



Modular Messaging

S3400-Family Hardware Maintenance and Additions

Issue 1
April 2006

© 2006 Avaya Inc.
All Rights Reserved.

Notice

While reasonable efforts were made to ensure that the information in this document was complete and accurate at the time of printing, Avaya Inc. can assume no liability for any errors. Changes and corrections to the information in this document might be incorporated in future releases.

Documentation disclaimer

Avaya Inc. is not responsible for any modifications, additions, or deletions to the original published version of this documentation unless such modifications, additions, or deletions were performed by Avaya. Customer and/or End User agree to indemnify and hold harmless Avaya, Avaya's agents, servants and employees against all claims, lawsuits, demands and judgments arising out of, or in connection with, subsequent modifications, additions or deletions to this documentation to the extent made by the Customer or End User.

Link disclaimer

Avaya Inc. is not responsible for the contents or reliability of any linked Web sites referenced elsewhere within this documentation, and Avaya does not necessarily endorse the products, services, or information described or offered within them. We cannot guarantee that these links work all the time and we have no control over the availability of the linked pages.

Warranty

Avaya Inc. provides a limited warranty on this product. Refer to your sales agreement to establish the terms of the limited warranty. In addition, Avaya's standard warranty language, as well as information regarding support for this product, while under warranty, is available through the Avaya Support Web site:

<http://www.avaya.com/support>

License

USE OR INSTALLATION OF THE PRODUCT INDICATES THE END USER'S ACCEPTANCE OF THE TERMS SET FORTH HEREIN AND THE GENERAL LICENSE TERMS AVAILABLE ON THE AVAYA WEB SITE <http://support.avaya.com/LicenseInfo/> ("GENERAL LICENSE TERMS"). IF YOU DO NOT WISH TO BE BOUND BY THESE TERMS, YOU MUST RETURN THE PRODUCT(S) TO THE POINT OF PURCHASE WITHIN TEN (10) DAYS OF DELIVERY FOR A REFUND OR CREDIT.

Avaya grants End User a license within the scope of the license types described below. The applicable number of licenses and units of capacity for which the license is granted will be one (1), unless a different number of licenses or units of capacity is specified in the Documentation or other materials available to End User. "Designated Processor" means a single stand-alone computing device. "Server" means a Designated Processor that hosts a software application to be accessed by multiple users. "Software" means the computer programs in object code, originally licensed by Avaya and ultimately utilized by End User, whether as stand-alone Products or pre-installed on Hardware. "Hardware" means the standard hardware Products, originally sold by Avaya and ultimately utilized by End User.

License Type(s)

Designated System(s) License (DS). End User may install and use each copy of the Software on only one Designated Processor, unless a different number of Designated Processors is indicated in the Documentation or other materials available to End User. Avaya may require the Designated Processor(s) to be identified by type, serial number, feature key, location or other specific designation, or to be provided by End User to Avaya through electronic means established by Avaya specifically for this purpose.

Concurrent User License (CU). End User may install and use the Software on multiple Designated Processors or one or more Servers, so long as only the licensed number of Units are accessing and using the Software at any given time. A "Unit" means the unit on which Avaya, at its sole discretion, bases the pricing of its licenses and can be, without limitation, an agent, port or user, an e-mail or voice mail account in the name of a person or corporate function (e.g., webmaster or helpdesk), or a directory entry in the administrative database utilized by the Product that permits one user to interface with the Software. Units may be linked to a specific, identified Server.

Named User License (NU). Customer may: (i) install and use the Software on a single Designated Processor or Server per authorized Named User (defined below); or (ii) install and use the Software on a Server so long as only authorized Named Users access and use the Software. "Named User," means a user or device that has been expressly authorized by Avaya to access and use the Software. At Avaya's sole discretion, a "Named User" may be, without limitation, designated by name, corporate function (e.g., webmaster or helpdesk), an e-mail or voice mail account in the name of a person or corporate function, or a directory entry in the administrative database utilized by the Product that permits one user to interface with the Product.

Shrinkwrap License (SR). With respect to Software that contains elements provided by third party suppliers, End user may install and use the Software in accordance with the terms and conditions of the "shrinkwrap" or "clickwrap" license accompanying the Software ("Shrinkwrap License"). The text of the

Shrinkwrap License will be available from Avaya upon End User's request (see "Copyright" below for more information).

Copyright

Except where expressly stated otherwise, the Product is protected by copyright and other laws respecting proprietary rights. Unauthorized reproduction, transfer, and/or use can be a criminal, as well as a civil, offense under the applicable law.

Third-party Components

Certain software programs or portions thereof included in the Product may contain software distributed under third party agreements ("Third Party Components"), which may contain terms that expand or limit rights to use certain portions of the Product ("Third Party Terms"). Information identifying Third Party Components and the Third Party Terms that apply to them is available on the Avaya Support Web site:

<http://support.avaya.com/ThirdPartyLicense/>

Preventing Toll Fraud

"Toll fraud" is the unauthorized use of your telecommunications system by an unauthorized party (for example, a person who is not a corporate employee, agent, subcontractor, or is not working on your company's behalf). Be aware that there might be a risk of toll fraud associated with your system and that, if toll fraud occurs, it can result in substantial additional charges for your telecommunications services.

Avaya Fraud Intervention

If you suspect that you are being victimized by toll fraud and you need technical assistance or support, call Technical Service Center Toll Fraud Intervention Hotline at +1-800-643-2353 for the United States and Canada. For additional support telephone numbers, see the Avaya Support Web site:

<http://www.avaya.com/support>

Providing Telecommunications Security

Telecommunications security (of voice, data, and/or video communications) is the prevention of any type of intrusion to (that is, either unauthorized or malicious access to or use of) your company's telecommunications equipment by some party.

Your company's "telecommunications equipment" includes both this Avaya product and any other voice/data/video equipment that can be accessed by this Avaya product (that is, "networked equipment").

An "outside party" is anyone who is not a corporate employee, agent, subcontractor, or is not working on your company's behalf. Whereas, a "malicious party" is anyone (including someone who might be otherwise authorized) who accesses your telecommunications equipment with either malicious or mischievous intent.

Such intrusions might be either to/through synchronous (time-multiplexed and/or circuit-based), or asynchronous (character-, message-, or packet-based) equipment, or interfaces for reasons of:

- Utilization (of capabilities special to the accessed equipment)
- Theft (such as, of intellectual property, financial assets, or toll facility access)
- Eavesdropping (privacy invasions to humans)
- Mischief (troubling, but apparently innocuous, tampering)
- Harm (such as harmful tampering, data loss or alteration, regardless of motive or intent)

Be aware that there might be a risk of unauthorized intrusions associated with your system and/or its networked equipment. Also realize that, if such an intrusion should occur, it might result in a variety of losses to your company (including but not limited to, human/data privacy, intellectual property, material assets, financial resources, labor costs, and/or legal costs).

Responsibility for Your Company's Telecommunications Security

The final responsibility for securing both this system and its networked equipment rests with you — Avaya's customer system administrator, your telecommunications peers, and your managers. Base the fulfillment of your responsibility on acquired knowledge and resources from a variety of sources including but not limited to:

- Installation documents
- System administration documents
- Security documents
- Hardware-/software-based security tools
- Shared information between you and your peers
- Telecommunications security experts

To prevent intrusions to your telecommunications equipment, you and your peers should carefully program and configure:

- Your Avaya-provided telecommunications systems and their interfaces
- Your Avaya-provided software applications, as well as their underlying hardware/software platforms and interfaces
- Any other equipment networked to your Avaya products

TCP/IP Facilities

Customers might experience differences in product performance, reliability and security depending upon network configurations/design and topologies, even when the product performs as warranted.

Standards Compliance

Avaya Inc. is not responsible for any radio or television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by Avaya Inc. The correction of interference caused by such unauthorized modifications, substitution or attachment is the responsibility of the user. Pursuant to Part 15 of the Federal Communications Commission (FCC) Rules, the user is cautioned that changes or modifications not expressly approved by Avaya Inc. might void the user's authority to operate this equipment.

Federal Communications Commission Statement

Part 15:

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canadian Department of Communications (DOC) Interference Information

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

European Union Declarations of Conformity



Avaya Inc. declares that the equipment specified in this document bearing the "CE" (*Conformité Européenne*) mark conforms to the European Union Radio and Telecommunications Terminal Equipment Directive (1999/5/EC), including the Electromagnetic Compatibility Directive (89/336/EEC) and Low Voltage Directive (73/23/EEC).

Copies of these Declarations of Conformity (DoCs) can be obtained by contacting your local sales representative and are available on the Avaya Support Web site:

<http://www.avaya.com/support>

Trademarks

Aria, AUDIX, Avaya, DEFINITY, INTUITY, and Serenade are registered trademarks of Avaya Inc.

COMPAS and Mailbox Manager are trademarks of Avaya Inc.

All non-Avaya trademarks are the property of their respective owners.

Document ordering information:

Avaya Publications Center

For the most current versions of documentation, go to the Avaya Support Web site:

<http://www.avaya.com/support>

COMPAS

This document is also available from the COMPAS database. The COMPAS ID for this document is 116611.

Avaya support

Avaya provides a telephone number for you to use to report problems or to ask questions about your product. The support telephone number is 1-800-876-2835 in the United States. For additional support telephone numbers, see the Avaya Support Web site:

<http://www.avaya.com/support>

Contents

About this book	ix
Intended audience	ix
How to use this book	ix
Using links in this document	x
Trademarks.	x
Related resources	x
Documentation.	xi
Technical assistance	xi
Remote support center	xi
Help on the system	xi
Training.	xi
How to comment on this book	xii
Chapter 1: Before you start	1
Supported configurations.	1
Ordering components	2
Saving the packing materials	2
Safety and security	3
General safety rules	3
On-site security	4
Test equipment and tools	4
Test equipment	4
Tools	5
Site requirements for Avaya message servers	5
Environmental requirements	5
Weight and space considerations	6
Customer-provided cabinet requirements	7
Installation area requirements	7
Power requirements	8
Grounding requirements	9
Demarcation points	9
Demarcation point for switches (PBXs)	9
Demarcation point for LAN connectivity	10
Chapter 2: Hardware overview	11
Identifying Avaya S3400-family message servers.	11
Variations in S3400-family servers	11
Identifying Modular Messaging servers	12
Identifying Avaya MAS-like servers	12
Identifying and installing additional servers.	13

Contents

Using customer-provided equipment (CPE) servers	13
Using S3500-family servers with S3400-family servers	13
Identifying S3400-family server components	14
Identifying key components of the MAS	14
Supported MAS port boards	18
Identifying key components of the MSS	19
Key components of the MSS-S	20
Key components of the MSS-H	23
Hardware summary	26
Required and optional hardware—MSS configuration	26
Required and optional hardware—other configurations	28
Strategy for server replacement and additions	29
Chapter 3: Turning the servers off and on	31
Turning off or on an S3400-family MAS	31
Turning off an S3400-family MAS	31
Turning on an S3400-family MAS	32
Turning off and on an S3400-family MSS	33
Turning off an S3400-family MSS	33
Turning on an S3400-family MSS	34
Turning on an S3400-family server system	35
Chapter 4: Installing Avaya servers in an MSS configuration	37
Sample MSS configuration system	37
Installing the UPS and optional EBMs	39
Installing the UPS and any EBMs into a rack	39
Installing the UPS and any EBMs as a stackable configuration	40
Connecting any EBMs to the UPS	41
Installing an S3400-family server	43
Attaching the front bezel	43
Installing S3400-family servers in a rack-mount or stackable setup	44
Connecting the system power cables	48
Connecting the MAS port boards, if present.	50
Connecting the Ethernet cables	51
Connecting the S3400-family servers to the private LAN	51
Connecting additional servers to the private LAN.	53
Connecting the S3400-family servers to the corporate LAN	54
Installing a KVM switch	55
Installing the KVM switch in a rack-mount configuration.	55
Connecting the KVM cables.	56

Attaching ferrites	61
Connecting the USB modem on the MAS	62
Connecting the MSS RMB.	65
Chapter 5: Installing Avaya servers in a non-MSS configuration	69
Sample all-MAS configuration system	69
Installing the UPS and optional EBMs	71
Installing the UPS and any EBMs into a rack	71
Installing the UPS and any EBMs as a stackable configuration	73
Connecting any EBMs to the UPS	74
Installing the S3400-family servers.	75
Attaching the front bezel	75
Installing S3400-family servers in a rack-mount or stackable setup	76
Connecting the system power cables	80
Connecting the MAS port boards, if present.	81
Connecting the Ethernet cable	82
Installing a KVM switch	83
Installing the KVM switch in a rack-mount configuration.	83
Connecting the KVM cables.	84
Attaching ferrites	87
Connecting the USB modem on the MAS	88
Chapter 6: Adding an MAS to a system in service	91
Adding a new server to a system in service	91
Installing the new MAS or supplementary server	91
Preparing the message store for the new server	94
Adding a new trusted server on the MSS	94
Preparing a Domino system to support a new server.	95
Preparing a Microsoft Exchange system to support a new server.	95
Configuring the new server	95
Release 3 systems	95
Release 1.1 or Release 2 systems	96
Balancing Modular Messaging services across servers	97
Recommended distribution of Modular Messaging services.	97
Chapter 7: Upgrading S3400-family servers	99
Upgrading to an S3400-family MSS-H	99
Backing up the current MSS	99
Replacing the MSS hardware	100
Restoring data on the MSS	101

Contents

Chapter 8: Working inside the server 103

Working inside the server. 103

 Preparing for server shutdown 103

 Getting inside the chassis 104

 Replacing internal components 105

Safety information 106

 Safety inspection checklist 106

 Electrical safety rules 107

 Lithium battery 108

Protecting against ESD damage 109

Index 111

About this book

This book, *Avaya Modular Messaging S3400-Family Hardware Maintenance and Additions*, Issue 1, contains instructions for maintaining an Avaya Modular Messaging system that uses S3400-family hardware. This document supports both Avaya MSS and Microsoft Exchange configurations. Information includes instructions for:

- Installing new components for systems that use S3400-family server hardware
- Adding or replacing S3400-family servers and peripheral equipment



CAUTION:

This document does not describe how to replace any internal components in an S3400-family server. For information about internal component repair, see "[Replacing S3400-family server components](#)" in the **Maintenance** section on the *Avaya Modular Messaging Documentation* media. Repair procedures include:

- Adding or replacing circuit cards and port boards in S3400-family servers
- Repairing or replacing other internal components in S3400-family servers

For information about maintenance and repair procedures for S3500-family servers, see *Avaya Modular Messaging S3500-Family Hardware Maintenance and Additions* ([PDF](#)).

Intended audience

This book is intended for on-site technical support staff. The content is targeted towards those responsible for installing or repairing the hardware in an Avaya Modular Messaging system.

Avaya assumes that the users of this book have completed a relevant hardware installation training course. For more information about training, see [Related resources](#) on page x.

How to use this book

This document describes how to install or repair S3400-family server components in an Avaya Modular Messaging system. To use this guide:

1. Locate the component you must add or replace using the table of contents or index.
2. Do the installation or repair operation as documented.
3. Verify that the new component is operating correctly.

4. Return the system to service.

Some procedures in this maintenance guide refer to *Avaya Modular Messaging Installation and Upgrades* ([PDF](#)). Keep a copy of the installation guide handy for system configuration and verification procedures.

Note:

Sometimes the hardware information in a supplemental document, such as the Dialogic port board brochure, might conflict with this Avaya maintenance document. If a conflict occurs, follow the steps provided in the Avaya documentation for Avaya-provided hardware.

Using links in this document

For your convenience, this guide provides direct linking to other files or pages if you view the document in PDF form. Links are shown in blue text and operate as follows:

- Internal links within this document always work when you are using the PDF version of this guide. Internal links include those to tables, figures, or other sections of the book.
- You might view the PDF version of this guide on the documentation media or on a Web site that contains the complete document set. In this setup, you can click any blue link to an external file, such as another [PDF file or an HTML file](#). The system then displays the linked page or document.
- You might use the PDF version of this guide on a system that is connected to the Internet. If you do, you can click the blue link for any Web site address, such as <http://www.avaya.com>, to go directly to the linked page.

Trademarks

Avaya and the Avaya Logo are trademarks of Avaya Inc. and might be registered in certain jurisdictions. Unless otherwise specified, all trademarks identified by ® and ™ are registered trademarks or trademarks, respectively, of Avaya Inc. Microsoft is a registered trademark of Microsoft Corporation. All other trademarks are the properties of their respective owners.

Related resources

This section describes additional documentation and training available to you.

Documentation

For information about items in the documentation set for this product, go to the Avaya Support Web site at <http://www.avaya.com/support>. Always use the appropriate CD or book to obtain specific information about planning, installing, administering, or maintaining an Avaya system.

Technical assistance

The following technical assistance is available if needed.

Remote support center

Your project manager or systems consultant is responsible for providing you with the telephone number of the appropriate remote support center.

The following numbers are available for technical assistance with Avaya products and services:

- Within the United States and Canada: call 1-800-876-2835, choose prompt **2**, and then choose **2** again.
- Within any other country: call your local distributor.

Help on the system

Online help is available as follows:

- **MAS**: Use the Help menu, press **F1**, or click the **Help** button (if available) for the application or wizard you are in.
- **MSS**: On the Web-interface pages, click the **Help** button. On the administrative command-line interface, press **F6** (Choices) from the field for which you want help.

Training

For information about product training, go to the Avaya Web site at <http://www.avaya.com> and click **Training**.

How to comment on this book

Avaya is interested in your suggestions for improving this information. Use one of the following methods to communicate with us:

Method	Contact
E-mail	infodev@avaya.com
Voice mail or fax	303-538-9625

Be sure to include the name, issue number, and date of this book:

Avaya Modular Messaging S3400-Family Hardware Maintenance and Additions, Issue 1.

Chapter 1: Before you start

This chapter describes requirements and prerequisites that apply to Avaya Modular Messaging systems that use S3400-family server hardware. Review the topics in this chapter before you start repair or installation procedures.

Topics in this chapter include:

- [Supported configurations](#) on page 1
- [Safety and security](#) on page 3
- [Test equipment and tools](#) on page 4
- [Site requirements for Avaya message servers](#) on page 5

Note:

Some procedures in this maintenance guide refer to *Avaya Modular Messaging Installation and Upgrades* ([PDF](#)). Keep a copy of the installation guide handy for system configuration and verification procedures.

Supported configurations

This hardware maintenance document describes procedures for:

- Avaya Messaging Application Server (MAS) units and optional Avaya-provided supplementary servers for the following configurations:
 - Avaya Message Storage Server (MSS)—all software releases
 - IBM Lotus Domino—Release 1.1 only
 - Microsoft Exchange—Release 1.1 or Release 3
- All Avaya-provided components in a Message Storage Server (MSS) configuration.



CAUTION:

Avaya S3400-family message server hardware can run any release of Avaya Modular Messaging software, from Release 1 to Release 3. If you require more information about a procedure, ensure that you use the correct documents for the software release that the S3400-family server is running.

Ordering components

To obtain components that can be purchased separately for this system, contact your Avaya account representative.

To obtain replacement parts:

- Avaya personnel: go to <http://messaging.dr.avaya.com/hwce/Factintf/>
- Business Partners: go to the Avaya Enterprise Portal at <https://enterpriseportal.avaya.com>. Select **Training & Certification > BP Product Authorization for CALA, Canada and US > Spare Parts Recommendations > UCS Critical Spare Parts**.

Saving the packing materials

Save the shipping cartons and all packing materials in case any hardware must be returned to the manufacturer. If you ordered more than one Avaya MAS, saving one carton and one set of packing materials is sufficient.

Packing materials include:

- Antistatic bags
- Cardboard and foam inlays

Note:

The packing materials might include a plastic bag designed to protect the system from moisture during shipment. Discard this bag. It is not reusable.

Also save the shipping cartons for all peripheral devices. Devices include:

- Ethernet switch, if present
- Monitor, keyboard, and mouse
- All required modems
- Uninterruptible power system (UPS)
- Optional extended battery modules (EBMs), if present

Safety and security

Avaya intends that only trained technical staff service Avaya equipment.

General safety rules

Follow these rules to ensure general safety:

- Observe good housekeeping in the area of the system units during and after maintenance.
 - Place removed covers and other parts in a safe place, away from all personnel, while you are servicing the system unit.
 - Keep your tool case away from walk areas so that other people do not trip over it.
- When lifting any heavy object:
 1. Verify that you can stand safely without slipping.
 2. Distribute the weight of the object equally between your feet.
 3. Use a slow lifting force. Never move suddenly or twist when you attempt to lift.
 4. Lift by standing or by pushing up with your leg muscles. This action removes the strain from the muscles in your back. Do not attempt to lift any objects that weigh more than 16 kg (35 lb) or objects that you think are too heavy for you.
- Do not perform any action that causes hazards to the customer, or that makes the equipment unsafe.
- Before you start the system unit, ensure that other technical support staff and customer personnel are not in a hazardous position.
- Do not wear loose clothing that can be trapped in the moving parts of a system unit. Ensure that your sleeves are fastened or rolled up above your elbows. If your hair is long, fasten it.
- Insert the ends of your necktie or scarf inside clothing or fasten it with a nonconductive clip, approximately 8 centimeters (3 inches) from the end.
- Do not wear jewelry, chains, metal-frame eyeglasses, or metal fasteners for your clothing. Metal objects are good electrical conductors.
- Wear safety glasses when you are working in any conditions that might be hazardous to your eyes.
- After service, reinstall all safety shields, guards, labels, and ground wires. Replace any safety device that is worn or defective.
- Reinstall all covers correctly before returning the system unit to service.



WARNING:

To prevent access to electrical hazards by unauthorized personnel and to ensure continued compliance with international radiated emissions requirements, tighten all captive screws securely so they cannot be loosened without the use of a tool.

If you must work inside the chassis, see [Chapter 8: Working inside the server](#) on page 103 for important information.

On-site security

On-site installers must take precautions to protect passwords and restrict access to the system.

- Do not leave written passwords lying out or allow anyone to see them.
- Always log off or lock the server if you leave it unattended, even for a short period of time.
- If you suspect that the security of the system was compromised, notify the project manager or system administrator.

Test equipment and tools

Obtain the following test equipment and tools for working on Modular Messaging hardware.

Test equipment

Recommended test equipment includes:

- At least one telephone that is connected through the switch or Private Branch Exchange (PBX). The telephone must be of the same type as the majority of telephones the customer plans to use on the system.
 - If the message waiting indicator (MWI) for the system is a lamp, the test telephone must be equipped with a lamp. If the MWI is a stutter tone, the telephone must be able to provide the stutter notification.
 - The test telephone must be placed so you can easily see the monitor while using the telephone.
- A volt/ohm meter.

Tools

You must have the following tools on site to successfully install or repair system hardware:

- A medium-width flat-blade screwdriver
- A No. 2 Phillips screwdriver
- A small pair of needlenose pliers
- A small pair of wire cutters
- A sharp, pointed instrument, such as a ballpoint pen

**CAUTION:**

Do *not* use the point of a lead pencil to operate the system reset switch. The graphite can damage a circuit board and cause problems, such as electrical shorts.

Site requirements for Avaya message servers

This section describes the physical requirements for an installation site, including environmental, weight, space, and power considerations. These specifications apply to any Avaya-provided server that uses Avaya S3400-family message server hardware.

Environmental requirements

[Table 1](#) lists the environmental conditions that must be maintained in the area where Avaya S3400-family message servers are installed and operated.

Table 1: Environmental requirements

Operating state	Temperature	Humidity (noncondensing)
Operating	+10 to +35°C (+50 to +95°F)	20% to 80% RH
Nonoperating— in storage or being shipped	-20 to +50°C (-4 to +122°F)	20% to 90% RH

Before you start

[Table 2](#) lists the maximum heat output for each type of S3400-family server in British thermal units (BTUs). For more information about the different server models, see [Chapter 2: Hardware overview](#) on page 11.

Table 2: Heat output in BTUs for S3400-family servers

Server model	Maximum heat output
Avaya Messaging Application Server (Avaya MAS)	730 BTU per hour—nonintegrated video and LAN configuration
	1150 BTU per hour—integrated video and LAN configuration
Avaya Message Storage Server Standard Availability version (MSS-S)	352 BTU per hour—nonintegrated video and LAN configuration
	887 BTU per hour—integrated video and LAN configuration
Avaya Message Storage Server High Availability version (MSS-H)	682 BTU per hour—nonintegrated video and LAN configuration
	1242 BTU per hour—integrated video and LAN configuration

Weight and space considerations

[Table 3](#) lists the weight and spacial dimensions of each Avaya S3400-family message server.

Table 3: Weight and space considerations for S3400-family servers

Server	Weight (full)	Height	Width	Depth
Avaya Messaging Application Server (Avaya MAS) or supplementary server	40 lb (18.1 kg) without port boards	6.8 in. (17 cm)	16.9 in. (43 cm)	18.9 in. (48 cm)
Avaya Message Storage Server Standard Availability version (MSS-S)	41 lb (18.6 kg)	6.8 in. (17 cm)	16.9 in. (43 cm)	18.9 in. (48 cm)
Avaya Message Storage Server High Availability version (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 must be available to mount the units.

Customer-provided cabinet requirements

If an Avaya S3400-family message server is 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 servers.
- The cabinet must be secured to the floor before you attempt to mount any units.
- The sliding rails 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. For more information about server height, see [Table 3: Weight and space considerations for S3400-family servers](#) on page 6. The cabinet might also need to hold the MAS modems, UPS, and optional equipment, such as the KVM switch.

Note:

For an example of a rack-mount system, see [Figure 10: Example of a rack-mount MSS system with S3400-family servers—front view](#) on page 38.

Installation area requirements

Observe the following when determining where to place the system:

- Maintain an air-distribution system that provides adequately cooled, filtered, and humidity-controlled air.
- Do not install Avaya S3400-family message servers in such a way that the ventilation or fan openings are blocked.
- For T1 and E1 QSIG connections, the circuits require isolation from exposed lines. For T1 lines, the customer must provide a CSU (T1) at the building point of entry. This CSU must be UL Listed, CSA Certified, or both. For E1 lines, either the network provider or the customer must provide a CSU (E1) or other equivalent protection. The protection must have the product safety approvals required by the local jurisdictions.



CAUTION:

To reduce the risk of fire, use only No. 26 AWG or larger telecommunications line cord.

- Systems installed in Finland, Norway, Sweden, and Australia must be installed in a restricted-access location. A restricted-access location is an installation site where only technical support staff or customers who are instructed on the reasons for the restricted access can gain access. Authorized personnel must also be trained in all required safety precautions. A restricted-access location also allows access through the use of a tool, such as a lock and key, or other means of security.

Power requirements

[Table 4](#) lists the power requirements for Avaya S3400-family message servers. Use these figures for equipment room planning, not for UPS sizing. The AC power supply source must be a single phase 3-conductor consisting of line, neutral, and ground connections.

Table 4: Power requirements for S3400-family servers

Server	Number of power supply units	Volts AC	Hertz	Maximum amperes 120V/240V
Avaya MAS or supplementary server	1	100-240 +/- 10%	50/60 +/- 3 Hz	10/5
MSS-S	1	100-240 +/- 10%	50/60 +/- 3 Hz	10/5
MSS-H	2	100-240 +/- 10%	50/60 +/- 3 Hz	6/3 for each vertically stacked model of redundant power supply, or 7/3.5 for each side-by-side model

For equipment room planning, the AC power source requires a 15 A circuit breaker for 100-127 Vac installations or a 10 A circuit breaker for 200-240 Vac installations. 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.

Note:

All Modular Messaging systems must use an uninterruptible power supply (UPS). To size a UPS, use the maximum power dissipation figures in watts. For example, 400 watts divided by 120 Vac is about 3 amps per server.

Table 5: Maximum power dissipation for UPS sizing

S3400-family server	Maximum power dissipation in watts, assuming 65% power supply efficiency
Avaya MAS with port boards	350 watts
MSS-S	350 watts
MSS-H	400 watts

Grounding requirements

An Avaya S3400-family message server relies on the ground connection through the mains socket-outlet for safe operation. Ensure that the AC main outlet used to power the system, through the power cord or the UPS, is a grounded outlet. If you are unsure of the ground integrity of the outlet, have a trained and certified electrician check the outlet.

**DANGER:**

You *must* connect the S3400-family servers to an earthed mains socket-outlet. If you fail to do so, you allow a hazard to be present that might cause severe personal injury or death.

In addition, observe the following grounding requirements for the server location:

- Use only the power cord provided with each unit to connect that unit to the universal power supply (UPS) or to an AC mains outlet.
- Install the server within 6 feet (2 m) of a grounded AC mains socket-outlet.
- Do *not* use extension cords with the system.

**CAUTION:**

System grounding must comply with the general rules for grounding. For more information, see article 250 of the National Electrical Code (NEC), National Fire Protection Agency (NFPA). Alternatively, see the applicable electrical code in the country of installation.

Demarcation points

This section lists the demarcation points for switches (PBXs) and LAN connectivity.

Demarcation point for switches (PBXs)

For Avaya switches, the demarcation point for switch (PBX) connections to an Avaya Modular Messaging server is the wall field.

For non-Avaya switches, the demarcation point is the end of the connector of the Avaya-provided cables for the port boards. Avaya technical support representatives dispatched for the system installation are not responsible for making any connections directly to switches that Avaya does not maintain.

