

# Customer environment

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This document lists the minimum hardware requirements and supported software configurations for Avaya Modular Messaging.

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**Important:** Customers are responsible for obtaining and installing anti-virus software on any Microsoft Windows machine that is used to run Avaya Modular Messaging software, in accordance with their local policy. In addition, Microsoft Windows security patches must be installed and routinely updated to protect the operating system from known security weaknesses. Consult <http://support.avaya.com> for recommended Microsoft Service Packs and Security updates. For more information on security, see 'System security' on the CD-ROM *Avaya Modular Messaging Release 2 Documentation*, 11-300121.

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## Avaya support policy for third-party clients

### Avaya MSS

Avaya Modular Messaging is standards-based, which includes IMAP4 access to messages from user client software packages (for example, Microsoft Outlook and IBM Lotus Notes). Avaya has conducted successful interoperability testing with Microsoft Outlook 2002, Microsoft Outlook 2000, Microsoft Outlook Express 5.0, IBM Lotus Notes R6, and IBM Lotus Notes R5. Furthermore, Avaya acknowledges that customers have reported successful integration of GroupWise with Avaya Modular Messaging and acknowledges that our customers may integrate other IMAP4 user client software packages with Avaya Modular Messaging. Avaya, however, makes no representations, warranties, or guarantees regarding specific capabilities with specific IMAP4 clients or successful integration or interoperability thereof. Avaya's product support is limited to IMAP4 as it is implemented on Avaya Modular Messaging and does not include support for specific e-mail clients.

## Site requirements for Avaya servers

This section describes the physical requirements for the installation site, including environmental, weight, space, and power considerations for an Avaya Messaging Application Server (Avaya MAS) and the Avaya Message Storage Server (MSS—S, standard availability and MSS—H, high-availability).

### Environmental requirements

Table 1 lists the environmental conditions that must be maintained in the area where the Avaya servers are installed and maintained.

**Table 1. Environmental requirements**

Operating state	Temperature	Maximum heat output	Humidity (noncondensing)
Operating	+10 to +35°C (+50 to +95°F)	MAS: 730 BTU/hour MSS-S: 352 BTU/hour MSS-H: 682 BTU/hour	20% to 80% RH
Non-operating (in storage or being shipped)	-20 to +50°C (-4 to +122°F)	N/A	20% to 90% RH

### Weight and space considerations

Table 2 lists the weight, height, width, and depth of each MAS and the MSS.

**Table 2. Avaya MAS weight and space considerations**

Server	Weight (full)	Height	Width	Depth
Avaya MAS	40 lb. (18.1 kg) (without port boards)	6.8 in. (17 cm)	16.9 in. (43 cm)	18.9 in. (48 cm)
Avaya MSS-S	41 lb. (18.6 kg)	6.8 in. (17 cm)	16.9 in. (43 cm)	18.9 in. (48 cm)
Avaya MSS-H	52 lb. (23.6 kg)	6.8 in. (17 cm)	16.9 in. (43 cm)	18.9 in. (48 cm)

For safety considerations, at least two technicians should be on site and available to mount the units.

## Customer-provided cabinet requirements

If the Avaya MAS and MSS are to be installed in a rack-mount configuration, the customer-provided cabinet must meet the following requirements:

- The cabinet must contain a 4-post rack to support the weight of the server.
- The cabinet must be secured to the floor before attempting to mount any units.
- The sliding rails and extender brackets provided with each server are designed for mounting in cabinets 22.5 to 32 inches in depth.
- The cabinet height must accommodate the number of units to be mounted. It may also need to hold the MAS modems, UPS, and optional equipment such as the KVM switch.

## Power requirements

Table 3 lists the power requirements for the S3400-family servers. The AC power supply source must be a single phase 3-conductor (line, neutral, and ground), with a 15 A circuit breaker for 100-127 Vac installations or a 10 A circuit breaker for 200-240 Vac installations.

**Table 3. Server power requirements**

Server	# of power supply units	Volts AC	Hertz	Amperes 120V/240V
Avaya MAS	1	100-240 +/- 10%	50/60 +/- 3 Hz	10/5
Avaya MSS—S	1	100-240 +/- 10%	50/60 +/- 3 Hz	10/5
Avaya MSS—H	2	100-240 +/- 10%	50/60 +/- 3 Hz	6/3 for each supply

Consider the server connection to a branch circuit with regard to overload or overcurrent protection. Verify the system ratings to ensure that, together with other equipment connected to the same branch circuit, an overcurrent or overload condition does not exist.

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**Note:** For more information on the site requirements, see *Modular Messaging Release 2 Installation*, 11-300122 available on the CD-ROM *Avaya Modular Messaging Release 2 Documentation*, 11-300121.

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## Modular Messaging and the Microsoft Windows domain infrastructure

Different versions of Modular Messaging relate differently to the Microsoft Windows domain infrastructure at the customer site.

The relationship that a Modular Messaging system shares with the Windows domain affects subscriber and administrator authentication, and the relationship of MAS units to the Windows domain.

### Modular Messaging and the Windows domain

#### **Modular Messaging—MSS system.**

When installing a Modular Messaging—MSS system, technicians create a Windows domain that does not require any interaction with a Windows domain that the customer network may already have. In fact, the Modular Messaging—MSS system does not require that the customer even have an existing Windows network. Messaging application server (MAS) units are added to the Windows domain that has been created for Modular Messaging. MAS administrators use logins that are configured in this Windows domain. The Modular Messaging Windows domain can be configured to 'trust' one or more customer Windows domains, allowing MAS administrators to use their normal Windows desktop login when administering the MAS.

#### **Modular Messaging—Exchange and Modular Messaging—Domino.**

Modular Messaging—Exchange and Modular Messaging—Domino systems join an existing customer Windows domain. MAS units function as members of the Windows domain set up by the customer.

