Modular Messaging

S3500-Family Hardware Maintenance and Additions

February 2007

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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:

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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
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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:

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Contents

About this book

This book, *Avaya Modular Messaging S3500-Family Hardware Maintenance and Additions*, contains instructions for maintaining an Avaya Modular Messaging system that uses S3500-family hardware. This document supports both Avaya MSS and Microsoft Exchange configurations. Information includes instructions for:

- Installing new system components, including adding or replacing S3500-family servers and peripheral equipment.
- Adding or replacing circuit boards on all models of S3500-family server
- Repairing or replacing other internal components in S3500-family servers

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 xii.

How to use this book

This document describes how to install or repair 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* available on http://www.avaya.com/support . 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:

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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

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Method	Contact
E-mail	infodev@avaya.com
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Be sure to include the name and date of this book:

Avaya Modular Messaging S3500-Family Hardware Maintenance and Additions.

Chapter 1: Before you start

This chapter describes requirements and prerequisites that apply to Avaya Modular Messaging systems that use S3500-family server hardware. Review the topics in this chapter before you start repair or installation procedures.

Topics in this chapter include:

Note:

Some procedures in this maintenance guide refer to *Avaya Modular Messaging Installation and Upgrades* from the Avaya Support Web site at http://www.avaya.com/support. 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)
  - Microsoft Exchange
- All Avaya-provided components in a Message Storage Server (MSS) configuration.

Note:

Avaya supports only the Release 3 version of the Avaya Modular Messaging software on Avaya S3500-family message server hardware.

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 Safety information on page 130 for additional important safety 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

Avaya recommends 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 S3500-family message server hardware.

Environmental requirements

Table 1 lists the environmental conditions that must be maintained in the area where Avaya S3500-family message servers are installed and operated.

Table 1: Environmental requirements

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

Table 2 lists the maximum heat output for each type of S3500-family server in British thermal units (BTUs). For more information about the different server models, see Identifying Avaya S3500-family message servers on page 11.

Table 2: Heat output in BTUs for S3500-family servers

Server model	Maximum heat output
Avaya Messaging Application Server (Avaya MAS)	1498 BTU per hour
Avaya Message Storage Server Standard Availability version (MSS-S)	1211 BTU per hour
Avaya Message Storage Server High Availability version (MSS-H)	1573 BTU per hour

Weight and space considerations

Table 3 lists the weight and spacial dimensions of each Avaya S3500-family message server.

Table 3: Weight and space considerations for S3500-family servers

Server	Weight (full)	Height	Width	Depth
Avaya Messaging Application Server (Avaya MAS) or supplementary server	36 lb (16.3 kg) without port boards	3.5 in. (9 cm)	16.9 in. (43 cm)	26 in. (66 cm)
Avaya Message Storage Server Standard Availability version (MSS-S)	38 lb (17.2 kg)	3.5 in. (9 cm)	16.9 in. (43 cm)	26 in. (66 cm)
Avaya Message Storage Server High Availability version (MSS-H)	42 lb (19.1 kg)	3.5 in. (9 cm)	16.9 in. (43 cm)	26 in. (66 cm)

For safety considerations, at least two technicians must be available to mount the units.

Customer-provided cabinet requirements

If an Avaya S3500-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 26 to 36 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 S3500-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 8: Example of a rack-mount MSS system with S3500-family servers—front view on page 34.

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 S3500-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 S3500-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 S3500-family servers

Server	Number of power supply units	Volts AC	Hertz	Maximum amperes 120V/240V
Avaya MAS or supplementary server	1	90 to 264 Vac	47 to 63 Hz	8.0/4.0
MSS-S	1	90 to 264 Vac	47 to 63 Hz	8.0/4.0
MSS-H	2	90 to 264 Vac	47 to 63 Hz	8.0/5.0

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

S3500-family server	Maximum power dissipation in watts, assuming 65% power supply efficiency
Avaya MAS with port boards	450 watts
MSS-S	400 watts
MSS-H	500 watts

Grounding requirements

An Avaya S3500-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.

WARNING:

The power cord set provided with this product must be used with this product only. Do not use the cord set with any other product, and do not use a different cord set with this product. Using the wrong cord set could lead to hazardous incidents such as electric shock, fire, and faulty operation.

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DANGER:

You *must* connect the S3500-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 S3500-family message servers in all supported configurations.

Topics in this chapter include:

Identifying Avaya S3500-family message servers

An Avaya Modular Messaging system can contain the following S3500-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 a Microsoft Exchange configuration. 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 13.

  Note:

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

Identifying Modular Messaging servers

If a system ships with several S3500-family servers, it is crucial to correctly identify each server. The installation and configuration procedures vary for different types of servers.

To help you identify each server, the S3500-family servers have two labels:

- A label on the right side of the server near the front identifies the type of S3500-family server: MAS, MSS-S, or MSS-H.
- A label on the left side of the server near the middle identifies the software that is preinstalled on the Avaya server. For a list of labels, see Table 6.

Table 6: Labels for S3500-family servers

Label [1]	Server type	Action
AVAYA MM MSS SOFTWARE LOADED	MSS-S or MSS-H	1. Connect to corporate network. 2. For MSS system, also connect to private network.
AVAYA MM MAS SOFTWARE LOADED: • EXCHANGE STORE • DOMINO STORE • AVAYA MSS STORE	MAS	1. Check the correct box to identify the message store. 2. Connect to corporate network. 3. For MSS system, also connect to private network.
AVAYA MM SUPPLEMENTARY SERVER AVAYA STORE TRACING SERVER	Supplementary Tracing server for MSS system only	Connect to corporate network and MSS private network.
AVAYA MM SUPPLEMENTARY SERVER: • DOM/EXCH TRACING—Domino or Exchange system Tracing server—*not used for MSS configuration.* • OLA—Offline Access server—*no additional application software required.* • WEB CLIENT—Web Client server—*MSS configuration only.* • WEB SUB OPTS—Web Subscriber Options server • UCC-SA SERVER—Unified Communication Center Speech Access server	Supplementary server for various optional applications	1. Check all appropriate boxes to identify the purpose and content of the supplementary server. 2. Connect the server *only* to the corporate network. 3. Install application software as required. **Note:** If a server is to host multiple applications, check multiple boxes such as **WEB CLIENT** and **WEB SUB OPTS**.

1. *MM* is an abbreviation for Modular Messaging.

Note:

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.

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 the following optional services. You connect the following servers to the corporate LAN, but *not* to the private network:

- Modular Messaging Web Client—always on its own server. Avaya provides this application only for MSS configurations. For more information, see *Avaya Modular Messaging Web Client Server Installation and Upgrades* available on http://www.avaya.com/support.
- Web Subscriber Options—can be on its own server. This application might be co-resident on an MAS or the Modular Messaging Web Client server, if used. Check the planning forms to determine if you must activate Web Subscriber Options on a particular server. For more information, see *Avaya Modular Messaging Web Subscriber Options Server Installation* available on http://www.avaya.com/support.
- Any server that provides only storage for offline access to messages. This server is called the offline access (OLA) server. An OLA server might also support resource-intensive administrative tools such as the Reporting Tool.

  Note:

  These additional servers might use either Avaya S3500-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 applications such as the Modular Messaging Web Client. 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*.

Identifying server components for MSS configurations

This section describes the hardware used with an Avaya MSS configuration.

Identifying key components of S3500-family servers

This section describes the key components of each of the Avaya-provided S3500-family servers, including the MSS-S, MSS-H, and Avaya MAS.

Figure 1 shows the front view of an Avaya S3500-family message server.

Figure 1: S3500-family server—front view with bezel removed

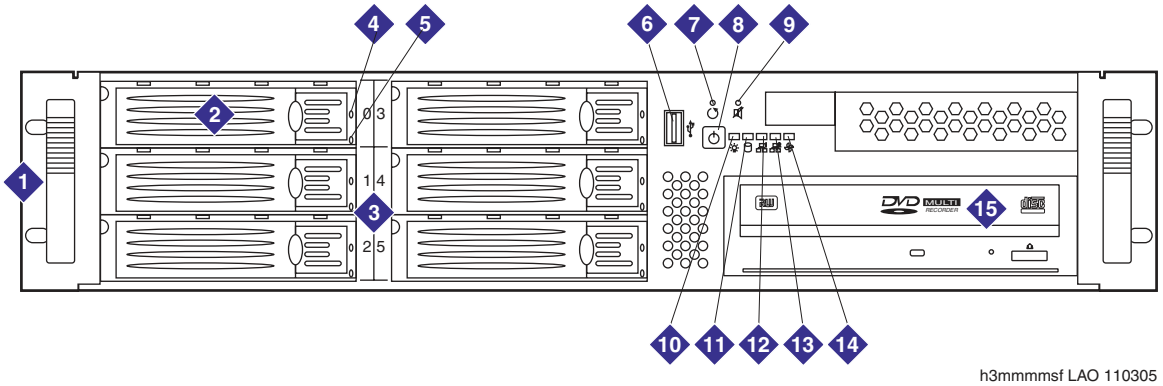

Figure notes:

1. **Chassis handles**
2. **Hard disk drive bays—the number used varies per server: 1 for MAS, 2 for MSS-S, and 4 for MSS-H**
3. **Labels for disk drive bays 0 to 5:**
   - MSS-H uses bays 0, 2, 3, and 5
   - MSS-S uses drive bays 0 and 3
   - MAS uses only drive bay 3
4. **Blue LED indicates that disk drive is present—active on the MSS-H only**
5. **Orange LED indicates disk drive behavior—active on the MSS-H only:**
   - flashing orange=disk drive active
   - steady red=disk drive failed
6. **USB port**
7. **System reset switch**
8. **System power on/off button**
9. **Audible alarm reset switch for power supply—used only on the MSS-H**
10. **System power indicator**
11. **Disk drive access indicator**
12. **Corporate LAN indicator—always on when corporate LAN cable is connected**
13. **Private LAN indicator**
14. **Power supply failure indicator—used only on the MSS-H**
15. **DVD player (for MAS) or recorder (for MSS)**

Key components of the MAS

Figure 2 shows the back view of an Avaya Messaging Application Server (Avaya MAS). At least one MAS is present in each Avaya Modular Messaging system.

CAUTION:

The same S3500-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 2: S3500-family MAS—back view

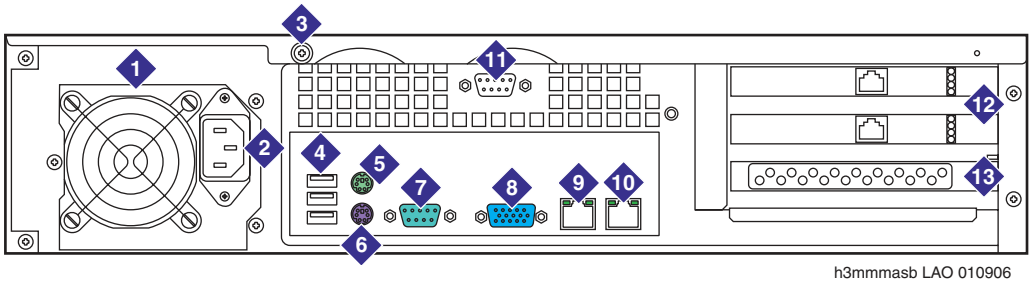

Figure notes:

1. **Power supply**
2. **AC power receptacle**
3. **Screw for top cover**
4. **USB ports—one is used for the required modem on the MAS**
5. **Mouse connector**
6. **Keyboard connector**
7. **Serial port (COM1)—not used**
8. **Video connector**
9. **Corporate LAN interface**
10. **Private LAN interface**
11. **Serial port (COM2)—not used on the MAS**
12. **Port boards—type varies. Port boards are *not* present for IP H.323 or IP SIP integrations.**

    Up to two (2) port boards can be installed in an MAS as needed. The middle PCI slot is filled first, if the MAS has only one port board. For more information, see Supported MAS port boards on page 16.
13. **Extra PCI card slot—not used on the MAS**

Supported MAS port boards

Table 7 lists the Dialogic port boards that S3500-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. For example, all the boards must be T1-QSIG or DSE.

For new systems, the appropriate port boards, if required, are preinstalled in the Avaya MAS. Inspect each new MAS-like unit to determine if port boards are present:

- If port boards are present, identify this unit as an MAS. You must connect the external cables for the port boards as part of server installation.
- If port boards are not present, this unit might be a supplementary server or an MAS that uses an IP type of switch integration. In either case, no external cables are needed. For more information, see Identifying Modular Messaging servers on page 12.

You might receive an empty S3500-family MAS to expand an existing system, or to replace an MAS that failed. In this case, transfer the appropriate port boards from the current MAS to the new server. For details, see Chapter 6: Adding an MAS to a system in service on page 87.

Table 7: Supported MAS port boards—S3500-family servers

Protocol	Ports per MAS	Supported port boards	Maximum number	Dialogic files on documentation media
Analog	12 - 24 4 - 8	Dialogic D/120JCT-LS 12-port board Dialogic D/41JCT-LS 4-port board	2	**D/120JCT-LS** (PDF) **D/41JCT-LS** (PDF)
Digital Set Emulation	8 - 16	Dialogic D/82JCT-U-PCI-UNIV *or* Dialogic D/82JCT-U	2	**D/82JCT-U PCI Univ** (PDF) **D/82JCT-U** (PDF) *Supported for upgrades only.*
E1-QSIG	30 - 60	Dialogic D/600JCT-1E1 [1]	2	**D/600JCT-1E1** (PDF)
T1-QSIG	23 - 46	Dialogic D/480JCT-1T1 [1]	2	**D/480JCT-1T1** (PDF)

1. Early E1-QSIG and T1-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.

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.

Interior view of MAS or MSS-S

The same basic hardware supports the Avaya Messaging Application Server (Avaya MAS) and the Avaya Message Storage Server Standard Availability version (MSS-S). The only difference is the type of DVD drive installed.

Figure 3 shows the interior view of a standard Avaya S3500-family message server.

Figure 3: S3500-family MAS or MSS-S—interior view with bezel removed

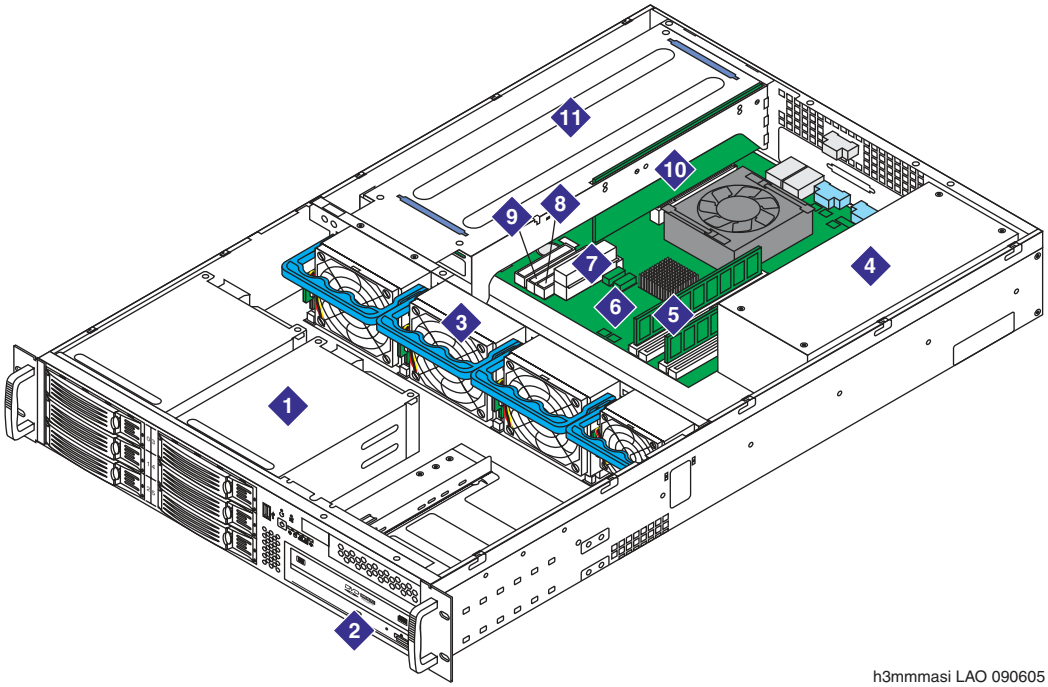

Figure notes:

1. **IDE drive:**
   - MAS uses only drive bay 3, as shown
   - MSS-S uses the two top bays, 0 and 3
2. **DVD drive:**
   - MAS uses a DVD-ROM player
   - MSS-S uses a DVD-RAM recorder
3. **Hot-swappable chassis fans**
4. **Standard power supply**
5. **Memory module—DIMM cards**
6. **Server board**
7. **Main power connector**
8. **Secondary IDE connector**
9. **Primary IDE connector**
10. **Riser card for PCI circuit boards:**
    - MAS optionally contains port boards
    - MSS-S always contains an RMB
11. **PCI card cage for port boards**

MSS component

Each Modular Messaging system has a Message Storage Server (MSS), either an MSS-S or an MSS-H. To determine which model of MSS you are installing, see:

- Key components of the MSS-S on page 18
- Key components of the MSS-H on page 19

Key components of the MSS-S

Figure 4 shows the back view of the Avaya Message Storage Server Standard Availability version (MSS-S).

Figure 4: S3500-family MSS-S standard configuration—back view

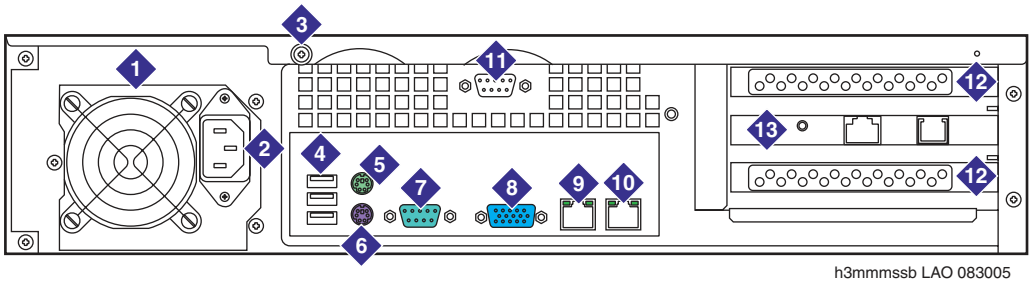

Figure notes:

1. **Power supply**
2. **AC power receptacle**
3. **Screw for top cover**
4. **USB ports—not used on the MSS**
5. **Mouse connector**
6. **Keyboard connector**
7. **Serial port (COM1)—not used**
8. **Video connector**
9. **Corporate LAN interface**
10. **Private LAN interface**
11. **Serial port (COM2)—used for the RMB**
12. **Extra PCI card slots—not used on the MSS**
13. **Remote Maintenance Board (RMB)—connects to analog line for alarm reporting and remote support. International versions require an external modem.**

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 19.

For an interior view of an MSS-S, see Interior view of MAS or MSS-S on page 17.

Key components of the MSS-H

Figure 5 shows the back view of the Avaya Message Storage Server High Availability version (MSS-H).

Figure 5: S3500-family MSS-H high-availability configuration—back view

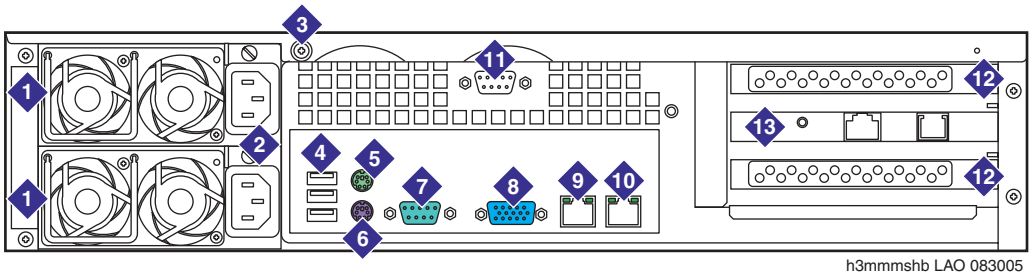

Figure notes:

1. **Redundant power supplies:**
   - green LED=power supply active
   - amber LED=power supply failed
2. **AC power receptacles**
3. **Screw for top cover**
4. **USB ports—not used on the MSS**
5. **Mouse connector**
6. **Keyboard connector**
7. **Serial port (COM1)—not used**
8. **Video connector**
9. **Corporate LAN interface**
10. **Private LAN interface**
11. **Serial port (COM2)—used for the RMB**
12. **Extra PCI card slots—not used on the MSS**
13. **Remote Maintenance Board (RMB)—connects to analog line for alarm reporting and remote support. International versions require an external modem.**

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.

Figure 6 shows the interior view of an Avaya Message Storage Server High Availability version (MSS-H).

Figure 6: S3500-family MSS-H—interior view with bezel removed

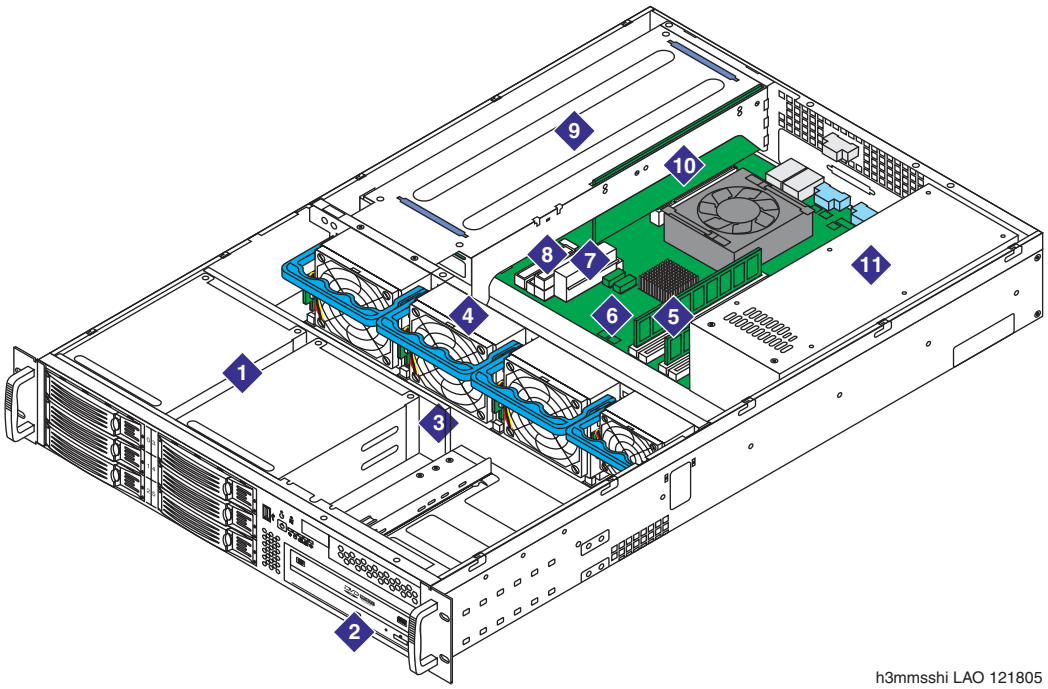

Figure notes:

1. **SCSI RAID drive array**
2. **DVD-RAM drive**
3. **Backplane for SCSI RAID drives**
4. **Hot-swappable chassis fans**
5. **Memory module—DIMM cards**
6. **Server board**
7. **Main power connector**
8. **Secondary IDE connector**
9. **PCI card cage for RMB**
10. **Riser card for RMB**
11. **Redundant power supply**

Required and optional hardware—MSS configuration

Table 9 lists required and optional hardware for an Avaya Modular Messaging system.

Table 8: Required and optional hardware—MSS configuration

Item	Quantity	Required/optional
S3500-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 *supplementary* 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 2 per MSS-H server	Required
Rack-mount assembly including rails, slides, and connecting hardware, *and* 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 crossover cable—used only for a one-MAS Modular Messaging system	1	Required if no Ethernet switch is present
Ethernet LAN cables	2 per server if system has an Ethernet switch, or 1 per server if system uses a crossover cable	Required
MSS-specific components:		
COM2 port adapter to RMB cable	1	Required
External modem adapter for RMB with long cable	1	Required only for international customers

Table 8: Required and optional hardware—MSS configuration

Item	Quantity	Required/optional
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 7: Supported MAS port boards—S3500-family servers on page 16. IP H.323 or IP SIP switch integrations do *not* use port boards.	1 set per port board	Required to connect port boards—type varies
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
2-port KVM switch for two-server system	1 KVM switch with attached cables	Optional—used for a two-server system
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 *and* 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 *and* rubber spacers for a stackable desktop configuration	1 to 4	Optional—can be ordered with the UPS

To install S3500-family servers and peripheral equipment in an MSS configuration, see Chapter 4: Installing Avaya servers in an MSS configuration on page 33.

Identifying server components for other configurations

This section describes the Avaya-provided S3500-family server hardware used with any configuration other than an Avaya MSS, such as Microsoft Exchange.

Note:

Non-Avaya MSS configurations might use customer-provided equipment (CPE) servers instead of Avaya-provided S3500-family server hardware. For more information about CPE servers, see the *Avaya Modular Messaging Concepts and Planning Guide* available on http://www.avaya.com/support.

The same hardware can be used both as an Avaya Messaging Application Server (Avaya MAS) and as a supplementary server. To distinguish the Avaya MAS units from any optional supplementary servers, see Identifying Modular Messaging servers on page 12.

Figure 7 shows the front view of an S3500-family server that is configured as an Avaya MAS.

Figure 7: S3500-family MAS—front view with bezel removed

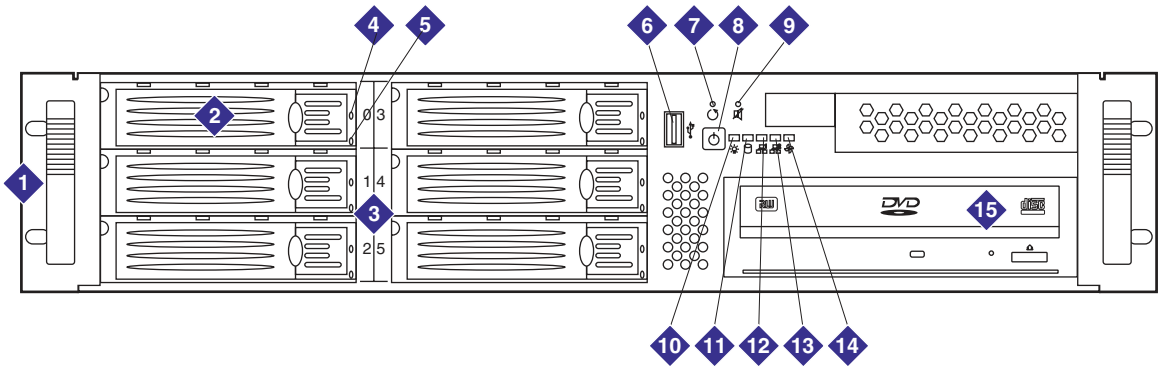

Figure notes:

1. **Chassis handles**
2. **Hard disk drive bays—the MAS uses only bay 3 on the upper-right**
3. **Label for disk drive bays 0 through 5**
4. **Disk drive presence indicator—not used on the MAS**
5. **Disk drive activity indicator—not used on the MAS**
6. **USB port**
7. **System reset switch**
8. **System power on/off button**
9. **Audible alarm reset switch for power supply—not used on the MAS**
10. **System power indicator**
11. **Disk drive access indicator**
12. **Corporate LAN indicator—always on when corporate LAN cable is connected**
13. **Private LAN indicator—not used in this configuration**
14. **Power supply failure indicator—not used on the MAS**
15. **DVD player**

Hardware components for other configurations

There is no difference between the S3500-family server that is used for Avaya MSS configurations and other configurations, such as Microsoft Exchange.

- For a back view of an Avaya Messaging Application Server (Avaya MAS), see Figure 2: S3500-family MAS—back view on page 15.
- For an interior view of an Avaya MAS, see Figure 3: S3500-family MAS or MSS-S—interior view with bezel removed on page 17.
- For more information about port boards, see Supported MAS port boards on page 16.

Required and optional hardware—other configurations

Table 9 lists required and optional hardware for an Avaya Modular Messaging system. This hardware supports any configuration other than an Avaya MSS, such as Microsoft Exchange.

Table 9: 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 *supplementary* 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, *and* 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 7: Supported MAS port boards—S3500-family servers on page 16. *Note:* IP H.323 or IP SIP switch integrations do *not* use port boards.	1 set per port board	Required to connect port boards—type varies

Table 9: Required and optional hardware for Avaya MAS system

Item	Quantity	Required/optional
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
2-port KVM switch for two-server system	1 KVM switch with attached cables	Optional—used for a two-server system
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 *and* 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 *and* rubber spacers for a stackable desktop configuration	1 to 4	Optional—can be ordered with the UPS

WARNING:
The power cord set provided with this product must be used with this product only. Do not use the cord set with any other product, and do not use a different cord set with this product. Using the wrong cord set could lead to hazardous incidents such as electric shock, fire, and faulty operation.

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To install S3500-family servers and peripheral equipment in a non-MSS configuration, see Chapter 5: Installing Avaya servers in a non-MSS configuration on page 65. Currently, Release 3 of Modular Messaging supports the Microsoft Exchange message store.

Chapter 3: Turning the servers off and on

This chapter describes how to safely turn off and on the Avaya S3500-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 S3500-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 S3500-family MAS

To turn off a Messaging Application Server (MAS) or an S3500-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 7: S3500-family MAS—front view with bezel removed on page 23.

4. Verify that the blue power lamp on the front of the server is dark.

CAUTION:

Some components on S3500-family servers remain active even after you turn off the server. Always unplug any S3500-family server that is not in active service.

5. To completely remove power to the server, unplug the AC power cord.

WARNING:

The power cord set provided with this product must be used with this product only. Do not use the cord set with any other product, and do not use a different cord set with this product. Using the wrong cord set could lead to hazardous incidents such as electric shock, fire, and faulty operation.

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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 S3500-family MAS

To turn on a Messaging Application Server (MAS) or an S3500-family supplementary server:

1. Plug in the AC power cord.

   As soon as AC power is applied, the S3500-family server starts to boot. You do not need to push the power button on the front of the server if AC power is available.

2. If the AC power cord is already connected and the S3500-family server is off:

   a. Press the power button on the front of the server.

   Note:

   For an illustration of front-panel components, see Figure 7: S3500-family MAS—front view with bezel removed on page 23.

   b. If the server still 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. 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 complete steps, see Restoring power to the server on page 128.
4. 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 S3500-family MSS

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

Turning off an S3500-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 front-panel components, see Figure 1: S3500-family server—front view with bezel removed on page 14.
2. Verify that the blue power lamp on the front of the server is dark.
3. 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.
   - The Avaya Message Storage Server High Availability version (MSS-H) has two AC power cords, one for each redundant power supply.

   CAUTION:

   You must physically unplug all AC power cords to completely remove power to an S3500-family server. Otherwise, some components remain active, even if the power button is off.

Turning on an S3500-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 has two AC cords, one for each redundant power supply.

   As soon as AC power is applied, the S3500-family server starts to boot. You do not need to push the power button on the front of the server if AC power is available.
2. If the AC power cord is already connected and the S3500-family server is off:
   a. Press the power button on the front of the server.

   Note:

   For an illustration of front-panel components, see Figure 1: S3500-family server—front view with bezel removed on page 14.

   b. If the server still 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. Continue with any procedures needed to bring the system into full service.

Turning on an S3500-family server system

To turn on all the hardware components in a Modular Messaging system that uses S3500-family server hardware:

1. Verify that the power cables for the S3500-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 S3500-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 larger MSS configurations, the Ethernet switch for the private LAN.

6. Verify that the S3500-family servers are running.

   The LEDs on the front of the server flash once when power is applied. Afterwards, the LEDs light to indicate system power and drive activity. For more information about the different LEDs, see Figure 1: S3500-family server—front view with bezel removed on page 14.

   Note:

   The S3500-family servers start as soon as they receive AC power. You do not need to press the server power button unless the power LED on the front of a server is not lit.

   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 51.

7. To turn on an S3500-family server if needed:

   a. Press the power button on the front of the server.

   b. Verify that the LEDs on the front of the server flash once, and then show system activity.

   c. Wait up to 1 minute for the display to appear on the monitor.

Chapter 4: Installing Avaya servers in an MSS configuration

This chapter describes how to install Avaya S3500-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.

Topics in this chapter include:

Sample MSS configuration system

For an example of an installed rack-mount system, see Figure 8: Example of a rack-mount MSS system with S3500-family servers—front view on page 34.

Note:

The sample figure shows the required MSS and two Avaya MAS S3500-family servers with their front bezels removed.

Figure 8: Example of a rack-mount MSS system with S3500-family servers—front view

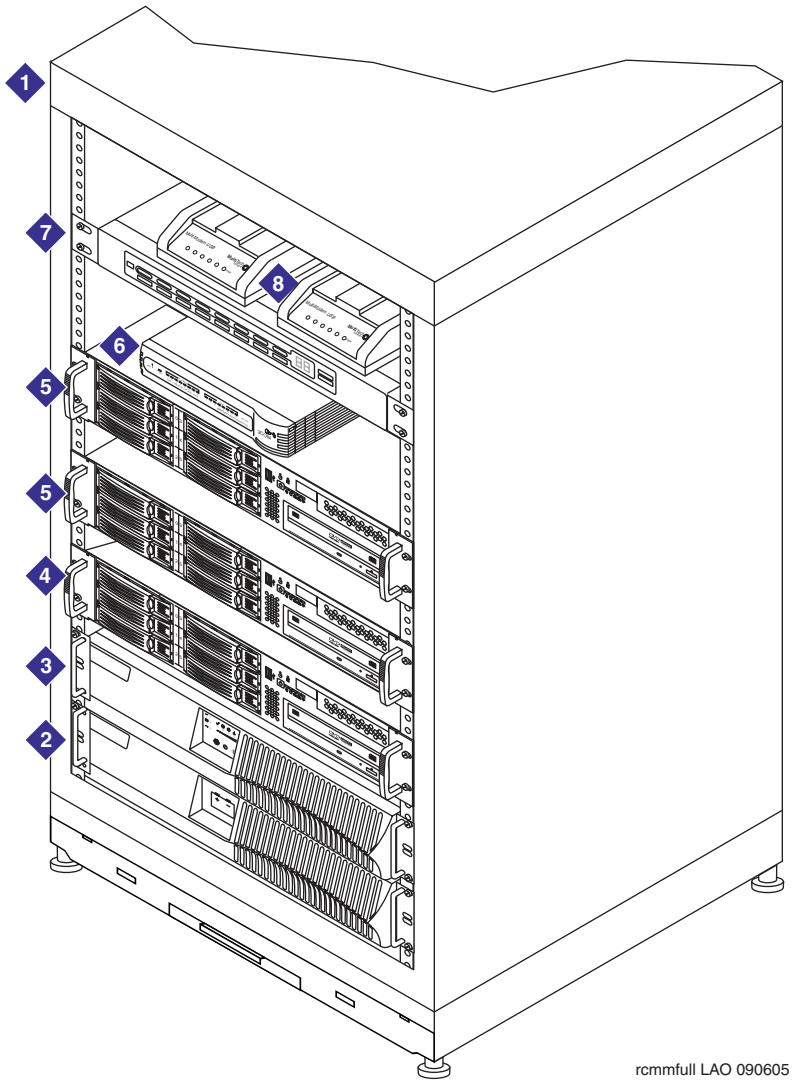


Figure notes:

1. **Customer-provided cabinet. Type can vary. For more information, see physical requirements in Installation area requirements on page 7.**
2. **EBM—optional. 0 to 4 can be installed with a UPS.**
3. **UPS—optional. 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. **Ethernet switch. One is always required.**
7. **KVM switch—optional. Model can vary.**
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 35.
- For a stackable desktop configuration, see Installing the UPS and any EBMs as a stackable configuration on page 36.

