



# **Avaya Multimedia Messaging Overview and Specification**

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# Chapter 1: Introduction

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## Purpose

This document describes tested product characteristics and capabilities, including feature descriptions, interoperability, performance specifications, security, and licensing requirements.

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## Intended audience

This document is intended for people who want to gain a high-level understanding of the product features, functions, capacities, and limitations.

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## Related resources

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## Documentation

The following table lists related documentation for Avaya Multimedia Messaging. All Avaya documentation is available at <http://support.avaya.com> under **Downloads & Documents**.

Document number	Title	Use this document to:	Audience
Avaya Multimedia Messaging documents			
Not numbered	<i>Avaya Multimedia Messaging Overview and Specification</i>	Understand the Avaya Multimedia Messaging product and its features, as well as technical requirements for the server.	Anyone who wants a high-level understanding of the product and its requirements. This document is mainly intended for Sales Engineers.
Not numbered	<i>Deploying Avaya Multimedia Messaging</i>	Deploy and administer Avaya Multimedia Messaging. This	Implementation engineers, system

Document number	Title	Use this document to:	Audience
		document contains step-by-step procedures for all deployment, verification, maintenance, administration, and troubleshooting tasks.	architects, and administrators.
Application user guides			
18-603943	<i>Using Avaya Communicator for iOS</i>	Install and use Avaya Communicator. This document also contains procedures for using Avaya Multimedia Messaging features.	End users.
18-604158	<i>Using Avaya Communicator for Windows</i>	Install and use Avaya Communicator.	End users.
Not numbered	<i>Using Avaya Communicator for Android</i>	Install and use Avaya Communicator.	End users.
Not numbered		Install and use Avaya Communicator.	End users.
Other administration information			
18-604079	<i>Administering Avaya Communicator</i>	Perform server administration for Avaya Communicator iPad, Windows, and Android.	System administrators.
Not numbered	<i>Administering Avaya Aura<sup>®</sup> Session Manager</i>	Administer Avaya Aura <sup>®</sup> Session Manager	System administrators.
03-300509	<i>Administering Avaya Aura<sup>®</sup> Communication Manager</i>	Administer Avaya Aura <sup>®</sup> Communication Manager	System administrators.
Not numbered	<i>Administering Avaya Aura<sup>®</sup> Presence Services</i>	Administer Avaya Aura <sup>®</sup> Presence Services	System administrators.
Not numbered	<i>Administering Avaya Aura<sup>®</sup> System Manager</i>	Administer Avaya Aura <sup>®</sup> System Manager	System administration
16-601944	<i>Administering Avaya 9601/9608/9608G/9611G/9621G/9641G IP Deskphones SIP</i>	Administer 9601, 9608, 9608G, 9611G, 9621G, and 9641G deskphones.	System administrators.
Other installation and maintenance information			
16-603504	<i>Installing and Maintaining Avaya Deskphone SIP for 9601/9608/9608G/9611G/9621G/9641G IP Deskphones</i>	Install and maintain 9601, 9608, 9608G, 9611G, 9621G, and 9641G deskphones.	Implementation engineers, system architects, and administrators.
Not numbered	<i>Configuring GR-unaware elements to work with System Manager Geographic Redundancy</i>	Configure elements that are unaware of Geographic Redundancy to work with Avaya Aura <sup>®</sup> System Manager	Implementation engineers, system architects, and administrators.

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## Finding documents on the Avaya Support website

### About this task

Use this procedure to find product documentation on the Avaya Support website.

### Procedure

1. Use a browser to navigate to the Avaya Support website at <http://support.avaya.com/>.
2. At the top of the screen, enter your username and password and click **Login**.
3. Click **Documents**.
4. In the **Enter your Product Here** search box, type the product name and then select the product from the drop-down list.
5. If there is more than one release, select the appropriate release number from the **Choose Release** drop-down list.
6. Use the **Content Type** filter on the left to select the type of document you are looking for, or click **Select All** to see a list of all available documents.

For example, if you are looking for user guides, select **User Guides** in the **Content Type** filter. Only documents in the selected category will appear in the list of documents.

7. Click **Enter**.

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## Viewing Avaya Mentor videos

Avaya Mentor videos provide technical content on how to install, configure, and troubleshoot Avaya products.

### About this task

Videos are available on the Avaya Support website, listed under the video document type, and on the Avaya-run channel on YouTube.

### Procedure

- To find videos on the Avaya Support website, go to <http://support.avaya.com> and perform one of the following actions:
  - In **Search**, type `Avaya Mentor Videos` to see a list of the available videos.
  - In **Search**, type the product name. On the Search Results page, select **Video** in the **Content Type** column on the left.
- To find the Avaya Mentor videos on YouTube, go to [www.youtube.com/AvayaMentor](http://www.youtube.com/AvayaMentor) and perform one of the following actions:
  - Enter a key word or key words in the **Search Channel** to search for a specific product or topic.

- Scroll down Playlists, and click the name of a topic to see the available list of videos posted on the website.

 **Note:**

Videos are not available for all products.