### Subscriber and administrator authentication

#### **Modular Messaging—MSS system.**

Subscribers using Graphical User Interface (GUI) clients or Subscriber Options have to provide their mailbox numbers and passwords for authentication. This authentication is not related to any Windows login mechanisms. User credentials of MAS administrators are authenticated against the Windows login in the domain created during the Modular Messaging installation.

#### **Modular Messaging—Exchange and Modular Messaging—Domino.**

Modular Messaging—Exchange and Modular Messaging—Domino systems: Subscribers and administrators authenticate against the existing

Windows domain; such authentication is based on the security standards established by the customer for the existing Windows domain.

## Considerations when implementing Modular Messaging—MSS

### Avaya MSS

Modular Messaging—Avaya Message Storage Server (MSS) uses a dedicated server and private network to isolate critical components from reliance on the customer's IT and e-mail infrastructure. Basic voicemail features including Call Answer and telephone retrieval of messages operate completely independently of this infrastructure. However, certain features rely on and interoperate with aspects of the customer's infrastructure.

IT and e-mail infrastructure considerations when implementing Modular Messaging—MSS are:

- The MSS and messaging application server (MAS) hosts need to be added to the customer's DNS servers for any desktop client usage (including Client Add-in for Microsoft Outlook and Subscriber Options), as well as for sending networked messages and directory updates between multiple (separate) Modular Messaging systems or between Modular Messaging and Message Networking systems in the customer network. Networking between Modular Messaging or Modular Messaging and Message Networking systems can also be done by adding these systems to each other's /etc/hosts files without relying on DNS.
- The Modular Messaging—MSS system delivers all messages sent outside of its Voice Mail Domain, that is, networked messages and Notify Me messages, with the standard SMTP/MIME e-mail protocols using the customer's IT and e-mail infrastructure. Depending on the MSS configuration options, these messages are sent either using DNS MX (mail exchanger) lookups of the recipient's host.domain or using an administered e-mail gateway which then relays the message to its recipient. Although a configuration where networked messages are sent directly to the destination Modular Messaging (or Message Networking) machine and all Notify Me messages are sent to a gateway is not explicitly supported, this behavior can be achieved using DNS MX routing. To do this, the customer must provide a DNS server that responds to MX queries for all hosts with the host name of the gateway and either administer networked machines via /etc/hosts or have the DNS server return the actual IP address for networked Modular Messaging hosts.
- Messages sent outside a voice mail domain using SMTP/MIME carry an e-mail "from:" address identifying the sender's Modular Messaging mailbox, typically in the form first.last@mmsystem.domain.company.com. If these messages are sent through an e-mail gateway in the customer's network that modifies outbound "from:" addresses, for example replacing the

host.domain portion with a fixed string like "company.com", then replies to these messages will be redirected to an incorrect address. Many companies use "first.last@company.com" as the e-mail address for a user's Exchange or IBM Lotus Notes mailbox. These addresses have the same "first.last@" part, so if the host.domain portion of a message sent from a user's Modular Messaging mailbox is replaced any replies will end up in the user's regular e-mail mailbox. Customers need to make sure messages sent between Modular Messaging systems are not sent through such e-mail gateways, or that the gateway's processing rules allow messages sent between Modular Messaging systems to retain their original (unmodified) "from:" address.

- The Notify Me feature allows notification messages to be sent to any e-mail address, including addresses outside of the customer's network. Such messages must generally be sent via an outbound e-mail gateway in the customer's network, and consideration should be given to what the "from:" address indicates in this case. The "from:" address when sent by the Modular Messaging system identifies the subscriber's Modular Messaging mailbox. Many companies' outbound e-mail gateways are configured to replace the host.domain portion of "from:" addresses with a fixed string like "company.com". This runs into the same issue of confusing users' Modular Messaging and regular e-mail addresses as described above, although if the Modular Messaging and e-mail addresses are coordinated this may be precisely what is desired. Another option is to change the gateway processing rules to modify "from:" addresses for messages sent from Modular Messaging systems into a non-replyable form, such as "do\_not\_reply@company.com". With this approach, users would not receive indication of problems with their notification messages. Yet another option is to change the gateway to modify "from:" addresses for messages sent from Modular Messaging systems into an administrative mailbox, for example "postmaster@company.com". With this approach, failures related to notification messages would be delivered to the company's e-mail postmaster.
- When deploying a Modular Messaging—MSS system, the customer needs to choose whether the e-mail address for subscribers' mailboxes (used for networking and when sending messages using desktop clients) specifies the actual host.domain of the MSS or is an "e-mail host alias". The default is to use the actual host.domain name of the MSS. If an e-mail host alias is used, this name must be added to the customer's DNS servers or remote systems' /etc/hosts files for messages to be able to be delivered between systems or from users' desktop clients. Multiple Modular Messaging systems within a single customer's network cannot share identical e-mail host aliases.

- Customers must choose whether to allow incoming internet e-mail to be delivered to users' Modular Messaging mailboxes. This includes "bounce" messages generated by Notify Me messages sent to incorrectly specified notification addresses and possibly replies to such messages. If choosing to allow such messages to be delivered, the customer's external e-mail infrastructure needs to be able to associate an incoming address to the user's Modular Messaging mailbox. One way to do this is to use an "e-mail host alias" such as "mm.company.com" and register this domain with the customer's external DNS servers. Another is to use Modular Messaging e-mail addresses with "left hand sides" (the portion before the "@") distinct from those used for regular e-mail addresses. For example, a user's e-mail address might be "first.last@company.com" while their Modular Messaging mailbox might be "first.last.mm@company.com". If allowing Internet e-mail into users' Modular Messaging mailboxes Avaya strongly suggests all such e-mail be filtered for spam and viruses before being delivered to the Modular Messaging system.