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:

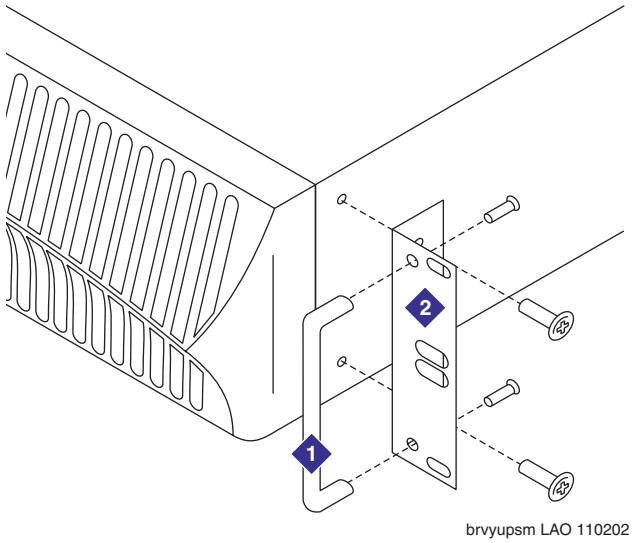
1. Gather the necessary rack-mount hardware, including the mounting handles, brackets, and screws.
2. Place the UPS on a flat, stable surface with the front of the UPS towards you.
3. Attach the mounting handle to each bracket using the supplied screws. See Item 1 in Figure 9.
4. Align the mounting brackets with the screw holes on the side of the UPS and secure using the supplied screws. See Item 2 in Figure 9.

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 9: 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 37.

Installing the UPS and any EBMs as a stackable configuration

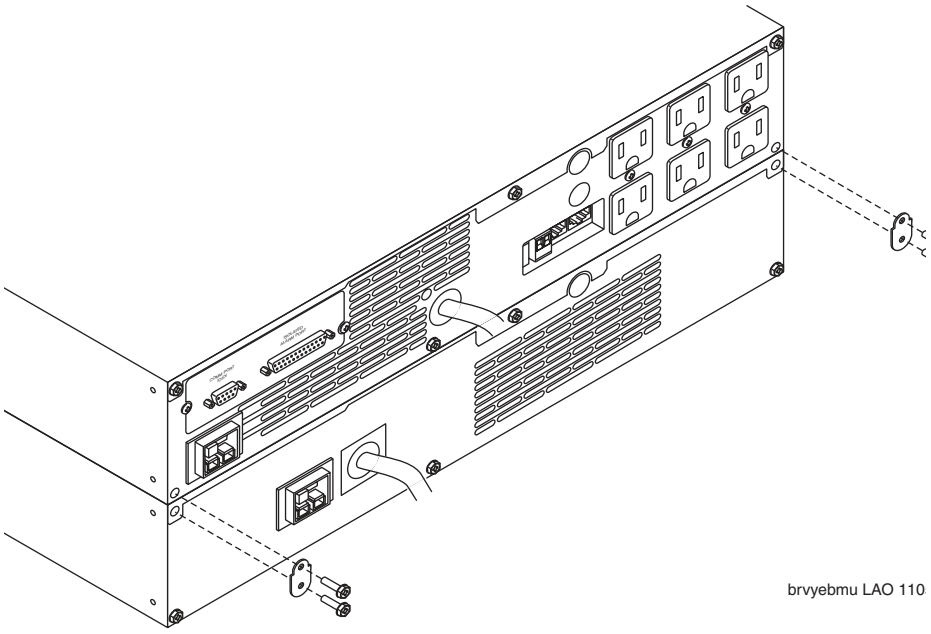
To configure the UPS and any EBMs in a stackable configuration:

1. If you are installing one or more EBMs:
   a. Remove the adjacent corner screws from the back panels, as shown in Figure 10.
   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 10: 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 11.
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 11.
3. Repeat Step 2 for each additional EBM. Up to four EBMs can be present.

Figure 11: Connecting a UPS and an EBM—back view

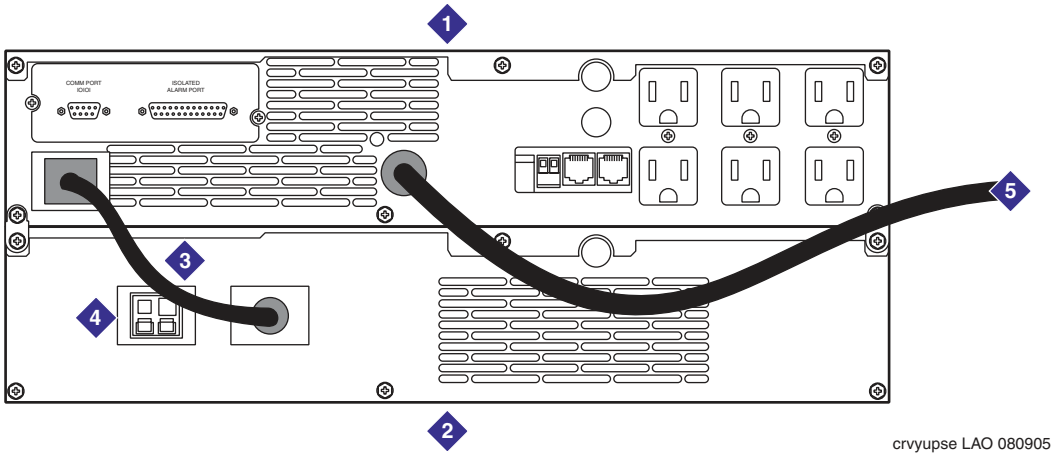


Figure notes:

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 an S3500-family server

This section describes how to install each Avaya S3500-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. The bezel curves inward slightly to fit snugly to the chassis. You must bend the bezel slightly outwards to attach it.

Note:

The bezel covers the front USB port on the server. If you want to use this port for the USB storage device, attach the bezel at the end of the installation.

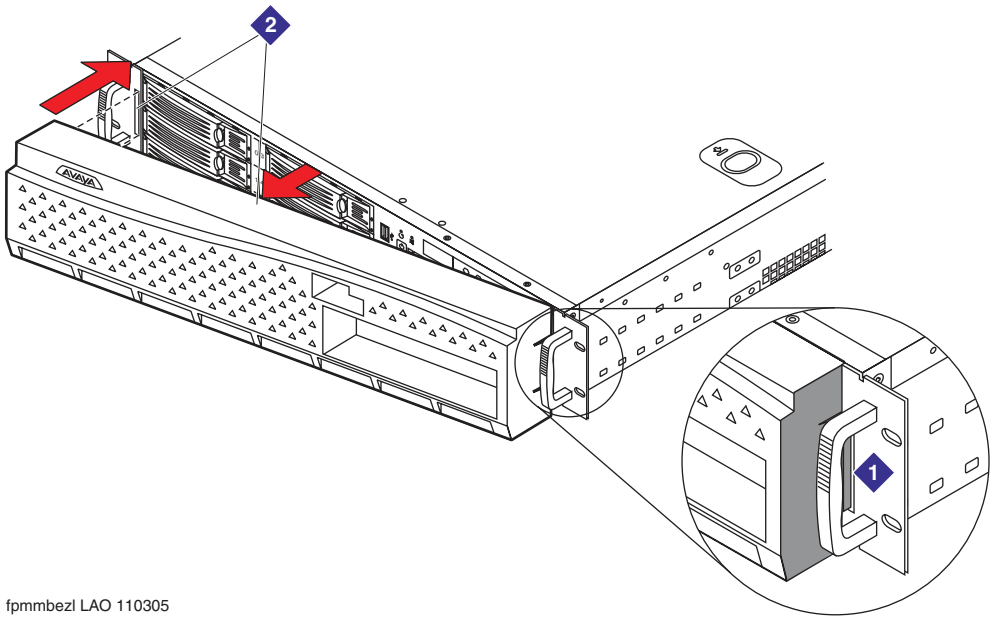
CAUTION:

For an MSS-H, verify that all disk drives are seated firmly in their drive bays. The MSS-H disk drives often vibrate loose during shipment. Open the latch and push in each drive firmly. If the drives are loose, the server cannot boot correctly.

To attach the front bezel to an S3500-family server:

1. Hook one end of the bezel into the notch near the chassis handle. See Item 1 in Figure 12.
2. Bend the middle of the bezel slightly outwards, and push the other end into place.

Figure 12: Attaching the front bezel on an S3500-family server



Installing S3500-family servers in a rack-mount or stackable setup

You can install S3500-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 40
- Installing servers in a stackable desktop configuration on page 42

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

The task describes how to install one or more Avaya S3500-family message servers inside a commercial cabinet. This setup is called a *rack-mount configuration*.

The S3500-family servers fit into a standard 19-inch (48 cm) cabinet.

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.

To install an S3500-family server into a rack:

1. Remove the rail assembly and screws from their packaging.

   Note:

   If more than one set of screws is provided, identify the set of 12 screws that fits the S3500-family server hardware. Only one set of thick Phillips round head screws fits tightly to the rails. Any other screws are not needed.

2. Release and detach the inner rail from the slide:
   a. Fully extend the rail.
   b. Pull the release lock out, the rear arrow tab, forward. See Item 1 in Figure 13: Attaching a rack-mount rail assembly on an S3500-family server on page 41.
   c. Separate the inner rail from the slide.
3. Attach the inner rail to the server:
   a. Place the S3500-family server on a flat, stable surface.
   b. Align the inner rail against the side of the server.

   Note:

   Only four holes in the rail line up with corresponding holes in the server chassis.

c. Starting with the hole nearest the front of the server, insert a screw into each of the four holes. Because the first hole is not a slot, starting with this hole makes the rail easier to attach. See Item 2 in Figure 13.

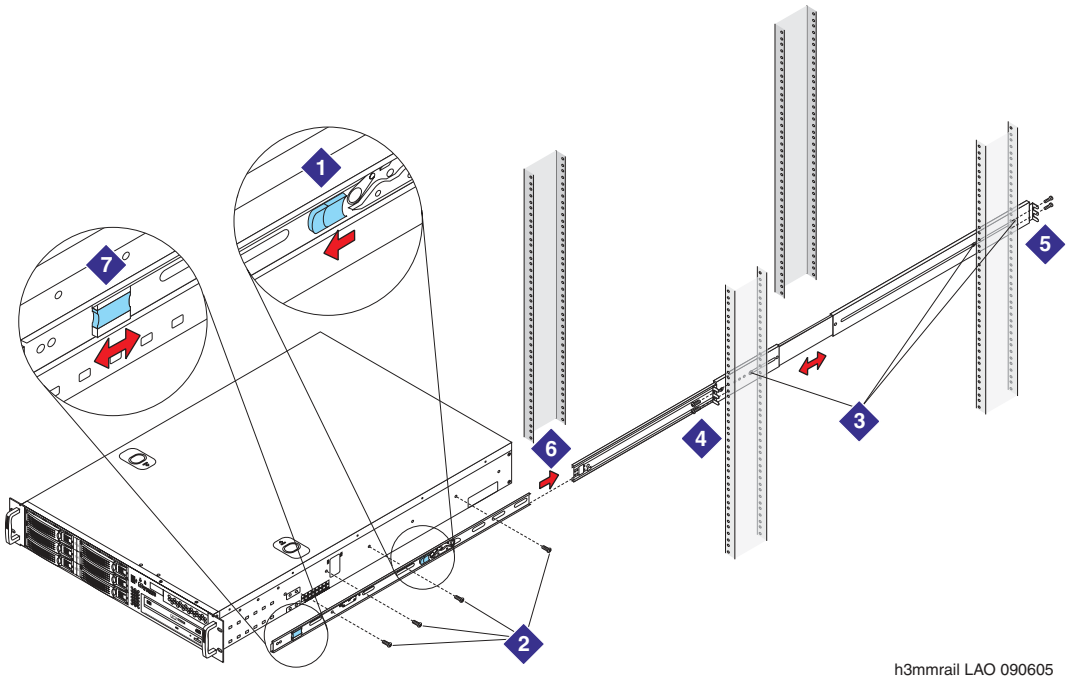
4. Attach the slide to the frame of the customer-provided cabinet:

a. Loosen the two Phillips screws inside the front bracket. Extend the bracket to fit the frame. See Item 3 in Figure 13.

b. Secure the bracket to the front and back posts in the customer-provided cabinet. Tighten all four screws. See Items 4 and 5 in Figure 13.

c. After the bracket is in place, tighten the two screws inside each rear bracket. See Item 5 in Figure 13.

Figure 13: Attaching a rack-mount rail assembly on an S3500-family server



CAUTION:

You need two people for the next step.

5. Mount the server in the cabinet:

a. Fully extend the slide out the front of the cabinet. See Item 6 in Figure 13.

b. Have one person hold up the front of the server. Have a second person help support the server, and guide the server onto the slide.

c. Push in the release lock, the front latch, to slide the server into the cabinet. See Item 7 in Figure 13.

6. Repeat Steps 1 through 5 for each server that must be installed.
7. When all servers are mounted, continue with Connecting the system power cables on page 43.

Installing servers in a stackable desktop configuration

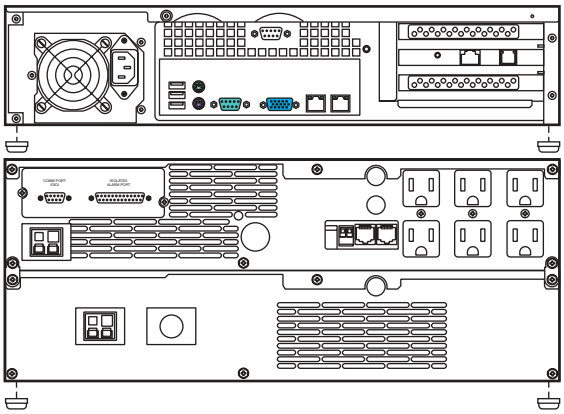
For a stackable desktop configuration, install four rubber spacers on the bottom on each of the servers. The spacers enable you to stack the servers on top of one another.

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 14.

Figure 14: Attaching rubber spacers for a stackable desktop configuration



prmmmmft LAO 083005

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 14.
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.

Note:

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 15: Attaching power cables to a UPS—sample configuration on page 44.
   c. For an MSS-H, repeat Steps a and b for the second MSS-H power supply.

CAUTION:

For an MSS-H, verify that all disk drives are seated firmly in their drive bays before you turn on the server. The MSS-H disk drives often vibrate loose during shipment. Open the latch for drive bays 0, 2, 3, and 5 in turn, and push in each drive firmly. If any drives are loose, the server cannot boot correctly.

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 S3500-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 15: Attaching power cables to a UPS—sample configuration

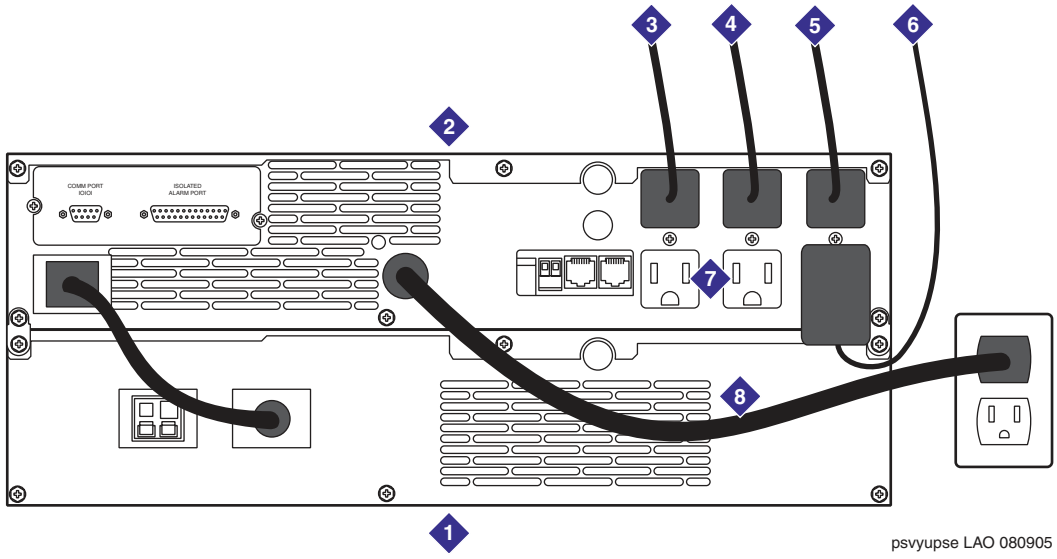


Figure notes:

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 16.

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 46.

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 S3500-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.

The Modular Messaging system supports two methods for setting up a private LAN:

- For a Modular Messaging system that consists only of the required MSS and one MAS, you can use a crossover cable to make the private LAN connection. If you are installing a two-server system that uses a crossover cable, continue with Connecting a two-server system using a crossover cable on page 46.
- For all Modular Messaging systems that have more than one MAS, you must use an Ethernet switch to set up the private LAN. Systems that have only one MAS might also use an Ethernet switch if they expect to grow. To set up the private LAN, continue with Connecting S3500-family servers using an Ethernet switch on page 48.

Connecting a two-server system using a crossover cable

A Modular Messaging system that consists only of the required MSS and one MAS can use a crossover cable to make the private LAN connection.

To set up a two-server Modular Messaging system using a crossover cable:

1. Use the Ethernet crossover cable to set up the private LAN. See Item 1 in Figure 16: Setting up a two-server LAN using a crossover cable—back view on page 47.
   a. Connect one end of the Ethernet crossover cable to the RJ45 connector for the private LAN on the back of the server.
   b. Connect the other end of the Ethernet crossover cable to the private LAN connector on the other server.
2. Connect one of the Ethernet cables to the corporate LAN interface on the MSS. See Item 2 in Figure 16.
3. Connect the second Ethernet cable to the corporate LAN interface on the MAS. See Item 3 in Figure 16.

Figure 16: Setting up a two-server LAN using a crossover cable—back view

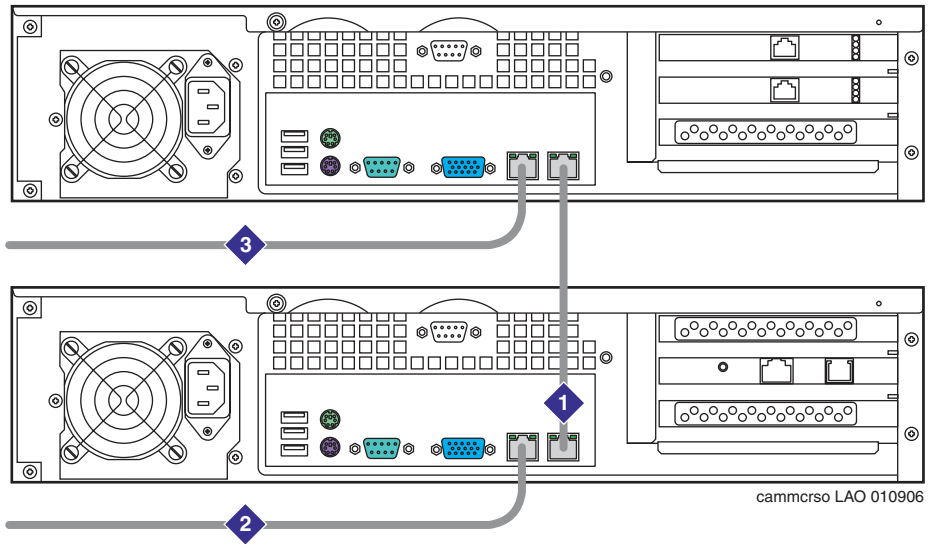


Figure notes:

1. **Private LAN connection using a crossover cable**
2. **MSS cable to the corporate LAN**
3. **MAS cable to the corporate LAN**

4. Connect the other end of the Ethernet cables to the corporate LAN.

   Note:

   The organization that is responsible for maintaining the corporate LAN must connect each server to the corporate LAN. See the customer contract or the statement of work.

5. Continue with Installing a KVM switch on page 52.

Connecting S3500-family servers using an Ethernet switch

Modular Messaging systems that have more than one MAS or a supplementary tracing server must use an Ethernet switch to set up the private LAN. Systems that have only one MAS might also use an Ethernet switch if they expect to grow.

To connect the Ethernet cables on a Modular Messaging system that uses an Ethernet switch, complete the following tasks:

- Connecting the S3500-family servers to the private LAN on page 48
- Connecting additional servers to the private LAN on page 51
- Connecting the S3500-family servers to the corporate LAN on page 51

Connecting the S3500-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 S3500-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 17: Connecting the MSS and MAS servers using an Ethernet switch—back view on page 50.
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.
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 17.
   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 17.
6. Connect the other end of each Ethernet cable to the appropriate connector on the server. See Items 5 and 7 in Figure 17.

WARNING:

The power cord set provided with this product must be used with this product only. Do not use the cord set with any other product, and do not use a different cord set with this product. Using the wrong cord set could lead to hazardous incidents such as electric shock, fire, and faulty operation.

警告
本製品に同梱または付属している電源コードセットは、本製品専用です。本製品以外の製品ならびに他の用途で使用しなしでください。また本製品に、これ以外の電源コードセットを使用しないでください。火災、感電、故障の原因となります。

CAUTION:

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

Figure 17: Connecting the MSS and MAS servers using an Ethernet switch—back view

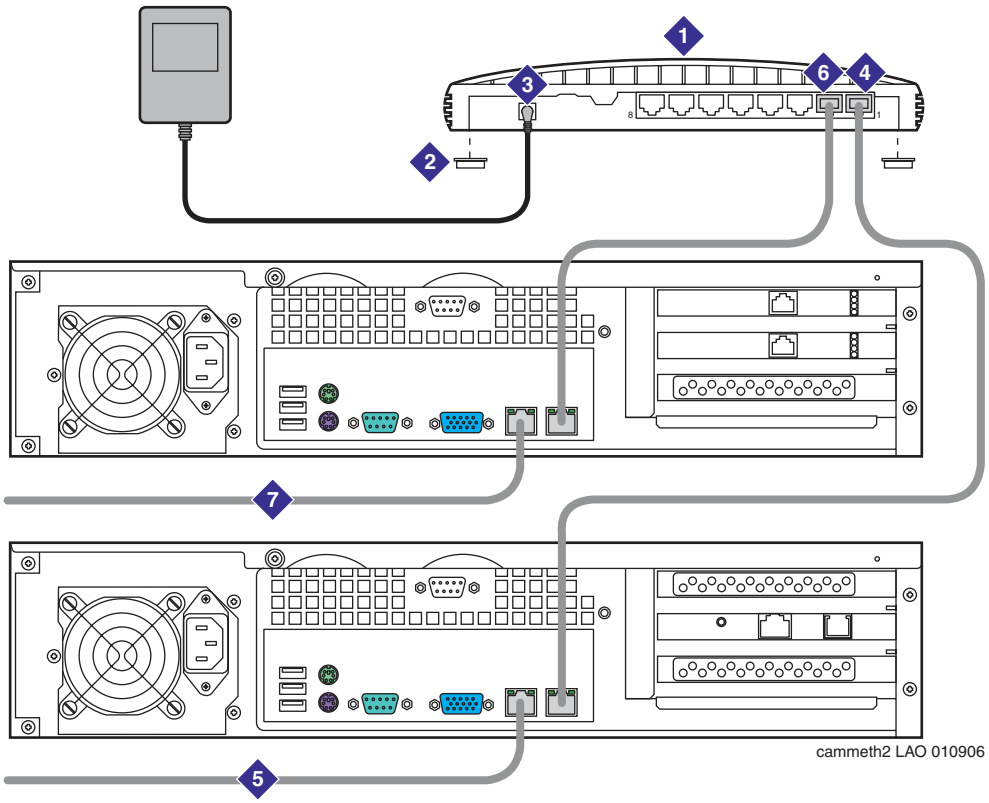


Figure notes:

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. **MSS Ethernet connection to corporate LAN.**
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. **MAS Ethernet connection to corporate LAN.**

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 17: Connecting the MSS and MAS servers using an Ethernet switch—back view on page 50.
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 server labeled **AVAYA MM SUPPLEMENTARY SERVER—AVAYA STORE TRACING SERVER**. For more information about identifying a supplementary tracing server or MAS, see Identifying Avaya MAS-like servers on page 13.

Connecting the S3500-family servers to the corporate LAN

A standard Ethernet cable ships with each Avaya S3500-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 17: Connecting the MSS and MAS servers using an Ethernet switch—back view on page 50.

   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 S3500-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 S3500-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 two Avaya-provided KVM switches:

- Installing a 2-port KVM switch on page 52
- Installing an 8-port KVM switch on page 54

Note:

If this site uses any other model of KVM switch, install the switch using the instructions shipped with the equipment. After the KVM switch installation is complete, continue with Connecting the USB modem on the MAS on page 60.

Installing a 2-port KVM switch

If this system has only two servers, an MSS-S and one MAS, you can install a 2-port Belkin KVM switch.

Note:

The KVM switch setup for the keyboard, monitor, and mouse 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 install a 2-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.

   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 2-port KVM switch. See Item 1 in Figure 18.

3. Tighten the thumbscrews on the video cable connector.

Figure 18: Connecting two S3500-family servers using a 2-port KVM switch—back view

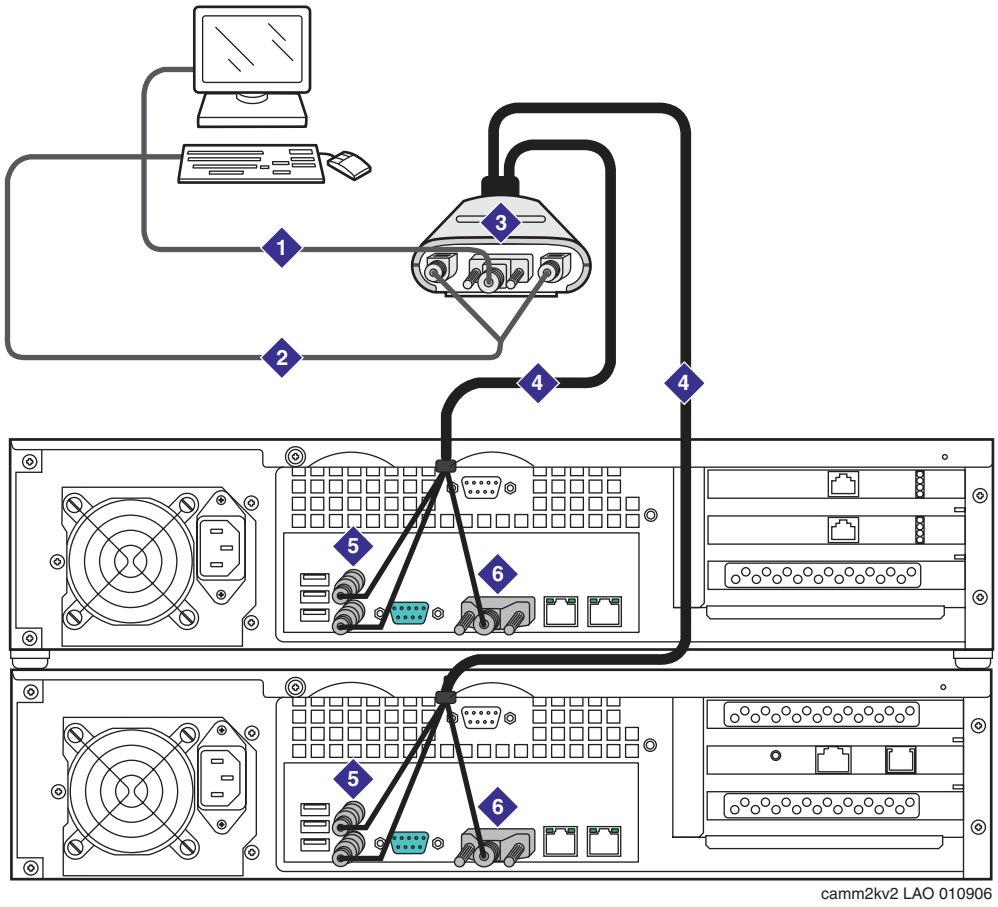


Figure notes:

1. **VGA cord from monitor to video connector on KVM switch**
2. **Y cable to combination keyboard and mouse for the monitor**
3. **2-port Belkin KVM switch**
4. **Video/keyboard/mouse cable to each server**
5. **Keyboard and mouse connectors on the server**
6. **Video connector on the server**

4. Using the Y cable, connect the PS/2 cables for the mouse and keyboard to their corresponding connectors on the 2-port KVM switch. See Item 2 in Figure 18: Connecting two S3500-family servers using a 2-port KVM switch—back view on page 53.

   Note:

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

5. Run one strand of the KVM cable to the first server. The order in which you connect the KVM cables to the servers is not important. See Item 4 in Figure 18.
6. Plug the VGA connector into the VGA port on the server. Tighten the thumbscrews on the video cable connector. See Item 5 in Figure 18.
7. Connect the PS/2 keyboard and mouse connectors on the KVM cable to the keyboard and mouse ports on the back of the server. See Item 6 in Figure 18.
8. Repeat Steps 5 through 7 for the second server.
9. Continue with Connecting the USB modem on the MAS on page 60.

Installing an 8-port KVM switch

If this system has more than one MAS, you can install an 8-port Belkin KVM switch. For a sample multiple-server installation that uses this KVM switch, see Figure 8: Example of a rack-mount MSS system with S3500-family servers—front view on page 34.

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 55.
- For a rack-mount configuration, continue with Installing the KVM switch in a rack-mount configuration on page 54.

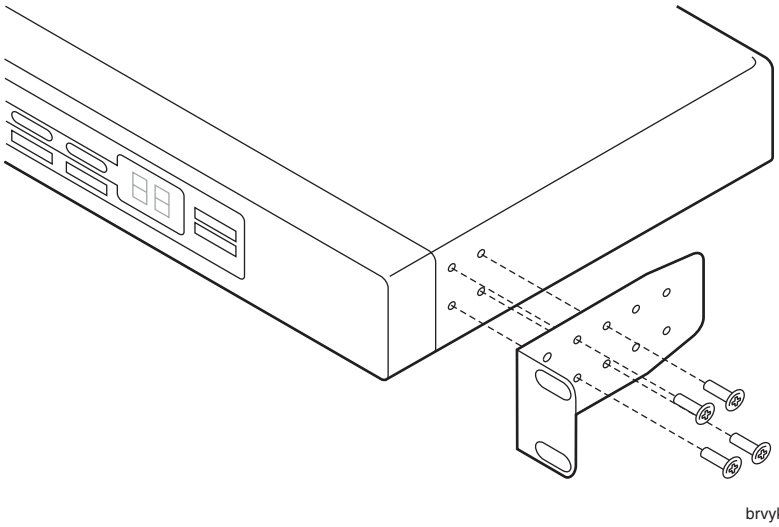
Installing the KVM switch in a rack-mount configuration

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.
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 1 in Figure 20: Connecting an 8-port Belkin KVM switch to the MSS—back view on page 57.

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 2 in Figure 20.

   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.

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

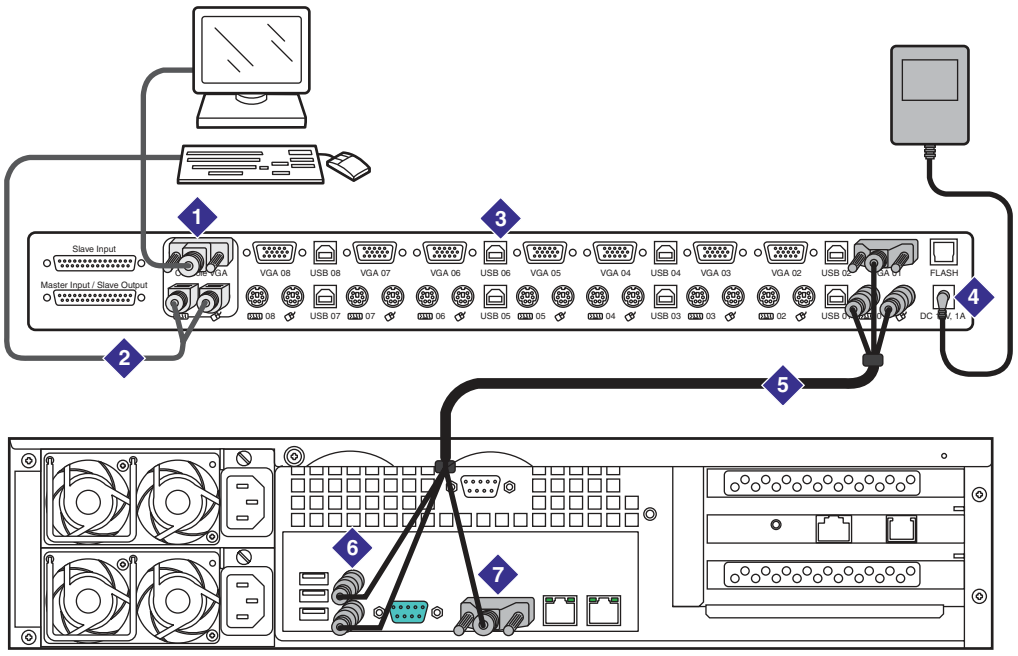


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Figure notes:

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. 8-port Belkin KVM switch.
4. DC power jack for transformer cable.
5. 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.
6. Keyboard and mouse connectors on server.
7. Video connector on the server.

Connecting the KVM switch to the S3500-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 5 in Figure 20: Connecting an 8-port Belkin KVM switch to the MSS—back view on page 57.
   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 7 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 2 in Figure 21: Connecting an 8-port Belkin KVM switch to an MAS—back view on page 59.
   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 4 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

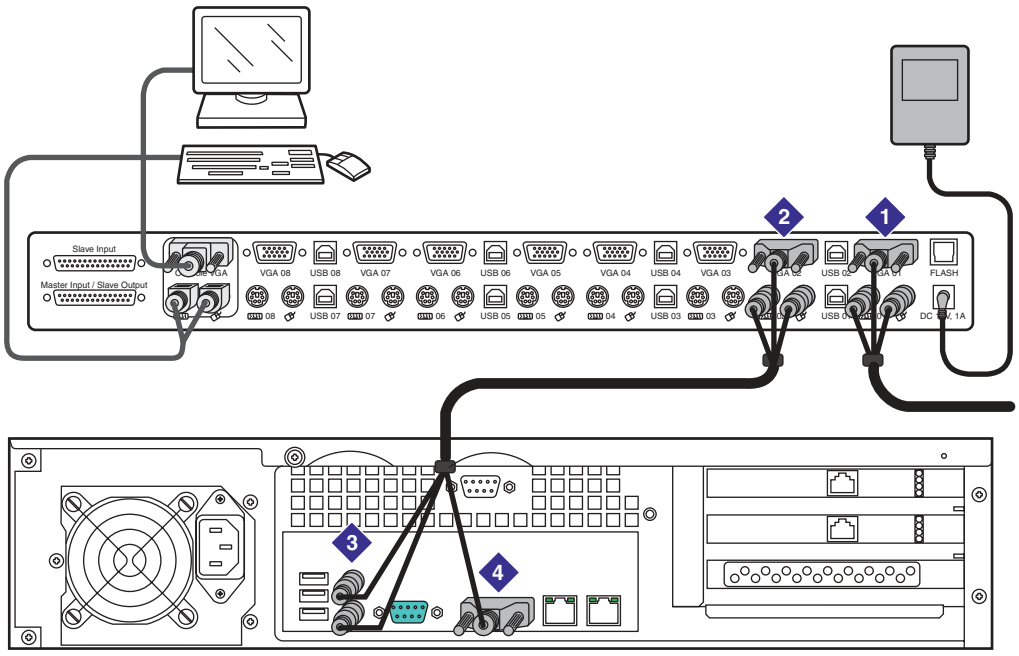

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Figure notes:

1. **KVM switch video/keyboard/mouse cable to the MSS**
2. **KVM switch cable to the first MAS. The MSS is connected to the first computer port VGA 01. Connect each MAS and supplementary server to the subsequent port positions, starting with VGA 02 as shown.**
3. **Keyboard and mouse connectors on the MAS.**
4. **Video connector on the MAS.**

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 22.

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.
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 22: Connecting a USB modem to an S3500-family MAS—back view

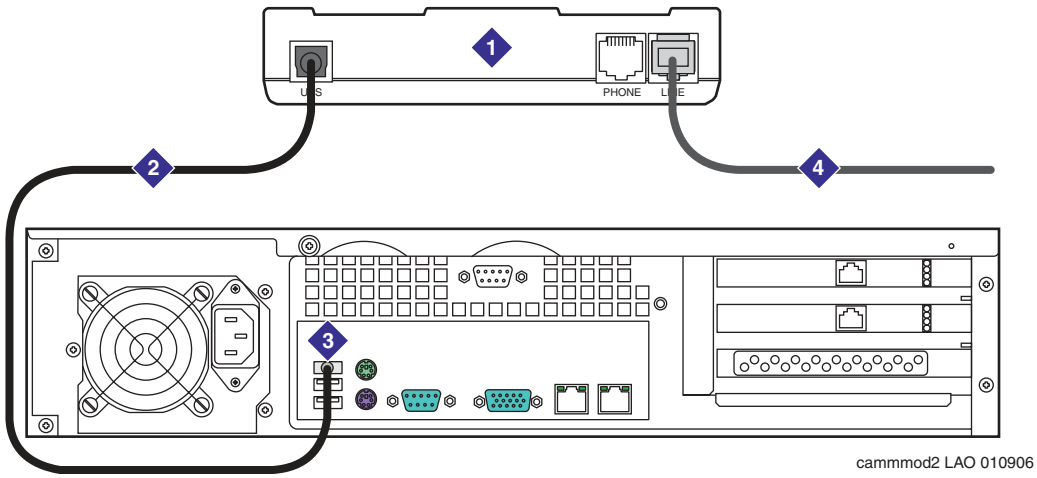


Figure notes:

1. **USB modem**
2. **USB cable to the MAS**
3. **USB connector on the server**
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 S3500-family server system.

