Modular Messaging for Microsoft Exchange

Release 1.1

Installation

585-310-331
Comcode 700292006
Issue 1
December 2003

Notice
Every effort was made to ensure that the information in this book was complete and accurate at the time of printing. However, information is subject to change.

Avaya Web Page
The world wide web home page for Avaya is:
http://www.avaya.com

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

Avaya Fraud Intervention
If you s*uspect that you are being victimized* by toll fraud and you need technical assistance or support, call the Technical Service Center's Toll Fraud Intervention Hotline at 1.800.643.2353.

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

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

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

Such intrusions may 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 may 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 could 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).

Your Responsibility for Your Company's Telecommunications Security
The final responsibility for securing both this system and its networked equipment rests with you – an Avaya customer's 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
- Avaya provided software applications, as well as their underlying hardware/software platforms and interfaces
- Any other equipment networked to your Avaya products

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

Industry Canada (IC) Interference Information
This digital apparatus does not exceed the Class A limits for radio noise emissions set out in the radio interference regulations of Industry Canada.

Le Présent Appareil Nomérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class A préscrites dans le reglement sur le brouillage radioélectrique édicté par le Industrie Canada.

Trademarks
All trademarks identified by ® and ™ are registered trademarks or trademarks of Avaya Inc. All other trademarks are the property of their respective owners.

Ordering Information
Call: Avaya Publications Center
Voice 1 800 457-1235 International Voice +1 207 866 6701
Fax 1 800 457-1764 International Fax +1 207 626 7269
Write: GlobalWare Solutions
200 Ward Hill Avenue
Haverhill, MA 01835 USA
Attn: Avaya Account Management
Email: totalware@gwsmail.com

Obtaining Products
To learn more about Avaya products and to order products, visit www.avaya.com.

European Union Declaration of Conformity
The "CE" mark affixed to the equipment means that it conforms to the referenced European Union (EU) Directives listed below:
EMC Directive89/336/EEC
Low-Voltage Directive73/23/EEC
For more information on standards compliance, contact your local distributor.

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

Contents

About this book

Purpose

This book, *Avaya Modular Messaging for Microsoft Exchange Release 1.1 Installation*, Issue 1, contains instructions for installing or upgrading the Avaya Modular Messaging software in a Microsoft Exchange environment. Instructions include:

- New system installation including equipment assembly, machine set up and configuration, initial administration, and acceptance testing
- Upgrade instructions for a Unified Messenger Release 5.0 system
- Disaster-recovery procedures for reinstalling the operating system and application software on an Avaya-provided Messaging Application Server (Avaya MAS)

Note: This document is intended to get a Modular Messaging system up and running. Customers are encouraged to tailor the basic Modular Messaging parameters for their site after a successful installation using the *Avaya Modular Messaging Software Messaging Application Server Administration* guide (PDF 3 MB). Copies of this guide are on the documentation CD and application software DVD.

Intended audiences

This book is intended for system administrators and on-site technical personnel who are responsible for installing, configuring, or upgrading the hardware and software for an Avaya Modular Messaging system.

Users of this book should be familiar with administering Microsoft Windows 2000 and Microsoft Exchange systems. It is assumed that they have read the *Avaya Modular Messaging Concepts and Planning* guide.

Technicians who install an Avaya-provided Messaging Application Server (called the “Avaya MAS” in this guide) should have completed a relevant hardware installation training course. See *Related resources* in this preface for information on training.

How to use this book

Review the appropriate overview below depending on whether you are installing a new Avaya Modular Messaging system, or upgrading or repairing a system that was already in operation.

For new installations:

This document covers how to install Avaya Modular Messaging software on either a customer-provided Messaging Application Server (MAS), or on hardware provided by Avaya (called the “Avaya MAS” in this guide). Although most steps are similar, this guide does contain sections that are only applicable to one or another of these specific installations, as noted in the text.

1. Be aware of the system requirements in the *Avaya Modular Messaging Concepts and Planning* guide (PDF 2 MB). This guide explains important concepts and provides information that is crucial for planning a Modular Messaging system.

2. Complete *all* the worksheets in Appendix A, ‘‘System planning forms.’’ You *cannot* complete an installation or upgrade successfully without having this material complete and accurate. The customer *must* provide some of the information in advance.

3. Print the relevant checklist from Appendix B, ‘‘Installation checklists,’’ depending on whether you are installing the Modular Messaging software on a customer-provided MAS or an Avaya MAS. Keep the checklist handy and use it to track your progress during the installation.

4. Read Chapter 1, ‘‘Preinstallation requirements.’’ This chapter contains prerequisites and site preparation, including the documentation, tools, and equipment you will need to complete an installation.

5. Install the hardware required for your specific installation:

   - See Chapter 2, ‘‘Installing Avaya-provided hardware,’’ if you are installing an Avaya-provided Messaging Application Server (Avaya MAS) system and any optional peripheral devices provided by Avaya Inc. The port boards and much of the required software are already installed on an Avaya MAS.

   - See Chapter 3, ‘‘Installing MAS port boards,’’ to install the required port boards and Dialogic software in a customer-provided MAS.

Note:	No hardware installation is required if you are using an IP H.323 integration on a customer-provided MAS.

6. Chapter 4, ‘‘Preparing to install Modular Messaging software,’’ covers prerequisite steps that must be performed by the directory server administrator or other authorized personnel. This work *must* be completed before any other Modular Messaging software is installed.

7. From there, follow the directions in each chapter relevant to your setup to install, configure, and test the Modular Messaging software.

Note:	Completely install and test one MAS first, and let it run for 15 minutes before installing the software on any additional MASs.

For system upgrades or repairs:

- For all systems, complete the worksheets in Appendix A, ‘‘System planning forms.’’ Any information you enter *must* exactly match what was previously administered on the system. Customer input is required.
- *For a software upgrade:* Go directly to Chapter 11, ‘‘Upgrading Unified Messenger 5.0 to Modular Messaging software.’’ Obtain the software and documentation listed in the Overview section. Proceed as directed.
- *For a hard disk repair:* Go directly to Appendix F, ‘‘Recovering from a catastrophic disk failure.’’ Proceed as directed.

Trademarks

Related resources

This section describes additional documentation and training available to you.

Documentation

See the inside front cover for information on how to order documentation for this product.

Note:	Always refer to the appropriate CD, DVD, or book for specific information on planning, installing, administering, or maintaining an Avaya system. See the online catalog for more information on other books and CD-ROMs in the documentation set.

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 your 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, prompt 2, then 2.
- Within any other country: call your local distributor.

Help on the system

Online help is available for both the system and administration command-line screens. On the web-interface screens, use the **Help** button. On the command-line interface, press **F6** (Choices) from the field for which you want the help.

Training

For information about product training, go to the Avaya web site at www.avaya.com and click Training.

How to comment on this book

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

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

Please be sure to include the name of this book:

Avaya Modular Messaging for Microsoft Exchange Release 1.1 Installation, Issue 1.

1

Preinstallation requirements

This chapter describes requirements and prerequisites for installing Avaya Modular Messaging software on a new system in a Microsoft Exchange environment.

Required documentation

The following documentation is required to install a new Avaya Modular Messaging system. Some of this information can only be obtained from the Avaya web site. Other information is available in the *Avaya Modular Messaging Documentation* files on CD and DVD shipped with the system software. However, the required documentation can also be accessed online and printed out prior to beginning the actual installation.

Information on the web

Required documentation for a new installation is available as follows:

- The configuration notes for integrating the MAS and any Dialogic port boards installed in it with the PBX or switch at this site. To view these:

  a. Access the www.avaya.com/support web site.

  b. Under **Technical Database**, click **Messaging**.

  c. Click **Modular Messaging**.

  d. Under **General Info**, download or print the appropriate configuration notes for your switch integration.

  Note: This information is available *only* on the Avaya support web site and *must* be obtained prior to installing the software.

- An editable Microsoft Word version of the planning forms from Appendix A, ‘‘System planning forms,’’ and the installation and upgrade checklists from Appendix B, ‘‘Installation checklists,’’ are also accessible from this web site. To download the Word or PDF version:

  a. Under **R 1.1**, click **General Reference**.

  b. Click the **System Planning Forms** link to download or print the files appropriate for your configuration.

- Additional information needed for installing a new system is on the *Avaya Modular Messaging Application Software* disk and the documentation CD. To access this information online:

  a. Under **R 1.1**, click **CD Collections**.

  b. Click the *Avaya Modular Messaging Release 1.1 Documentation* link.

  c. Select the appropriate configuration (such as *Avaya Modular Messaging for Microsoft Exchange*).

  d. On the main page, under **Reference**, download the files you need:

     - The appropriate Dialogic port board installation documents for this site (see Table 3-1 on page 3-2 for details)

- The *Avaya Modular Messaging Subscriber Options User Guide* (585-310-789, PDF 1 MB), used for acceptance testing

Documentation and software shipped with the system

The following software and documentation is shipped with every Modular Messaging system.

Table 1-1. Required Modular Messaging software

Disk:	Purpose:
Avaya Modular Messaging Application Software DVD	• Installing the Modular Messaging software, Dialogic port board drivers, and Text-to-Speech (TTS) software • Upgrading a Unified Messenger Release 5.0 system to Modular Messaging Release 1.1 software • Accessing a copy of the documentation files (see contents listed under the documentation CD)
Avaya Modular Messaging Documentation CD (2 copies are shipped, one for the customer and one for the technician)	Accessing required documentation, including: • The port board installation documents listed in Table 3-1 on page 3-2 • *Avaya Modular Messaging Subscriber Options User Guide* (585-310-789, PDF 1 MB), used for acceptance testing • Any required hardware replacement procedures
Avaya Modular Messaging OS Boot Software DVD	• *For the Avaya MAS only:* Reinstalling the boot-image software on a new system if needed, or on an Avaya MAS hard disk after a catastrophic disk failure. See Appendix E, ‘‘Reloading software on an Avaya MAS.’’
CD-only set (special order only):	
Avaya Modular Messaging Application Software and Languages CD	Installing Modular Messaging Release 1.1 software on an MAS, or upgrading a Unified Messenger Release 5.0 system to Modular Messaging Release 1.1 software
Intel Dialogic Drivers CD	Installing or updating Dialogic port board drivers
Enhanced Email Reader Software (3 CDs in set)	Installing ScanSoft RealSpeak Text-to-Speech (TTS) software for multiple languages
Documentation CD	Identical to the CD shipped with the DVD set

Note: The configuration notes for your PBX or switch *can only* be obtained from the Avaya support web site. See "Information on the web" on page 1-2 for this procedure.

Security considerations

The following security-related issues apply to all Modular Messaging installations.

Customer's responsibility for their system's security

No telecommunication system can be entirely free from the risk of unauthorized use. Customers have ultimate control over the configuration and use of the product and are solely responsible for ensuring the security of their systems. Customers who administer and use the system can tailor the system to meet their unique needs and are in the best position to ensure that the system is secure to the fullest extent possible. Customers are responsible for keeping themselves informed of the latest information such as security patches, anti-virus updates and other relevant information for configuring their systems to prevent unauthorized use. System managers and administrators are also responsible for reading all the recommendations, installation instructions, and system administration documents provided with the product in order to understand the features that can introduce risk of toll fraud and the steps that need to be taken to reduce that risk.

Avaya does not warrant that this product is immune from or will prevent unauthorized use of telecommunication services or facilities accessed through or connected to it. Avaya will not be responsible for any damages or charges that result from either unauthorized uses or from incorrect installations of the security patches that are made available from time to time. To aid in combating these crimes, Avaya intends to strengthen relationships with its customers and its support of law enforcement officials in apprehending and successfully prosecuting those responsible.

Suspected security vulnerabilities with Avaya products should be reported to Avaya by sending mail to securityalerts@avaya.com. Reported vulnerabilities are prioritized and investigated. Any corrective actions resulting from the vulnerability investigation are posted at http://support.avaya.com/security. Whether or not immediate support is required, please report all toll fraud incidents perpetrated on Avaya services to Avaya Corporate Security. In addition to recording the incident, Avaya Corporate Security is available for consultation on product issues, investigation support, law enforcement, and education programs.

See Modular Messaging and Security on the documentation CD for more information on system security.

On-site security

It is the responsibility of the on-site installer to take precautions to protect passwords and the system's physical location as described in this section.

Password security

To protect password security:

- Do not leave written passwords laying out or allow anyone to see them.
- At the first opportunity, give the passwords directly to the customer's designated representative.
- If you suspect that the security of any password has been compromised, notify your project manager or system administrator.

System security during the installation

To protect system security during the installation:

- Remove all test subscribers and test mailboxes from the system when the procedures instruct you to do so.
- Always lock the server if you will be leaving it unattended, even for a short period of time.

System security

Customers are responsible for obtaining and installing anti-virus software on any Microsoft Windows machine that is used to run Avaya Modular Messaging software, in accordance with their local policy. In addition, Microsoft Windows security patches must be installed and routinely updated to protect the operating system from known security weaknesses.

Test equipment and tools

The following test equipment and tools are recommended for all new Modular Messaging installations.

Test equipment

Recommended test equipment for a successful installation includes:

- At least one telephone that is connected through the switch or Private Branch Exchange (PBX). It must be of the same type as the majority of telephones the customer will be using 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, it must be able to give the stutter notification.
  - The test telephone must be placed so that you can easily see the monitor while using it.
- A volt/ohm meter.

Tools

You should have the following tools on site to successfully install a new system:

- A medium-width flatblade 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 card, and cause problems such as electrical shorts.

Initial switch and LAN administration

This section describes the initial switch or Private Branch Exchange (PBX) and local area network (LAN) administration that must completed by the customer before or during a new Modular Messaging installation.

Initial switch or PBX administration

Initial switch or PBX administration may or may not be complete when you arrive on site, depending on the contract or customer agreements. When you install a new server, the switch must be administered to support the following situations:

- For configurations that use analog and DSE port boards, testing each channel to be connected to the system before assigning the channels to the server or another application. During this testing, you must be able to call each channel individually.
- Testing the system with at least one test subscriber.
- Performing cut-to-service procedures that provide the subscribers with an active coverage path.

Verify that initial switch administration and testing is complete.

Initial LAN administration

The LAN administrator must administer the corporate LAN for the messaging system. Some LANs might be administered prior to your arrival on site. Other LANs require that the administration for a new server be done at the time of installation.

Note: Avaya is not responsible for the installation, administration, or test of communications between customer computers and the LAN.

Preinstallation planning forms

Complete the planning forms in Appendix A, “System planning forms,” prior to beginning an installation. By acquiring IP addresses, server, and domain name information in advance, you can save hours of installation time and debugging.

CAUTION: It is crucial to coordinate the IP addresses that will be used with a Messaging Application Server (MAS) with those on the corporate LAN. If you specify an IP address for an MAS that conflicts with another Ethernet endpoint, the resulting traffic problems on the LAN may be extremely difficult to diagnose and solve.

Hardware requirements

A Modular Messaging software installation requires the following hardware:

- One or more Messaging Application Server (MAS) machines that will run the Modular Messaging software. These MASs can be:

  — An Avaya-provided Messaging Application Server (called the “Avaya MAS” in this guide) on which the port boards and much of the required software are already installed. Some preinstallation requirements for this configuration are covered in Chapter 2, ‘‘Installing Avaya-provided hardware.’’

  — A customer-provided machine that meets the minimum requirements specified in the *Avaya Modular Messaging Concepts and Planning* guide (PDF 2 MB). This machine requires the appropriate port boards and drivers to be installed prior to installing the Modular Messaging software as described in Chapter 3, ‘‘Installing MAS port boards.’’

  Note: No hardware installation is required if you are using an IP H.323 integration on a customer-provided MAS.

- A server that is running a compatible release of Microsoft Exchange software. This server is hereafter referred to as the *Exchange server*.

- A server that contains the subscriber mailboxes, such as Active Directory or the Microsoft Exchange Administrator application. This server is hereafter referred to as the *directory server*. This server may be the same as the Exchange server, or it can be a separate machine.

Both the Exchange server and the directory server must be in place and operational prior to installing the Modular Messaging software.

Note: Chapter 4, ‘‘Preparing to install Modular Messaging software,’’ covers prerequisite steps that must be performed by the directory server administrator or other authorized personnel. This work may be done before or during hardware installation, but *must* be completed before any other Modular Messaging software is installed.

Because a Modular Messaging installation requires many steps, print a copy of the checklist relevant to your configuration in Appendix B, ‘‘Installation checklists.’’ Check off items as you complete them to track your progress.

2

Installing Avaya-provided hardware

This chapter applies only to installing a Avaya-provided hardware, such as one or more Avaya Messaging Application Servers (called the *Avaya MAS* in this guide) and any optional peripheral devices provided by Avaya Inc. The port boards and much of the required software are already installed for an Avaya MAS.