## Considerations when implementing Modular Messaging with e-mail servers

### Microsoft Exchange

### IBM Lotus Domino

Modular Messaging—Microsoft Exchange and Modular Messaging—IBM Lotus Domino systems fit within the existing IT infrastructure at the customer site. Hence, these systems are more sensitive to the customer environment than a Modular Messaging—MSS system, where a dedicated server and private network are used to isolate critical operations.

Some additional considerations when implementing Modular Messaging with e-mail servers are:

- To confirm that the Microsoft Exchange and IBM Lotus Domino e-mail systems have been deployed and are being operated in accordance with Microsoft and IBM specifications, respectively.
- To assess the impact the Modular Messaging solution will have on the existing e-mail environment. The messaging requirements of a unified message store increase the utilization of the e-mail server, mailboxes, and system administration. Thus, the CPU utilization and memory requirements of the e-mail servers need to be able to support the additional processing requirements for the voice mail application.

**Note:** Customers must keep their systems within performance operating ranges prescribed by Microsoft and IBM Lotus. In order to support the extra load for voice messaging, Avaya requires that the CPU utilization be no more than 50%.

- To evaluate the customer's LAN environment to ensure that it can support the application. In Modular Messaging with e-mail servers, all of the communications for the application run on the customer's network. Thus, the occupancy of the customer's IP network needs to be assessed to determine if it can support the additional load, and to provide the responsiveness for the real-time aspects of the solution.

**Note:** The customer's estimated busy hour LAN occupancy, including the incremental traffic due to voice messaging must be less than 25%.

- To ensure that certain factors are in harmony and meet the specifications for the solution in order to perform reliably. These factors include the release level of e-mail, how it is configured, operating systems, what is being used for directory authentication, and other hardware, software, and operating

system elements that will be involved in the overall architecture and its topology.

The assessment of the customer environment may determine that it meets the operational specifications for a Modular Messaging system with e-mail servers. However, customers must maintain the reliability of their environment, and to ensure that the e-mail environment and data network are not in a constant state of flux.

## Minimum hardware requirements and supported software (MSS version)

### Avaya MSS

This section provides information on the minimum hardware requirements and supported software for Modular Messaging—MSS.

### MAS specifications with Modular Messaging—MSS

A Modular Messaging—MSS system uses Avaya-provided messaging application server (MAS) units for which, Avaya provides the Modular Messaging software and the S3400 hardware.

#### Hardware specifications

Table 4 provides information on the hardware specifications of an Avaya-provided MAS.

**Table 4. S3400 MAS hardware specifications**

Clock speed	RAM
2.00 GHz processor Intel Pentium IV	512 MB

Table 5 lists the supported voice cards.

**Table 5. Supported voice cards for an S3400 MAS with Modular Messaging—MSS**

Protocol	Voice cards	Maximum cards per MAS		Maximum ports <sup>1</sup> per MAS	
		Aria TUI	AUDIX TUI	Aria TUI	AUDIX TUI
—	—	—	—	—	—
H.323-based IP integration	—	—	—	20	20
T1 QSIG	Dialogic D/480JCT-2T1	3	1	69	23
E1 QSIG	Dialogic D/600JCT-2E1-120	2	1	60	30
Digital Set Emulation	Dialogic D/82JCT-U (5v card) Dialogic D82JCTPCIUNIV (3.3v and 5v universal card)	4	3	32	24
Analog	12-port Dialogic D/120JCT	4	2	48	24
	4-port Dialogic D/41JCT-LS	4	4	16	16

- The number of ports that an MAS can support is restricted by the number of PCI slots available and the number of cards supported.

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**Note:** For upgrades from Modular Messaging Release 1.0, the only Dialogic voice card supported is Dialogic D/82JCT/U.

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The following are also required:

- A DVD-ROM drive to install the software.
- LAN connectivity of speed 100 Mbps
- 80 GB of free disk space
- Dialogic drivers: SR5.1.1 FP1 Service Update 15

## Software specifications

Table 6 provides the software specifications of an S3400 MAS.

**Table 6. Software specifications of an S3400 MAS**

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Required software	Supported versions
Microsoft Windows version	Microsoft Windows 2000 Server with service pack (SP) 4 <sup>1</sup>
Internet browser	Microsoft Internet Explorer 5 or later

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1. Internet Information Services (IIS) 5.0 is required and is included with Microsoft Windows 2000 Server.

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**Note:**

- Avaya-provided S3400 hardware is installed from an image, which installs Microsoft Windows 2000 Server and the latest service packs and hotfixes.
  - Customer-provided virus protection is recommended for all Microsoft Windows servers.
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## Client Add-in for Microsoft Outlook requirements

### Avaya MSS

This section provides information on the system requirements for installing the Client Add-in for Microsoft Outlook with Modular Messaging—MSS.

The minimum hardware requirements are:

- Processor speed: As per standard Microsoft recommendations
- 256 MB of RAM

- 50 MB of free disk space (minimum)

The supported software are:

- Microsoft Windows 2000 Professional with service pack (SP) 4 with either of the following Microsoft Outlook e-mail clients:
  - Microsoft Outlook 2000 with SR1
  - Microsoft Outlook 2002 with SP2
- Microsoft Windows XP with SP1 with either of the following Microsoft Outlook e-mail clients:
  - Microsoft Outlook 2000 with SR1
  - Microsoft Outlook 2002 with SP2
  - Microsoft Outlook 2003
- Microsoft Internet Explorer 5 or later

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**Note:** Microsoft Outlook must already be installed for the Voice Form component of Client Add-in for Microsoft Outlook to be installed.

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## Subscriber Options requirements

### Avaya MSS

With Modular Messaging—MSS, if the subscriber PC has Microsoft Outlook, the Subscriber Options application is installed as part of the Client Add-in for Microsoft Outlook installation.