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## Support

Go to the Avaya Support website at <http://support.avaya.com> for the most up-to-date documentation, product notices, and knowledge articles. You can also search for release notes, downloads, and resolutions to issues. Use the online service request system to create a service request. Chat with live agents to get answers to questions, or request an agent to connect you to a support team if an issue requires additional expertise.

# Chapter 2: Avaya Multimedia Messaging overview

Avaya Multimedia Messaging provides advanced multiparty instant messaging (IM) and rich media exchange capabilities to Avaya Unified Communications (UC) applications. Avaya Multimedia Messaging functionality is available on Avaya Communicator for iOS, Windows, Android, and iPhone.

When Avaya Multimedia Messaging is enabled on a supported application, you can

- Exchange text-based instant messages with users of Avaya Multimedia Messaging and Avaya Aura® Presence Services.
- Receive photo, audio, video, and generic file attachments.
- With Avaya Communicator for Windows, all users can send generic file attachments, but only users with enhanced privileges can capture photo, audio, and video files on Avaya Multimedia Messaging. With mobile clients, only users with enhanced privileges can send attachments in an IM conversation.
- View and participate in active conversations from multiple devices.

You can view an active conversation from applications that use Avaya Aura® Presence Services, even if the application does not have Avaya Multimedia Messaging enabled. When viewing a conversation in an application without Avaya Multimedia Messaging, you can use the provided message playback URL to view attachments.

- Search for archived or inactive conversations in the application History fan.

Avaya Multimedia Messaging has its own server that must reside on a Linux based server. VMware options for the Avaya Multimedia Messaging server are also available.

The following image provides an overview of the architecture and connectivity of Avaya Multimedia Messaging components.

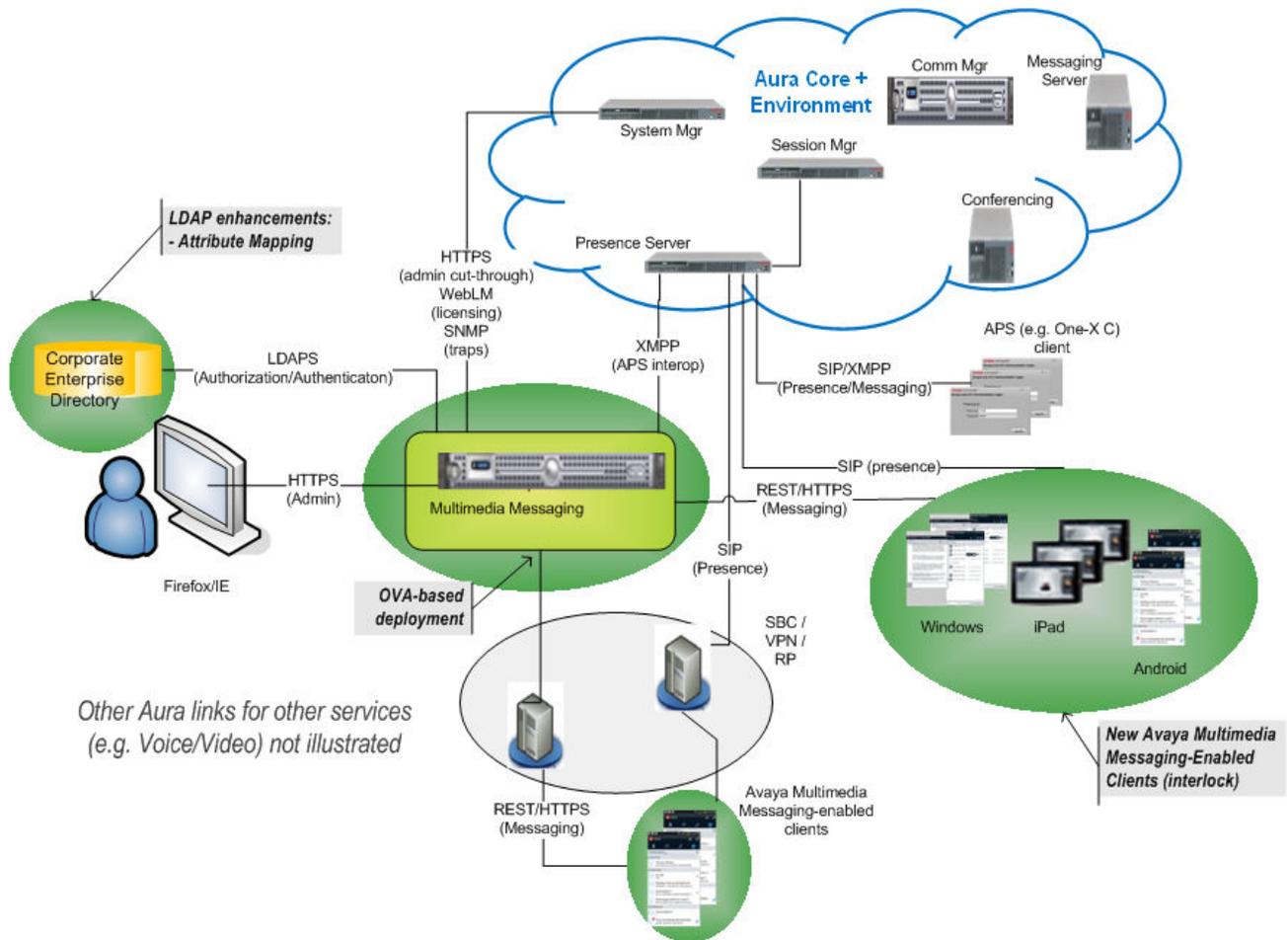


Figure 1: Avaya Multimedia Messaging deployment architecture

## Feature description

The following sections describe the main Avaya Multimedia Messaging features that users can access on their Avaya Communicator application. These sections do not describe additional Avaya Communicator features that are not controlled by Avaya Multimedia Messaging, such as voice and video calling, call transfer, and conference capabilities.