Note: Before you can successfully complete the tasks in this section, you must have read Chapter 1, "Preinstallation requirements," and verified that all preinstallation requirements have been met.

To install port boards in a *customer-provided MAS*, continue with Chapter 3, "Installing MAS port boards."

Overview

This chapter is organized as follows:

Because a Modular Messaging installation requires many steps, print a copy of the checklist relevant to your configuration in Appendix B, ‘‘Installation checklists.’’ Check off items as you complete them to track your progress.

Site requirements for an Avaya MAS

This section describes the physical requirements for the installation site, including environmental, weight, space, and power considerations for an Avaya Messaging Application Server (Avaya MAS).

Environmental requirements

Table 2-1 lists the environmental conditions that must be maintained in the area where the Avaya MAS is installed and maintained.

Table 2-1. Environmental requirements

Operating state	Temperature	Maximum heat output	Humidity (noncondensing)
Operating	+10 to +35ºC (+50 to +95ºF)	730 BTU per hour	20% to 80% RH
Non-operating (in storage or being shipped)	-20 to +50ºC (-4 to+122ºF)	N/A	20% to 90% RH

Weight and space considerations

Table 2-2 lists the weight, height, width, and depth of an Avaya MAS.

Table 2-2. Avaya MAS weight and space considerations

Server	Weight (full)	Height	Width	Depth
Avaya Messaging Application Server (Avaya MAS)	40 lb. (18.1 kg) (without port boards)	6.8 in. (17 cm)	16.9 in. (43 cm)	18.9 in. (48 cm)

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

Customer-provided cabinet requirements

If an Avaya MAS 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 server's weight.
- The customer-provided cabinet must be secured to the floor before attempting to mount any units.

- The sliding rails and extender brackets provided with each Avaya MAS are designed for mounting in cabinets 22.5 to 32 inches in depth.
- The cabinet height needs to accommodate the number of units to be mounted (see Table 2-2 for server height). It may also need to hold the MAS modems and optional equipment such as the KVM switch and UPS units (see Figure 2-1 on page 2-9 for an example).

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 the Avaya MAS such that the ventilation or fan openings will be blocked.
- For T1/E1 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 and/or CSA Certified. For E1 lines, either the network provider or the customer must provide a CSU (E1) or other equivalent protection that has the product safety approvals required by the local jurisdictions.

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

ATTENTION : Pour réduire les risques d'incendie, utiliser uniquement des conducteurs de télécommunications 26 AWG au de section supéleure.

- Systems installed in Finland, Norway, Sweden and Australia must be installed in a restricted-access location. A restricted-access location is defined as an installation location where access can be gained only by service personnel or customers who have been instructed on the reasons for the restricted access and safety precautions that must be taken. 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 2-3 lists the power requirements for the Avaya MAS. The AC power supply source needs to be a single phase 3-conductor (line, neutral, and ground), with a 15 A circuit breaker for 100-127 Vac installations or a 10 A circuit breaker for 200-240 Vac installations.

Table 2-3. Avaya MAS power requirements

Server	# of power supply units	Volts AC	Hertz	Amperes 120V/240V
Avaya MAS	1	100-240 +/– 10%	50/60 +/– 3 Hz	10/5

Consideration must be given to the server connection to a branch circuit with respect to overload or overcurrent protection. Check the system's ratings to ensure that, together with other equipment connected to the same branch circuit, an overcurrent or overload condition does not exist.

Grounding requirements

An Avaya MAS relies on the ground connection through the mains socket-outlet for continued safe operation. Ensure that the AC main outlet to be used to power the system (via the power cord or 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.

In addition, observe the following grounding requirements when determining where to place the server:

- Use only the power cord provided with each unit to connect it 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.

WARNING: The Avaya MASs *must* be connected to an earthed mains socket-outlet. Failure to do so will result in allowing a hazard to be present that could cause severe personal injury or death.

CAUTION: System grounding must comply with the general rules for grounding provided in article 250 of the National Electrical Code (NEC), National Fire Protection Agency (NFPA), or 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)

The demarcation point for switch (PBX) connections to the Avaya MAS is the wall field for Avaya switches.

For non-Avaya switches, it is the end of the connector of the Avaya-provided cables for the port boards. Avaya service technicians dispatched for the system installation are not responsible for making any connections directly to switches that are not maintained by Avaya.

Note: Avaya recommends joint acceptance testing for systems integrated with switches that are not maintained by Avaya.

Demarcation point for LAN connectivity

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

- The LAN cables that connect the Avaya MAS to the corporate system (unless the customer uses Avaya-provided cables, in which case the demarcation point is the modular connector at the end of the LAN cables).
- LAN administration not performed on the Avaya MAS.
- 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, as well as any DNS server IP information and corporate domain names.

Avaya service technicians dispatched for system installation are not responsible for troubleshooting the customer's LAN.

Unpacking the hardware

This section lists the required and optional hardware that is needed to successfully install and maintain an Avaya Modular Messaging system.

Required and optional hardware

An Avaya Messaging Application Server (Avaya MAS) requires the hardware components listed in Table 2-4. Verify that all the components needed for this installation are on site.

Table 2-4. Required and optional Avaya MAS hardware

Item	Quantity	Required/optional
Required equipment:		
Avaya Messaging Application Server (Avaya MAS)	1 minimum, 10 maximum	required
Server AC power cables	1 per Avaya MAS server	required
Front bezel	1 per server	required
Rack-mount assembly (rails, handles, brackets, 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 MAS server	required
Port board cables (see Table 3-1 on page 3-2)	1 set per port board	required for port boards
Optional or customer-provided equipment:		
Monitor (includes power cord and VGA cable)	1	optional; may be customer-provided
Keyboard and mouse (includes cords and Y cable)	1 set	optional; may be customer-provided
KVM switch (includes power transformer) KVM switch cable to each server includes 1 set of rack-mount brackets *if needed for rack-mount setup*	1 KVM switch 1 cable per server 1 set if needed	optional; other models of switching devices may be used

Table 2-4. Required and optional Avaya MAS hardware

Item	Quantity	Required/optional
Uninterruptible power supply (UPS) with required power cord includes 1 set of rack-mount brackets *and* rubber spacers for a stackable setup	1	optional; type may vary
Extended battery module (EBM) with required power cord includes 1 set of rack-mount brackets *and* rubber spacers for a stackable setup	1 to 4	optional; may be ordered with the UPS

Saving the packing materials

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

- Antistatic bags
- Cardboard and foam inlays

Note: The packing materials may 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 such as the monitor, keyboard/mouse, all required modems, and the UPS and any EBMs (if used).

Installing the Avaya MAS

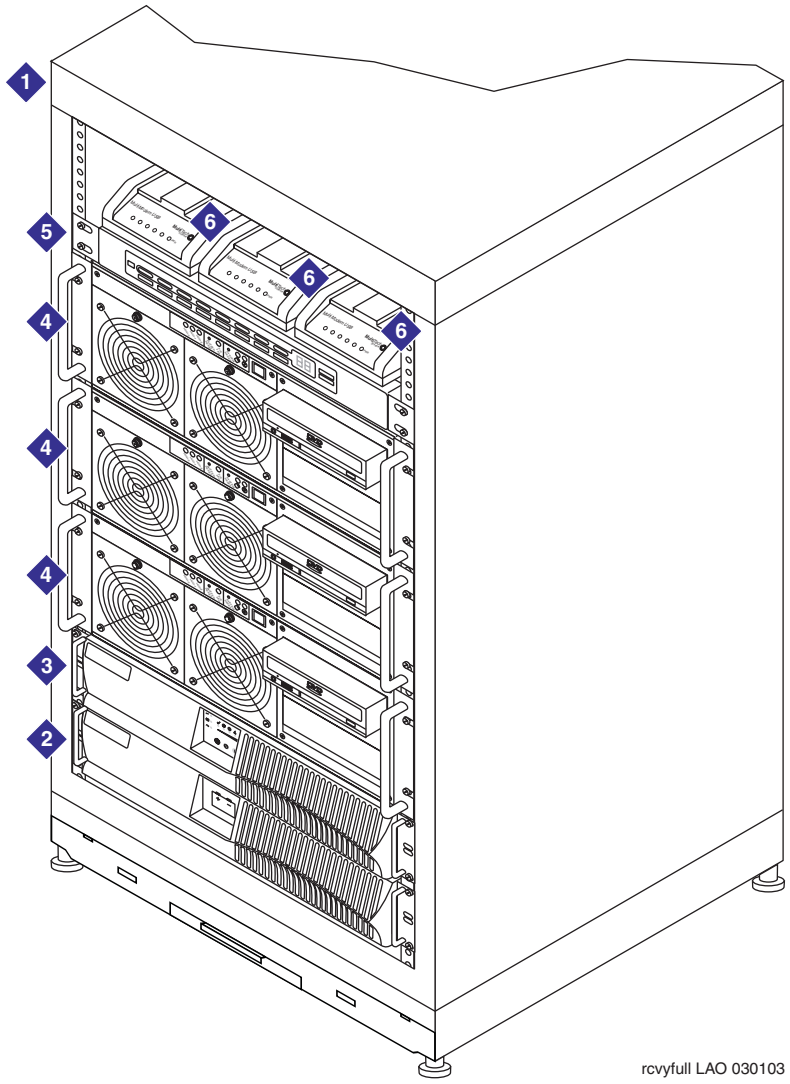
This section covers how to install one or more Avaya Messaging Application Server (Avaya MAS) units. Hardware components that are optional are noted in the text. For more information about required and optional hardware, see Table 2-4 on page 2-7.

The Avaya MAS units can be installed in one or more customer-provided commercial cabinets as a rack-mount system, or without a commercial cabinet in a stackable desktop configuration. This section includes instructions on how to install both rack-mount and stackable desktop configurations.

Figure 2-1 on page 2-9 shows an example of an installed rack-mount system.

Note: The sample figure shows the Avaya MAS servers with their front bezels removed.

Figure 2-1. Example of an installed rack-mount Avaya MAS system (front view)



1	Customer-provided cabinet (type may vary; see physical requirements in "Installation area requirements" on page 2-4)
2	EBM (optional; 0 to 4 may be installed with a UPS)
3	UPS (optional; model may vary)
4	Avaya Messaging Application Server (Avaya MAS); up to 10 units may be present
5	KVM switch (optional; type may vary)
6	External modem; one is required for every MAS

Installing the UPS and EBMs (optional)

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

- Customers may order a different model of UPS, or supply their own. See the documentation that was provided with the UPS for instructions.
- If a UPS will not be installed, continue with the next section, "Installing the Avaya MAS" on page 2-14.

The UPS is an optional component for the Avaya MAS that can protect the system from most common power problems including power failures, power sags, power surges, and so on.

The EBM is an optional component that works in conjunction with the UPS to add additional run time for the system. The customer may add up to four EBMs per UPS. For more information, see the documentation that was shipped with the EBM and UPS.

To install the UPS and EBMs:

- For rack-mount installations, see "Installing the UPS and any EBMs into a rack" on page 2-10.
- For a stackable desktop configuration, see "Installing the UPS and any EBMs as a stackable configuration" on page 2-12.

Installing the UPS and any EBMs into a rack

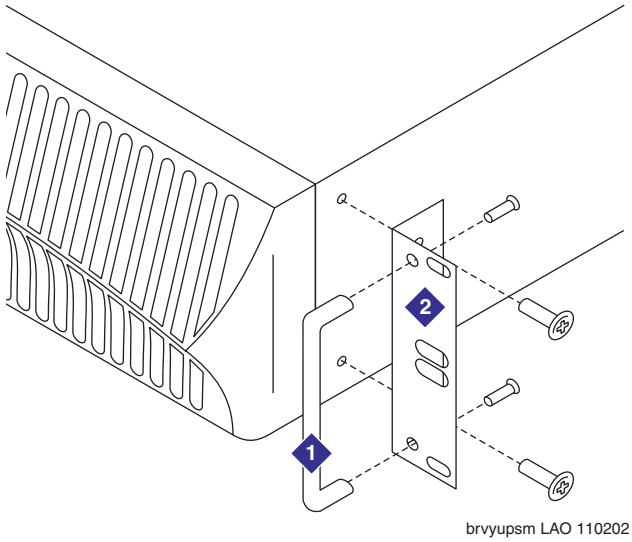
In a rack-mount configuration, the UPS and EBMs must be positioned in the rack below any Avaya MAS units, with the EBM units in the lowest-available position.

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 facing toward you.

3. Attach the mounting handle to each bracket using the supplied screws. See item 1 in Figure 2-2.

Figure 2-2. Attaching mounting handles and bracket for a rack-mount UPS



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 2-2.

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

> **Note:** The EBMs must be installed below the UPS.

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

> **Note:** If additional EBMs need to be installed 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 and attach the UPS to the rack using customer-provided screws.

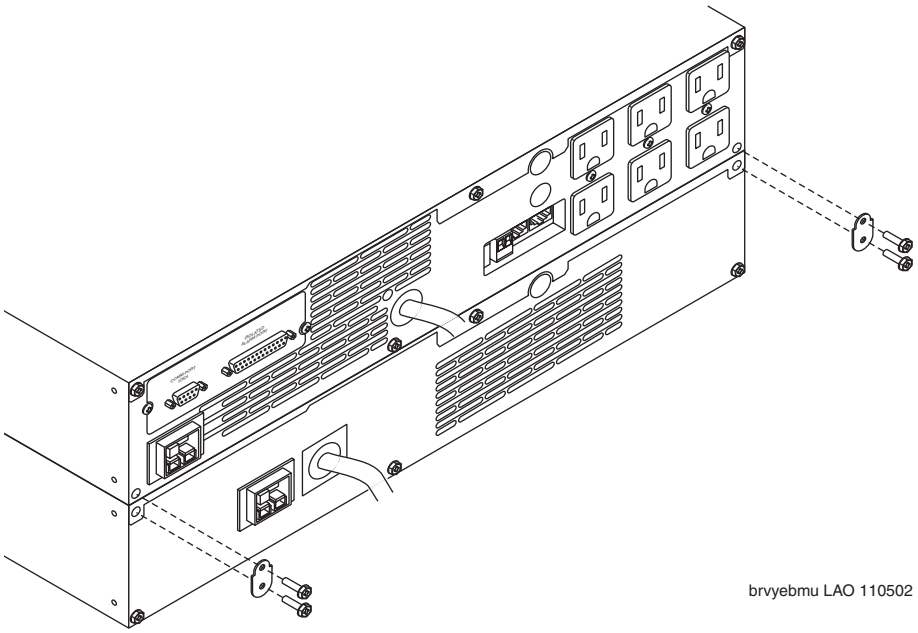
8. Continue with the "Cabling the UPS and any EBMs" on page 2-13.

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, remove the adjacent corner screws from the rear panels. See Figure 2-3 for the location of these screws. If you do *not* have any EBM units, go to step 4.

Figure 2-3. Attaching connecting brackets between a UPS and EBM (back view)



2. Install the EBM brackets by aligning each bracket with the screw holes and secure the bracket the supplied screws as shown in Figure 2-3.

3. Repeat steps 1 and 2 for each additional EBM.

4. 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.

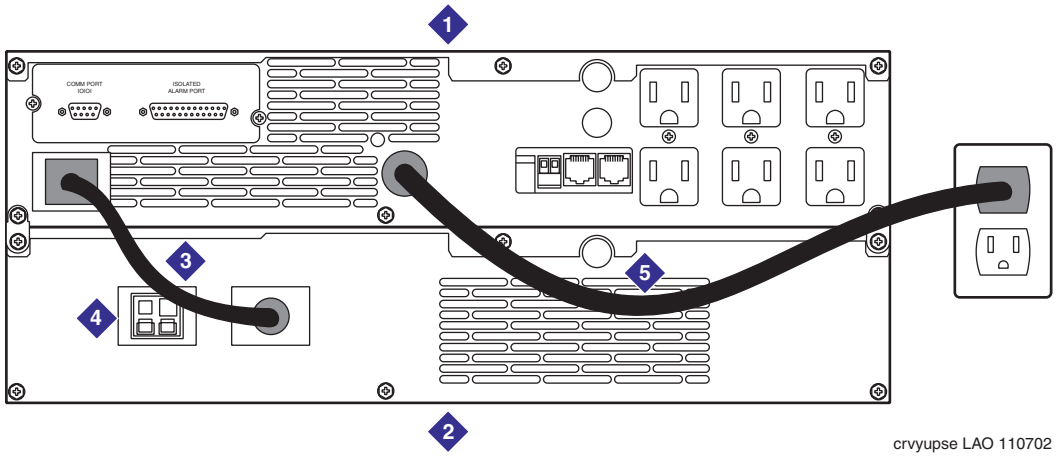
5. Set the unit on a stable platform. This unit will form the base of the stackable desktop configuration.