Note:

Avaya recommends joint acceptance testing for systems integrated with switches that Avaya does not maintain.

Demarcation point for LAN connectivity

The demarcation point for the LAN connection to an Avaya Modular Messaging server is the physical Ethernet interface on the server that connects to the corporate LAN. The customer is responsible for:

- Providing the LAN cables that connect the Avaya Modular Messaging server to the corporate system. If the customer uses the Avaya-provided cables, the demarcation point is the modular connector at the end of the LAN cables.
- Doing LAN administration that is not done on the Modular Messaging server.
- Maintaining the TCP/IP addresses and administration on the server after cutover, unless otherwise specified by contract.
- Providing the IP address, subnet mask, and gateway information for administration on the server.
- Providing any DNS server IP information and corporate domain names.

Avaya technical support representatives dispatched for system installation are not responsible for troubleshooting the customer LAN.

Chapter 2: Hardware overview

This chapter describes the system hardware for Avaya S3400-family message servers in all supported configurations.

Topics in this chapter include:

- [Identifying Avaya S3400-family message servers](#) on page 11
- [Identifying S3400-family server components](#) on page 14
- [Hardware summary](#) on page 26

Identifying Avaya S3400-family message servers

An Avaya Modular Messaging system can contain the following S3400-family servers:

- *Required:* One or more Avaya Messaging Application Server (Avaya MAS) units. The maximum number depends on the system configuration: 5 for an MSS configuration, or 10 for non-MSS configurations. The MASs handle voice calls. They might contain telephony port boards, depending on the type of switch integration that is to be used.
- *Required for MSS configurations:* One Message Storage Server (MSS). The MSS can be either the Avaya Message Storage Server Standard Availability version (MSS-S) or the Avaya Message Storage Server High Availability version (MSS-H). The MSS stores the subscriber messages and system data.
- *Optional:* One or more additional servers that provide other messaging-related services. The additional *supplementary* servers might be customer-provided servers or Avaya MAS-like units. You must identify each supplementary server correctly, because installation and configuration procedures vary. For more information, see [Identifying Avaya MAS-like servers](#) on page 12.

Note:

A supplementary server might use customer-provided equipment. For more information, see [Using customer-provided equipment \(CPE\) servers](#) on page 13.

Variations in S3400-family servers

Variations in Avaya S3400-family message servers include:

- **Motherboard and connector arrangement—all servers.** An Avaya S3400-family message server (MAS, MSS-S, or MSS-H) has one of two different motherboards. The

type of motherboard that is installed affects the connector lineup on the back of the server. The motherboard also affects the position and cable connections of the circuit cards that are installed. The two different motherboard styles are:

- *Integrated video and LAN:* In this style, the cable connectors appear in a row along the bottom of the server back panel. There is no separate video card and no network interface card (NIC) for the second LAN. The connectors for the video and LAN elements are present, and appear as part of the regular connector lineup.
- *Nonintegrated video and LAN:* In this style, two connectors appear in PCI card slots on the server back panel. A separate video card is in AGP slot 1, and a separate network interface card (NIC) in PCI slot 1 is used for the private LAN.

See [Identifying S3400-family server components](#) on page 14 for figures that compare views of the two different motherboard styles for each Avaya S3400-family message server.

- **Power supply—MSS-H only.** The Avaya Message Storage Server High Availability version (MSS-H) uses two different types of redundant power supply.
 - An MSS-H with an integrated video and LAN always uses side-by-side power supplies. For an example figure, see [Figure 8: S3400-family MSS-H, back view of integrated video and LAN model with side-by-side power supplies](#) on page 24.
 - An MSS-H with a nonintegrated video and LAN usually uses vertically stacked power supplies, although it might use the side-by-side model. For an example figure, see [Figure 9: S3400-family MSS-H, back view of nonintegrated video and LAN model with stacked power supplies](#) on page 25.

Identifying Modular Messaging servers

If a system ships with several S3400-family servers, it is crucial to correctly identify each server. The installation and configuration procedures vary for different types of servers.



CAUTION:

Check the label on each server to identify the purpose and content of the server. Use the label as a guide to correctly install the server and load any required application software.

Identifying Avaya MAS-like servers

In addition to the label, you can identify servers that you *must* set up as an Avaya Messaging Application Server (Avaya MAS) as follows:

- You *must* set up any server that has telephony port boards as an MAS.

Note:

Systems that use an IP H.323 or IP SIP switch integration do not use port boards.

- All Avaya-provided MASs have the *Avaya Modular Messaging Messaging Application Server Software* media in the box. The application media identifies the server as an MAS even if the server does not contain telephony port boards.
- Avaya-provided supplementary servers have only the boot software DVD in the box.

Note:

For MSS configurations, you must connect each MAS and the supplementary tracing server, if present, to the Modular Messaging private network. These servers are the *only* MAS-like servers you connect to the private network. You connect all servers to the corporate network.

Identifying and installing additional servers

Customers might order a separate server to run certain optional services. For example:

- Any server that provides only storage for offline access to messages is called the offline access (OLA) server. An OLA server might also support resource-intensive administrative tools such as the Reporting Tool.
- These additional supplementary servers might use either Avaya S3400-family message server hardware or customer-provided equipment (CPE).

Using customer-provided equipment (CPE) servers

Some customers might choose to provide their own servers to support messaging-related services or optional applications. Any server that does *not* use Avaya-provided hardware is considered customer-provided equipment (CPE). The customer is responsible for installing and maintaining a CPE server. For more information about installing or configuring CPE servers, see *Avaya Modular Messaging Installation and Upgrades* ([PDF](#)).

Using S3500-family servers with S3400-family servers

An Avaya Modular Messaging system can support a mixture of S3500-family and S3400-family servers, provided the system is running Modular Messaging Release 3 software.

- For more information about installing, repairing, or upgrading to Avaya S3500-family message servers, see *Avaya Modular Messaging S3500-Family Hardware Maintenance and Additions* ([PDF](#)).
- For more information about the Avaya strategy for supporting S3400-family servers, see [Strategy for server replacement and additions](#) on page 29.



CAUTION:

Avaya supports only the Release 3 version of the Avaya Modular Messaging software on Avaya S3500-family message server hardware. All previous software releases must use S3400-family hardware for their Avaya-provided servers.

Identifying S3400-family server components

This section describes the key components of each Avaya S3400-family message server, including the MSS-S, MSS-H, and Avaya MAS.

Avaya-provided S3400-family server hardware supports the following releases of Modular Messaging software for the following configurations:

- Avaya MSS configuration—Release 1.1, Release 2, and Release 3
- Microsoft Exchange message store—Release 1.1 and Release 3
- IBM Lotus Domino message store—Release 1.1 only

Note:

Non-Avaya MSS configurations might use customer-provided equipment (CPE) servers instead of Avaya-provided S3400-family server hardware for the MAS. For more information about CPE servers, see the *Avaya Modular Messaging Concepts and Planning Guide* ([PDF](#)).

Identifying key components of the MAS

Each Avaya Modular Messaging system must have at least one Messaging Application Server (MAS). An Avaya-provided S3400-family server uses the same hardware for all MASs and supplementary servers, regardless of the configuration.

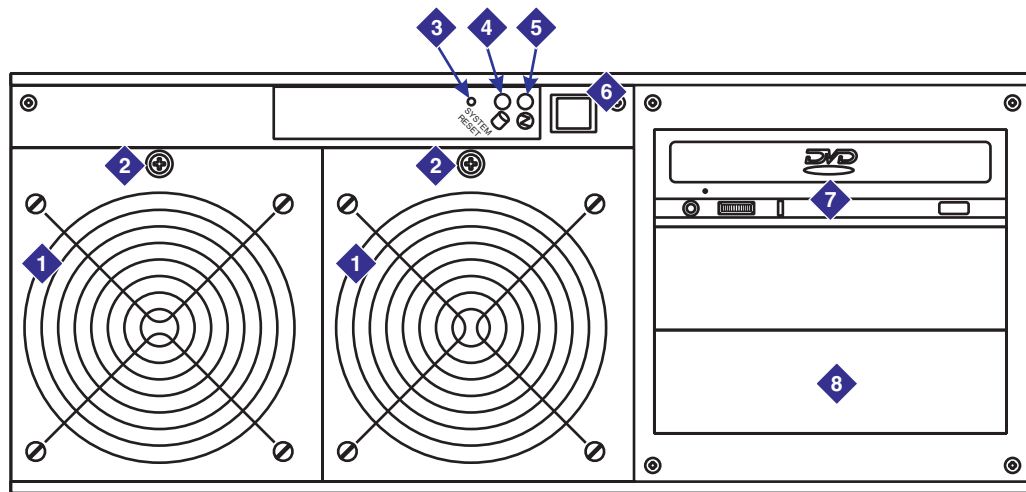
[Figure 1](#) shows the front view of an Avaya MAS. At least one MAS is present in each Avaya Modular Messaging system.



CAUTION:

The same S3400-family server hardware can be used as an Avaya Messaging Application Server (Avaya MAS), and as a supplementary server that provides special services. To distinguish the Avaya MAS units from any optional supplementary servers, see [Identifying Modular Messaging servers](#) on page 12.

Figure 1: S3400-family MAS—front view with bezel removed



h3vyvwsf LAO 081103

Figure notes:

- | | |
|--------------------------------|-------------------------------|
| 1. Redundant chassis fans | 5. System power indicator |
| 2. Chassis fan retaining screw | 6. System power on/off button |
| 3. System reset button | 7. DVD player |
| 4. Disk drive access indicator | 8. IDE disk drive A (hda) |

Hardware overview

The back view of the Avaya Messaging Application Server (Avaya MAS) varies, depending on the type of motherboard that is installed. Compare [Figure 2](#) and [Figure 3](#) to identify the type of MAS you have.

[Figure 2](#) shows an MAS with an *integrated* video and LAN.

Figure 2: S3400-family MAS—back view, integrated video and LAN

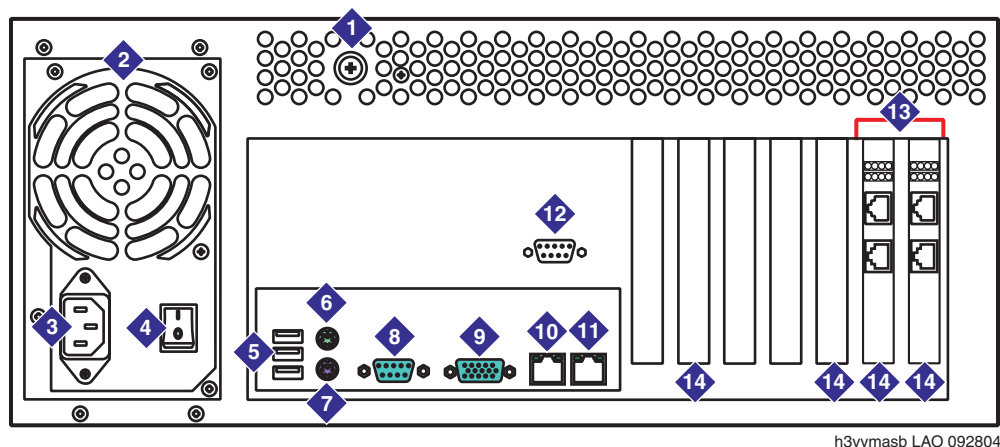
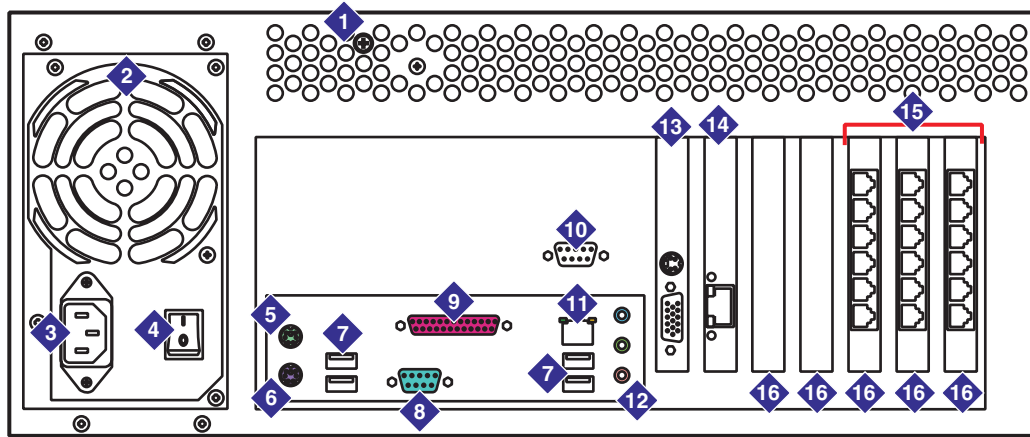


Figure notes:

1. Latch for top cover
2. Power supply
3. AC power receptacle
4. Power supply on/off switch
5. USB ports, one of which is used for the required modem
6. Mouse connector
7. Keyboard connector
8. Serial port (COM1)
9. Video connector
10. Corporate LAN interface
11. Private LAN interface—used only for the private LAN in an MSS configuration
12. Serial port (COM2)—not used
13. Port boards—type varies. Port boards are *not* present for IP H.323 or IP SIP integrations.
14. Up to four (4) port boards can be installed in each MAS, depending on the type of board and traffic requirements. Starting from the end of the chassis, the available PCI slots are 1, 2, 3, and 6. See [Table 6: Supported MAS port boards—S3400-family servers](#) on page 18 for details.

[Figure 3](#) shows an MAS with a *nonintegrated* video and LAN.

Figure 3: S3400-family MAS—back view, nonintegrated video and LAN



h3vyvvsb LAO 092804

Figure notes:

1. Latch for top cover
2. Power supply
3. AC power receptacle
4. Power supply on/off switch
5. Mouse connector
6. Keyboard connector
7. USB ports, one of which is used for the required modem
8. Serial port (COM1)
9. Parallel port—not used
10. Serial port (COM2)—not used
11. Corporate LAN interface
12. Audio connectors—not used
13. Video card—contains monitor connector
14. Network interface card (NIC)—used only for the private LAN in an MSS configuration
15. Port boards—type varies. Port boards are *not* present for IP H.323 or IP SIP integrations.
16. Up to four (4) port boards can be installed in a new MAS, depending on the type of board and traffic requirements. Starting from the end of the chassis, the available PCI slots are 6, 5, 4, and 3. PCI slot 2 is used only for Release 1 upgrades. PCI slot 1 is always used for the NIC. For more information, see [Table 6: Supported MAS port boards—S3400-family servers](#) on page 18.

Only systems that were upgraded from Release 1 support five (5) port boards, if five boards were installed before the upgrade.

Supported MAS port boards

[Table 6](#) lists the Dialogic port boards that S3400-family servers support. The type of port boards used, if any, depends on the switch integration, but each MAS can have only one type of port board installed.

You might receive an empty S3400-family MAS to expand an existing system, or to replace an MAS that failed. In this case, transfer the port boards from the current MAS to the new server. For more information, see "[Replacing S3400-family server components](#)" in the **Maintenance** section on the *Avaya Modular Messaging Documentation* media.

Table 6: Supported MAS port boards—S3400-family servers

Protocol	Ports per TUI	Supported port boards	Maximum number	Dialogic files on documentation media
Analog	12 - 48 (Aria) 12 - 24 (other) ¹	Dialogic D/120JCT-LS 12-port board	4 or 2	D/120JCT-LS (PDF)
	4 - 16 or 4 - 20 (any TUI) ²	Dialogic D/41JCT-LS 4-port board	4 or 5 ²	D/41JCT-LS (PDF)
Digital Set Emulation	8 - 32 (Aria) 8 - 24 (other) ¹	Dialogic D/82JCT-U-PCI-UNIV or	4 or 3	D/82JCT-U PCI Univ (PDF)
	8 - 32 or 8 - 40 (Aria) ²	Dialogic D/82JCT-U	4 or 5 ²	D/82JCT-U (PDF) <i>Supported for upgrades only.</i>
E1-QSIG	30 - 60 (Aria) 30 (other) ¹	Dialogic D/600JCT-1E1 ³	2 or 1 ⁴	D/600JCT-1E1 (PDF)
T1-QSIG	23 - 69 (Aria) 23 (other) ¹	Dialogic D/480JCT-1T1 ³	3 or 1 ⁴	D/480JCT-1T1 (PDF)

1. The number of ports supported per MAS varies depending on the telephone user interface (TUI) and software release. Systems that use only the MM Aria TUI support more ports. Systems that use the MM AUDIX TUI, MM Serenade TUI, or any combination of TUIs support fewer ports per MAS.
2. The maximum number of 4-port analog boards and DSE boards varies. All Release 2 or later systems support up to four (4) port boards per MAS. For Release 1 upgrades only, each MAS can have up to five (5) port boards, if five boards were installed before the upgrade.
3. Early D/600JCT-1E1 and D/480JCT-1T1 QSIG port boards have a plug in the unused connector on the faceplate. Dialogic D/600JCT-1E1 or D/480JCT-1T1 QSIG port boards that ship after mid-2005 have only a single connector. Both types of QSIG boards operate identically.
4. S3400-family servers that run Release 3 software are limited to one E1-QSIG board or two T1-QSIG boards. You must upgrade to an S3500-family server to get greater E1-QSIG port capacity.

The Dialogic documents provide details about installing and connecting the port boards. The documents are available on the *Avaya Modular Messaging Documentation* media or from the Avaya Support Web site at <http://www.avaya.com/support>. For the latest version of the Dialogic guides, see the [Quick Install Cards Search Tool](#) on the Intel Telecom Boards Web site.

Note:

The Dialogic documentation describes more setups than the ones used for Avaya Modular Messaging. If information in a Dialogic document conflicts with this Avaya document, follow the steps in the Avaya documentation. Use the Dialogic documentation to locate various items on the board or verify cable connections.

Identifying key components of the MSS

In addition to the MAS, an MSS configuration has an MSS-S or an MSS-H as part of each Modular Messaging system. For a description of the different MSS models, see:

- [Key components of the MSS-S](#) on page 20
- [Key components of the MSS-H](#) on page 23

Key components of the MSS-S

[Figure 4](#) shows the front view of an Avaya Message Storage Server Standard Availability version (MSS-S).

Figure 4: S3400-family MSS-S, front view with bezel removed

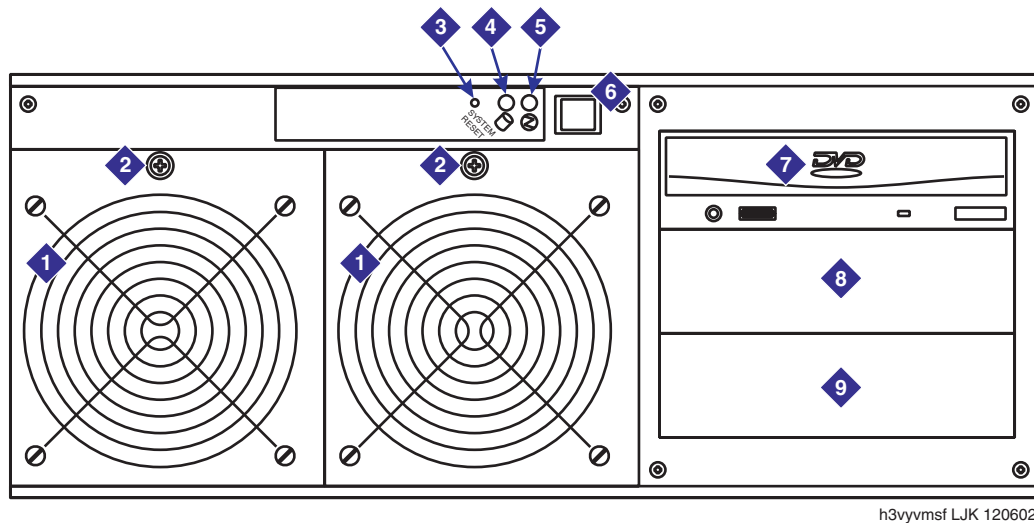


Figure notes:

- | | |
|--------------------------------|--------------------------------|
| 1. Redundant chassis fans | 6. System power on/off button |
| 2. Chassis fan retaining screw | 7. DVD-RAM drive |
| 3. System reset button | 8. IDE RAID disk drive C (hdc) |
| 4. Disk drive access indicator | 9. IDE RAID disk drive A (hda) |
| 5. System power indicator | |

Note:

You can install an MSS-S only in a Modular Messaging system that has one or two MASs. If the system has more than two MAS units, you must use the Avaya Message Storage Server High Availability version (MSS-H). For more information, see [Key components of the MSS-H](#) on page 23.

The back view of the Avaya Message Storage Server Standard Availability version (MSS-S) varies, depending on the type of motherboard that is installed. Compare [Figure 5](#) and [Figure 6](#) to identify the type of MSS-S you have.

[Figure 5](#) shows an MSS-S with an *integrated* video and LAN.

Figure 5: S3400-family MSS-S, back view with an integrated video and LAN

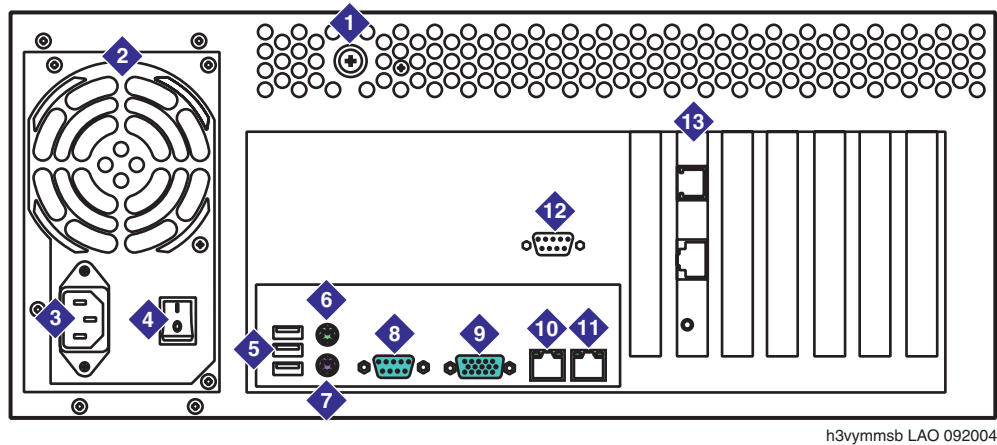
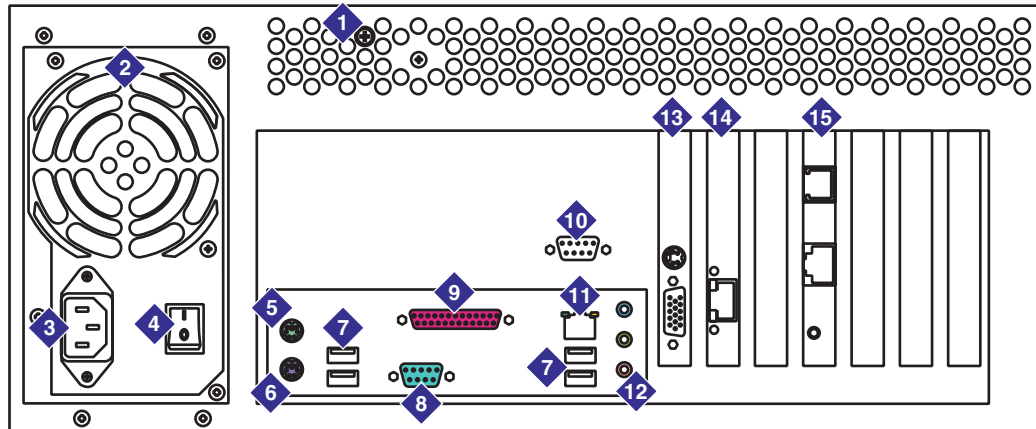


Figure notes:

- | | |
|-------------------------------|--|
| 1. Latch for top cover | 9. Video connector |
| 2. Power supply | 10. Corporate LAN interface |
| 3. AC power receptacle | 11. Private LAN interface |
| 4. Power supply on/off switch | 12. Serial port (COM2), used for the Remote Maintenance Board (RMB) |
| 5. USB ports | 13. Remote Maintenance Board. Connects to analog line for alarm reporting and servicing. International versions require an external modem. |
| 6. Mouse connector | |
| 7. Keyboard connector | |
| 8. Serial port (COM1) | |

[Figure 6](#) shows an MSS-S with a *nonintegrated* video and LAN.

Figure 6: S3400-family MSS-S, back view with nonintegrated video and LAN



h3vyvmsb LAO 013004

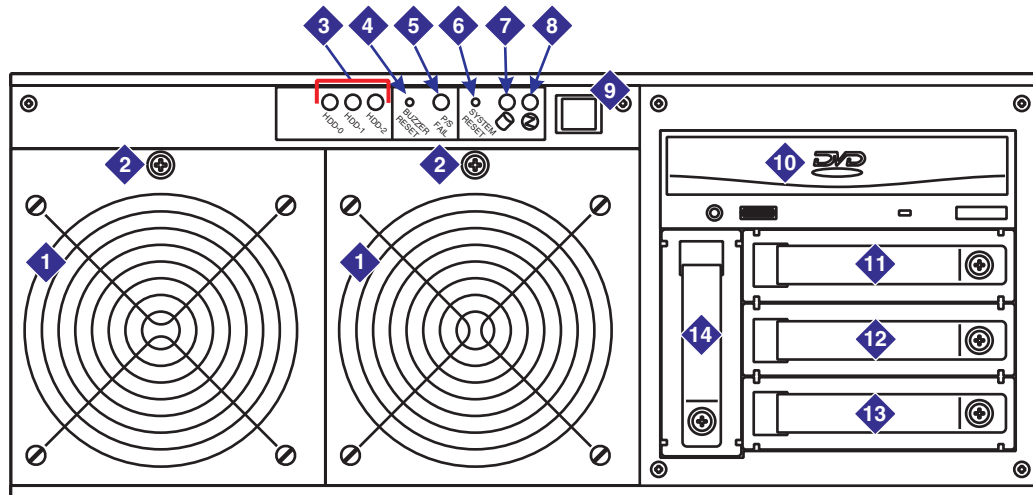
Figure notes:

- | | |
|---|--|
| 1. Latch for top cover | 11. Corporate LAN interface |
| 2. Power supply | 12. Audio connectors—not used |
| 3. AC power receptacle | 13. Video card—contains monitor connector |
| 4. Power supply on/off switch | 14. Network interface card, used for the private LAN to the Avaya MASs |
| 5. Mouse connector | 15. Remote Maintenance Board. Connects to analog line for alarm reporting and servicing. International versions require an external modem. |
| 6. Keyboard connector | |
| 7. USB ports | |
| 8. Serial port (COM1) | |
| 9. Parallel port—not used | |
| 10. Serial port (COM2), used for the Remote Maintenance Board (RMB) | |

Key components of the MSS-H

[Figure 7](#) shows the front view of an Avaya Message Storage Server High Availability version (MSS-H).

Figure 7: S3400-family MSS-H, front view with bezel removed



h3vyvmhf LAO 013004

Figure notes:

- | | |
|---|-------------------------------|
| 1. Redundant chassis fans | 8. System power indicator |
| 2. Chassis fan retaining screw | 9. System power on/off button |
| 3. Disk drive access indicator for each hard disk drive (HDD 0, 1, and 2) | 10. DVD-RAM drive |
| 4. Reset switch for faulty power supply alarm buzzer | 11. SCSI RAID drive 0 (HDD 0) |
| 5. Power supply failure indicator | 12. SCSI RAID drive 1 (HDD 1) |
| 6. System reset button | 13. SCSI RAID drive 2 (HDD 2) |
| 7. Disk drive access indicator showing activity on any hard disk drive | 14. SCSI fan tray |

Note:

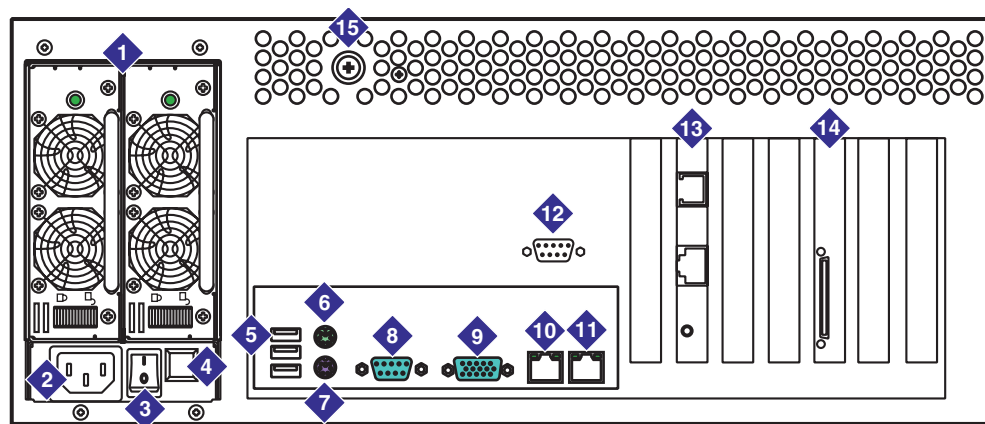
You must use an MSS-H message store in any Modular Messaging system that has more than two MAS units. However, a smaller Modular Messaging system can also use an MSS-H.