## Features available to users of Avaya applications

### Presence status

You can access the presence status or availability for your contacts. To access this feature, the administrator must configure Avaya Aura® Presence Services.

Avaya Multimedia Messaging and Avaya Aura® Presence Services support the following functionality with Avaya Communicator Release 2.1 clients when your presence status is set to “Do Not Disturb”:

- The administrator can set a feature that delays the receipt of incoming instant messages. This feature is available if Avaya Aura® Presence Services Feature Pack 4 is the instant messaging provider and you set your presence status to “Do Not Disturb”. If the administrator sets the feature, you do not receive incoming instant messages while your presence is set to “Do Not Disturb”. Instead, when you change your presence status, these instant messages appear as missed conversations in the Avaya Communicator IM fan.
- With Avaya Multimedia Messaging, if the administrator sets the feature, you continue to receive incoming messages, but notifications are suppressed.
- With this feature, you can still begin a new instant messaging conversation and receive responses immediately while your presence is set to “Do Not Disturb”.

The feature is unavailable with earlier versions of Avaya Aura® Presence Services. When the feature is unavailable, you continue to receive IMs regardless of your presence status.

For more information about deploying and administering Avaya Aura® Presence Services, see *Implementing Avaya Aura® Presence Services* and *Administering Avaya Aura® Presence Services*.

## Multiparty instant messaging with rich media exchange

Avaya Multimedia Messaging enhances the Avaya Communicator multiparty chat feature. You can have an IM conversation with users of Avaya Multimedia Messaging or Avaya Aura® Presence Services. You can also add new participants to an IM conversation. With Avaya Multimedia Messaging, you can send and receive text-based IMs and rich media attachments. The IM features available to you vary depending on your user privileges and on the application you are using. Avaya Aura® Presence Services users who are not using an application with Avaya Multimedia Messaging can access received attachments with the Message Playback capability.

### \* Note:

Avaya Multimedia Messaging does not support IM on 96x1 SIP deskphones. You can use the IM functionality on 96x1 SIP deskphones with Avaya one-X® Communicator.

Use Avaya one-X® Communicator file transfer in deployments where Avaya one-X® Communicator is the only client. In deployments with Avaya Multimedia Messaging, Avaya Communicator, hard phones, or federated IM, Avaya one-X® Communicator file transfers have unpredictable results.

You can escalate an IM conversation to a voice or video call at anytime. To start a video call, the user you are calling must have video capabilities enabled in the Avaya application. The Avaya application that you use to make the call must have phone numbers in the contact information of the conversation participants. Avaya Multimedia Messaging clients use Avaya Aura® Conferencing to escalate a multiparty chat conversation to a voice or video call.

### \* Note:

When an Avaya Multimedia Messaging user leaves a point-to-point conversation, applications without Avaya Multimedia Messaging do not indicate that the Avaya Multimedia Messaging user

has left the conversation. An application such as Avaya one-X<sup>®</sup> Communicator continues to show that there are two participants in the conversation, even though one participant dropped out.

## Related Links

[Message Playback](#) on page 13

## Messaging behavior

You can configure Avaya Communicator for iOS and Windows to use the Instant Messaging capabilities of either Presence Services or Avaya Multimedia Messaging.

- You can configure Avaya Communicator for iOS and Windows for only Presence Services messaging when you do not have Avaya Multimedia Messaging deployed in the solution.
- You must configure Avaya Communicator for iOS and Windows to use Avaya Multimedia Messaging for messaging when you deploy Avaya Multimedia Messaging in the solution, even if Presence Services continues to provide messaging for other endpoints.

If you have configured Avaya Communicator for iOS and Windows clients for Presence Services messaging, you must reconfigure to use Avaya Multimedia Messaging for messaging. Presence Services continues to provide Self and Buddy Presence for Avaya Communicator for iOS and Windows clients after you reconfigure Avaya Multimedia Messaging for instant messaging.

## Conversations remain active

With Avaya Multimedia Messaging, your IM conversation remains active until you choose to leave the conversation. IM conversations only end automatically if no participants contribute to the conversation for a specified time. The default time is 30 days, but an administrator can change this time setting in the web-based administration portal. After a conversation becomes inactive, you can only access that conversation by performing a search in the Avaya Communicator application's History fan. You can no longer contribute to an IM conversation after the conversation becomes inactive.