Cabling the UPS and any EBMs

To cable the UPS and any EBM units:

1. Connect the EBM cable to the battery connector on the UPS. See item 1 in Figure 2-4.
2. If you need to connect additional EBMs, plug the EBM cable of the second EBM into the battery connector on the first EBM.
3. Repeat step 2 for each additional EBM. Up to four EBMs may be connected to the UPS.

Figure 2-4. Connecting a UPS and an EBM (back view)



1	UPS (model may vary; see the provided documentation for details)
2	EBM (optional; 0 to 4 may 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 outlet

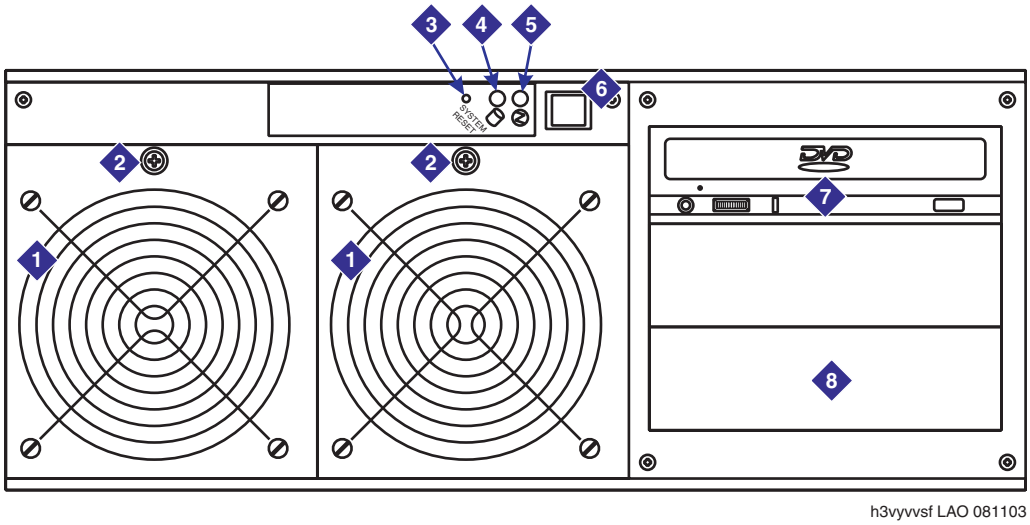
Installing the Avaya MAS

This section describes Avaya MAS components, and how to install the Avaya MAS in a customer-provided commercial cabinet or in a stackable desktop configuration.

Identifying key components of the Avaya MAS

Figure 2-5 shows an Avaya Messaging Application Server (Avaya MAS). You may have up to four Avaya MASs per Modular Messaging system.

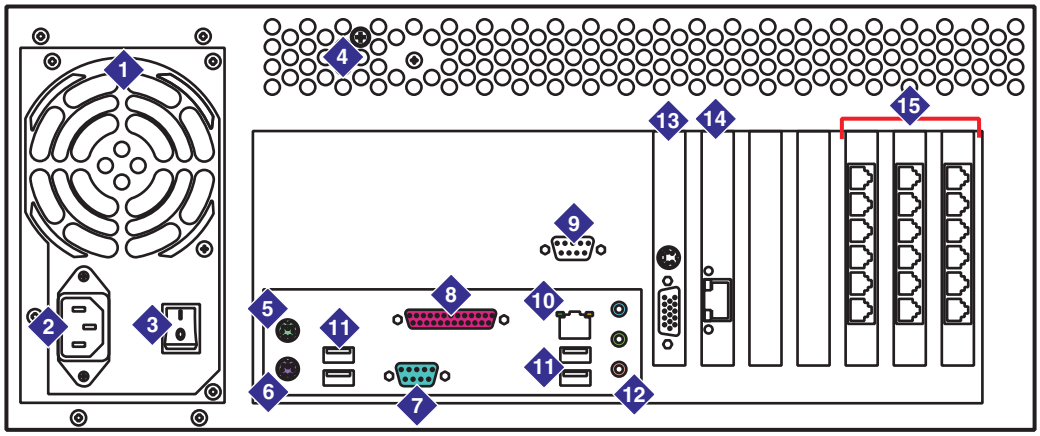
Figure 2-5. Avaya MAS (front view with bezel removed)



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

Figure 2-6 shows the back view of an Avaya Messaging Application Server (Avaya MAS).

Figure 2-6. Avaya MAS (back view)



1	Power supply
2	AC power receptacle
3	Power supply on/off switch
4	Latch for top cover
5	Mouse connector
6	Keyboard connector
7	Serial port (COM1)
8	Parallel port (not used)
9	Serial port (COM2)
10	Corporate LAN interface
11	USB ports, one of which is used for the required modem
12	Audio connectors (not used)
13	Video card (contains monitor connector)
14	Network interface card (not used)
15	Port boards (type varies from machine to machine). Up to six port boards can be installed in each MAS (depending on the type of board and traffic requirements), typically starting from the end of the cabinet. Port boards are not present for IP H.323 integrations. See "Supported MAS port boards" on page 3-2 for details.

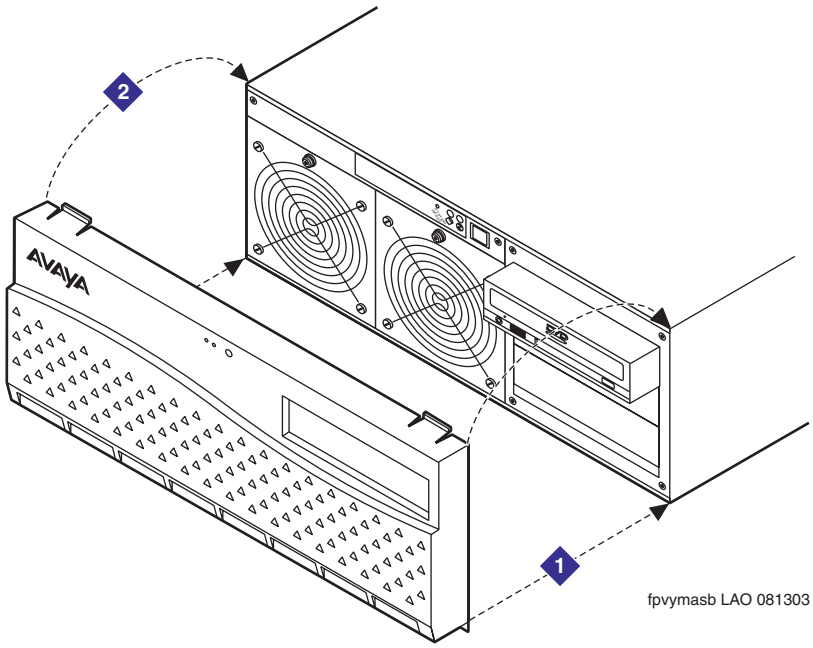
Attaching the front bezel

The front bezel must be attached to each Avaya MAS as described.

1. Insert the bottom of the front bezel into the chassis. See item 1 in Figure 2-7.

2. Push the bezel upright until the two upper tabs snap into place under the top cover.

Figure 2-7. Attaching the front bezel



Installing the Avaya MAS in a rack-mount or stackable setup

The Avaya MAS can be installed either in a commercial cabinet in a rack-mount configuration, or stacked on top of one another in a desktop configuration. Continue with the appropriate section based on the installation method to be used at your site:

- "Installing an Avaya MAS in a rack-mount configuration" on page 2-17
- "Installing the Avaya MAS in a stackable desktop configuration" on page 2-19

> **CAUTION:** The Avaya MAS is heavy. Get another person to assist you with lifting and placing the unit.

Installing an Avaya MAS in a rack-mount configuration

The task describes how to install one or more Avaya MASs in a commercial cabinet. This is also called a rack-mount configuration.

> **Note:** The first Avaya MAS is typically installed directly above the UPS. If a UPS is not present, install the Avaya MAS in any available position in the cabinet.
>
> If more than one Avaya MAS is present, you typically install each additional MAS above the first MAS. However, all the Avaya MASs do not have to be in the same cabinet.

Before you begin to install the servers into the rack, verify that the necessary rack-mount hardware is on site. Required equipment is summarized in Table 2-5.

Table 2-5. Required rack-mount hardware

Part	Quantity
Extension bracket (two different lengths may be shipped)	2 per server
Right-side rack-mount rails and slides	1 set per sever
Left-side rack-mount rails and slides	1 set per sever
Front panel handle set (handles and mounting brackets; these may already be assembled on some units)	1 set per server
Miscellaneous screws and mounting hardware	1 set per server
Customer-provided: Mounting hardware to secure the extension bracket and rack-mount slide to the customer-provided rack.	1 set per rack-mount rail and extension bracket

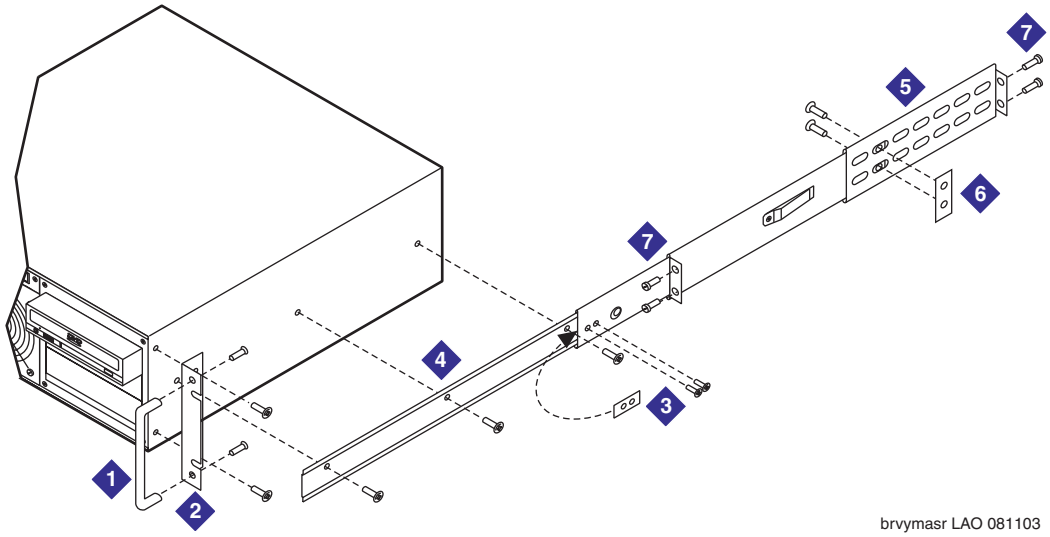
To install an Avaya MAS into a rack:

1. Gather the necessary rack-mount hardware as listed in Table 2-5.
2. Place the server on a flat, stable surface.
3. *If the mounting handles are not already attached,* attach them now:
   a. Connect the handles to the bracket using the supplied flat-head screws. See item 1 in Figure 2-8 on page 2-18.
   b. Align the mounting bracket with the screw holes on the side of the server and secure using the supplied flat-head screws. See item 2 in Figure 2-8.
4. Attach the rack-mount rails to the server as follows:
   a. Remove the two screws and retaining bar on the rail slide just before the server-retaining latch. Set them aside for later. See item 3 in Figure 2-8.
   b. Disassemble the slide (necessary to access all three screw holes).

c. Place the flat piece of the rail slide against the server and secure it with the three supplied flat-head screws. See item 4 in Figure 2-8.

> **Note:** The rack-mount rails are labeled **L** for left and **R** for right. Verify that you are installing the correct rail on the correct side.

Figure 2-8. Attaching server mounting handles, bracket, and rack-mount rail assembly



5. Position the extension bracket on end of the rail slide to provide the depth needed for the server to fit in the rack. A couple of extension brackets may be shipped; choose the correct length for your cabinet. See item 5 in Figure 2-8.

6. Attach the extension bracket to the rear of the rail slide using the supplied screws and retaining bar (2 pan-head screws per bracket). See item 6 in Figure 2-8.

7. Connect the extension bracket and rail slide to the customer-provided four-post rack using the correct customer-provided hardware for that model of cabinet. See item 7 in Figure 2-8.

8. Fully extend the rail slides to the locked-out position.

9. With another technician supporting the unit, align the front of the rail slide with the rack-mount rail that is attached to the server.

10. Push the unit onto the rail slide far enough so that the safety catch engages.

11. Slide the server completely into the rack. Ensure that the server moves smoothly in an out of the rack.

12. Reattach the two screws and retaining bar on the rail slide just before the server-retaining latch (item 3 in Figure 2-8, from step 4a).

13. Repeat steps 2 through 10 for each server that needs to be installed.

14. When all servers are mounted, continue with "Connecting the Avaya MAS power cables" on page 2-20.

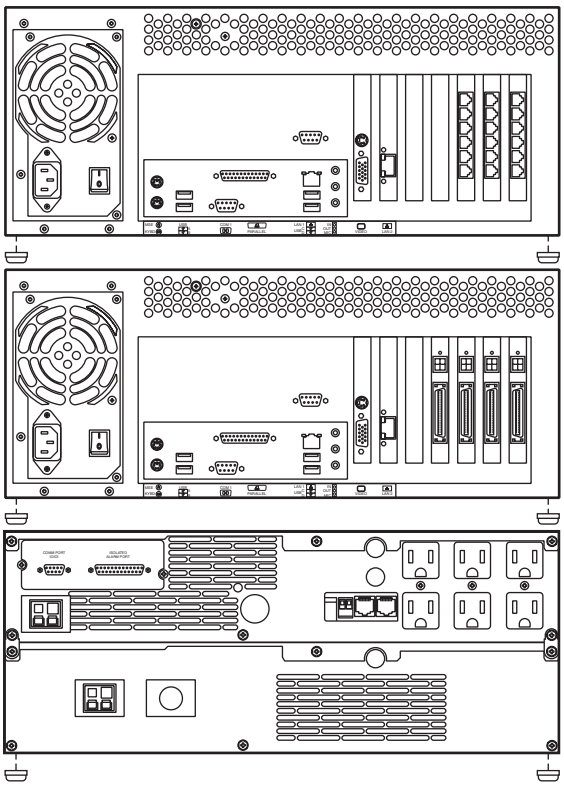
Installing the Avaya MAS in a stackable desktop configuration

If the system is to be installed in a stackable desktop configuration, you must install four rubber spacers on the bottom on each of the servers. This allows you to stack the servers on top of one another.

> **CAUTION:** For safety, do not stack more than two servers atop one another; use multiple stacks if needed. If you have a UPS *and* an EBM, stack only one server on top of them.

See Figure 2-9 for a sample configuration.

Figure 2-9. Installing rubber spacers for a stackable desktop configuration



prvyfet2 LAO 081303

To install Avaya MASs in a stackable desktop configuration:

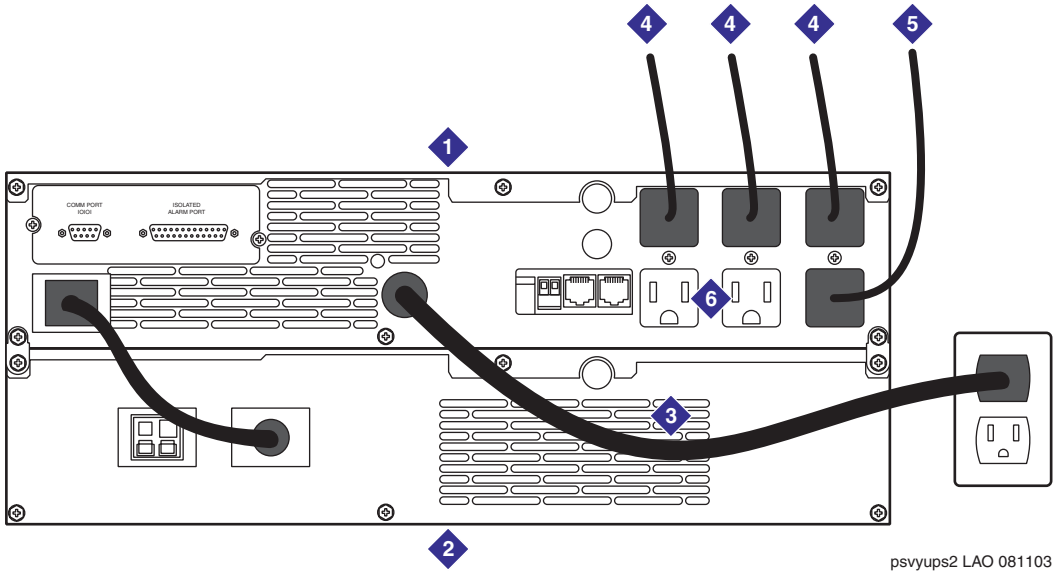
1. Gather the rubber spacers shipped with each server.
2. Attach the rubber spacers to the bottom of each of the servers, one at each corner. See Figure 2-9 on page 2-19 for an example.
3. Position the UPS (if present), or the first Avaya MAS (if no UPS is present) in an appropriate location. See "Site requirements for an Avaya MAS" on page 2-3 for details.
4. Place the second Avaya MAS (if present) on top of the first one.
5. If more Avaya MASs are present, create a second stack, placing each additional MAS on top of the last one.