The RMB setup varies, depending on your location:

- A domestic (United States) setup uses an on-board modem. See Figure 23: Connecting an RMB with an on-board modem—back view on page 62.
- An international setup uses an external modem that meets the operating requirements for that region. For an example setup, see Figure 24: Connecting an RMB using an external modem—back view on page 63.

  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 23.

Figure 23: Connecting an RMB with an on-board modem—back view

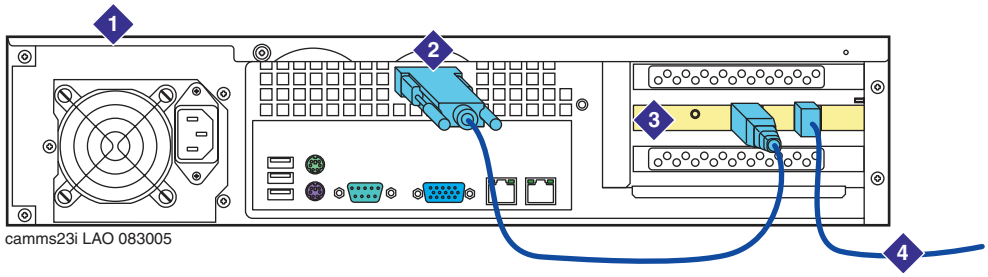


Figure notes:

1. **MSS. For example purposes only, an MSS-S is shown.**
2. **RMB-to-COM2 serial port adapter cable.**
3. **RMB faceplate.**
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 24.
  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 24: Connecting an RMB using an external modem—back view

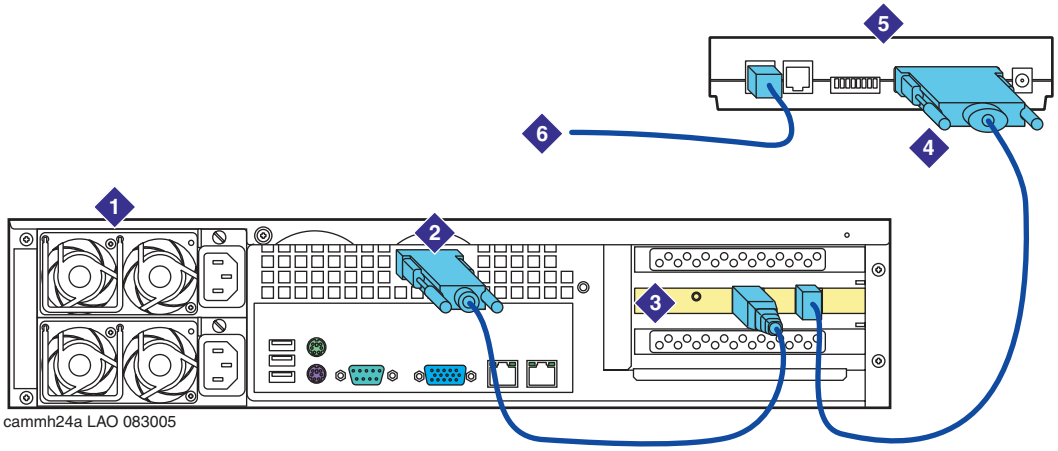


Figure notes:

1. **MSS. For example purposes only, an MSS-H is shown.**
2. **RMB-to-COM2 serial port adapter cable.**
3. **RMB faceplate.**
4. **RMB-to-modem RS-232 port adapter cable.**
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 S3500-family message servers in a system that does not use Avaya-provided hardware for the message store. Currently, Release 3 of Modular Messaging supports the Microsoft Exchange message store.

You can also use these procedures to install or replace the peripheral equipment in an all-MAS Modular Messaging system.

Topics in this chapter include:

Sample all-MAS configuration system

For an example of an installed rack-mount system, see Figure 25: Example of rack-mount all-MAS system with S3500-family servers—front view on page 66. All non-Avaya MSS configurations use this setup, such as Microsoft Exchange configurations.

Note:

The sample figure shows the S3500-family servers with their front bezels removed. In a non-Avaya MSS configuration such as the setup shown, all the servers are Avaya MAS-type units.

Figure 25: Example of rack-mount all-MAS system with S3500-family servers—front view

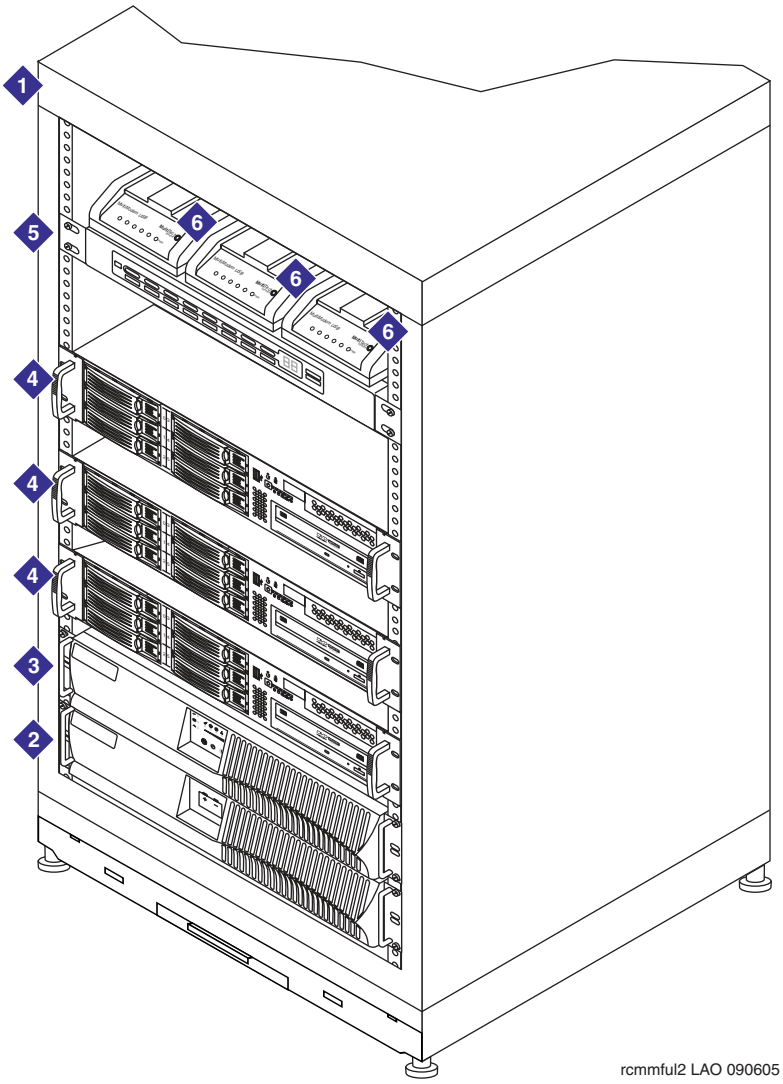


Figure notes:

1. **Customer-provided cabinet. Type can vary. For more information, see physical requirements in 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 67.
- For a stackable desktop configuration, see Installing the UPS and any EBMs as a stackable configuration on page 69.

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.

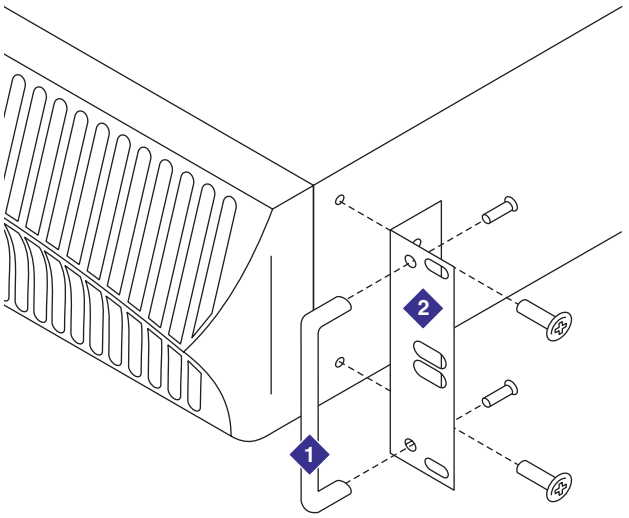
To install the UPS and EBMs into a rack:

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 26.
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 26.
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 26: 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 70.

Installing the UPS and any EBMs as a stackable configuration

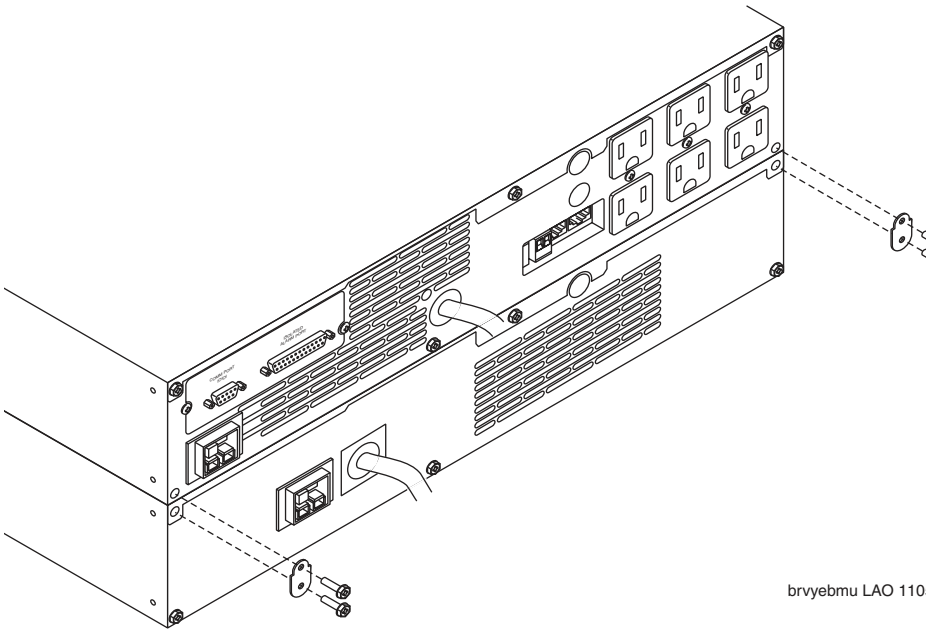
To configure the UPS and any EBMs in a stackable configuration:

1. If you are installing one or more EBMs:
   a. Remove the adjacent corner screws from the back panels, as shown in Figure 27.
   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 27: 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 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 28.
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 28.
3. Repeat Step 2 for each additional EBM. Up to four EBMs can be present.

Figure 28: Connecting a UPS and an EBM—back view

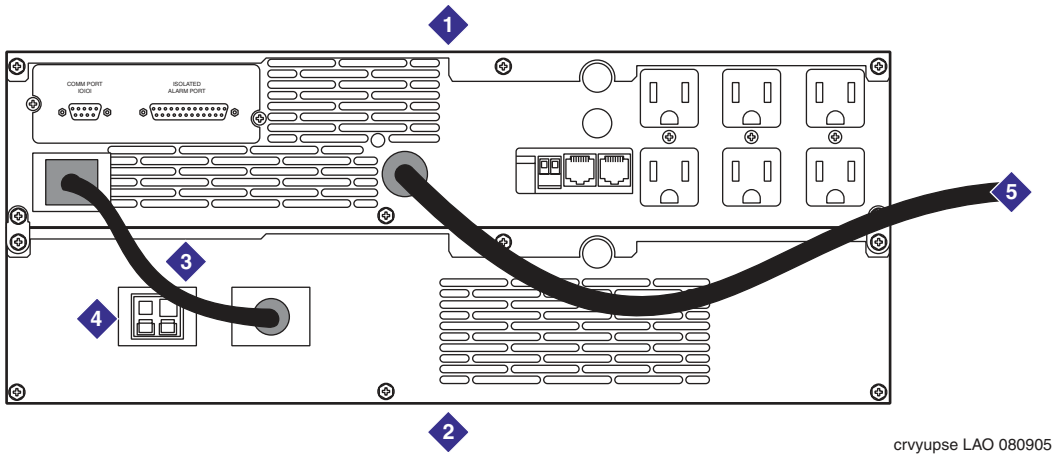


Figure notes:

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 S3500-family servers

This section describes how to install each Avaya S3500-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. The bezel curves inward slightly to fit snugly to the chassis. You must bend the bezel slightly outwards to attach it.

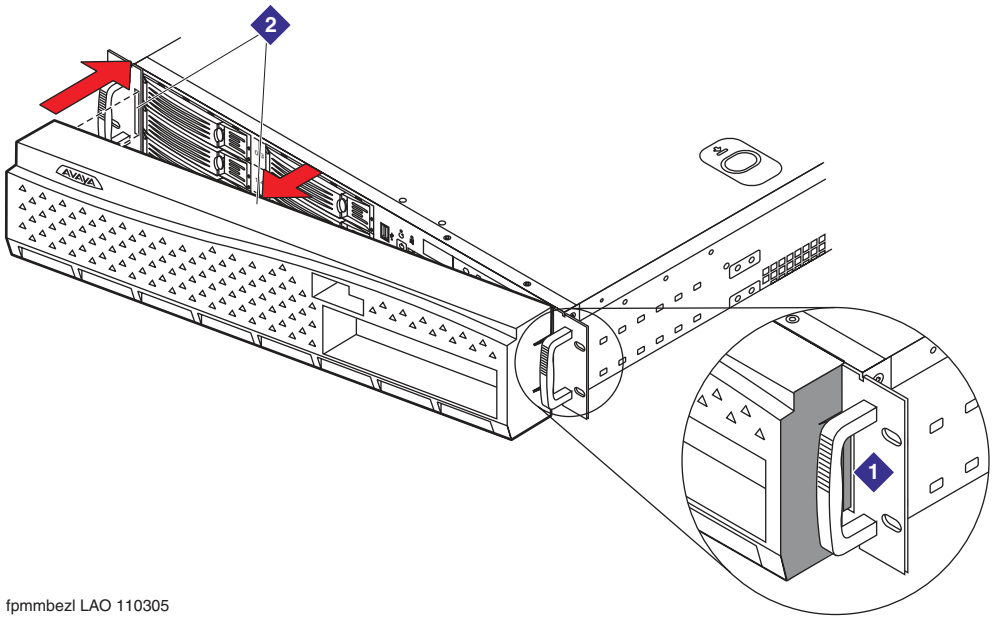
Note:

The bezel covers the front USB port on the server. If you want to use this port for the USB storage device, attach the bezel at the end of the installation.

To attach the front bezel to each S3500-family server:

1. Hook one end of the bezel into the notch near the chassis handle. See Figure 29.
2. Bend the middle of the bezel slightly outwards, and push the other end into place.

Figure 29: Attaching the front bezel on an S3500-family server



Installing S3500-family servers in a rack-mount or stackable setup

You can install S3500-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 72
- Installing servers in a stackable desktop configuration on page 74

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

The task describes how to install one or more Avaya S3500-family message servers inside a commercial cabinet. This setup is called a *rack-mount configuration*.

The S3500-family servers fit into a standard 19-inch (48 cm) cabinet.

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.

To install an S3500-family server into a rack:

1. Remove the rail assembly and screws from their packaging.

   Note:

   If more than one set of screws is provided, identify the set of 12 screws that fits the S3500-family server hardware. Only one set of thick Phillips round head screws fits tightly to the rails. Any other screws are not needed.

2. Release and detach the inner rail from the slide:
   a. Fully extend the rail.
   b. Pull the release lock out, the rear arrow tab, forward. See Item 1 in Figure 30: Attaching a rack-mount rail assembly on an S3500-family server on page 73.
   c. Separate the inner rail from the slide.
3. Attach the inner rail to the server:
   a. Place the S3500-family server on a flat, stable surface.
   b. Align the inner rail against the side of the server.

   Note:

   Only four holes in the rail line up with corresponding holes in the server chassis.

c. Starting with the hole nearest the front of the server, insert a screw into each of the four holes. Because the first hole is not a slot, starting with this hole makes the rail easier to attach. See Item 2 in Figure 30.

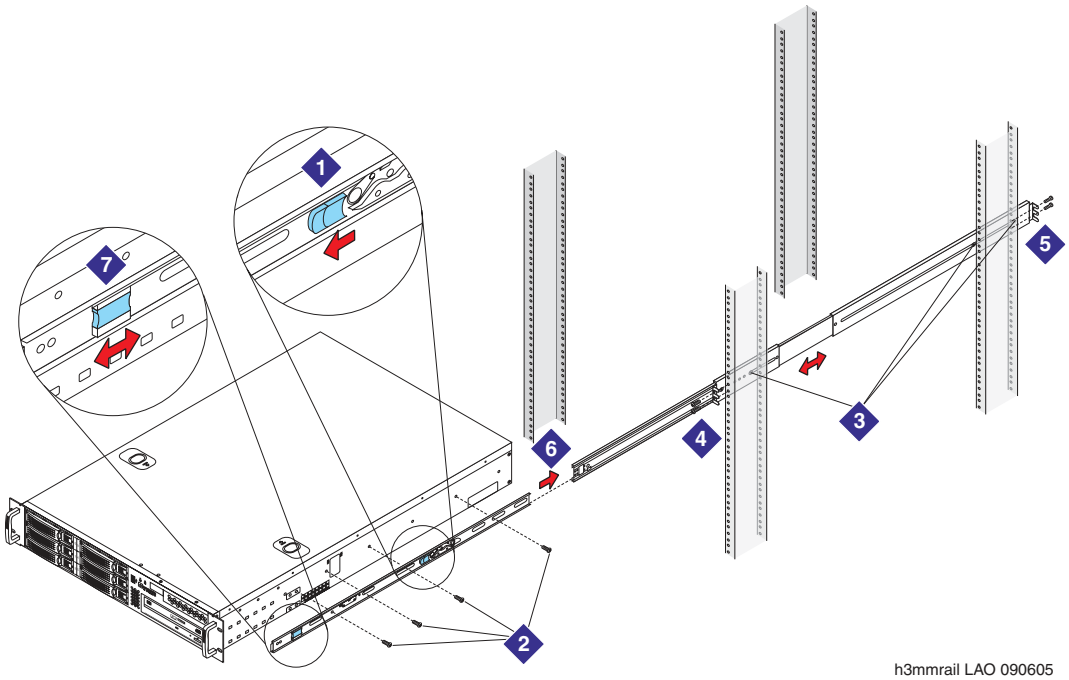
4. Attach the slide to the frame of the customer-provided cabinet:

a. Loosen the two Phillips screws inside the front bracket. Extend the bracket to fit the frame. See Item 3 in Figure 30.

b. Secure the bracket to the front and back posts in the customer-provided cabinet. Tighten all four screws. See Items 4 and 5 in Figure 30.

c. After the bracket is in place, tighten the two screws inside each rear bracket. See Item 5 in Figure 30.

Figure 30: Attaching a rack-mount rail assembly on an S3500-family server



CAUTION:

You need two people for the next step.

5. Mount the server in the cabinet:

a. Fully extend the slide out the front of the cabinet. See Item 6 in Figure 30.

b. Have one person hold up the front of the server. Have a second person help support the server, and guide the server onto the slide.

c. Push in the release lock, the front latch, to slide the server into the cabinet. See Item 7 in Figure 30.

6. Repeat Steps 1 through 5 for each server that must be installed.
7. When all servers are mounted, continue with Connecting the system power cables on page 75.

Installing servers in a stackable desktop configuration

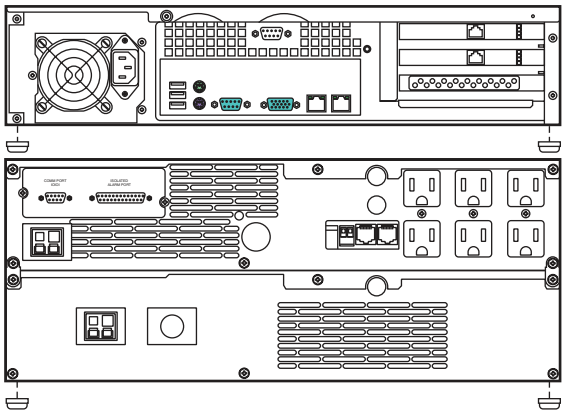
For a stackable desktop configuration, install four rubber spacers on the bottom on each of the servers. The spacers enable you to stack the servers on top of one another.

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 31.

Figure 31: Attaching rubber spacers for a stackable desktop configuration



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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 31.
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.

Note:

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 second MAS or the supplementary server, if present, on top of the first one.
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 S3500-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 32: Attaching power cables to a UPS—sample configuration on page 76.
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 32: Attaching power cables to a UPS—sample configuration

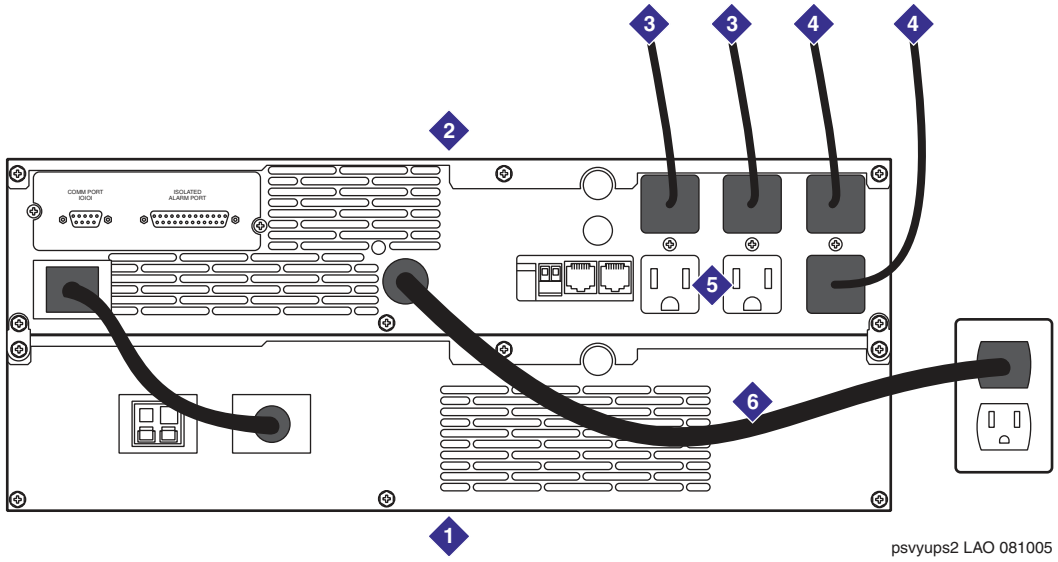


Figure notes:

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 16.

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 78.

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 S3500-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 33.

   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 S3500-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 33: Connecting an S3500-family MAS to the corporate LAN—back view

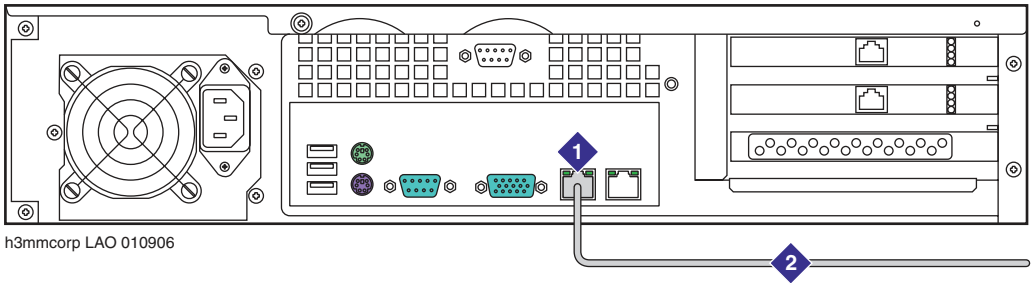


Figure notes:

1. **Ethernet interface for the corporate LAN**
2. **Cable to the corporate LAN**

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 two Avaya-provided KVM switches:

- Installing an 8-port KVM switch on page 79
- Installing a 2-port KVM switch on page 83

Note:

If this site uses any other model of KVM switch, install it using the instructions shipped with the equipment. After the KVM switch installation is complete, continue with Connecting the USB modem on the MAS on page 85.

Installing an 8-port KVM switch

If this system has more than two servers, you can install an 8-port Belkin KVM switch. For a sample multiple-server installation that uses this KVM switch, see Figure 25: Example of rack-mount all-MAS system with S3500-family servers—front view on page 66.

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 80.
- For a rack-mount configuration, continue with Installing the KVM switch in a rack-mount configuration on page 79.

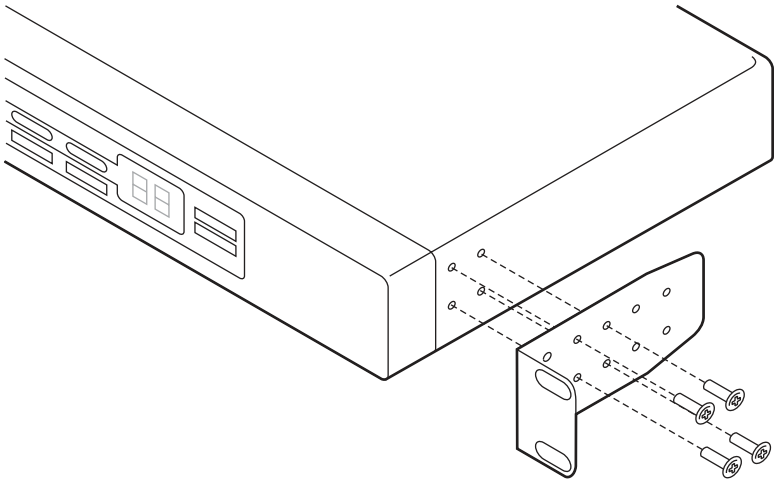
Installing the KVM switch in a rack-mount configuration

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 34: Attaching mounting brackets for a rack-mount KVM switch on page 80.

4. Install the KVM switch into the rack above the last installed MAS.

Figure 34: 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 a Belkin 8-port 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 35: Connecting an 8-port Belkin KVM switch to an MAS—back view on page 82.
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 2 in Figure 35.

   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 35.

   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 5 in Figure 35.

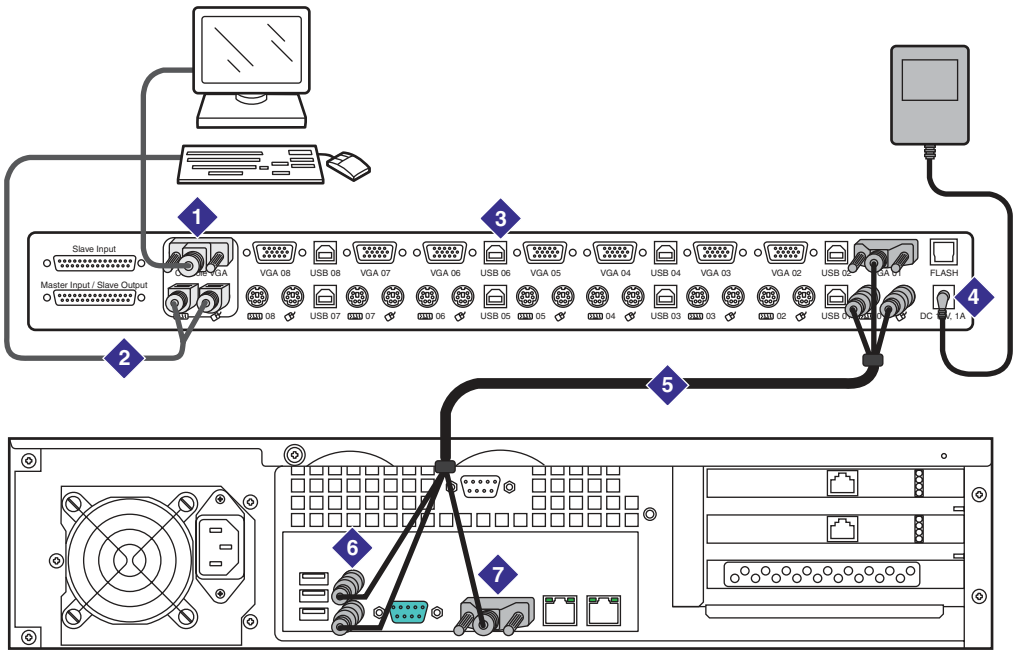
   b. Connect the PS/2 keyboard and mouse connectors of the KVM cable to the keyboard and mouse ports on the MAS. See Item 6 in Figure 35.

   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 7 in Figure 35.
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.
9. Continue with Connecting the USB modem on the MAS on page 85.

Figure 35: Connecting an 8-port Belkin KVM switch to an MAS—back view



cammkvm2 LAO 010906

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. **8-port Belkin KVM switch.**
4. **DC power jack for transformer cable.**
5. **Video/keyboard/mouse cable to the server. 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.**
6. **Keyboard and mouse connectors on server.**
7. **Video connector on the server.**

Installing a 2-port KVM switch

If this system has only two servers, you can use a 2-port Belkin KVM switch.

Note:

The KVM switch setup for the keyboard, monitor, and mouse 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 install a 2-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.

   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 2-port KVM switch. See Item 1 in Figure 36: Connecting two S3500-family MASs using a 2-port KVM switch—back view on page 84.

3. Tighten the thumbscrews on the video cable connector.

4. Using the Y cable, connect the PS/2 cables for the mouse and keyboard to their corresponding connectors on the 2-port KVM switch. See Item 2 in Figure 36.

   Note:

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

5. Run one strand of the KVM cable to the first server. The order in which you connect the KVM cables to the servers is not important. See Item 4 in Figure 36.

6. Plug the VGA connector into the VGA port on the server. Tighten the thumbscrews on the video cable connector. See Item 5 in Figure 36.

7. Connect the PS/2 keyboard and mouse connectors on the KVM cable to the keyboard and mouse ports on the back of the server. See Item 6 in Figure 36.

8. Repeat Steps 5 through 7 for the second server.

Figure 36: Connecting two S3500-family MASs using a 2-port KVM switch—back view

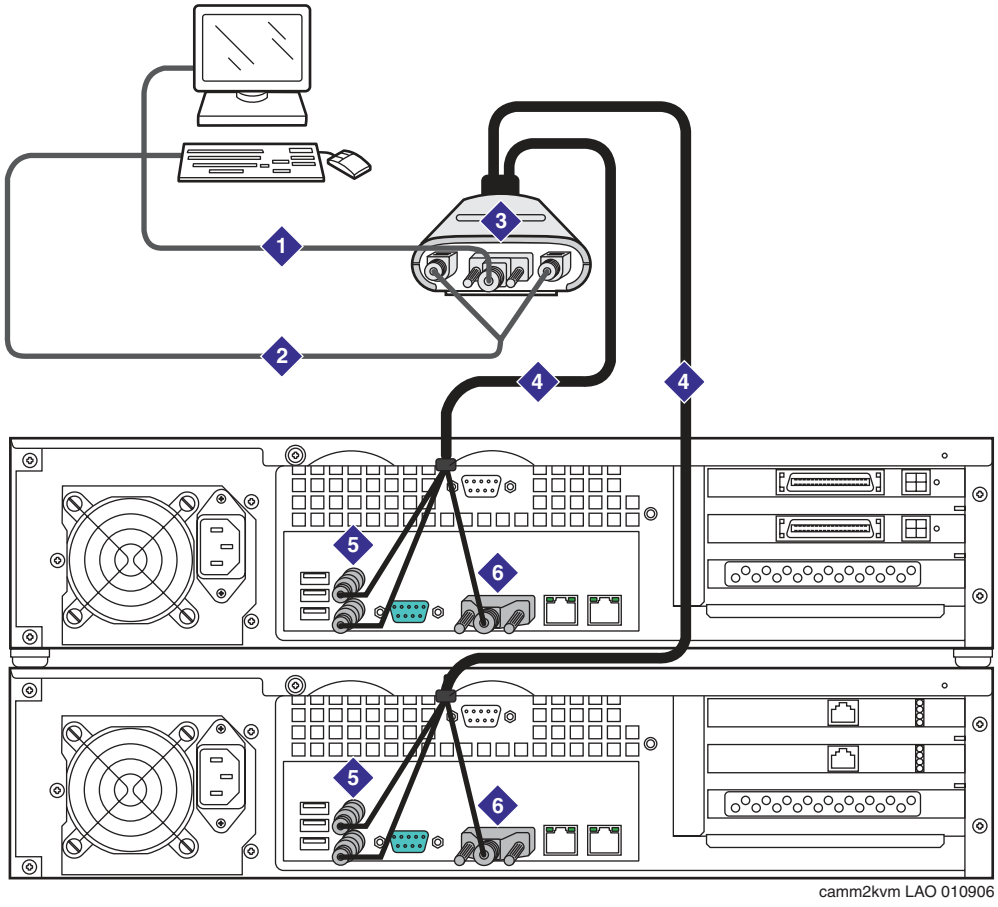


Figure notes:

1. VGA cord from monitor to video connector on KVM switch
2. Y cable to combination keyboard and mouse for the monitor
3. 2-port Belkin KVM switch
4. Video/keyboard/mouse cable to each server
5. Keyboard and mouse connectors on the server
6. Video connector on the server

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 37.

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.
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 37: Connecting a USB modem to an S3500-family MAS—back view

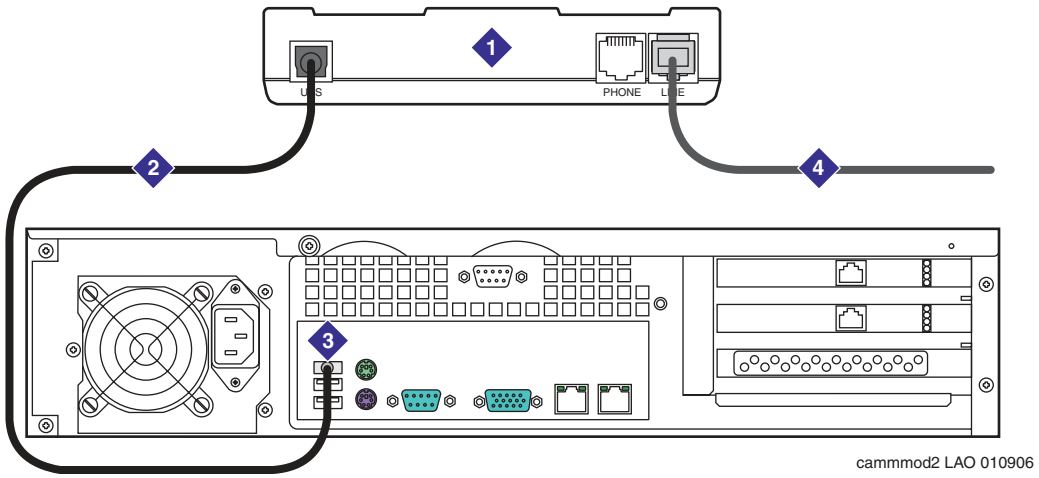


Figure notes:

1. **USB modem**
2. **USB cable to the MAS**
3. **USB connector on the server**
4. **RJ-11 cable to the corporate switch**

Chapter 6: Adding an MAS to a system in service

This chapter describes 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:

CAUTION:

This chapter describes only how to install or move services among servers that use Avaya-provided hardware. A supplementary tracing server that is installed using customer-provided equipment (CPE) can run only a subset of features, such as the Modular Messaging Tracing Service. A CPE server requires unique procedures for hardware installation and for moving Modular Messaging services. These tasks are not described in this chapter.

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 server hardware with a new model, but you cannot change the number of servers until after the upgrade is complete. For more information, see Upgrading to a new S3500-family MAS on page 118.