For information on the Client Add-in for Microsoft Outlook requirements, see [Client Add-in for Microsoft Outlook requirements](#) on page 12.

Modular Messaging subscribers that do not use Microsoft Outlook as an e-mail client can install Subscriber Options as a standalone component.

Table 7 lists the supported software for installing Subscriber Options

**Table 7. Supported software for Subscriber Options**

Required software	Supported versions
<b>Microsoft Windows version</b>	Microsoft Windows Millennium Edition Microsoft Windows 2000 Professional with SP4 Microsoft Windows XP Professional

## Modular Messaging Web Client requirements

### Avaya MSS

**Avaya support policy for Modular Messaging Web Client:** Avaya Modular Messaging Web Client is standards-based, which includes IMAP4 access to messages stored on the Avaya Message Storage Server (MSS). Modular Messaging Web Client can also be used to access messages stored on an IMAP4 compatible e-mail system. Avaya has conducted successful interoperability testing with Microsoft Exchange. Customers may integrate other IMAP4 e-mail systems with Modular Messaging Web client. Avaya however, makes no representations, warranties, or guarantees regarding specific capabilities with specific IMAP4 e-mail systems or successful integration or interoperability thereof. Avaya's product support is limited to IMAP4 as it is implement on Avaya Modular Messaging and Avaya Modular Messaging Web Client and does not include support for specific e-mail systems.

### Web Client requirements

Microsoft recommendations for the operating system and the Microsoft Outlook e-mail client apply.

Table 8 lists the supported software for installing Modular Messaging Web Client

**Table 8. Supported software for Modular Messaging Web Client**

Required software	Supported versions
<b>Microsoft Windows version</b>	Microsoft Windows 2000 Professional with SP4 Microsoft Windows XP Professional with SP1
<b>Internet browser</b>	Internet Explorer 5.5 or 6.0 Netscape 7.0 or 7.1

### Web Server requirements for Modular Messaging Web Client

Table 9 lists the minimum recommended hardware requirements for installing the Web Server.

**Table 9. Minimum hardware requirements for the Web Server**

Clock speed	RAM
2.00 GHz processor Intel Pentium IV	1 GB

The following are also required:

- A DVD-ROM drive to install the software
- LAN connectivity
- 40 GB of free disk space

Table 10 lists the supported software for installing the Web Server.

**Table 10. Supported software for the Web Server**

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Required software	Supported versions
Microsoft Windows version	Microsoft Windows 2000 Server with SP4 <sup>1</sup>
Internet browser	Internet Explorer 6.0 with SP1

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1. Internet Information Services (IIS) 5.0 is required and is included with Microsoft Windows 2000 Server.

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**Note:**

- If remote access is required, PC Anywhere must be installed.
  - Customer-provided virus protection is recommended for all Microsoft Windows servers.
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## Tracing Server requirements

### Avaya MSS

In a voice mail domain that has more than one messaging application server (MAS), Avaya recommends installing the Tracing Server software component on the MAS with the smallest number of ports, or on the MAS that handles the least number of calls.

In systems of large configurations, the Tracing Server may need to be installed on a separate system, other than an MAS. For more information, see Table 13 on page 17.

Table 11 lists the minimum recommended hardware requirements for installing the Tracing Server software component on a messaging application server (MAS).

**Table 11. Minimum hardware requirements for the Tracing Server on an MAS**

Clock speed	RAM
2 GHz processor Intel Pentium IV	512 MB

The following are also required:

- A DVD-ROM drive to install the software.
- 80 GB of free disk space
- LAN connectivity

Table 12 lists the supported software for installing the Tracing Server on an MAS.

**Table 12. Supported software for the Tracing Server**

Required software	Supported versions
Microsoft Windows version	Microsoft Windows 2000 Server with SP4
Internet browser	Microsoft Internet Explorer 5 or later

**Note:** Customer-provided virus protection is recommended for all Microsoft Windows servers.



## Tracing Server or Offline Call Answer store requirements

### Avaya MSS

For systems of large configurations, Avaya recommends that the Tracing Server be installed on a separate system. The separate system for hosting the Tracing Server can be either an Avaya-provided S3400 system that customers must purchase or a customer-provided machine that meets the specifications described in Table 22.

If the Tracing Server is installed on a separate system, Avaya recommends that the Offline Call Answer store and Modular Messaging Administration Clients also be located on that same system.

The additional system that is used to host the Tracing Server, or the Offline Call Answer store, or both, must not have any port cards or the messaging application service (MAS) service installed on it.

Table 13 lists the minimum recommended hardware requirements for installing either the Tracing Server, or the Offline Call Answer store, or both, on a separate machine.

**Table 13. Minimum hardware requirements for the Tracing Server and Offline Call Answer store**

Clock speed	RAM
2 GHz processor Intel Pentium IV	512 MB

The following are also required:

- A DVD-ROM drive.
- 80 GB of free disk space. The available disk space requirements may vary depending on the expected size of the Tracing Server database.
- LAN connectivity

Table 14 lists the supported software for installing the Tracing Server.

**Table 14. Supported software for the Tracing Server**

Required software	Supported versions
Microsoft Windows version	Microsoft Windows 2000 Server with SP4
Internet browser	Microsoft Internet Explorer 5 or later

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**Notes:**

- Available disk space requirements will vary depending on the expected size of the Tracing Server databases and the Offline Access Remote store.
  - The Tracing Server and Offline Call Answer store must be running on the same operating system as the MAS units in the VMD.
  - The Tracing Server and Offline Call Answer store must be in the same Windows domain as all MAS units.
  - The Tracing Server and Offline Call Answer store must be on the private LAN that connects the MAS units and the MSS.
  - Customer-provided virus protection is recommended for all Microsoft Windows servers.
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## Mailbox Manager Minimum Requirements for Single User Implementation

**Avaya MSS**

This section provides information on the minimum requirements for a single user implementation of the Mailbox Manager application.