Connecting the Avaya MAS power cables

To connect the MAS power cables:

1. Connect the female end of the MAS power cable to the male power connector on the back of the Avaya MAS.
2. Connect the male end of the MAS power cable to AC receptacle on the back of the UPS (if present), or to an appropriate AC power outlet. See Figure 2-10 for an example.
3. *If you have more than one MAS:* repeat steps 1 and 2 for each MAS.
4. If a UPS is present, connect the UPS power cable into an appropriate AC power outlet.

Figure 2-10. Attaching power cables to a UPS (sample configuration)



1	UPS (model may vary; see the provided documentation for details)
2	EBM (optional; 0 to 4 may be installed)
3	UPS power cable to a grounded AC power outlet
4	AC power cable to each Avaya MAS
5	AC power cable to other equipment, such as the required external modem or the optional KVM switch and monitor
6	Additional AC sockets; use as needed for additional equipment or MASs

Connecting the Avaya MAS port boards

You are now ready to connect the cables supplied for your port boards to the PBX or switch. To do this:

1. See "Connecting the MAS port boards" on page 3-12 and follow the instructions for connecting the port board cables.

2. When you have completed that section, return here and continue with "Connecting the Ethernet cable" on page 2-22.

Connecting the Ethernet cable

A standard Ethernet cable is shipped with every Avaya MAS. You can use this cable or a customer-provided cable to connect the Avaya MAS to the corporate LAN.

To connect each Avaya MAS to the corporate LAN:

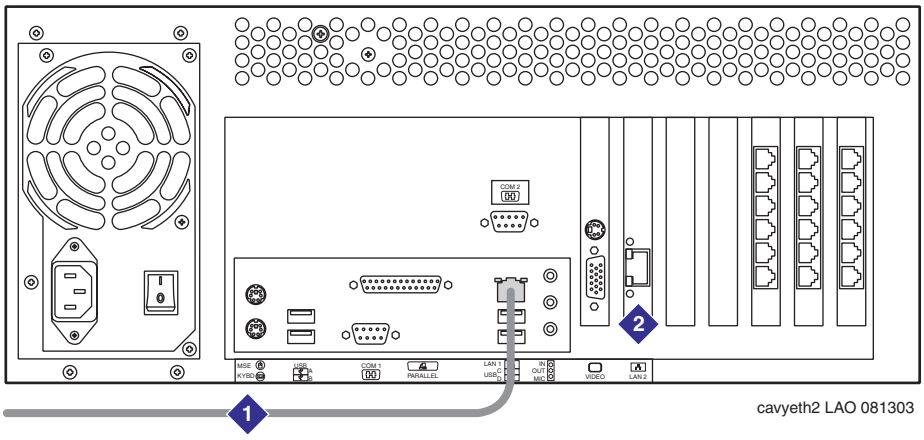
1. Connect one end of the standard Ethernet cable to the RJ45 connector on the back of the server. See Figure 2-11 on page 2-22.

> **Note:** Make sure that you connect the Ethernet cable for the *corporate* LAN to the Ethernet interface on the back of the Avaya MAS housing. The Ethernet interface on the NIC in the PCI slot is *not used* in this configuration.

2. The other end of this cable should be connected to an Ethernet interface on the corporate LAN. The entity that is responsible for maintaining the corporate LAN should make this connection (see the customer contract or the statement of work).

3. Repeat steps 1 and 2 for each Avaya MAS in your configuration.

Figure 2-11. Connecting an MAS to the corporate LAN (rear view)



1	Ethernet interface to the corporate LAN
2	NIC connection *(do not use in this configuration)*

Installing the KVM switch (optional)

A keyboard, video, and mouse (KVM) switch may be used to facilitate switching between servers in a Modular Messaging installation. See Figure 2-1 on page 2-9 for a sample installation.

> **Note:** If you are not installing a KVM switch, continue with "Attaching ferrites" on page 2-27.

The model of KVM switch and the specific monitor, keyboard, and mouse used may vary from site to site (for example, a flat-panel monitor setup may be used instead). This section describes how to install one specific model.

To install the Belkin OmniView Pro2 Series KVM switch:

- For rack-mount installations, see Installing the KVM switch in a rack-mount configuration.
- For a stackable desktop configuration, see "Installing the KVM switch in a stackable configuration" on page 2-24.

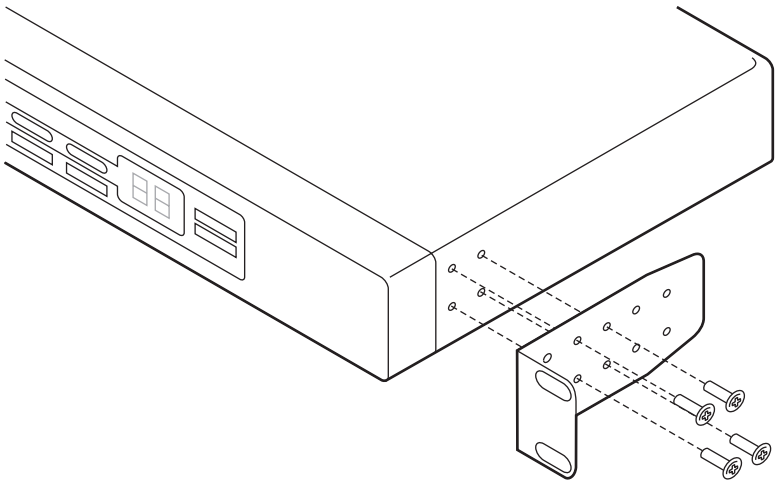
Installing the KVM switch in a rack-mount configuration

To install the Belkin OmniView Pro2 Series 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 should protrude from the rack.
3. Install the two rack-mount brackets on the KVM switch using the provided screws. See Figure 2-12 on page 2-24.
4. Install the KVM switch into the rack above the last installed MAS.

5. Continue with "Connecting the KVM cables" on page 2-24.

Figure 2-12. Attaching mounting brackets for a rack-mount KVM



brvykvmm LAO 120502

Installing the KVM switch in a stackable configuration

To install the Belkin OmniView Pro2 Series KVM switch in a stackable desktop configuration:

1. Place the KVM switch on top of the uppermost MAS. Rubber spacers are already in place.

2. Continue with connecting the KVM cables.

Connecting the KVM cables

The Belkin OmniView Pro2 Series KVM switch must be connected to the keyboard, monitor, and mouse, and then to each MAS, 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 may vary from site to site, depending on the equipment and cabling used. This section provides instructions for a Belkin OmniView Pro2 Series KVM switch setup.

To connect the KVM switch to the keyboard, monitor, and mouse:

1. If a new monitor or keyboard/mouse was ordered for this system, unpack them now. Otherwise, continue with step 2.

   Note: If a new monitor was not purchased with the system, any 15" or greater monitor can be used.

   a. Set up the monitor in the desired location.

   b. Connect the keyboard/mouse to the monitor.

   c. Plug the female end of the monitor's power cable into the monitor.

   d. Plug the male end of the monitor's 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 2-13 on page 2-26.

3. Tighten the thumbscrews on the video cable connector with your fingers or with a small flatblade screwdriver.

4. Connect the PS/2 cables for the mouse and keyboard to their corresponding connectors on the back of the KVM switch in the "Console" section using the Y cable. See item 2 in Figure 2-13.

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

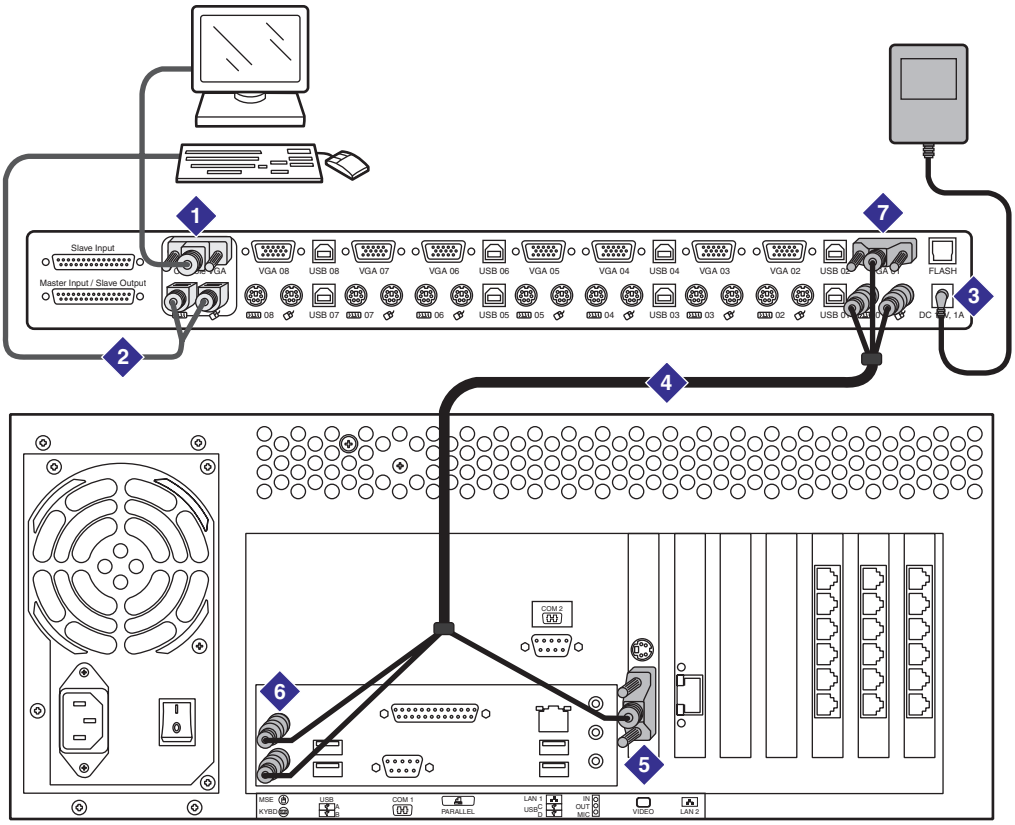
5. Attach the KVM power cable to the DC power jack labeled "DC 12V, 1A" on the rear of the KVM switch.

6. Connect the other end of the KVM power cable (the AC-to-DC transformer) to a receptacle on the back of the UPS (if present) or to an appropriate power outlet.

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

7. Push the direct-access port selectors for ports 01 through 08 in order. The corresponding LED should flash as each button is pressed, indicating that the port is ready for the server connection.

Figure 2-13. Connecting a Belkin OmniView Pro2 Series KVM switch (rear view)



1	VGA cord from monitor to Console VGA port on KVM switch
2	Y cable to combination keyboard/mouse (setup may vary)
3	DC power jack for transformer cable
4	KVM switch video/keyboard/mouse cable to each server unit
5	VGA connector on the Avaya MAS (in the AGP slot)
6	Keyboard and mouse connectors on the Avaya MAS
7	Belkin OmniView Pro2 Series KVM switch. This example shows an Avaya MAS connected to the first computer port VGA 01; additional Avaya MASs are connected in the subsequent port positions beginning with VGA 02.

Connecting the KVM switch to the Avaya MAS

To connect the KVM switch to any installed Avaya MAS units:

1. Using the provided KVM cable, plug the male VGA connector into the VGA port on the first MAS. See Figure 2-13 on page 2-26.

2. Connect the PS/2 keyboard and mouse connectors of the KVM cable to the keyboard and mouse ports on the back of the Avaya MAS.

> **Note:** The mouse connector is color-coded green, and the keyboard connector is color-coded purple.

3. Connect the other end of the KVM cable to the port on the back of the KVM switch labeled VGA 01.

4. Connect the ends of the cables to the keyboard and mouse ports located directly underneath the VGA 01 port.

5. Repeat steps 1 through 4 for each additional MAS, connecting to port VGA 02, VGA 03 and so on, as needed.

Attaching ferrites

Ferrites must be attached to the Avaya MAS video cable and to each T1- or E1-QSIG port board cable (if this type of board is present in any MAS) to meet electromagnetic conductance (EMC) regulations. The optional flat-panel monitor with an integrated KVM switch also requires ferrites.

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

To install a ferrite on a cable:

1. *For each Avaya MAS:* Locate the video connector in the first slot on the back of the Avaya MAS.

2. Open the ferrite by gently pulling the fastener away from the body of the ferrite. See Figure 2-14 on page 2-28.

3. Place the cable cord in the groove inside the ferrite, then gently snap the ferrite shut.

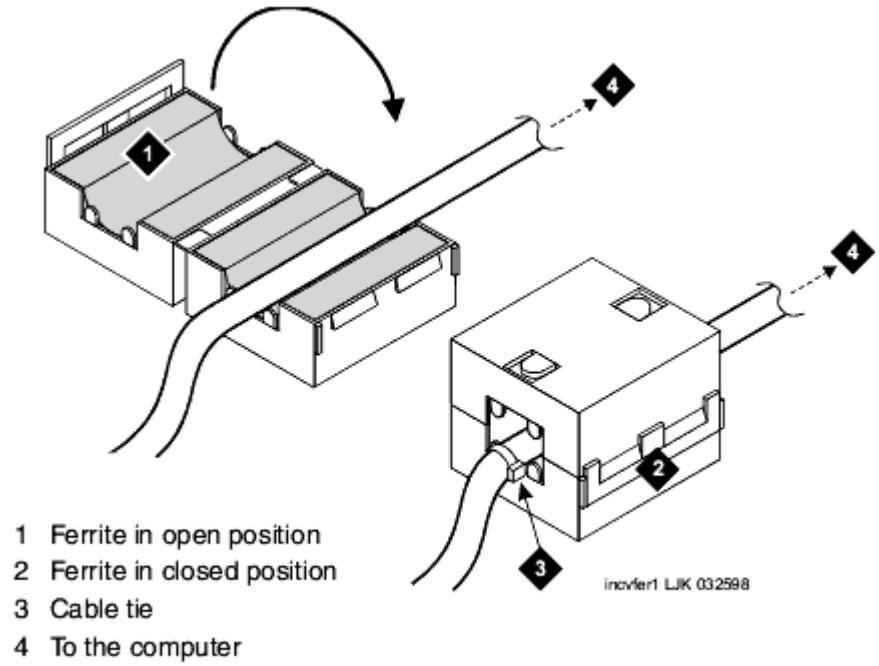
> **Note:** Place ferrites as close as possible to the chassis to minimize the amount of cable between the ferrites and the chassis.

4. Attach a large cable tie directly behind the ferrite to secure it. Trim the cable tie.

5. *For MASs that use T1- or E1-QSIG port boards:* Repeat steps 2 through 4 to attach a ferrite to each QSIG port board cable.

6. *For systems that use a flat-panel monitor:* Repeat steps 2 through 4 to attach a ferrite to the mouse and keyboard cables at each server. One ferrite can be used for both cables.

Figure 2-14. Attaching a ferrite to a cable



Connecting the USB modem on the MAS

A USB modem is required for every Avaya MAS. The type of modem you have may vary depending on your location. See the documentation included with your modem if you have questions about modem installation, setup, or operation.

This section describes a MultiTech USB modem setup. See Figure 2-15 on page 2-29 for an example.