For information on administering Avaya Multimedia Messaging, see "Administration" in *Deploying Avaya Multimedia Messaging*.

## Active conversations are accessible from other applications

You can view an active conversation from multiple devices at the same time. Any application that uses Avaya Aura<sup>®</sup> Presence Services for IM and Presence can display an active Avaya Multimedia Messaging conversation.

### **Note:**

After you view content in a conversation from an Avaya Aura<sup>®</sup> Presence Services application without Avaya Multimedia Messaging, you cannot retrieve that content again after logging out and then logging back in to the application. You must use an application with Avaya Multimedia Messaging to retrieve previous messages in a conversation.

## Message Playback

When you view an IM conversation from an application that does not have Avaya Multimedia Messaging, text appears automatically, but attachments do not. When Avaya Multimedia Messaging is enabled in the application, attachments appear as thumbnails. However, if you are viewing the conversation from another application without Avaya Multimedia Messaging, the provided Message Playback URL enables you to view attachments.

### Note:

You should enable Avaya Multimedia Messaging in the Avaya Communicator for iOS application if you want to use this application to participate in Avaya Multimedia Messaging conversations.

Conversations are cached in each application, so you can review messages without repeatedly consuming download bandwidth. Messages are stored in a format that conserves storage space.

## Related Links

[Operating system and web browser requirements](#) on page 18

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## Functionality available to administrators

### Multiple deployment models

The Avaya Multimedia Messaging server supports the following deployment models:

- Standalone Avaya Multimedia Messaging server using Avaya Aura® Presence Services to provide Presence functionality.
- Standalone Avaya Multimedia Messaging server federating with Avaya Aura® Presence Services for IM and Presence.
- Clustered Avaya Multimedia Messaging server with up to four nodes using Avaya Aura® Presence Services to provide Presence functionality.
- Clustered Avaya Multimedia Messaging server federating with Avaya Aura® Presence Services for IM and Presence.
- Avaya Multimedia Messaging standalone or high availability (HA) server deployed in a virtualized VMware environment.

### Access to logs and alarms

As an administrator, you can access logs and alarms to troubleshoot issues on the Avaya Multimedia Messaging server. You can access the following types of Avaya Multimedia Messaging logs:

- Performance logs: These logs cite changes in performance, and can be useful for diagnosing performance issues. For example, you might refer to performance logs if you think you do not have enough storage space on the server.
- Audit logs: These logs show administrative actions, and allow you to see information on server configuration settings, including what was changed, who made the change, and when.

- Security logs: These logs show security errors, such as an invalid certificate or invalid login credentials.

The following table describes the main alarms for troubleshooting Avaya Multimedia Messaging.

**Table 1: Avaya Multimedia Messaging alarms**

Name	Description	Severity
avESMComponentNotRunning	<p>The system raises this alarm when a component has stopped functioning, does not start, or does not restart:</p> <ul style="list-style-type: none"> <li>• Cassandra</li> <li>• Nginx</li> <li>• JBoss</li> <li>• Mobicents</li> <li>• snmpd</li> <li>• spiritAgent</li> <li>• glusterd/glusterfsd</li> <li>• keepalived</li> <li>• openfire</li> </ul>	Major
avAMMLDAPServerConnectionLost	<p>The system raises this alarm if the Avaya Multimedia Messaging application cannot connect to the corporate LDAP server.</p> <p>This alarm can be triggered manually by testing the LDAP connectivity through the Avaya Multimedia Messaging administration portal or as the result of an audit that is being performed every 60 seconds.</p> <p>The Avaya Multimedia Messaging application relies on the LDAP server for authentication, authorization and identity management.</p>	Major
avAMMDataStoreAccessFailed	<p>The system raises this alarm if the Avaya Multimedia Messaging application cannot connect to the database or the database cluster. This alarm is triggered by an audit process performed every 60 seconds.</p>	Major
avAMMMediaStoreAccessFailed	<p>The system raises this alarm if the Avaya Multimedia Messaging application cannot connect to the distributed file system, GlusterFS. This alarm is triggered by an audit process performed every 60 seconds.</p> <p>Under this alarm condition, the end users are only able to send text messages. Multimedia and</p>	Major

