoint-list@domain.com singer23@mail.free.net
removeDistributionListMember	rdlm	{list@domain|id} zmprov rdlm needlepoint-list@domain.com singer23@mail.free.net
getAlldistributionLists	gadl	[-v]
get DistributionListmembership	gdlm	{name@domain|id}
getDistributionList	gdl	{list@domain|id} zmprov gdl list@domain.com
modifyDistributionList	mdl	{list@domain|id} attr1 value1 {attr2 value2...} 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...]]

Long Name	Short Name	Syntax, Example, and Notes
RecalculateMailboxCounts	rmc	{name@domain|id} 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. ***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...]]
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} 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] Shows all individual custom logger account
removeAccountLogger	ral	[-s/ --server hostname] {name@domain|id} {logging-category} 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. [-s/--server hostname]
See the zmprov Log Categories for a list of logging categories.		
Search		

Long Name	Short Name	Syntax, Example, and Notes
searchGAL	sg	{domain} {name} 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}
Miscellaneous Provisioning Commands		
countObjects	cto	{type} [-d {domain|id}]. 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}] 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...]] Flush cached LDAP entries for a type. See Chapter 4, Zimbra LDAP Service
generateDomainPreAuthKey	gdpak	{domain|id} 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} Generates preAuth values for comparison.
syncGal	syg	{domain} [{token}]

Long Name	Short Name	Syntax, Example, and Notes
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}
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 +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 ModifyServer <server-name> 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**

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
```

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 Send email notifications to selected users if they are out of sync for an appointment

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).

Long Name	Short Name	Description
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.
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.

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. The parameter "server" is required. -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. -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. deleteAccount [-a {galsynceaccountname}|-i {account-id}]
trickleSync	This syncs new and updated contact data only. [-a {galsynceaccountname}|-i {account-id}] [-d {datasource-id}] [-n {datsource-name}] 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. 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. [-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. [-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
-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.

- HTTP. HTTP only, the user would browse to http://zimbra.domain.com.
- **HTTPS.** HTTPS only, 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.*

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.

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>.

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
--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

Long Name	Short Name	Description
--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
--output	-o	Specifies the format to be used for printing routing information with information. The fields that display by default are • cache server • account name • route information
cacheN		(optional command) Specifies additional memcache server in the form of server:port

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. 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: [/]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.” on page 41.

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 11, 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

Long Name	Short Name	Description
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 6, 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)

Short Name	Description
-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
-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.
--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.

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. Enter the directory location and keytab file name. The keytab file name is **jetty.keytab**. For example, C: \Temp\spnego\jetty.keytab
-princ	This is the principal name. 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. 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. 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. Enter **RC4-HMAC-NT**
-pType	Enter **KRB5_NT_PRINCIPAL** 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/jetty/etc**

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 Type as **zimbraSpnegoAuthTargetName@zimbraSpnegoAuthRealm** 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.

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 1

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.

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 VMware, Inc. 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.

Index