**Hardware requirements**

The minimum hardware requirements for a single user implementation of the Mailbox Manager application are:

- At least a Pentium 233 MHz, a Pentium II class with 366 MHz or higher is recommended, Intel-based PC
- 64 MB RAM minimum, 128 MB or greater recommended
- Minimum SVGA resolution graphics (800 x 600)
- Monitor with 256 colors and 800 x 600 resolution
- 200 MB of disk space for the Mailbox Manager application
- Additional data storage of 4 MB per 1000 mailboxes
- CD-ROM drive
- External backup capability
- LAN access to the Avaya Message Storage Server. For access to other Avaya messaging systems: one or more modems, RS-232 communication connections, or TCP/IP (telnet) connections to send changes to systems being managed.

**Supported software**

The software supported for a single user implementation of the Mailbox Manager application are:

- Operating System
  - Microsoft Windows 2000
  - Microsoft Windows 2000 Professional
  - Microsoft Windows XP
  - Microsoft Windows XP Professional
  - Microsoft Windows Millennium Edition (ME)
  - Microsoft Windows 98
  - Microsoft Windows NT Workstation
- Microsoft Internet Explorer 5 or later

**Other**

For client/server implementations supporting multiple administrators, remote, or WAN access to the message store, request specifications from Unimax at (612) 341-0946 or sales@unimax.com.

**Administration Client requirements****Avaya MSS**

Administration Clients includes the Voice Mail Configurator, Voice Editor, Port Monitor, Reporting Tool, Operation History Viewer, and Caller Applications Editor.

Table 15 lists the software requirements for installing Modular Messaging Administration Clients. Minimum hardware requirements are as per the Microsoft recommendations for the operating system.

**Table 15. Supported software for Modular Messaging Administration Clients**

Required software	Supported versions
Microsoft Windows version	Microsoft Windows 2000 Server with SP4 or Microsoft Windows 2000 Advanced Server with SP4 or Microsoft Windows XP Professional
Internet browser	Microsoft Internet Explorer 5 or later

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**Note:** If customers purchase an additional S3400 system for the Tracing Server and Offline Call Answer store, Avaya recommends that Modular Messaging Administration Clients be run from this system, due to their intensive resource requirements. For more information, see Table 13 on page 17.

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**Browser requirements for the MSS administration interface****Avaya MSS**

The Web browser requirements for the Web-based administration interface of the MSS are:

- Netscape 4.7 or later
- Microsoft Internet Explorer 5 or later

**Compatibility with Avaya Integrated Management**

- Avaya Site Administration Release 2.0 or later

- Avaya Multi-Site Administration Release 2.1 or later
- Avaya Fault and Performance Manager Release 2.0 or later with use of either Secure Services Gateway (SSG) or Avaya Proxy Agent

## Minimum hardware requirements and supported software (Exchange and Domino)

### Microsoft Exchange

### IBM Lotus Domino

This section provides information on the minimum hardware requirements and supported software for Modular Messaging—Microsoft Exchange and Modular Messaging—IBM Lotus Domino.

## Messaging application server requirements

In Avaya Modular Messaging with Microsoft Exchange or IBM Lotus Domino as the message store, the customer can purchase software and S3400 servers from Avaya, or can choose to provide a machine that will serve as the MAS. In such cases, Avaya provides the Modular Messaging software that must be installed on such customer-provided MAS units.

A customer-provided machine must meet certain minimum hardware and software requirements for successful installation of the Modular Messaging software.

### Minimum hardware requirements

Table 16 lists the minimum recommended hardware requirements for installing the MAS software.

**Table 16. Minimum system requirements for the MAS**

Ports	Clock speed	RAM
Up to 12 ports	400 MHz single or dual processor Intel Pentium II	128 MB
13 to 24 ports	400 MHz single or dual processor Intel Pentium III	256 MB
25 to 48 ports	500 MHz single or dual processor Intel Pentium III	512 MB
49 to 69 ports	800 MHz dual processor Intel Pentium III	512 MB

Table 17 lists the recommended voice cards.

**Table 17. Recommended voice cards for customer-provided MAS units**

Protocol	Voice cards	Max. cards per MAS	Max. ports <sup>1</sup> per MAS
H.323-based IP integration	—	—	20
T1 QSIG	Dialogic D/240JCT-T1	3	69

**Table 17. Recommended voice cards for customer-provided MAS units**

Protocol	Voice cards	Max. cards per MAS	Max. ports <sup>1</sup> per MAS
<b>E1 QSIG</b>	Dialogic D/300JCT-E1-120	2	60
<b>Digital Set Emulation</b>	Dialogic D/82JCT-U (5v card) Dialogic D82JCTPCIUNIV (3.3v and 5v universal card)	4	32
<b>Analog</b>	12-port Dialogic D/120JCT	4	48
	4-port Dialogic D/41JCT-LS	4	16

1. The number of ports that an MAS can support is restricted by the number of PCI slots available and the number of cards supported.

The following are also required:

- A DVD-ROM drive to install the software.
- LAN connectivity of speed 100 Mbps

**Note:** With Modular Messaging—Exchange and Modular Messaging—Domino, an MAS must be located on the same LAN as the e-mail server.

- 30 GB of free disk space
- Dialogic drivers: V5.1.1 FP1

Modular Messaging supports only Dialogic analog cards for new installations. However, Modular Messaging also provides support to Brooktrout analog cards for customers that are upgrading from existing Unified Messenger systems using Brooktrout analog cards.

Table 18 lists the supported Brooktrout analog voice cards.