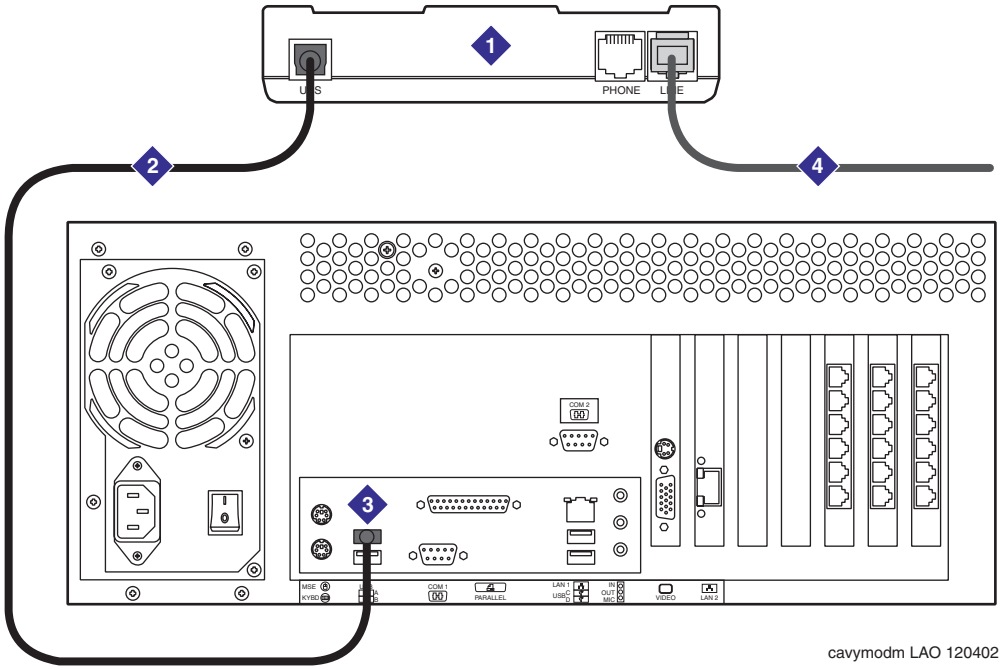
To connect a USB modem:

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 Avaya MAS. USB port A is recommended as shown in Figure 2-15 on page 2-29.
5. Connect the RJ-11 cable to the LINE connector on the modem.

6. The other end of the cable should be connected to an analog line on the corporate switching system. The entity responsible for maintaining the corporate switch should make this connection (see the customer contract or the statement of work).

7. Repeat steps 1 through 6 for every Avaya MAS modem.

Figure 2-15. Connecting a USB modem to an Avaya MAS (rear view)



1	USB modem
2	USB cable to the MAS
3	USB connector on the server (port A is recommended as shown)
4	RJ-11 cable to the corporate switch

Powering up an Avaya MAS system

When every Avaya MAS is installed, power up the system as follows:

1. Verify that the power cables for the MASs and all peripheral devices are connected to the UPS or an appropriate AC power outlet. See Figure 2-10 on page 2-21 for an example. Connections include:
   - UPS (if present): connected to an appropriate AC power outlet.
   - All MAS units: each connected to the UPS (if present), or to an appropriate AC power outlet.
   - KVM switch and monitor (if present): optionally connected to the UPS (if present), or to an appropriate AC power outlet.
   - External modems: *if a power cord is required,* it may be connected to the UPS (if present), or to an appropriate AC power outlet.
2. *If a UPS is present:* Press the On button on the front of the UPS. The appropriate lamps should light (see your UPS documentation).

   Note: Always power up the UPS first, if a UPS is installed.

3. Press the monitor's power button. The power lamp on the monitor should light.
4. *If an external modem is present,* press the On button if needed. The appropriate lamps should light (see your modem documentation).
5. *If a KVM switch is installed,* verify that the power lamp is lit.
6. Power up each Avaya MAS as follows:
   a. Toggle the power switch at the rear of the unit to on (**|** is on, **0** is off).

      Note: See "Identifying key components of the Avaya MAS" on page 2-14 to locate the two power switches if needed.

   b. Press the power button on the front of the unit. The power lamp on the front of each server should light.
   c. Wait up to 1 minute for the display to appear on the monitor.

Note: The Windows 2000 Server Setup Wizard automatically runs when the unit is powered up (see Chapter 6, "Configuring a new Avaya MAS"). However, the steps in Chapter 4, "Preparing to install Modular Messaging software," must be completed before you install any Modular Messaging software on the Avaya MAS.

3

Installing MAS port boards

This chapter describes how to install Dialogic port boards and their drivers in a customer-provided MAS.

Note: Before you can successfully complete the tasks in this section, you must have read Chapter 1, "Preinstallation requirements," and verified that all preinstallation requirements have been met.

Supported MAS port boards

Table 3-1 lists the Dialogic port boards that are supported for all new installations. The Dialogic documents provide details about installing and connecting the boards and are available on the documentation media provided with your Modular Messaging system.

Table 3-1. Supported MAS port boards

Protocol	Ports	Port boards	Max #	Dialogic files on documentation CD
Analog	4 - 8 12 - 48	Dialogic 4-port T/R board Dialogic 12-port T/R board	2 4	**D/41JCT-LS** (PDF 133K) **D/120JCT-LS** (PDF 131K)
Digital Set Emulation	8 - 40 or 8 - 48	Dialogic D/82JCT-U Dialogic D/82JCT-U-PCI-UNIV	5 - Avaya MAS or 6 - other MAS	**D/82JCT-U** (PDF 240K) **D/82JCT-U PCI Univ** (PDF 234K)
T1-QSIG	23 - 69	Dialogic D/480JCT-2T1	3	**DualSpan JCT boards** (PDF 104K)
E1-QSIG	30 - 60	Dialogic D/600JCT-2E1	2	**DualSpan JCT boards** (PDF 104K)

Installing MAS port boards

Do this procedure on a customer-provided MAS only.

If you will be installing Modular Messaging software on a customer-provided Messaging Application Server (MAS), you must first install the required port boards and the appropriate Dialogic drivers and software as described in this section.

Note: The number of port boards you can install in a customer-provided MAS may vary depending on the type of MAS used and the number of PCI slots available. These instructions assume that up to six PCI slots are available in the MAS, and that board installation will begin with the 6th PCI slot. Modify these instructions as appropriate for your model of MAS.

Port boards are not used in an IP H.323 integration.

Preparing for the installation

To install Dialogic port boards in a customer-provided MAS:

1. Make sure that this MAS meets the minimum requirements to support Modular Messaging software. See the *Avaya Modular Messaging Concepts and Planning* guide (PDF 2 MB) for details.

2. Print out the appropriate Dialogic PDF file for complete information. See Table 3-1 on page 3-2 for a list of the Dialogic documents that cover the installation of each type of the board.

   Documents are available on the Modular Messaging documentation CD or from the support.avaya.com web site. See "Required documentation" on page 1-2 for details about accessing this information.

3. If the server is already in operation, schedule down time to install the new boards.

4. When ready to begin the installation, shut down the system software and power off the system. Unplug the AC power cord for safety reasons.

> **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 detailed ESD instructions, see Protecting against ESD damage on the documentation CD.

5. Open the chassis to access the card slots.

6. Remove the cover for the PCI slot in which you want to install the new board. Set the retaining screw aside.

> **Note:** Insert boards starting from the right-most slot if possible. For example, if six PCI slots are in the MAS, insert the port boards beginning with PCI slot 6.

   - If you are installing multiple boards, remove as many card slot covers as are needed.

   - Note the maximum number of boards of a certain type that you can install in one MAS, as shown in Table 3-1 on page 3-2.

Setting jumpers and switches

Set the jumpers and switches for board position, bus termination, and other features as described in this section. See the Dialogic documentation for details on jumper or switch location if needed.

To set the jumpers and switches on each board:

1. Remove the new port board from its packaging.
2. Set the jumpers and switches as required for this type of board.

For D/120JCT-LS 12-port analog boards (4 maximum per MAS):

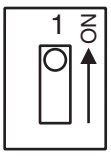
a. Set the unique board ID for the new card. Turn the **SW100** rotary switch, located on the top of the card, to set the board ID according to the slot in which you are installing it.

   Dialogic port boards should be placed in the PCI slots starting from the right side of the cabinet (see Figure 2-6 on page 2-15 for an example). For a 6-PCI slot MAS, the board IDs would be:

   - The card in PCI slot 6 is assigned ID 0.
   - The card in PCI slot 5 is assigned ID 1.
   - The card in PCI slot 4 is assigned ID 2.
   - The card in PCI slot 3 is assigned ID 3.

b. Set the hook-switch state of the new card to **ON** so that callers hear a busy signal when the card is not initialized. Use the **SW1** switch, located at the top of the card, to set the hook-switch state. See Figure 3-1.

Figure 3-1. D/120JCT-LS analog board on-hook switch



jpvysw1 LAO 081803

For D/41JCT-LS 4-port analog boards (2 maximum per MAS):

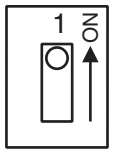
a. Set the unique board ID for the new card. Turn the **SW30** rotary switch, located on the top of the card, to set the board ID according to the slot in which you are installing it.

   Dialogic port boards should be placed in the PCI slots starting from the right side of the cabinet (see Figure 2-6 on page 2-15 for an example). For a 6-PCI slot MAS, the board IDs would be:

   - The card in PCI slot 6 is assigned ID 0.
   - The card in PCI slot 5 is assigned ID 1.

b. Set the hook-switch state of the new card to **ON** so that callers hear a busy signal when the card is not initialized. Use the red **SW4** switch, located near the top of the card, to set the hook-switch state. See Figure 3-2.

Figure 3-2. D/41JCT-LS analog board on-hook switch



jpvysw1 LAO 081803

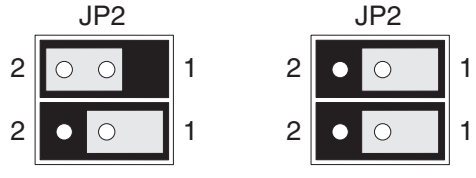
c. If more than one 4-port board is installed in the system, set up the boards for Computer Telephony (CT) bus termination. Use the **JP2** jumper to set CT bus termination as shown in Table 3-1:

Table 3-1. D/41JCT-LS analog board CT bus termination settings

Number of cards	JP2 jumper	CT bus termination
1	OFF	bus not terminated
2	ON pins 1 and 2	terminate bus on both boards

Figure 3-3 shows the **JP2** jumper settings. The setting on the left is ON (CT bus is terminated). The setting on the right is OFF.

Figure 3-3. D/41JCT-LS analog board CT bus termination settings



jpvyd41 LAO 081803

For D/82JCT-U set emulation boards (6 maximum per MAS):

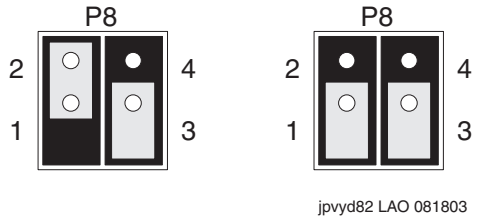
If more than one card is installed in the system, set up the boards on either end of the Computer Telephony (CT) bus for bus termination. Use the **P8** jumper to set CT bus termination as shown in Table 3-2:

Table 3-2. D/82JCT-U set emulation board CT bus termination settings

Number of cards	P8 jumper	CT bus termination
1	OFF	bus not terminated
2	ON pins 1 and 2	terminate bus on both boards
3	Card 1: ON pins 1 and 2 Card 2: OFF Card 3: ON pins 1 and 2	terminate bus on the end boards
4	Card 1: ON pins 1 and 2 Card 2: OFF Card 3: OFF Card 4: ON pins 1 and 2	terminate bus on the end boards
5	Card 1: ON pins 1 and 2 Card 2: OFF Card 3: OFF Card 4: OFF Card 5: ON pins 1 and 2	terminate bus on the end boards
6	Card 1: ON pins 1 and 2 Card 2: OFF Card 3: OFF Card 4: OFF Card 5: OFF Card 6: ON pins 1 and 2	terminate bus on the end boards (A special 6-position CT cable is required for this configuration. The Avaya-provided H100 cable supports only up to 5 DSE boards.)

Figure 3-4 shows the **P8** jumper settings. The setting on the left is ON (CT bus is terminated). The setting on the right is OFF.

Figure 3-4. D/82JCT-U set emulation board CT bus termination settings



For D/480JCT-2T1 QSIG boards (3 maximum per MAS) and D/600JCT-2E1 QSIG boards (2 maximum per MAS):

a. Set the unique board ID for the new card. Turn the **SW100** rotary switch, located on the top of the card, to set the board ID according to the slot in which you are installing it.

   Dialogic port boards should be placed in the PCI slots starting from the right side of the cabinet (see Figure 2-6 on page 2-15 for an example). For a 6-PCI slot MAS, the board IDs would be:

   - The card in PCI slot 6 is assigned ID 0.
   - The card in PCI slot 5 is assigned ID 1.
   - The card in PCI slot 4 is assigned ID 2 (this slot would be used only for a D/480JCT-2T1 QSIG board).

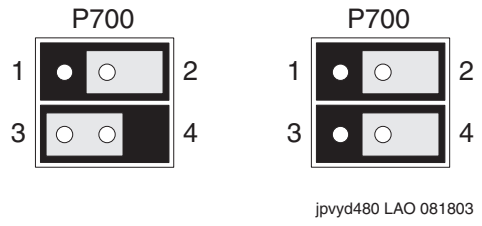
b. If more than one card is installed in the system, set up the boards on either end of the Computer Telephony (CT) bus for bus termination. Use the P700 jumper to set CT bus termination as shown in Table 3-3:

Table 3-3. D/480JCT-2T1 or D/600JCT-2E1 QSIG board CT bus termination settings

Number of cards	P700 jumper	CT bus termination
1	OFF	bus not terminated
2	ON pins 3 and 4	terminate bus on both boards
3	Card 1: ON pins 3 and 4 Card 2: OFF Card 3: ON pins 3 and 4	terminate bus on the end boards (3 cards are present only if the MAS uses D/480JCT-2T1 boards)

Figure 3-5 shows the **P700** jumper settings. The setting on the left is ON (CT bus is terminated). The setting on the right is OFF.

Figure 3-5. D/480JCT-2T1 or D/600JCT-2E1 QSIG board CT bus termination settings

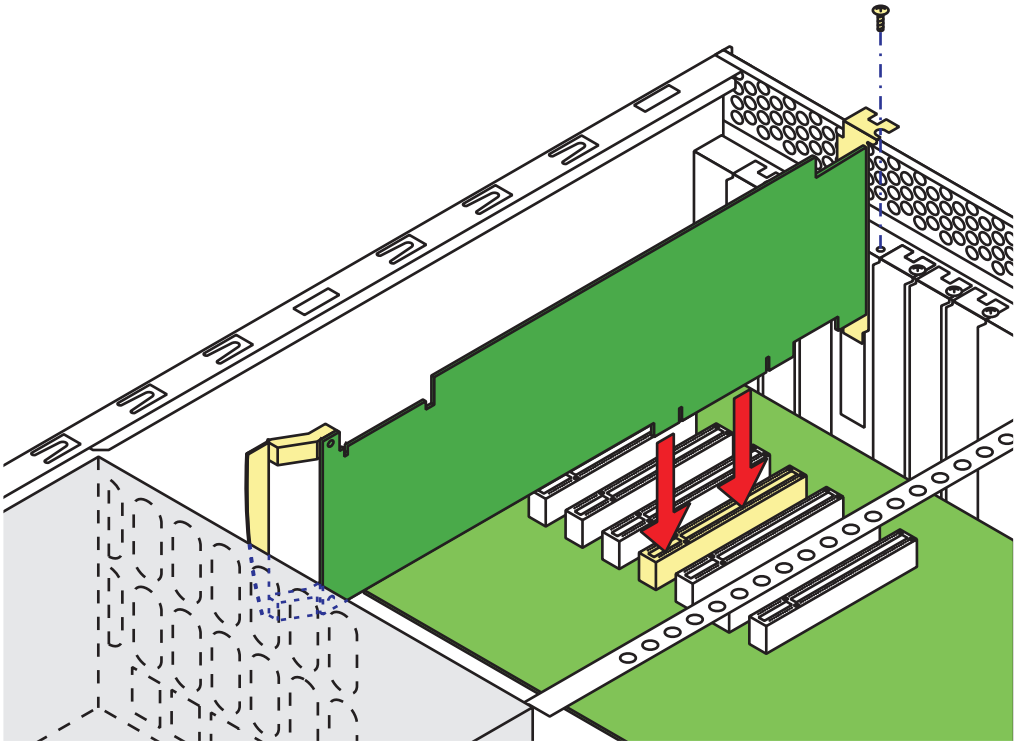


Installing the port boards

To install the new port board:

1. Slide the card's edge connector into the slot connector and the card's slot retainer bracket into the slot guide. Apply pressure to the top of the card only, until the edge connector is firmly seated. See Figure 3-6.

Figure 3-6. Installing a port board in an MAS



prvycrdr LAO 081103

2. Replace and tighten the retaining screw to hold the circuit card in place.

3. Repeat these steps to install any additional port boards.

> **CAUTION:** Make sure that all circuit cards in an MAS are of the same type. You cannot mix board types (such as analog tip/ring with DSE or T1/E1) within a single MAS.