Hardware overview

The back view of the Avaya Message Storage Server High Availability version (MSS-H) varies, depending on the type of motherboard and redundant power supply that is installed. An MSS-H with an *integrated* video and LAN always uses side-by-side power supplies. An MSS-H with a *nonintegrated* video and LAN usually uses vertically stacked power supplies, although it might use the side-by-side model. Compare [Figure 8](#) and [Figure 9](#) to identify the type of MSS-H you have.

[Figure 8](#) shows an MSS-H with an *integrated* video and LAN. For this model, side-by-side redundant power supplies are always present.

Figure 8: S3400-family MSS-H, back view of integrated video and LAN model with side-by-side power supplies



h3vymshb LAO 092004

Figure notes:

- | | |
|---|--|
| 1. Redundant power supply—side-by-side model | 10. Corporate LAN interface |
| 2. AC power receptacle | 11. Private LAN interface |
| 3. Power supply on/off switch | 12. Serial port (COM2), used for the Remote Maintenance Board (RMB) |
| 4. Reset switch for faulty power supply alarm | 13. Remote Maintenance Board. Connects to analog line for alarm reporting and servicing. International versions require an external modem. |
| 5. USB ports | 14. SCSI RAID controller card |
| 6. Mouse connector | 15. Latch for top cover |
| 7. Keyboard connector | |
| 8. Serial port (COM1) | |
| 9. Video connector | |

[Figure 9](#) shows an MSS-H with a *nonintegrated* video and LAN. For this model, vertically stacked redundant power supplies are usually present, as shown.

Figure 9: S3400-family MSS-H, back view of nonintegrated video and LAN model with stacked power supplies

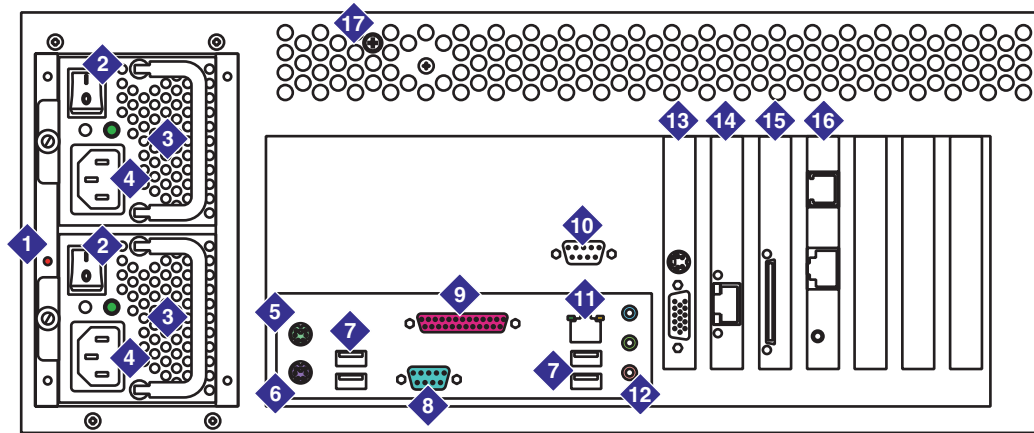


Figure notes:

- | | |
|---|--|
| 1. Reset switch for faulty power supply alarm | 11. Corporate LAN interface |
| 2. Power supply on/off switch | 12. Audio connectors—not used |
| 3. Redundant power supply—vertically stacked model | 13. Video card—contains monitor connector |
| 4. AC power receptacle | 14. Network interface card, used for the private LAN to the Avaya MASS |
| 5. Mouse connector | 15. SCSI RAID controller card |
| 6. Keyboard connector | 16. Remote Maintenance Board. Connects to analog line for alarm reporting and servicing. International versions require an external modem. |
| 7. USB ports | 17. Latch for top cover |
| 8. Serial port (COM1) | |
| 9. Parallel port—not used | |
| 10. Serial port (COM2), used for the Remote Maintenance Board (RMB) | |

Hardware summary

This section lists required and optional hardware for all Avaya Modular Messaging systems that use S3400-family server hardware.

Required and optional hardware—MSS configuration

[Table 8](#) lists required and optional hardware for an Avaya Modular Messaging system.

Table 7: Required and optional hardware—MSS configuration

Item	Quantity	Required/optional
S3400-family system components:		
Message Storage Server (MSS), either the Standard Availability version (MSS-S) or the High Availability version (MSS-H)	1	Required
Avaya Messaging Application Server (Avaya MAS)	1 minimum 5 maximum	Required
Additional MAS-like units, called <i>supplementary</i> servers—might be Avaya-provided hardware or customer-provided equipment (CPE)	Varies	Optional—can be customer-provided
Front bezel	1 per Avaya server	Required
Server AC power cables—one per power supply	1 per MAS server, 1 per MSS-S server, and 1 or 2 per MSS-H server, based on power supply	Required
Rack-mount assembly including rails, slides, and connecting hardware, <i>and</i> rubber spacers for stackable desktop configuration	1 set of each per server—use mount type required	Required
Ethernet switch—includes power transformer and rubber spacers	1	Optional for systems with one MAS
Ethernet LAN cables	2 per server	Required
MSS-specific components:		
COM2 port adapter to RMB cable	1	Required

Table 7: Required and optional hardware—MSS configuration

Item	Quantity	Required/optional
External modem adapter for RMB with long cable	1	Required only for international customers
DVD backup media	1	Required
MAS-specific components:		
USB modem—includes USB cable	1 per MAS	Required
Port board cables, if port boards are present—see Table 6: Supported MAS port boards—S3400-family servers on page 18.	1 set per port board	Required to connect port boards—type varies
IP H.323 or IP SIP switch integrations do <i>not</i> use port boards.		
Other components:		
Monitor—includes power cord and VGA cable	1	Optional—can be customer-provided
Keyboard and mouse—includes cords and Y cable	1 set	Optional—can be customer-provided
8-port KVM switch for multiple-server system—includes 1 power transformer, 1 KVM switch cable for each server, and 1 set of rack-mount brackets for rack-mount configuration	1 KVM switch, 1 cable per server, 1 power transformer, 1 set mounting brackets if needed	Optional—other models of switching devices can be used
Uninterruptible power supply (UPS) with required power cord—includes 1 set of rack-mount brackets <i>and</i> rubber spacers for a stackable desktop configuration	1	Required—model can vary
Extended battery module (EBM) with required power cord—includes 1 set of rack-mount brackets <i>and</i> rubber spacers for a stackable desktop configuration	1 to 4	Optional—can be ordered with the UPS

To install S3400-family servers and peripheral equipment in an MSS configuration, see [Chapter 4: Installing Avaya servers in an MSS configuration](#) on page 37.

Required and optional hardware—other configurations

[Table 8](#) lists required and optional hardware for an Avaya Modular Messaging system. This hardware supports any configuration other than an Avaya MSS, such as an IBM Lotus Domino or a Microsoft Exchange configuration.

Table 8: Required and optional hardware for Avaya MAS system

Item	Quantity	Required/optional
Required equipment:		
Avaya Messaging Application Server (Avaya MAS)	1 minimum, 10 maximum	Required
Avaya MAS AC power cables	1 per server	Required
Front bezel	1 per server	Required
Additional MAS-like units, called <i>supplementary</i> servers—might be Avaya-provided hardware or customer-provided equipment (CPE)	Varies	Optional—can be customer-provided
Rack-mount assembly including rails, slides, and connecting hardware, <i>and</i> rubber spacers for stackable desktop configuration	1 set of each per server—use mount type required	Required
Ethernet LAN cable	1 per server	Required
USB modem—includes USB cable	1 per server	Required
Port board cables, if port boards are present—see Table 6: Supported MAS port boards—S3400-family servers on page 18. <i>Note:</i> IP H.323 or IP SIP switch integrations do <i>not</i> use port boards.	1 set per port board	Required to connect port boards—type varies
Optional or customer-provided equipment:		
Monitor—includes power cord and VGA cable	1	Optional—can be customer-provided
Keyboard and mouse—includes cords and Y cable	1 set	Optional—can be customer-provided
8-port KVM switch for multiple-server system—includes 1 power transformer, 1 KVM switch cable for each server, and 1 set of rack-mount brackets for rack-mount configuration	1 KVM switch, 1 cable per server, 1 power transformer, 1 set mounting brackets if needed	Optional—other models of switching devices can be used

Table 8: Required and optional hardware for Avaya MAS system

Item	Quantity	Required/optional
Uninterruptible power supply (UPS) with required power cord—includes 1 set of rack-mount brackets <i>and</i> rubber spacers for a stackable desktop configuration	1	Required—model can vary
Extended battery module (EBM) with required power cord—includes 1 set of rack-mount brackets <i>and</i> rubber spacers for a stackable desktop configuration	1 to 4	Optional—can be ordered with the UPS

To install S3400-family servers and peripheral equipment in a non-MSS configuration, see [Chapter 5: Installing Avaya servers in a non-MSS configuration](#) on page 69.

Strategy for server replacement and additions

The Avaya strategy for replacing or adding servers for S3400-family hardware is:

- If an Avaya S3400-family server must be replaced, Avaya replaces the faulty server with a one that uses the same type of motherboard. This policy ensures that cable connections and number of supported port boards is consistent for all servers in the system.
 - Systems that run Modular Messaging Release 1.1 software use the nonintegrated video and LAN motherboard. All servers in a Release 1.1 system must use this motherboard.
 - Systems that run Modular Messaging Release 2 software usually use the integrated video and LAN motherboard. Older systems or systems that were upgraded from Release 1.1 can use the nonintegrated video and LAN motherboard.
 - Systems upgraded to run Modular Messaging Release 3 software might use either motherboard for their S3400-family servers, depending on what was originally installed. However, the replacement for a faulty server is the same model of server as the S3400-family server it is replacing.
- If you add an MAS to a Modular Messaging system already in service, Avaya will ship:
 - For Release 1.1 systems, an S3400-family server that uses the nonintegrated video and LAN motherboard.
 - For Release 2 systems, an S3400-family server that uses the integrated video and LAN motherboard.
 - For Release 3 systems, an S3500-family server. The S3500-family servers also use the integrated video and LAN type of motherboard.

For additions or upgrades, customers can order S3500-family message servers instead of S3400-family servers if desired. However, Avaya only supports S3500-family servers on systems that run Release 3 software. For more information about installing or upgrading to

Hardware overview

Avaya S3500-family message servers, see *Avaya Modular Messaging S3500-Family Hardware Maintenance and Additions* ([PDF](#)).

Note:

A new or replacement server already has the operating system loaded. However, you might need to install software updates to make the system current, as directed in *Avaya Modular Messaging Installation and Upgrades* ([PDF](#)).

Chapter 3: Turning the servers off and on

This chapter describes how to safely turn off and on the Avaya S3400-family message servers. The chapter also provides procedures for turning on the entire Modular Messaging system.

Topics in this chapter include:

- [Turning off or on an S3400-family MAS](#) on page 31
- [Turning off and on an S3400-family MSS](#) on page 33
- [Turning on an S3400-family server system](#) on page 35

Turning off or on an S3400-family MAS

You can turn off or on a Messaging Application Server (MAS) or supplementary server independently of the rest of the Avaya Modular Messaging system. If other MASs are present, the operating servers can continue to provide messaging service.

Turning off an S3400-family MAS

To turn off a Messaging Application Server (MAS) or an S3400-family supplementary server:

1. If you have a multiple-MAS system, busyout the MAS ports on the switch, if possible, before you work on that MAS. The PBX administrator must use the procedures appropriate for each PBX to busyout the MAS ports. Depending on the switch integration, the administrator might be able to temporarily reroute calls to other MASs. Otherwise, callers into the system might hear ring-no answer or a busy signal until the MAS is back in service.
2. Shut down the software on the server:
 - a. Remove any disk from the DVD drive.
 - b. Click **Start > Shut Down**.
 - c. In the Shut Down Windows window, select **Shut Down** and click **OK**.

The server shuts down the software and turns off automatically.

3. *If the server fails to turn off automatically*, push and hold down the power button on the front of the server for a few seconds.

Note:

For an illustration of front-panel components, see [Figure 1: S3400-family MAS—front view with bezel removed](#) on page 15.

Turning the servers off and on

4. Verify that the power lamp on the front of the server is dark.
5. Toggle the power switch at the back of the server to off: **I** is on, **O** is off.
6. To completely remove power to the server, unplug the AC power cord.

Note:

In the United Kingdom, if a modem is attached to the server, first disconnect the telephone line from the server, then unplug the power cord.

Turning on an S3400-family MAS

To turn on a Messaging Application Server (MAS) or an S3400-family supplementary server:

1. Plug in the AC power cord.
2. Toggle the power switch at the back of the server to on: **I** is on, **O** is off.
3. Press the power button on the front of the server.

For an illustration of front-panel components, see [Figure 1: S3400-family MAS—front view with bezel removed](#) on page 15.

Note:

If the server does not start, verify that the Modular Messaging system has AC power. Check the UPS settings, and that the UPS is receiving AC power.

4. *Optional:* When the server starts to boot, you can:
 - a. Press **Esc** when the system displays the splash screen.
 - b. Press the space bar to skip the memory check.

Note:

On the integrated LAN and video model, you might see the error message **System Event Log Full** when the system boots. You can ignore this message. Modular Messaging does not use this log.

5. If the server is already configured, log on to the server after the reboot is complete. Verify that all Modular Messaging services required for this server are started. For more information, see *Avaya Modular Messaging Installation and Upgrades* ([PDF](#)).
6. Continue with any procedures needed to bring the system into full service.

Note:

If the PBX administrator busied out the MAS ports on the switch, the administrator must bring the MAS ports back into service.

Turning off and on an S3400-family MSS

You can turn off or on a Message Storage Server (MSS) independently of the rest of the Avaya Modular Messaging system. The MASSs continue to take calls while you service the MSS. When the MSS is available, the MASSs deliver any saved call answer messages to the MSS.

Turning off an S3400-family MSS

To turn off a Message Storage Server (MSS):

1. Shut down the software on the server:
 - a. Start at the Administration main menu and select **Utilities > Shutdown System**.
 - b. On the Shutdown System page, click **Shutdown**.
 - c. At the shutdown warning message, click **OK**.

The system automatically stops the messaging software and shuts down the system. The shutdown process takes about 15 minutes.

After the software is completely shut down, the server displays the message **Power down**.

- d. Remove any disk from the DVD drive.
- e. To turn off the power, press the power button on the front of the MSS.

Note:

For an illustration of MSS front-panel components, see:

- [Figure 4: S3400-family MSS-S, front view with bezel removed](#) on page 20
- [Figure 7: S3400-family MSS-H, front view with bezel removed](#) on page 23

2. Verify that the power lamp on the front of the server is dark.
3. Toggle the power switch at the back of the server to off: | is on, 0 is off.

Note:

An MSS-H might have one or two power switches, depending on the type of redundant power supply installed.

4. To completely remove power to the server, unplug all AC power cords.

Note:

In the United Kingdom, if a modem is attached to the server, first disconnect the telephone line from the server, then unplug the power cord.

- The Avaya Message Storage Server Standard Availability version (MSS-S) has a single AC cord.

Turning the servers off and on

- The Avaya Message Storage Server High Availability version (MSS-H) might have one or two AC power cords, depending on the type of redundant power supply installed.

For the vertically stacked model:

- Push the rocker switch on each power supply to turn off the power.
- Unplug the AC cord from each power supply.

For the side-by-side model:

- Push the rocker switch below both power supplies to turn off the power.
- Unplug the AC cord from below the power supplies.



CAUTION:

You must physically unplug all AC power cords to completely remove power to an S3400-family server. Otherwise, some components remain active, even if the power button is off.

Turning on an S3400-family MSS

To turn on a Message Storage Server (MSS):

1. Plug all AC power cords into the power outlet on the back of the server.
 - The MSS-S has a single AC cord.
 - The MSS-H might have one or two AC power cords, depending on the type of redundant power supply installed.
2. To turn on the Message Storage Server (MSS):
 - a. Toggle the power switch at the back of the server to on: **I** is on, **O** is off.

Note:

An MSS-H might have one or two power switches, depending on the type of redundant power supply installed. Depending on the model, the MSS-H power supply LEDs might be orange until you press the power button on the front of the server. Usually, the LEDs are green. For more information, see [Identifying key components of the MSS](#) on page 19.

- b. Press the power button on the front of the MSS.
- c. Verify that the LEDs on the front of the server flash once, and then show system activity.
- d. Wait up to 1 minute for the display to appear on the monitor.

Note:

If the server does not start, verify that the Modular Messaging system has AC power. Check the UPS settings, and that the UPS is receiving AC power.

3. *Optional:* When the server starts to boot, you can:
 - a. Press **Esc** when the system displays the splash screen.
 - b. Press the space bar to skip the memory check.

Note:

On the integrated LAN and video model, you might see the error message **System Event Log Full** when the system boots. You can ignore this message. Modular Messaging does not use this log.

4. Continue with any procedures needed to bring the system into full service.

Turning on an S3400-family server system

To turn on all the hardware components in a Modular Messaging system that uses S3400-family server hardware:

1. Verify that the power cables for the S3400-family servers and all peripheral devices are connected. Cables might go to the UPS or to an appropriate AC power outlet, as noted:
 - UPS: connected to an appropriate AC power outlet.
 - All S3400-family servers: each connected to the UPS.
 - KVM switch and monitor: optionally connected to the UPS, or to an appropriate AC power outlet.
 - Ethernet switch for an MSS configuration: connected to the UPS, or to an appropriate AC power outlet.
 - External modems that require a power cord: connect the power cord to the UPS, or to an appropriate AC power outlet.
2. Press the **On** button on the front of the UPS. The appropriate lamps should light. For more information, see the UPS documentation.

Note:

Always turn on the UPS first.

3. Press the power button on the monitor.

The power lamp on the monitor should light.
4. *For each external modem*, press the **On** button, if present. Verify that the appropriate lamps light. For more information, see the modem documentation.
5. Verify that the power lamps are lit for any additional peripheral devices that do not have on/off buttons. Additional devices include the KVM switch and, for MSS configurations, the Ethernet switch for the private LAN.

Turning the servers off and on

6. For an MSS configuration, turn on the Message Storage Server (MSS) first:

- a. Toggle the power switch at the back of the server to on: **I** is on, **O** is off.

Note:

An MSS-H might have one or two power switches, depending on the type of redundant power supply installed. Depending on the model, the MSS-H power supply LEDs might be orange until you press the power button on the front of the server. Usually, the LEDs are green. For more information, see [Identifying key components of the MSS](#) on page 19.

- b. Press the power button on the front of the MSS.
- c. Verify that the LEDs on the front of the server flash once, and then show system activity.
- d. Wait up to 1 minute for the display to appear on the monitor.



CAUTION:

For an MSS configuration with multiple MASs, do not connect additional MASs to the Ethernet switch until you are ready to configure or use them. Otherwise, the unused MASs might create errors on the private network, even if you turn off the server. For more information, see [Connecting additional servers to the private LAN](#) on page 53.

7. Turn on each MAS or supplementary server:

- a. Toggle the power switch at the back of the server to on: **I** is on, **O** is off.
- b. Press the power button on the front of the server.
- c. Verify that the LEDs on the front of the server flash once, and then show system activity.
- d. Wait up to 1 minute for the display to appear on the monitor.

8. *Optional:* When any S3400-family server starts to boot, you can:

- a. Press **Esc** when the system displays the splash screen.
- b. Press the space bar to skip the memory check.

Note:

On the integrated LAN and video model, you might see the error message **System Event Log Full** when the system boots. You can ignore this message. Modular Messaging does not use this log.

9. Continue with any procedures needed to bring the system into full service.

Chapter 4: Installing Avaya servers in an MSS configuration

This chapter describes how to install Avaya S3400-family message servers in an Avaya Message Storage Server (MSS) configuration. You can also use these procedures to install or replace the peripheral equipment for a Modular Messaging system with an MSS message store.

Note:

After you install a new server, you must configure the server as described in *Avaya Modular Messaging Installation and Upgrades* ([PDF](#)). Always use the appropriate version of the installation guide for the configuration and software release of the Modular Messaging system you are working on.

Topics in this chapter include:

- [Installing the UPS and optional EBM](#)s on page 39
- [Installing an S3400-family server](#) on page 43
 - [Attaching the front bezel](#) on page 43
 - [Installing S3400-family servers in a rack-mount or stackable setup](#) on page 44
 - [Connecting the system power cables](#) on page 48
 - [Connecting the MAS port boards, if present](#) on page 50
- [Connecting the Ethernet cables](#) on page 51
- [Installing a KVM switch](#) on page 55
- [Attaching ferrites](#) on page 61
- [Connecting the USB modem on the MAS](#) on page 62
- [Connecting the MSS RMB](#) on page 65

Sample MSS configuration system

For an example of an installed rack-mount system, see [Figure 10: Example of a rack-mount MSS system with S3400-family servers—front view](#) on page 38.

Note:

The sample figure shows the required MSS and two Avaya MAS S3400-family servers with their front bezels removed.

Figure 10: Example of a rack-mount MSS system with S3400-family servers—front view

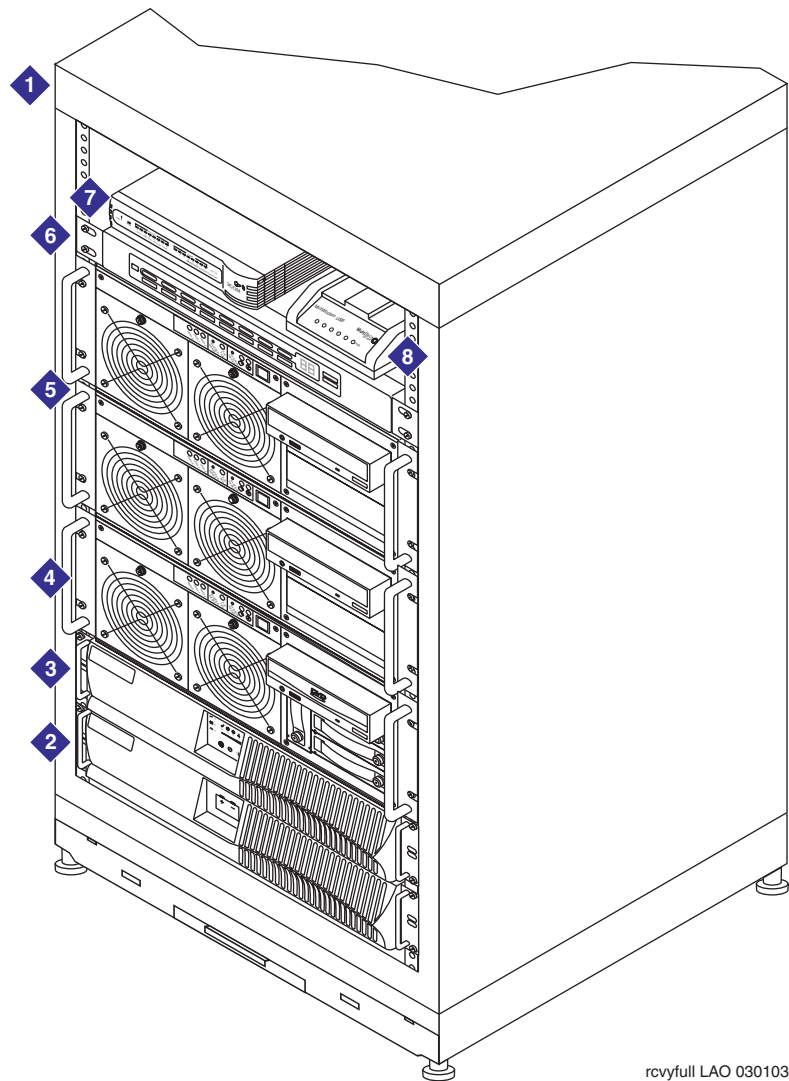


Figure notes:

1. Customer-provided cabinet. Type can vary. For more information, see [Installation area requirements](#) on page 7.
2. EBM—optional. 0 to 4 can be installed with a UPS.
3. UPS—required. Model can vary.
4. Required Message Storage Server (MSS). Can be an MSS-H or MSS-S.
5. Avaya Messaging Application Server (Avaya MAS). Up to 5 Avaya MASs can be present. Additional supplementary servers might also be present (not shown).
6. KVM switch—optional. Model can vary.
7. Ethernet switch. One is always required.
8. External modem. One is required for each MAS.

Installing the UPS and optional EBMs

This section describes how to install an uninterruptible power system (UPS) and one or more optional extended battery modules (EBMs).

Note:

Customers might order a different model of UPS than the one described in this section, or they can supply their own. For more information, see the documentation provided with the UPS.

- The UPS is a required component for all Avaya Modular Messaging systems. The UPS protects the system from most common power problems, including power failures, power sags, and power surges.
- The EBM is an optional component that works in conjunction with the UPS to add additional run time for the system. The customer can add up to four EBMs per UPS. For more information, see the documentation provided with the EBM and UPS.

To install the UPS and EBMs:

- For a rack-mount configuration, see [Installing the UPS and any EBMs into a rack](#) on page 39.
- For a stackable desktop configuration, see [Installing the UPS and any EBMs as a stackable configuration](#) on page 40.

Note:

Customers who use an MSS-H might prefer to install two UPSs, so each MSS-H can plug into a UPS that is on a separate circuit. For this type of setup, one or more MASs might be connected to the second UPS. Modify these installation instructions as required if you are installing a two-UPS system.

Installing the UPS and any EBMs into a rack

In a rack-mount configuration, the UPS and EBMs must be positioned in the rack below the Avaya Modular Messaging servers. Install the EBM units in the lowest-available position.

To install the UPS and EBMs into a rack:

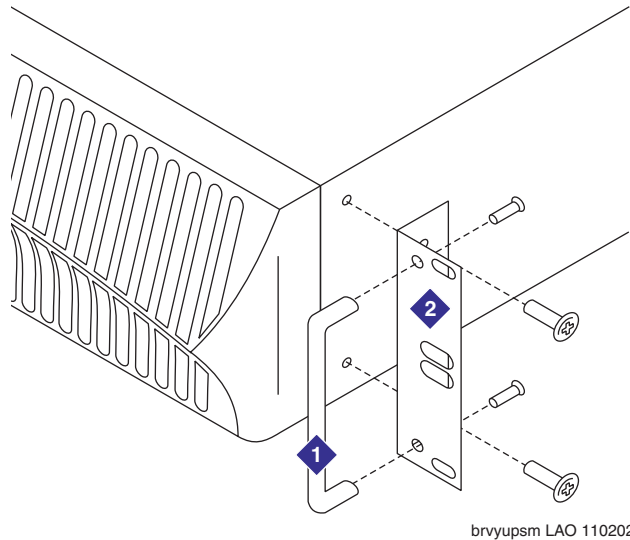
1. Gather the necessary rack-mount hardware, including the mounting handles, brackets, and screws.
2. Place the UPS on a flat, stable surface with the front of the UPS towards you.
3. Attach the mounting handle to each bracket using the supplied screws. See Item 1 in [Figure 11](#).
4. Align the mounting brackets with the screw holes on the side of the UPS and secure using the supplied screws. See Item 2 in [Figure 11](#).

5. If you are installing one or more EBMs, repeat Steps 1 through 4 for each EBM.

Note:

You must install any EBMs below the UPS.

Figure 11: Attaching mounting handles and bracket for a rack-mount UPS



6. Place the EBM into the rack in the lowest-available position. Attach the EBM to the rack using customer-provided screws.

Note:

If you must install additional EBMs into the rack, install them above the first installed EBM.

7. Place the UPS into the rack in the lowest-available position above any EBMs. Attach the UPS to the rack using customer-provided screws.
8. Continue with [Connecting any EBMs to the UPS](#) on page 41.

Installing the UPS and any EBMs as a stackable configuration

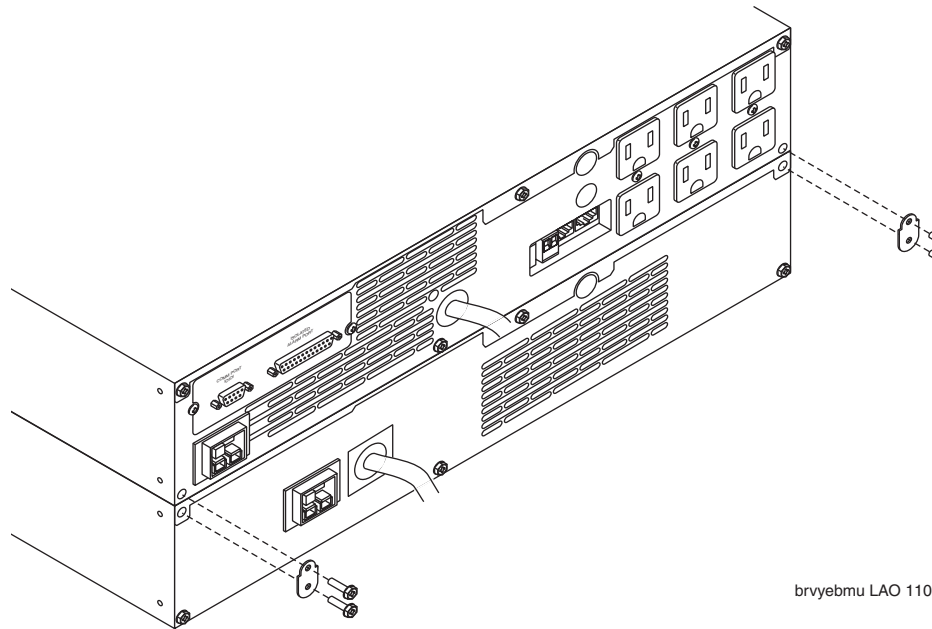
To configure the UPS and any EBMs in a stackable configuration:

1. If you are installing one or more EBMs:
 - a. Remove the adjacent corner screws from the back panels, as shown in [Figure 12](#).
 - b. Install the EBM brackets by aligning each bracket with the screw holes. Secure the bracket using the supplied screws.
 - c. Repeat Step 1 for each additional EBM, if present.