Name	Description	Severity
	generic attachments are rejected by the Avaya Multimedia Messaging server.	
avAMMDBStorageReachedCriticalThreshold	The system raises this alarm when the disk partition size where the Cassandra database is hosted exceeds 95% of the total size.  The disk audit is performed every 60 minutes.	Critical
avAMMRESTCertificateFault	The system raises this alarm if the REST certificate is about to expire, has expired or if the application is unable to read the certificate file.  Certificate audit is performed every 60 seconds	Major
avAMMOAMCertificateFault	The system raises this alarm if the OAM certificate is about to expire, has expired or if the application is unable to read the certificate file.  Certificate audit is performed every 60 seconds.	Major
avAMMBackendCertificateFault	The system raises this alarm if the back-end certificate is about to expire, has expired or if the application is unable to read the certificate file.  Certificate audit is performed every 60 seconds.	Major
avAMMLicenseErrorModeActive	The system raises this alarm if one or more license errors are present.	Major
avAMMLicenseRestrictedModeActive	The system raises this alarm if one or more license errors are present and the 30 day grace period has expired.	Critical
avAMMRemoteDomainConnectionLost	The system raises this alarm if the Avaya Multimedia Messaging application is unable to ping one or more remote domains.  The audit is performed every 30 seconds.	Major
avAMMVirtuallIPAcquiredFromPrimary	The system raises this alarm when the primary node hosting the virtual IP address of the application has stopped.	Major
avAMMSMGRLDAPServerConnectionLost	The system raises this alarm if the application cannot establish connectivity with the Avaya Aura® System Manager LDAP server. This alarm can be triggered manually by testing the LDAP connectivity through the Avaya Aura® System Manager administration portal or as the result of an audit that is being performed every 60 seconds.	Major
avAMMMediaStorageReachedCriticalThreshold	The system raises this alarm when the disk partition size where the media files are stored exceeds 95% of the total size.  The disk audit is performed every 60 minutes.	Critical

Name	Description	Severity
avAMMTimeServerSynchronizationLost	<p>The system raises this alarm if the Avaya Multimedia Messaging application does not have time synchronization with one or multiple NTP servers.</p> <p>An audit is performed every 60 seconds.</p>	Major
avAMMNodeCertificateFault	<p>The system raises this alarm if the node certificate is about to expire, has expired or if the Avaya Multimedia Messaging application is unable to read the certificate file. Certificate audit is performed every 60 seconds.</p>	Major

# Chapter 3: Interoperability

The following sections describe compatibility requirements for Avaya Multimedia Messaging.

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## Product compatibility

The following Avaya products are required for Avaya Multimedia Messaging.

### Avaya Aura® network:

- Avaya Aura® Presence Services: For Presence and IM federation with other applications.
- Avaya Aura® System Manager: For centralized Avaya Aura® management. Avaya Aura® System Manager enables:
  - Licensing with Avaya WebLM
  - Viewing capabilities for logs and alarms
  - Certificate management

For applications to perform registration and telephony functions such as call escalation, Avaya Aura® Session Manager can also be present in the system configuration. Avaya Aura® Session Manager is an optional component.

### Note:

XMPP federations between Avaya Aura® Presence Services and other products are not supported when Avaya Multimedia Messaging is federated with Avaya Aura® Presence Services.

### Applications that support Avaya Multimedia Messaging:

Users must deploy one of these applications to use Avaya Multimedia Messaging functionality.

- Avaya Communicator for iOS Release 2.0 and up
- Avaya Communicator for Android Release 2.1
- Avaya Communicator for iPhone Release 2.1
- Avaya Communicator for Windows Release 2.1

The following are examples of Avaya Aura® Presence Services applications that support integration with Avaya Multimedia Messaging through the Message Playback functionality:

- Avaya one-X® Communicator for Windows

For information about supported releases for products and applications that can interwork with Avaya Multimedia Messaging, see <http://support.avaya.com/CompatibilityMatrix/Index.aspx>.

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## Third party product requirements

The following third-party hardware and software products are required for Avaya Multimedia Messaging:

- Red Hat Enterprise Linux server 6.2: Required for hosting the Avaya Multimedia Messaging server. You can deploy the Avaya Multimedia Messaging server as a single server or within a cluster of servers.

You can deploy your Avaya Multimedia Messaging server with a Red Hat Enterprise Linux operating system image in a virtualized VMware environment.

- Corporate LDAP server:
  - Microsoft Active Directory 2008 and 2012
  - IBM Domino Server 7.0
  - Novell e-Directory 8.8
  - OpenLDAP 2.4
- A computer with a compatible web browser: Required for administrators to access the web-based administration portal and for users of applications without Avaya Multimedia Messaging to access the Message Playback URL address.
- The required hardware and software for user applications providing Avaya Multimedia Messaging functionality.

### Related Links

[Operating system and web browser requirements](#) on page 18

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## Operating system and web browser requirements

To access the web-based administration portal or the Message Playback URL address, you must have one of the following web browsers:

- Internet Explorer 8, 9, 10, or 11
- Firefox

The Message Playback feature is supported on the following operating system:

- Windows 7

# Chapter 4: Performance specifications

The following sections summarize performance guidelines and capacity specifications for Avaya Multimedia Messaging.

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## Capacity and scalability specifications

The following table summarizes general capability and scalability information for Avaya Multimedia Messaging. Detailed information about traffic as well as redundancy and high availability specifications are described in other sections.