Installing the new MAS or supplementary server

You can install one or more Avaya servers after an initial Release 3 upgrade or new installation. You can add one or more of the following servers, one at a time:

- One or more Messaging Application Server (MAS)s, up to the limit allowed by the system

Important:

You must run the Data Collection Tool (DCT) after you add a new MAS on all the existing servers as well as the newly added MAS. You can add another MAS only after you have run the Data Collection Tool (DCT).

- 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. Customers might order a new MAS to hold the Dialogic port boards that cannot fit in a single S3500-family MAS after a hardware upgrade. In this case, you must transfer the port boards from the old S3400-family server to the new S3500-family server. For more information, see Replacing the server hardware on page 119.
2. Install the S3500-family MAS or supplementary tracing server hardware. For more information, see:
   - Chapter 4: Installing Avaya servers in an MSS configuration on page 33
   - Chapter 5: Installing Avaya servers in a non-MSS configuration on page 65

   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 51.

   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* available on http://www.avaya.com/support.
3. Before you configure the new servers, prepare the message store to recognize the new servers. Continue with Preparing the message store for the new servers on page 88.

Preparing the message store for the new servers

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 a Microsoft Exchange configuration, continue with Preparing a Microsoft Exchange message store on page 89.
- For an Avaya MSS configuration, continue with Adding a new trusted server on the MSS on page 89.

Preparing a Microsoft Exchange message store

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 on these tasks, see the relevant sections in *Avaya Modular Messaging Installation and Upgrades* available on http://www.avaya.com/support.

Adding a new trusted server on the MSS

For an MSS configuration, you must add a trusted server 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* available on http://www.avaya.com/support.

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.
   e. For **Connection Security**, use only the default value of **No encryption required**. Any other encryption method does not allow the Modular Messaging servers to communicate.
5. Click **Save**.
6. At the confirmation message, click **OK**.

7. Click **Return to Main**.

Using the DCT to analyze the current configuration

Before you can configure the new server, you must ensure that the data file for the Avaya Modular Messaging Data Collection Tool (DCT) is complete and current. To do this, you must collect information from each MAS in the system, including the supplementary Tracing Server, if present. The data file allows the Avaya Modular Messaging Configuration wizard to configure the new server automatically.

To collect data from each MAS and the supplementary Tracing Server, if present:

1. Verify that the Modular Messaging system is working normally and all servers are running.
2. Ensure that you have a current copy of the planning forms to use as a guide.
3. Switch the monitor to show the server to analyze.

   CAUTION:

   Do not stop or disable any Modular Messaging services that you plan to move at this time. All currently installed services must be running normally for the DCT analysis to be successful.

4. Verify that the required messaging services on this server are running:
   a. Double-click the **Monitor** icon on the desktop.
   b. Click **Services (Local)** in the left pane, if the item is not already selected.
   c. In the right pane, scroll down to the list of Modular Messaging services. All services start with the abbreviation **MM**.
   d. Verify that the **Status** column shows that service is **Started** for each messaging service that belongs on this server. For a list of required services, see the planning forms.

   Note:

   If service is *not* started for a required messaging service, right-click that **MM** service and select **Start**. The system starts the messaging service.

5. Insert a USB storage device such as a flash drive, memory stick, or equivalent into any available USB port on the server.
   - You can use any of the available USB ports on the back of the server.
   - You must remove the front bezel to access the USB port on the front of an Avaya S3500-family message server.
6. Run the Avaya Modular Messaging Data Collection Tool (DCT):
   a. Navigate to the directory that contains the DCT program. You can find a copy of the DCT executable file in **C:\Program Files\Avaya Modular Messaging\Install\MISCM**.

b. Double-click the file **MMDCT.exe**.

7. Update the most current data file for the system:

   a. In the Avaya Modular Messaging Data Collection Tool window, select **Analyze existing system**. Click **OK**.

   b. When the program asks if you want to use an existing DCT file, click **Yes**.

   c. In the Open window, click the drop-down list next to **Look in**.

   d. Navigate to the location of the most current DCT data file.

   - For MAS#1, navigate to the MAS directory

     C:\Program Files\Avaya Modular Messaging\Install\MISCM\cfg.

   - For a subsequent MAS or the supplementary Tracing Server, navigate to the most current data file on the USB storage device, **Removable Disk (E:)**.

   e. Double-click the current data file for this site, such as *sitefile.mmdct*.

   CAUTION:

   For a multiple-MAS system, you must open the same data file that you saved on the previous MAS. Otherwise, the data from that server is lost. Do *not* enter the data for subsequent servers manually! Use the DCT to analyze each server in turn. The tool collects some data that does not appear on the DCT screens.

8. On the MM System Analysis screen, use the drop-down list to select the appropriate number for this server. Next to the **MAS Information is being collected from** field:

   - For MAS#1, select **First MAS (#1)**.
   - For a subsequent MAS or the supplementary Tracing Server, select the appropriate number for this server, such as **Second MAS (#2)**.

9. Click **Start**.

   The system displays the process of data collection in the window. After the information is collected successfully, the Avaya Modular Messaging Data Collection Tool window opens.

10. Verify the data on each screen. For more information, see the planning forms, the DCT online help, and *Avaya Modular Messaging Installation and Upgrades* available on http://www.avaya.com/support.

11. After you verify all displayed data, click **Complete**.

12. Save the data file to the USB storage device:

    a. When the system prompts you to save the file, click **Yes**.

    b. In the Save As window, navigate to the USB storage device.

    c. Type the name of the data file in the **File name** field, such as *sitefile*.

    d. Leave the file type set as MM DCT Files (*.mmdct).

    e. Click **Save**.

f. If the system prompts you to replace an existing data file, click **Yes**.

Note:

You can optionally save the data from each MAS into a new file, such as *sitefile2*. However, you *must* use the most recent data file when you analyze the next server. Otherwise, the information will be incomplete.

The Avaya Modular Messaging Data Collection Tool window closes.

13. Safely remove the USB storage device from the server to prevent damage to the data file:
    a. Double-click the icon on the task bar to **Safely Remove Hardware**.
    b. Follow the prompts to safely remove the hardware.
    c. Close all open windows.
14. Continue as appropriate:
    - If the system has additional MASs or a supplementary Tracing Server, return to Step 3.
    - After all servers in the system are analyzed, continue with Configuring the new server on page 92.

Configuring the new server

Use the updated DCT data file and the Avaya Modular Messaging Configuration wizard to configure the new server.

Running the configuration wizard

A new S3500-family server starts to boot as soon as AC power is applied. After the server boots, the Avaya Modular Messaging Configuration wizard runs automatically.

Note:

Before you turn on the server you want to configure, insert the USB storage device. The server can more easily recognize the USB storage device if the device is already inserted when the server boots.

To configure the new server:

1. On the Welcome screen, click **Next**.
2. On the Locate Configuration Data screen, click **Browse**.
   a. In the Open window, click the drop-down list next to **Look in**.
   b. Navigate to the USB storage device, **Removable Disk (E:)**.

   If the server fails to recognize the USB storage device, you can:

1. In the Open window, click **My Computer** in the left pane. After the **Look in** field shows **My Computer**, press **F5** to refresh the screen.
2. If the USB storage device still fails to appear, unplug and then insert the device again.

c. Double-click the most current data file on the USB storage device, such as *sitefile.mmdct*.

3. On the Locate Configuration Data screen, click **Next**.
4. When the system prompts you to confirm the data file, click **Yes**.

   The Avaya Modular Messaging Data Collection Tool window opens.

5. Update the following screens:

   a. Page through the first few screens and verify the data. Click **Next** on each screen.

   b. On the **Voice Mail Domain** screen:

      1. Update the **Number of MASs in the VMD**. Include all additional servers that you installed, whether they are an MAS or a supplementary tracing server.
      2. The system displays a warning that you are changing the number of MAS servers in the Voice Mail Domain. You must analyze the system at the end of this procedure to ensure that the data file reflects the changes you make. Click **OK**.
      3. Click **Next**.

   c. If you are installing a customer-provided supplementary server to an MM system that already contains Avaya-provided MASs, complete step 5d. If no, go directly to step 5e.

   d. On the MM Servers Message store page of the Data Collection Tool, select the Microsoft Exchange Using Own hardware option. This selection tells the system that you want to install customer-provided equipment.

   e. Continue to the **Corporate MM server networking details** screen. Use the planning forms to complete the following screens. For more information, see the Release 3 version of *Avaya Modular Messaging Installation and Upgrades* available on http://www.avaya.com/support.

      - Corporate MM server networking details
      - MAS accounts and passwords
      - TTS and announcements—required if the new server is to run the MM Messaging Application Server service and handle calls

   f. Update the **MM service selection** screen as follows:

CAUTION:

Do not attempt to move services using this screen! Leave all the Modular Messaging services set exactly as they are. Do not move services from one column to another, or you will damage the operation of the system.

- For an MAS, click *only* the **Message Application** checkbox. Leave all other services set as they are.

- For a supplementary server, do *not* click the **Message Application** checkbox. Do not select any other services, even if the server is to become a Tracing server. Leave the entire **MAS** column for the new server blank.

g. After your changes are complete, click **Save**.

6. Save the updated data file to the USB storage device:
   a. When the system prompts you to save the file, click **Yes**.
   b. In the Save As window, navigate to the USB storage device.
   c. Type the name of the data file in the **File name** field, such as *sitefile*.
   d. Leave the file type set as MM DCT Files (*.mmdct).
   e. Click **Save**.
   f. If the system prompts you to replace an existing data file, click **Yes**.

   Note:

   After server configuration is complete, copy this updated DCT data file to the other servers in the system, so all servers have the same data. You must also send a copy of the current data file to the technical support group using the procedures appropriate for this site. For more information, see Completing the move services procedure on page 106.

7. To continue the configuration process, click **Complete**.

   The system automatically saves the updated data file to the C:\Program Files\Avaya Modular Messaging\Install\MISCM\cfg directory on the new server.

   The system returns you to the Avaya Modular Messaging Configuration Wizard.

8. On the Messaging Application Server Number screen:
   a. Change the **MAS number** field to show the correct number for this server.
   b. Click **Next**.

   The Configuring System screen shows the MAS configuration starting. The Sysprep window opens. The server then reboots.

9. After the reboot starts, a Windows Setup wizard runs. To complete the wizard:
   a. On the License Agreement screen, select **I accept this agreement**. Click **Next**.
   b. On the Your Product Key screen, type the Windows product key for this server.
      - Each Windows computer has a unique product key for the Windows 2003 operating system. Enter the number exactly as shown.
      - On a new S3500-family server, the product key sticker is located inside the empty drive tray on the lower-left of the server chassis. You can remove the drive tray to easily read the sticker. Record the Windows product key on the planning forms.
   c. Click **Next**.

The Avaya Modular Messaging Configuration Wizard displays its configuration status on the Configuring System screen. The server reboots several times, but you do not need to log on manually. The entire process takes about 25 minutes.

10. When the server configuration is complete, the progress bar stretches across the screen and the **Next** button becomes active. Click **Next**.
11. On the Avaya Modular Messaging Wizard Completed screen, click **Finish**.

Completing new server configuration

You must complete the server configuration and setup using the Release 3 version of *Avaya Modular Messaging Installation and Upgrades* available on http://www.avaya.com/support.

Complete the configuration of a new server based on the type of system:

- **MSS configuration**: Continue with the section "Preparing the new server" in *Chapter 4: Configuring the Avaya MAS*.
- **Microsoft Exchange configuration**: Continue with the section "Installing third party software" in *Chapter 6: Configuring a new Avaya MAS*.

Follow the procedures in the installation guide as follows:

- *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* available on http://www.avaya.com/support.
  2. After you confirm that the new MAS is working correctly, continue in this guide with Balancing Modular Messaging services across servers on page 96.

  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 installation guide. Stop when you reach the section "Configuring the voice mail system."
  2. You can move the Modular Messaging services as part of the procedures for "Configuring special features as needed." Continue in this guide with Balancing Modular Messaging services across servers on page 96.

Balancing Modular Messaging services across servers

You must 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. Use the procedures described in this section to:

- Redistribute Modular Messaging services after you add a new MAS or supplementary tracing server to the system
- Redistribute Modular Messaging services on a system in service to optimize performance.

CAUTION:

These procedures apply only to Modular Messaging systems that run Release 3 software on Avaya-provided hardware. This chapter does *not* describe how to move Modular Messaging services on a supplementary tracing server that is installed using customer-provided equipment (CPE).

Continue as appropriate:

- For an Avaya MSS configuration, continue with Updating server information on the MSS on page 96.
- For all other configurations, such as Microsoft Exchange, continue with Disabling Modular Messaging services you plan to move on page 99.

Updating server information on the MSS

For an Avaya MSS configuration, you must update some information on the MSS *before* you move any services on an MAS.

Updating the trusted servers

You must update the IP addresses for the trusted servers on the MSS *before* you move any services on an MAS. Modular Messaging services that require an update on the MSS include:

- Call Me, MWI, and Mailbox Monitor—these services all use the MWI trusted server, which is named **VVSTS** on the MSS
- Supplementary Tracing server—update the MSS trusted server if the Supplementary Tracing server changes

Note:

You must only update the MSS trusted server for the Supplementary Tracing server if a separate Supplementary Tracing server is present in the system. The Tracing Server service can run on an MAS, which is set up as a **Messaging Application Server** and does not need to be updated.

To change the server that hosts one of these Modular Messaging services, update the appropriate trusted server on the MSS:

1. Switch the monitor to show the MSS.
2. From the **Global Administration** menu, select **Trusted Server Management**.
3. On the Manage Trusted Servers page:
   a. Select the appropriate trusted server:
      - For the MWI trusted server, select **VVSTS**.
      - For the Supplementary Tracing server, select the name of the current supplementary server, such as *mymas3*.
   b. Click **Edit the Selected Trusted Server**.
4. On the Edit Trusted Server page, update the information as follows:
   - For the VVSTS trusted server:
     a. Update the **Machine Name / IP Address** field to use the private IP address of the new server to host the Call Me or MWI service. Use the planning forms to provide the correct IP address.
     b. Verify that the **Special Type** field shows **MWI Server**.
     c. Click **Save**.
   - For a Supplementary Tracing server:
     a. Update the **Trusted Server Name** field to show the name of the new Supplementary Tracing server, such as *mymas6*. Use the planning forms.

     CAUTION:
     You can have 6 MASs in an MSS configuration or 11 MASs in an Exchange configuration only if one of the servers is a supplementary tracing server. However, the tracing server does *not* have to be numbered MAS#6 or MAS#11. The tracing server can use some other number, and you can add more MASs with higher numbers as needed. This guide uses *mymas6* as an example only.

     b. Update the **Machine Name / IP Address** field to use the private IP address of the new supplementary server. Use the planning forms to provide the correct IP address.
     c. Verify that the **Special Type** field shows **Supplementary Server**.
     d. Click **Save**.
5. At the confirmation message, click **OK**.
6. On the Manage Trusted Servers page, verify that trusted server shows the correct name and IP address for the updated server.
7. If you must update both the MWI and Supplementary Tracing servers, repeat Steps 3 through 6 to update the next MSS trusted server.
8. After you update all required MSS trusted servers, continue as appropriate:

- If you installed a new server, continue with Updating MAS host information for a new server on page 98.
- If you are moving services among servers that are already in service, continue with Disabling Modular Messaging services you plan to move on page 99.

Updating MAS host information for a new server

If you just installed a new server, you must send updated MAS host information to all servers in the Modular Messaging system. This procedure enables the system to recognize the new server. Treat a new supplementary tracing server as an MAS for this task.

To update the host information for the new server:

1. From the Messaging Administration main menu, click **Basic System Administration** > **TCP/IP Administration** > **MAS Host Information Setup**.
2. On the MAS Host Information Setup page, select the MAS whose number corresponds to the new server, such as *MAS3*. Click **Edit**.
3. Update the host information to identify this server on the corporate and private networks.

   CAUTION:

   You only complete the **Public** fields on this page if the corporate network connection uses static IP addresses. To verify the type of connection you are using, see the planning forms for this site.

   Continue depending on the type of network connection used at this site:

   - For corporate connections that use automatic DHCP addressing, continue with Step 4.
   - For corporate connections that use static IP addresses, complete the **Public** fields:

     a. For **Public System Name**, type the corporate full computer name for the new server, such as *mymas3.loc.avaya.com*. Use the corporate network planning form.

   Note:

   If the public name includes a domain qualifier, such as *loc.avaya.com*, you *must* include just the host name in the **Private Aliases** field. For example, include *mymas3* as a private alias for *mymas3.loc.avaya.com* in Step 4.

     b. For **Public IP Address**, type the corporate IP address of the MAS.

   CAUTION:

   Do *not* list the same name in two different fields. For example, do not enter the simple MAS host name, such as *mymas3*, both in the **Public Aliases** field and in the **Private Aliases** field.

     c. For **Public Aliases**, include any aliases that the corporate network requires. Separate names with a space.

CAUTION:

Do not change any information in the **Private System Name** and **Private IP Address** fields unless this system requires the change. Any change to these values requires you to follow specific additional procedures, as directed by remote technical support.

4. For all servers, complete the following fields:

   a. For **Private Aliases**, you *must* include at least the following entries:

   - The private full computer name for this MAS on the private network, such as *mymas1.privdom1.local*. Use the corporate network planning form.
   - If the **Public System Name** entry includes a domain qualifier, such as *loc.avaya.com*, you *must* include just the MAS host name here. For example, you must enter *mymas3* for the corporate computer name *mymas3.loc.avaya.com*.

   You can optionally enter up to five (5) aliases if required. Any names you enter *must* be unique on the Modular Messaging system and on the network. Separate multiple names with a space.

   b. For **Administrator Login**, type the MAS domain administration account login, such as *dom-admin*, and the **Administrator Password** for this account. This account enables the MAS to accept the information updates. Use the planning forms.

5. Click **Save**.

   The MSS updates its internal information, and then sends the updated information to all MASs in the system. Verify that all servers are updated successfully.

6. Click **Return to Main**.

Disabling Modular Messaging services you plan to move

Before you move any Modular Messaging services, you must disable the service to be moved on the server where the service is currently running.

CAUTION:

You must set any **MM** services that you intend to move to another server to **Disabled** before you enable them on a different server. Serious problems occur if you activate a service that is supposed to run on only one server in the VMD on multiple servers.

To disable services to be moved on the server where the service is currently running:

1. Log on to each server that you intend to move Modular Messaging services from.
2. Double-click the **Monitor** icon on the desktop.
3. Click **Services (Local)** in the left pane, if the item is not already selected.

4. In the right pane of the Monitor window, scroll down to the service you plan to move.
   a. Right-click the service and select **Stop**.
   b. Double-click the service to open the Properties window.
   c. Set the **Startup type** to **Disabled**.
   d. Click **OK**.
5. Repeat Step 4 to disable each service you intend to move. Services you can move include:
   - MM Call Me—must be on the same server with the Mailbox Monitor Server
   - MM Mailbox Monitor—must be on the same server with either Call Me or MWI
   - MM MWI—must be on the same server with the Mailbox Monitor Server
   - MM Fax Sender—available for MSS configurations only
   - MM Tracing Server—must be enabled on only one server at a time in the VMD
6. Refresh the screen to verify that all **MM** services that you plan to move are **Disabled**.
7. Repeat this procedure on the next MAS, if the Modular Messaging services to be moved reside on more than one server.

Moving Modular Messaging services among servers

To move services from one Modular Messaging server to another:

1. Log on to each server that you intend to move Modular Messaging services to.
2. Access the Voice Mail System Configuration program. Click **Start** > **Programs** > **Avaya Modular Messaging** > **Voice Mail System Configuration**.
3. Move the following services as required:
   - Moving Call Me, MWI, and Mailbox Monitor on page 100
   - Moving Fax Sender service—MSS configurations only on page 102
   - Moving Tracing Server service on page 102

Moving Call Me, MWI, and Mailbox Monitor

You must enable the Call Me Server, Message Waiting Indicator (MWI) Server, and Mailbox Monitor services only once in the voice mail domain. All three services must be enabled on the same server, or serious problems will occur.

Updating the Call Me Server

To change the Call Me Server parameters:

1. Under the voice mail domain, such as *vmdom*, double-click **Call Me**.

2. In the Call Me - Voice Mail Domain window, on the **General** tab, click the checkbox to **Enable Call Me**.
3. For **MAS Call Me Server**, specify the server on which to enable the Call Me service:
   a. Click the **...** button next to the field.
   b. In the Select Computer window, double-click the name of the server, such as *MYMAS2*.
4. Click **OK** to close this window.

Note:

Because Call Me Server and Message Waiting Indicator (MWI) Server both use the Mailbox Monitor Server, you must enable both services on the same server.

Updating the MWI Server

To change the Message Waiting Indicator (MWI) Server parameters:

1. Under the voice mail domain, such as *vmdom*, double-click **Message Waiting Indicator**.
2. In the Message Waiting Indicator - Voice Mail Domain window, on the **General** tab, click the checkbox to **Enable Message Waiting Indicator (MWI)**.
3. For **MAS MWI server**, specify the server on which to enable the MWI Server:
   a. Click the **...** button next to the field.
   b. In the Select Computer window, double-click the name of the server, such as *MYMAS2*.
4. For the **Limit requests** and **Maximum requests per minute** fields, use the values specified in the configuration notes for your PBX integration type.
5. In the **Messaging Application Servers that support MWI** box, list all MASs that have a port group set up to support MWI. To add a server name:
   a. Double-click inside the top of the big list box, or click the **Add** button just above the list box. The **Add** button looks like a dashed box.
   b. The list box displays a data entry field and a **...** button. Click the **...** button.
   c. In the Select Computer window, double-click the name of each MAS that has ports allocated to support MWI, such as *MYMAS2*.
   d. Repeat Steps b and c to add any other MASs that support MWI, such as *MYMAS1*.
   e. Click **OK** to close the Select Computer window.

   Note:

   The arrow icons move the selected MAS up or down the list. MWI requests start with the first MAS in the list, and continue to each additional MAS if needed.
6. Click **OK** to close this window.

Updating the MAS port groups

Update the MAS port groups as required:

1. In the Voice Mail System Configuration window, expand **Message Application Servers**.
2. Expand the entry for this MAS, such as *MYMAS2*.
3. Double-click **Port Groups**. Use the planning forms to update the values as required.

   For example, you might move all the MWI ports to the new server, such as *MYMAS2*. Depending on the integration type, you might leave the MWI ports that are already active enabled. You can then add MWI ports to the new server to increase the ports available for MWI.
4. If required, expand the entries for the other servers in the system. Return to Step 2, and update the **Port Groups** for each server as required.

Moving Fax Sender service—MSS configurations only

IP H.323 and IP SIP switch integrations currently do not support fax service.

To move the Fax Sender service to a different server:

1. Under the voice mail domain, such as *vmdom*, double-click **Fax**.
2. In the Fax - Voice Mail Domain window, on the **General** tab:
   a. Click the checkbox for **Fax Enable**.
   b. Next to **MAS Fax Sender server,** click **Browse**.
   c. In the Select Computer window, double-click the name of the server on which to enable the Fax Server service.
3. Click **OK** to close this window.

Moving Tracing Server service

To move the Tracing Server service to a different server:

1. Log on to the server that you intend to move the Tracing Server service to.

   Note:

   You must have already disabled the Tracing Server service on the server that was previously running it. For more information, see Disabling Modular Messaging services you plan to move on page 99.
2. Enable the new instance of the Tracing Server service now:
   a. Double-click the **Monitor** icon on the desktop.
   b. Click **Services (Local)** in the left pane, if the item is not already selected.
   c. In the right pane, scroll down to the list of Modular Messaging services.

d. Double-click the **MM Tracing Server** service to open the Properties window.

   1. Set the **Startup type** to **Enabled**.
   2. Click **OK**.

e. In the Monitor window, right-click **MM Tracing Server** and select **Start**.

3. Access the Voice Mail System Configuration program. Click **Start** > **Programs** > **Avaya Modular Messaging** > **Voice Mail System Configuration**.
4. Under the voice mail domain, such as *vmdom*, double-click **Tracing System**.
5. The system displays a warning that the current Home Message Application Server is not valid. Click **OK**.
6. In the Tracing System - Voice Mail Domain window, on the **General** tab:
   - The **MAS Tracing Server Machine Name** field displays the name of the server that is now running the tracing system. The new server can be an MAS or a supplementary tracing server.
   - The **Home Message Application Server** field shows the first MAS that the tracing system connects to when doing an operation. You do not have to update this field.
7. Click **OK** to close this window.
8. Remove the scheduled tasks from the server that previously hosted the Tracing Service:

   a. Click **Start** > **Run** to open the Run window.

   b. In the **Open** field, type the following and press **Enter**:

      C:\Avaya_Support\Tools\Tracing\RemoveSchedTasks.exe

   CAUTION:

   This script automatically removes the tasks that were assigned to the original tracing server, so you do not have to set up the scheduled tasks again on the new server. If you fail to run this script after you move Tracing Service from one server to another, errors occur when the originally scheduled tasks fail.

Enabling the services on the correct server

After you set up the services correctly in the VMSC, you must enable them on the appropriate servers. You must stop all Modular Messaging services to do this task.

Stopping all Modular Messaging services

You must stop all Modular Messaging services on all servers that you are moving services to or from. Stopping and then restarting all services gets the entire voice mail domain configured with the correct services running on the correct servers.

To stop all Modular Messaging services:

1. Switch the monitor to show the first MAS.
2. Stop all Modular Messaging services as follows:
   a. Click **Start** > **Run** to open the Run window.
   b. In the **Open** field, type the following and press **Enter**:

      C:\Avaya_Support\Tools\ServiceControl\StopMMServices.exe

      A command window displays the status of the Modular Messaging services shutdown. The script might take several minutes to complete.

      Note:
      This script also stops Dialogic services and some Windows services.
3. Confirm that all Modular Messaging services are stopped:
   a. Double-click the **Monitor** icon on the desktop.
   b. Click **Services (Local)** in the left pane, if the item is not already selected.
   c. In the right pane, scroll down to the list of installed Modular Messaging services. These all start with the abbreviation **MM**.
   d. Verify that the **Status** column is blank. If any service is *not* stopped, repeat Steps 2 and 3.
4. Repeat this procedure on each server that you are moving services to or from.

Enabling the appropriate services

After all Modular Messaging services are stopped, you must enable the appropriate services on each server. Use the planning forms, and double-check your work.

To enable the appropriate Modular Messaging services:

1. In the Monitor window, click **Services (Local)** in the left pane, if the item is not already selected.

2. In the right pane, scroll down to the list of Modular Messaging services. These services start with the abbreviation **MM**.

CAUTION:

Use the planning forms to verify that you enable and disable the correct services on each server. You must enable some Modular Messaging services only once in a voice mail domain, or serious problems will occur. For more information, see Table 10.

Table 10: When to enable Modular Messaging services in a VMD

Modular Messaging service name	Condition for enabling service [1]
MM Messaging Application Server	Enable on each MAS that handles calls
MM Alarming Server MM Event Monitor Server MM Performance Monitor Server MM Process Monitor Server MM Service Connector	Enable this set of services on each server in the voice mail domain
MM Call Me [2] MM Mailbox Monitor [2] MM MWI [2] MM Fax Sender [3] MM Tracing Server	Enable this set of services *only once* in each voice mail domain, either on an MAS or on the supplementary tracing server

1. Each enabled service must have a startup type of **Automatic** and show a status of **Started**.
2. The Call Me, MWI, and Mailbox Monitor services always must be enabled on the same server.
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.

3. To enable an **MM** service on this server:
   a. Double-click the service to open the Properties window.
   b. Set the **Startup type** to **Automatic**.
   c. Click **OK**.
   d. Repeat Step 3 to update the status for each MM service as required.
4. To disable an **MM** service on this server:
   a. Double-click the service to open the Properties window.
   b. Set the **Startup type** to **Disabled**.
   c. Click **OK**.
   d. Repeat Step 4 to update the status for each MM service as required.

5. Refresh the screen. Verify that the **Status** column shows the correct state for each Modular Messaging service. Check the planning forms:
   - Services that are required for this server must show a startup type of **Automatic**.
   - Services that are *not* required on this server must show a blank status and a startup type of **Disabled**.

   CAUTION:

   You must set all **MM** services to the correct state before you restart Modular Messaging services. Serious problems occur if you activate a service that is supposed to run on only one server in the VMD on multiple servers.
6. Repeat this procedure on each server that you are moving services to or from.

Restarting messaging service

After you verify and update all required settings on all servers in the voice mail domain, you must restart the services on each server.

To restart messaging service:

1. Click **Start** > **Run** to open the Run window.
2. In the **Open** field, type the following and press **Enter**:

   C:\Avaya_Support\Scripts\serverrecovery.vbs

   The script takes a few seconds to run. The program sets up all **MM** services correctly.
3. Refresh the screen to verify that all **MM** services required for this server are **Started** and set to **Automatic**.
4. If any required **MM** services are not set up correctly, return to Enabling the appropriate services on page 104. Correct the problem, and then restart service again.
5. Restart all Modular Messaging services on each Modular Messaging server in the voice mail domain after you finish moving services. A restart ensures that the voice mail domain-wide properties are consistent across the VMD.

Completing the move services procedure

To complete the procedure for moving Modular Messaging services:

1. Verify basic server operation and do the appropriate acceptance tests. For more information, see *Avaya Modular Messaging Installation and Upgrades* available on http://www.avaya.com/support.
2. Because you moved Modular Messaging services, the DCT data file currently on the system is now out of date. To update the system configuration data:

   a. Use the most recent DCT data file, which is on your USB storage device.

b. Use the DCT to analyze all the servers in the system again. For more information, see Using the DCT to analyze the current configuration on page 90.

3. To ensure that all servers have the most current information, copy the updated DCT data file from the USB storage device to each server:

   a. Using Windows Explorer, copy the updated DCT data file to the MAS directory **C:\Program Files\Avaya Modular Messaging\Install\MISCM\cfg**

   Tip:

   Rename the existing data file in this directory before you copy the new one, as a backup. For example, rename the existing data file *sitefile-old.mmdct*.

   b. Safely remove the USB storage device from the server to prevent damage to the data file:

      1. Double-click the icon on the task bar to **Safely Remove Hardware**.
      2. Follow the prompts to safely remove the USB storage device.

   c. Insert the USB storage device into the next MAS or supplementary tracing server.

   d. Repeat Steps a through c for each MAS and supplementary server in the system.

4. Update and turn over the planning forms and DCT data file:

   a. Ensure that the planning forms accurately reflect the current setup of the system. Make a copy for the project planner and the organization that is to remotely support the system. Return the planning forms to the customer to be filed in a safe place.

   b. Send a copy of the most current DCT data file to the appropriate technical support group. Afterwards, erase the copy of the DCT data file from your USB storage device.

Recommended distribution of Modular Messaging services

The following tables show the recommended distribution of Modular Messaging services on Avaya-provided hardware. Because a Release 3 Modular Messaging system might use either or both types of hardware, this section includes tables for both models of Avaya server:

- Balancing services on Avaya S3500-family servers on page 108
- Balancing services on Avaya S3400-family servers on page 109

Balancing services on Avaya S3500-family servers

Table 11: Recommended distribution of Modular Messaging services with S3500-family hardware on page 108 describes the recommended distribution of Modular Messaging services and tools among MASs that use S3500-family hardware.

Note:

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

Table 11: Recommended distribution of Modular Messaging services with S3500-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	Any	• Call Me • MWI • Mailbox Monitor	• Tracing Service • Fax Sender [3] • Offline Access Message Store	—	—	—
3	Any	Fax Sender [3]	• Call Me • MWI • Mailbox Monitor	• Tracing Service • Offline Access Message Store	—	—
4 to 10 [2]	E1 QSIG T1 QSIG IP H.323 IP SIP	—	—	—	—	• Tracing Service • Call Me • MWI • Mailbox Monitor • Fax Sender [3] • Offline Access Message Store • Admin Tools
4 to 10 [2]	Analog DSE	Fax Sender [3]	• Call Me • MWI • Mailbox Monitor	Tracing Service	Offline Access Message Store	NA

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.

Balancing services on Avaya S3400-family servers

Table 12: Recommended distribution of Modular Messaging services with S3400-family hardware on page 109 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 12: 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
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

Table 12: 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
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 to a new S3500-family server

This chapter describes how to upgrade an existing Avaya server to a new Avaya S3500-family message server. Server upgrades include:

- S3500-family MSS-S: Customers can upgrade their S3500-family MSS-S to an MSS-H to provide greater reliability or additional capacity.
- S3400-family MSS: Customers can upgrade their S3400-family MSS to an S3500-family MSS-S or MSS-H. The MSS upgrade can take place during or after a Release 3 software upgrade. All S3500-family hardware must use Release 3 Modular Messaging software.
- S3400-family MAS: Customers can upgrade their S3400-family MAS to an S3500-family MAS. The MAS upgrade can take place during or after a Release 3 software upgrade.

Topics in this chapter include:

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.

Upgrading to a new S3500-family MSS

Customers might choose to upgrade their existing MSS to a new Avaya S3500-family message server. Supported hardware upgrades include:

- S3400-family Avaya Message Storage Server High Availability version (MSS-H) to an S3500-family MSS-H
- S3400-family Avaya Message Storage Server Standard Availability version (MSS-S) to an S3500-family MSS-S
- S3400-family MSS-S to an S3500-family MSS-H

The procedures for upgrading from one version of MSS to another are the same, regardless of the type of MSS. This section describes the MSS upgrade procedure.

Backing up the current MSS

You cannot transfer disk drives from one MSS to another, even if the MSSs are the same type, such as MSS-S or MSS-H. The new server will not work correctly with the old disk drives. Therefore, 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 S3500-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.

Figure 38: MSS-H cable connections for S3500-family server—back view

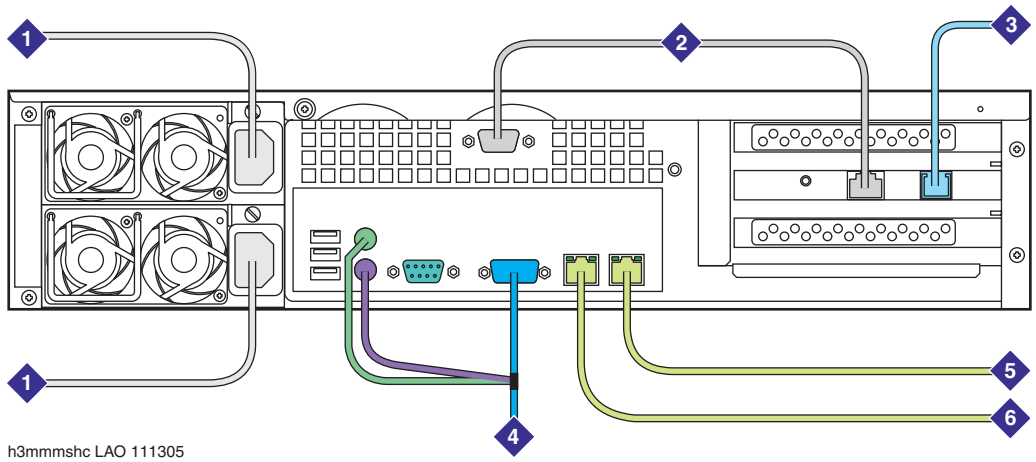


Figure notes:

1. **AC power cords**
2. **Serial port (COM2) connection to the RMB**
3. **Remote Maintenance Board (RMB) connection to analog line for alarm reporting and remote support.**
4. **Mouse, keyboard, and video connector**
5. **Private LAN interface**
6. **Corporate LAN interface**

4. Install the new S3500-family MSS. For more information, see Installing an S3500-family server on page 39.

WARNING:

The power cord set provided with this product must be used with this product only. Do not use the cord set with any other product, and do not use a different cord set with this product. Using the wrong cord set could lead to hazardous incidents such as electric shock, fire, and faulty operation.

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CAUTION:

For an MSS-H, verify that all disk drives are seated firmly in their drive bays. The MSS-H disk drives often vibrate loose during shipment. Open the latch and push in each drive firmly. If the drives are loose, the server cannot boot correctly.

For a summary of MSS cable connections, see:

- Figure 38: MSS-H cable connections for S3500-family server—back view on page 113
- Figure 39: MSS-S cable connections for S3500-family server—back view on page 115

Note:

The S3500-family servers start as soon as they receive AC power. You must press the server power button only if the power LED on the server is not lit.