Note:

If you do not have any EBM units, continue with Step 2.

Figure 12: Attaching connecting brackets on a UPS and EBM—back view



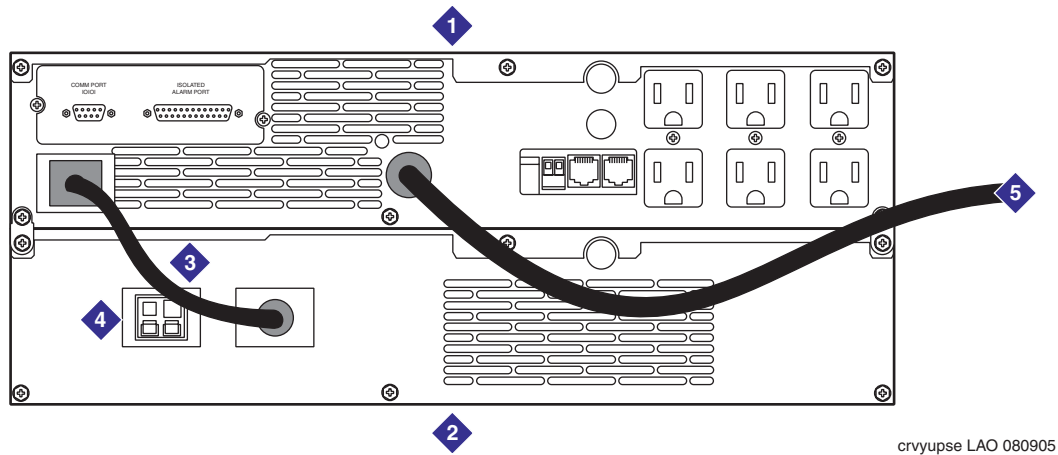
2. On the bottom unit, either the UPS or an optional EBM, secure four rubber spacers to the bottom of the unit, one at each corner.
3. Set the unit on a stable platform. This unit is the base of the stackable desktop configuration.

Connecting any EBMs to the UPS

To connect any EBM units to the UPS:

1. Connect the EBM cable to the battery connector on the UPS. See Item 3 in [Figure 13](#).
2. To connect additional EBMs, plug the EBM cable of the second EBM into the battery connector on the first EBM. See Item 4 in [Figure 13](#).
3. Repeat Step 2 for each additional EBM. Up to four EBMs can be present.

Figure 13: Connecting a UPS and an EBM—back view



crvypse LAO 080905

Figure notes:

1. UPS. Model can vary. For more information, see the documentation provided with the UPS.
2. EBM—optional. 0 to 4 can be installed.
3. EBM battery cable to UPS.
4. Battery connectors for additional EBMs if needed—optional.
5. UPS power cable to a grounded AC power source—Do not connect yet.

Installing an S3400-family server

This section describes how to install each Avaya S3400-family message server in a customer-provided commercial cabinet or in a stackable desktop configuration.

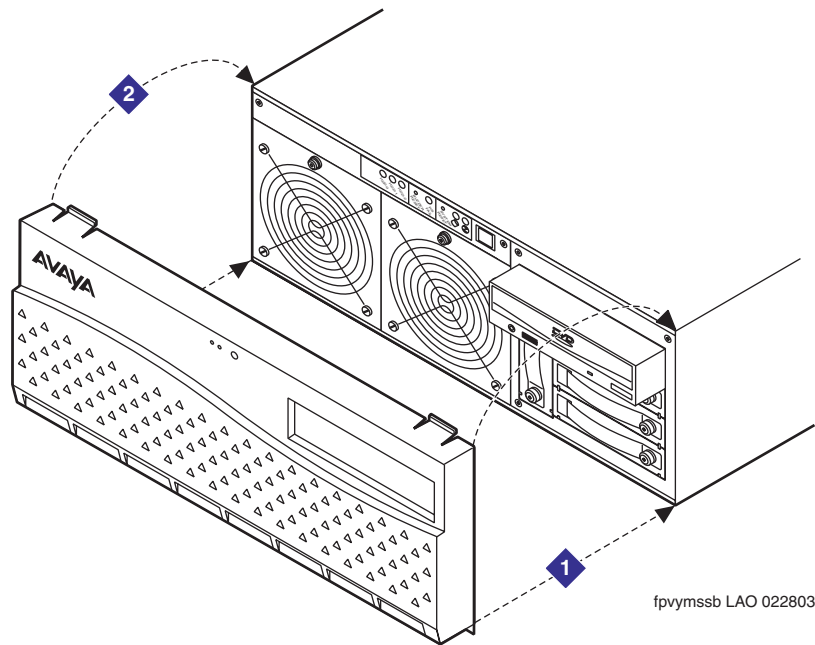
Attaching the front bezel

The front bezel ships loose to prevent damage during shipment.

To attach the front bezel to an S3400-family server:

1. Insert the tabs on the bottom of the front bezel into the chassis. See Item 1 in [Figure 14](#).
2. Push the bezel upright until the two upper tabs snap into place under the top cover. See Item 2 in [Figure 14](#)

Figure 14: Attaching the front bezel on an S3400-family server



Installing S3400-family servers in a rack-mount or stackable setup

You can install S3400-family servers in a commercial cabinet in a rack-mount configuration. Alternatively, you can stack servers on top of each other in a desktop configuration. Continue with the appropriate section based on the installation method to be used at this site:

- [Installing servers in a rack-mount configuration](#) on page 44
- [Installing servers in a stackable desktop configuration](#) on page 46



CAUTION:

The Avaya Modular Messaging servers are heavy. Get another person to assist you with lifting the servers into place.

Installing servers in a rack-mount configuration

This task describes how to install one or more Avaya S3400-family message servers inside a commercial cabinet. This setup is called a *rack-mount configuration*.

Note:

The MSS-S or MSS-H is usually installed directly above the UPS. The first MAS is usually installed directly above the MSS. If more than one MAS is present, you usually install each additional MAS above the first MAS. However, all the servers in the system do not have to be in the same cabinet.

Before you start to install the servers into the rack, verify that the necessary rack-mount hardware is on site. For a list of required equipment, see [Table 9](#).

Table 9: Required rack-mount hardware

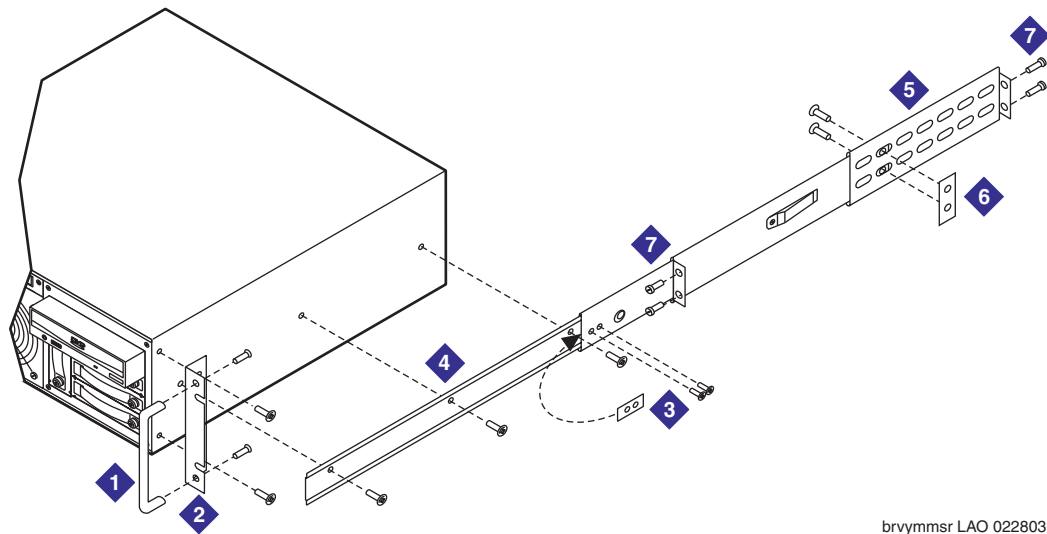
Part	Quantity
Extension bracket—two different lengths might ship	2 per server
Right-side rack-mount rails and slides	1 set per sever
Left-side rack-mount rails and slides	1 set per sever
Front panel handle set, including handles and mounting brackets. These might already be assembled on some units.	1 set per server
Miscellaneous screws and mounting hardware	1 set per server
<i>Customer provided:</i> Mounting hardware to secure the extension bracket and rack-mount slide to the customer-provided rack.	1 set per rack-mount rail and extension bracket

To install an S3400-family server into a rack:

1. Gather the necessary rack-mount hardware, as listed in [Table 9](#).

2. Place the server on a flat, stable surface.
3. *If the mounting handles are not already attached*, attach them now:
 - a. Connect the handles to the bracket using the supplied flat-head screws. See Item 1 in [Figure 15](#).
 - b. Align the mounting bracket with the screw holes on the side of the server. Secure the bracket using the supplied flat-head screws. See Item 2 in [Figure 15](#).

Figure 15: Attaching server mounting handles, bracket, and rack-mount rail assembly



4. The mounting rails consist of a narrow, flat piece that connects to the server, and a slide. Identify the rails for the left and right side of the server as you face the unit from the front. The rack-mount rails are *not* interchangeable. Some rails are labeled **LH** for left and **RH** for right.

If the set of rails you have is *not* labeled:

- a. Hold the rail-slide assembly so that the 2-hole bracket that connects to the front of the customer rack faces left. See Item 7 in [Figure 15](#).
- b. Fully extend the slide so that you can see the holes in the flat piece of the rail slide that mounts to the server. See Item 4 in [Figure 15](#).
 - If the holes are on the *upper* side of the flat rail piece, this rail connects to the *right* side of the server chassis.
 - If the holes are on the *lower* side of the flat rail piece, this rail connects to the *left* side of the server chassis.

Installing Avaya servers in an MSS configuration

Note:

The holes for mounting to the server are offset to get the correct alignment in the rack. Verify by the position of the holes in the bracket that you are installing each rail on the correct side.

5. Attach the rack-mount rails to the server as follows:
 - a. Remove the two screws and retaining bar on the rail slide just in front of the server-retaining latch. Set them aside for later. See Item 3 in [Figure 15: Attaching server mounting handles, bracket, and rack-mount rail assembly](#) on page 45.
 - b. Disassemble the slide to get access all three screw holes.
 - c. Place the flat piece of the rail slide against the server and secure it with the three supplied flat-head screws. See Item 4 in [Figure 15](#).
6. Position the extension bracket on end of the rail slide to provide the depth needed for the server to fit in the rack. More than one extension bracket might be shipped. Choose the correct length for the cabinet. See Item 5 in [Figure 15](#).
7. Attach the extension bracket to the rear of the rail slide using the supplied screws and retaining bar. Use 2 pan-head screws per bracket. See Item 6 in [Figure 15](#).
8. Connect the extension bracket and rail slide to the customer-provided four-post rack using the correct customer-provided hardware for that cabinet model. See Item 7 in [Figure 15](#).
9. Fully extend the rail slides to the locked-out position.
10. With another technician supporting the server, align the front of the rail slide with the rack-mount rail that is attached to the server.
11. Push the server onto the rail slide far enough so that the safety catch engages.
12. Slide the server completely into the rack. Ensure that the server moves smoothly in and out of the rack.
13. Reattach the two screws and retaining bar on the rail slide just in front of the server-retaining latch. See Item 3 in [Figure 15](#), from Step 5-a.
14. Repeat Steps 2 through 13 for each server that must be installed.
15. When all servers are mounted, continue with [Connecting the system power cables](#) on page 48.

Installing servers in a stackable desktop configuration

For a stackable desktop configuration, install four rubber spacers on the bottom on each of the servers. The spacers enable you to stack the servers on top of one another.

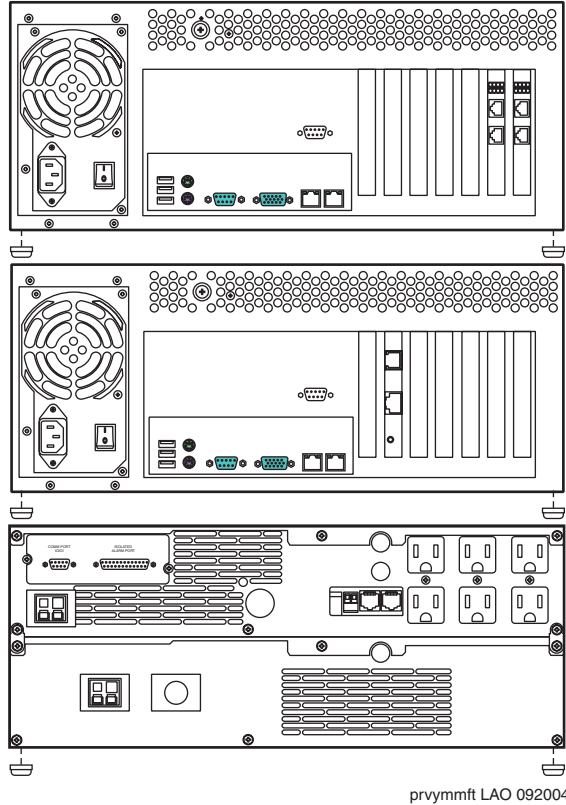


CAUTION:

For safety, do *not* stack more than two Avaya servers on top of each other. Create multiple stacks if needed.

For a sample desktop configuration, see [Figure 16](#).

Figure 16: Attaching rubber spacers for a stackable desktop configuration



To install the servers in a stackable desktop configuration:

1. Gather the rubber spacers shipped with each server.
2. Attach the rubber spacers to the bottom of each of the servers, one at each corner. For an example, see [Figure 16](#).
3. Position the UPS, and its attached EBMs if present, in an appropriate location. For more information about placement, see [Site requirements for Avaya message servers](#) on page 5.



CAUTION:

If you have a UPS *and* an EBM, stack only one server on top of them. *Never* stack Avaya servers more than two high.

4. Place the MSS-S or MSS-H on top of the UPS.
5. Create a new stack for the first MAS. Position the server in an appropriate location.
6. Place the second MAS or the supplementary server, if present, on top of the first one.

7. If more MASs or supplementary servers are present, create another stack, placing each additional server on top of the last one. Create as many stacks as needed, so there are never more than two servers in one stack.

Connecting the system power cables

Attach the power connections on the back of each server.

Note:

Customers who use an MSS-H might prefer to install two UPSs, so each MSS-H can plug into a UPS that is on a separate circuit. For this type of setup, one or more MASs might be connected to the second UPS as well. Modify these instructions as required if you are installing a two-UPS system.

To connect the power cables for the Modular Messaging system:

1. Connect the MSS:
 - a. Connect the female end of the power cable for the MSS to the male power connector located on the back of the MSS-S or MSS-H.
 - b. Connect the male end of the MSS power cable to an AC receptacle located on the back of the UPS. For a sample configuration, see [Figure 17: Attaching power cables to a UPS—sample configuration](#) on page 49.
 - c. For an MSS-H, repeat Steps a and b for the second MSS-H power supply if needed.
2. Connect each MAS and supplementary server:
 - a. Connect the female end of the MAS power cable to the male power connector on the back of the S3400-family server.
 - b. Connect the male end of the server power cable to an AC receptacle located on the back of the UPS.
 - c. *If you have more than one server*, repeat Steps a and b for each server.
3. After all equipment is connected, plug the UPS power cable into an appropriate AC power outlet.

Figure 17: Attaching power cables to a UPS—sample configuration

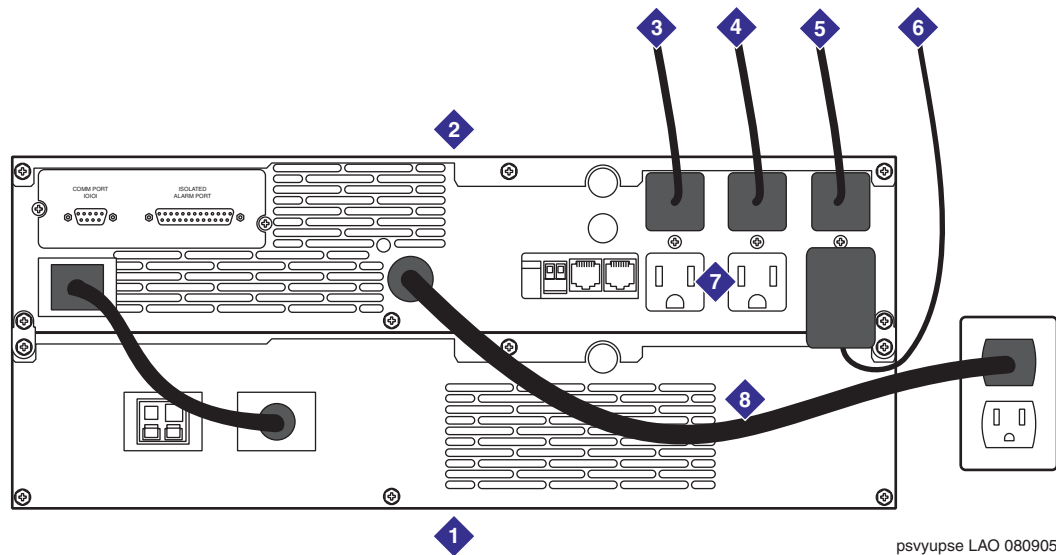


Figure notes:

1. EBM—optional. 0 to 4 can be installed.
2. UPS. Model can vary. For more information, see the documentation provided with the UPS.
3. AC power cable to required MSS.
4. AC power cable to required MAS.
5. AC power cable for a redundant power supply on an MSS-H, or for an additional MAS, if present.
6. AC-to-DC transformer for Ethernet switch.
7. Additional AC sockets. Use as needed for external modems, the monitor, an optional 8-port KVM switch, or any additional servers.
8. UPS power cable to a grounded AC power outlet. Plug in this cable last.

Connecting the MAS port boards, if present

Do this task only if port boards are present in the Avaya MAS.

Connect any MAS port boards to the PBX (switch). For more information about Dialogic port boards, see [Supported MAS port boards](#) on page 18.

Note:

If this MAS uses an IP H.323 or IP SIP switch integration, no port boards are present. Continue with [Connecting the Ethernet cables](#) on page 51.

To connect the MAS port boards to the switch:

1. Assemble the required cables.

Note:

Port boards ordered through Avaya ship with the correct cables.

2. Connect each port on the port boards to the switch (PBX) as required.

Note:

Check the numbering on the port board faceplate to verify that you are connecting the correct cord to the correct port.

● **For E1-QSIG or T1-QSIG boards:**

- a. Connect the port on the Dialogic T1-QSIG or E1-QSIG board using an RJ-48C Ethernet cable.
- b. The other end of the cable must be connected to the QSIG board on the corporate switching system. The organization responsible for maintaining the corporate switch must make this connection. See the customer contract or the statement of work.

● **For set emulation boards:**

- a. Connect each port on the Dialogic set emulation (DSE) board using the D/82U cable (Intel part number 86-0155-001).
- b. The other end of the cable must be connected to a 4-wire punch-down block on the corporate switching system. The organization responsible for maintaining the corporate switch must make this connection. See the customer contract or the statement of work.

● **For analog boards:**

- a. Connect each port on the installed analog boards to one end of a standard RJ-11 tip/ring cord. You can also use individual tip/ring cables and a 12-port harmonica. Note which cables connect to which ports.
- b. The other end of the cable must be connected to an analog line on the corporate switching system. The organization responsible for maintaining the corporate switch must make this connection. See the customer contract or the statement of work.

Connecting the Ethernet cables

Each Modular Messaging system must make two types of Ethernet connections:

- Each server in the Modular Messaging system must connect to the corporate LAN.

Note:

A standard Ethernet cable ships with each Avaya S3400-family message server. You can use the shipped cable or a customer-provided cable to connect each server to the corporate LAN.

- The MSS must connect to all Avaya MAS units, including the supplementary tracing server if present, through a private LAN.

Modular Messaging systems that use S3400-family server hardware use an Ethernet switch to set up the private LAN. To connect the Ethernet cables on a Modular Messaging system that uses an Ethernet switch, complete the following tasks:

- [Connecting the S3400-family servers to the private LAN](#) on page 51
- [Connecting additional servers to the private LAN](#) on page 53
- [Connecting the S3400-family servers to the corporate LAN](#) on page 54

Connecting the S3400-family servers to the private LAN

The private LAN allows the MSS to communicate with all MASs and the supplementary tracing server, if present.

To connect the S3400-family servers to the private LAN:

1. Unpack the Ethernet switch. This section assumes that you are using a 3COM Office Connect Dual Speed Switch 8 Plus model.
2. Attach the rubber spacers to the four marked areas in each corner on the bottom of the Ethernet switch. See Item 2 in [Figure 18: Connecting the MSS and MAS servers using an Ethernet switch—back view](#) on page 52.
3. Place the Ethernet switch on top of the KVM switch.
4. A suitable power cord and transformer for your region shipped with the Ethernet switch.
 - a. Locate the DC power connector on the back of the switch. Peel back the label over it, and then insert the end of the Ethernet switch power cable into the DC power connector.
 - b. Connect the other end of the AC-to-DC transformer to the back of the UPS or to an appropriate AC power outlet.



CAUTION:

Do *not* connect the private LAN switch to the corporate LAN.

Figure 18: Connecting the MSS and MAS servers using an Ethernet switch—back view

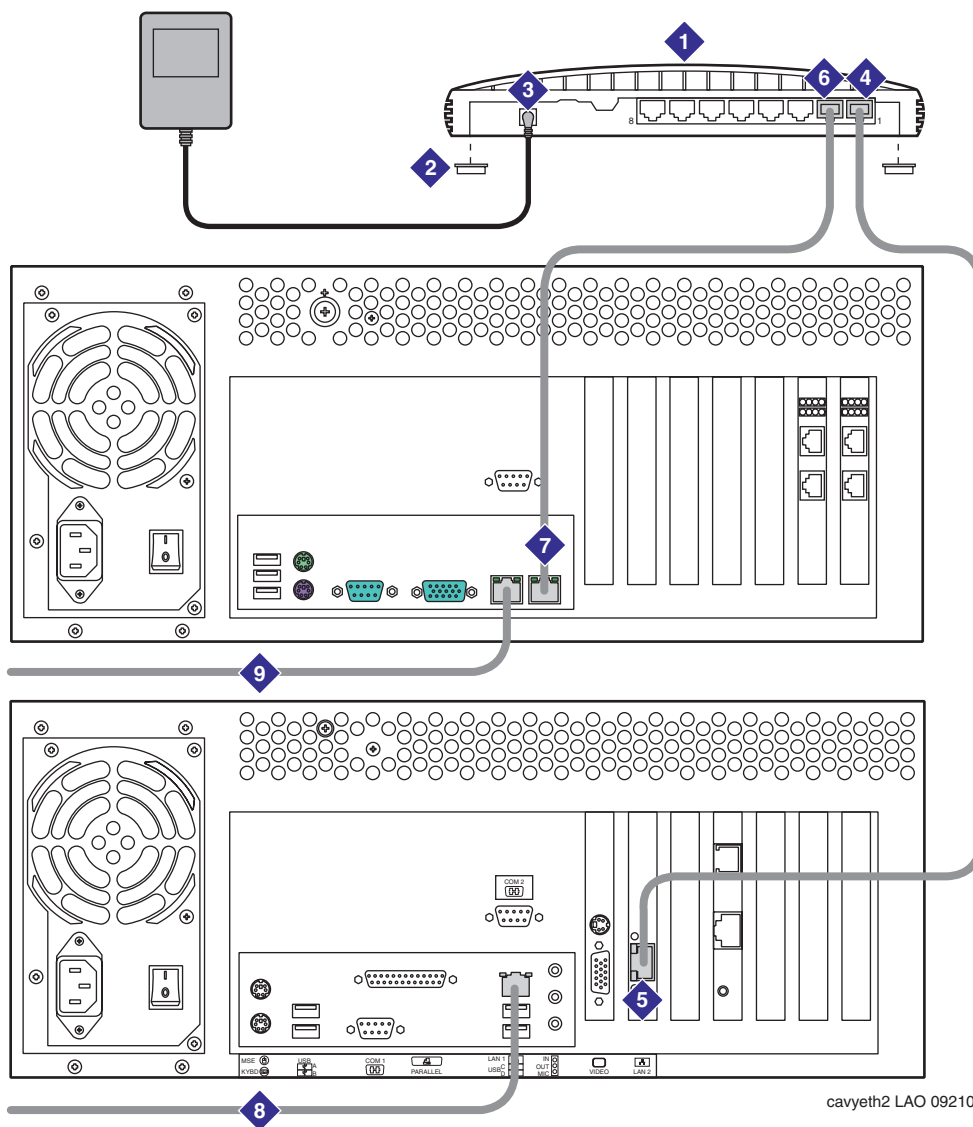


Figure notes:

1. Ethernet switch
2. Rubber spacers
3. DC power jack
4. Ethernet connection to private LAN on MSS. Usually this connection uses Ethernet switch port 1.
5. Private LAN interface on MSS. For example purposes, the nonintegrated video and LAN back panel is shown. For this model, use the NIC card in the first PCI slot.
6. Ethernet connection to private LAN on first MAS. Usually this connection uses Ethernet switch port 2. Subsequent MASs and the supplementary tracing server, if present, use ports 3, 4, and so on.
7. Private LAN interface on Avaya MAS. For example purposes, the integrated video and LAN back panel is shown. For this model, use the NIC2 connector next to the PCI slots.
8. Ethernet interface to corporate LAN on MSS
9. Ethernet interface to corporate LAN on MAS. On the integrated video and LAN model, use the 1 Gbit connector as shown.

5. Connect the private LAN cables for the MSS and the first MAS.
 - a. *MSS-S or MSS-H*: Connect the provided Ethernet cable to the first Ethernet interface, labeled 1, on the back of the switch. See Item 4 in [Figure 18: Connecting the MSS and MAS servers using an Ethernet switch—back view](#) on page 52.
 - b. *MAS*: Connect the provided Ethernet cable to the second Ethernet interface, labeled 2, on the back of the switch. See Item 6 in [Figure 18](#).
6. Connect the other end of each Ethernet cable to the appropriate connector on the server. See Items 5 and 7 in [Figure 18](#).

Connecting additional servers to the private LAN

In a multiple-MAS system, you must connect all additional MASs and the supplementary tracing server, if present, to the private LAN. Connect additional servers *only* when you are ready to configure them.

CAUTION:

Do not connect any additional MASs in a multiple-MAS system to the Ethernet switch until you are ready to configure them. Otherwise, the unused servers might create errors on the private network, especially if the server is turned off.

If you must turn off an additional server for more than a few minutes, disconnect that server from the private network. Otherwise, errors might stop the private network from working. These errors occur even if you turn off the server.

To connect additional MASs or the supplementary tracing server, if present:

1. Connect the Ethernet cable to the appropriate connector on the server. See Item 6 in [Figure 18: Connecting the MSS and MAS servers using an Ethernet switch—back view](#) on page 52.

2. Connect the other end of the Ethernet cable to the next available Ethernet interface on the back of the switch. The interfaces are labeled **3**, **4**, and so on.

**CAUTION:**

The only supplementary server that you connect to the private LAN is a supplementary tracing server. For more information about identifying servers, see [Identifying Avaya S3400-family message servers](#) on page 11.

Connecting the S3400-family servers to the corporate LAN

A standard Ethernet cable ships with each Avaya S3400-family message server. You can use this cable or a customer-provided cable to connect each server to the corporate LAN.

**CAUTION:**

Do *not* connect the private LAN switch to the corporate LAN.

To connect each server to the corporate LAN:

1. Connect one end of the Ethernet cable to the appropriate RJ45 connector on the back of the server. For example connections, see [Figure 18: Connecting the MSS and MAS servers using an Ethernet switch—back view](#) on page 52.
 - *Integrated video and LAN model:* Use the NIC1 (1 Gbit) connector next to the video connector. See Item 9 in [Figure 18](#).
 - *Nonintegrated video and LAN model:* Use the RJ45 jack on the back of the server chassis. See Item 8 in [Figure 18](#).

Note:

Verify that you connect the Ethernet cable for the corporate LAN to the correct Ethernet interface on the back of the server. The two Ethernet interfaces on an S3400-family server operate at different speeds. Use the interface with the highest speed to connect to the corporate LAN.

2. Connect the other end of the Ethernet cable to the corporate LAN.

Note:

The organization that is responsible for maintaining the corporate LAN must make this connection. See the customer contract or the statement of work.