**Table 2: General capacity and scalability**

Description of component	Capacity
Number of users per standalone server	The following single server capacity options are currently supported: <ul style="list-style-type: none"><li>• 500 users or less.</li><li>• 1000 users or less.</li><li>• 5000 users (current maximum for each server).</li></ul>
Community sizes	The following community size capacities are supported: <ul style="list-style-type: none"><li>• In the corporate Active Directory environment, up to 15,000 user records.</li><li>• In the Avaya Aura<sup>®</sup> System Manager environment, up to 15,000 users.</li><li>• In a cluster without Presence Services federation, up to 15,000 Avaya Multimedia Messaging users.</li><li>• In a cluster with Presence Services federation, 50% Avaya Multimedia Messaging users and up to 50% Presence Services users.</li></ul>
Number of simultaneous devices	Avaya Multimedia Messaging allows users to be logged in with up to 4 devices at once.  This number will be reduced if a lower number of devices is set under the <b>Max. Simultaneous Devices</b> field in Avaya Aura <sup>®</sup> Session Manager.
Content availability on client	If there is no user activity, conversation content on the Avaya Communicator client becomes inactive after 1 month by default. This

Description of component	Capacity
	default setting can be changed through the web-based administration portal.
Dual-node and High Availability clusters	<ul style="list-style-type: none"> <li>In a dual-node cluster, two servers are required.</li> <li>In a High Availability (HA) configuration, at least three servers are required. These servers must be connected with at least 1GbE.</li> </ul>

**Table 3: Hardware requirements**

The following table describes the hardware requirements for the Avaya Multimedia Messaging server.

	Deployment on physical server	Deployment on VMware		
		500 users	1000 users	5000 users
<b>Number of users</b>	5000 users on a single node (plus one node for redundancy) 10,000 users on a three-node cluster with redundancy 15,000 users on a four-node cluster with redundancy			
<b>Operating system</b>	Red Hat Enterprise Linux 6.2 64 bits	RHEL 6.2 64 bits	RHEL 6.2 64 bits	RHEL 6.2 64 bits
<b>vCPUs</b>		8	8	24
<b>CPU resources</b>	Each node: Two 2.9 GHz CPUs, 6 core per CPU with hyper-threading	Minimum: 10000 MHz Required: 21360 MHz	Minimum: 10000 MHz Required: 21360 MHz	70000 MHz (unlimited)
<b>Memory</b>	Each node: 32 GB	8 GB	8 GB	32 GB
<b>Storage reservation</b>	N/A	0.5 TB	1 TB	5 TB
<b>Hard drive</b>	Each node: 5 TB data as required per RAID configuration	N/A	N/A	N/A

The disk space requirements depend on the number of Avaya Multimedia Messaging users and on the traffic specifications. A larger number of users require more disk space for Rich Content storage and database files. A larger traffic requires more disk space for Rich Content and database files.

**\* Note:**

For deployments performed directly on Linux servers, Avaya recommends using one virtual hard disk for storing application files and one virtual hard disk for database files and Rich Content storage.

For deployments that use VMware, one logical partition can store all the files. Avaya Multimedia Messaging deployments using VMware support up to 5000 users.

You must allocate disk space for the Avaya Multimedia Messaging server as follows:

- / directory: 50 GB

- /home directory: 4 GB
- swap partition: 32 GB
- The logical volume where the Avaya Multimedia Messaging files must be installed: 200 GB

**\* Note:**

The `/opt/Avaya` directory is the default installation location and does not exist by default. The installation directory must be the mount point of the logical volume used for storing Avaya Multimedia Messaging installation files.

- The logical volume used for storing media files and database files: depends on the number of users and on the traffic specifications.

`/media/data` is the recommended directory for storing the Cassandra database and the Gluster file system. The minimum disk space required for this directory depends on the number of Avaya Multimedia Messaging users and on the traffic specifications as described in the following table.

**\* Note:**

The `/media/data` directory must be used as a mount point for the hard disk used for database and media file storage.

Number of users	Required disk space
500	500GB
1000	1TB
5000	5TB
	<p><b>* Note:</b></p> <p>You must use VMware ESXi 5.5 for partition sizes larger than 2TB.</p>

The values listed in the table are calculated based on the following traffic specifications:

- A day has 8 hours of traffic
- 12.5GB of data are stored each day for every 1000 users
- The maximum number of days to store the Rich Content files is 80 days

**! Important:**

Avaya Multimedia Messaging is a software only solution, so you must estimate the hardware requirements and manage the High Availability and redundancy configuration according to these requirements.

## Traffic specifications

Avaya Multimedia Messaging traffic capacity estimates are based on the industry standard assumption that each user exchanges approximately 15 messages per hour. Avaya Multimedia

Messaging traffic rates are based on anticipated frequencies for exchange of messages with different media types:

- 90% text messages.
- 3% of messages include an audio attachment.
- 1% of messages include a video attachment.
- 6% of messages include a photo or other type of attachment.

Messages are exchanged in point-to-point conversations with only two participants 90% of the time, and with more than two participants in a multi-party chat setting the rest of the time. Users are expected to use an average of two devices at a time even though Avaya Multimedia Messaging can support up to four devices at a time. However, users typically open multimedia attachments on only one device at a time.

---

## Bandwidth management

Avaya Multimedia Messaging RESTful Application Programming Interfaces (APIs) moderate traffic demands and conserve bandwidth. The following behaviors exist for bandwidth management:

- APIs include mechanisms for applications with Avaya Multimedia Messaging to request specific messages or ranges of messages, limiting unnecessary or duplicate traffic flowing from the server.
- Conversations are automatically saved with GZip compression to reduce message sizes.
- Setup of the network infrastructure can throttle Avaya Multimedia Messaging traffic and reduce network impact during high load periods.
- Applications with Avaya Multimedia Messaging employ standards-based mechanisms to limit the network impact of server requests.