Figure 39: MSS-S cable connections for S3500-family server—back view

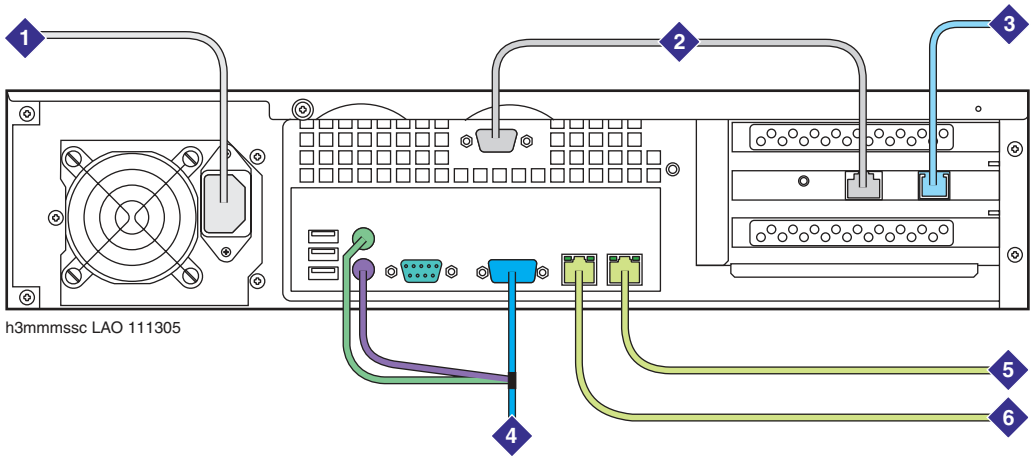

Figure notes:

1. **AC power cords**
2. **Serial port (COM2) connection to the RMB**
3. **Remote Maintenance Board (RMB) connection to analog line for alarm reporting and remote support.**
4. **Mouse, keyboard, and video connector**
5. **Private LAN interface**
6. **Corporate LAN interface**

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 will have to 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**.

      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**.
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.

   Note:

   On the S3500-family hardware, push the DVD back into the back retainer. Ensure that the front clips are seated on top of the DVD.
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. 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* available on http://www.avaya.com/support.

Upgrading to a new S3500-family MAS

Customers might choose to upgrade their existing MASs and supplementary servers to a new Avaya S3500-family message server. Supported hardware upgrades include:

- S3400-family Messaging Application Server (MAS) to an S3500-family MAS
- S3400-family supplementary server to an S3500-family supplementary tracing server

CAUTION:

You cannot add a new server to a Modular Messaging system in the middle of a Release 3 upgrade. You can replace the server hardware with a new model, but you cannot change the number of servers until after the upgrade is complete.

Preparing for an MAS upgrade

Before you upgrade the MAS:

1. Ensure that you have a current data file for the Avaya Modular Messaging Data Collection Tool (DCT). Ensure that you have a current copy of the planning forms.
2. The PBX administrator must use the procedures appropriate for this PBX to busyout the ports for the MAS being upgraded. 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.
3. Back up the data on the MAS. Use the appropriate backup procedure for this site. For more information, see *Avaya Modular Messaging Installation and Upgrades* available on http://www.avaya.com/support.
4. Verify that any spooled messages on the MAS are delivered:
   a. In Windows Explorer, navigate to the directory C:\Program Files\Avaya Modular Messaging\VServer\Spool
   b. Verify that the Spool directory contains no message files. Continue with the upgrade only after the Spool directory is empty.

CAUTION:
If the directory contains spooled messages, wait for the system to deliver them. Otherwise, the spooled messages will be lost.

Replacing the server hardware

To upgrade your S3400-family MAS or supplementary tracing server to an S3500-family server:

1. Shut down the server software. Click **Start** > **Shut Down**, and then click **OK**.
2. Turn off the S3400-family server.
3. Unplug all cables to the old server. Label all cables so you can easily reconnect them.
4. Remove the S3400-family MAS from the stacked configuration or customer cabinet.
5. If the MAS contains Dialogic port boards, you must transfer the port boards from the old S3400-family server to the new S3500-family server. For more information, see Chapter 9: Adding or replacing MAS port boards on page 135:

   CAUTION:
   Observe proper electrostatic discharge (ESD) precautions when you handle computer components. Wear an antistatic wrist strap that touches your bare skin and connect the strap cable to an earth ground.

   a. Open the S3400-family MAS and remove the port boards.
   b. If multiple boards are present, identify the position of each board. For example, the first port board is set to position **0**. You must adjust the option settings if you have more than two port boards in an S3400-family MAS, and must install the additional boards in a new S3500-family server.
   c. Remove the handle from the port board, or the board cannot fit into the PCI card cage in the S3500-family server.
   d. Remove the top cover of the S3500-family server. Push the blue release buttons on the cover and slide the cover towards the back.
   e. Remove the PCI card cage by pulling straight up on the lifting straps.
   f. Remove the retaining bracket on the card cage by loosening the thumb screw.
   g. Install a maximum of two port boards into the PCI card cage. Use the two upper slots, **PCI2** and **PCI3**. To install only one port board in the server, use the middle slot, **PCI2**.
   h. If two boards are present, connect the boards using the new 3-position Computer Telephony (CT) bus cable. A new CT bus cable ships with all upgrades.
      - Position the CT bus cable so the colored stripe on the ribbon cable faces the ports at the back of the card cage.
      - Attach the end connector on the bus cable to the CT bus edge connector at the top of the card. Start with card in the highest numbered slot, **PCI3**.

Note:

Do not use the old CT bus cable from the S3400-family server, because the connectors do not fit correctly.

i. Replace the circuit card retaining bracket on the PCI card cage.

j. To replace the PCI card cage, align the riser card in the card cage with the slot connector on the server board. Push straight down on the card cage until the cage is firmly seated.

k. Replace the top cover.

6. Install the S3500-family MAS or supplementary tracing server hardware. For more information, see:

- Chapter 4: Installing Avaya servers in an MSS configuration on page 33
- Chapter 5: Installing Avaya servers in a non-MSS configuration on page 65

Note:

The replacement server already has the operating system loaded. However, you might need to install software updates, as directed in *Avaya Modular Messaging Installation and Upgrades*

For a summary of MAS cable connections, see Figure 40.

Figure 40: MAS cable connections for S3500-family server—back view

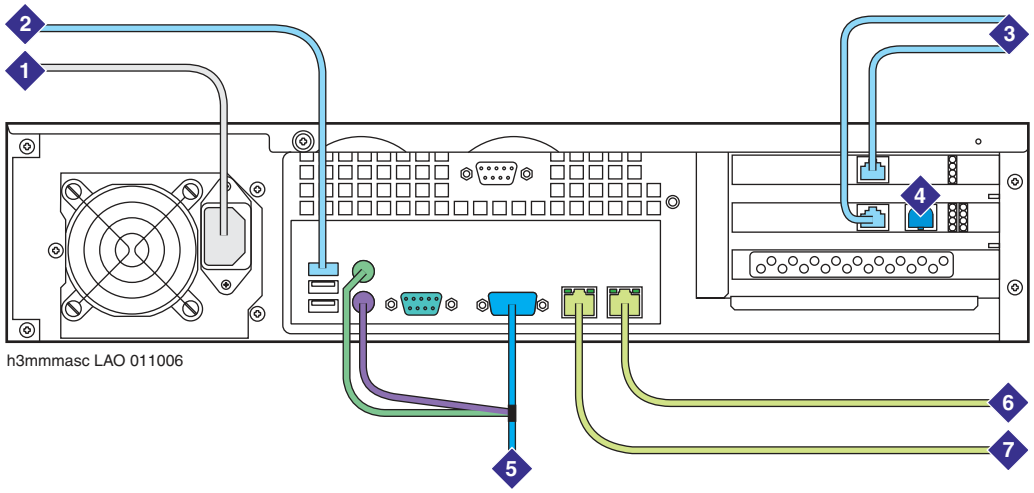

Figure notes:

1. **AC power cord**
2. **USB connection to MAS modem**
3. **Port board connections to the switch, if port boards are present. For example purposes, this figure shows an early QSIG board in PCI slot 2 and a current QSIG board in PCI slot 3.**
4. **Plug present on early QSIG boards**
5. **Mouse, keyboard, and video connector**
6. **Private LAN interface**
7. **Corporate LAN interface**

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 S3500-family server if needed for upgrades or expansions.

Completing the MAS upgrade

You must configure the new server and restore all data. This procedure varies depending on the message store that the Modular Messaging system uses.

To complete an MAS or supplementary tracing server upgrade, use the Release 3 version of *Avaya Modular Messaging Installation and Upgrades* available on http://www.avaya.com/support.

- **MSS configuration**: Continue with the section "Starting the MAS upgrade" in *Chapter 8: Upgrading Modular Messaging software to Release 3*.
- **Microsoft Exchange configuration**: Continue with the section "Running the Modular Messaging Configuration Wizard" in *Chapter 10: Upgrading Modular Messaging software on an Avaya MAS*.

Chapter 8: Getting inside the chassis

This chapter describes how to safely open the chassis to work on internal components in a Avaya S3500-family message server. Review the safety precautions for working on hardware before you start any repair or installation procedure.

Topics in this chapter include:

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.
- 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 S3500-family message server to do most component repair procedures.

The steps for opening a S3500-family server chassis include:

1. Shutting down the server and removing AC power on page 124
2. Removing the top cover on page 125

Shutting down the server and removing AC power

Before you open a S3500-family server chassis for more repair procedures, you must shut down the server software and completely remove AC power.

Note:

To replace a chassis fan, leave the server running. For more information, see Replacing chassis fans on page 187. For all other procedures inside the chassis, you must completely remove AC power, as described in this section.

To shut down an S3500-family server and remove AC power:

1. Shut down the system software. Use the appropriate procedure for each type of server:
   - To shut down the Messaging Application Server (MAS) or a supplementary 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.
   - To shut down the Message Storage Server (MSS):
     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.

2. Verify that the blue power lamp on the front of the server is dark.

Note:

If the blue power lamp remains lit on an MAS, press and hold down the power button to turn off the server. For an illustration of front-panel components, see Figure 1: S3500-family server—front view with bezel removed on page 14.

3. Unplug all AC power cords from the back of the server.

WARNING:

The power cord set provided with this product must be used with this product only. Do not use the cord set with any other product, and do not use a different cord set with this product. Using the wrong cord set could lead to hazardous incidents such as electric shock, fire, and faulty operation.

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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 following servers have a single AC cord:
  - Messaging Application Server (MAS)
  - Avaya Message Storage Server Standard Availability version (MSS-S)
- The Avaya Message Storage Server High Availability version (MSS-H) has two AC power cords, one for each redundant power supply.

CAUTION:

You must physically unplug all AC power cords to completely remove power to an S3500-family server. Otherwise, some components remain active, even if the power button is off.

Removing the top cover

After you shut down the system software and remove the AC power cords, you can remove the top cover to access the internal components.

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 133.

To remove the cover:

1. *For a stackable (desktop) configuration,* remove any units stacked on top of the server you must access.
2. Loosen the screw that attaches the top cover located to the back of the chassis. See Figure 41: Removing the cover on an S3500-family server on page 127.
3. *For a rack-mount setup,* slide the server forward.

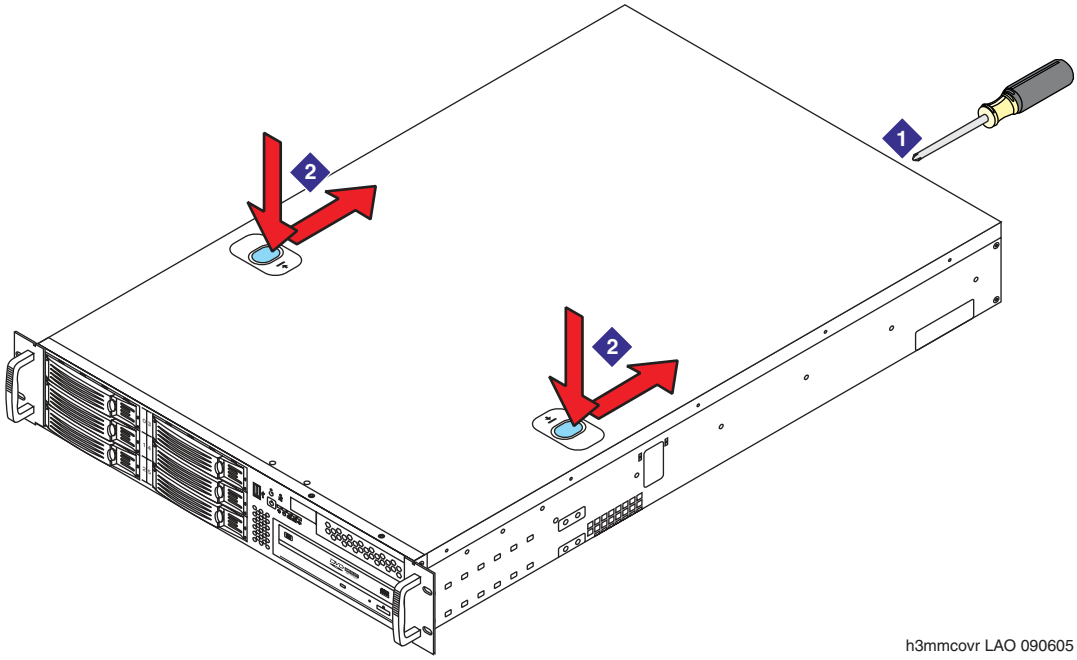
   Note:

   You might need to unplug some cables at the back of the server to get sufficient cable slack. Label all cables so you can easily reconnect them.

   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.
4. With your thumbs, push down on the cover release buttons. While holding down the buttons, slide the cover towards the back of the server. See Item 2 in Figure 41.
5. Lift the cover off the chassis.
6. The internal components are now accessible. For more information, see:
   - Figure 3: S3500-family MAS or MSS-S—interior view with bezel removed on page 17
   - Figure 6: S3500-family MSS-H—interior view with bezel removed on page 20

Figure 41: Removing the cover on an S3500-family server



Returning the server to service

After you complete repairs, return the Avaya S3500-family message server to service by replacing the cover and restoring power.

Replacing the cover

To replace the top cover on an S3500-family server:

1. Position the cover so the straight edge is in front.
2. Set the cover on the chassis so the cover is aligned with the sides and slightly overhangs the back of the server.
3. Slide the cover towards the front of the server until the cover fits snugly against the chassis.
4. *For a rack-mount setup,* slide the server back into the cabinet.
5. If you unplugged any cables from the back of the server, reconnect them now. For more information, see:
   - Figure 2: S3500-family MAS—back view on page 15
   - Figure 4: S3500-family MSS-S standard configuration—back view on page 18
   - Figure 5: S3500-family MSS-H high-availability configuration—back view on page 19
6. On the back of the server, replace and tighten the screw to secure the top cover to the chassis.
7. *For a stackable (desktop) configuration,* replace any units that were stacked on this server.

Restoring power to the server

To restore power to an S3500-family server:

1. Plug all AC power cords into the power outlet on the back of the server.
   - The MAS and MSS-S have a single AC cord.
   - The MSS-H has two AC cords, one for each redundant power supply.

   The server starts to boot as soon as power is available. After you plug in the AC cord:
   - The blue power lamp on the front of the server should light.
   - The software starts automatically after the server boots.

   Note:

   If the server does not start, press the power button on the front of the server.

2. *For an MAS,* after the reboot is complete, log on to the server using the appropriate account. Verify that all Modular Messaging services required for this server are started:
   a. Access the window used to monitor services using one of these methods:
      - Double-click the **Monitor** icon on the desktop, if present. In the left pane of the Monitor window, click **Services (Local)**, if the item is not already selected.
      - Right-click **My Computer** and select **Manage**. In the Computer Management window, in the left (Tree) pane, expand **Services and Applications**. Click **Services**.
   b. In the right pane, scroll down to the list of Modular Messaging services. All services start with the abbreviation **MM**. Verify that the **Status** column shows the correct state for each messaging service:
      - Services that are required for this server must show **Started** and a startup type of **Automatic**.
      - Services that are *not* required on this server must show a blank status and a startup type of **Disabled**.
   c. If the **Startup Type** for any **MM** service that is *not* required for this server is **Manual**:
      1. Double-click the service to open the Properties window.
      2. Set the **Startup type** to **Disabled**.
      3. Click **OK**.
      4. Refresh the screen to verify that all **MM** services *not* required for this server are **Disabled**. Repeat Step c as needed.

      CAUTION:

      All **MM** services that are *not* required for this server must be set to **Disabled** before you do Step d. Serious problems occur if you activate a service that is supposed to run on only one server in the VMD on multiple servers. If you are uncertain which services must be disabled, see the current planning forms.
   d. If the **Status** for any **MM** service that is required for this server is **Stopped** or blank:
      1. Click **Start** > **Run** to open the Run window.
      2. In the **Open** field, type the following and press **Enter**:

         C:\Avaya_Support\Scripts\serverrecovery.vbs

         The script takes a few seconds to run. The program sets up all **MM** services correctly.
      3. Refresh the screen to verify that all **MM** services required for this server are **Started** and set to **Automatic**.
      4. If any required **MM** services are not set up correctly, repeat Step d.
   e. Close the Monitor or Computer Management window.
3. Continue with any verification procedures needed to return the system to full service.

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 Shutting down the server and removing AC power on page 124.
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 Shutting down the server and removing AC power on page 124.

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.

- 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 S3500-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.

Chapter 9: Adding or replacing MAS port boards

This chapter describes how to install or replace Dialogic port boards in an Avaya Messaging Application Server (Avaya MAS) that uses S3500-family hardware.

Topics in this chapter include:

Adding or replacing port boards in an S3500-family MAS

Use this procedure to:

- Add a port board to an MAS if needed to support additional traffic
- Reseat a port board to determine if a board is faulty or just loose
- Replace a faulty port board in an Avaya MAS

You must turn off the MAS to replace or add a port board.

Note:

For a summary of MAS port boards supported in S3500-family servers, see Supported MAS port boards on page 16.

Preparing for port board maintenance

Before you add or replace Dialogic port boards in an Avaya MAS:

1. If the MAS is already in operation, you must take the server out of service to install the port boards. Schedule and publicize a time.
2. Verify that the replacement equipment is on site and appears to be in usable condition, with no obvious shipping damage.

   CAUTION:

   Verify that the new board is of the same type as any port boards that are already installed. You cannot mix port board types in a single MAS.
3. Verify that the replacement port board is of the same type as the board you are replacing.

Note:

New QSIG port boards have a single connector. The early E1-QSIG and T1-QSIG port boards have two connectors, with a plug in the unused connector on the faceplate. Both types of QSIG boards operate identically. Figure 43: Replacing a port board in an S3500-family MAS on page 140 shows the early QSIG board in PCI slot 2, and the current QSIG board in PCI slot 3.

4. Print out the appropriate Dialogic PDF file for more information. For a list of the Dialogic documents that support each type of board, see Table 7: Supported MAS port boards—S3500-family servers on page 16.

   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.

   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.

5. 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.

6. Before you shut down the server, write down the Dialogic board settings for each board in the MAS. You must verify these settings after you replace or install a new board:

   a. On the appropriate MAS, click **Start** > **Programs** > **Intel Dialogic System Release** > **Configuration Manager - DCM**.

   b. In the Intel Dialogic product Configuration Manager window, double-click the name of each Dialogic board, such as *#0*.

   c. In the Intel Dialogic product Configuration Manager - Properties window, note the properties important for this type of board. For example:

      - For QSIG boards:
        - Click the **Interface** tab and note the **ISDNProtocol** parameter.
        - Click the **Telephony Bus** tab and note the **PCMEncoding** parameter.
        - Click the **Misc** tab and note the **FirmwareFile2** parameter, such as *spfax.fwl*.
        - Click the **Country** tab and note the **Country** parameter.
      - For DSE boards:
        - Click the **Telephony Bus** tab and note the **PCMEncoding** parameter.
        - Click the **Misc** tab and note the **FirmwareFile** parameter, such as *D82U.fwl*. Also note the **PBXSwitch** parameter, such as *Lucent 2-wire*.

- Click the **Country** tab and note the **Country** parameter.

- For analog boards:
  - Click the **Files** tab and note the **TSFFileName** parameter, such as *Avaya-G3-US.tsf*.
  - Click the **Misc** tab and note the **FirmwareFile** parameter, such as *spfax.fwl* or *default.fwl*. Also verify that the **TSFFileSupport** parameter and the **DisconnectTone** parameters are set to **Yes**.

Starting port board installation or repair

To start the port board installation or repair procedure:

1. Prepare to open the MAS:
   a. Shut down the server. For more information, see Shutting down the server and removing AC power on page 124.
   b. Unplug the AC power cord.

WARNING:
The power cord set provided with this product must be used with this product only. Do not use the cord set with any other product, and do not use a different cord set with this product. Using the wrong cord set could lead to hazardous incidents such as electric shock, fire, and faulty operation.

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2. *For a rack-mount setup,* remove the server from the cabinet.
   a. Prepare a clear area as a work surface for the server.
   b. Unplug all cables from the back of the server. Label all cables so you can easily reconnect them.
   c. Press the release clips on the rails to fully extend the rail.
   d. Lift the server off the rails, and set the server on the work surface. For safety considerations, get another person to assist you with lifting the server.

3. Remove the top cover. Push the blue release buttons on the cover and slide the cover towards the back. For more information, see Removing the top cover on page 125.

   CAUTION:

   Observe proper electrostatic discharge (ESD) precautions when you handle computer components. Wear an antistatic wrist strap that touches your bare skin and connect the strap cable to an earth ground. For complete ESD instructions, see Protecting against ESD damage on page 133.

4. Remove the PCI card cage:

   a. Pull straight up on the lifting straps at each end of the card cage. See Item 1 in Figure 42: Removing the PCI card cage in an S3500-family MAS on page 139.

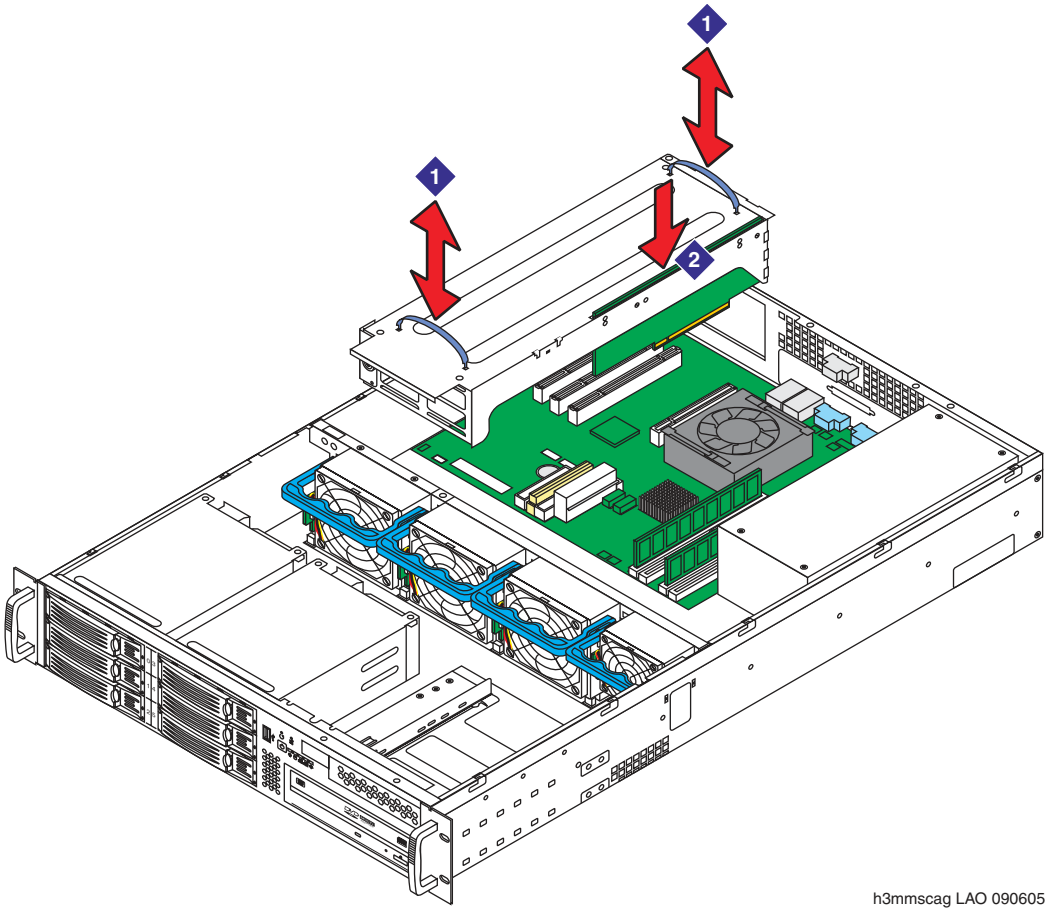
   b. Set the card cage on its side on a firm surface.

5. Remove the circuit card retaining bracket. See Item 1 in Figure 43: Replacing a port board in an S3500-family MAS on page 140.

   a. Loosen the thumb screw on the retaining bracket.

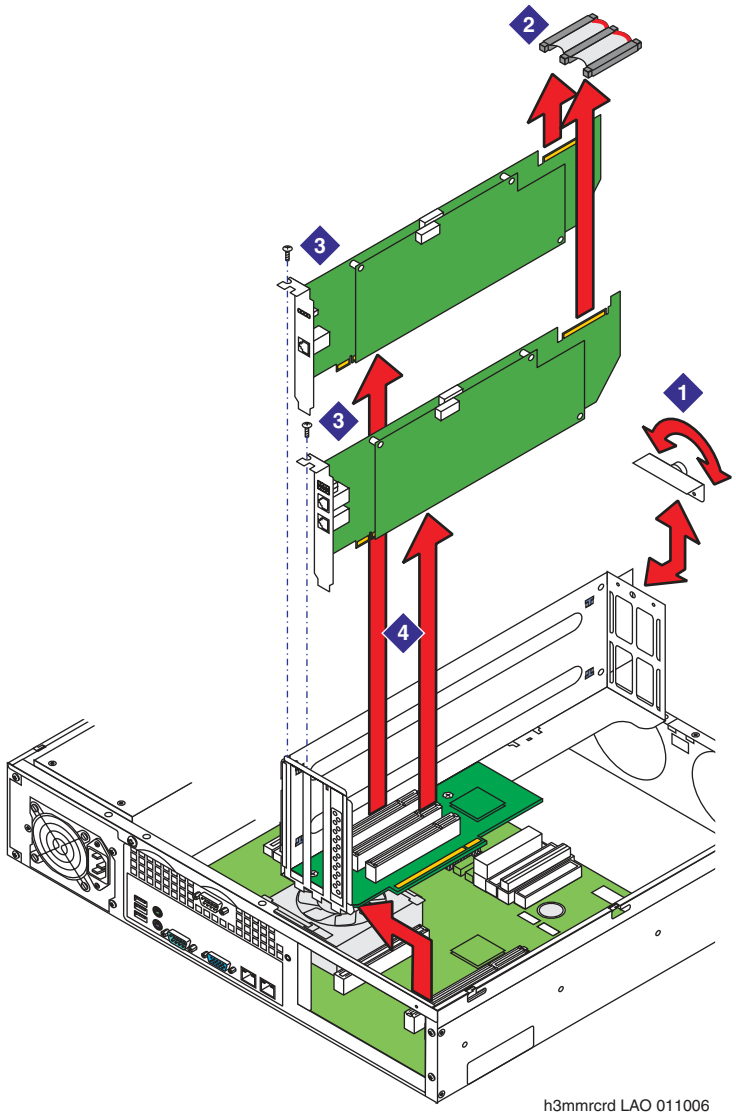
   b. Lift the retaining bracket off the PCI card cage.

Figure 42: Removing the PCI card cage in an S3500-family MAS



6. Continue with the appropriate procedure:
   - Reseating or removing a port board on page 140
   - Moving a port board on page 142
   - Adding a port board on page 142

Figure 43: Replacing a port board in an S3500-family MAS



Reseating or removing a port board

To reseat or replace an MAS port board:

1. Locate the port board you want to reseat or replace.
2. To reseat a potentially faulty board:
   a. Ensure that the board is securely seated in the slot connector.

b. Verify that all cable attachments to this board are secure. For example, check the Computer Telephony (CT) bus cable that connects multiple port boards.

- If the board and its cables were securely seated, continue with Step 3.
- If the board or cable connections were improperly seated, replace the PCI card cage. Continue with Step 7 in Installing port boards on page 147. After you return the MAS to service, verify that the problem is fixed.

3. To remove a faulty board:

a. Remove any interior cables connected to the port board you must replace, such as the CT bus cable that connects multiple port boards. See Item 2 in Figure 43: Replacing a port board in an S3500-family MAS on page 140.

b. Unscrew the retaining screw that attaches the port board faceplate to the PCI card cage. Set the screw aside. See Item 3 in Figure 43.

c. Lift the port board straight out.

Note:

Early E1-QSIG and T1-QSIG port boards have a plug in the unused connector on the faceplate. You must remove the plug to lift out or replace the port board. QSIG port boards that ship after mid-2005 have only a single connector. Both types of QSIG boards operate identically. Figure 43 shows the early QSIG board in PCI slot 2, and the current QSIG board in PCI slot 3.

4. Cycle power on the MAS to clear out the settings for the faulty board:

a. Leave the cover off. Plug in the cables for the monitor, keyboard, and mouse.

b. Plug in the AC power cord. Let the server boot completely.

c. After the reboot is complete, shut down the server software. Click **Start** > **Shut Down**, and then click **OK**.

d. After the server turns off, unplug all cables from the back of the server.

CAUTION:

If you do not cycle power on the empty server, the system might not recognize the new board. If the system retains the old settings, you might have to remove all the port boards, reboot the empty server, then reinstall all port boards. You must then manually reconfigure all port boards to correct the problem.

5. Continue with Setting jumpers and switches on page 142.

Note:

Compare the settings on the old port board and the replacement port board. Ensure that the replacement port board uses the same settings.

Moving a port board

You can move a port board from one MAS to another. For example, you might need to balance traffic or replace a server. To reseat or replace an MAS port board:

1. Ensure that the board you move is of the same type as any other port boards that might already be installed in the target MAS.
2. Follow the steps for removing a faulty board. For this procedure, see Step 3 in Reseating or removing a port board on page 140.

   Note:

   If you are moving an MAS port board from an S3400-family server to an S3500-family server, you must remove the port board handle. The handle secured the port board inside the S3400-family chassis, and is no longer needed. Remove the two Phillips screws that connect the handle to the port board.
3. Verify that the settings are correct for the board in the new server. Continue with Setting jumpers and switches on page 142.

Adding a port board

To add an MAS port board to a server:

1. Remove the cover for the PCI slot in which you want to install the new board.
   - Use only the top two PCI slots in the card cage. The slots are labeled **PCI3** and **PCI2**.
   - If you are installing only one port board in this MAS, use the top slot, **PCI3**.
2. Continue with Setting jumpers and switches on page 142.

Setting jumpers and switches

Set the jumpers and switches for board position, bus termination, and other features as described in this section. For jumper or switch locations, see the Dialogic documentation.

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.

To set the jumpers and switches on each board:

1. Remove the new port board from its packaging. Do not touch the circuit board surface.
2. Set the jumpers and switches as required for this type of board:

D/480JCT-1T1 and D/600JCT-1E1 QSIG board settings

To set up Dialogic T1 or E1 QSIG boards, you must set only the board ID for the port board.

1. Turn the rotary switch, located on the top of the port board. Set the board ID according to the slot number in which the board is installed. See Table 13.

Table 13: D/480JCT-1T1 and D/600JCT-1E1 QSIG board ID settings

Card number	Board ID number	PCI slot number
1	0	3
2	1	2

Note:

You do *not* need to set the Computer Telephony (CT) bus for bus termination if more than one QSIG board is installed in an MAS.

2. Continue with Installing port boards on page 147.

D/82JCT-U or D/82JCT-U PCI Univ set emulation board settings

Note:

Avaya supports the non-universal D/82JCT-U board for upgrades only.

To set up Dialogic digital set emulation (DSE) boards, you must set only the bus termination.

1. If the server has more than one port board, set the boards on both ends of the Computer Telephony (CT) bus for bus termination. Use jumper **P8** to set CT bus termination as shown in Table 15.

To set up dialogic DSE boards:

2. Set the card into the appropriate PCI slot. See Table 14

Table 14: D/82JCT -U or D/82JCT -U PCI Univ Set emulation board settings

Card number	PCI slot number
1	3
2	2

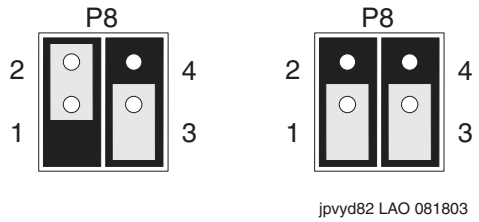
Table 15: D/82JCT-U set emulation board settings for CT bus termination

Number of cards	P8 jumper	CT bus termination
1	OFF	Do not terminate bus.
2	Card 1: ON pins 1 and 2 Card 2: ON pins 1 and 2	Terminate bus on both boards.

Figure 44: D/82JCT-U board settings for CT bus termination: ON or OFF on page 144 shows the **P8** jumper settings.

- The setting on the left is ON. Pins 1 and 2 are jumpered. If set, the CT bus is terminated.
- The setting on the right is OFF.

Figure 44: D/82JCT-U board settings for CT bus termination: ON or OFF



3. Continue with Installing port boards on page 147.

D/120JCT-LS 12-port analog board settings

To set up Dialogic 12-port analog boards:

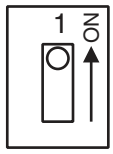
1. Set the unique board ID for the port board. Turn the rotary switch, located on the top of the board. Set the board ID according to the slot number in which the port board is installed. See Table 16.

Table 16: D/120JCT-LS 12-port analog board ID settings

Card number	Board ID number	PCI slot number
1	0	3
2	1	2

2. Set the hook-switch state of the port board to **ON** so callers hear a busy signal when the board is not initialized. Use the **SW1** switch, located at the top of the board, to set the hook-switch state. See Figure 45: D/120JCT-LS analog board setting for on-hook switch on page 145.

Figure 45: D/120JCT-LS analog board setting for on-hook switch



jpvysw1 LAO 081803

3. Continue with Installing port boards on page 147.

D/41JCT-LS 4-port analog board settings

To set up Dialogic 4-port analog boards:

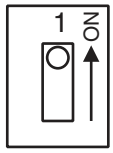
1. Set the unique board ID for the port board. Turn the rotary switch, located on the top of the board. Set the board ID according to the slot number in which the board is installed. See Table 17.

Table 17: D/41JCT-LS 4-port analog board ID settings

Card number	Board ID number	PCI slot number
1	0	3
2	1	2

2. Set the hook-switch state of the port board to **ON** so callers hear a busy signal when the board is not initialized. Use the red **SW4** switch, located near the top of the board, to set the hook-switch state. See Figure 46.

Figure 46: D/41JCT-LS analog board setting for on-hook switch



jpvysw1 LAO 081803

3. If the server has more than one port board, set the boards on both ends of the Computer Telephony (CT) bus for bus termination. Use jumper **JP2** to set CT bus termination as shown in Table 18.

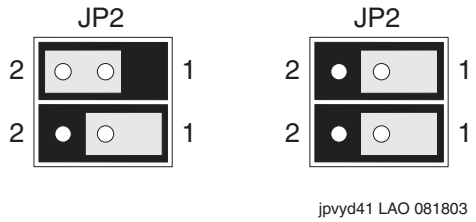
Table 18: D/41JCT-LS analog board settings for CT bus termination

Number of cards	JP2 jumper	CT bus termination
1	OFF	Do not terminate bus.
2	Card 1: ON pins 1 and 2 Card 2: ON pins 1 and 2	Terminate bus on both boards.

Figure 47 shows the **JP2** jumper settings.

- The setting on the left is ON. Pins 1 and 2 are jumpered. If set, the CT bus is terminated.
- The setting on the right is OFF.