3. Repeat Steps 1 and 2 for each S3400-family server and supplementary server in the system.

Installing a KVM switch

You use a keyboard, video, and mouse (KVM) switch to view the different servers in a Modular Messaging system. However, the model of KVM switch and the specific monitor, keyboard, and mouse used can vary from site to site. For example, some sites might use a flat-panel monitor setup instead.

This section describes how to install an 8-port Belkin KVM switch. For a sample multiple-server installation that uses this KVM switch, see [Figure 10: Example of a rack-mount MSS system with S3400-family servers—front view](#) on page 38.

Note:

If this site uses any other model of KVM switch, install the switch using the instructions shipped with the equipment.

You can install the Belkin 8-port KVM switch in two configurations:

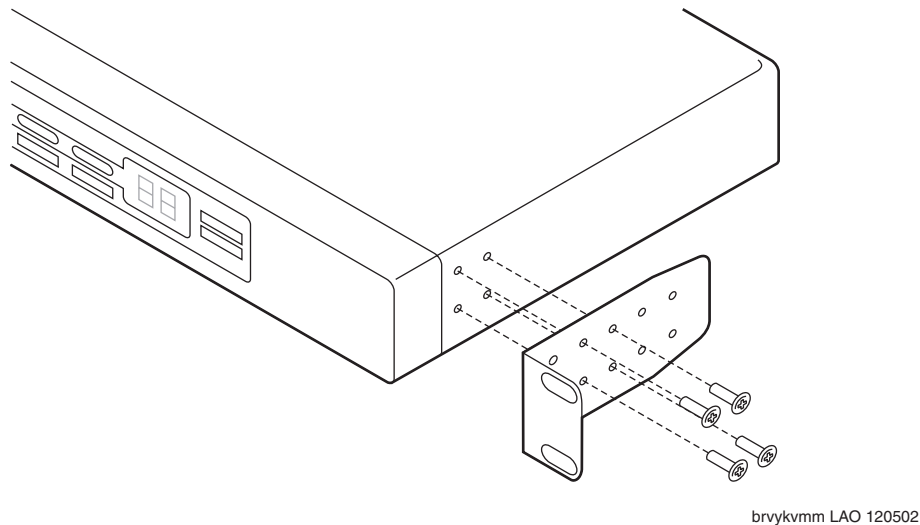
- For a stackable desktop configuration:
 - a. Place the KVM switch on top of the uppermost MAS, or on any convenient surface nearby. Rubber spacers are already in place.
 - b. Continue with [Connecting the KVM cables](#) on page 56.
- For a rack-mount configuration, continue with [Installing the KVM switch in a rack-mount configuration](#) on page 55.

Installing the KVM switch in a rack-mount configuration

To install the 8-port Belkin KVM switch in a commercial cabinet:

1. Gather the necessary rack-mount hardware, including the adjustable mounting brackets and screws.
2. Select a bracket-hole scheme to determine how far the KVM switch must protrude from the rack.
3. Install the two rack-mount brackets on the KVM switch using the provided screws. See [Figure 19: Attaching mounting brackets for a rack-mount KVM switch](#) on page 56.
4. Install the KVM switch into the rack above the last installed MAS.

Figure 19: Attaching mounting brackets for a rack-mount KVM switch



Connecting the KVM cables

You must connect the 8-port Belkin KVM switch to the keyboard, monitor, and mouse. You then connect the KVM switch to each server, as described in this section.

Connecting the KVM switch to the keyboard, monitor, and mouse

The KVM switch setup for the keyboard, monitor, and mouse can vary from site to site, depending on the equipment and cables used. For more information, see the documentation for the monitor, keyboard, and mouse.

To connect an 8-port Belkin KVM switch to the keyboard, monitor, and mouse:

1. If a new monitor, keyboard, or mouse was ordered for this system, unpack the equipment now. Otherwise, continue with Step 2.

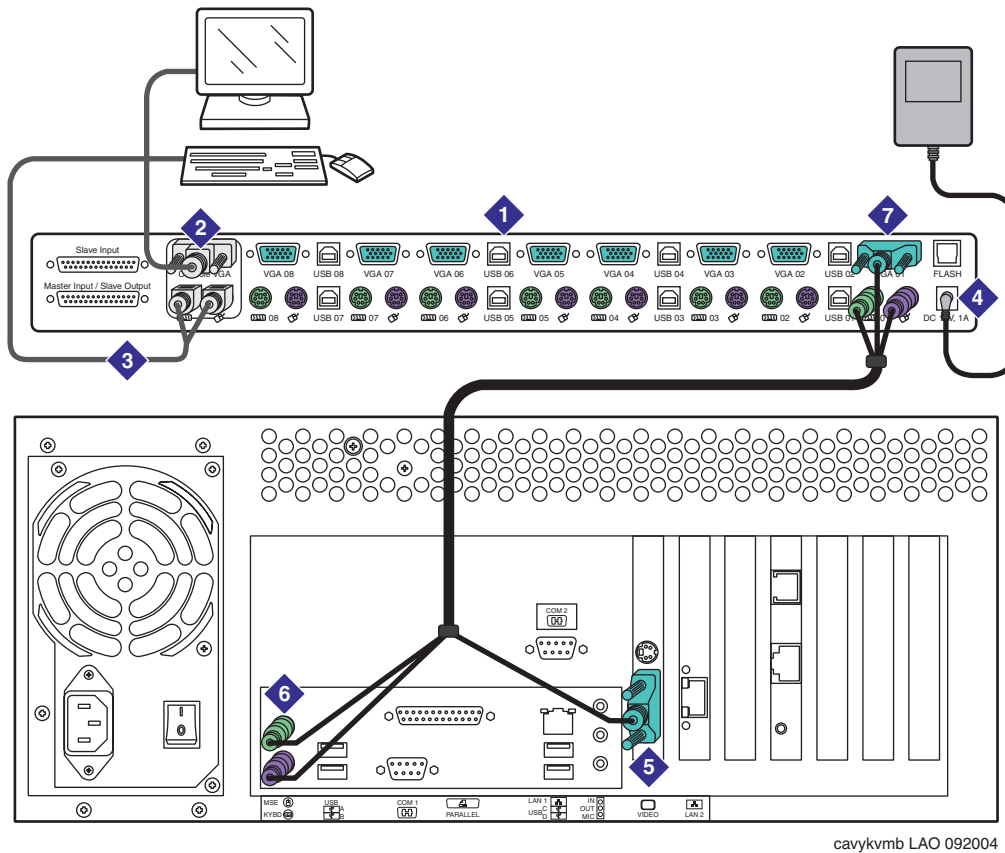
Note:

You can use any 15-inch or larger monitor for a Modular Messaging system.

- a. Set up the monitor in the desired location.
- b. Connect the keyboard and mouse to the monitor. This setup can vary.
- c. Plug the female end of the monitor power cable into the monitor.
- d. Plug the male end of the monitor power cable into a free UPS receptacle if available, or into a grounded AC outlet.

2. Connect the VGA cable from the monitor to the female port on the back of the KVM switch labeled **Console VGA**. See Item 2 in [Figure 20](#).

Figure 20: Connecting an 8-port Belkin KVM switch to the MSS—back view



cavykvmb LAO 092004

Figure notes:

1. 8-port Belkin KVM switch.
2. VGA cord from monitor to Console VGA port on KVM switch.
3. Y cable to combination keyboard and mouse for the monitor. Setup can vary.
4. DC power jack for transformer cable.
5. Video connector on the MSS. Position varies. The nonintegrated video and LAN back panel is shown for example purposes.
6. Keyboard and mouse connectors on the MSS. Position varies. The nonintegrated video and LAN back panel is shown for example purposes.
7. Video/keyboard/mouse cable to the server. Connect the MSS to the first computer port VGA 01 as shown. Connect any additional servers to the subsequent port positions, starting with VGA 02.

Installing Avaya servers in an MSS configuration

3. Tighten the thumbscrews on the video cable connector using your fingers or a small flat-blade screwdriver.
4. Connect the PS/2 cables for the mouse and keyboard to their corresponding connectors using the Y cable. Use the connectors in the **Console** section on the back of the KVM switch. See Item 3 in [Figure 20: Connecting an 8-port Belkin KVM switch to the MSS—back view](#) on page 57.

Note:

The mouse connector is color-coded green, and the keyboard connector is color-coded purple.

5. Connect the KVM switch power source:
 - a. Attach the KVM power cable to the DC power jack labeled **DC 12V, 1A** on the back of the KVM switch. See Item 4 in [Figure 20](#).
 - b. The other end of the KVM power cable is an AC-to-DC transformer. Connect the transformer to a receptacle on the back of the UPS, or to an appropriate AC power outlet.

When power is connected, the LED for port 01 starts flashing.

6. Push the direct-access port selectors for ports 01 through 08 in order.

The corresponding LED flashes as each button is pressed, indicating that the port is ready for the server connection.

Connecting the KVM switch to the S3400-family servers

To connect the KVM switch to all installed servers:

1. Connect the MSS:
 - a. Connect the KVM switch cable to the port labeled **VGA 01**, located on the back of the KVM switch. See Item 7 in [Figure 20: Connecting an 8-port Belkin KVM switch to the MSS—back view](#) on page 57.

Note:

The position of the video, keyboard, and mouse connectors on the MSS varies depending on the motherboard. They might be positioned as shown in [Figure 21: Connecting an 8-port Belkin KVM switch to an MAS—back view](#) on page 60.

- b. Connect the PS/2 keyboard and mouse connectors of the KVM cable to the keyboard and mouse ports on the back of the MSS. See Item 6 in [Figure 20](#).

Note:

The mouse connector is color-coded green, and the keyboard connector is color-coded purple.

- c. Plug the male VGA connector on the KVM switch cable into the VGA port on the MSS. See Item 5 in [Figure 20](#).

2. Connect each MAS or supplementary server:

- a. Connect the KVM switch cable to the port labeled **VGA 02**, located on the back of the KVM switch. See Item 4 in [Figure 21: Connecting an 8-port Belkin KVM switch to an MAS—back view](#) on page 60.

Note:

The position of the video, keyboard, and mouse connectors on the MAS varies depending on the motherboard. They might be positioned as shown in [Figure 20](#).

- b. Connect the PS/2 keyboard and mouse connectors of the KVM cable to the keyboard and mouse ports on the MAS. See Item 3 in [Figure 21](#).

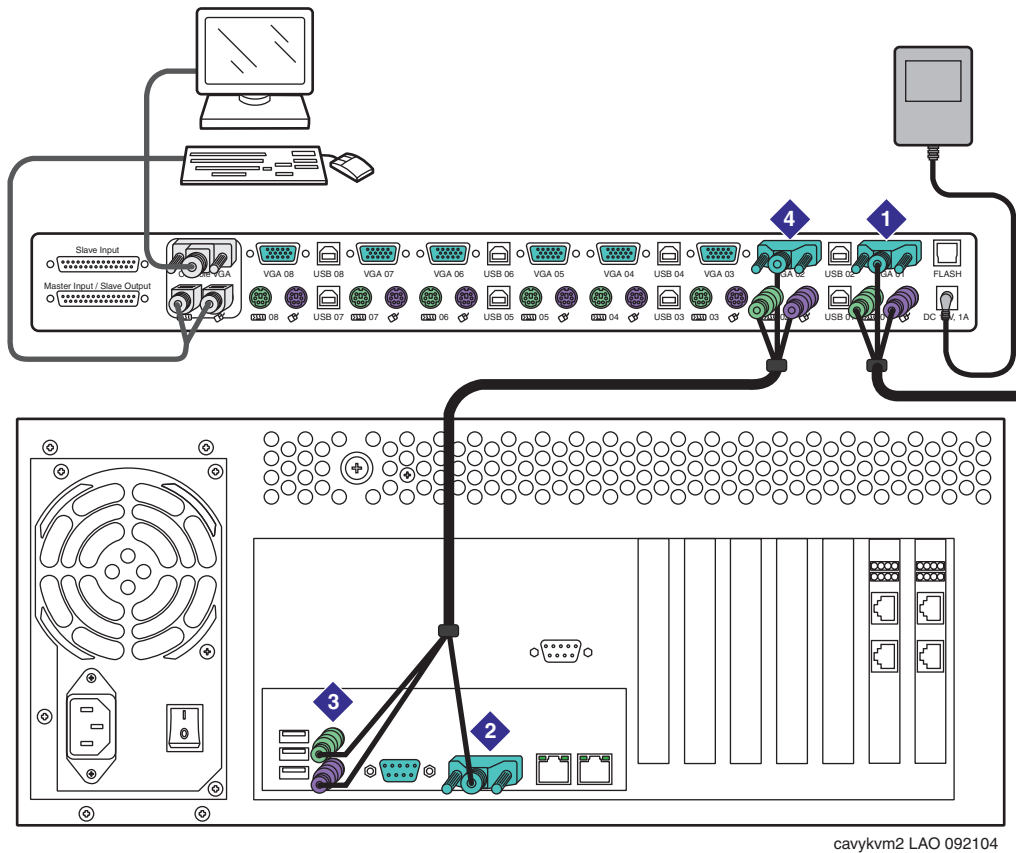
Note:

The mouse connector is color-coded green, and the keyboard connector is color-coded purple.

- c. Plug the male VGA connector on the KVM switch cable into the VGA port on the first MAS. See Item 2 in [Figure 21](#).

3. For a multiple-MAS system, repeat Step 2 for each MAS or supplementary server. Connect the servers to port **VGA 03**, **VGA 04** and so on, as needed.

Figure 21: Connecting an 8-port Belkin KVM switch to an MAS—back view



cavykvm2 LAO 092104

Figure notes:

1. KVM switch video/keyboard/mouse cable to the MSS
2. Video connector on the MAS. Position varies. The integrated video and LAN back panel is shown for example purposes.
3. Keyboard and mouse connectors on the MAS. Position varies. The integrated video and LAN back panel is shown for example purposes.
4. KVM switch video/keyboard/mouse cable to the first MAS. Usually the MSS is connected to the first computer port VGA 01. The MASs and any supplementary servers are connected in the subsequent port positions starting with VGA 02 as shown.

Attaching ferrites

Note:

Do this task only on a server that uses the nonintegrated video and LAN configuration. For more information about server types, see [Chapter 2: Hardware overview](#) on page 11.

Ferrites are *not* required on the integrated video and LAN model servers. For this model of server, continue with connecting the appropriate modem:

- MAS: See [Connecting the USB modem on the MAS](#) on page 62.
- MSS: See [Connecting the MSS RMB](#) on page 65.

The nonintegrated video and LAN model of Modular Messaging server requires ferrites to meet electromagnetic conductance (EMC) regulations. On this type of S3400-family server, you must attach ferrites to:

- the server video cable
- each E1-QSIG or T1-QSIG port board cable, if this type of board is present on an MAS
- the optional flat-panel monitor with an integrated KVM switch, if present



CAUTION:

Handle all ferrites with care. They are easily broken. Do not use any that are broken or fractured. Damaged ferrites are no longer effective for EMC control.

To install a ferrite on a cable:

1. Locate the video connector in the first slot on the back of the S3400-family server.
2. Open the ferrite by gently pulling the fastener away from the body of the ferrite. See [Figure 22: Attaching a ferrite to a cable](#) on page 62.
3. Place the cable cord in the groove inside the ferrite. Gently snap the ferrite shut.

Note:

Place ferrites as close as possible to the chassis to minimize the amount of cable between the ferrites and the chassis.

4. Attach a large cable tie directly behind the ferrite to secure it. Trim the cable tie.
5. *For systems that use a T1-QSIG or E1-QSIG port board:* Repeat Steps 2 through 4 to attach a ferrite to each QSIG port board cable.
6. *For systems that use a flat-panel monitor:* Repeat Steps 2 through 4 to attach a ferrite to the mouse and keyboard cables at each server. One ferrite can be used for both cables.

Figure 22: Attaching a ferrite to a cable

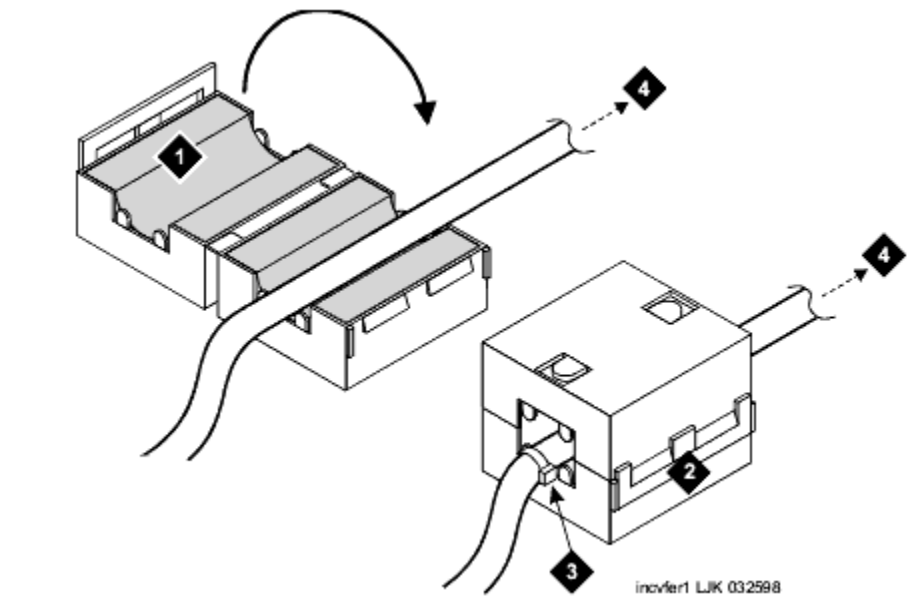


Figure notes:

- | | |
|-------------------------------|--------------------------|
| 1. Ferrite in open position | 3. Cable tie |
| 2. Ferrite in closed position | 4. Cable to the computer |

Connecting the USB modem on the MAS

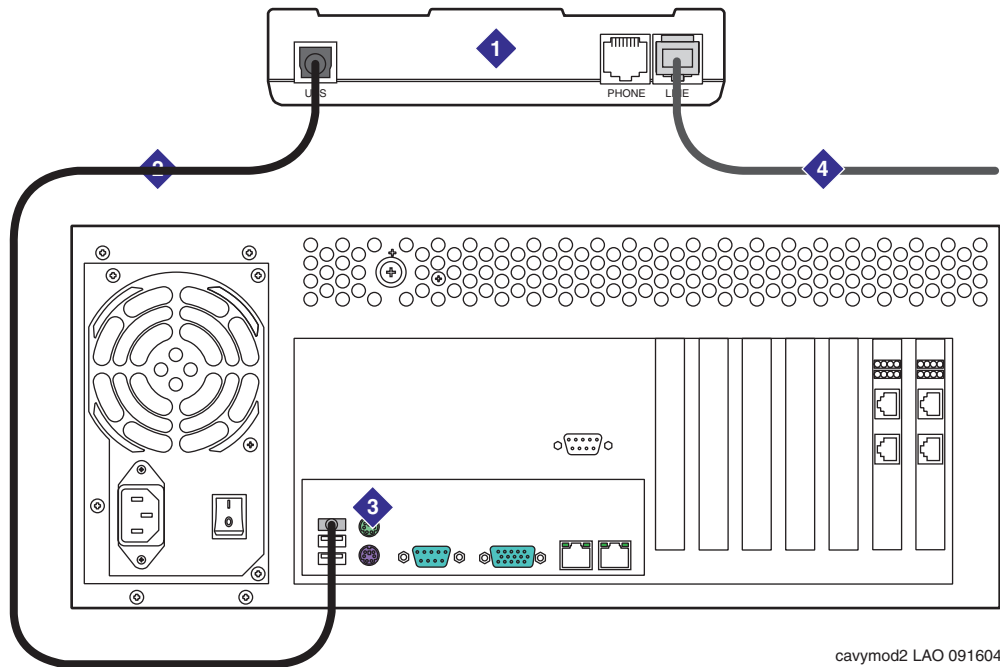
A USB modem is required for each Avaya MAS. The type of modem varies, depending on the installation location. For more information about modem installation, setup, or operation, see the documentation provided with the modem.

This section describes a MultiTech USB modem setup. For example connections, see [Figure 23](#) and [Figure 24](#).

To connect a USB modem:

1. Attach the rubber spacers to the four marked areas in each corner on the bottom of the modem, if spacers are not already in place.
2. Place the USB modem on top of the KVM switch or in a secure location, as required.
3. Connect one end of the USB cable to the back of the USB modem.

Figure 23: Connecting a USB modem to an S3400-family MAS with an integrated video and LAN—back view



cavymod2 LAO 091604

Figure notes:

1. USB modem
 2. USB cable to the MAS
 3. USB connector on the server. For the integrated video and LAN model, you can use any of the three USB ports, such as the topmost connector Port 1.
 4. RJ-11 cable to the corporate switch
4. Connect the other end of the USB cable to the back of the Avaya MAS. The recommended USB port varies depending on the model, as follows:
- *Integrated video and LAN model:* Use any of the three ports, such as the topmost USB connector (Port 1). See [Figure 23](#).
 - *Nonintegrated video and LAN model:* Avaya recommends that you use the upper-left USB connector (Port A). See [Figure 24](#).
5. Connect the RJ-11 cable to the LINE connector on the modem.
6. The other end of the cable must be connected to an analog line on the corporate switching system. The organization responsible for maintaining the corporate switch must make this connection. See the customer contract or the statement of work.
7. Repeat Steps 1 through 6 for each Avaya MAS modem.

Figure 24: Connecting a USB modem to an S3400-family MAS with a nonintegrated video and LAN—back view

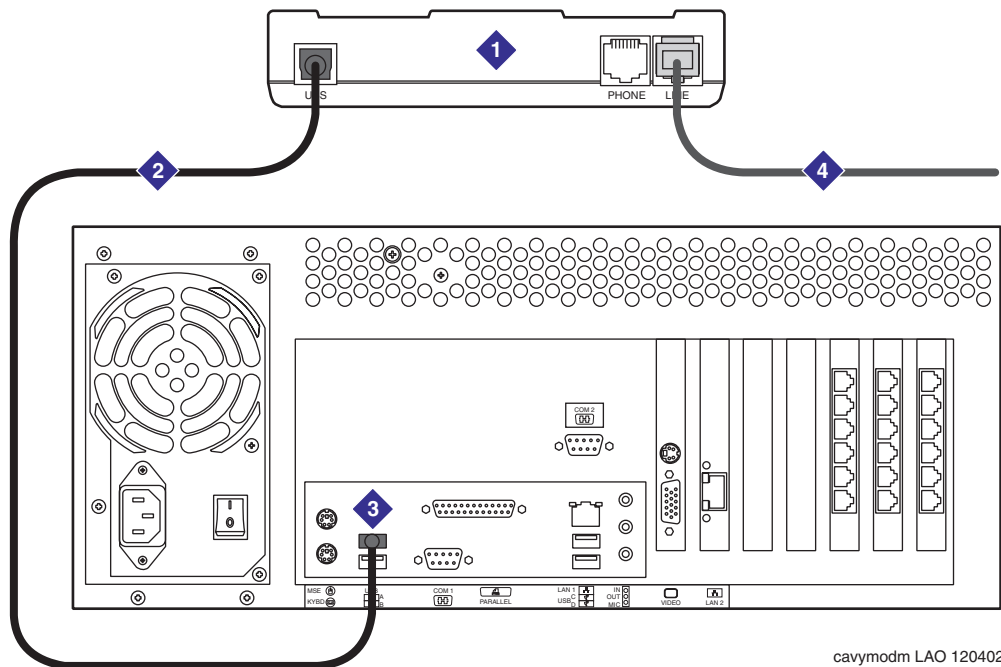


Figure notes:

1. USB modem
2. USB cable to the Avaya MAS
3. USB connector on the server. For the nonintegrated video and LAN model, use Port A on the upper-left side, as shown.
4. RJ-11 cable to the corporate switch

Connecting the MSS RMB

A Remote Maintenance Board (RMB) is installed in each MSS-S or MSS-H. This board sends system alarms to a remote maintenance center. The board allows technical support staff to dial in to repair or upgrade the S3400-family server system.

The RMB setup varies, depending on your location:

- A domestic (United States) setup uses an on-board modem. See [Figure 25: Connecting an RMB with an on-board modem—back view](#) on page 66.
- An international setup uses an external modem that meets the operating requirements for that region. For an example setup, see [Figure 26: Connecting an RMB using an external modem—back view](#) on page 67.

Note:

The type of external modem used with the RMB varies, depending on geographic location. For more information about modem installation, setup, or operation, see the documentation provided with the modem.

To install the RMB:

1. Connect the adapter end of the RMB-to-COM2 cable to the COM2 serial port on the back of the MSS. Tighten the thumbscrews on the adapter.
2. Attach the other end of the cable to the lower RJ45 jack on the RMB faceplate. Verify that the jack snaps securely in place.
3. Make the appropriate connections based on the type of RMB installed: either an on-board model or an external modem.

- *On-board modem (United States):* Connect a standard modular telephone cord to the RJ11 jack near the top of the RMB faceplate. See [Figure 25](#).

Figure 25: Connecting an RMB with an on-board modem—back view

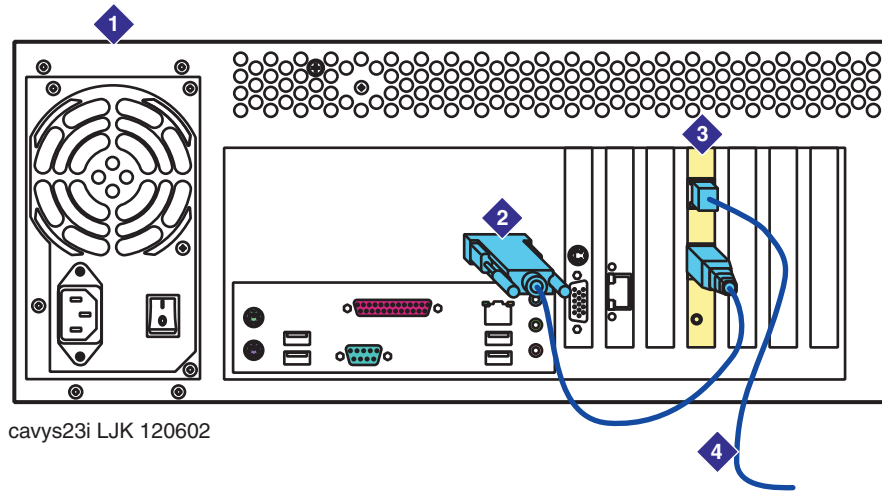
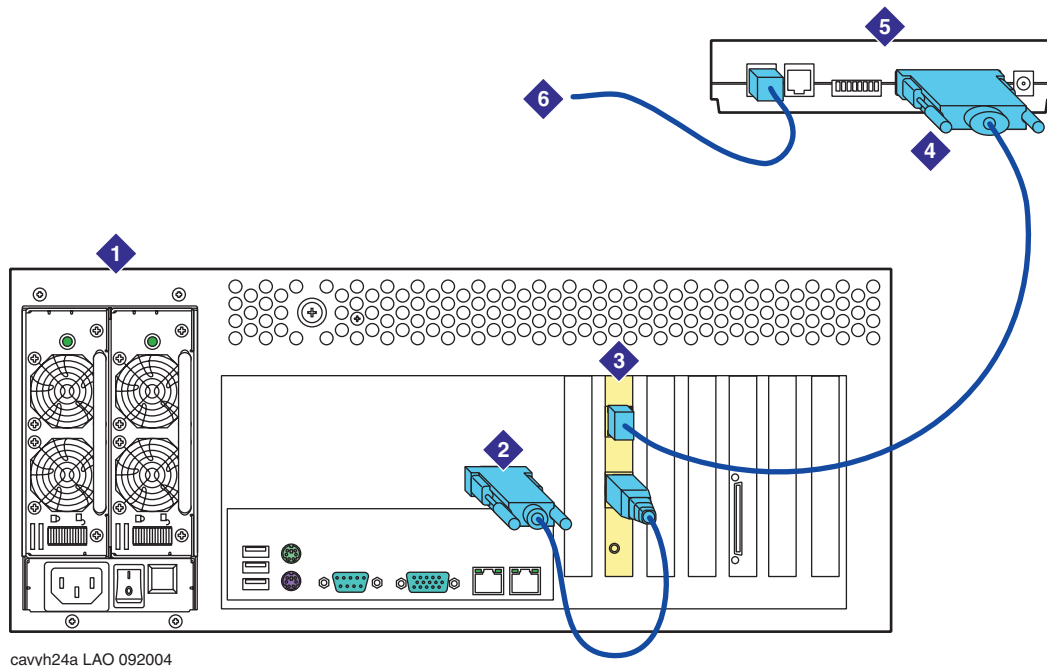


Figure notes:

1. **MSS.** For example purposes only, an MSS-S with a nonintegrated video and LAN is shown.
 2. **Adapter cable for RMB-to-COM2 serial port.**
 3. **RMB faceplate.** This board might be located either four or six PCI slots from the edge of the chassis, depending on the type of motherboard installed.
 4. **Telephone cord to tip/ring connection on the corporate switch.**
-
- *External modem (international):* Connect the RMB as described. For more information, see the modem documentation:
 1. Connect the modular end of the RMB-to-modem adapter cable to the upper modular jack on the RMB. See [Figure 26: Connecting an RMB using an external modem—back view](#) on page 67.
 2. Plug the adapter end of the cable into the RS-232 connector on the external modem. Tighten the thumbscrews on the adapter.
 3. Connect the required telephone cord to the external modem.
 4. The other end of the telephone cord must be connected to an analog line on the corporate switching system. The organization responsible for maintaining the corporate switch must make this connection. See the customer contract or the statement of work.

