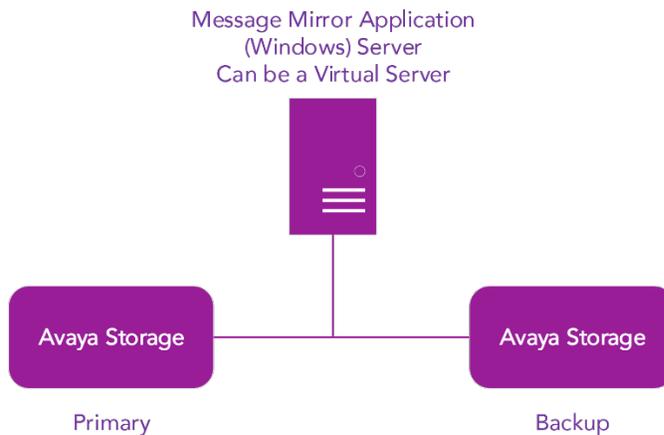


# Message Mirror for Avaya Modular Messaging Technical Notes

## Mutare Message Mirror Technical Notes

The Mutare Message Mirror application is designed to synchronize mailboxes from a production Avaya Modular Messaging (MM) Message Store Server (MSS) to a disaster recovery (DR) MSS. Message Mirror runs as a series of services on a dedicated application server. This server is configured with SMTP to send alarms and status messages to system administrators and IIS Web Services to configure participating mailboxes and view status reports and errors. MS SQL Server stores the configuration and transactional history.



Message Mirror has two primary components: (1) Several LDAP components are utilized to determine mailbox changes on production and make the corresponding updates on the DR MSS. (2) Two services utilize IMAP4 to synchronize messages and greetings from the production MSS to the DR MSS.

### Mailboxes, Passwords, Recorded Names (LDAP)

Message Mirror provides an LDAP function allowing for mailbox creation, modification and deletion on the DR MSS based on changes made to the production MSS. This allows for administration of mailboxes on the production MSS only.

Several times a day, the Message Mirror LDAP function runs. It performs an LDAP extract of the directory from both the production MSS and the DR MSS. This data is imported into a local MS SQL database for comparison. Any differences are then made to the DR MSS to synchronize with the production MSS.

This could include adding a mailbox, changing a password, changing a recorded name or deleting a mailbox. In the case of adding and modifying mailboxes, the following fields, at a minimum, are set and maintained by the LDAP function of Message Mirror.

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MSS LDAP Attribute Type	Admin Subscriber Screen Field	Mutare db Name
MailboxNumber	Mailbox Number	MailboxNumber
Password	*Password	Password
avUmFindMeEnabled	<i>not shown</i>	avUmFindMeEnabled
umRecordedName	<i>not shown</i>	RecordedName
Community	*Community	Community
ClassNo	*Class Of Service	COS
asciiName	ASCII Version of Name	asciiName
cn	Common Name	cn
sn	*Last Name	LastName
givenName	First Name	FirstName
telephoneNumber	Telephone Number	Phone
NumericAddress	*Numeric Address	NumericAddress
Misc1	Miscellaneous1	Misc1
Misc2	Miscellaneous2	Misc2
Misc3	Miscellaneous3	Misc3
Misc4	Miscellaneous4	Misc4

All LDAP functions are set to run using scheduled tasks under the local SYSTEM account. The default is four times each day but these can be modified from default.

### Messages, Greetings (IMAP4)

Message Mirror initializes an IMAP4 connection to the production MSS utilizing the IDLE command waiting for changes to the MM to stream across the connection. These changes are automatically sent out from the production MSS as IMAP4 events. Each event could be a user logging into a mailbox, a message being deposited in a mailbox or a user changing a greeting. As each impacting event is seen by this IMAP4 connection, a flag is marked in the Message Mirror database for the associated mailbox.

A separate update process runs every 60 seconds reviewing the database to determine which mailboxes require work. If there is work to do, a second IMAP4 connection to the production MSS is opened and any changes that since the last check are made on the DR MSS. Any new messages are copied from the production to the DR MSS. Any messages that have been deleted from the Production are deleted from the DR site. And message status changes are replicated to the DR MSS. Any greeting adds/changes/deletes are made to the DR MSS as well.

If the Message Mirror Events connection is interrupted, the events are queued by the production MSS and acted upon by Message Mirror once the connection is re-established. Message Mirror also does periodic full compares to ensure data integrity on the DR MSS.

As a fail-safe, both services work in conjunction to force a review of every mailbox on the production message store. The default is every 4 hours, but can be changed as necessary.

A message cache is stored on the application server for use throughout the day. This allows for very efficient message checking and mirroring. The cache is cleared and rebuilt daily.

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A web interface for the Message Mirror IMAP4 services is available for administrators. Message store information details (IP address, Trusted Server credentials, etc.) are edited here. In addition, a dashboard is available for monitoring the message and greeting synchronization in real time.

## Message Mirror Suspension

In the event of a failover to the DR Modular Messaging system, the administrator should suspend all Message Mirror service processes. From the Message Mirror website, an administrator may suspend all service processes via the web services. Both LDAP and IMAP4 services honor this setting. Once suspended, no Message Mirror service processes will run.

When Message Mirror services need to be enabled, the administrator can use the same interface to resume Message Mirror service processes.

## Restoration Process

During a failover process, messages may be left in subscribers' mailboxes. When restoring service to the production Modular Messaging system, those messages will only reside in the DR MSS. Message Mirror has a "restore" feature that can copy messages that were left in mailboxes on the DR MSS back to the production MSS. This Message Mirror restore process can be run by an administrator directly from the application server console. This process can be run while Message Mirror has been suspended. The restore process can be monitored via the Message Mirror web interface.

The restore process only restores message and greetings. Mailbox changes made to the DR message store are not restored to the production MSS.

## Requirements

Message Mirror is a complimentary adjunct to Avaya's Survivable Modular Messaging (SMM) option. Message Mirror can also be used with a normal DR MSS acting as the backup. The latter is often used if SMM cannot be used because of hardware differences between the primary and DR sites.

Both participating MSS are identified by an IP Address/Host name and IMAP4 Trusted Server name and password. All message store servers must be at release 6.3.3 or greater. Messages are extracted using IMAP4 fetch and inserted using the IMAP4 APPEND functions.

It should be noted that the Mutare application only deals with MSS systems. Configuration of hot standby MAS systems and the re-routing of calls is not part of Message Mirror.

Message Mirror runs on a dedicated Windows Server. It may be run from a virtual server.

## Bandwidth Considerations

It is recommended that the Application Server and Primary MSS be on the same subnet, if possible. Most network traffic occurs between these two servers. If any servers are connected through the WAN, consideration should be made for traffic. Messages on an MSS are stored as either G.711 or GSM. GSM messages are about 90K per minute of length and G.711 consumes roughly 270K per minute.

When message mirror is first turned on, it will inject a steady stream on the network because it must move all current messages and greetings of all subscribers from the master to the backup. But once the first cycle completes, the traffic is much lower as only new messages since the last cycle are pushed through

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the network. There is no set required bandwidth as the application will simply move messages over as the bandwidth allows.

How quickly messages can be copied is based on the following items:

- NIC configuration on each AAM.
- NIC configuration on Application Server.
- Message size (GSM or G7.11, length of message, number of messages).
- Overhead for each message header.
- Overhead for processing/connecting/logging in.

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