**Table 18. Supported Brooktrout analog voice cards**

Protocol	Ports <sup>1</sup>	Voice cards
<b>Analog</b>	—	<i>4-port Brooktrout cards</i>

**Table 18. Supported Brooktrout analog voice cards**

Protocol	Ports <sup>1</sup>	Voice cards
	4	Brooktrout VPS4 (US and Canada only)
	4	Brooktrout VPS4i (International)
	—	<i>8-port Brooktrout cards</i>
	8	Brooktrout PCI (US and Canada only)
	8	Brooktrout PCI International (EMEA region)
	8	Brooktrout PCI APAC (APAC region only)
	24	24-port Brooktrout VRS24/ATSI combo (US and Canada only)

1. The number of ports that an MAS can support is restricted by the number of PCI slots available and the number of cards supported.

**Notes:**

- Also required are Brooktrout drivers: V2.38
- New installations of Modular Messaging do not support Brooktrout cards. Brooktrout cards are no longer available for sale.

### Messaging application server software requirements

Table 19 lists the software requirements for installing the MAS.

**Table 19. Software requirements for MAS**

Required software	Supported versions
<b>Microsoft Windows version</b>	Microsoft Windows 2000 Server with service pack (SP) 4 Microsoft Windows 2000 Advanced Server with SP4
<b>Internet browser</b>	Microsoft Internet Explorer 5 or later

**Note:** Customer-provided virus protection is recommended for all Microsoft Windows servers.



**Microsoft Exchange**

For Modular Messaging—Microsoft Exchange versions, the following software must also be installed on the MAS:

- For Microsoft Exchange 2003  
Exchange 2003 System Management Tools
- For Microsoft Exchange 2000  
Exchange 2000 with SP3 System Management Tools
- For Microsoft Exchange 5.5<sup>1</sup>  
Exchange 5.5 with SP4 Administration Tools

**IBM Lotus Domino**

For Modular Messaging—IBM Lotus Domino versions, IBM Lotus Notes Client 6.0.1 Critical Fixpack 3 (CF3) must also be installed on the MAS.

This applies to IBM Lotus Domino 6.5, IBM Lotus Domino 6.0, and IBM Lotus Domino 5.0.10 environments.

## Tracing Server requirements

**Microsoft Exchange**

Table 20 lists the minimum recommended hardware requirements for installing the Tracing Server.

**IBM Lotus Domino**

**Table 20. Minimum hardware requirements for the Tracing Server**

Clock speed	RAM
400 MHz single or dual processor Intel Pentium II	128 MB

The following are also required:

- A DVD-ROM drive to install the software.
- 1 GB of free disk space. The available disk space requirements may vary depending on the expected size of the Tracing Server database.
- LAN connectivity

**Note:**

- The Tracing Server must be on the same LAN segment as all MAS units.

1. New installations of Modular Messaging do not support Microsoft Exchange 5.5 server.

- The Tracing Server must be in the same Windows domain as all MAS units.
- 

Table 21 lists the supported software for installing the Tracing Server.

**Table 21. Supported software for the Tracing Server**

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Required software	Supported versions
Microsoft Windows version	Microsoft Windows 2000 Server with SP4 or Microsoft Windows 2000 Advanced Server with SP4
Internet browser	Microsoft Internet Explorer 5 or later

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**Note:**

- Customer-provided virus protection is recommended for all Microsoft Windows servers.
  - For systems of large configurations, the Tracing Server must be installed on a separate system. For more information, see [Tracing Server or Offline Call Answer store requirements](#) on page 27.
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## Tracing Server or Offline Call Answer store requirements

### Microsoft Exchange

### IBM Lotus Domino

For systems of large configurations, Avaya recommends that the Tracing Server be installed on a separate system. The separate system for hosting the Tracing Server can be either an Avaya-provided S3400 system that customers must purchase or a customer-provided machine that meets the specifications described in Table 22.

If the Tracing Server is installed on a separate system, Avaya recommends that the Offline Call Answer store be also located on that same system.

The additional system that is used to host the Tracing Server, or the Offline Call Answer store, or both, must not have any port cards or the messaging application service (MAS) service installed on it.

Table 22 lists the minimum recommended hardware requirements for installing either the Tracing Server, or the Offline Call Answer store, or both, on a separate machine.

**Table 22. Minimum hardware requirements for the Tracing Server and Offline Call Answer store**

Clock speed	RAM
400 MHz single or dual processor Intel Pentium II	128 MB

The following are also required:

- A DVD-ROM drive to install the software.
- 30 GB of free disk space. The available disk space requirements may vary depending on the expected size of the Tracing Server database.
- LAN connectivity

Table 23 lists the supported software for installing the Tracing Server.

**Table 23. Supported software for the Tracing Server**

Required software	Supported versions
Microsoft Windows version	Microsoft Windows 2000 Server with SP4 or Microsoft Windows 2000 Advanced Server with SP4
Internet browser	Microsoft Internet Explorer 5 or later

**Notes:**

- Available disk space requirements will vary depending on the expected size of the Tracing Server databases and the Offline Access Remote store.
  - The Tracing Server and Offline Call Answer store must be running on the same operating system as the MAS units in the VMD.
  - The Tracing Server and Offline Call Answer store must be in the same Windows domain as all MAS units.
  - The Tracing Server and Offline Call Answer store must be on the same LAN segment as all MAS units.
  - Customer-provided virus protection is recommended for all Microsoft Windows servers.
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## Administration Client requirements

**Microsoft Exchange**

Administration Clients includes administration tools and diagnostic tools.

**IBM Lotus Domino**

Table 24 lists the minimum recommended hardware requirements for installing the following Modular Messaging Administration Clients:

- Voice Mail Configurator
- Voice Editor
- Port Monitor
- Reporting Tool
- Operation History Viewer

**Table 24. Minimum hardware requirements for Modular Messaging Administration Clients**

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<b>Clock Speed</b>	<b>RAM</b>
200 MHz single or dual processor Intel Pentium	128 MB

The following are also required:

- A DVD-ROM drive to install the software.
- 1 GB of free disk space
- LAN connectivity
- RAM as per Microsoft recommendations for the operating system

Table 25 lists the supported software for installing the Modular Messaging Administration Tools.