Figure 26: Connecting an RMB using an external modem—back view



cavyh24a LAO 092004

Figure notes:

1. MSS. For example purposes only, an MSS-H with side-by-side power supplies and an integrated video and LAN is shown.
2. Adapter cable for RMB-to-COM2 serial port.
3. RMB faceplate. This board might be located either four or six PCI slots from the edge of the chassis, depending on the type of motherboard installed.
4. Adapter cable for RMB-to-modem RS-232 port.
5. External modem. Model varies per region
6. Telephone cord to tip/ring connection on the corporate switch.

Chapter 5: Installing Avaya servers in a non-MSS configuration

This chapter describes how to install Avaya S3400-family message servers in a Modular Messaging system that does not use Avaya-provided hardware for the message store. Currently, Avaya S3400-family servers support the following non-MSS configurations:

- IBM Lotus Domino—Release 1.1 only
- Microsoft Exchange—Release 1.1 or Release 3

You can also use these procedures to install or replace the peripheral equipment in an all-MAS Modular Messaging system. Locate the appropriate section to replace a specific component.

Note:

Systems that run the Release 1.1 version of the Modular Messaging software use only the nonintegrated video and LAN model of S3400-family server. For more information about server types, see [Chapter 2: Hardware overview](#) on page 11.

Topics in this chapter include:

- [Installing the UPS and optional EBMs](#) on page 71
- [Installing the S3400-family servers](#) on page 75
- [Installing a KVM switch](#) on page 83
- [Attaching ferrites](#) on page 87
- [Connecting the USB modem on the MAS](#) on page 88

Note:

After you install a new server, you must configure the server as described in *Avaya Modular Messaging Installation and Upgrades* ([PDF](#)). Always use the appropriate version of the installation guide for the configuration and software release of the Modular Messaging system you are working on.

Sample all-MAS configuration system

For an example of an installed rack-mount system, see [Figure 27: Example of rack-mount all-MAS system with S3400-family servers—front view](#) on page 70. All non-Avaya MSS configurations use this setup, such as IBM Lotus Domino or Microsoft Exchange configurations.

Note:

The sample figure shows the S3400-family servers with their front bezels removed. In a non-Avaya MSS configuration such as the setup shown in [Figure 27](#), all Avaya-provided servers are Avaya MAS-type units.

Figure 27: Example of rack-mount all-MAS system with S3400-family servers—front view

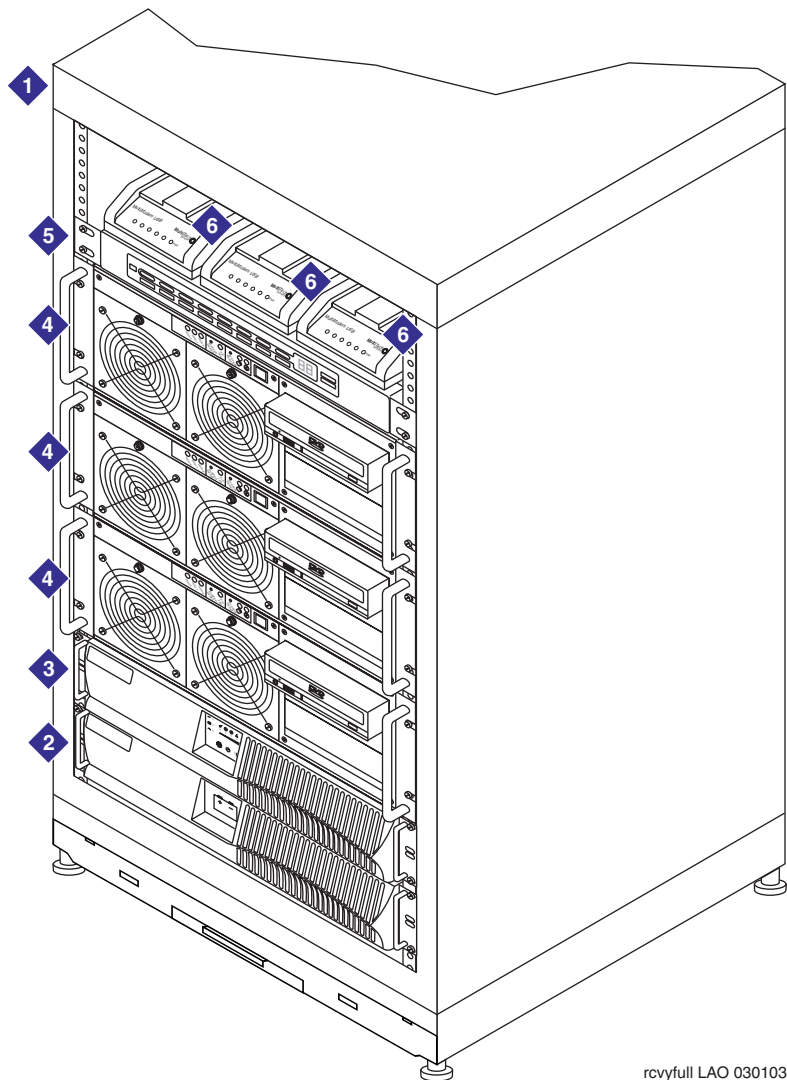


Figure notes:

1. Customer-provided cabinet. Type can vary. For more information, see [Installation area requirements](#) on page 7.
2. EBM—optional. 0 to 4 can be installed with a UPS.
3. UPS—required. Model can vary.
4. Avaya Messaging Application Server (Avaya MAS). Up to 10 Avaya MASs can be present. Additional supplementary servers might also be present (not shown).
5. KVM switch—optional. Model can vary.
6. External modem. One is required for each MAS.

Installing the UPS and optional EBMs

This section describes how to install an uninterruptible power system (UPS) and one or more optional extended battery modules (EBMs).

Note:

Customers might order a different model of UPS than the one described in this section, or they can supply their own. For more information, see the documentation provided with the UPS.

- The UPS is a required component for all Avaya Modular Messaging systems. The UPS protects the system from most common power problems, including power failures, power sags, and power surges.
- The EBM is an optional component that works in conjunction with the UPS to add additional run time for the system. The customer can add up to four EBMs per UPS. For more information, see the documentation provided with the EBM and UPS.

To install the UPS and EBMs:

- For a rack-mount configuration, see [Installing the UPS and any EBMs into a rack](#) on page 71.
- For a stackable desktop configuration, see [Installing the UPS and any EBMs as a stackable configuration](#) on page 73.

Installing the UPS and any EBMs into a rack

In a rack-mount configuration, the UPS and EBMs must be positioned in the rack below the Avaya Modular Messaging servers. Install the EBM units in the lowest-available position.

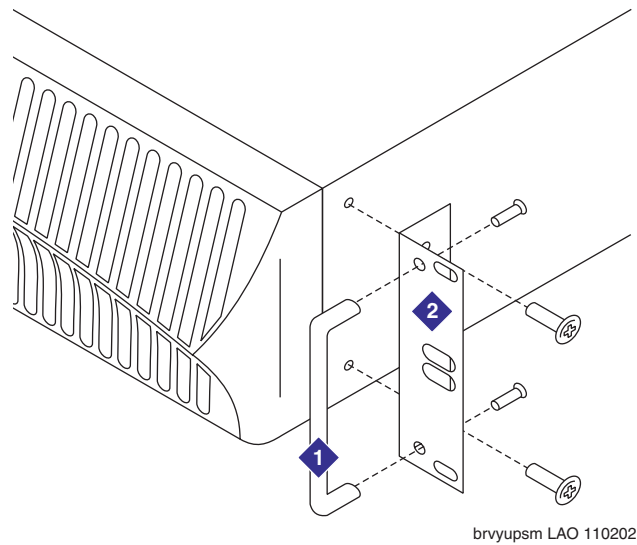
To install the UPS and EBMs into a rack:

1. Gather the necessary rack-mount hardware, including the mounting handles, brackets, and screws.
2. Place the UPS on a flat, stable surface with the front of the UPS towards you.
3. Attach the mounting handle to each bracket using the supplied screws. See Item 1 in [Figure 28](#).
4. Align the mounting brackets with the screw holes on the side of the UPS and secure using the supplied screws. See Item 2 in [Figure 28](#).
5. If you are installing one or more EBMs, repeat Steps 1 through 4 for each EBM.

Note:

You must install any EBMs below the UPS.

Figure 28: Attaching mounting handles and bracket for a rack-mount UPS



-
6. Place the EBM into the rack in the lowest-available position. Attach the EBM to the rack using customer-provided screws.

Note:

If you must install additional EBMs into the rack, install them above the first installed EBM.

7. Place the UPS into the rack in the lowest-available position above any EBMs. Attach the UPS to the rack using customer-provided screws.
8. Continue with [Connecting any EBMs to the UPS](#) on page 74.

Installing the UPS and any EBM's as a stackable configuration

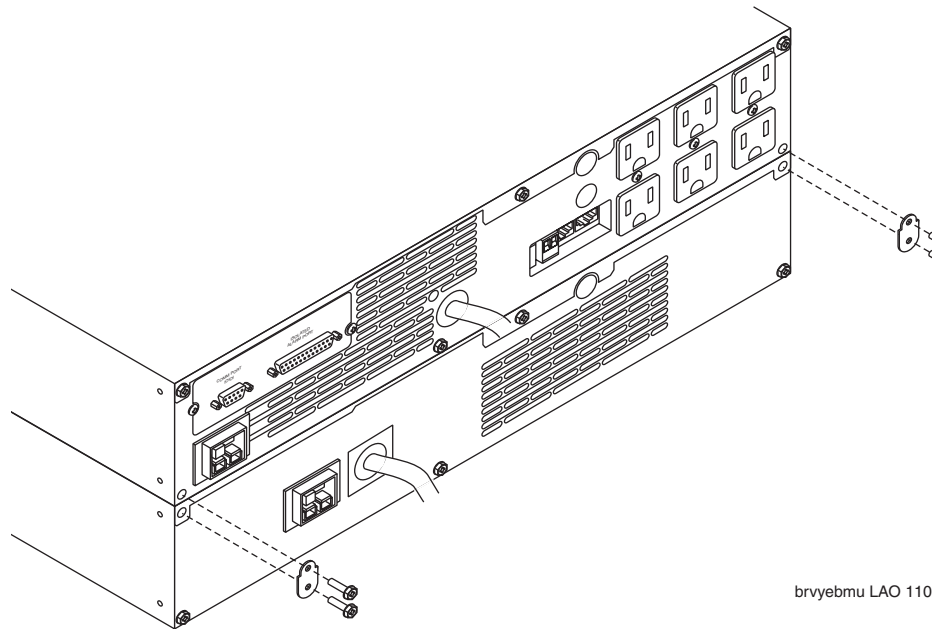
To configure the UPS and any EBM's in a stackable configuration:

1. If you are installing one or more EBM's:
 - a. Remove the adjacent corner screws from the back panels, as shown in [Figure 29](#).
 - b. Install the EBM brackets by aligning each bracket with the screw holes. Secure the bracket using the supplied screws.
 - c. Repeat Step 1 for each additional EBM, if present.

Note:

If you do not have any EBM units, continue with Step 2.

Figure 29: Attaching connecting brackets between a UPS and EBM—back view



2. On the bottom unit, either the UPS or an optional EBM, secure four rubber spacers to the bottom of the unit, one at each corner.
3. Set the unit on a stable platform. This unit is the base of the stackable desktop configuration.

Connecting any EBM units to the UPS

To connect any EBM units to the UPS:

1. Connect the EBM cable to the battery connector on the UPS. See Item 3 in [Figure 30](#).
2. To connect additional EBM units, plug the EBM cable of the second EBM into the battery connector on the first EBM. See Item 4 in [Figure 30](#).
3. Repeat Step 2 for each additional EBM. Up to four EBM units can be present.

Figure 30: Connecting a UPS and an EBM—back view

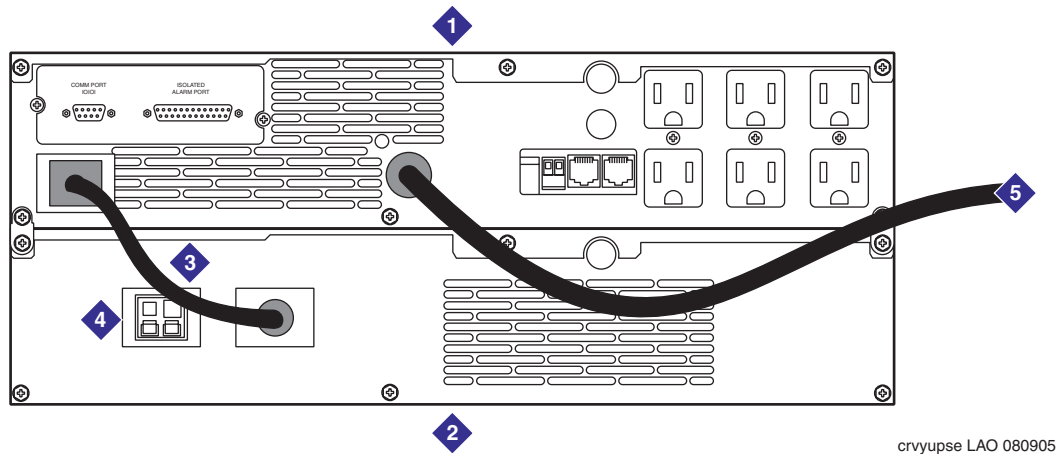


Figure notes:

1. UPS. Model can vary. For more information, see the documentation provided with the UPS.
2. EBM—optional. 0 to 4 can be installed.
3. EBM battery cable to UPS.
4. Battery connectors for additional EBMs if needed—optional.
5. UPS power cable to a grounded AC power source—Do not connect yet.

Installing the S3400-family servers

This section describes how to install each Avaya S3400-family message server in a customer-provided commercial cabinet or in a stackable desktop configuration.

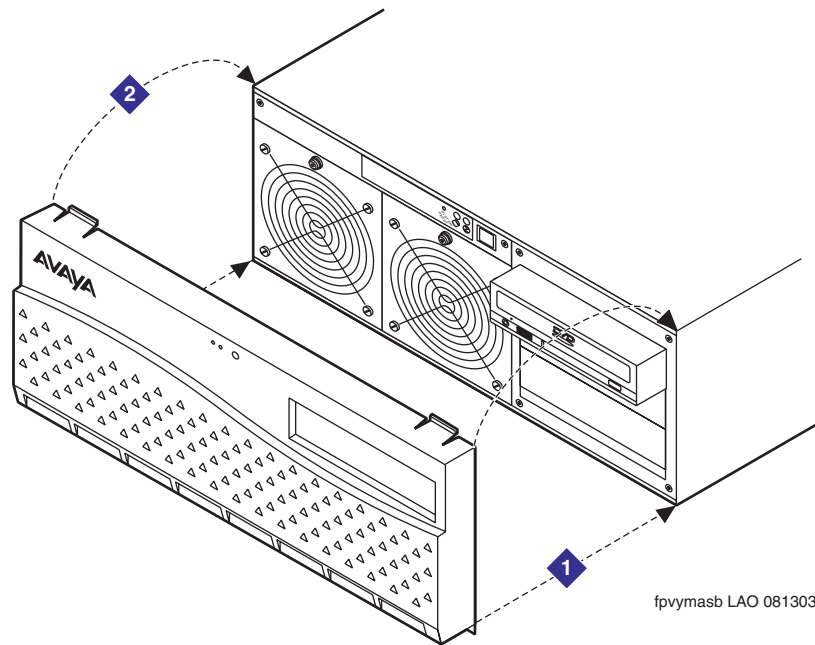
Attaching the front bezel

The front bezel ships loose to prevent damage during shipment.

To attach the front bezel to each S3400-family server:

1. Insert the bottom of the front bezel into the chassis. See Item 1 in [Figure 31](#).
2. Push the bezel upright until the two upper tabs snap into place under the top cover. See Item 2 in [Figure 31](#).

Figure 31: Attaching the front bezel on an S3400-family server



Installing S3400-family servers in a rack-mount or stackable setup

You can install S3400-family servers in a commercial cabinet in a rack-mount configuration. Alternatively, you can stack servers on top of each other in a desktop configuration. Continue with the appropriate section based on the installation method to be used at this site:

- [Installing servers in a rack-mount configuration](#) on page 76
- [Installing servers in a stackable desktop configuration](#) on page 78



CAUTION:

The Avaya Modular Messaging servers are heavy. Get another person to assist you with lifting the servers into place.

Installing servers in a rack-mount configuration

This task describes how to install one or more Avaya S3400-family message servers inside a commercial cabinet. This setup is called a *rack-mount configuration*.

Note:

The first MAS is usually installed directly above the UPS. If more than one MAS is present, you usually install each additional MAS above the first MAS. However, all the servers in the system do not have to be in the same cabinet.

Before you start to install the servers into the rack, verify that the necessary rack-mount hardware is on site. For a list of required equipment, see [Table 10](#).

Table 10: Required rack-mount hardware

Part	Quantity
Extension bracket—two different lengths might ship	2 per server
Right-side rack-mount rails and slides	1 set per sever
Left-side rack-mount rails and slides	1 set per sever
Front panel handle set, including handles and mounting brackets. These might already be assembled on some units.	1 set per server
Miscellaneous screws and mounting hardware	1 set per server
<i>Customer provided:</i> Mounting hardware to secure the extension bracket and rack-mount slide to the customer-provided rack.	1 set per rack-mount rail and extension bracket

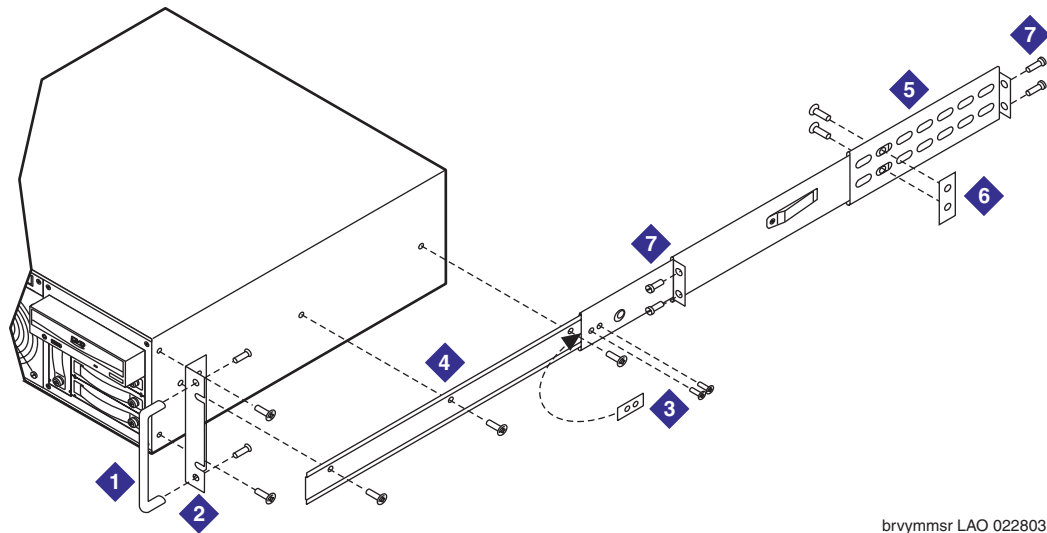
To install an S3400-family server into a rack:

1. Gather the necessary rack-mount hardware, as listed in [Table 10](#).
2. Place the server on a flat, stable surface.

3. If the mounting handles are not already attached, attach them now:

- a. Connect the handles to the bracket using the supplied flat-head screws. See Item 1 in [Figure 32](#).
- b. Align the mounting bracket with the screw holes on the side of the server. Secure the bracket using the supplied flat-head screws. See Item 2 in [Figure 32](#).

Figure 32: Attaching server mounting handles, bracket, and rack-mount rail assembly



4. The mounting rails consist of a narrow, flat piece that connects to the server, and a slide. Identify the rails for the left and right side of the server as you face the unit from the front. The rack-mount rails are *not* interchangeable. Some rails are labeled **LH** for left and **RH** for right.

If the set of rails you have is *not* labeled:

- a. Hold the rail-slide assembly so that the 2-hole bracket that connects to the front of the customer rack faces left. See Item 7 in [Figure 32](#).
- b. Fully extend the slide so that you can see the holes in the flat piece of the rail slide that mounts to the server. See Item 4 in [Figure 32](#).
 - If the holes are on the *upper* side of the flat rail piece, this rail connects to the *right* side of the server chassis.
 - If the holes are on the *lower* side of the flat rail piece, this rail connects to the *left* side of the server chassis.

Installing Avaya servers in a non-MSS configuration

Note:

The holes for mounting to the server are offset to get the correct alignment in the rack. Verify by the position of the holes in the bracket that you are installing each rail on the correct side.

5. Attach the rack-mount rails to the server as follows:
 - a. Remove the two screws and retaining bar on the rail slide just in front of the server-retaining latch. Set them aside for later. See Item 3 in [Figure 32: Attaching server mounting handles, bracket, and rack-mount rail assembly](#) on page 77.
 - b. Disassemble the slide to get access all three screw holes.
 - c. Place the flat piece of the rail slide against the server and secure it with the three supplied flat-head screws. See Item 4 in [Figure 32](#).
6. Position the extension bracket on end of the rail slide to provide the depth needed for the server to fit in the rack. More than one extension bracket might be shipped. Choose the correct length for the cabinet. See Item 5 in [Figure 32](#).
7. Attach the extension bracket to the rear of the rail slide using the supplied screws and retaining bar. Use 2 pan-head screws per bracket. See Item 6 in [Figure 32](#).
8. Connect the extension bracket and rail slide to the customer-provided four-post rack using the correct customer-provided hardware for that cabinet model. See Item 7 in [Figure 32](#).
9. Fully extend the rail slides to the locked-out position.
10. With another technician supporting the server, align the front of the rail slide with the rack-mount rail that is attached to the server.
11. Push the server onto the rail slide far enough so that the safety catch engages.
12. Slide the server completely into the rack. Ensure that the server moves smoothly in and out of the rack.
13. Reattach the two screws and retaining bar on the rail slide just in front of the server-retaining latch. See Item 3 in [Figure 32](#), from Step 5-a.
14. Repeat Steps 2 through 13 for each server that must be installed.
15. When all servers are mounted, continue with [Connecting the system power cables](#) on page 80.

Installing servers in a stackable desktop configuration

For a stackable desktop configuration, install four rubber spacers on the bottom on each of the servers. The spacers enable you to stack the servers on top of one another.

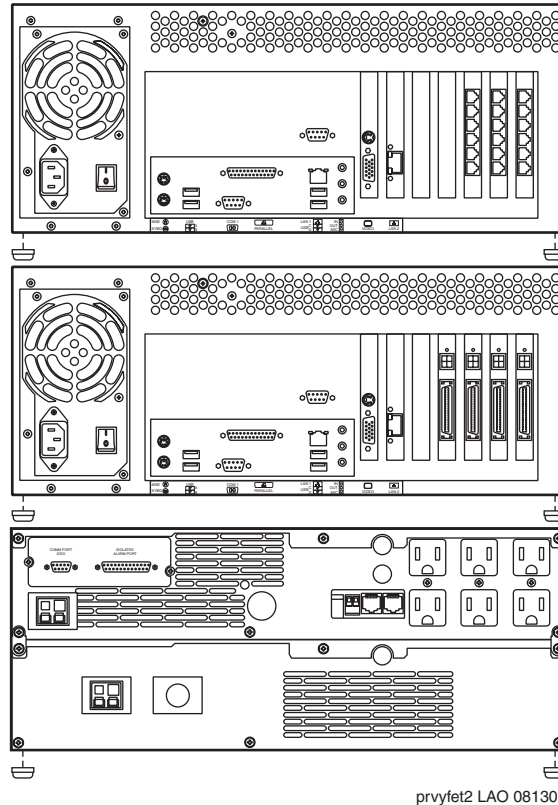


CAUTION:

For safety, do not stack more than two Avaya servers on top of each other. Create multiple stacks if needed.

For a sample desktop configuration, see [Figure 33](#).

Figure 33: Attaching rubber spacers for a stackable desktop configuration



To install the servers in a stackable desktop configuration:

1. Gather the rubber spacers shipped with each server.
2. Attach the rubber spacers to the bottom of each of the servers, one at each corner. For an example, see [Figure 33](#).
3. Position the UPS, and its attached EBM, in an appropriate location. For more information about placement, see [Site requirements for Avaya message servers](#) on page 5.



CAUTION:

If you have a UPS *and* an EBM, stack only one server on top of them. *Never* stack Avaya servers more than two high.

4. Place the first MAS on top of the UPS.
5. If more MASs or supplementary servers are present, create another stack, placing each additional server on top of the last one. Create as many stacks as needed, so there are never more than two servers in one stack.

Connecting the system power cables

Attach the power connections on the back of each server.

To connect the power cables for the Modular Messaging system:

1. Connect the female end of the server power cable to the male power connector on the back of the S3400-family server.
2. Connect the male end of the server power cable to an AC receptacle located on the back of the UPS. For a sample configuration, see [Figure 34](#).
3. *If you have more than one server, repeat Steps 1 and 2 for each MAS.*
4. After all equipment is connected, plug the UPS power cable into an appropriate AC power outlet.

Figure 34: Attaching power cables to a UPS—sample configuration

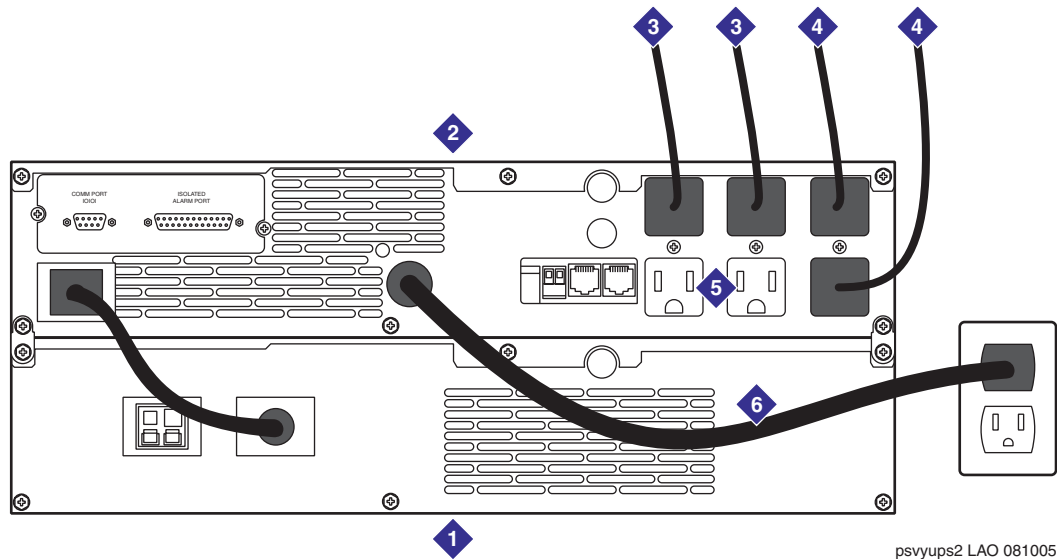


Figure notes:

1. EBM—optional. 0 to 4 can be installed.
2. UPS. Model can vary. For more information, see the documentation provided with the UPS.
3. AC power cable to each MAS or the supplementary server, if present.
4. AC power cable to other equipment, such as the required external modem for each MAS.
5. Additional AC sockets. Use as needed for external modems, monitor, optional 8-port KVM switch, or any additional servers.
6. UPS power cable to a grounded AC power outlet. Plug in this cable last.

Connecting the MAS port boards, if present

Do this task only if port boards are present in the Avaya MAS.

Connect any MAS port boards to the PBX (switch). For more information about Dialogic port boards, see [Supported MAS port boards](#) on page 18.

Note:

If this MAS uses an IP H.323 or IP SIP switch integration, no port boards are present. Continue with [Connecting the Ethernet cable](#) on page 82.

To connect the MAS port boards to the switch:

1. Assemble the required cables.

Note:

Port boards ordered through Avaya ship with the correct cables.

2. Connect each port on the port boards to the switch (PBX) as required.

Note:

Check the numbering on the port board faceplate to verify that you are connecting the correct cord to the correct port.

● **For E1-QSIG or T1-QSIG boards:**

- a. Connect the port on the Dialogic T1-QSIG or E1-QSIG board using an RJ-48C Ethernet cable.
- b. The other end of the cable must be connected to the QSIG board on the corporate switching system. The organization responsible for maintaining the corporate switch must make this connection. See the customer contract or the statement of work.

● **For set emulation boards:**

- a. Connect each port on the Dialogic set emulation (DSE) board using the D/82U cable (Intel part number 86-0155-001).
- b. The other end of the cable must be connected to a 4-wire punch-down block on the corporate switching system. The organization responsible for maintaining the corporate switch must make this connection. See the customer contract or the statement of work.

● **For analog boards:**

- a. Connect each port on the installed analog boards to one end of a standard RJ-11 tip/ring cord. You can also use individual tip/ring cables and a 12-port harmonica. Note which cables connect to which ports.
- b. The other end of the cable must be connected to an analog line on the corporate switching system. The organization responsible for maintaining the corporate switch must make this connection. See the customer contract or the statement of work.