4. When all boards are in place, attach the Computer Telephony (CT) bus cable to connect all the port boards. (This cable is not required if only one board is installed.) To attach the bus cable:

   a. Position the CT bus cable so that the colored stripe on the ribbon cable faces toward the ports at the back of the chassis.

b. Attach the end connector on the bus cable to the CT bus edge connector at the top of the card in the highest numbered slot.

c. Connect the next bus connector to the next port board, and so on.

d. When finished, if the cable has extra connectors or loose ribbon cable, tuck the cable down so that it does not snag when you replace the cover.

5. Replace the chassis cover and AC power cord.

6. Restore power to the system.

Installing the Dialogic drivers and software

To install the drivers and software required for the new Dialogic port boards:

1. After the system boots, log in to the server using an account that has permission to install software (such as the local administrator).

2. A Found New Hardware wizard appears for every new Dialogic port board installed in the system.

3. Follow the prompts in the wizard to disable the each board for now as follows:

   a. On the Welcome screen, click **Next**.

   b. On the Install Hardware Device Drivers screen, accept the default option (Search for a suitable driver) and click **Next**.

   c. On the Locate Driver Files screen, clear the checkbox for “Specify a location” (no boxes will be checked). Click **Next**.

   d. On the Driver Files Search Results screen, make sure that “Disable the device” is selected.

Note:	Disable the Dialogic hardware for now. It will be activated later when you configure the port boards.

   e. Click **Finish**.

   f. Repeat steps a through e for each repetition of the wizard.

Installing the new Dialogic drivers

To install the new Dialogic 5.1.1 base release drivers:

1. Insert the *Avaya Modular Messaging Application Software* DVD in the DVD drive.

   For a system that uses CD-ROMs, insert the *Intel Dialogic Drivers* CD in the drive.

2. Right-click **My Computer** and select **Explore**.

3. In Windows Explorer, navigate to the CD or DVD drive (such as D:).

4. Locate the Dialogic files. They are at the root directory of the CD, or under a **Dialogic Drivers** subdirectory of the DVD.

5. Double-click the file **Install_5_11.bat**.

   CAUTION: Several files have similar names. Verify that you are about to select the correct file *before* clicking it.

   The Intel Dialogic System Software and SDK for Windows System Release 5.1.1 for Windows wizard runs. When the installation completes, the system automatically reboots.

Applying the Dialogic Feature Pack

Next, update the new Dialogic drivers with the 5.11 Feature Pack (FP1):

1. Log back in to the server when the reboot completes.

2. A command (cmd) window opens, explaining which batch file to run next. Press any key to continue.

3. Right-click **My Computer** and select **Explore**.

4. In Windows Explorer, navigate to the CD or DVD drive (D:), and locate the Dialogic files.

5. Double-click the file **Install_5_11_FP1.bat**.

   The System Release 5.1.1 Feature Pack 1 wizard launches.

6. On the Welcome screen, click **Next**.

7. On the License Agreement screen, click **Yes**.

8. On the Customer Information screen:

a. For User Name type **Modular Messaging**.

b. Type the appropriate Company Name, then click **Next**.

9. On the Select Components screen:

   a. Verify that the box to install the Program Files is checked.

   b. *Clear* the checkbox to *not* install the Online Documentation.

   c. Click **Next**.

10. The Start Copying Files screen appears. Click **Next**.

    This step may take several minutes to complete.

11. When prompted, select **Yes, I want to restart my computer now**.

12. Click **Finish**.

    The system reboots.

13. Log back in to the server when the reboot completes.

14. A command (cmd) window opens, explaining which batch file to run next. Press any key to continue.

15. Right-click **My Computer** and select **Explore**.

16. In Windows Explorer, navigate to the CD or DVD drive (D:), and locate the Dialogic files.

17. Double-click the file **Restore_Config.bat**.

    The program cleans up any temporary installation files and replaces certain files used by the Dialogic boards.

18. Remove the CD or DVD from the drive.

19. Continue with "Connecting the MAS port boards" on page 3-12 to connect the exterior cables.

Connecting the MAS port boards

Do this procedure on all MASs.

Connect the new MAS port boards to the switch as described in this section.

> **Note:** Check the numbering on the board's faceplate to make sure that you are connecting the correct cable to the correct port.

1. Assemble the required cables.

> **Note:** If the boards are ordered through Avaya or installed in an Avaya MAS, the correct cables are provided for each board.

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

> **Note:** For an MAS in a rack-mount configuration, you may have to slide the server into the cabinet to get enough slack to plug in the exterior cables.

- **For analog boards:**

  a. Connect each port on the installed analog boards to one end of a standard RJ-11 tip/ring cord (individual tip/ring cables and a 12-port harmonica may also be used). Note which cables connect to which ports.

  b. The other end of the cable should be connected to an analog line on the corporate switching system. The entity responsible for maintaining the corporate switch should 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 board using the D/82U cable (Intel part number 86-0155-001).

  b. The other end of the cable should be connected to a 4-wire punch-down block on the corporate switching system. The entity responsible for maintaining the corporate switch should make this connection (see the customer contract or the statement of work).

- **For T1- or E1-QSIG boards:**

  a. Connect each port on the Dialogic T1-QSIG or E1-QSIG board using an RJ-48C (Ethernet) cable.

  b. Attach a ferrite to this cable. See "Attaching ferrites" on page 2-27.

  c. The other end of the cable should be connected through a patch panel to a 4-wire punch-down block on the corporate switching system. The entity

responsible for maintaining the corporate switch should make this connection (see the customer contract or the statement of work).

3. Complete the hardware installation as appropriate:

   - If you were referred to this section from Chapter 2, “Installing Avaya-provided hardware,” continue with "Connecting the Ethernet cable" on page 2-22.
   - If you have a customer-provided MAS, continue with Completing the hardware installation.

Completing the hardware installation

To complete the hardware installation on a customer-provided MAS:

- If you intend to access this MAS remotely using a modem (for example, through a services support center), make sure that the modem is correctly installed and configured. See the documentation included with your modem for information about modem installation, setup, and operation.
- On a customer-provided MAS, if you have DSE or QSIG boards installed, you can configure and test the Dialogic port boards now, before installing any Modular Messaging software. See Chapter 8, “Configuring and testing the port boards,” for this procedure.

Note:	Dialogic analog boards require a tone file from a directory that will not be available until after the Modular Messaging software is installed, so they cannot be configured in advance.

4

Preparing to install Modular Messaging software

This chapter describes how to set up Modular Messaging service accounts and prepare the directory server to support the Modular Messaging software.

Note: The steps in this chapter *must* be done before installing Modular Messaging software on the first MAS in the system.

These steps are performed by the directory server administrator or other authorized personnel.

Overview

This chapter covers the following system preparation steps:

1. For all installations, you must create Modular Messaging service accounts on the directory server and add the correct permissions.

2. If you are running Windows 2000 or 2003 with Active Directory, you *must* update the data schema *before* you install any Modular Messaging software on any Messaging Application Server (MAS) in the domain.

> **Note:** This procedure can be done only on a machine that is running the Windows 2000 or 2003 Server operating system. These components cannot be installed on a workstation OS.

To successfully install the Modular Messaging software, you need:

- A completed copy of the relevant planning forms listed in Appendix A, ‘‘System planning forms,’’ including:
  - The Modular Messaging MAS planning form on page A-6 showing the NetBIOS name of each MAS, the default (or primary) peer Exchange server, the directory server, and the Windows domain.
  - The Modular Messaging logon accounts form on page A-9 showing the customer-specified Modular Messaging service account names and passwords.
- Access to the *Avaya Modular Messaging Application Software* DVD or CD-ROM set.

> ⚠ **CAUTION:** All servers must meet the requirements listed in the *Avaya Modular Messaging Concepts and Planning* guide (PDF 2 MB). This guide is available on the documentation media shipped with your system. Review this document to make sure that your Exchange servers, directory servers, MASs, and client machines are all ready to support Modular Messaging software.

Setting up Modular Messaging service accounts

Create two new accounts on the directory server and assign them sufficient privileges for installing, administering, and accessing the Modular Messaging software.

> **Note:** If you do not create the Modular Messaging accounts using the procedure in this section (for example, if the service account does not have sufficient privileges), see "Creating the voice mail domain container manually if required" on page 4-11.

Creating the required service accounts

Two Modular Messaging service accounts must be created as a Windows domain user account on the directory server. If needed, use your regular Microsoft Windows documentation to help you create a new account.

Creating new accounts on Exchange 2000/2003 systems

On a Windows 2000 or 2003 system, you could create the Modular Messaging service accounts as follows:

1. Log in to the Active Directory server using an account that has privileges to create new user accounts (such as *administrator*).
2. Click Start > Programs > Administrative Tools > Active Directory Users and Computers.
3. In the Active Directory Users and Computers window, expand the directory for the Windows domain you intend to use for Modular Messaging. This is item **2** on the Modular Messaging MAS planning form on page A-6.

Creating a group for the Modular Messaging account

4. Create a new group that will give the Modular Messaging service account the appropriate permissions. For example, in the left-hand pane, right-click **Users** > **New** > **Group**.
5. In the New Object - Group window, create a new group as follows:
   a. Choose an appropriate name (such as *MM Service Permissions*).
   b. Select the group scope appropriate for your site.
   c. Select group type **Security**. Click **Next**.
   d. On the following screen, do not create a mailbox. Click **Next**.
   e. Click **Finish**.

6. In the right-hand pane, locate the new group's name (such as *MM Service Permissions*) and double-click it.

7. In the Properties window, click the **Member Of** tab.

8. In the Select Group window, add the following groups to assign the necessary permissions. Double-click each group to add it to the permissions list.

   - Account Operators - required for each domain that will contain user accounts to be enabled for Modular Messaging.

   - Administrators - required for the domain that contains the Global Catalog servers that will be used as peer directory servers for Modular Messaging.

Creating the Modular Messaging account

9. Create a new account for installing and administering the Modular Messaging software. For example, in the left-hand pane, right-click **Users** > **New** > **User**.

10. In the New Object - User window, create a new Modular Messaging service account using a secure logon name. For example:

    a. First name: MM

    b. Last name: Account

    c. User logon name: *customer-provided* (such as *mmacct*). See item **A7** on the Modular Messaging logon accounts form on page A-9.

    d. Click **Next**.

    e. Enter and confirm the password. See item **A7** on the Modular Messaging logon accounts form on page A-9.

> **Note:** Passwords for Modular Messaging accounts should be at least 8 characters long. See the logon form for details.

    f. You *must* check the box for "Password never expires".

> **Note:** If you need to change the password for a Modular Messaging service account, contact the software-provider for the password-changing procedure.

    g. Set up other parameters required at this site if needed.

    h. Click **Next**.

i. On the third page, clear the checkbox for “Create an Exchange mailbox.”

> **Note:** You do not need to create an Exchange mailbox for a Modular Messaging service account.

j. Click **Next**.

k. When the summary appears, click **Finish**.

l. In the right-hand pane, locate the new account (such as *mmacct*) and double-click it.

m. In the Properties window, click the **Member Of** tab.

n. In the Select Group window, double-click the Modular Messaging group from step 5 (such as *MM Service Permissions*) to add it to this account.

o. Click **OK** to close this window.

You will assign permissions to the Modular Messaging service account in ‘‘Assigning permissions to the service account‘‘ on page 4-7.

Creating the Services remote access account

11. Create a new account to allow remote Services support personnel to access and administer the Modular Messaging system. For example, in the left-hand pane, right-click **Users** > **New** > **User**.

12. In the New Object - User window, create a new Modular Messaging remote access account using a secure logon name. For example:

    a. First name: Services

    b. Last name: Account

    c. User logon name: *customer-provided* (such as *craft*). See item **A8** on the Modular Messaging logon accounts form on page A-9.

    d. Click **Next**.

    e. Enter and confirm the password. See item **A8** on the Modular Messaging logon accounts form on page A-9.

    f. You *must* check the box for “Password never expires”.

> **Note:** If you change the password for the remote access account, be sure to notify the appropriate Services support entity.

    g. Set up other parameters required at this site if needed.

    h. Click **Next**.

    i. On the third page, clear the checkbox for “Create an Exchange mailbox.”

    j. Click **Next**.

k. When the summary appears, click **Finish**.

13. In the right-hand pane, double-click the new account's name (such as *craft*).

14. In the Properties window, click the **Member Of** tab.

15. Verify that the **Domain Users** entry is present. Click **OK** to close this window.

    a. *If the Domain Users entry is missing,* right-click the account's name and select **Add members to a group**.

    b. Double-click the **Domain Users** group to add it to the permissions list.

Creating a test subscriber account

16. Create a new account that will be used for acceptance testing. For example, in the left-hand pane, right-click **Users > New** > **User**.

17. In the New Object - User window, create a new account, such as:

    a. First name: *Test*

    b. Last name: *Subscriber*

    c. User logon name: *customer-provided* (such as *testsub1*). See Required switch and messaging information on page A-11.

    d. Click **Next**.

    e. Enter and confirm the account's password (*customer-provided*).

    f. Set up other parameters as required for this site.

    g. Click **Next**.

    h. On the third page, check the box to "Create an Exchange mailbox."

    i. Select the server (Exchange organization) and mailbox store (Exchange server) as required.

    j. Click **Next**.

    k. When the summary appears, click **Finish**.

    A new account is created in the right-hand pane.

> **Note:** The extension for the test subscriber must be administered on the PBX by the appropriate party.

18. When finished, close the Active Directory window.

Creating new accounts on Exchange 5.5 systems

Use the tool appropriate for your Exchange 5.5 system to create the two required Modular Messaging accounts. For example, for a Windows NT 4.0 domain, you would create a new account using the User Manager for Domains application. On a Windows 2000 or 2003 system, you would use Active Directory.

1. Log in to the appropriate administration tool using an account that has sufficient privileges to create new accounts.
2. Create the Modular Messaging service account. See “Creating the Modular Messaging account“ on page 4-4 for a sample procedure.
3. Create the remote access account for Services support. See “Creating the Services remote access account“ on page 4-5 for a sample procedure.

Assigning permissions to the service account

Sufficient permissions must be assigned to the Modular Messaging service account for it to function as required. This procedure varies depending on whether the environment uses Exchange 2000/2003, Exchange 5.5, or a mixture of systems.

> **Note:** If Avaya Modular Messaging mailboxes are hosted on a mixture of Exchange 5.5 and Exchange 2000 or 2003 servers, then you must set up sufficient rights on all systems as directed in this section.

For details on permission requirements, see Appendix D, “Administrator’s reference.”

Assigning Exchange 2000/2003 permissions

Use the steps in this section to assign permissions to the Modular Messaging service account for an Exchange 2000 or Exchange 2003 server. You do this through the group you created in “Creating a group for the Modular Messaging account“ on page 4-3. The group must be able to access the subscriber mailboxes, but before this can be done a registry change is required.

By default, the Security tab for the Exchange organization container and some of the key sub containers are not visible using Exchange System Manager or Active Directory Sites and Services. The following registry change enables the Security tab at all levels within the Microsoft Exchange container.

To update the registry:

1. Log in as the Microsoft Exchange administrator.
2. Click Start > Run.
3. In the Run box Open field, type **regedit** and press Enter.

4. In the Registry Editor window, locate the following key:

   HKEY_CURRENT_USER\Software\Microsoft\Exchange\ExAdmin

5. Right-click **ExAdmin** and select New > DWORD Value.

6. Enter the following value name: **ShowSecurityPage**

7. Double-click the **ShowSecurityPage** value.

8. On the Edit DWORD Value screen, set the Value data to **1**.

9. Click **OK**.

10. Close the Registry Editor window.

Use Active Directory Sites and Services to add the required permissions. The permissions listed below are the absolute minimum required for the Modular Messaging software to function. For convenience, all the properties should be created at the Exchange Organization level. You may choose to apply them at a level lower down the tree if required, but this may impact on your ability to manage Modular Messaging using Exchange System Manager.

To assign permissions to the Modular Messaging service account:

1. Log in to the Active Directory server using an account that has privileges to assign permissions to accounts (such as *administrator*).

2. Click Start > Programs > Administrative Tools > Active Directory Sites and Services.

3. In the left-hand pane, select **Active Directory Sites and Services**.

4. From the **View** menu, select **Show Services Node** (the menu item should be checked).

5. In the left-hand pane, expand **Services**, expand **Microsoft Exchange**, and then locate the appropriate *Exchange Organization* object that Modular Messaging will connect to. Right-click it and select **Properties**.

6. In the Properties window, click the **Security** tab. (This tab is only visible if you edited the registry as directed above.)

7. Click **Add** and locate the new group (such as *MM Service Permissions*). Add it so it appears in the Properties window. Click **OK**.