**Table 25. Supported software for Modular Messaging Administration Clients**

Required software	Supported versions
<b>Microsoft Windows version</b>	Microsoft Windows 2000 Server with SP4 or Microsoft Windows 2000 Advanced Server with SP4 or Microsoft Windows XP Professional
<b>Internet browser</b>	Microsoft Internet Explorer 5 or later

## Caller Applications Editor requirements

Hardware requirements are as per the Microsoft recommendations for the operating system.

Table 26 lists the supported software for installing the Modular Messaging Caller Applications Editor

**Table 26. Supported software for Modular Messaging Caller Applications Editor**

Required software	Supported versions
<b>Microsoft Windows version</b>	Microsoft Windows 2000 Server with SP4 or Microsoft Windows 2000 Advanced Server with SP4 or Microsoft Windows 2000 Professional with SP4 or Microsoft Windows XP Professional
<b>Internet browser</b>	Microsoft Internet Explorer 5 or later

## Client Add-in for Microsoft Outlook requirements

This section provides information on the software requirements for installing the Client Add-in for Microsoft Outlook with Modular Messaging—Microsoft Exchange versions.

Minimum hardware requirements are:

- Processor speed: As per standard Microsoft recommendations
- 128 MB of RAM
- 50 MB of free disk space (minimum)

### Microsoft Exchange

Table 27 lists the supported software for installing the Client Add-in for Microsoft Outlook with Modular Messaging—Microsoft Exchange.

**Table 27. Supported software for Client Add-in for Microsoft Outlook with Modular Messaging—Microsoft Exchange**

Required software	Supported versions
<b>Microsoft Windows version</b>	Microsoft Windows Millennium Edition Microsoft Windows 2000 Professional with SP4 Microsoft Windows XP Professional
<b>Microsoft Exchange Client</b>	Microsoft Outlook 2000 Microsoft Outlook 2002 with SP2 Microsoft Outlook 2003 (on Windows XP Professional)
<b>Internet browser</b>	Microsoft Internet Explorer 5 or later

#### Notes:

- With Microsoft Windows Millennium Edition and Microsoft Windows XP, clients must log on to a Windows domain to which the Modular Messaging system belongs.
- When running the Client Add-in for Microsoft Outlook with Microsoft Outlook 2002, the client must be Microsoft Office 2002 SP2. Alternatively, Microsoft Outlook Hotfix Q317106 must be installed on the client machine.

## Subscriber Options requirements

With Modular Messaging—MSS and Modular Messaging—Microsoft Exchange, if the subscriber PC has Microsoft Outlook, the Subscriber Options application is installed as part of the Client Add-in for Microsoft Outlook installation.

For information on the Client Add-in for Microsoft Outlook requirements, see [Client Add-in for Microsoft Outlook requirements](#) on page 30.

## For Modular Messaging—IBM Lotus Domino

### IBM Lotus Domino

With Modular Messaging—IBM Lotus Domino, the installation of DUC automatically installs Subscriber Options.

Minimum hardware requirements are as per the IBM Lotus recommendations for the operating system.

Table 28 lists the supported software for installing IBM Lotus Domino Subscriber Options

**Table 28. Supported software for IBM Lotus Domino Subscriber Options**

Required software	Supported versions
Microsoft Windows version	Microsoft Windows 2000 Professional with SP4 Microsoft Windows XP Professional

**Note:** Domino Unified Communications (DUC) 1.2.2 must be installed for Avaya Modular Messaging—IBM Lotus Domino version. DUC is supplied by IBM and is implemented according to IBM specifications. For information about DUC, see *Administrator's Guide, Domino Unified Communications for Avaya*, which is available from IBM Lotus.

## For subscribers that do not use the Microsoft Outlook e-mail client

Modular Messaging subscribers that do not use Microsoft Outlook as an e-mail client can install Subscriber Options as a standalone component.

Table 29 lists the supported software for installing Subscriber Options

**Table 29. Supported software for Subscriber Options**

Required software	Supported versions
Microsoft Windows version	Microsoft Windows Millennium Edition Microsoft Windows 2000 Professional with SP4 Microsoft Windows XP Professional

For Modular Messaging—Microsoft Exchange, minimum hardware requirements are as per the Microsoft recommendations for the operating system.

## Subscriber Administration Extension requirements

### Microsoft Exchange

For hardware requirements for Microsoft Exchange Subscriber Administration Extension to Exchange System Management Tools, use Microsoft recommendations for the Exchange Administrator program.

The following are also required:

- For Microsoft Exchange 2003, 50 MB of free disk space
- For Microsoft Exchange 2000, 50 MB of free disk space
- For Microsoft Exchange 5.5, 10 MB of free disk space

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**Note:** New installations of Modular Messaging do not support Microsoft Exchange 5.5 server.

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Table 30 lists the supported software for installing the Microsoft Exchange Subscriber Administration Extension to Exchange System Management Tools.

**Table 30. Supported software for Microsoft Exchange Subscriber Administration Extension to Exchange System Management Tools**

Required software	Supported versions
<b>Modular Messaging for Microsoft Exchange 2003</b>	
<b>Microsoft Windows version</b>	Microsoft Windows 2003 Standard Server or Microsoft Windows 2003 Enterprise Server
<b>Microsoft Exchange system management tools</b>	Exchange 2003 System Management Tools
<b>Internet browser</b>	Microsoft Internet Explorer 5 or later
<b>Modular Messaging for Microsoft Exchange 2000</b>	
<b>Microsoft Windows version</b>	Microsoft Windows 2000 Server with SP4 or Microsoft Windows 2000 Advanced Server with SP4
<b>Microsoft Exchange system management tools</b>	Exchange 2000 with SP3 System Management Tools
<b>Modular Messaging for Microsoft Exchange 5.5</b>	
<b>Microsoft Windows version</b>	Microsoft Windows NT 4.0 with SP6a - Intel
<b>Microsoft Exchange system management tools</b>	Exchange 5.5 Server with SP4 Administration Tools



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**Note:** Modular Messaging extensions to Microsoft Exchange Administrator work only when Microsoft Exchange Administrator is installed on Intel-based machines.