Connecting the Ethernet cable

A standard Ethernet cable ships with each Avaya S3400-family message server. You can use this cable or a customer-provided cable to connect each server to the corporate LAN.

To connect each server to the corporate LAN:

1. Connect one end of the Ethernet cable to the appropriate RJ45 connector on the back of the server. See [Figure 35](#).

Note:

Verify that you connect the Ethernet cable for the corporate LAN to the correct Ethernet interface on the back of the server. The two Ethernet interfaces on an S3400-family server operate at different speeds. Use the interface with the highest speed to connect to the corporate LAN.

2. Connect the other end of the Ethernet cable to the corporate LAN.

Note:

The organization that is responsible for maintaining the corporate LAN must make this connection. See the customer contract or the statement of work.

3. Repeat Steps 1 and 2 for each MAS and supplementary server in the system.

Figure 35: Connecting an S3400-family MAS to the corporate LAN—back view

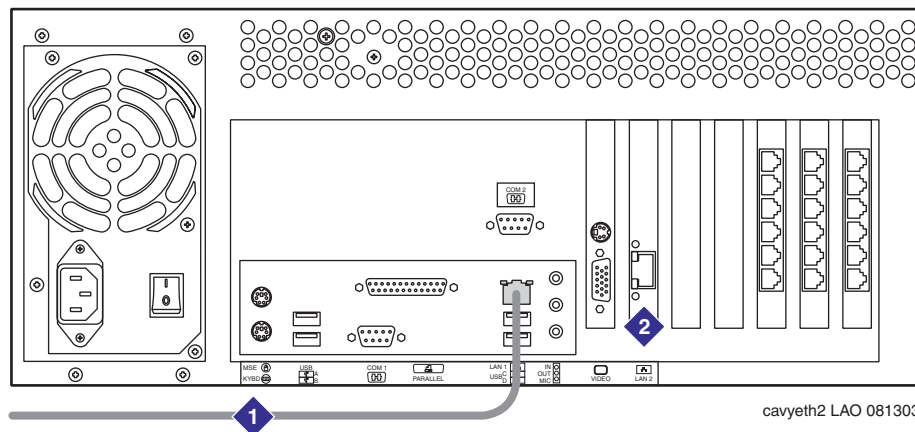


Figure notes:

1. Ethernet interface to the corporate LAN
2. NIC connection. *Do not use in this configuration.*

Installing a KVM switch

You use a keyboard, video, and mouse (KVM) switch to view the different servers in a Modular Messaging system. However, the model of KVM switch and the specific monitor, keyboard, and mouse used can vary from site to site. For example, some sites might use a flat-panel monitor setup instead.

This section describes how to install an 8-port Belkin KVM switch. For a sample multiple-server installation that uses this KVM switch, see [Figure 27: Example of rack-mount all-MAS system with S3400-family servers—front view](#) on page 70.

Note:

If this site uses any other model of KVM switch, install the switch using the instructions shipped with the equipment.

You can install the Belkin 8-port KVM switch in two configurations:

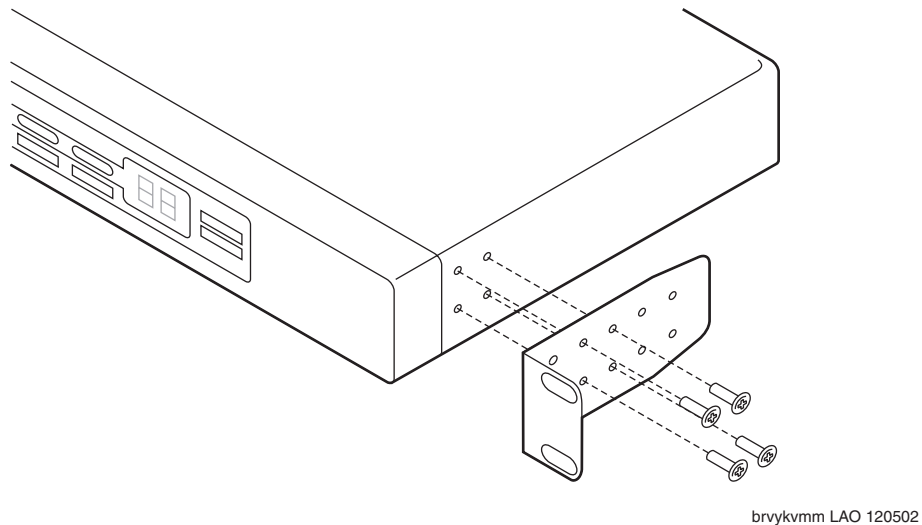
- For a stackable desktop configuration:
 - a. Place the KVM switch on top of the uppermost MAS, or on any convenient surface nearby. Rubber spacers are already in place.
 - b. Continue with [Connecting the KVM cables](#) on page 84.
- For a rack-mount configuration, continue with [Installing the KVM switch in a rack-mount configuration](#) on page 83.

Installing the KVM switch in a rack-mount configuration

To install the 8-port Belkin KVM switch in a commercial cabinet:

1. Gather the necessary rack-mount hardware, including the adjustable mounting brackets and screws.
2. Select a bracket-hole scheme to determine how far the KVM switch must protrude from the rack.
3. Install the two rack-mount brackets on the KVM switch using the provided screws. See [Figure 36: Attaching mounting brackets for a rack-mount KVM switch](#) on page 84.
4. Install the KVM switch into the rack above the last installed MAS.

Figure 36: Attaching mounting brackets for a rack-mount KVM switch



Connecting the KVM cables

You must connect the 8-port Belkin KVM switch to the keyboard, monitor, and mouse. You then connect the KVM switch to each server, as described in this section.

Note:

The KVM switch setup for the keyboard, monitor, and mouse can vary from site to site, depending on the equipment and cables used. For more information, see the documentation for the monitor, keyboard, and mouse.

To connect an 8-port Belkin KVM switch:

1. If a new monitor, keyboard, or mouse was ordered for this system, unpack the equipment now. Otherwise, continue with Step 2.

Note:

You can use any 15-inch or larger monitor for a Modular Messaging system.

- a. Set up the monitor in the desired location.
- b. Connect the keyboard and mouse to the monitor. This setup can vary.
- c. Plug the female end of the monitor power cable into the monitor.
- d. Plug the male end of the monitor power cable into a free UPS receptacle if available, or into a grounded AC outlet.

2. Connect the VGA cable from the monitor to the female port on the back of the KVM switch labeled **Console VGA**. See Item 1 in [Figure 37](#).
3. Tighten the thumbscrews on the video cable connector using your fingers or a small flat-blade screwdriver.

Figure 37: Connecting an 8-port Belkin KVM switch to an MAS—back view

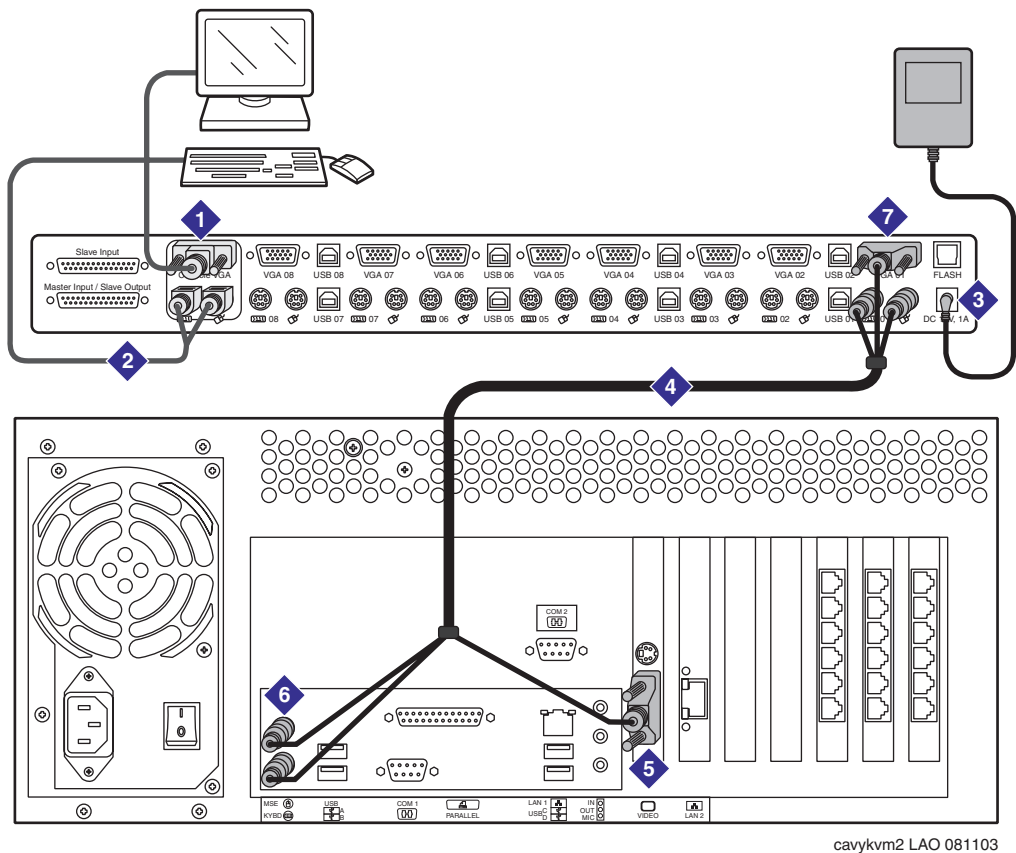


Figure notes:

1. VGA cord from monitor to Console VGA port on KVM switch.
2. Y cable to combination keyboard and mouse for the monitor. Setup can vary.
3. DC power jack for transformer cable.
4. Video/keyboard/mouse cable to the server.
5. Video connector on the server.
6. Keyboard and mouse connectors on server.
7. 8-port Belkin KVM switch. Connect the first MAS to the first computer port VGA 01 as shown. Connect any additional servers to the subsequent port positions, starting with VGA 02.

4. Connect the PS/2 cables for the mouse and keyboard to their corresponding connectors using the Y cable. Use the connectors in the **Console** section on the back of the KVM switch. See Item 2 in [Figure 37: Connecting an 8-port Belkin KVM switch to an MAS—back view](#) on page 85.

Note:

The mouse connector is color-coded green, and the keyboard connector is color-coded purple.

5. Connect the KVM switch power source:
 - a. Attach the KVM power cable to the DC power jack labeled **DC 12V, 1A** on the back of the KVM switch. See Item 3 in [Figure 37](#).
 - b. The other end of the KVM power cable is an AC-to-DC transformer. Connect the transformer to a receptacle on the back of the UPS, or to an appropriate AC power outlet.

When power is connected, the LED for port 01 starts flashing.

6. Push the direct-access port selectors for ports 01 through 08 in order.

The corresponding LED flashes as each button is pressed, indicating that the port is ready for the server connection.

7. Connect the KVM switch cable to all installed servers:
 - a. Connect the KVM switch cable to the appropriate port on the back of the KVM switch. For the first MAS, use the port labeled **VGA 01**. See Item 7 in [Figure 37](#).
 - b. Connect the PS/2 keyboard and mouse connectors of the KVM cable to the keyboard and mouse ports on the MAS. See Item 6 in [Figure 37](#).

Note:

The mouse connector is color-coded green, and the keyboard connector is color-coded purple.

- c. Plug the male VGA connector on the KVM switch cable into the VGA port on the first MAS. See Item 5 in [Figure 37](#).
8. For a multiple-MAS system, repeat Step 7 for each MAS or supplementary server. Connect the servers to port **VGA 02**, **VGA 03** and so on, as needed.

Attaching ferrites

Note:

Do this task only on a server that uses the nonintegrated video and LAN configuration. For more information about server types, see [Chapter 2: Hardware overview](#) on page 11.

The nonintegrated video and LAN model of Modular Messaging server requires ferrites to meet electromagnetic conductance (EMC) regulations. On this type of S3400-family server, you must attach ferrites to:

- the server video cable
- each E1-QSIG or T1-QSIG port board cable, if this type of board is present on an MAS
- the optional flat-panel monitor with an integrated KVM switch, if present



CAUTION:

Handle all ferrites with care. They are easily broken. Do not use any that are broken or fractured. Damaged ferrites are no longer effective for EMC control.

To install a ferrite on a cable:

1. Locate the video connector in the first slot on the back of the S3400-family server.
2. Open the ferrite by gently pulling the fastener away from the body of the ferrite. See [Figure 38: Attaching a ferrite to a cable](#) on page 88.
3. Place the cable cord in the groove inside the ferrite. Gently snap the ferrite shut.

Note:

Place ferrites as close as possible to the chassis to minimize the amount of cable between the ferrites and the chassis.

4. Attach a large cable tie directly behind the ferrite to secure the ferrite. Trim the cable tie.
5. *For systems that use a T1-QSIG or E1-QSIG port board:* Repeat Steps 2 through 4 to attach a ferrite to each QSIG port board cable.
6. *For systems that use a flat-panel monitor:* Repeat Steps 2 through 4 to attach a ferrite to the mouse and keyboard cables at each server. One ferrite can be used for both cables.

Figure 38: Attaching a ferrite to a cable

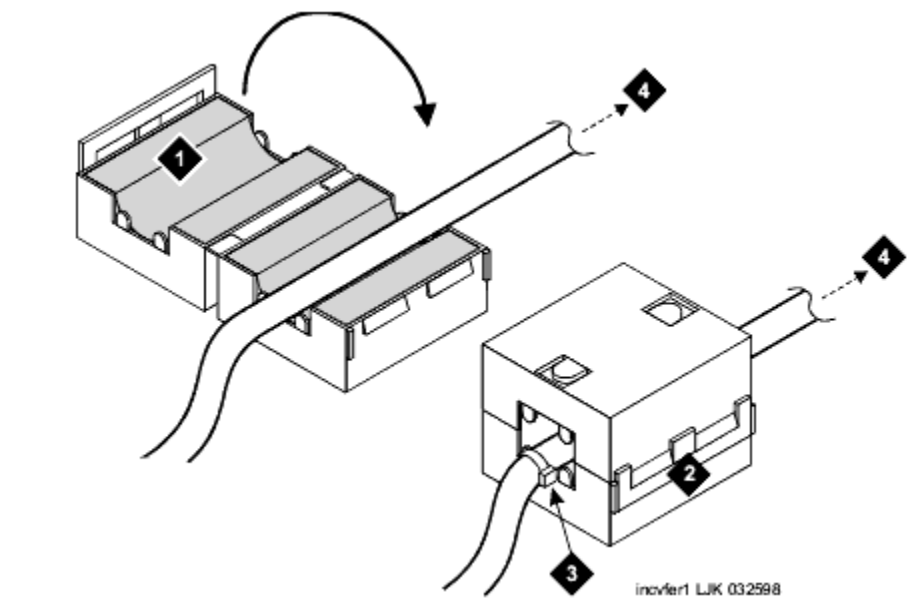


Figure notes:

- | | |
|-------------------------------|--------------------------|
| 1. Ferrite in open position | 3. Cable tie |
| 2. Ferrite in closed position | 4. Cable to the computer |

Connecting the USB modem on the MAS

A USB modem is required for each Avaya MAS. The type of modem varies, depending on the installation location. For more information about modem installation, setup, or operation, see the documentation provided with the modem.

This section describes a MultiTech USB modem setup. For an example, see [Figure 39: Connecting a USB modem to an S3400-family MAS with a nonintegrated video and LAN—back view](#) on page 89.

To connect a USB modem:

1. Attach the rubber spacers to the four marked areas in each corner on the bottom of the modem, if spacers are not already in place.
2. Place the USB modem on top of the KVM switch or in a secure location, as required.
3. Connect one end of the USB cable to the back of the USB modem.

4. Connect the other end of the USB cable to the back of the MAS. For a nonintegrated video and LAN model, Avaya recommends that you use the upper-left USB connector (Port A).
5. Connect the RJ-11 cable to the LINE connector on the modem.
6. The other end of the cable must be connected to an analog line on the corporate switching system. The organization responsible for maintaining the corporate switch must make this connection. See the customer contract or the statement of work.
7. Repeat Steps 1 through 6 for each Avaya MAS modem.

Figure 39: Connecting a USB modem to an S3400-family MAS with a nonintegrated video and LAN—back view

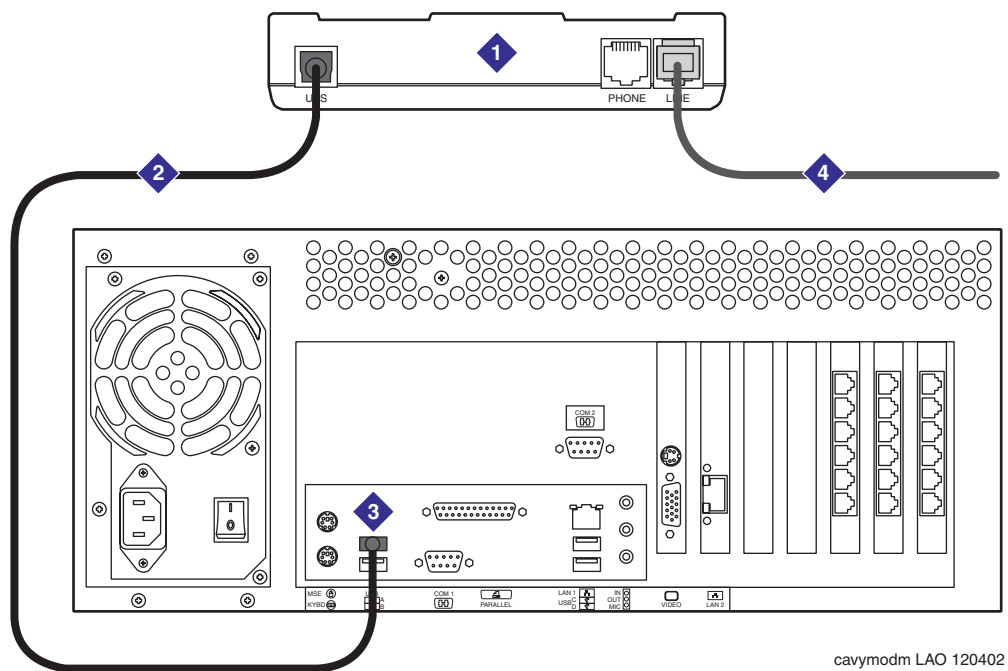


Figure notes:

1. USB modem
2. USB cable to the MAS
3. USB connector on the server. For the nonintegrated video and LAN model, use Port A on the upper-left side, as shown.
4. RJ-11 cable to the corporate switch

Chapter 6: Adding an MAS to a system in service

This chapter summarizes how to add an Avaya Messaging Application Server (Avaya MAS) or a supplementary tracing server to a Modular Messaging system that is already in service.

Topics in this chapter include:

- [Adding a new server to a system in service](#) on page 91
- [Balancing Modular Messaging services across servers](#) on page 97



CAUTION:

This chapter describes only how to install servers that use Avaya-provided hardware. A supplementary tracing server that is installed using customer-provided equipment (CPE) requires unique procedures for hardware installation and configuration. These tasks are not described in this document.

Adding a new server to a system in service

The section describes how to add an MAS or supplementary tracing server to a Modular Messaging system that is already in service.



CAUTION:

You cannot add a new server to a Modular Messaging system during a Release 3 upgrade. You can replace the existing server hardware with a new model, but you cannot change the number of servers until after the upgrade is complete. For more information, see *Avaya Modular Messaging S3500-Family Hardware Maintenance and Additions* ([PDF](#)).

Installing the new MAS or supplementary server

You can install one or more Avaya servers after an upgrade or new installation. You can add one or more servers at the same time if needed, such as:

- one or more Messaging Application Server (MAS)s, up to the limit allowed by the system
- a supplementary tracing server, if one is not already present in the system
- a combination of Avaya MASs and a supplementary tracing server

To install a new Avaya Messaging Application Server (MAS) or supplementary server:

1. Use the appropriate hardware installation procedures:

- [Chapter 4: Installing Avaya servers in an MSS configuration](#) on page 37
- [Chapter 5: Installing Avaya servers in a non-MSS configuration](#) on page 69



CAUTION:

In an MSS configuration, do not connect additional MASs to the Ethernet switch until you are ready to configure them. Otherwise, the unused servers can create errors on the private network, especially if the server is turned off. For more information, see [Connecting additional servers to the private LAN](#) on page 53.



Tip:

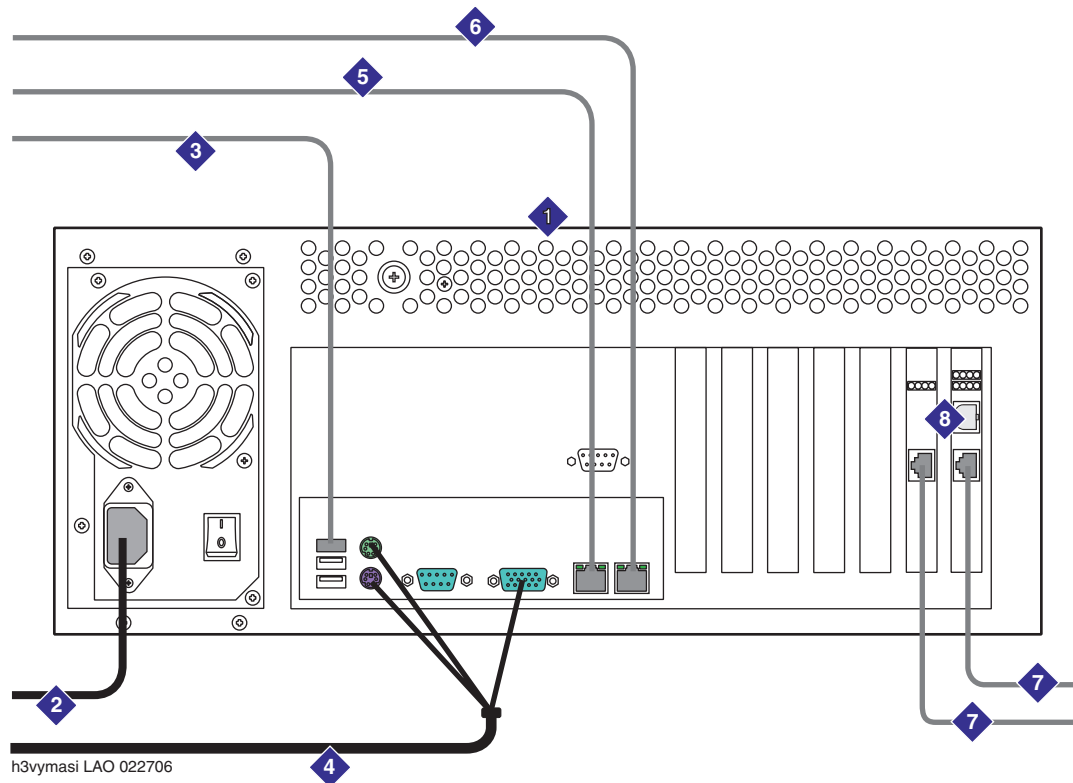
Use the new server installation checklist for this configuration of Modular Messaging system as a guide to avoid missing steps. A copy of the checklist is in the editable planning forms document and in *Avaya Modular Messaging Installation and Upgrades* ([PDF](#)).

For a summary of MAS cable connections, see [Figure 40: MAS cable connections for S3400-family server—back view](#) on page 93.

Note:

A new server already has the operating system loaded. However, you might need to install software updates, as directed in *Avaya Modular Messaging Installation and Upgrades* ([PDF](#)).

2. Before you configure the new servers, prepare the message store to recognize the new servers. Continue with [Preparing the message store for the new server](#) on page 94.

Figure 40: MAS cable connections for S3400-family server—back view**Figure notes:**

1. S3400-family server. For example purposes, an integrated video and LAN model is shown.
2. AC power cord
3. USB connection to MAS modem
4. Mouse, keyboard, and video connector
5. Corporate LAN interface
6. Private LAN interface—used only in an Avaya MSS configuration
7. Port board connections to the switch, if port boards are present. For example purposes, this figure shows an early QSIG board in PCI slot 1 and a current QSIG board in PCI slot 2.
8. Plug present on early QSIG boards

Note:

Modular Messaging systems that shipped before mid-2005 contained an early version of the E1-QSIG or T1-QSIG port board. The early version has two ports, although one of the ports is inactive and has a plug in the unused connector. The early and current QSIG boards function identically. You can transfer early QSIG boards to an S3400-family server if needed for upgrades or expansions.

Preparing the message store for the new server

If you added one or more MASs or a supplementary tracing server to a system, you must identify the new servers to the message store. Continue as appropriate:

- For an Avaya MSS configuration, continue with [Adding a new trusted server on the MSS](#) on page 94.
- For an IBM Lotus Domino configuration, continue with [Preparing a Domino system to support a new server](#) on page 95.
- For a Microsoft Exchange configuration, continue with [Preparing a Microsoft Exchange system to support a new server](#) on page 95.

Adding a new trusted server on the MSS

For an MSS configuration, you must add a trusted server on the MSS for each MAS or supplementary tracing server in the voice mail domain. For more information, see [Setting up the trusted servers](#) in *Avaya Modular Messaging Installation and Upgrades* ([PDF](#)).



CAUTION:

Use the planning forms to enter the correct values for the trusted servers.

To set up the new server as a trusted server on the MSS:

1. Toggle the port on the KVM switch to have the monitor show the MSS.
2. Starting from the **Global Administration** menu, select **Trusted Server Management**.
3. On the Manage Trusted Servers page, click **Add a New Trusted Server**.
4. Complete the following fields on the Add Trusted Server page:
 - a. For **Trusted Server Name**, type the customer-specified NetBIOS name for this MAS, such as *mymas3*. See the planning forms.
 - b. For **Password**, type the same LDAP password used for all MASs in this Modular Messaging system. Type the password again in the **Confirm Password** field.
 - c. For **IP Address**, type the *private* IP address for this server. You must use the correct IP address for the IP address range used at this site. Use the planning forms.
 - d. For **Special Type**, select the appropriate type for this server:
 - For a new MAS that is to handle calls, select **Messaging Application Server**.
 - For a new supplementary tracing server that is to provide special services and handle no calls, select **Supplementary Server**.

The **Special Type** selection populates the other fields with the required values.

5. Click **Save**.
6. At the confirmation message, click **OK**.

7. Click **Return to Main**.

Preparing a Domino system to support a new server

Prepare the IBM Lotus Domino environment to support the new MAS or supplementary tracing server. Tasks include:

- Registering each MAS voice server as a Notes user so the server has a user name, ID file, and mail file.
- Editing the appropriate access control list (ACL) groups in the Domino Directory database to give the MAS voice server the correct level of access.
- Creating a computer account in the Microsoft Windows domain with the correct Modular Messaging permissions.

For more information about these tasks, see Chapter 4 in *Avaya Modular Messaging Installation and Upgrades* ([PDF](#)).

Preparing a Microsoft Exchange system to support a new server

If you add a new MAS or supplementary tracing server to a Modular Messaging system in a Microsoft Exchange configuration, prepare the message store for the new server. Tasks include:

- Adding the relevant local machine administration permissions to the new server
- Making the new server a member of the appropriate Windows domain

For more information about these tasks, see the appropriate sections in *Avaya Modular Messaging Installation and Upgrades* ([PDF](#)).

Configuring the new server

The procedure for configuring a new MAS or supplementary tracing server varies considerably depending on the release of Avaya Modular Messaging software.

Release 3 systems

If this system is running Release 3 software, continue this procedure with Chapter 6 of *Avaya Modular Messaging S3500-Family Hardware Maintenance and Additions* ([PDF](#)).

Continue with the section "Using the DCT to analyze the current configuration."

Note:

Currently, only Avaya MSS and Microsoft Exchange configurations support Release 3 of Modular Messaging software.

Release 1.1 or Release 2 systems

If this system is running Release 1.1 or Release 2 software, you must complete the server configuration and setup using the appropriate version of *Avaya Modular Messaging Installation and Upgrades* ([PDF](#)).

- *For a new MAS:*

1. Configure the new MAS and test that the MAS is working, as documented in *Avaya Modular Messaging Installation and Upgrades* ([PDF](#)).
2. After you confirm that the new MAS is working correctly, continue in this guide with [Balancing Modular Messaging services across servers](#) on page 97.



CAUTION:

Before you activate the Modular Messaging services on a new server, complete all other VMSC administration required for this server. Review the procedures in the installation guide to ensure that all required VMSC configuration is complete.

- *For a new supplementary server:*

1. Configure the new server as documented in the appropriate installation guide.
2. Continue in this guide with [Balancing Modular Messaging services across servers](#) on page 97.

Balancing Modular Messaging services across servers

Avaya recommends that you distribute the Modular Messaging services across all installed MASs, and the supplementary tracing server if present. This practice balances the load on the system for optimum performance.



CAUTION:

Currently, no documented procedures exist for moving Modular Messaging services on Release 1.1 or Release 2 systems. For this procedure, contact the appropriate technical support organization.

Recommended distribution of Modular Messaging services

[Table 11](#) describes the recommended distribution of Modular Messaging services and tools among MASs that use S3400-family hardware.

Note:

Call Me Service and MWI Service must be coresident with Mailbox Monitor.