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## Redundancy and high availability

### Data protection and business continuity

Avaya Multimedia Messaging provides redundancy through backup and data protection options. The messaging repository, service provisioning, and configuration data are the key elements of service operation, and redundancy options are available to preserve these key service elements during system failures. Increased geographic redundancy support will be available in future releases.

In a single-server configuration, storage redundancy (for example, RAID-based redundancy) is sufficient for system failure. For increased capacity, you can deploy Avaya Multimedia Messaging in a two-node cluster. To increase both capacity and server availability, you can deploy Avaya Multimedia Messaging in a three or four-node cluster that can survive loss or isolation of any one node.

Avaya Multimedia Messaging deploys a pair of load balancers sharing a virtual IP address. If the active load balancer fails, the backup takes over the virtual IP.

## VMware high availability

Increased HA options are available if your Avaya Multimedia Messaging server is deployed with VMware. The following are the key features of VMware HA:

- Automatic detection of server failures.
- Resource checks to ensure that capacity is always available to restart virtual machines affected by server failure.
- Automatic restart of virtual machines.
- Distributed resource schedule to automate the placement of virtual machines restarted after server failure.

### Related Links

[Multiple deployment models](#) on page 13

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## Avaya Multimedia Messaging deployment using VMware

You can deploy Avaya Multimedia Messaging servers directly on physical servers or on VMware virtual machines.

### \* Note:

The supported ESXi versions for Avaya Multimedia Messaging using VMware are 5.1 and 5.5.

Systems that need virtual disks with more than 2TB of disk space require ESXi 5.5.

VMware provides many features and capabilities. Some VMware capabilities require additional configuration. VMware capabilities include the following:

- Customizing for the High Availability (HA) feature

For overview information about the High Availability feature, see the [VMware High Availability overview](#).

- Creating snapshots

For overview information about VMware snapshots, see the [VMware Knowledge Base](#).

- Installing VMware Data Recovery

For information about the Data Recovery feature, see the [VMware Data Recovery overview](#)

- Installing VMware Site Recovery Manager

For overview information about the Site Recovery manager, see the [vCenter Site Recovery Manager](#)

- Enabling time synchronization for ESXi hosts

Events such as startup and taking or restoring snapshots synchronize time in the guest operating system, so you must ensure that the time of the host operating system is correct. See the [VMware Knowledge Base](#) for details and instructions.

# Chapter 5: Security specifications

Avaya Multimedia Messaging provides the following types of security:

- Media security through password protection of the server and database.
- Media file encryption options to protect the server deployed at your data center.
- LDAP authentication.
- Secure signaling.
- Database authentication.
- Certificate auditing.

## Logs and alarms

Issues related to system security are recorded in a security log. Administrator actions are recorded in an audit log. The audit and security logs are captured in Avaya Common Logging Format (CLF). There are two copies of a general log for all other logs (one recorded in Avaya Common Logging Format, the other in native format). The logging level of the general log can be changed through the web-based administration portal, and you can view Avaya Multimedia Messaging server logs through Avaya Aura<sup>®</sup> System Manager.

The Avaya Recovery Manager monitors log records, and issues SNMP traps and alarms as required based on log events.

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## Port assignments

The following image shows the main ports for Avaya Multimedia Messaging. For more detailed information about Avaya Multimedia Messaging ports, see *Avaya Multimedia Messaging Port Matrix* at <http://support.avaya.com/security> under “Avaya Product Port Matrix Documents”.