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## Peer Exchange Server requirements

### Microsoft Exchange

For hardware requirements, use Microsoft recommendations for Microsoft Exchange Server.

Table 31 lists the supported software for a Microsoft Exchange Peer Exchange Server.

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**Note:** New installations of Modular Messaging do not support Microsoft Exchange 5.5 server.

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**Table 31. Supported software for Microsoft Exchange Peer Exchange Server**

Required software	Supported versions
<b>Modular Messaging for Microsoft Exchange 2003</b>	
<b>Microsoft Windows version</b>	Microsoft Windows 2003 Standard Server or Microsoft Windows 2003 Enterprise Server
<b>Microsoft Exchange Server</b>	Exchange 2003 Server
<b>Modular Messaging for Microsoft Exchange 2000</b>	
<b>Microsoft Windows version</b>	Microsoft Windows 2000 Server SP4 or Microsoft Windows 2000 Advanced Server SP4
<b>Microsoft Exchange Server</b>	Exchange 2000 Server SP3 Exchange 2000 Enterprise Server SP3
<b>Modular Messaging for Microsoft Exchange 5.5</b>	
<b>Microsoft Windows version</b>	Microsoft Windows NT 4.0 SP6a - Intel
<b>Microsoft Exchange Server</b>	Exchange 5.5 Server SP4

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**Note:** Customers must keep their systems within performance operating ranges prescribed by Microsoft. In order to support the extra load for voice messaging, Avaya requires that the CPU utilization be no more than 50%.

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## Peer Domino Server requirements

### IBM Lotus Domino

For minimum hardware requirements, use IBM Lotus recommendations for Domino Server.

Table 32 lists the supported software for a IBM Lotus Domino Peer Domino Server.

**Table 32. Supported software for IBM Lotus Domino Peer Domino Server**

Required software	Supported versions
<b>Modular Messaging for Domino 6.5</b>	
<b>Microsoft Windows version</b>	Microsoft Windows 2000 Server with SP4 or Microsoft Windows 2000 Advanced Server with SP4
<b>IBM Lotus Domino Server</b>	IBM Lotus Domino Server 6.5
<b>Modular Messaging for Domino 6.0</b>	
<b>Microsoft Windows version</b>	Microsoft Windows 2000 Server with SP4 or Microsoft Windows 2000 Advanced Server with SP4
<b>IBM Lotus Domino Server</b>	IBM Lotus Domino Server 6.0
<b>Modular Messaging for Domino 5.0.10</b>	
<b>Microsoft Windows version</b>	Microsoft Windows NT 4.0 with SP6a - Intel or Microsoft Windows 2000 Server with SP4 or Microsoft Windows 2000 Advanced Server with SP4
<b>IBM Lotus Domino Server</b>	IBM Lotus Domino Server 5.0.10

### Notes:

- Domino Unified Communications (DUC) 1.2.2 must be installed for Avaya Modular Messaging—IBM Lotus Domino version. DUC is supplied by IBM and is implemented according to IBM specifications. For information about DUC, see *Administrator's Guide, Domino Unified Communications for Avaya*, which is available from IBM Lotus.
- Customers must keep their systems within performance operating ranges prescribed by IBM Lotus. In order to support the extra

load for voice messaging, Avaya requires that the CPU utilization be no more than 50%.

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## Other considerations

Other hardware and software considerations include:

- Virus protection software
- Domino Unified Communications (DUC) software from IBM is required for Modular Messaging—IBM Lotus Domino systems. DUC is supplied by IBM and is implemented according to IBM specifications.
- Extended Battery Modules and Bypass Distribution Module for backup power management. Avaya requires that customers use a UPS regardless of the Modular Messaging version. Customers can purchase the UPS from Avaya or they can purchase it elsewhere.
- Server administration: monitors, keyboards, KVM switch, modem, rack
- Switch hardware and software to support required provisioning. For the latest switch integration information, see the configuration notes available at <http://support.avaya.com>.
- Modular Messaging—Microsoft Exchange and Modular Messaging—IBM Lotus Domino interoperate with a customer-provided fax server.
- Client and server hardware and software required to implement the multi-administrator implementation of the Mailbox Manager application.
- Unified Communication Center Speech Access hardware and software requirements. For more information, visit <http://support.avaya.com>.
- Networking by means of a Message Networking server.
- Successful planning and implementation of a Modular Messaging system requires cross-functional participation from a variety of disciplines from within the customer organization. The following disciplines may be represented by single or multiple individuals or organizations:
  - telephony management

- voice mail management
  - e-mail management
  - desktop computing
  - server management
  - help desk
  - IP network management
  - SMTP gateway
  - data network security
  - user community
- In preparation for implementation, customers need to have some very specific information available related to their system implementation and data network. The necessary items are identified in System Planning forms for Avaya Modular Messaging , as provided in Appendix A of the installation guides, or available as a downloadable file from <http://support.avaya.com>.
  - Avaya requires remote access to all servers to provide support for the Modular Messaging system. Avaya S3400 servers include a USB modem for this purpose. For configurations with the Avaya Message Storage Server (MSS), note that the Remote Monitoring Board (RMB) for US and Canada includes an on-board modem. For the Avaya MSS in international markets, an external modem needs to be connected to the RMB.

For more information on remote access to the Modular Messaging system, see *Modular Messaging Release 2 Installation*, 11-300122 .