Table 11: Recommended distribution of Modular Messaging services with S3400-family hardware

Number of MASs	SWIN and TUI	MAS 1 ¹	MAS 2	MAS 3	MAS 4 to 10 ²	Supplementary Server
1	Any	● Tracing Service ● Call Me ● MWI ● Mailbox Monitor ● Fax Sender ³ ● No Offline Message Store	—	—	—	—
2	T1 QSIG E1 QSIG (Aria TUI)	—	—	—	—	● Tracing Service ● Call Me ● MWI ● Mailbox Monitor ● Fax Sender ³ ● Offline Access Message Store ● Admin Tools

Adding an MAS to a system in service

Table 11: Recommended distribution of Modular Messaging services with S3400-family hardware

Number of MASs	SWIN and TUI	MAS 1 ¹	MAS 2	MAS 3	MAS 4 to 10 ²	Supplementary Server
2	IP H.323 IP SIP Analog DSE (Any TUI) T1 QSIG E1 QSIG (AUDIX and Serenade TUIs)	● Call Me ● MWI ● Mailbox Monitor	● Tracing Service ● Fax Sender ³ ● Offline Access Message Store	—	—	—
3	T1 QSIG E1 QSIG (Aria TUI)	—	—	—	—	● Tracing Service ● Call Me ● MWI ● Mailbox Monitor ● Fax Sender ³ ● Offline Access Message Store ● Admin Tools
3	IP H.323 IP SIP Analog DSE (Any TUI) T1 QSIG E1 QSIG (AUDIX and Serenade TUIs)	Fax Sender ³	● Call Me ● MWI ● Mailbox Monitor	● Tracing Service ● Offline Access Message Store	—	—
4 to 10 ²	Any	—	—	—	—	● Tracing Service ● Call Me ● MWI ● Mailbox Monitor ● Fax Sender ³ ● Offline Access Message Store ● Admin Tools

1. The first MAS must have the smallest number of ports.

2. A Modular Messaging—MSS configuration supports a maximum of five MASs in a VMD.

3. Fax Sender service is available only for Modular Messaging—MSS configurations. Fax service currently is unavailable for IP H.323 and IP SIP integrations.

Chapter 7: Upgrading S3400-family servers

This chapter describes how to upgrade an existing Avaya server to a new Avaya S3400-family message server. S3400-family server upgrades include:

- S3400-family Avaya Message Storage Server Standard Availability version (MSS-S) to an S3400-family Avaya Message Storage Server High Availability version (MSS-H)—[Upgrading to an S3400-family MSS-H](#) on page 99



CAUTION:

Avaya supports S3500-family hardware only on Release 3 Modular Messaging systems. Earlier releases of Modular Messaging software must use S3400-family hardware for their Avaya-provided servers.

- S3400-family MSS-S or MSS-H to an S3500-family server, either MSS-S or MSS-H
- S3400-family MAS or supplementary server to an S3500-family server

Note:

To upgrade to an S3500-family server, see Chapter 7 in *Avaya Modular Messaging S3500-Family Hardware Maintenance and Additions* ([PDF](#)).

Upgrading to an S3400-family MSS-H

Customers might choose to upgrade their S3400-family MSS-S to an MSS-H to obtain greater reliability or additional capacity.

Backing up the current MSS

You must back up all existing data on the MSS before you start the server upgrade.

To back up all data on the MSS:

1. Log on to the MSS server as **craft** using the appropriate password.
The system displays the Messaging Administration main menu.
2. Stop the messaging service:
 - a. Click **Utilities > Stop Messaging Software**.
 - b. On the Stop Messaging Software page, click **Stop**.

The system displays the status of stopping the messaging system.

- c. After the system reports that the voice system has completely stopped, click **Return to Main**.
3. Start an attended backup:
 - a. Click **Utilities > Backup and Restore > Backup**.
 - b. On the Backup page, verify the **Media Type** and have a DVD-RAM ready if required.

Note:

Before Release 3, the only backup method available used the MSS DVD-RAM. Starting with Release 3, the MSS can alternatively back up data over the LAN.

 - c. Set all the data types to back up to **Yes**.
 - d. Click **Start Backup**.
4. Follow the system prompts to complete the backup process.
 - For a DVD backup, allow about 30 minutes for the system to write the data to each DVD.
 - The message **FULL-MANUAL BACKUP completed successfully** indicates that the backup is complete.
5. After the backup is complete:
 - a. Click **Return to Main**.
 - b. Click **Logoff**.
 - c. For a DVD backup, press the eject button on the front of the DVD drive, and remove the DVD-RAM backup medium. Change the tab on the DVD-RAM backup to write protect.
6. Unplug all the modems to the Modular Messaging system. Otherwise, the remote technical support group will receive alarms throughout the upgrade procedure.

Replacing the MSS hardware

To upgrade your current MSS to the new S3400-family MSS:

1. Turn off the existing MSS.
2. Unplug all cables to the old server. Label all cables so you can easily reconnect them.
3. Remove the existing MSS from the stacked configuration or customer cabinet.
4. Install the new S3400-family MSS. For more information, see [Installing an S3400-family server](#) on page 43.

Note:

For a summary of MSS cable connections, see [Identifying key components of the MSS](#) on page 19.

Restoring data on the MSS

After the server is installed, restore the customer data and verify that the system software is current.



CAUTION:

A software restoration after a Release 3 upgrade takes longer than a usual restore procedure, because the software does additional steps to upgrade the data. Do not reboot the server until the software restoration is complete, or you must reload the software and restore the data again. The time required for the data restoration to complete depends on the number of subscribers.

To restore data on the MSS:

1. Stop the messaging service:
 - a. Click **Utilities > Stop Messaging Software**.
 - b. On the Stop Messaging Software page, click **Stop**.
 - c. After the system reports that the voice system has completely stopped, click **Return to Main**.
2. For a DVD backup, insert the write-protected DVD-RAM backup disk with the full manual backup in the DVD drive. Ensure that the DVD is seated solidly between the plastic clips.
3. Start the data restoration:
 - a. Click **Utilities > Backup and Restore > Restore**.
 - b. On the Restore page, set all the data types to back up to **Yes**.
 - c. Click **Start Restore**.
 - d. On the Restore status screen, follow the system prompts to complete the restoration.

The system starts restoring all data to the system. Allow about 30 minutes for the system to restore the data from each backup DVD.

Note:

To follow the progress of the data restoration, press **Page Down** or scroll down to see the bottom of the screen.

4. After the restoration is complete, you must reboot the system.
 - a. Click **Reboot System**.
 - b. On the Reboot System page, click **Reboot**.
 - c. At the prompt that you will lose access to the system, click **OK**.

The system reboot starts.

5. Prepare for the next system backup. Use the appropriate type of backup for this system.

To support a DVD backup:

- a. Press the eject button on the front of the DVD-RAM drive, and remove the DVD-RAM backup medium. File the pre-upgrade backup DVDs in a safe place.
 - b. Insert a new, writable DVD-RAM in the drive to support the next attended backup.
6. When the boot is complete, you see the message **Press Enter to return to prompt...** Press **Enter**.
7. At the **localhost login** prompt, log on to the MSS as **craft**.
The server displays the Messaging Administration main menu.
8. As a sanity check, display the Network Addressing page:
 - a. Click **Basic System Administration > TCP/IP Administration > Network Addressing**.
 - b. Using a current copy of the planning forms, verify the settings on this page. Verify that the corporate and private LANs are not backward.
9. From the Messaging Administration main menu, click **Global Administration > Subscriber Management**.
 - a. Verify that the correct number of subscribers is restored.
 - b. On the Manage Classes-of-Service page, verify that the classes of service are correctly restored.
10. The system does *not* back up passwords for the MSS login accounts. You must re-enter the correct passwords to enable remote access.
 - a. From the Messaging Administration main menu, click **Basic System Administration > Password Administration > Assign/Change Password**.
 - b. On the Assign/Change Password page, at the **Login** drop-down box, select each login:
 1. For **New Password**, use the current planning forms to enter the correct password.
 2. For **Confirm New Password**, type the password again for verification.
 3. Click **Save**.
 4. The system displays a confirmation message. Click the **Back** arrow on the Web browser to return the Assign/Change Password page.
 - c. Repeat Step b for each login account.
 - d. After you update the password for all required logins, click **Return to Main**.
11. Connect any disconnected modems to restore normal alarming for the Modular Messaging system. Verify that any alarms are resolved.
12. Ensure that the software on the new server is current. To update the system with the latest changes if needed, see *Appendix G: Updating Modular Messaging software* in *Avaya Modular Messaging Installation and Upgrades* ([PDF](#)).

Chapter 8: Working inside the server

This chapter summarizes the procedures for working on internal components in a Avaya S3400-family message server. Review the safety precautions for working on hardware before you start any repair or installation procedure.

Topics in this chapter include:

- [Working inside the server](#) on page 103
- [Safety information](#) on page 106
- [Protecting against ESD damage](#) on page 109

Working inside the server

This section summarizes the procedures for working on internal components in a Avaya S3400-family message server.



CAUTION:

This document does not describe how to replace any internal components in an S3400-family server. For information about internal component repair, see "[Replacing S3400-family server components](#)" in the **Maintenance** section on the *Avaya Modular Messaging Documentation* media. Repair procedures include:

- Adding or replacing circuit cards and port boards in S3400-family servers
- Repairing or replacing other internal components in S3400-family servers

Preparing for server shutdown

Prepare for a server repair operation as appropriate for this server:

- If the server is already in operation, you must take it out of service to work inside the chassis. Schedule and publicize a time.
- For an MSS configuration, you must turn off the Message Storage Server (MSS) to replace any internal component except the chassis fan. Any MASs in the system continue to take calls while the MSS is unavailable. After the MSS returns to service, the MASs deliver their spooled messages.

- For a system that has multiple MASs, you can busyout the ports on an MAS before you start the repair operation. To busyout ports on an MAS:
 - a. The PBX administrator must use the procedures appropriate for this PBX to busyout the ports for MAS. Depending on the switch integration, the administrator might be able to temporarily reroute calls to other MASs. If an MAS is unavailable, callers into the system might hear ring-no answer or a busy signal.
 - b. Use the Port Monitor to disable the MAS ports:
 - 1. Click **Start > Programs > Avaya Modular Messaging > Port Monitor**.
 - 2. In the Port Monitor window, hold down the **Shift** key or Control (**Ctrl**) key and click to select all the ports.
 - 3. Right-click the port list and select **Disable**.
 - 4. Verify that the status of all ports is **Disabled**.
 - 5. Close the Port Monitor window.

Getting inside the chassis

You must open the chassis of an Avaya S3400-family message server to do most component repair procedures. To open a S3400-family server chassis:

1. Shut down the system software and remove power from the server. For more information, see [Chapter 3: Turning the servers off and on](#) on page 31.



CAUTION:

The chassis cover protects the internal components. When you remove the cover, damage from electrostatic discharge is possible. For more information, see [Protecting against ESD damage](#) on page 109.

2. Remove the bezel (plastic cover) on the front of the chassis. For an illustration, see [Attaching the front bezel](#) on page 75.
 - a. Press down on the two tabs on the top of the bezel.
 - b. Tilt the bezel forward, and then lift the bezel out.
3. Remove the top cover.
 - a. Loosen the screw latch for the top cover, located on the back of the chassis.
 - b. Slide the top cover towards the front of the server, and then lift the cover off the chassis.



CAUTION:

For some procedures, you might need to remove the server from the rails. Ensure that you have a clear work area before you remove the server.

- For safety considerations, get another person to assist you with lifting the server.

- If you must unplug cables at the back of the server, label all cables so you can easily reconnect them.

Replacing internal components

To replace any internal components in an Avaya S3400-family server, see "[Replacing S3400-family server components](#)" in the **Maintenance** section on the *Avaya Modular Messaging Documentation* media.

Field-replaceable components for S3400-family servers include:

- Circuit cards including MAS port boards, remote maintenance board in an MSS, and SCSI RAID controller board in an MSS-H

Note:

For a nonintegrated video and LAN model, you can also replace the network interface card (NIC) and video card.

- Disk drives including all hard drives and the DVD drive
- Disk drive cables
- Fans including chassis fans and the SCSI fan tray in an MSS-H
- Internal cables including fan power, RMB reset cable, and the SCSI cable group in an MSS-H
- LED front panel or the LED motherboard cable
- Memory modules
- Power supplies

If any other internal components fail, or if the entire server was damaged, you must replace the entire server. For more information, see "[Server replacement](#)" in the **Maintenance** section on the *Avaya Modular Messaging Documentation* media.

Note:

Avaya will attempt to replace a faulty server with a new server that uses the same type of motherboard. This practice keeps the cable connections and number of MAS port boards consistent between the old and replacement servers. For more information, see [Strategy for server replacement and additions](#) on page 29.

Safety information

Safety information includes safety inspection and following electrical safety rules.

Note:

For additional important safety information, see [General safety rules](#) on page 3.

Safety inspection checklist

The intent of this checklist is to help you identify potentially unsafe conditions related to this product. Each system unit, as it was designed and built, had required safety items installed to protect users and technical support staff from injury. If any unsafe conditions are present, determine how serious the apparent hazard might be and whether you can safely continue without first correcting the problem.

Consider these conditions and the safety hazards they present:

- Electrical hazards, especially primary power. Primary voltage on the frame can cause serious or fatal electrical shock.
- Explosive hazards, such as a damaged monitor face or bulging capacitor.
- Mechanical hazards, such as loose or missing hardware.

Perform the following safety checks when servicing this unit:

1. Check exterior covers for damage such as loose, broken, or sharp edges.
2. Shut down the system and unplug the AC power cords. For more information, see [Chapter 3: Turning the servers off and on](#) on page 31.
3. Check the power cord for:
 - A third-wire ground connector in good condition. Use a meter to measure third-wire ground continuity for 0.1 ohm or less between the external ground pin and frame ground.
 - Verify that the power cord is the appropriate type.
 - Insulation must not be frayed or worn.
4. Remove the top cover.
5. Check inside the unit for any obvious unsafe conditions, such as metal filings, contamination, water or other liquids, or signs of fire or smoke damage.
6. Check for worn, frayed, or pinched cables.
7. Verify that the power-supply cover fasteners, such as screws or rivets, have not been removed or tampered with.
8. If you notice any damage, replace the appropriate system components.

Electrical safety rules

Electrical current from power, telephone, and communication cables can be hazardous. To avoid any shock hazard, you must disconnect all power cords and cables. For more information, see [Chapter 3: Turning the servers off and on](#) on page 31.

Observe the following rules when working on electrical equipment:

- Find the room emergency power-off (EPO) switch, disconnecting switch, or electrical outlet. If an electrical accident occurs, you can then operate the switch or unplug the power cord quickly.
- Do not work alone under hazardous conditions or near equipment that has hazardous voltages.
- Disconnect all power before:
 - Doing a mechanical inspection
 - Working near power supplies
 - Removing or installing main units
- Before you start to work on the system unit, unplug the power cord. If you cannot unplug it, ask the customer to switch off the wall box that supplies power to the system unit. Afterwards, lock the wall box in the off position.
- If you must work on a system unit that has exposed electrical circuits, observe the following precautions:
 - Ensure that another person, familiar with the power-off controls, is near you. Another person must be there to switch off the power if necessary.
 - Stand on suitable rubber mats to insulate you from grounds such as metal floor strips and system unit frames. Obtain the mats locally, if necessary.
 - When using testers, set the controls correctly and use the approved probe leads and accessories for that tester.
 - Use only one hand when working with powered-on electrical equipment. Keep the other hand in your pocket or behind your back. This precaution can prevent a current from passing through your body.
- Regularly inspect and maintain your electrical hand tools for safe operational condition. Do not use worn or broken tools and testers.
- Never assume that power was disconnected from a circuit. First, verify that the unit is turned off.
- Always look carefully for possible hazards in your work area. Examples of hazards are moist floors, non-grounded power extension cables, power surges, and missing safety grounds.

Working inside the server

- Do not touch live electrical circuits with the reflective surface of a plastic dental mirror. The surface is conductive. Touching a live circuit can cause personal injury and damage to the unit.
- Use only approved tools and test equipment. Some hand tools have handles covered with a soft material that does not insulate you when working with live electrical currents.
- Many customers have, near their equipment, rubber floor mats that contain small conductive fibers to decrease electrostatic discharges. Do *not* use this type of mat to protect yourself from electrical shock.

If an electrical accident occurs:

- Use caution. Do not become a victim yourself.
- Turn off power.
- Send another person to get medical aid.

Lithium battery

The Avaya S3400-family message servers contain a lithium battery that is accessible only to technical support representatives.



CAUTION:

You risk explosion if you replace the battery with an incorrect type. Dispose of used batteries according to the instructions.

Protecting against ESD damage

Any system component that contains transistors or integrated circuits must be considered sensitive to electrostatic discharge (ESD). ESD damage can occur when there is a difference in charge between objects. Protect against ESD damage by equalizing the charge. The system unit, the part, the work mat, and the person handling the part must all be at the same charge.

Packaging materials that contain ESD sensitive components are usually marked with a yellow and black warning symbol.

**CAUTION:**

You must observe proper grounding techniques to prevent the discharge of static electricity from your body into ESD sensitive components.

To avoid damaging ESD sensitive components:

- Keep the parts in protective packages until they are ready to be inserted into the product.
- Handle the components only after attaching a wrist strap to your bare wrist. Attach the other end of the wrist strap to a ground that terminates at the system ground, such as any unpainted metallic chassis surface.
- Handle a circuit board by the faceplate or side edges only. Hold devices such as a hard disk drives in the same manner. The ESD sensitive area of these components is located on the bottom surface.

**CAUTION:**

Ensure that your palm is not in contact with the non-component side of the board.

- Keep components away from plastics and other synthetic materials such as polyester clothing. Most clothing is insulative and retains a charge even when you are wearing a wrist strap.
- Do not hand components to another person unless that person is grounded at the same potential level. In general, avoid contact with other people.
- Use the black side of a grounded work mat to provide a static-free work surface. The mat is especially useful when handling ESD-sensitive devices.
- Verify that the ESD protective devices you use are ISO 9000 certified as fully effective.

Note:

Use product-specific ESD procedures when they exceed the requirements noted here.

Working inside the server

Index

A

about this book [ix](#)
 Add Trusted Server page [94](#)
 adding a server to a system [91](#)
 air flow considerations [7](#)
 analog boards
 cabling [50](#), [81](#)
 supported boards [18](#)
 Assign/Change Password page [102](#)
 attended backup [99](#)
 Avaya MAS, *see* MAS

B

backing up the system [99](#)
 Backup page [100](#)
 balance Modular Messaging services across servers. [97](#)
 before you start [1](#)
 Belkin KVM switch, *see* KVM switch
 boot error message [32](#), [35](#), [36](#)
 BTU output [6](#)
 busyout ports [104](#)

C

cabinet depth and height [6](#), [7](#)
 cabling
 Ethernet cable [82](#)
 Ethernet switch [51](#), [53](#), [54](#)
 ferrites [61](#), [87](#)
 KVM switch [56](#), [58](#), [84](#), [86](#)
 MAS port boards [50](#), [81](#)
 S3400-family servers [48](#), [50](#), [80](#), [81](#)
 UPS and EBMs. [41](#), [74](#)
 Call Me Server. [97](#)
 chassis, getting inside [104](#)
 checklist for installing new servers [92](#)
 comment on this book [xii](#)
 configuring a new server [37](#), [69](#), [95](#), [96](#)
 CPE server
 identifying [13](#)
 in non-Avaya MSS configurations [14](#)
 installation [91](#)
 customer-provided equipment
 cabinets [7](#)
 in non-Avaya MSS configurations [28](#)
 servers. [28](#)

supplementary servers. [13](#)

D

demarcation points [9](#)
 Dialogic port boards, *see* port boards
 distribute Modular Messaging services across servers [97](#)
 documentation [xi](#)
 Domino, *see* IBM Lotus Domino configuration

E

E1-QSIG boards
 cabling [50](#), [81](#)
 plug for unused connector [18](#), [93](#)
 supported boards [18](#)
 EBM installation [39](#), [47](#), [71](#)
 electrostatic discharge, *see* ESD
 environmental conditions [5](#)
 ESD precautions [109](#)
 Ethernet cable connection. [82](#)
 Ethernet switch installation [51](#), [53](#), [54](#)
 Exchange, *see* Microsoft Exchange configuration
 extended battery module (EBM), *see* EBM
 external modem for RMB [66](#)

F

Fax Sender Server [97](#)
 ferrites [61](#), [87](#)
 flat-panel monitor. [55](#), [61](#), [83](#), [87](#)
 front bezel on S3400-family servers [43](#), [75](#)

G

getting inside the chassis [104](#)
 grounding requirements. [9](#)

H

hardware installation
 8-port KVM switch [55](#), [56](#), [58](#), [83](#), [84](#)
 adding a new server [92](#)
 Avaya MAS [43](#), [75](#)
 cabling [50](#), [51](#), [53](#), [54](#), [58](#), [81](#), [82](#), [86](#)
 Ethernet cable [82](#)
 Ethernet switch [51](#), [53](#), [54](#)
 ferrites [61](#), [87](#)

Index

front bezel [43](#), [75](#)
KVM switch [55](#), [83](#), [86](#)
labelling servers [12](#)
port board cables [50](#), [81](#)
power cables [48](#), [80](#)
preinstallation requirements [5](#)
RMB [65](#), [66](#)
S3400-family servers . . . [43](#), [44](#), [46](#), [75](#), [76](#), [78](#), [80](#)
sample installed system [46](#), [78](#)
UPS and EBMs [39](#), [71](#)
USB modem [62](#), [88](#)
hardware overview [11](#)
identifying servers [12](#), [15](#)
MSS configuration [14](#)
MSS configuration parts list [26](#)
obtain replacement parts [2](#)
other configuration parts list [28](#)
other configurations [14](#)
packing materials [2](#)
port boards [18](#)
sample installed system [37](#), [69](#)
supported configurations [1](#)
hardware replacement, *see* replacing hardware
heat dissipation [8](#)
heat output [6](#)
help using the system [xi](#)
how to use this book [ix](#)
humidity requirements [5](#)

I

IBM Lotus Domino configuration
hardware overview [11](#), [14](#), [28](#)
installing a new server [69](#), [95](#)
sample installed system [69](#)
supported releases [1](#)
identifying Avaya message servers [12](#), [15](#)
integrated video and LAN model
boot message [32](#), [35](#), [36](#)
cabling [53](#), [54](#), [60](#), [63](#), [67](#)
identifying [12](#), [16](#), [21](#), [24](#)
maximum port boards supported [18](#)
intended audience [ix](#)
internal component repair [103](#), [105](#)
IP H.323 integration [27](#), [28](#), [50](#), [81](#)
IP SIP integration [27](#), [28](#), [50](#), [81](#)

K

key components
MAS [14](#), [15](#)
MSS-H [23](#)
MSS-S [20](#)
keyboard, monitor and mouse setup, *see* KVM switch
KVM switch

installation, 8-port [55](#), [56](#), [58](#), [83](#), [84](#), [86](#)
installing non-Belkin model [55](#), [83](#)

L

LAN
cabling [51](#), [54](#), [82](#)
demarcation points [9](#)
LDAP password [94](#)
links to other files [x](#)
lithium battery [108](#)
Lotus Domino, *see* IBM Lotus Domino configuration

M

Mailbox Monitor Server [97](#)
Manage Classes-of-Service page [102](#)
Manage Trusted Servers page [94](#)
MAS
adding a new server [91](#)
balance MM services across servers [97](#)
busyout ports [104](#)
configuring a new server [95](#), [96](#)
identifying server model [16](#), [17](#)
key components [14](#), [15](#)
trusted server setup [94](#)
MAS-like units, *see* supplementary server
maximum number of supported ports [18](#)
Message Storage Server (MSS), *see* MSS
Message Storage Server High-availability configuration (MSS-H), *see* MSS-H
Message Storage Server Standard configuration (MSS-S), *see* MSS-S
message store preparation for new servers [94](#)
Messaging Application Server (MAS), *see* MAS
Microsoft Exchange configuration
hardware overview [11](#), [14](#), [28](#)
installing a new server [69](#), [95](#)
sample installed system [69](#)
supported releases [1](#)
modem
disconnect for upgrades [100](#)
installation [62](#), [65](#), [66](#), [88](#)
Modular Messaging services, balance across servers . [97](#)
monitor, keyboard, and mouse setup, *see* KVM switch
motherboard
cabling and connector impact [12](#), [58](#), [63](#)
server replacement strategy [29](#)
MSS
adding a new server [94](#)
back up data [99](#)
identifying server model [21](#), [22](#), [24](#), [25](#)
logins and access [102](#)
restoring data [101](#)
trusted servers [94](#)

upgrading the server	99
MSS-H key components	12 , 23 , 24
MSS-S key components	20
MultiTech modem	62 , 88
MWI	
distribution across servers.	97
testing	4

N

Network Addressing page	102
nonintegrated video and LAN model	
cabling	53 , 54 , 57 , 61 , 63 , 66 , 87 , 89
identifying	12 , 17 , 22 , 25
maximum port boards supported.	18
non-MSS configurations.	69

O

obtain replacement parts	2
offline access (OLA) server	13
online help	xi
on-site security	4
order system components	2
overview of hardware	11

P

packing materials, saving.	2
passwords	
MSS logins.	102
security	4
PBX demarcation points	9
planning forms	
checklist	92
verifying data to enter	94 , 102
port boards	
connecting cables	50 , 81
disable ports on MAS	104
ports supported per MAS	18
supported boards on S3400-family servers	18
Port Monitor	104
power cables for S3400-family system	48 , 80
power requirements	8
power supplies used in MSS-H	12 , 24
PPP logins and access.	102
preparing for server shutdown	103
preparing the message store to recognize a new server	94
private LAN	
cabling.	51 , 53
connecting additional servers	53
protecting against ESD damage	109

R

rack-mount setup	
KVM switch	55 , 83
S3400-family servers	44 , 76
sample installed system	37 , 69
UPS and EBMs	39 , 71
Reboot System page	101
related resources	x
remote access	102
Remote Maintenance Board (RMB), see RMB	
remote support center	xi
replacement strategy for S3400-family servers	29 , 105
replacing hardware	
before you start	1
internal components	103 , 105
MSS upgrade	100
preparing for server shutdown	103
tools	5
reset switch	5 , 23 , 24 , 25
Restore page.	101
restoring data onto the system.	101
restricted-access location	7
RMB	
cabling	65 , 66
replacing	105
rules to ensure safety	3 , 106 , 107

S

S3400-family servers	
cabling	51 , 53 , 54 , 58 , 82
configuring	37 , 69
installation	37 , 44 , 46 , 50 , 69 , 75 , 76 , 78 , 80 , 81
overview	11
port boards	18
replacement strategy	29 , 105
site requirements	5
supported software releases	29 , 69
system configuration.	11
turning off and on	31
upgrades	91 , 99
used with S3500-family servers	13 , 29
variations in server models.	11
weight, height, and depth	6
S3500-family servers	
adding new servers	29
installing	13
repairing	13
supported software releases	13 , 29
upgrades	13 , 18 , 30 , 91 , 99
used with S3400-family servers	13 , 29
safety inspection checklist.	106
safety requirements.	3 , 7 , 9 , 106 , 107

Index

scheduled backup	99
security	4
set emulation boards	
cabling	50 , 81
supported boards	18
Shut Down Windows window	31
Shutdown System page	33
side-by-side power supply in MSS-H	24
site requirements	
customer-provided cabinet	7
demarcation points	9
environmental conditions	5
heat dissipation	8
installation area	7
power and ground	8 , 9
servers	5
test equipment	4
weight and space considerations	6
software updates to system	30 , 92
space considerations	6
stackable configuration	
KVM switch	55 , 83
S3400-family servers	46 , 78
UPS and EBMs	40 , 73
Stop Messaging Software page	99 , 101
strategy for replacing S3400-family servers	29 , 105
supplementary server	
adding	92
cabling	51 , 53 , 54 , 59
CPE servers	13 , 28
identifying type of server	12 , 15 , 28 , 54
Modular Messaging services	97
types of supplementary servers	13
supported configurations	ix , 1
system configuration	11
system reset switch, <i>see</i> reset switch	

T

T1/E1 connections	7
T1-QSIG boards	
cabling	50 , 81
plug for unused connector	18 , 93
supported boards	18
TCP/IP settings	102
technical assistance	xi
telephones for acceptance testing	4
temperature requirements	5
test equipment	4
tools for hardware repair	5
Tracing Server service	97
trademarks	x
training	xi
trusted servers	
adding on MSS	94

turning off and on S3400-family servers	31
preparing for server shutdown	103
turning off an MAS	31
turning off an MSS	33
turning on all components in the system	35
turning on an MAS	32
turning on an MSS	34

U

uninterruptible power system (UPS), <i>see</i> UPS	
updating software on server	30 , 92
upgrades	
backing up the system	99
restoring data	101
supported port boards	18
upgrading an S3400-family server	91 , 99
UPS	
connecting power cables	48
installing	39 , 47 , 71
sizing	8
turning on	35
USB modem	62 , 88
using links in this book	x

V

variations in S3400-family servers	11
ventilation of servers	7
vertically stacked power supply in MSS-H	24 , 25

W

weight and space considerations	6
working inside the server	103