8. Under **Permissions** for the group, **Allow** only the following permissions. Clear any checkboxes that don't apply. For details on these permission requirements, see Appendix D, "Administrator's reference."

   - Read
   - Execute

- Read Permissions
- Create Children
- List Contents
- Read Properties
- Write Properties
- Administer Information Store
- Create Named Properties in IS
- View Information Store Status
- Receive As
- Send As

9. Click **Apply** to verify your settings. When done, click **OK**.
10. After you change these permissions, you should stop and restart all Exchange services to flush the directory cache (or else wait 10 minutes for it to expire). If you have multiple domain controllers in the forest, it may also be necessary to wait for directory replication to complete.

Assigning Exchange 5.5 permissions

You must add the Modular Messaging service account to the ACL (permissions list) in your Exchange organization in the Site and Configuration containers as described.

To assign permissions to the Modular Messaging service account for an Exchange 5.5 server:

1. Run Exchange 5.5 Administrator.
2. Select the Exchange Site container for the subscriber mailboxes to be enabled for Avaya Modular Messaging.

   a. From the File menu, select Properties > Permissions.

      The Exchange Site security settings are displayed.

   b. Click **Add**.

   c. Select the Modular Messaging service account, such as *MM Account (mmacct)*, and click **OK**.

   d. Select the Modular Messaging service account in the permissions list.

   e. Change the role for the account to **Service Account Admin** and click **OK**.

This right enables Avaya Modular Messaging to access the information store of subscribers and to create directory entries in the Exchange 5.5 directory.

3. Select the **Configuration** container in the Exchange site that contains the subscriber mailboxes.

   a. From the File menu, select Properties > Permissions.

   b. Click **Add**.

   c. Select the Modular Messaging service account, such as *MM Account (mmacct)*, and click **OK**.

   d. Select the Modular Messaging service account in the permissions list.

   e. Change the role for the account to **Service Account Admin** and click **OK**.

Note: If you are using a mixture of Exchange 5.5 and Exchange 2000 or 2003 servers in a single voice mail domain, you must configure a Windows 2000 service called Active Directory Connector after the Modular Messaging software is installed. See "Configuring Active Directory Connector if required" on page 9-13.

Adding an MAS account to the Active Directory

The domain administrator should pre-create computer accounts for each MAS and define the Modular Messaging service account as a user that has permission to join the Windows domain. This procedure facilitates remote access setup (see "Setting up the MAS for remote access" on page 4-12) and Modular Messaging software installation (see "Completing the initial setup" on page 6-9 and "Joining the Windows domain" on page 7-5).

To add a new computer account to the Active Directory:

1. Log in to the Active Directory server using an account that has privileges to add a computer account to a domain (such as *Administrator*).

2. Click Start > Administrative Tools > Active Directory Users and Computers to create a new computer account.

3. In the Active Directory Users and Computers window, expand the directory for the Windows domain you will use for Modular Messaging.

4. Right-click **Computers**, then select New > Computer.

5. On the New Object - Computer screen, type the computer name for the MAS (such as *zippy*). See item **1** on the Modular Messaging MAS planning form on page A-6.

6. Click **Change** to specify that a different user or group that can add this computer to the domain.

7. On the Select User or Group screen, double-click the Modular Messaging service account (such as *mmacct*). Click **OK**.

8. If more than one MAS is to be installed, repeat steps 4 through 6 until all MASs are added.

9. When finished, close this window.

Creating the voice mail domain container manually if required

Do the task in this section only if you did not create the Modular Messaging service account using the procedure in "Creating the required service accounts" on page 4-3.

If you don't assign the permissions we recommend to the Modular Messaging service account for security reasons, you can create the voice mail domain container for the Modular Messaging service account manually and assign it appropriate security settings. Use this procedure if the Modular Messaging service account does not have sufficient privileges to create container objects at the voice mail domain base location.

To use this procedure, you must install ADSIEdit. ADSIEdit is a Microsoft Management Console (MMC) snap-in available as part of Microsoft Windows 2000 or 2003 Server and Microsoft Windows Advanced 2000 or 2003 Server Support Tools.

To assign security settings to the voice mail domain container:

1. Run the **ADSIEdit** Windows support tool.

2. Connect to the **Domain NC** of the domain containing the Modular Messaging service account.

3. Locate the base location for the voice mail domain container.

> **Note:** If you have not selected a custom location, by default the voice mail domain container is the root container of the Microsoft Windows 2000 or 2003 domain.

4. From the **Action** menu, select New > Object > Container.

5. Give the container the name "Octel" and click **Next**.

> **Note:** The name of the container is case-sensitive.

6. Display the properties for the new container.

7. Ensure that the Account Operators Group has been assigned Full Control in the security settings for the new container.

Setting up the MAS for remote access

Remote access allows Services support personnel to dial into a system to correct problems and perform routine maintenance. Unless other arrangements have been made, use the following procedure to allow the MAS to support remote access calls.

1. Log in to the Windows domain administrator account.
2. Access the Active Directory by clicking Start > Programs > Active Directory Users and Computers.
3. In the Active Directory window:
   a. Expand the directory for the domain that will be used for Modular Messaging (such as *zodiac.com*).
   b. Click **Users**.
4. In the right-hand pane of the window, double-click **RAS and IAS Servers** to bring up the properties window.
5. In the RAS and IAS Servers Properties window:
   a. Click the **Members** tab.
   b. Click **Add**.
   c. In the Select Users, Contacts, Computers or Groups window, locate the first MAS (such as *ZIPPY*); it will have a blue terminal icon beside it. Double-click it.
   d. Verify that the correct computer name appears underlined in the list box.
   e. Repeat steps c and d to add all MASs to this list. See the Modular Messaging MAS planning form on page A-6.
   f. Click **OK** to close this window.
   g. Click **OK** again to close the RAS and IAS Servers Properties window.
6. In the right-hand pane, double-click **Services Account** to bring up the properties window.
7. In the Services Account Properties window:
   a. Click the **Dial-in** tab.
   b. Under Remote Access Permission (Dial-in or VPN), click the radio button to select **Allow access**.
   c. CallBack Options should be left at **No Callback**.
   d. Click **OK**.
8. Close the Active Directory window.

Updating the Active Directory and data schema

Do this task only once per Windows domain, on the directory server domain controller, before installing the Modular Messaging software on any MAS.

The Active Directory must be updated as described in this section.

> **Note:** This procedure can be done only on a machine that is running the Windows 2000 or 2003 Server operating system. These components cannot be installed on a workstation OS.

If you are running Windows 2000 or 2003 with Active Directory, the data schema *must* be updated *before* you install any Modular Messaging software on any Messaging Application Server (MAS) in the domain. The schema defines the objects and properties stored in Active Directory, and contains definitions of object attributes. The schema is updated only once in the *forest*.

> **Note:** On an Exchange 5.5 system, the schema does not need to be updated unless you are using Octel Analog Networking. However, other directory server updates must be made as described in this section.

For details about the changes made to the schema for a Modular Messaging software update, see Appendix D, ‘‘Administrator’s reference.’’

> ⚠ **CAUTION:** If you do not update the schema first when required, the Modular Messaging software will not install correctly. It will have to be completely removed and then reinstalled following the Active Directory schema update.

Logging in and preparing to update

To update the Active Directory for Modular Messaging:

1. Log on to the directory server using an account that has permission to do Active Directory and data schema administration.

   - This account is usually the Windows domain administrator account. For an Exchange 2000/2003 system, this account requires both Domain Admin and Schema Admin rights.

   - If you are updating the messaging software in a child domain, the account must have Domain Admin rights for both the parent domain and the child domain. If the Active Directory update is executed from the child domain controller, enter the account name in the format: *Parent Domain\Domain Admin*.

- If you are using Octel Analog Networking, this procedure *must* be performed on the domain controller that is acting as the schema master.

2. Close applications or stop services as follows:

   - Close the Active Directory Users and Computers application or the Microsoft Exchange Administrator application, depending on the application that is installed to support your version of Exchange.
   - Close any open windows for other applications.
   - Stop any service monitoring tools that are running, such as anti-virus software.

Launching the Modular Messaging installation wizard

When all preparations are done, launch the Modular Messaging Installation Wizard as follows:

1. Insert the *Avaya Modular Messaging Application Software* DVD in the DVD drive.

   For a system that uses CD-ROMs, insert the *Avaya Modular Messaging Application Software and Languages* CD in the drive.

2. Run the Modular Messaging Installation Wizard as follows:

   a. In Windows Explorer, navigate to the CD or DVD drive (such as D:).

   b. Navigate to the **Install** directory.

   c. Double-click the file **Setup.exe**.

   The Modular Messaging - Installation Wizard launches and searches for packages relevant to this configuration.

3. On the main screen, verify that the Configuration drop-down box shows **Microsoft Exchange**.

4. Click the **Read Me** button to review the Readme file for recent notices.

5. *To change the default installation path (optional):*

   a. Click the **Change** button.

   b. Browse to an existing destination directory, or create a new destination directory as follows:

      - If you are using Microsoft Windows 2000 or 2003, use the **New Folder** button to create a new directory for the installation.

- If you are using NT4, use Windows Explorer to create a new directory for the installation, then select this directory.

Note: You cannot define different installation paths for individual components.

Updating the Active Directory

To update the Active Directory and data schema (if required) on this machine:

1. Click the **+** sign to expand the **Active Directory Updates** folder.

   Note: Do this task only once per Windows domain.

2. Check the following boxes to install the appropriate software components to support Modular Messaging:

   - *Enable Modular Messaging:* Check this box to allow Modular Messaging to store subscriber configuration information and support the correct operation of and access to client applications.
   - *Enable Octel Analog Networking:* If Octel Analog Networking is used at this site, check this box to add the appropriate classes and attributes to the schema.
   - *Enable User Administration:* Check this box to allow administrators to enable users, groups, or contacts to use Modular Messaging under Microsoft Exchange administration.

   Note: Although Octel Analog Networking is an optional feature, you may choose to install it at this time in case Octel Analog Networking is ever added to the system. The other software components are always required.

3. When all required components are selected, click **Install**.
4. You may see a prompt requiring you to supply the name and password of an account that has sufficient permissions to update the Active Directory. Supply the required information and click **OK**.
5. When all components finish installing, click **Close**.
6. Continue with Chapter 5, ‘‘Updating the Exchange extensions.’’

5

Updating the Exchange extensions

This chapter describes how to install the Microsoft Exchange extensions that support Modular Messaging software.

Do this task on any machine that you will use for administering subscribers (such as the Exchange server, an MAS, or a client machine). You can do this task multiple times per network.

Note: Before you can do the tasks in this section, you must have successfully completed the tasks in Chapter 4, "Preparing to install Modular Messaging software."

Although this procedure creates a Modular Messaging tab in the Active Directory, the page will not be functional until *after* the Modular Messaging system is installed and operational.

Overview

This task assumes that you have already created a Modular Messaging service account and updated the directory server as described in Chapter 4, "Preparing to install Modular Messaging software."

> **CAUTION:** If the directory server has *not* been updated as described in Chapter 4, "Preparing to install Modular Messaging software," *do not proceed* with the steps in this chapter. The Modular Messaging software will not install correctly, and will have to be completely removed and reinstalled after the Active Directory updates have been made.

To successfully install the Modular Messaging software, you need:

- Access to the *Avaya Modular Messaging Application Software* DVD or CD-ROM set.
- Downtime scheduled for the Microsoft Exchange server if you need to install the following Modular Messaging software components on it:
  - An Exchange 5.5 server always requires the Subscriber Administration tools to be installed on it. Therefore an Exchange server reboot is always required for an Exchange 5.5 system.

    If Octel Analog Networking is used at this site, then the Octel Analog Networking Administration component must also be installed on the Exchange 5.5 server.
  - An Exchange 2000 or 2003 server does *not* require the Subscriber Administration tools or Octel Analog Networking Administration component to be installed on it. If you do choose to install them, then the Exchange server does need to be restarted (see following note).

> **Note:** You can install the Subscriber Administration tools on any machine that has the Microsoft Windows 2000 or 2003 Administration Tools installed. The Subscriber Administration Tool adds a tab to the Active Directory Users and Computers property page which is used for Modular Messaging subscriber administration. This machine will need a restart.
>
> If Octel Analog Networking is used at this site, you can install the Octel Analog Networking Administration component on any machine where the Microsoft Exchange System Management Tools and required service pack are installed. See "Installing required software" on page 6-12 for details.

CAUTION: All servers must meet the requirements listed in the *Avaya Modular Messaging Concepts and Planning* guide (PDF 2 MB). This guide is available on the documentation media shipped with your system. Review this document to make sure that your Exchange servers, directory servers, MASs, and client machines are all ready to support Modular Messaging software.

Note: In the Exchange 5.5 Voice Mail User Administration Extension, the personal operator schedule, Caller Applications, and the Voice Control do not display if the Exchange and Modular Messaging software are installed on different machines. To fix this problem, install the Modular Messaging administration or diagnostic tools on every machine from which you plan to run the Voice Mail User Administration Extension. This procedure is covered in "Installing the Modular Messaging software" on page 7-11.

Updating the Exchange extensions

Do this task on any machine that you will use for administering subscribers (such as the Exchange server, an MAS, or a client machine). You can do this task multiple times per network.

You must update the Microsoft Exchange extensions to support Modular Messaging software as described in this section.

> **Note:** Read the conditions for installing Modular Messaging software components in "Overview" on page 5-2. Exchange 5.5 servers always require these tools to be installed and must be restarted.
>
> **Although this procedure creates a Modular Messaging tab in the Active Directory, the page will not be functional until *after* the Modular Messaging system is installed and operational.**

Logging in and preparing to update

To update the Microsoft Exchange extensions for Modular Messaging:

1. Log in to the Exchange server using an account that has permission to do Active Directory and data schema administration.

2. Close applications or stop services as follows:

   - Close any open Exchange applications including the Microsoft Exchange System Management Tools.

   > **Note:** At some sites, the same server may be running both Active Directory and the Exchange software. However, all Exchange and Active Directory windows must be closed prior to installing the Exchange extensions software

   - Close the Active Directory Users and Computers application or the Microsoft Exchange Administrator application, depending on what is installed to support your version of Exchange.

   - Close any open windows for other applications.

   - Stop any service monitoring tools that are running, such as anti-virus software.

3. *On Exchange 5.5 systems,* you must set the Auto Naming options as follows:

   a. Using Microsoft Exchange Administrator, open the Recipients container.

   b. From the Tools menu, select **Options**.

c. On the Auto Naming tab, under “Alias Name Generation“ and “Display Name Generation,“ select any options except “None.“

d. Click **OK**.

e. Close the Microsoft Exchange Administrator.

Launching the Modular Messaging installation wizard

When all preparations are done, launch the Modular Messaging Installation Wizard as follows:

1. Insert the application software disk in the MAS drive. This is either:

   - The *Avaya Modular Messaging Application Software* DVD, or
   - *For a system that uses CD-ROMs,* the *Avaya Modular Messaging Application Software and Languages* CD.

2. Run the Modular Messaging Installation Wizard as follows:

   a. In Windows Explorer, navigate to the CD or DVD drive (such as D:).

   b. Navigate to the **Install** directory.

   c. Double-click the file **Setup.exe**.

   The Modular Messaging - Installation Wizard launches and searches for packages relevant to this configuration.

3. On the main screen, verify that the Configuration drop-down box shows **Microsoft Exchange**.

4. Click the **Read Me** button to review the Readme file for recent notices.

5. *To change the default installation path (optional):*

   a. Click the **Change** button.

   b. Browse to an existing destination directory, or create a new destination directory as follows:

      - If you are using Microsoft Windows 2000 or 2003, use the **New Folder** button to create a new directory for the installation.
      - If you are using NT4, use Windows Explorer to create a new directory for the installation, then select this directory.

Note:	You cannot define different installation paths for individual components.

Updating the Exchange extensions

To update the Exchange extensions tools on this machine:

1. Click the **+** sign to expand the appropriate Exchange extensions folder for the version of Exchange that is installed:

   - **Active Directory / Exchange 2000 extensions** (also used for Exchange 2003 systems)

   - **Exchange 5.5 extensions**

2. Check the boxes to install the appropriate Modular Messaging software components for Microsoft Exchange systems on this server:

   - *Octel Analog Networking Administration:* If Octel Analog Networking is used at this site, check this box to allow administrators to administer an Octel Analog Networking gateway. This allows Modular Messaging subscribers to exchange voice messages with any other Octel Analog Networking-enabled voice mail system.

   - *Subscriber Administration:* Check this box to add a Modular Messaging property page in Active Directory Users and Computers for each user that is assigned a mailbox. This tool allows administrators to set up and administer Modular Messaging accounts, configure subscriber properties, and launch the Subscriber Options package.