Figure 47: D/41JCT-LS analog board settings for CT bus termination: ON or OFF



Installing port boards

After you verify that the settings are correct, install the MAS port board:

CAUTION:

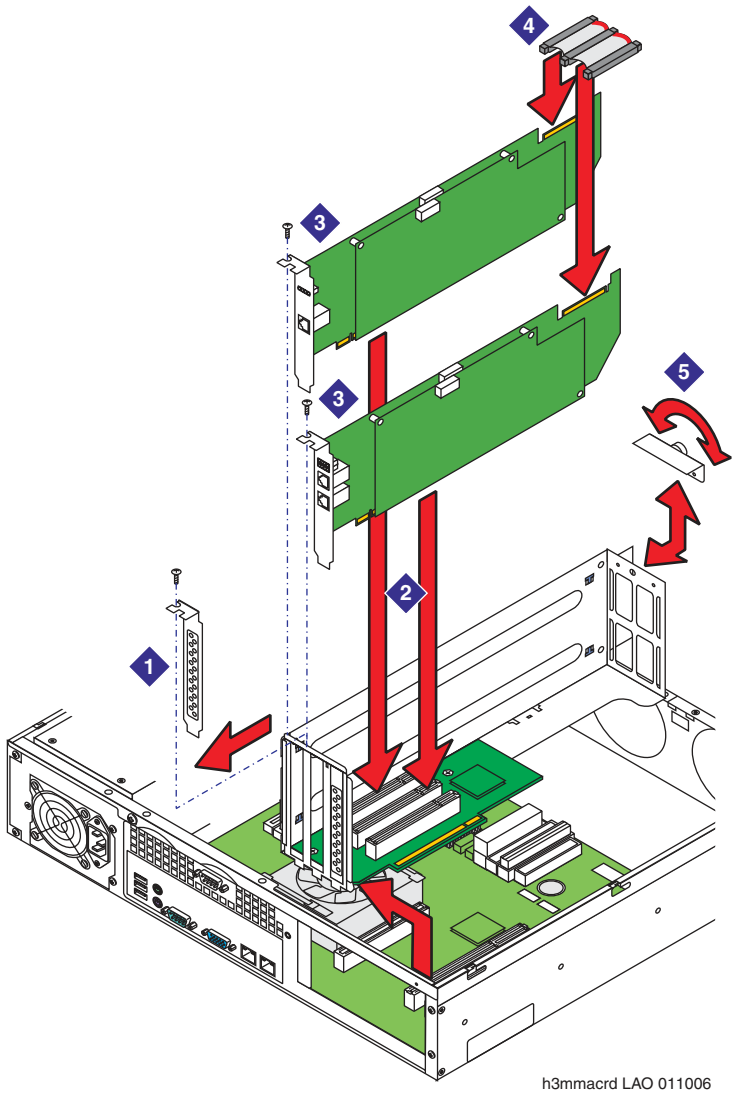
Verify that all port boards in an MAS are of the same type. You cannot mix board types within the same MAS, such as analog boards with DSE or QSIG.

1. If needed, remove the cover for the PCI slot in which you want to install the new board. Set the retaining screw aside. See Item 1 in Figure 48: Adding or installing a port board in an S3500-family MAS on page 148.
2. Align the new port board so that it slides into the appropriate guide groove and slot connector on the PCI card cage. See Item 2 in Figure 48.

   Note:

   Place Dialogic port boards *only* in the upper two PCI slots in the card cage. To install only one port board in the server, use the middle slot, **PCI2**. For example purposes, Figure 48 shows an early QSIG board in PCI slot 2, and the current QSIG board in PCI slot 3.
3. Apply pressure to the top of the port board only. Push down until the edge connector is firmly seated.

Figure 48: Adding or installing a port board in an S3500-family MAS



4. Replace and tighten the retaining screw for the port board. See Item 3 in Figure 48: Adding or installing a port board in an S3500-family MAS on page 148.
5. *If the MAS has multiple port boards,* attach the Computer Telephony (CT) bus cable to connect the port boards. See Item 4 in Figure 48.
   a. Position the CT bus cable so the colored stripe on the ribbon cable faces the ports at the back of the card cage.
   b. Attach the end connector on the bus cable to the CT bus edge connector at the top of the board. Start with port board in the top slot, **PCI3**.

c. Connect the next bus connector to the port board in slot **PCI2**.

6. Replace the circuit card retaining bracket. See Item 5 in Figure 48.
   a. The retaining bracket has two tabs. Insert the tabs into the corresponding holes at the back of the PCI card cage.
   b. Seat the retaining bracket solidly over the CT bus cable, if present, and port boards.
   c. Push in the thumb screw and turn to tighten the bracket in place.
7. Replace the PCI card cage:
   a. Align the edge connector on the riser card in the card cage with the correct slot connector on the server board. Use **SLOT 6 (PCI 32/33)** on the server board.
   b. Push straight down on the card cage until the riser card is firmly seated.
8. Replace the top cover. For more information, see Replacing the cover on page 128.
9. *For a rack-mount setup,* return the server to the cabinet.
   a. Guide the server onto the fully extended rails.

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

   b. Push in the release lock, the front latch, to slide the server into the cabinet.
   c. Plug in all cables at the back of the server.
10. Plug in the AC power cord to restore power to the server. For more information, see Restoring power to the server on page 128.
11. Continue as appropriate:
    - If you added an MAS port board, continue with Connecting MAS port boards to the switch on page 149.
    - If you replaced a faulty port board, continue with Configuring and testing the new port board on page 151.

Connecting MAS port boards to the switch

If you added a port board to an MAS, connect the new port board to the PBX (switch).

To connect 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 board faceplate to verify that you are connecting the correct cable to the correct port.

- **For E1-QSIG or T1-QSIG boards:**
  a. Connect the port on the Dialogic E1-QSIG or T1-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.

Configuring and testing the new port board

After the hardware installation is complete, you must configure and test the new Dialogic port board. After you verify correct operation, you can return the server to service.

Note:

The procedures in this section apply only to an MAS that was already in service. If you installed port boards into a new MAS, you must configure the MAS using the Avaya Modular Messaging Configuration wizard and the most current DCT data file. For example, you might add an MAS to a system as part of a Release 3 upgrade. To bring a new server into service, see *Avaya Modular Messaging Installation and Upgrades* http://www.avaya.com/support.

To configure the new port board and verify all Dialogic board settings:

1. After the server boots, log on to the server using any valid Modular Messaging account that has local administration privileges. Valid accounts include the technical support account, such as *craft*.
2. Use the Dialogic Configuration Manager to configure the new port board. For this procedure, see the port board appendix in *Avaya Modular Messaging Installation and Upgrades*.

   Note:

   If you reseat, replace, or add a Dialogic board, you might need to reconfigure all the Dialogic boards in the MAS.
3. Use the Dialogic Configuration Manager to verify the settings for all Dialogic port boards in the MAS. See the settings you noted in Step 6 in Preparing for port board maintenance on page 135.
4. If the PBX administrator busied out the MAS ports on the switch, the administrator must now bring the MAS ports back into service.
5. Test the Dialogic port board using the Dialogic Line Test application. For this procedure, see the port board appendix in *Avaya Modular Messaging Installation and Upgrades*.
6. Verify that any port board alarms are resolved. For more information, see *Avaya Modular Messaging Software Messaging Application Server Administration Guide* available at http://www.avaya.com/support or "MSS alarms" under **Maintenance** on the documentation media.

Chapter 10: Replacing MSS circuit boards

This chapter describes how to replace circuit boards and their associated cables inside an Message Storage Server (MSS) that uses S3500-family hardware.

Topics in this chapter include:

Replacing the RMB

Both models of Message Storage Server (MSS), MSS-S and MSS-H, use a remote maintenance board (RMB) to report alarms and enable remote technical support.

You can replace the RMB on-site. You can also use this procedure to reseat the RMB or reset cable to determine if the RMB is faulty or just had loose connections.

Removing the PCI card cage in an MSS

To prepare to replace the RMB in an S3500-family MSS:

1. Verify that the replacement equipment is on site and appears to be in usable condition, with no obvious shipping damage.
2. Prepare to open the server:
   a. Shut down the server. For more information, see Shutting down the server and removing AC power on page 124.
   b. Unplug the AC power cord.

WARNING:

The power cord set provided with this product must be used with this product only. Do not use the cord set with any other product, and do not use a different cord set with this product. Using the wrong cord set could lead to hazardous incidents such as electric shock, fire, and faulty operation.

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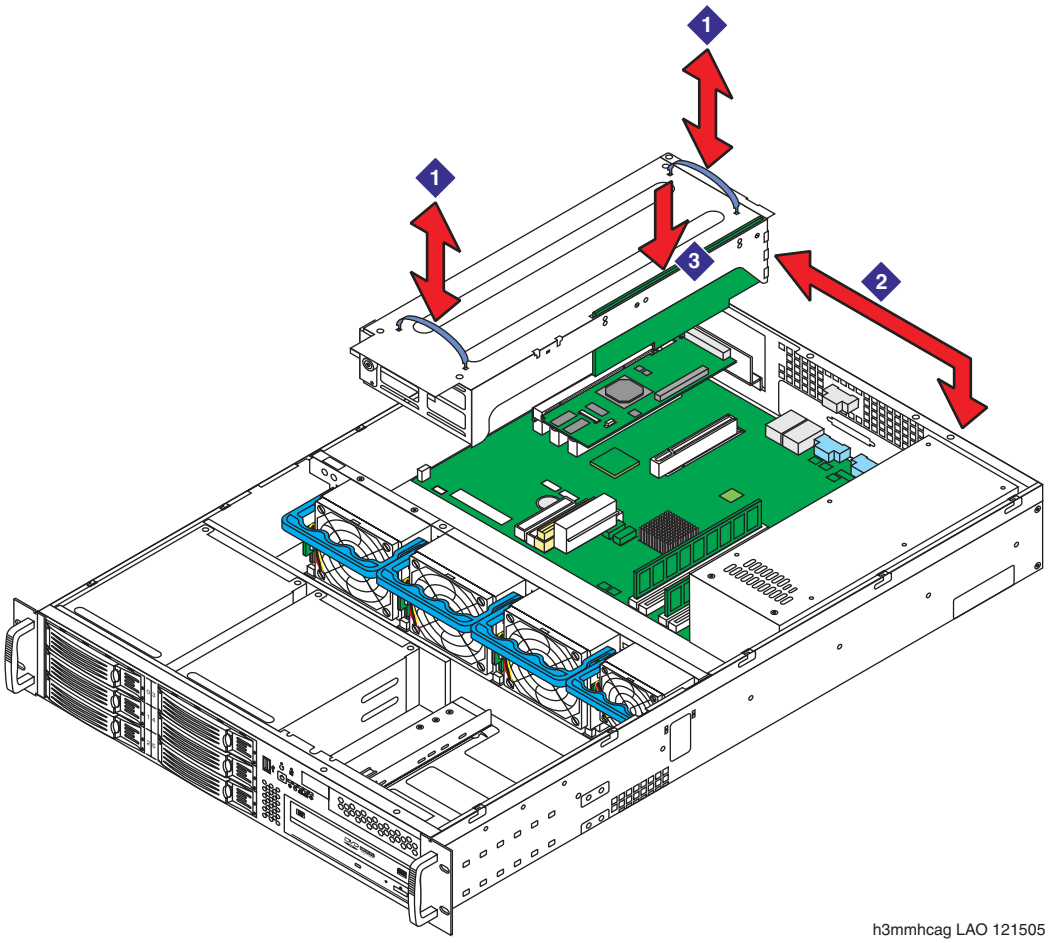
3. *For a rack-mount setup,* remove the server from the cabinet.
   a. Prepare a clear area as a work surface for the server.
   b. Unplug all cables from the back of the server. Label all cables so you can easily reconnect them.
   c. Press the release clips on the rails to fully extend the rail.
   d. Lift the server off the rails, and set the server on the work surface. For safety considerations, get another person to assist you with lifting the server.
4. Remove the top cover. Push the blue release buttons on the cover and slide the cover towards the back. For more information, see Removing the top cover on page 125.

   CAUTION:

   Observe proper electrostatic discharge (ESD) precautions when you handle computer components. Wear an antistatic wrist strap that touches your bare skin and connect the strap cable to an earth ground. For complete ESD instructions, see Protecting against ESD damage on page 133.
5. Unplug the short cable from the RMB that connects the RBM to the COM2 serial port.
6. Remove the PCI card cage:
   a. Pull straight up on the lifting straps at each end of the card cage. See Item 1 in Figure 49.
   b. The RMB reset cable connects the RMB to the server board. Carefully tip the card cage on its side. See Item 2 in Figure 49.

Figure 49: Removing the PCI card cage in an S3500-family MSS



c. Rest the PCI card cage on a firm base, such as the fans or the power supply housing.

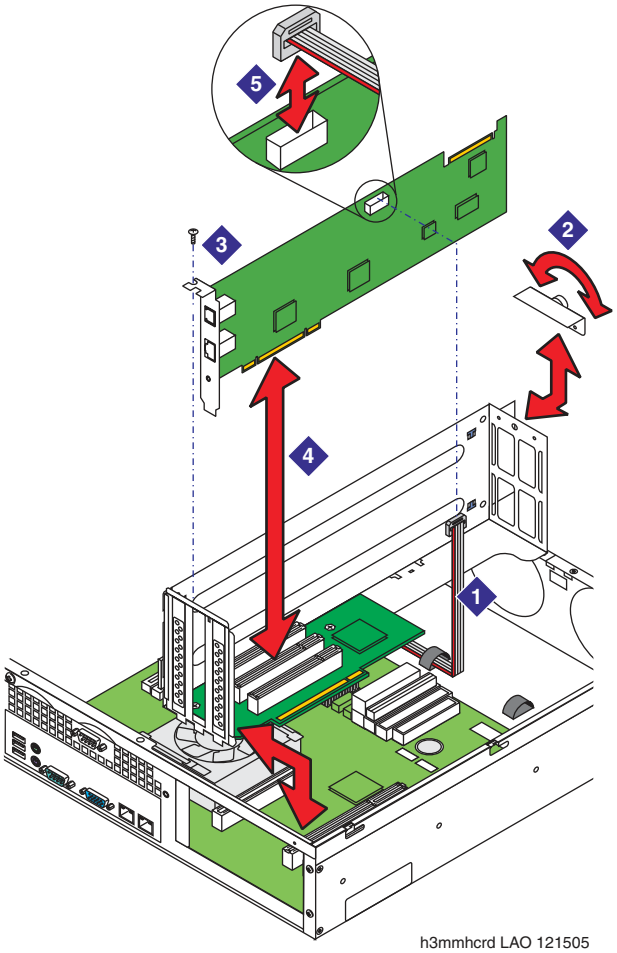
Replacing the RMB

To replace the RMB:

1. Before you replace the RMB, verify that the RMB is seated securely in the slot connector. Also verify that the RMB reset cable is securely connected to the RMB.
   - If the RMB connections were loose, reseating them might fix the problem. Continue with Replacing the PCI card cage and verifying RMB operation on page 157.
   - If the RMB connections were secure, continue with Step 2.

2. Unplug the RMB reset cable. See Item 1 in Figure 50: Replacing the RMB in an S3500-family MSS on page 157.
3. Remove the circuit card retaining bracket. See Item 2 in Figure 50.
   a. Loosen the thumb screw on the retaining bracket.
   b. Lift the retaining bracket off the PCI card cage.
4. To remove the RMB:
   a. Unscrew the retaining screw that attaches the RMB faceplate to the PCI card cage. Set the screw aside. See Item 3 in Figure 50.
   b. Lift the RMB straight out.
5. Insert the new RMB:
   a. Remove the new RMB from the anti-static bag. Do not touch the circuit board surface.
   b. Align the RMB so that it slides into the appropriate guide groove and slot connector on the PCI card cage. Place the RMB *only* in the middle slot, **PCI2**. See Item 2 in Figure 50.
   c. Apply pressure to the top of the RMB only. Push down until the edge connector is firmly seated.
   d. Replace and tighten the retaining screw for the RMB. See Item 3 in Figure 50.
6. Replace the circuit board retaining bracket. See Item 2 in Figure 50.
   a. The retaining bracket has two tabs. Insert the tabs into the corresponding holes at the back of the PCI card cage.
   b. Seat the retaining bracket solidly over the RMB.
   c. Push in the thumb screw and turn to tighten the bracket in place.
7. Rest the PCI card cage on the fans so you have sufficient slack, and then attach the RMB reset cable. Connect the reset cable from the underside of the RMB, so the cable does not interfere with the replacement of the PCI card cage. See Item 5 in Figure 50.

Figure 50: Replacing the RMB in an S3500-family MSS



Replacing the PCI card cage and verifying RMB operation

To replace the PCI card cage and verify correct RMB operation:

1. Replace the PCI card cage:
   a. Align the edge connector on the riser card in the card cage with the correct slot connector on the server board. Use **SLOT 6 (PCI 32/33)** on the server board.
   b. Push straight down on the card cage until the riser card is firmly seated. See Item 3 in Figure 49: Removing the PCI card cage in an S3500-family MSS on page 155.
2. Replace the top cover. For more information, see Replacing the cover on page 128.

3. *For a rack-mount setup,* return the server to the cabinet.
   a. Guide the server onto the fully extended rails.

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

   b. Push in the release lock, the front latch, to slide the server into the cabinet.
   c. Plug in all cables at the back of the server. Ensure that you also reconnect the short cable from the RMB to the COM2 serial port.
4. Plug in the AC power cord to restore power to the server. For more information, see Restoring power to the server on page 128.
5. To verify that the new RMB is working:
   a. After the server boots, test RMB functionality. For example, call in to the board and run standard inquiries.
   b. Verify that any RMB alarms are resolved. For more information, see the *Avaya Modular Messaging Documentation* media.

Note:
For more information about the RMB, see *Remote Maintenance Board (RMB) CYN23AP and CYN24AP Reference*. This document is available through the Avaya Support Web site at http://www.avaya.com/support. Under **Find documentation and downloads by product name**, click **Modular Messaging**.

Replacing the SCSI RAID controller board—MSS-H

The Avaya Message Storage Server High Availability version (MSS-H) contains a field-replaceable controller board for the SCSI RAID disk drive array.

To replace the SCSI RAID controller board in an S3500-family MSS-H:

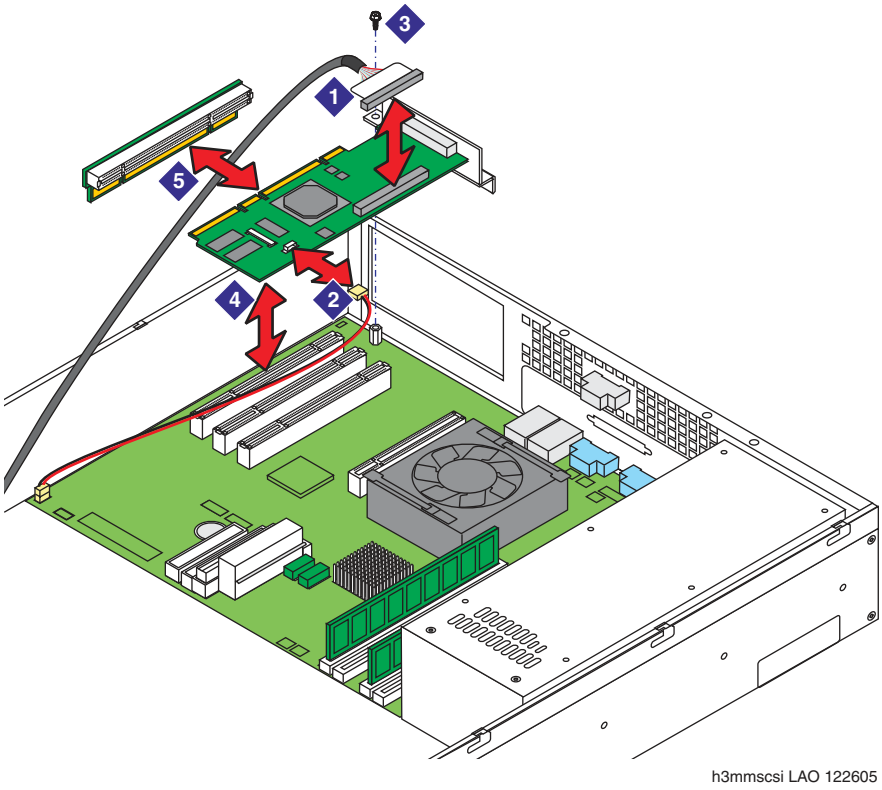
1. Verify that the replacement equipment is on site and appears to be in usable condition, with no obvious shipping damage.
2. Remove the PCI card cage. For complete steps, see Removing the PCI card cage in an MSS on page 153.
3. To remove the SCSI RAID controller board:
   a. Unplug the 80-pin controller cable to the SCSI RAID disk drive array. See Item 1 in Figure 51: Replacing the SCSI RAID controller board in an S3500-family MSS-H on page 159.
   b. Unplug the small SCSI RAID activity indicator cable. See Item 2 in Figure 51.

c. Unscrew the retaining screw that attaches the bracket on the SCSI RAID controller board to the server board. Set the screw aside. See Item 3 in Figure 51.

d. Lift the SCSI RAID controller board straight up to remove the board.

e. Remove the riser card from the edge connector on the SCSI RAID controller board. See Item 5 in Figure 51.

Figure 51: Replacing the SCSI RAID controller board in an S3500-family MSS-H



4. To replace the SCSI RAID controller board:

a. Remove the new board from the anti-static bag. Do not touch the circuit board surface.

b. Place the SCSI RAID controller board on a clean, static-free surface. With the bottom edge of the board well supported, push the riser card onto the edge connector until the riser card is solidly seated.

c. Align the edge connector on the riser card with the first slot connector on the server board. Use **SLOT 1 (PCI 64/66)** on the server board.

d. Apply pressure to the top of the riser card. Push straight down until the edge connector is firmly seated. See Item 4 in Figure 51.

e. Replace and tighten the retaining screw for the SCSI RAID controller board. See Item 3 in Figure 51: Replacing the SCSI RAID controller board in an S3500-family MSS-H on page 159.

f. Replace the two cables to the SCSI RAID controller board.

5. Replace the PCI card cage:

a. Align the edge connector on the riser card in the card cage with the correct slot connector on the server board. Use **SLOT 6 (PCI 32/33)** on the server board.

b. Push straight down on the card cage until the riser card is firmly seated. See Item 3 in Figure 49: Removing the PCI card cage in an S3500-family MSS on page 155.

6. Replace the top cover. For more information, see Replacing the cover on page 128.

7. *For a rack-mount setup,* return the server to the cabinet.

a. Guide the server onto the fully extended rails.

CAUTION:

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

b. Push in the release lock, the front latch, to slide the server into the cabinet.

c. Plug in all cables at the back of the server. Ensure that you also reconnect the short cable from the RMB to the COM2 serial port.

8. Plug in the AC power cord to restore power to the server. For more information, see Restoring power to the server on page 128.

9. To verify that the new board is working:

a. After the server boots, verify that the application software loads correctly. If the disk accesses data correctly, the SCSI RAID controller board is working.

b. Verify that any circuit board alarms are resolved. For more information, see "MSS alarms" under **Maintenance** on the documentation media.

Replacing SCSI RAID controller board cables—MSS-H

You can replace the two cables to the SCSI RAID controller board in an Avaya Message Storage Server High Availability version (MSS-H). This section describes replacement procedures for both cables. Replace either or both cables as required:

- 2-pin SCSI drive activity indicator cable for the SCSI RAID array
- 80-pin controller cable for the SCSI RAID disk drive array

To replace a SCSI RAID controller board cable in an S3500-family MSS-H:

1. Verify that the replacement equipment is on site and appears to be in usable condition, with no obvious shipping damage.
2. Remove the PCI card cage. For complete steps, see Removing the PCI card cage in an MSS on page 153.
3. To replace the SCSI drive activity indicator cable:
   a. Unplug the activity indicator cable from the SCSI RAID controller board. See Item 1 in Figure 52: Replacing cables for the SCSI RAID controller board in an S3500-family MSS-H on page 162.
   b. Unplug the other end of the activity indicator cable from the 2-pin connector on the server board labeled **J1 SCSI HDD LED**.
   c. Position the 2-pin connector on the new activity indicator cable so the latch hooks onto the notch in the **J1 SCSI HDD LED** connector.
   d. Connect the other end of the new activity cable to the SCSI RAID controller board.
4. To replace the 80-pin controller cable for the SCSI RAID disk drive array:
   a. Unplug the controller cable from the SCSI RAID controller board. See Item 2 in Figure 52: Replacing cables for the SCSI RAID controller board in an S3500-family MSS-H on page 162.
   b. Open the dress clip and remove the controller cable. See Item 3 in Figure 52.
   c. Pull on the tab to unplug the controller cable connector from the SCSI RAID array backplane. See Item 4 in Figure 52. Set the old cable aside.
   d. Connect the new controller cable to the 80-pin connector on the SCSI RAID array backplane.
   e. Connect the other end of the new controller cable to the SCSI RAID controller board.

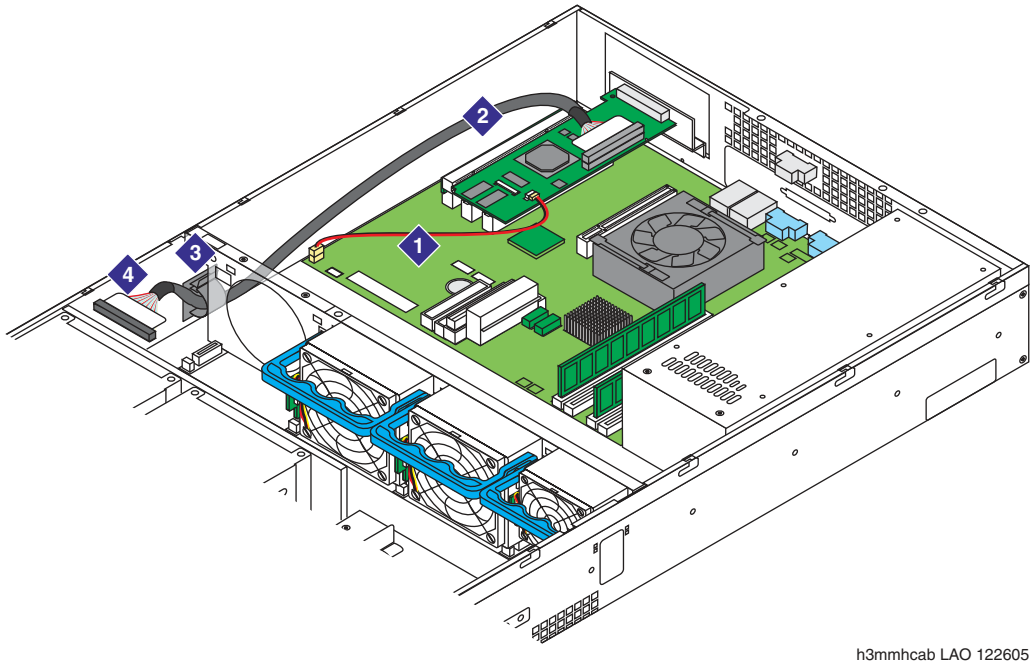
   CAUTION:
   Support the connector on the SCSI RAID controller board with your fingers when you press down to seat the new controller cable.

   f. Dress the new controller cable under the dress clip. Press on the clip to snap the clip shut.

Note:

Fold the new cable carefully so it fits neatly into the chassis, but do not stress the cable. Ensure that you tuck all required cables into the dress clip.

Figure 52: Replacing cables for the SCSI RAID controller board in an S3500-family MSS-H



5. Replace the PCI card cage:
   a. Align the edge connector on the riser card in the card cage with the correct slot connector on the server board. Use **SLOT 6 (PCI 32/33)** on the server board.
   b. Push straight down on the card cage until the riser card is firmly seated. See Item 3 in Figure 49: Removing the PCI card cage in an S3500-family MSS on page 155.
6. Replace the top cover. For more information, see Replacing the cover on page 128.
7. *For a rack-mount setup,* return the server to the cabinet.
   a. Guide the server onto the fully extended rails.

   CAUTION:

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

   b. Push in the release lock, the front latch, to slide the server into the cabinet.

c. Plug in all cables at the back of the server. Ensure that you also reconnect the short cable from the RMB to the COM2 serial port.

8. Plug in the AC power cord to restore power to the server. For more information, see Restoring power to the server on page 128.
9. Verify that the new cable is working. After the server boots:
   - For a new SCSI drive activity indicator cable:
     a. Remove the front bezel to view the activity indicator lights for the SCSI disk drives.
     b. Check the activity indicator lights on each SCSI disk drive tray. If the LEDs show disk activity, the SCSI drive activity indicator cable is working.
     c. Replace the front bezel by hooking one end of the bezel into the notch near the chassis handle. Bend the middle of the bezel slightly outwards, and push the other end into place. For more information, see Attaching the front bezel on page 39.
   - For a new SCSI RAID controller cable, verify that the application software loads correctly. If the server boots correctly, the controller cable for the SCSI RAID array is working.
10. Verify that any relevant alarms are resolved. For more information, see "MSS alarms" under **Maintenance** on the documentation media.

Chapter 11: Replacing disk drives and drive cables

This chapter describes how to replace the various disk drives and disk drive cables inside an Avaya S3500-family message server.

Topics in this chapter include:

Replacing the DVD drive

Avaya message servers use different DVD devices for removable-media drives as follows:

- Messaging Application Server (MAS): The MAS uses a Digital Versatile Disc Read Only Memory (DVD-ROM) drive primarily to load system programs and updates. This DVD player is a read-only device.
- Message Storage Server (MSS): The MSS uses a Digital Versatile Disc Random Access Memory (DVD-RAM) drive to provide read/writable backup information for the system. The MSS-S and MSS-H use the same DVD-RAM drive. However, the internal cable arrangement varies between the two servers.

CAUTION:

You must replace a DVD drive with one of the same type, or the system will not work correctly. For example, you must replace the DVD-ROM player in the MAS only with another DVD player. You cannot interchange DVD-ROM and DVD-RAM drives between MAS and MSS-type servers.

To replace the removable-media drive in an S3500-family server:

1. Verify that the replacement equipment is on site and appears to be in usable condition, with no obvious shipping damage.
2. Verify that the replacement DVD drive is of the same type as the drive you are replacing.
3. Prepare to open the server:
   a. Shut down the server. For more information, see Shutting down the server and removing AC power on page 124.
   b. Unplug all AC power cords.

WARNING:

The power cord set provided with this product must be used with this product only. Do not use the cord set with any other product, and do not use a different cord set with this product. Using the wrong cord set could lead to hazardous incidents such as electric shock, fire, and faulty operation.

警告
本製品に同梱または付属している電源コードセットは、本製品専用です。本製品以外の製品ならびに他の用途で使用しなしでください。また本製品に、これ以外の電源コードセットを使用しないでください。火災、感電、故障の原因となります。

4. *For a rack-mount setup,* slide the server forward on the rails. You must remove the server from the cabinet only if you cannot reach underneath the server.
5. Remove the top cover. Push the blue release buttons on the cover and slide the cover towards the back. For more information, see Removing the top cover on page 125.

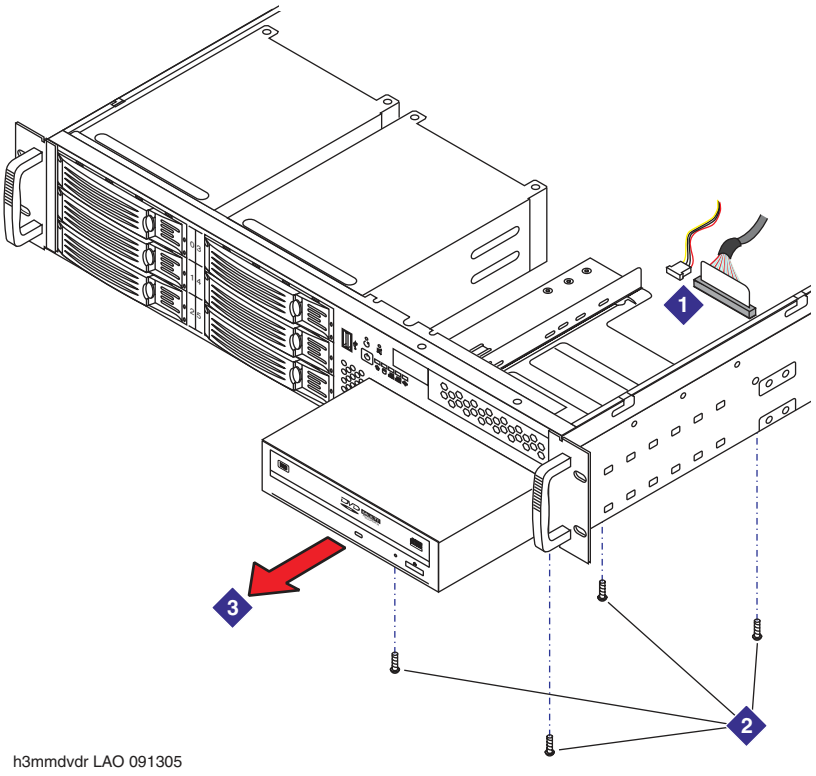
   CAUTION:

   Observe proper electrostatic discharge (ESD) precautions when you handle computer components. Wear an antistatic wrist strap that touches your bare skin and connect the strap cable to an earth ground. For complete ESD instructions, see Protecting against ESD damage on page 133.
6. Unplug the power cable and IDE signal cable for the DVD drive. See Item 1 in Figure 53.

   Note:

   Pull on the tab to remove the 80-pin IDE cable connector.
7. Remove the 4 small screws from the bottom of the DVD drive. See Item 2 in Figure 53.
8. Slide the DVD drive forward out of the chassis.

Figure 53: Replacing the DVD drive in an S3500-family server



Setting DVD drive jumper settings

Set up the replacement DVD drive to be a master or slave on the IDE bus. The jumper settings vary for each model of server.

- **MAS or MSS-S**: Always set the jumper for a MAS DVD-ROM or an MSS-S DVD-RAM to be a slave. See Figure 54.

  1. Locate the mode select connector, the 6-pin connector next to the IDE signal connector.
  2. Move the jumper to the 2 pins labeled **Slave**.

Figure 54: Jumper settings for the DVD drive in an MAS or MSS-S

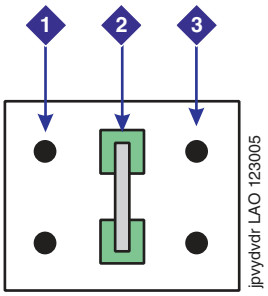


Figure notes:

1. **Cable select mode—not used**
2. **Slave mode—use for DVD on MAS and MSS-S**
3. **Master mode—not used**

- **MSS-H**: Set the jumpers for an MSS-H DVD-RAM drive as noted. See Figure 55.
  1. Locate the mode select connector, the 6-pin connector next to the IDE signal connector.
  2. Move the jumper to the 2 end pins labeled **Master**.

Figure 55: Jumper settings for the DVD-RAM drive in an MSS-H

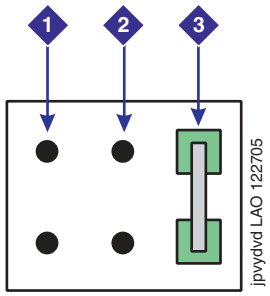


Figure notes:

1. **Cable select mode—not used**
2. **Slave mode—not used**
3. **Master mode—use DVD-RAM on for MSS-H**

Installing a new DVD drive

To install the replacement DVD drive:

1. Slide the DVD drive into the server so the front of the DVD faceplate is flush with the chassis.
2. Insert the 4 small screws from the bottom of the DVD drive. See Item 2 in Figure 53: Replacing the DVD drive in an S3500-family server on page 167.
3. Connect the power cable and IDE signal cable for the DVD drive. See Item 1 in Figure 53.
4. Replace the top cover. For more information, see Replacing the cover on page 128.
5. *For a rack-mount setup,* slide the server into the cabinet.
6. Plug in all AC power cords to restore power to the server. For more information, see Restoring power to the server on page 128.

Verifying DVD drive operation

Verify that the replacement DVD drive works correctly.

- **MAS**: To verify that a new DVD player is working:
  1. Insert a CD or DVD into the new drive.
  2. Verify that the server can access the disk:
     a. Double-click **My Computer**.
     b. Double-click the D: drive.
     c. Verify that the server displays the information on the disk correctly.

  Note:
  If the replacement DVD is a different model of drive, the system might prompt you to load new drivers. Follow the instructions on the screen.
- **MSS**: To verify that a new DVD-RAM drive is working:
  1. Insert a writable DVD disk into the new drive.
  2. Verify that the system can read from and write to the new drive by doing a backup.
     a. From the Messaging Administration main menu, select **Utilities** > **Backup and Restore** > **Backup**.
     b. To verify the results, select **View Attributes of Backup Media**. For more information, see "Backing up system files (attended)" on the documentation media.