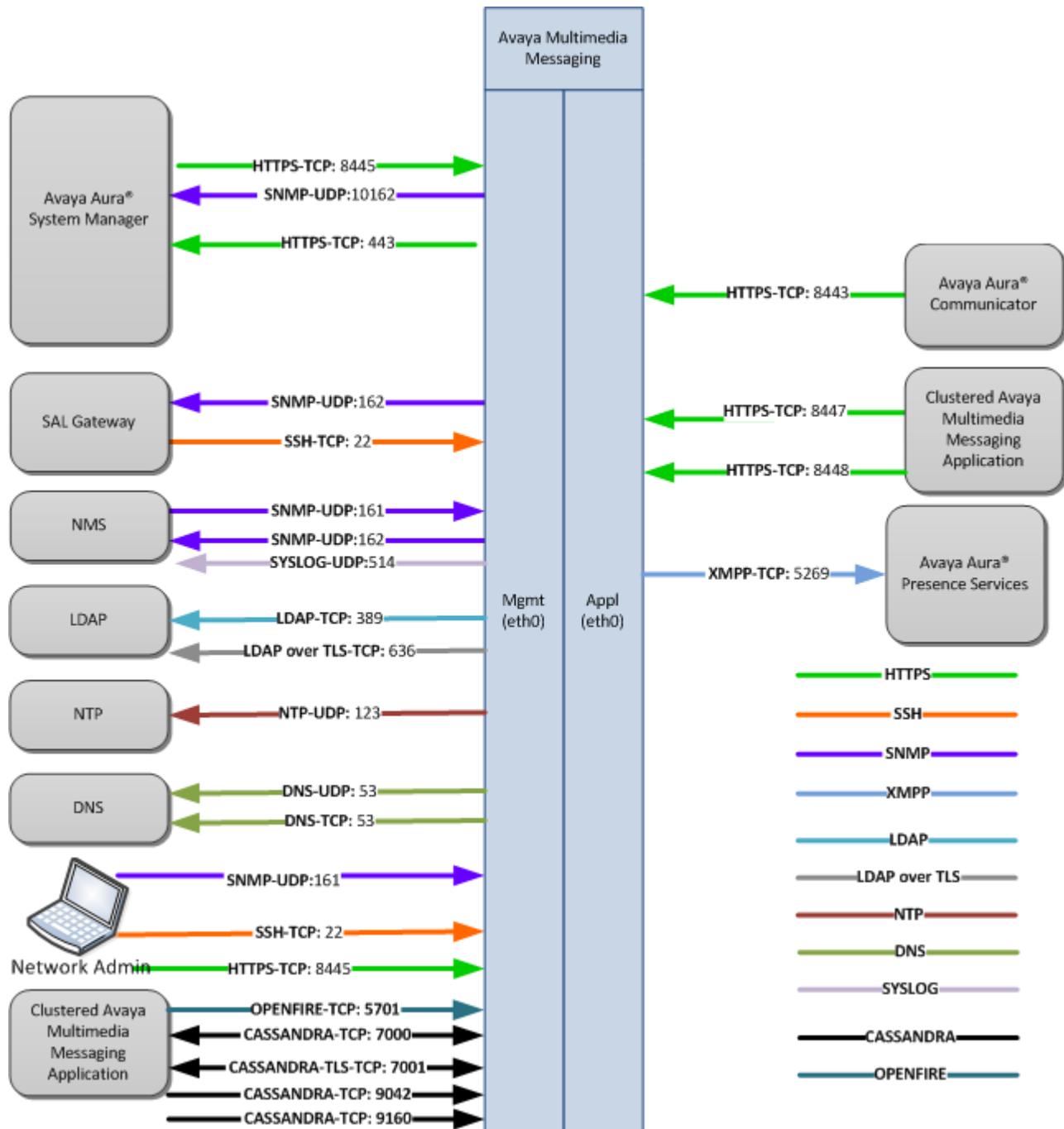


Figure 2: Avaya Multimedia Messaging port usage

# Chapter 6: Licensing requirements

Avaya Multimedia Messaging software and enhanced user privileges are sold as licensed capabilities.

The following licenses exist for Avaya Multimedia Messaging:

- Avaya Multimedia Messaging server software: Sold per instance and by major release number. You require this license to access Avaya Multimedia Messaging services.
- Enhanced Avaya Multimedia Messaging services: Sold on a per user basis. You must enforce the Rich Content license restrictions by disabling the Rich Content feature when there is no license for a user. You must identify which users have access to Enhanced privileges in the web-based administration portal. You can change user privileges in the web-based administration portal any time.

By default, users are given Standard Basic privileges. No additional license, besides the server software license, is required for the Standard Basic user privilege. The following table summarizes the instant messaging features available for Basic users and Enhanced users.

**\* Note:**

When an administrator revokes your enhanced Avaya Multimedia Messaging privileges, you might still be able to capture and send rich media attachments in an IM conversation until you log out of your Avaya Communicator client. Your basic privilege entitlements will take effect when you log out and log back in to the client.

**Table 4: IM features available for different users**

Functionality	Available for Basic users	Available for Enhanced users
Send text-based IMs.	Y	Y
Send generic attachments over IM.	Y, on Windows clients only. This feature is not available to Basic users on mobile clients.	Y, on all clients.
Receive text-based IMs from other users.	Y	Y
Receive photo, audio, and video attachments from other users over IM.	Y	Y
Capture photo, audio, and video media from the IM window. Avaya Multimedia Messaging also provides guidance on attachment sizes.	N	Y

# Glossary

<b>API</b>	Application Programming Interface
<b>Extensible Messaging and Presence Protocol (XMPP)</b>	A communications protocol for message-oriented middleware based on XML (Extensible Markup Language).
<b>Federation</b>	A Federation is multiple computing and/or network providers agreeing upon standards of operation in a collective fashion.
<b>HA</b>	High availability. You can deploy Avaya Multimedia Messaging in a three-node or four-node cluster to obtain increased availability.
<b>IM</b>	Instant Messaging.
<b>LDAP</b>	Lightweight Directory Access Protocol used for enterprise contact search.
<b>NTP (Network Time Protocol)</b>	A protocol used to synchronize the real-time clock in a computer.
<b>REST</b>	Representational state transfer. This is a software architectural style used with Application Programming Interfaces (APIs).
<b>Simple Network Management Protocol (SNMP)</b>	A protocol for managing devices on IP networks.
<b>TCP</b>	Transmission Control Protocol.
<b>TLS</b>	Transport Layer Security
<b>UDP</b>	User Datagram Protocol. This is a communication method, similar to TCP.

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