Replacing an IDE drive—MAS or MSS-S

Two Avaya message servers use Integrated Drive Electronics (IDE) hard disk drives:

- Messaging Application Server (MAS): The MAS contains a single IDE hard disk drive. If the drive fails, the server cannot function until you replace the drive, reinstall the operating system, and restore crucial data from system backups.
- Avaya Message Storage Server Standard Availability version (MSS-S): The MSS-S uses a Redundant Array of Independent Disks (RAID) storage system to protect against customer data loss. Two IDE drives provide RAID level 1 redundancy, where the system writes data to both drives simultaneously, a feature known as *mirroring*. If one IDE drive fails, the system continues service using the good drive until the faulty drive is repaired.

  Note:

  If both the hard disk drives in an MSS-S are damaged, such as by a lightning strike, you must replace the entire server. For more information, see Chapter 15: Replacing a server on page 205.

Removing the IDE drive

To prepare to replace an IDE hard disk drive in an S3500-family server:

1. Verify that the replacement equipment is on site and appears to be in usable condition, with no obvious shipping damage.
2. *For an MAS,* If the system has more than one MAS, identify the server with the faulty drive.
   a. Switch the monitor to show each MAS or supplementary tracing server in turn. You cannot display or log in to the server with the faulty drive.
   b. Verify that the green power lamp on the front of the server with the faulty disk drive is dark. If the lamp is lit, press and hold the power button to turn off the server.

   Note:

   In the United Kingdom, if a modem is attached to the server, disconnect the telephone line before you unplug the power cord.
3. Prepare to open the server:
   a. Shut down the server. For more information, see Shutting down the server and removing AC power on page 124.
   b. Unplug all AC power cords.
4. *For a rack-mount setup,* slide the server forward on the rails. You must remove the server from the cabinet only if you cannot reach the IDE disk drive connectors inside the chassis.

5. Remove the top cover. Push the blue release buttons on the cover and slide the cover towards the back. For more information, see Removing the top cover on page 125.

   CAUTION:

   Observe proper electrostatic discharge (ESD) precautions when you handle computer components. Wear an antistatic wrist strap that touches your bare skin and connect the strap cable to an earth ground. For complete ESD instructions, see Protecting against ESD damage on page 133.

6. *On an MSS-S*, locate the correct IDE RAID disk drive to replace:

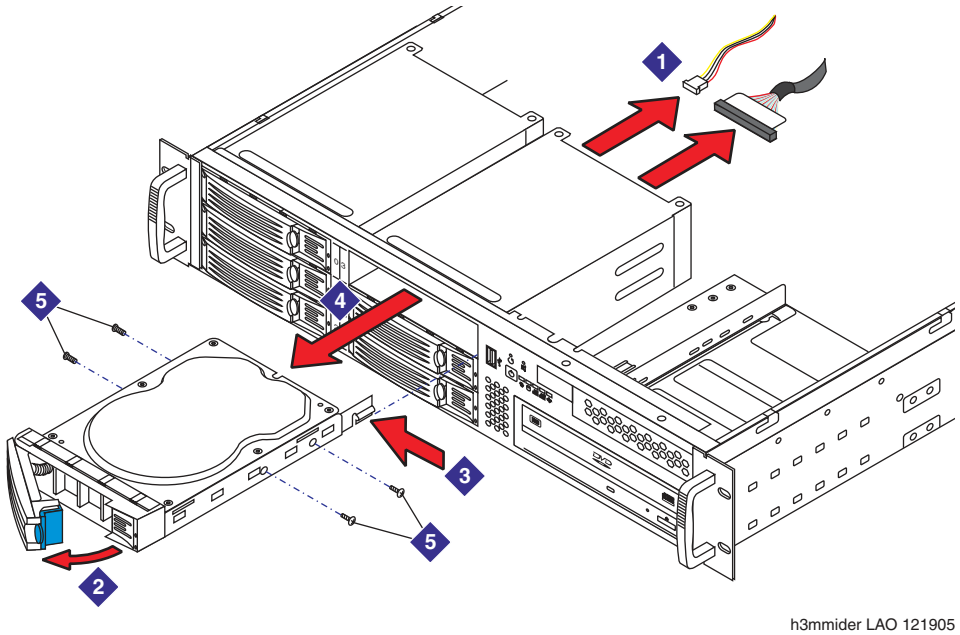
   - **hda**, hard disk drive A, is the drive installed in drive bay 0, next to the wall of the chassis. This drive is the only drive on the IDE cable, and connects to the primary IDE connector **PRI IDE** on the server board.
   - **hdc**, hard disk drive C, is the drive installed in drive bay 3, in the center of the chassis. This drive shares an IDE cable with the DVD drive, and connects to the secondary IDE connector **SEC IDE** on the motherboard.

7. Unplug the power cable and IDE signal cable for the faulty IDE drive. See Item 1 in Figure 56.

   Note:

   Pull on the tab to remove the 80-pin IDE cable connector.

Figure 56: Replacing an IDE hard disk drive in an S3500-family server



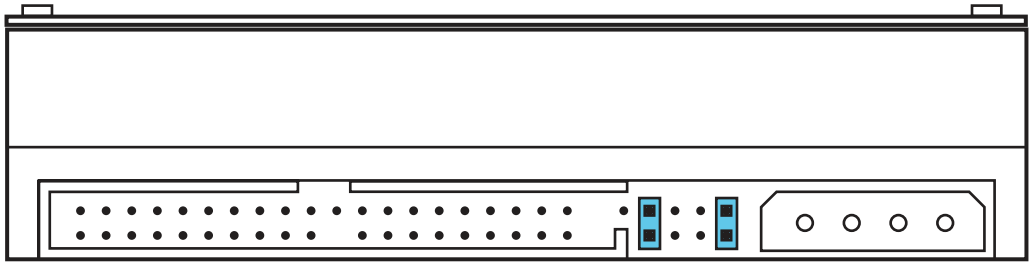
8. To remove the IDE drive tray:
   a. Press the front release latch for the disk drive bay. See Item 2 in Figure 56.
   b. Press the safety latch at the back of the drive tray to release the IDE disk drive. The latch prevents the IDE drive from being accidentally pulled out. See Item 3 in Figure 56: Replacing an IDE hard disk drive in an S3500-family server on page 172.
   c. Holding the safety latch inwards, pull on the handle to remove the tray from the server.
9. Place the drive tray on a clean, static-free surface. Remove the 4 mounting screws, 2 on each side, that secure the IDE disk drive to the tray. See Item 5 in Figure 56.
10. Lift out the faulty drive. Set the old drive aside.

Setting IDE drive jumper settings

Always configure the replacement IDE drive as the bus master. See Figure 57.

1. Locate the 9-pin master/slave connector on the back of the drive.
2. Place a jumper over the set of pins at either end of this connector to set up this drive as a master. Figures on the drive identify the different jumper settings.

Figure 57: Jumper settings for the IDE drive in an MAS or MSS-S



jpvyide LJK 080502

Note:
Always set the IDE drive to be the bus master as shown.

Installing a new IDE drive

To install the replacement IDE disk drive:

1. Remove the new IDE drive from the anti-static bag. Do not touch the circuit board surface.

2. Place the replacement IDE drive into the drive tray. Replace the 4 mounting screws, 2 on each side, to secure the IDE disk drive to the tray. See Item 5 in Figure 56.
3. Slide the IDE drive tray completely into the chassis until you hear a click. Push the front latch for the drive bay closed. See Item 2 in Figure 56: Replacing an IDE hard disk drive in an S3500-family server on page 172.
4. Connect the power cable and IDE signal cable for the IDE drive. See Item 1 in Figure 56.
5. Replace the top cover. For more information, see Replacing the cover on page 128.
6. *For a rack-mount setup,* slide the server into the cabinet.
7. Plug in all AC power cords to restore power to the server. For more information, see Restoring power to the server on page 128.

Returning the server to service

After you replace the IDE hard disk drive, return the server to full service.

- **MAS**: To return the server to service, you must:
  1. Reinstall the operating system on the hard disk.
  2. Run the Avaya Modular Messaging Configuration wizard, using the most current data file from the Data Collection Tool (DCT).
  3. Restore crucial data from system backup files.

  For more information, see *Avaya Modular Messaging for Avaya MSS Release 3 MAS Catastrophic Disk Failure Recovery* available on the Avaya Modular Messaging Documentation media or from the Avaya Support Web site at http://www.avaya.com/support.
- **MSS-S**: To return the server to full service:
  1. Access the Disk Diagnostics page. From the MSS Messaging Administration menu, select **Diagnostics** > **Disk Information**.
  2. Click **Query Rebuild Status** to track the disk drive recovery process. The rebuild process should start automatically after you replace an IDE RAID drive and reboot the server. If needed, you can click **Rebuild RAID 1 Array** to start the rebuild process.

  The entire rebuild procedure can take up to 1 hour. For more information, see "Retrieving hard disk drive information" on the documentation media.

Replacing a redundant disk drive—MSS-H

The Avaya Message Storage Server High Availability version (MSS-H) uses a Redundant Array of Independent Disks (RAID) storage system to protect against customer data loss. In an S3500-family MSS-H, four Small Computer System Interface (SCSI) drives provide RAID level 5 redundancy, which combines data striping and distributed parity checking. If a SCSI drive fails, the system automatically rebuilds the data after a new SCSI drive is installed.

Note:

If all the hard disk drives in an MSS-H are damaged, such as by a lightning strike, you must replace the entire server. For more information, see Chapter 15: Replacing a server on page 205.

All SCSI drives in an MSS-H are "hot swappable". You can remove and replace a hard disk drive in a SCSI RAID drive assembly while the server continues to provide service.

CAUTION:

Never move an operating SCSI drive from one MSS-H server to another. The server will not correctly recognize the previously formatted disk,. The system must rebuild the entire RAID array, which takes several hours. Always replace a faulty hard disk drive in a SCSI RAID array with a new, blank SCSI drive.

Replacing a SCSI RAID drive

To replace a SCSI hard disk drive in an S3500-family MSS-H:

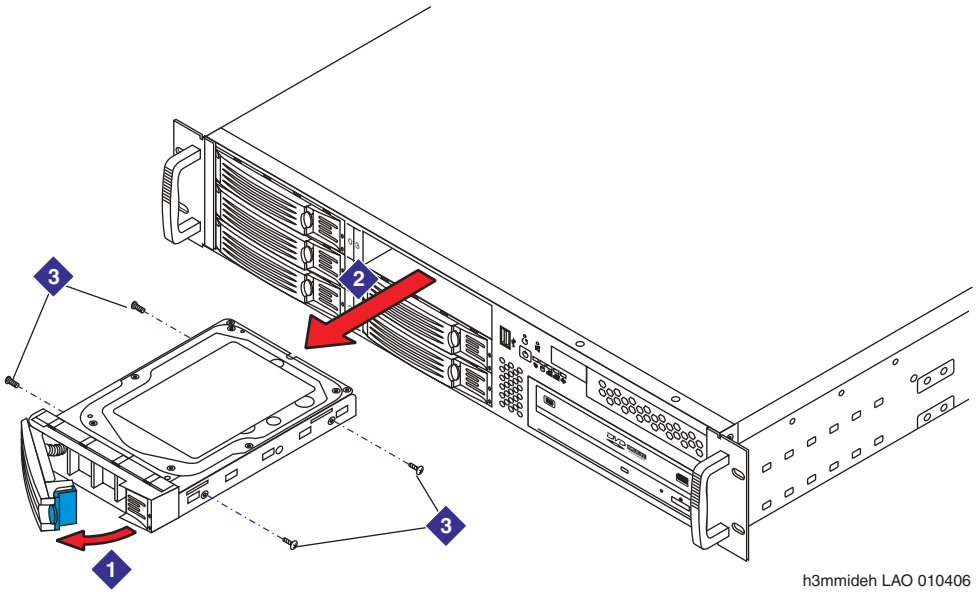
1. Verify that the replacement equipment is on site and appears to be in usable condition, with no obvious shipping damage.
2. Remove the front bezel to access the drive trays. Unhook the bezel from the notch near each chassis handle. Set the bezel aside.
3. Locate the SCSI drive to replace. The failed disk drive shows a red LED:
   - Drive 0—**d0b0t0d0**: the drive in bay 0.
   - Drive 1—**d0b0t1d0**: the drive in bay 2.
   - Drive 2—**d0b0t2d0**: the drive in bay 3.
   - Drive 3—**d0b0t3d0**: the drive in bay 5.
4. Press the front release latch for the appropriate disk drive bay.
5. Pull on the handle to unseat the faulty SCSI RAID drive and remove the drive tray from the server. See Figure 58: Replacing a redundant hard disk drive in an S3500-family MSS-H on page 176.

CAUTION:

Wait at least 1 minute after you remove the old SCSI drive before you install the new one. The pause gives the system time to sense the installation of the new drive.

6. Place the drive tray on a clean, static-free surface. Remove the 4 mounting screws, 2 on each side, that secure the hard disk drive to the tray. See Item 3 in Figure 58.
7. Lift out the faulty drive. Set the old drive aside.

Figure 58: Replacing a redundant hard disk drive in an S3500-family MSS-H



Installing a new disk drive and verifying operation

To install the replacement redundant disk drive and verify operation:

1. Remove the new disk drive from the anti-static bag. Do not touch the circuit board surface.
2. Place the replacement disk drive into the drive tray. Replace the 4 mounting screws, 2 on each side, to secure the hard disk drive to the tray. See Item 3 in Figure 58.
3. Slide the hard disk drive tray completely into the chassis. Push the front latch for the drive bay closed.

The LED for the new drive lights, indicating that the system recognized the new drive. The system automatically starts to reconstruct the data from the other hard disks in the array.

4. Replace the front bezel by hooking one end of the bezel into the notch near the chassis handle. Bend the middle of the bezel slightly outwards, and push the other end into place. For more information, see Attaching the front bezel on page 39.
5. Verify that the disk rebuild procedure is underway.
   a. Access the Disk Diagnostics page. From the MSS Messaging Administration menu, select **Diagnostics** > **Disk Information**.
   b. Click **Query RAID System Information** to verify the status of the SCSI RAID drives. The hard disk drive that you replaced should show a logical drive state of **Reconstruct** and a physical device state of **Replaced drive**.
   c. Click **Query Rebuild Status** to track the disk drive recovery process.

   The entire rebuild procedure can take up to 10 hours. For more information, see "Retrieving hard disk drive information" on the documentation media.

Replacing disk drive cables

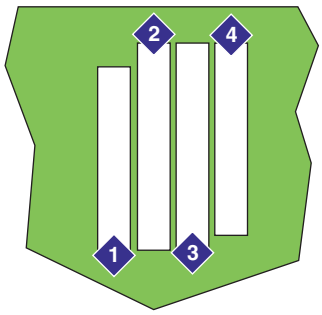
You can replace the following IDE cables to the disk drives if needed:

- Replacing the IDE and DVD drive cable—MAS on page 178
- Replacing IDE drive cables—MSS-S on page 181
- Replacing a DVD drive cable—MSS-H on page 184

CAUTION:

Ensure that you connect the replacement cable to the correct IDE connector on the server board. For the position of the IDE connectors, see Figure 59.

Figure 59: Position of IDE connectors on the S3500-family server board



h3mmcntr LAO 121805

Figure notes:

1. **Diskette drive connector—not used**
2. **Primary IDE connector—PRI IDE**
3. **Secondary IDE connector—SEC IDE**
4. **Main power connector**

Replacing the IDE and DVD drive cable—MAS

The Messaging Application Server (MAS) has a single IDE signal cable to the IDE hard disk drive and the DVD player.

To replace the IDE and DVD drive cable in an S3500-family MAS:

1. Verify that the replacement equipment is on site and appears to be in usable condition, with no obvious shipping damage.

2. Prepare to open the MAS:
   a. Shut down the server. For more information, see Shutting down the server and removing AC power on page 124.
   b. Unplug the AC power cord.
3. *For a rack-mount setup,* remove the server from the cabinet.
   a. Prepare a clear area as a work surface for the server.
   b. Unplug all cables from the back of the server. Label all cables so you can easily reconnect them.
   c. Press the release clips on the rails to fully extend the rail.
   d. Lift the server off the rails, and set the server on the work surface. For safety considerations, get another person to assist you with lifting the server.
4. Remove the top cover. Push the blue release buttons on the cover and slide the cover towards the back. For more information, see Removing the top cover on page 125.

   CAUTION:

   Observe proper electrostatic discharge (ESD) precautions when you handle computer components. Wear an antistatic wrist strap that touches your bare skin and connect the strap cable to an earth ground. For complete ESD instructions, see Protecting against ESD damage on page 133.
5. Remove the PCI card cage. Pull straight up on the lifting straps at each end of the card cage. Set the card cage on its side on a firm surface.
6. Remove the old IDE and DVD drive cable. For an illustration, see Figure 60: Replacing the IDE and DVD cable in an S3500-family MAS on page 180.
   a. Disconnect the drive cable from the primary IDE connector **PRI IDE** on the server board.

   Note:

   Pull on the tab to remove each 80-pin IDE cable connector.

   b. Disconnect the cable from the IDE hard disk drive and the DVD drive.
   c. Open the dress clips and remove the IDE drive cable. Set the old cable aside.
7. To insert a new drive cable:
   a. Connect the new drive cable to the primary IDE connector **PRI IDE** on the server board. To identify the correct connector, see Figure 59: Position of IDE connectors on the S3500-family server board on page 178.
   b. Connect the new cable to the IDE hard disk drive and the DVD drive.
   c. Dress the new drive cable under the dress clips. Press on each clip to snap the clip shut.

   Note:

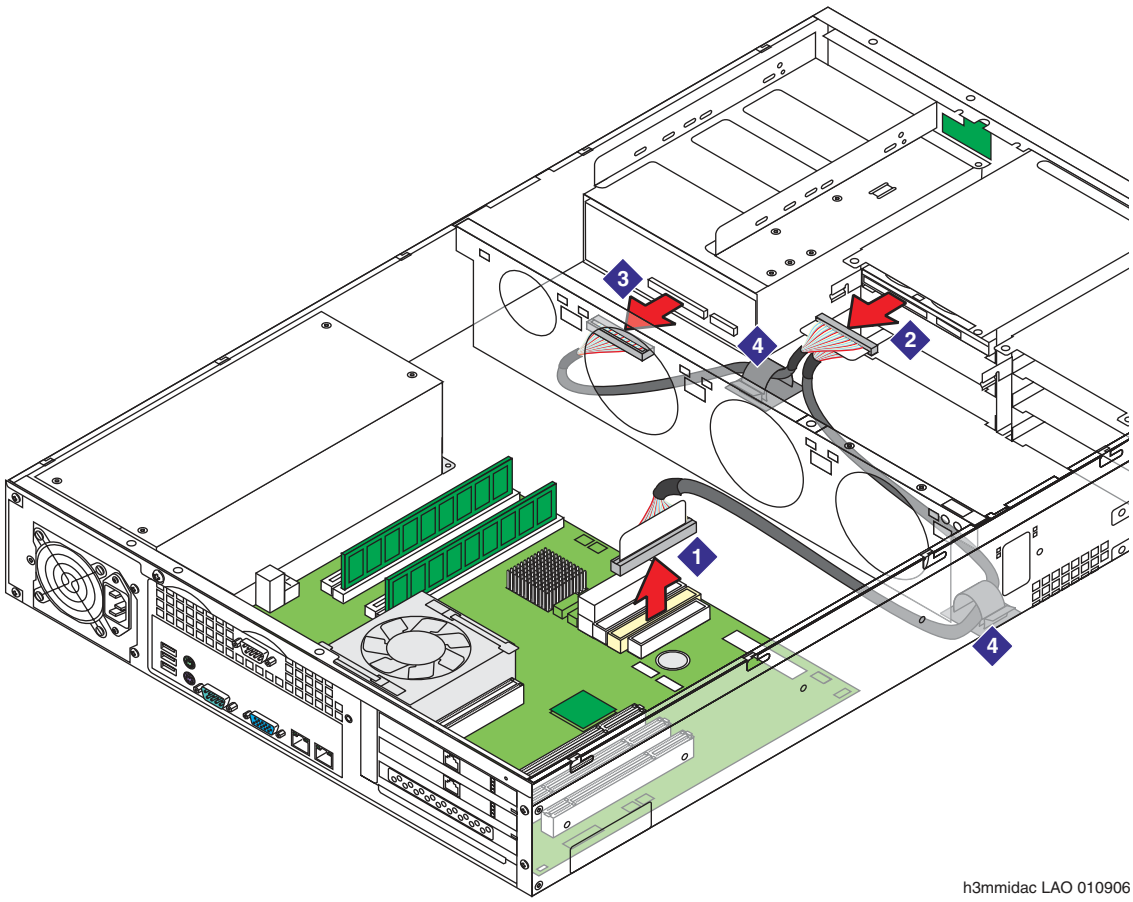
   Fold the new cable carefully so it fits neatly into the chassis, but do not stress the cable. Ensure that you tuck all required cables into each dress clip.

8. Replace the PCI card cage:
   a. Align the edge connector on the riser card in the card cage with the slot connector on the server board. Use **SLOT 6 (PCI 32/33)** on the server board.
   b. Push straight down on the card cage until the riser card is firmly seated.
9. Replace the top cover.
10. *For a rack-mount setup,* return the server to the cabinet.
    a. Guide the server onto the fully extended rails.

CAUTION:

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

Figure 60: Replacing the IDE and DVD cable in an S3500-family MAS



b. Push in the release lock, the front latch, to slide the server into the cabinet.

c. Plug in all cables at the back of the server.

11. Plug in the AC power cord to restore power to the server. For more information, see Restoring power to the server on page 128.
12. Verify that the new drive cable works correctly.
    - **IDE drive**: If the server boots correctly, the new drive cable is working.
    - **DVD drive**: To verify that the new cable to the DVD player is working:
      a. Insert a CD or DVD into the DVD drive.
      b. To verify that the server can access the disk, double-click **My Computer**.
      c. Double-click the D: drive.
      d. Verify that the server displays the information on the media correctly.

Replacing IDE drive cables—MSS-S

The Avaya Message Storage Server Standard Availability version (MSS-S) has two IDE drive cables. One cable connects the primary IDE hard disk drive, and a second cable connects the second IDE hard disk drive and the DVD player.

To replace an IDE drive cable in an S3500-family MSS-S:

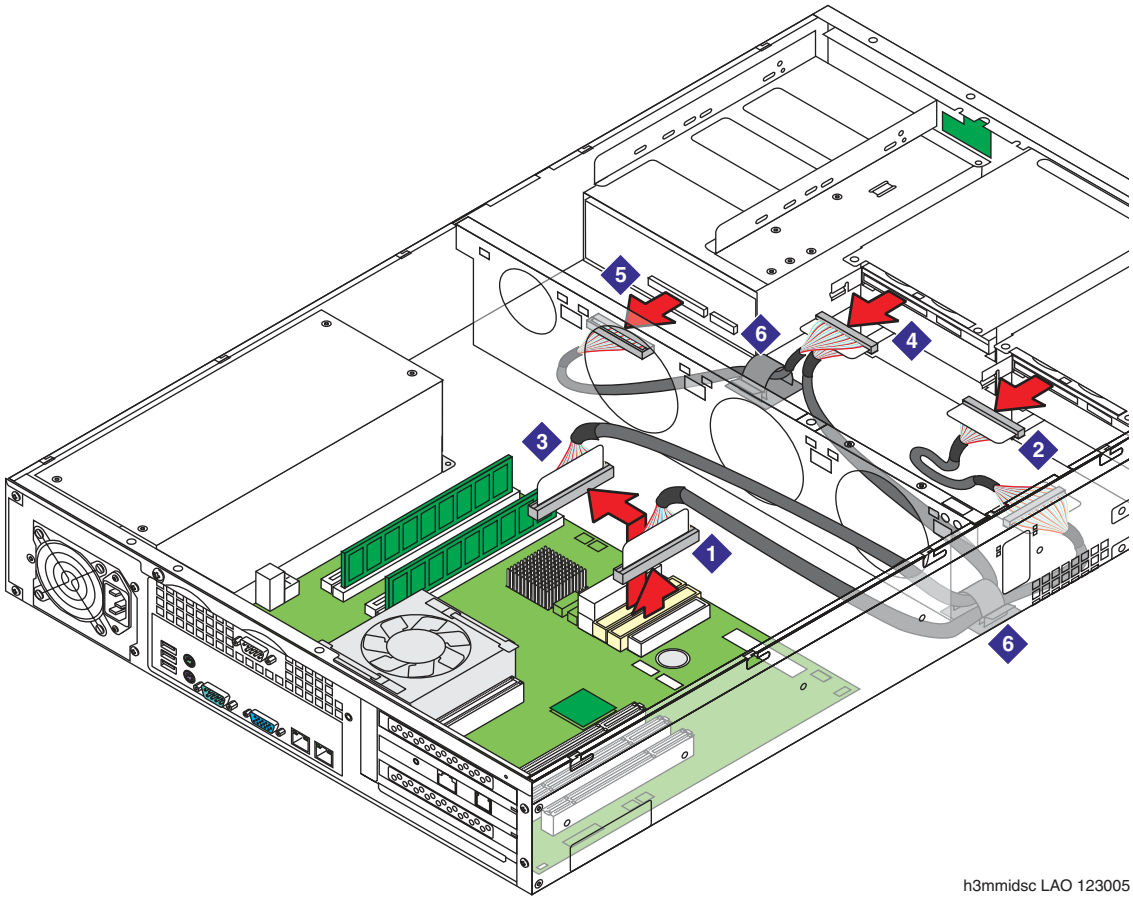
1. Verify that the replacement equipment is on site and appears to be in usable condition, with no obvious shipping damage.
2. Prepare to open the server:
   a. Shut down the server. For more information, see Shutting down the server and removing AC power on page 124.
   b. Unplug the AC power cord.
3. *For a rack-mount setup,* remove the server from the cabinet.
   a. Prepare a clear area as a work surface for the server.
   b. Unplug all cables from the back of the server. Label all cables so you can easily reconnect them.
   c. Press the release clips on the rails to fully extend the rail.
   d. Lift the server off the rails, and set the server on the work surface. For safety considerations, get another person to assist you with lifting the server.
4. Remove the top cover. Push the blue release buttons on the cover and slide the cover towards the back. For more information, see Removing the top cover on page 125.

CAUTION:

Observe proper electrostatic discharge (ESD) precautions when you handle computer components. Wear an antistatic wrist strap that touches your bare skin and connect the strap cable to an earth ground. For complete ESD instructions, see Protecting against ESD damage on page 133.

5. Remove the PCI card cage. Pull straight up on the lifting straps at each end of the card cage. Set the card cage on its side on a firm surface.
6. Remove the faulty IDE drive cable. For an illustration, see Figure 61.
   - To remove the IDE drive cable to the disk drive in bay 0:
     a. Disconnect the drive cable from the primary IDE connector **PRI IDE** on the server board. See Item 1 in Figure 61.

Figure 61: Replacing IDE cables in an S3500-family MSS-S



Note:

Pull on the tab to remove each 80-pin IDE cable connector.

b. Disconnect the cable from the IDE hard disk drive in bay 0. See Item 2 in Figure 61: Replacing IDE cables in an S3500-family MSS-S on page 182.

c. Open the dress clip and remove the IDE drive cable. Set the old cable aside.

- To remove the IDE drive cable to the disk drive in bay 3 and the DVD drive:

a. Disconnect the drive cable from the secondary IDE connector **SEC IDE** on the server board. See Item 3 in Figure 61.

Note:

Pull on the tab to remove each 80-pin IDE cable connector.

b. Disconnect the cable from the IDE hard disk drive in bay 3 and the DVD drive. See Items 4 and 5 in Figure 61.

c. Open the dress clips and remove the IDE and DVD drive cable. See Item 6 in Figure 61. Set the old cable aside.

7. To insert a new IDE drive cable:

a. Connect the new drive cable to the appropriate IDE connector on the server board. To identify the correct connector, see Figure 59: Position of IDE connectors on the S3500-family server board on page 178.

- For the IDE hard disk drive in bay 0, use the primary IDE connector **PRI IDE** on the server board.
- For the IDE hard disk drive in bay 3, use the secondary IDE connector **SEC IDE** on the server board.

b. Connect the new cable to the appropriate drive.

- For the IDE hard disk drive in bay 0, use the end connector on the IDE drive cable.
- For the IDE hard disk drive in bay 3, use the middle connector for the disk drive and the end connector for the DVD drive.

c. Dress the new drive cable under the dress clips. Press on the clip to snap the clip shut.

Note:

Fold the new cable carefully so it fits neatly into the chassis, but do not stress the cable. Ensure that you tuck all required cables into each dress clip.

8. Replace the PCI card cage:

a. Align the edge connector on the riser card in the card cage with the slot connector on the server board. Use **SLOT 6 (PCI 32/33)** on the server board.

b. Push straight down on the card cage until the riser card is firmly seated.

9. Replace the top cover.

10. *For a rack-mount setup,* return the server to the cabinet.

a. Guide the server onto the fully extended rails.

CAUTION:

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

b. Push in the release lock, the front latch, to slide the server into the cabinet.

c. Plug in all cables at the back of the server.

11. Plug in the AC power cord to restore power to the server. For more information, see Restoring power to the server on page 128.
12. Verify that the new drive cable works correctly.
    - **IDE drive**: If the server boots correctly, the new drive cable is working.
    - **DVD drive**: To verify that the new cable to the DVD-RAM drive is working:
      a. Insert a CD or DVD into the DVD drive.
      b. Verify that the server can access the media and displays the information correctly.

Replacing a DVD drive cable—MSS-H

The Avaya Message Storage Server High Availability version (MSS-H) has one IDE drive cable for the DVD-RAM drive.

To replace the DVD drive cable in an S3500-family MSS-H:

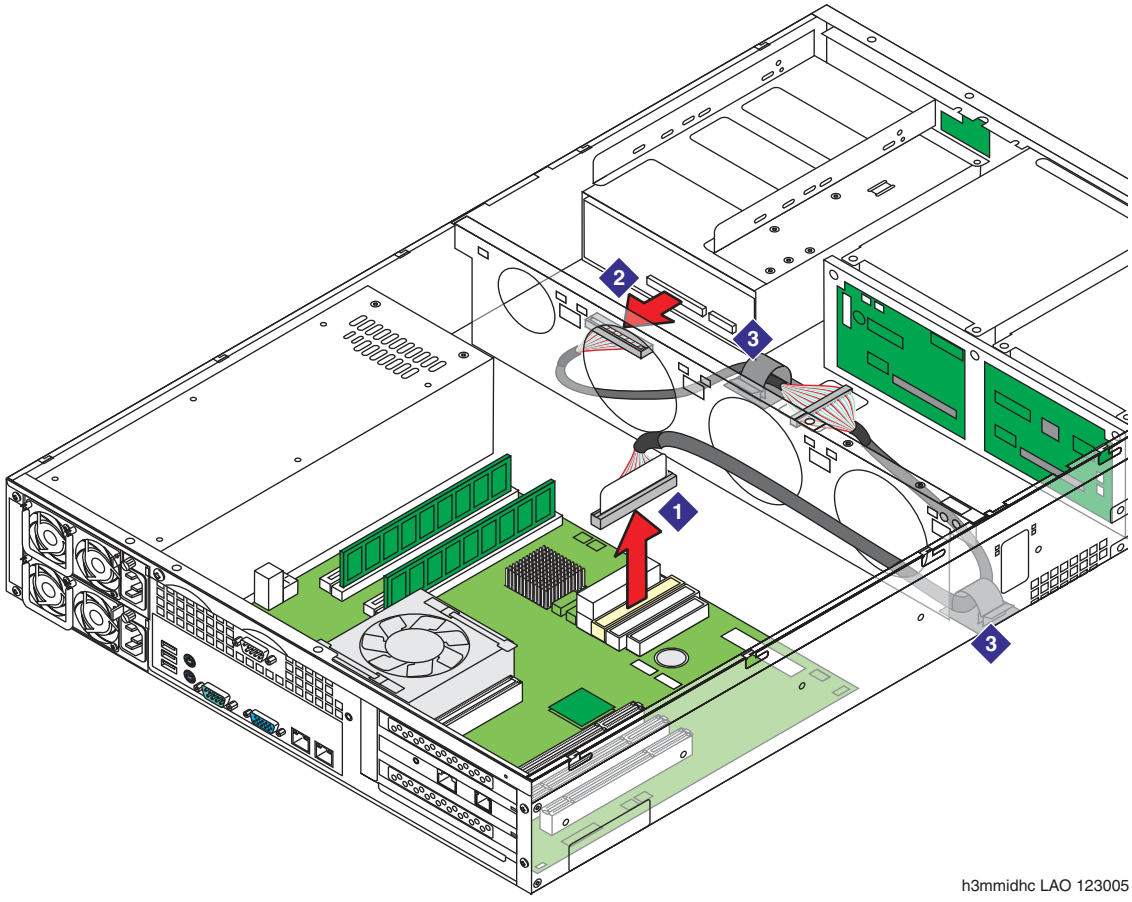
1. Verify that the replacement equipment is on site and appears to be in usable condition, with no obvious shipping damage.
2. Prepare to open the server:
   a. Shut down the server. For more information, see Shutting down the server and removing AC power on page 124.
   b. Unplug the AC power cord.
3. *For a rack-mount setup,* remove the server from the cabinet.
   a. Prepare a clear area as a work surface for the server.
   b. Unplug all cables from the back of the server. Label all cables so you can easily reconnect them.
   c. Press the release clips on the rails to fully extend the rail.
   d. Lift the server off the rails, and set the server on the work surface. For safety considerations, get another person to assist you with lifting the server.
4. Remove the top cover. Push the blue release buttons on the cover and slide the cover towards the back. For more information, see Removing the top cover on page 125.

CAUTION:

Observe proper electrostatic discharge (ESD) precautions when you handle computer components. Wear an antistatic wrist strap that touches your bare skin and connect the strap cable to an earth ground. For complete ESD instructions, see Protecting against ESD damage on page 133.

5. Remove the PCI card cage. Pull straight up on the lifting straps at each end of the card cage. Set the card cage on its side on a firm surface.
6. Remove the faulty IDE drive cable. For an illustration, see Figure 62.
   a. Disconnect the DVD drive cable from the secondary IDE connector **SEC IDE** on the server board. See Item 1 in Figure 62.

Figure 62: Replacing the DVD cable in an S3500-family MSS-H



Note:

Pull on the tab to remove each 80-pin IDE cable connector.

a. Disconnect the cable from the DVD drive.

b. Open the dress clips and remove the DVD drive cable. Set the old cable aside.

7. To insert a new IDE drive cable:

   a. Connect the new drive cable to the secondary IDE connector **SEC IDE** on the server board. To identify the correct connector, see Figure 59: Position of IDE connectors on the S3500-family server board on page 178.

   b. Connect the end connector on the new cable to the DVD drive.

   c. Dress the new drive cable under the dress clips. Press on the clip to snap the clip shut.

   Note:

   Fold the new cable carefully so it fits neatly into the chassis, but do not stress the cable. Ensure that you tuck all required cables into each dress clip.

8. Replace the PCI card cage:

   a. Align the edge connector on the riser card in the card cage with the slot connector on the server board. Use **SLOT 6 (PCI 32/33)** on the server board.

   b. Push straight down on the card cage until the riser card is firmly seated.

9. Replace the top cover.

10. *For a rack-mount setup,* return the server to the cabinet.

    a. Guide the server onto the fully extended rails.

    CAUTION:

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

    b. Push in the release lock, the front latch, to slide the server into the cabinet.

    c. Plug in all cables at the back of the server.

11. Plug in the AC power cord to restore power to the server. For more information, see Restoring power to the server on page 128.

12. Verify that the new drive cable works correctly.

    a. Insert a CD or DVD into the DVD drive.

    b. Verify that the server can access the media and displays the information correctly.

Chapter 12: Replacing chassis fans

This chapter describes how to replace a chassis fan in an Avaya S3500-family message server.

An S3500-family server contains two different sizes of chassis fans:

- One 60-mm fan in front of the power supply
- Three 80-mm fans across the middle of the chassis

Use the same procedure to replace either type of fan. However, you must replace the faulty fan with another of the same size.

Note:

The chassis fans in an S3500-family server are hot swappable. You can leave the server running when you replace a faulty chassis fan. However, you must work carefully to avoid having material such as hair or clothing drawn into the working fans. Always observe proper ESD precautions when working inside the server.

Replacing a chassis fan

Use this procedure to replace a faulty chassis fan in an Avaya S3500-family message server.

To replace a faulty chassis fan:

1. *For a rack-mount setup,* slide the server forward as far as possible. Press the release clips on the rails to fully extend the rail.

   Note:

   You might need to unplug some cables at the back of the server to get sufficient cable slack. Label all cables so you can easily reconnect them.

2. Remove the top cover. For more information, see Removing the top cover on page 125.

   CAUTION:

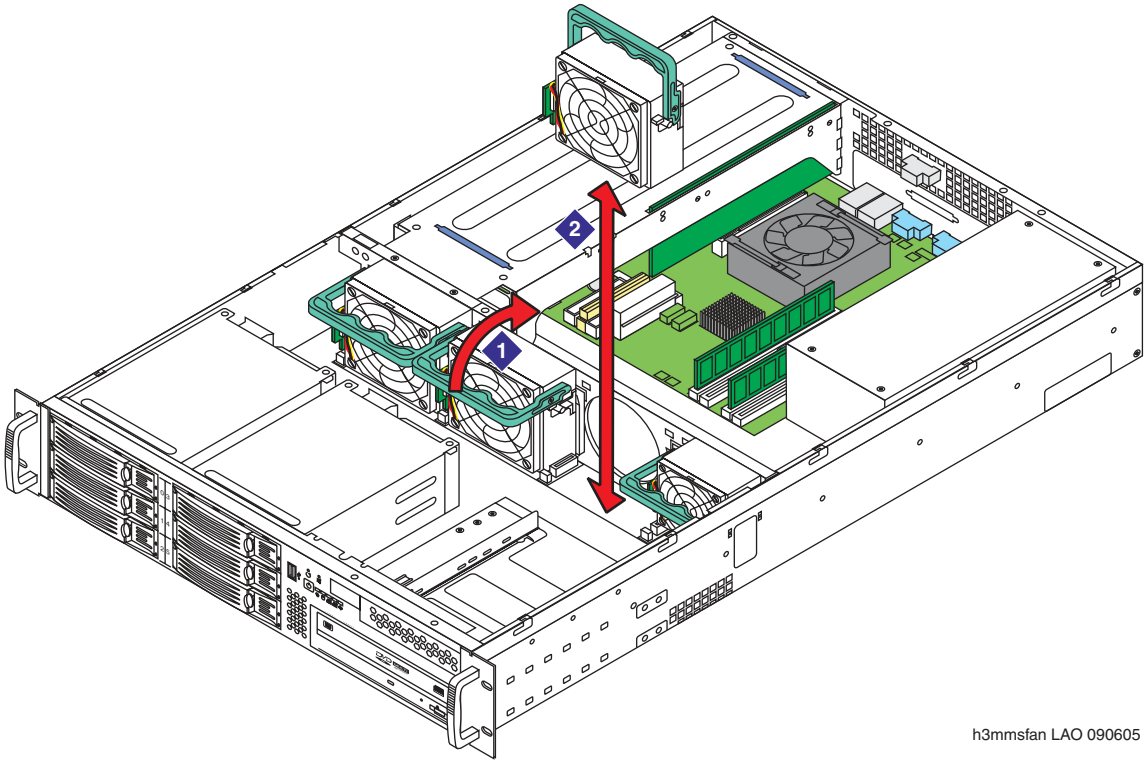
   Because the server is running, work carefully. Keep material away that might be drawn into the working fans, such as hair or clothing. Observe ESD precautions.

3. Locate the faulty fan. It might be spinning slowly or stopped.
4. Remove the faulty chassis fan:
   a. Lift the handle of the faulty fan. See Figure 63: Replacing a chassis fan in an S3500-family server on page 188.
   b. Lift the fan straight up.

c. Set the old fan aside.

5. Insert the replacement fan:
   a. Align flange on the back of the new fan with the guides on the fan bracket.
   b. Slide the fan into the slot.
   c. Push snugly to seat the fan.
   d. Lay the handle down flat.
6. Verify that the new fan is spinning at the correct speed.
7. Replace the top cover. For more information, see Replacing the cover on page 128.
8. *For a rack-mount setup,* slide the server back into the cabinet. If you unplugged any cables from the back of the server, reconnect them now.
9. On the back of the server, replace and tighten the screw to secure the top cover.

Figure 63: Replacing a chassis fan in an S3500-family server



Chapter 13: Replacing a power supply

This chapter describes how to replace a power supply in an Avaya S3500-family message server.

CAUTION:
Never remove the cover on a power supply. If a power supply is faulty, replace the entire component.

Topics in this chapter include:

Replacing a standard power supply

The following servers have a single standard power supply:

- Messaging Application Server (MAS)
- Avaya Message Storage Server Standard Availability version (MSS-S)

If a standard power supply fails, the server cannot function until you replace the power supply.

Removing the old power supply

To replace a standard power supply:

1. Verify that the replacement equipment is on site and appears to be in usable condition, with no obvious shipping damage.
2. Prepare to replace the power supply:
   a. Verify that the server is turned off. For more information, see Shutting down the server and removing AC power on page 124.
   b. Unplug the AC power cords.

WARNING:

The power cord set provided with this product must be used with this product only. Do not use the cord set with any other product, and do not use a different cord set with this product. Using the wrong cord set could lead to hazardous incidents such as electric shock, fire, and faulty operation.

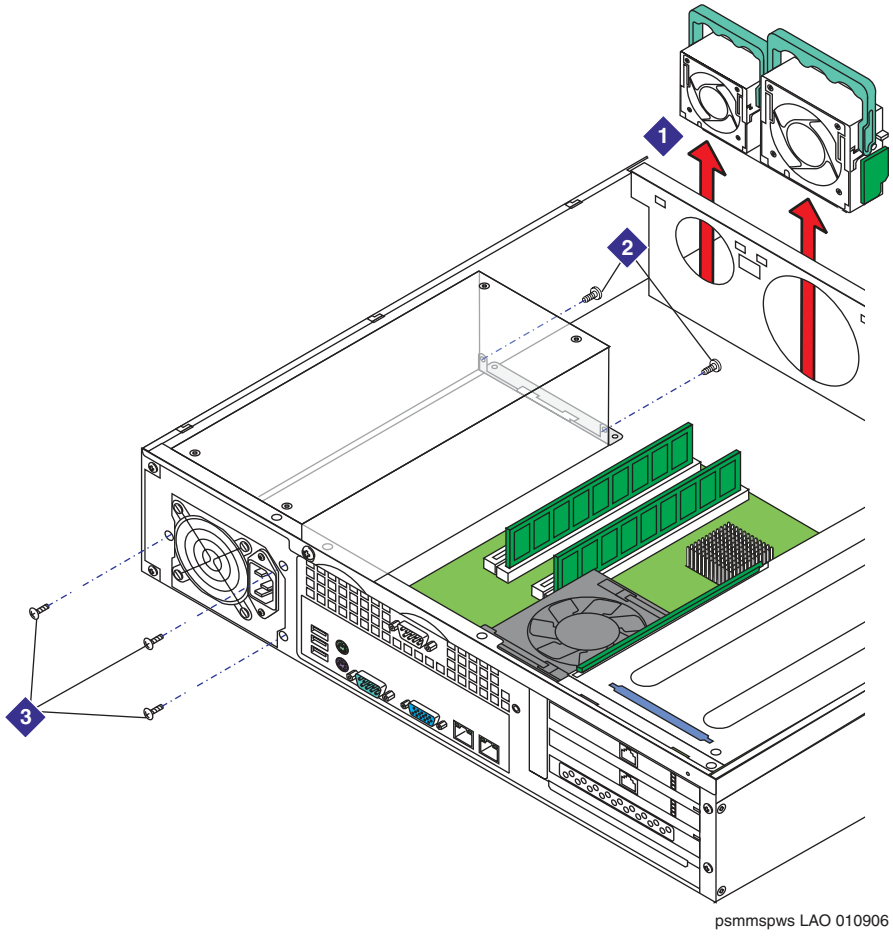
警告
本製品に同梱または付属している電源コードセットは、本製品専用です。本製品以外の製品ならびに他の用途で使用しなしでください。また本製品に、これ以外の電源コードセットを使用しないでください。火災、感電、故障の原因となります。

3. *For a rack-mount setup,* remove the server from the cabinet.
   a. Prepare a clear area as a work surface for the server.
   b. Unplug all cables at the back of the server. Label all cables so you can easily reconnect them.
   c. Press the release clips on the rails to fully extend the rail.
   d. Lift the server off the rails, and set the server on the work surface. For safety considerations, get another person to assist you with moving the server.
4. Remove the top cover. Push the blue release buttons on the cover and slide the cover towards the back. For more information, see Removing the top cover on page 125.

CAUTION:

Observe proper electrostatic discharge (ESD) precautions when you handle computer components. Wear an antistatic wrist strap that touches your bare skin and connect the strap cable to an earth ground. For complete ESD instructions, see Protecting against ESD damage on page 133.

Figure 64: Replacing a standard power supply in an S3500-family MAS or MSS-S



5. Release the power supply from the chassis. See Figure 64: Replacing a standard power supply in an S3500-family MAS or MSS-S on page 191.
   a. Remove the two fans behind the power supply. The fans are the smallest fan and the one next to it. You must remove the fans to access the screws on the internal mounting plate.
   b. Remove the two screws that attach the power supply to the internal mounting plate.

c. Remove the three external screws at the back of the power supply. The three screws connect the power supply to the chassis housing.

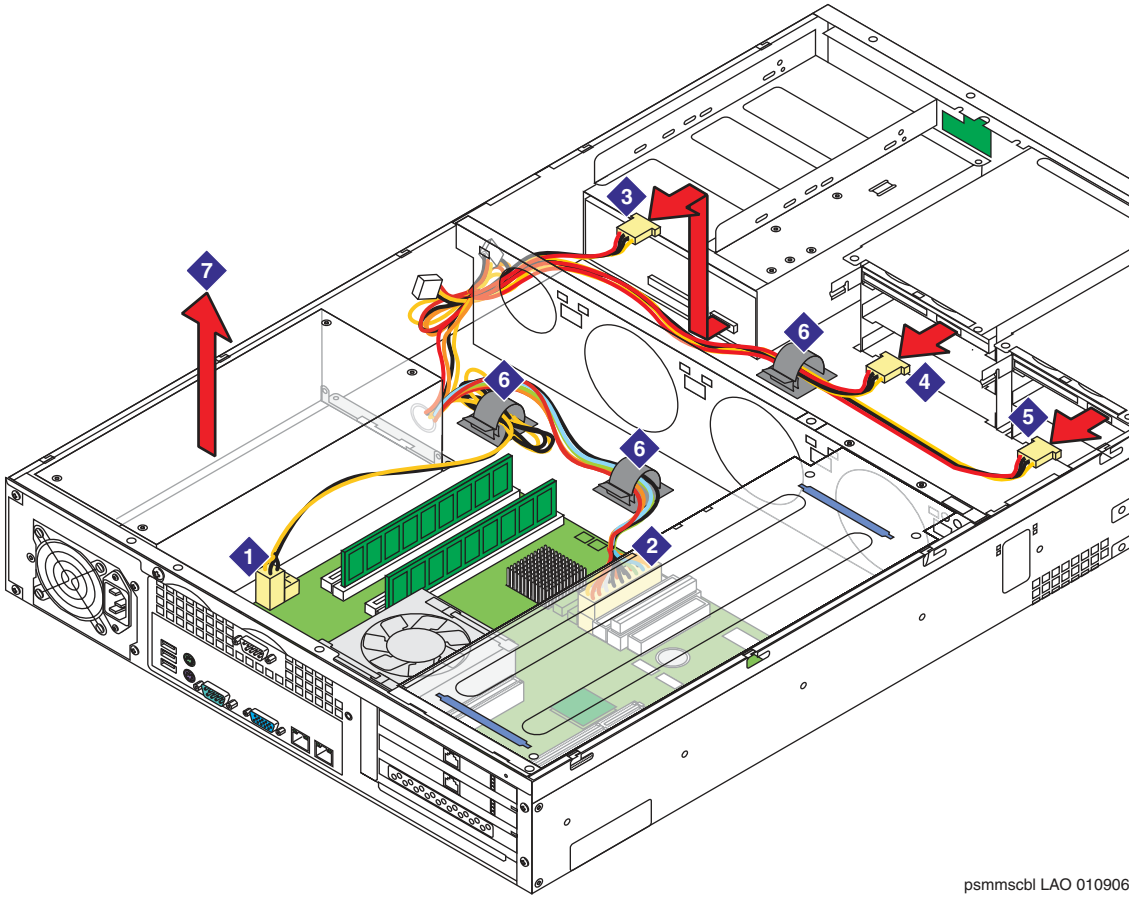
6. Disconnect the power supply harness. See Figure 65: Disconnecting a standard power supply harness in an S3500-family server on page 192.

   a. Unplug the 8-pin **CPU POWER** connector to the server board.

   b. Unplug the **MAIN POWER** connector to the server board.

   c. Unplug the power connector to the DVD drive.

Figure 65: Disconnecting a standard power supply harness in an S3500-family server



d. Unplug the power connector to the hard disk drives:

   - The MAS has only one hard disk drive. See Item 4 in Figure 65: Disconnecting a standard power supply harness in an S3500-family server on page 192.
   - The MSS has two hard disk drives. See Items 4 and 5 in Figure 65.

e. Undress all power supply cables from the dress clips.

- Press down on the tab on a dress clip to open the clip.
- Use care to remove only the power supply cables from the dress clip.

7. Lift the power supply and attached power harness out of the chassis. Set the faulty power supply aside.

Installing a new power supply

To install a new standard power supply:

1. Position the new power supply and harness inside the chassis.
2. Secure the new power supply to the chassis:
   a. Insert the three external screws at the back of the power supply to secure the power supply to the chassis housing.
   b. Insert the two screws that attach the power supply to the internal mounting plate.
   c. Replace the two chassis fans:
      - Align flange on the back of the fan with the guides on the fan bracket.
      - Slide the fan into the slot. Push snugly to seat the fan.
      - Lay the handle down flat.
3. Connect the power supply harness. See Figure 65: Disconnecting a standard power supply harness in an S3500-family server on page 192.
   a. Plug the 8-pin **CPU POWER** connector into the server board.
   b. Plug the **MAIN POWER** connector into the server board.
   c. Plug the power connector into the DVD drive.
   d. Plug the power connector into all hard disk drives.
   e. Dress all power supply cables under the appropriate dress clips.
      - Ensure that you dress all required cables under each dress clip.
      - Push down on the dress clip to snap the clip closed.
4. Replace the top cover. For more information, see Replacing the cover on page 128.
5. *For a rack-mount setup,* return the server to the cabinet.
   a. Guide the server onto the fully extended rails.

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

   b. Push in the release lock, the front latch, to slide the server into the cabinet.
   c. Plug in all cables at the back of the server.

6. Plug in the AC power cord to restore power to the server. For more information, see Restoring power to the server on page 128.

   If the server turns on, the power supply is working.

7. Check for alarms related to the drives, circuit boards, and other internal components. The power supply failure might have damaged, or been caused by, other components in the server. For more information, see "MSS alarms" under **Maintenance** on the documentation media.

Replacing a redundant power supply—MSS-H

The Avaya Message Storage Server High Availability version (MSS-H) has two power supplies, allowing one to take over in case the other fails. Each redundant power supply is "hot swappable" so you can replace a faulty power supply while the system remains in service.

To replace a redundant power supply on an S3500-family MSS-H:

1. Verify that the replacement equipment is on site and appears to be in usable condition, with no obvious shipping damage.
2. Turn off the alarm buzzer for the faulty power supply:
   a. At the front of the server, remove the front bezel.
   b. Insert a narrow tool into the audible alarm reset switch.

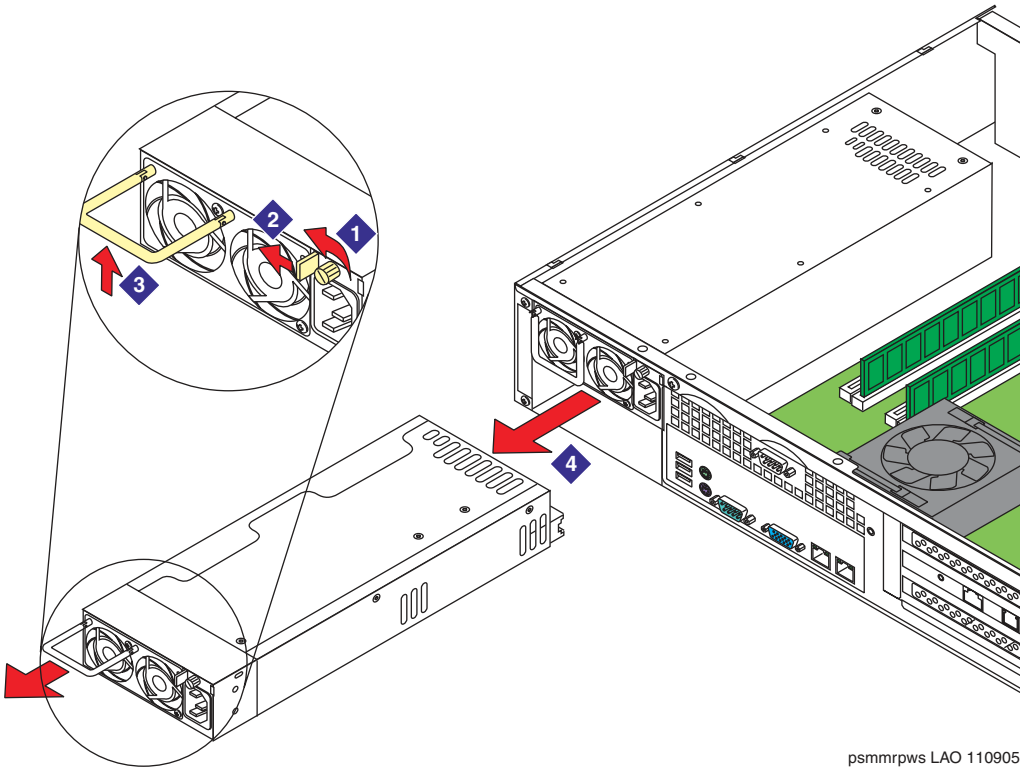
   Note:

   The power supply failure indicator on the front of the server remains lit until the power problem is resolved. For an illustration of front panel components, see Figure 1: S3500-family server—front view with bezel removed on page 14.
3. At the back of the server, locate the power supply that failed:
   - Amber LED—the power supply is faulty.
   - Green LED—the power supply is working correctly.
4. To remove the faulty power supply:
   a. Unplug the AC power cord from the faulty power supply.
   b. Loosen the thumbscrew on the faulty power supply. See Figure 66: Replacing a redundant power supply in an S3500-family MSS-H on page 195.
   c. Push the latch away from the thumbscrew to unlock the power supply.
   d. Lift the handle, and pull out the faulty power supply.
5. To install a new power supply:
   a. Slide in the replacement power supply. Push firmly to seat the power supply.

b. Flatten the handle against the power supply.
c. Tighten the thumbscrew.
d. Verify that the latch is locked, so you cannot pull out the power supply.

6. Apply power to the new power supply and verify correct operation:
   a. Plug in the AC power cord.
   b. Verify that the power supply shows a green LED.
   c. Verify that the power supply failure indicator on the front of the server is now dark.

Figure 66: Replacing a redundant power supply in an S3500-family MSS-H



Chapter 14: Replacing a memory module

This chapter describes how to reseat or replace the memory module in an Avaya S3500-family message server.

An S3500-family server has a memory module that consists of two Dual Inline Memory Module (DIMM) cards. Each DIMM contains 1 GB of memory. The DIMMs are present in sockets **DIMM1A** and **DIMM2A** on the server board.

Topics in this chapter include:

Locating and reseating the memory module

Before you replace a memory module, verify that the DIMM cards are firmly seated.

To locate and reseat a memory module:

1. Verify that the replacement equipment is on site and appears to be in usable condition, with no obvious shipping damage.
2. Prepare to access the memory module:
   a. Verify that the server is turned off. For more information, see Shutting down the server and removing AC power on page 124.
   b. Unplug the AC power cords.

WARNING:

The power cord set provided with this product must be used with this product only. Do not use the cord set with any other product, and do not use a different cord set with this product. Using the wrong cord set could lead to hazardous incidents such as electric shock, fire, and faulty operation.

警告
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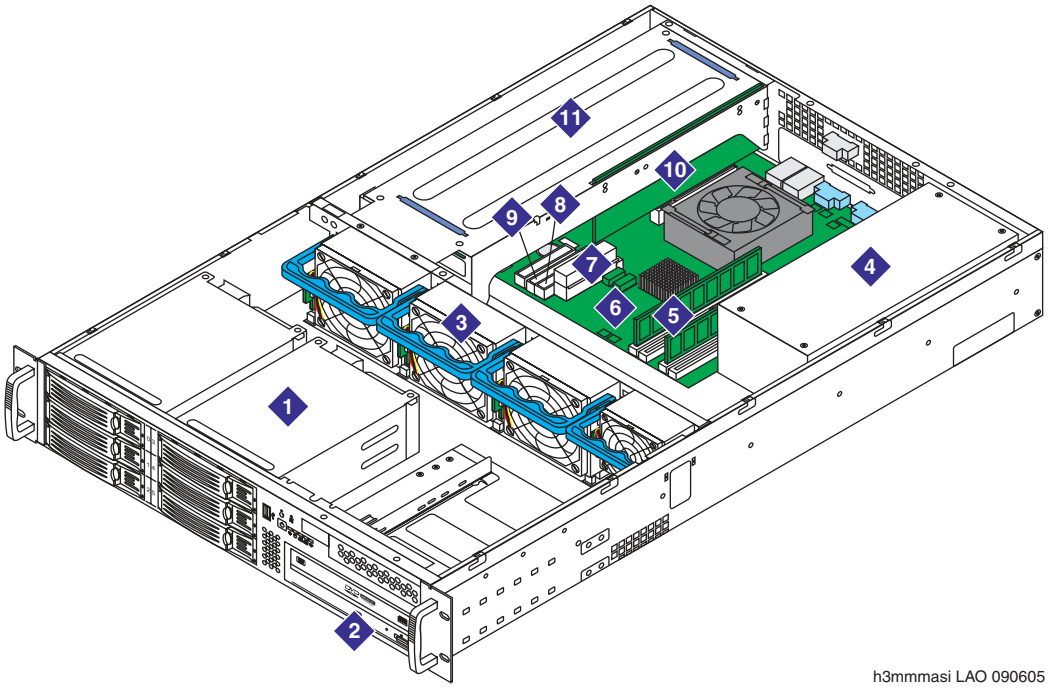
3. *For a rack-mount setup,* remove the server from the cabinet.
   a. Prepare a clear area as a work surface for the server.
   b. Unplug all cables at the back of the server. Label all cables so you can easily reconnect them.
   c. Press the release clips on the rails to fully extend the rail.
   d. Lift the server off the rails, and set the server on the work surface. For safety considerations, get another person to assist you with moving the server.
4. Remove the top cover. Push the blue release buttons on the cover and slide the cover towards the back. For more information, see Removing the top cover on page 125.

CAUTION:

Observe proper electrostatic discharge (ESD) precautions when you handle computer components. Wear an antistatic wrist strap that touches your bare skin and connect the strap cable to an earth ground. For complete ESD instructions, see Protecting against ESD damage on page 133.

5. Locate the memory module on the server board. See Item 5 in Figure 67.

Figure 67: S3500-family server—interior view with bezel removed



6. Verify that the memory module is correctly seated:
   a. Apply pressure to each memory module to verify that the DIMM card is properly seated.
   b. Press the holding clips toward the memory module to verify that the clips are secure.

CAUTION:

Do not force a memory module into or out of the socket. This action can damage the socket, the memory module, or both.

7. Continue as appropriate:
   - If the memory module was properly seated, the module is faulty. Continue with Replacing a memory module on page 201.
   - If the memory module was improperly installed or seated, verify that the cards are correctly seated now. Continue with this procedure to test the current memory module.

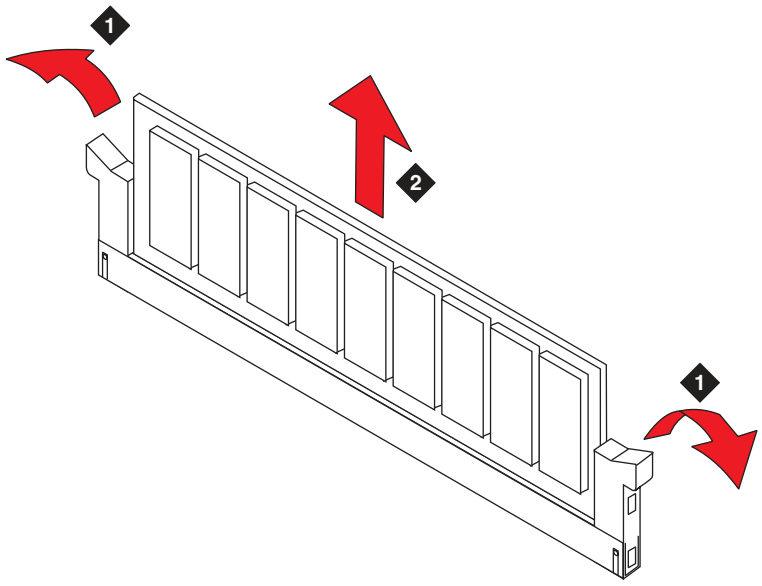
8. Restore power to the system.
   a. Leave the cover off. Plug in the cables for the monitor, keyboard, and mouse.
   b. Plug in the AC power cord. For an MSS-H, plug in both AC power cords.
9. Watch the memory test at the beginning of the boot.
   a. If the memory test completes, note the amount of memory that the system reports.
   b. Let the server boot completely.
10. Continue as follows:
    - If the system shows an amount of memory less than 2 GB or if the server did not boot, the memory module is faulty. Continue with Replacing a memory module on page 201.
    - If the system shows 2 GB of memory and booted correctly, the memory module is operating correctly. Continue with this procedure.
11. Shut down the system and remove AC power. For more information, see Shutting down the server and removing AC power on page 124.
12. Replace the cover and return the server to its correct location. Plug in all cables. For more information, see Returning the server to service on page 128.
13. Plug in all AC power cords to restore power to the server.
14. Verify operation after the server finishes booting. For example, place a test call to the server. If the server now is operating correctly, you do not need to replace the memory module.

Replacing a memory module

To replace a memory module in an S3500-family server:

1. Press the holding clips on both sides of the socket outward to release a currently installed memory module. See Item 1 in Figure 68.
2. Gently pull the memory module out of the socket.

Figure 68: Removing a memory module



dimmout LAO 122705

CAUTION:

Electrostatic discharge can damage a memory module. For more information, see Protecting against ESD damage on page 133.

3. Hold new the DIMM card by the edges, and remove the card from its antistatic package.
4. Position the replacement memory module in the correct orientation over the appropriate socket. Use sockets **DIMM1A** and **DIMM2A** on the server board.

Note:

You must replace both DIMM cards to repair the memory module. The server performs best when the DIMM cards are a matched set.

5. Gently push the replacement memory module into the socket. See Figure 69: Inserting a memory module on page 202.

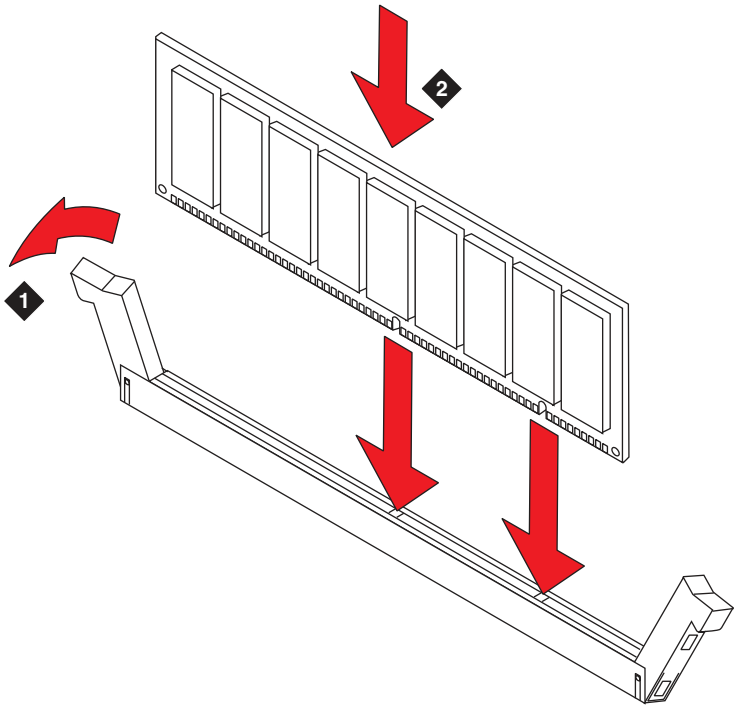
6. When the DIMM card is seated firmly, the holding clips spring shut to lock the card into position. Verify that the clips are firmly in place.

   CAUTION:

   Do not force a memory module into or out of the socket. This action can damage the socket, the memory module, or both.

7. Repeat Steps 1 through 7 to replace the second DIMM card in the memory module.

Figure 69: Inserting a memory module



dimmin LAO 123005

8. Replace the top cover. For more information, see Replacing the cover on page 128.
9. *For a rack-mount setup,* return the server to the cabinet.
   a. Guide the server onto the fully extended rails.

   CAUTION:

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

   b. Push in the release lock, the front latch, to slide the server into the cabinet.

c. Plug in all cables at the back of the server.

10. Plug in all AC power cords to restore power to the server. For more information, see Restoring power to the server on page 128.
11. Watch the memory test at the beginning of the boot.
    a. If the memory test completes, note the amount of memory that the system reports.
    b. Let the server boot completely.
12. Continue as follows:
    - If the system shows an amount of memory less than 2 GB or if the server did not boot, the memory module is faulty. Return to Replacing a memory module on page 201. Verify that the memory module is correctly installed. If so, you must replace the module.
    - If the system shows 2 GB of memory and booted correctly, the memory module is operating correctly. Continue with this procedure.
13. Verify that the server is operating correctly. For example, place a test call to the server.

Chapter 15: Replacing a server

This chapter describes how to replace an Avaya S3500-family message server if needed.

You might need to replace the entire Avaya server if:

- A non-field-replaceable component failed. For more information, see Replacing a partly functional S3500-family server on page 205.
- The entire server was damaged, such as by a lightning strike, fire, or flood. For more information, see Replacing the entire server on page 208.

Note:

If a replacement server is required, Avaya will attempt to replace it 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.

Contact a technical support representative for instructions on obtaining a replacement server.

Replacing a partly functional S3500-family server

If one of the following components fails, you must order a replacement chassis for the server:

- Front panel components or cables
- Power harness
- Server board, including any components on the board such as:
  - the processor
  - any connectors on the back of the server, such as the Ethernet interfaces for the LAN

Note:

The only component on the server board that is field replaceable is the memory module. For more information, see Replacing a memory module on page 197.

- Any other internal components that cannot be replaced on-site, such as the MSS-H SCSI backplane or any interior cables that are not field-replaceable units
- Damage to the chassis

A replacement chassis is sometimes called a *bare bones* chassis. Because you move the disk drives that contain all system data to the new server, the new server requires no additional programming to return to service.

The replacement or a *bare bones* chassis includes the components listed in Table 19.

Table 19: Components in replacement chassis for an S3500-family server

S3500-family server	Included in replacement chassis	Not included—must transfer from old server
MAS	• chassis fans • empty drive bays • standard power supply • server board with all components • all interior cables	• DVD player • IDE hard disk drive • any Dialogic port boards, if present
MSS-S	• chassis fans • empty drive bays • standard power supply • server board with all components • all interior cables	• DVD-RAM drive • two IDE hard disk drives • RMB
MSS-H	• chassis fans • empty drive bays • redundant power supply • server board with all components • all interior cables	• DVD-RAM drive • four SCSI RAID hard disk drives • RMB

Transferring disk drives and PCI cards from old server

When you receive the replacement server, you must transfer the components listed in Table 19 from the old server to the replacement chassis:

1. Unpack the replacement chassis. Verify that the new server appears to be in usable condition, with no obvious shipping damage.
2. Prepare to open the old server:
   a. Shut down the server. For more information, see Shutting down the server and removing AC power on page 124.
   b. Unplug all AC power cords.

WARNING:

The power cord set provided with this product must be used with this product only. Do not use the cord set with any other product, and do not use a different cord set with this product. Using the wrong cord set could lead to hazardous incidents such as electric shock, fire, and faulty operation.

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c. Unplug all cables at the back of the server. Label all cables so you can easily reconnect them.

3. *For a rack-mount setup,* remove the server from the cabinet.
   a. Prepare a clear area as a work surface for the server.
   b. Press the release clips on the rails to fully extend the rail.
   c. Lift the server off the rails, and set the server on the work surface. For safety considerations, get another person to assist you with moving the server.
4. Remove the top cover. Push the blue release buttons on the cover and slide the cover towards the back. For more information, see Removing the top cover on page 125.

CAUTION:

Observe proper electrostatic discharge (ESD) precautions when you handle computer components. Wear an antistatic wrist strap that touches your bare skin and connect the strap cable to an earth ground. For complete ESD instructions, see Protecting against ESD damage on page 133.

5. Transfer all PCI circuit boards from the old server to the new chassis:
   - **MAS**: Transfer any Dialogic port boards and the CT cable, if present. For complete steps, see Starting port board installation or repair on page 137.
   - **MSS-S and MSS-H**: Transfer the Remote Maintenance Board (RMB). For complete steps, see Replacing the RMB on page 153.
6. Transfer the DVD drive from the old server to the new chassis. For complete steps, see Replacing the DVD drive on page 165.
7. Transfer the hard disk drives from the old server to the new chassis:
   - **MAS**: Transfer the IDE hard disk drive. For complete steps, see Replacing an IDE drive—MAS or MSS-S on page 171.

- **MSS-S**: Transfer both IDE hard disk drives. For complete steps, see Replacing an IDE drive—MAS or MSS-S on page 171.
- **MSS-H**: Transfer the four SCSI RAID hard disk drives. For complete steps, see Replacing a redundant disk drive—MSS-H on page 175.

Returning the server to service

After you transfer all appropriate components to the replacement server, complete the following steps to return the system to full service:

1. Replace the top cover. For more information, see Replacing the cover on page 128.
2. Attach the appropriate mounting hardware for the new server. For more information, see:
   - **MSS configuration**: Installing S3500-family servers in a rack-mount or stackable setup on page 40.
   - **MAS-only configuration**: Installing S3500-family servers in a rack-mount or stackable setup on page 72.

   CAUTION:
   The Avaya Modular Messaging servers are heavy. Get another person to assist you with lifting the servers into place.
3. *For a rack-mount setup,* return the server to the cabinet.
   a. Guide the server onto the fully extended rails.
   b. Push in the release lock, the front latch, to slide the server into the cabinet.
4. Plug in all cables at the back of the server.
5. Plug in all AC power cords to restore power to the server. For more information, see Restoring power to the server on page 128.
6. Verify that the new server is operating correctly. For acceptance tests, see *Avaya Modular Messaging Installation and Upgrades* from the Avaya Support Web site at http://www.avaya.com/support.

Replacing the entire server

If the entire server was damaged, you must install a completely new server.

When you receive the replacement server, complete the following steps to bring the system into full service:

1. Install the new server. For complete steps, see:

- Chapter 4: Installing Avaya servers in an MSS configuration on page 33
- Chapter 5: Installing Avaya servers in a non-MSS configuration on page 65

Note:

The replacement server already has the operating system loaded. However, you might need to install software updates, as directed in the installation guide.

2. Restore data on the server.
   - **MAS**: Configure the new server. For complete steps, see *Avaya Modular Messaging for Avaya MSS Release 3 MAS Catastrophic Disk Failure Recovery* from the Avaya Support Web site at http://www.avaya.com/support.
   - **MSS**: Restore system data from backups. For complete steps, see Restoring data on the MSS on page 116.

   Note:

   If the MAS event log shows 1663 events, you must manually resynchronize the front end database (FEDB) on the MAS with the MSS. Contact your remote support organization for this procedure.
3. Verify that the new server is working correctly. For acceptance tests, see *Avaya Modular Messaging Installation and Upgrades* available on the Avaya Modular Messaging Documentation media or from the Avaya Support Web site at http://www.avaya.com/support.

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