   Note: You *must* install the Subscriber Administration tools, and the Octel Analog Networking Administration component if it is used at this site, on an Exchange 5.5 server. Installing either of these Modular Messaging software components requires the machine to be restarted.

3. When all required components are selected, click **Install**.

4. When all components finish installing, click **Close**.

5. *If you are prompted to restart the system,* click **Restart** to complete the software installation.

   Note: A Restart prompt indicates that the software installation is not complete. Do *not* configure any Modular Messaging settings or services until you have restarted the machine.

6

Configuring a new Avaya MAS

This chapter is relevant only to an Avaya-provided Messaging Application Server (Avaya MAS) installation. It describes how to complete the Windows 2000 Server Setup Wizard and initial configuration on the Avaya MAS. The setup wizard runs automatically after a new Avaya MAS is powered up (see "Powering up an Avaya MAS system" on page 2-30).

Note:	Before you can do the tasks in this section, an appropriate administrator must have successfully completed the tasks in Chapter 4, ‘‘Preparing to install Modular Messaging software.’’ If you are using a *customer-provided MAS*, continue with Chapter 7, ‘‘Installing and configuring the Modular Messaging software.’’

Overview

You need to configure every new Avaya Messaging Application Server (Avaya MAS) for local operating settings and to work correctly on the corporate local area network (LAN) as described in this section.

To successfully set up an Avaya MAS, you need:

- A completed copy of all the forms in Appendix A, ‘‘System planning forms,’’ including the Modular Messaging MAS planning form on page A-6 and the Modular Messaging logon accounts form on page A-9.

> **CAUTION:** Use your completed planning forms from Appendix A, ‘‘System planning forms,’’ to enter the correct values. You *cannot* use these examples or guess at the values. If you do, the current operation of the customer LAN may be damaged.

- All required hardware installed as described in Chapter 2, ‘‘Installing Avaya-provided hardware.’’
- A printout of the Avaya MAS installation checklist (see New Modular Messaging installation on an Avaya MAS on page B-5). Check off steps as you complete them to track your progress.

Switching the monitor to show the correct server

Use whatever method is required at your site to have the monitor display the Avaya MAS that you are administering.

For a Belkin OmniView Pro2 KVM: the KVM switch is normally connected to the first Avaya MAS (MAS#1) through the first computer port (VGA 01). Subsequent MASs (if present) are connected to computer ports VGA02, VGA03, and so on.

To switch the monitor to show the server that you need to administer:

1. Press slowly in sequence Scroll Lock, then Scroll Lock, then the up (or down) arrow key to change to the server connected to a higher or lower port number.

   You can alternatively type the port number instead of pressing the up or down arrow key (such as *02* for port 2). See your KVM switch documentation for complete user instructions.

2. If you cannot access the correct server, see "Connecting the KVM cables" on page 2-24 and verify the cable connections. To correct cabling problems, power down the system, correct the cabling, then power up the system again.

Starting up the system

The Avaya MAS begins to boot after power up.

Note:	If an updated version of the Modular Messaging software is required, it must be copied to the hard disk on each new Avaya MAS server before administration can begin. To reload the operating system, continue with Appendix E, ‘‘Reloading software on an Avaya MAS.’’

1. If the Avaya MAS is not already on, power up the unit now (push the power button on the front panel).

   See "Powering up an Avaya MAS system" on page 2-30 for details if needed.

2. *Optional:* When the system begins to boot, you can:

   a. Press **Esc** when the splash screen appears.

   b. Press the space bar to skip the memory check.

Setting up the Windows system

After the Avaya MAS boots, a setup wizard guides you through the Windows system configuration process. Complete all steps as directed.

Running the setup wizard

To complete the setup wizard:

1. On the Welcome to the Windows 2000 Server Setup Wizard screen, click **Next**. (If you wait, the wizard automatically shows the next screen.)
2. On the License Agreement screen, review the text.
   - If you agree to the terms, choose **I accept this agreement**.
   - If you decline the terms, you cannot proceed with the installation.
   - Click **Next**.
3. On the Regional Settings screen:
   a. Check if the settings are correct.
   b. To change system and user locales, click the first **Customize** button.
   c. In the Regional Options window, on the General tab:
      (1) Select your locale from the drop-down list.
      (2) Update your language settings if needed. Click **Apply**.
      (3) Click the other tabs in order, and verify that your **Numbers**, **Currency**, **Time**, and **Date** settings are correct for this system. The defaults should reflect the locale you selected.
      (4) Click the **Input Locales** tab. Verify your locale and keyboard settings.
      (5) When finished, click **OK** to close the Regional Options window.
   d. Click **Next**.
4. On the Personalize Your Software screen, enter the customer name and organization in the appropriate fields. See item **16** on your Modular Messaging MAS planning form on page A-6. Click **Next**.

5. On the Your Product Key screen:

   a. Type the Windows product key for this MAS (each unit has a unique product key).

   Note: This number must be entered exactly as shown. It is located on a sticker or tag on the side or rear of each MAS unit.

   b. Click **Next**.

6. On the Licensing Modes screen:

   a. Select **Per Server** if needed.

   b. For “Number of concurrent connections,” type **50**.

   c. Click **Next**.

7. On the Computer Name and Administrator Password screen:

   a. Change the “Computer name” to the required host name (NetBIOS name) for this MAS (such as *zippy*). See item **1** on your Modular Messaging MAS planning form on page A-6. (The name is forced to upper-case.)

   b. Enter and confirm the new password for the administrator account for this machine (case *is* important). See items **A1** to **A6** on the Modular Messaging logon accounts form on page A-9.

   c. Click **Next**.

8. On the Modem Dialing Information screen:

   Note: This screen appears only if a modem is connected. See "Connecting the USB modem on the MAS" on page 2-28.

   a. Select your country or region.

   b. Enter the area code or city code.

   c. If needed, enter the prefix required to access an outside line (such as *9*).

   d. Select the type of dialing used (typically **Tone dialing**).

   e. Click **Next**.

9. On the Date and Time Settings screen:

   a. Set the Date and Time settings.

   b. Set the Time Zone and daylight savings values as needed.

   c. Verify your settings, then click **Next**.

   The system pauses to update its settings.

10. On the Network Settings screen, when prompted:

    a. Select **Custom settings**.

    b. Click **Next**.

Assigning IP addresses to this MAS

Use your completed Modular Messaging MAS planning form on page A-6 to assign IP addresses and other TCP/IP properties for the corporate LAN interface that this MAS will use.

On the **Networking Components** screen for device **Intel(R) PRO/100 VE Network Connection**, specify the IP addresses for the corporate LAN for this MAS as follows:

1. In the components box, select **Internet Protocol (TCP/IP)**.

2. Click **Properties**.

   The Internet Protocol (TCP/IP) Properties window appears. See Figure 6-1 on page 6-7 for an example.

3. In the Internet Protocol (TCP/IP) Properties window:

   a. Click the “Use the following IP address” radio button.

   b. Change the IP address, Subnet mask, and Default gateway to the corporate LAN values for this MAS listed in the Modular Messaging MAS planning form on page A-6 (items **8**, **9**, and **10**).

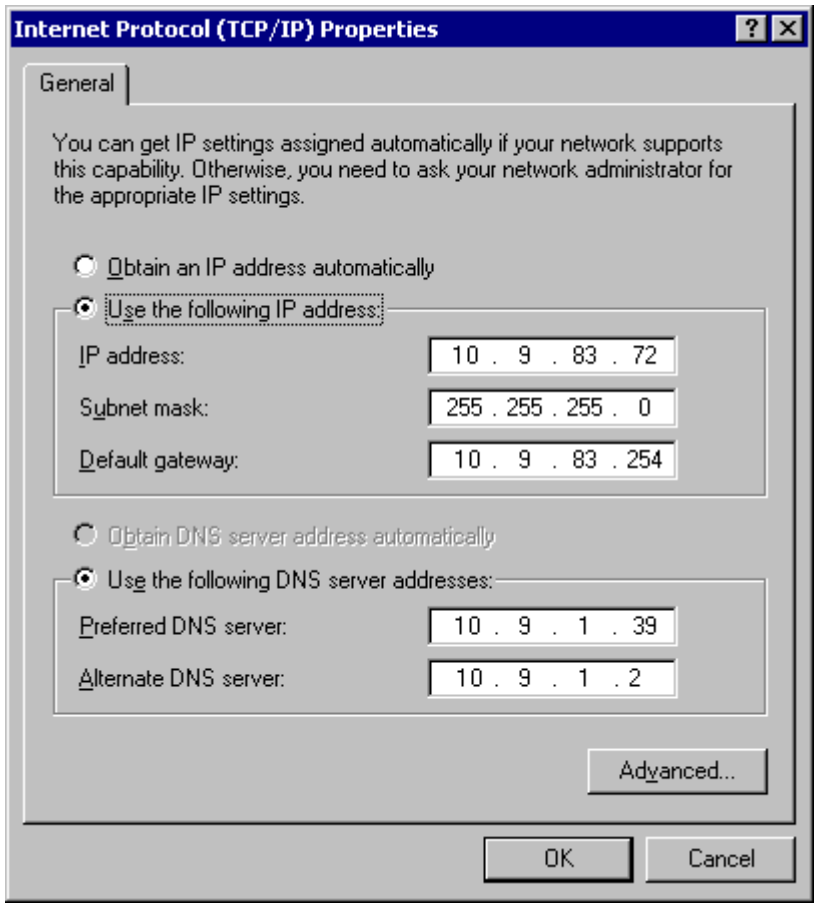
   c. Click “Use the following DNS server addresses.” Specify the corporate DNS IP addresses as follows:

      (1) For the Preferred DNS server, enter the first Corporate DNS server IP address from your planning form (item **11**, if any).

      (2) For the Alternate DNS server, enter the next Corporate DNS server IP address from your planning form (item **11**, if any).

      (3) Click the **Advanced** button.

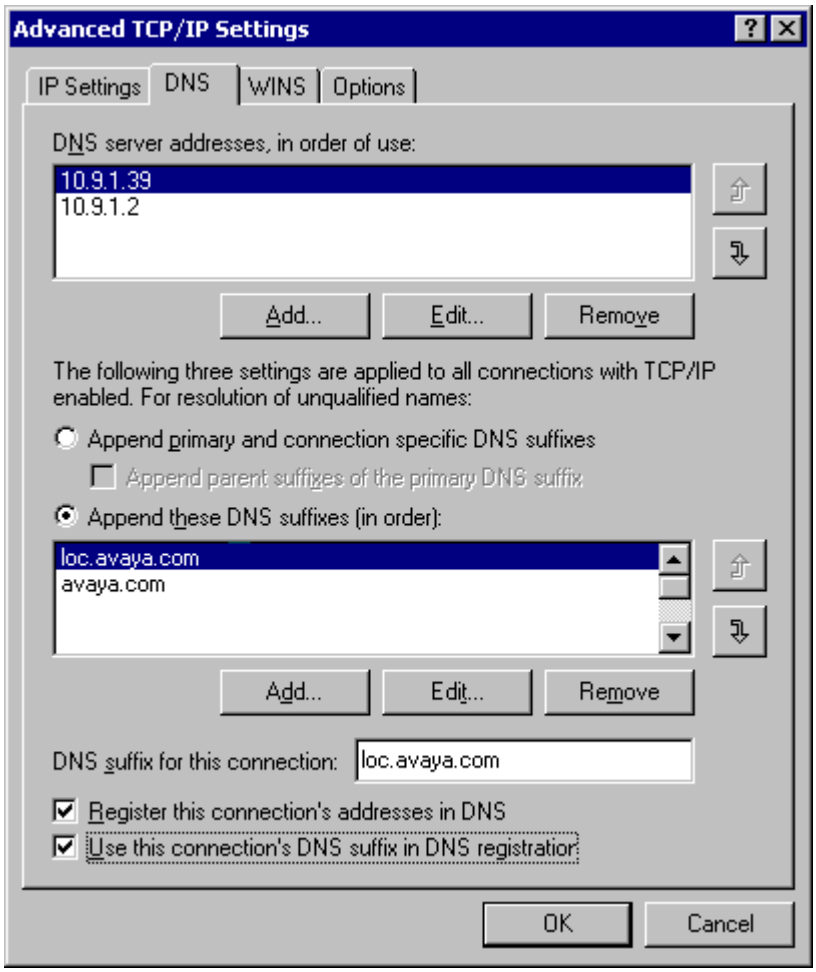
Figure 6-1. Sample corporate LAN TCP/IP properties



The Advanced TCP/IP Settings window appears.

(4) Click the **DNS** tab. See Figure 6-2 on page 6-8 for an example.

Figure 6-2. Sample advanced TCP/IP settings for the corporate LAN



(5) On the Advanced TCP/IP Settings **DNS** tab, enter the following:

- If you need to add IP addresses for any additional corporate DNS servers, click **Add** (see item **11** on the Modular Messaging MAS planning form on page A-6). Click **OK** to approve each entry.
- Select the radio button for “Append these DNS suffixes (in order)”. Click **Add**.
- In the TCP/IP Domain Suffix window, in the Domain suffix field, enter any corporate domain suffixes listed for Search order of DNS domains using item **12** on the system planning form (for example, *loc.avaya.com* and *avaya.com*). After each entry, click **Add**. Repeat as needed to add all required suffixes.
- In the “DNS suffix for this connection” text box, enter the suffix for the fully qualified corporate LAN domain name (do *not* include the machine name). For example, *loc.avaya.com* (see item **7** on the Modular Messaging MAS planning form on page A-6).

- If required for this location, check the boxes to “Register this connection’s addresses in DNS” and “Use this connection’s DNS suffix in DNS registration.” See item **13** on the Modular Messaging MAS planning form on page A-6.

(6) If WINS is used at this location, click the **WINS** tab. Enter the following:

- To enter WINS addresses, click **Add**. Enter the IP address for the WINS server needed for information resolution. Click **Add**. Repeat this step until all required WINS addresses are entered. See item **14** on the Modular Messaging MAS planning form on page A-6.
- Adjust other settings on this page if required.

Note:	It is strongly recommended that you do *not* use DHCP settings for this installation. Use only static IP addresses.

(7) Click **OK** to close the Advanced TCP/IP Settings window.

4. Click **OK** to close the Internet Protocol (TCP/IP) Properties window.
5. On the Networking Components screen, click **Next**.

   A **Networking Components** screen for device **Intel(R) PRO/100+ PCI Adapter** screen appears. This LAN interface is *not* used in this configuration.
6. Click **Next**.

Completing the initial setup

Complete the initial administration for this MAS as follows:

1. On the Workgroup or Computer Domain screen:
   a. Select the second radio button, **Yes, make this computer a member of the following domain**.
   b. Enter the name of the corporate Windows domain that the MAS is to join (such as *zodiac*). See item **2** on the Modular Messaging MAS planning form on page A-6. (The name is forced to upper case.)
   c. Click **Next**.
   d. You are prompted to enter the user name and password that will allow this machine to join the Windows domain. Proceed as follows:
      (1) Enter the name of an account that has permissions to join the Windows domain. This is typically the Modular Messaging account, if the domain administrator has set it up as described in "Adding an MAS account to the Active Directory" on page 4-10.

The account name *must* be in the format ***domain\account name*** (such as *zodiac\mmacct*). The name is forced to upper case.

(2) Enter the correct account password.

(3) Click **OK**.

It may take several minutes to join the domain.

e. If a Network Identification box welcomes you to the domain, click **OK**.

f. Click **Next**.

2. On the Completing the Windows 2000 Setup Wizard screen, click **Finish**.

   The machine reboots.

3. When the reboot completes, press **Ctrl+Alt+Del** and log in as follows:

   a. On the Log On to Windows screen, verify that the user name is **Administrator**.

   b. Enter the same password that you typed for the administrator account when you set up this machine. See items **A1** to **A6** on the Modular Messaging logon accounts form on page A-9.

   c. Press Enter or click **OK**.

4. *If a Found New Hardware wizard appears,* follow the prompts to complete each wizard. The hardware wizard appears once for every Dialogic port board installed in the system.

> **Note:** If the wizard comes up in a tiny window, press **Esc** to cancel this wizard (subsequent wizards should run in a normal-sized window). The skipped wizard will reappear the next time the system restarts; run it then.
>
> If you reinstalled the operating system (see Appendix E, "Reloading software on an Avaya MAS,") and ran the Found New Hardware wizards then, the wizards do not reappear.
>
> This wizard does not appear for IP H.323 configurations.

Disable the Dialogic hardware for now as follows:

a. On the Welcome screen, click **Next**.

b. On the Install Hardware Device Drivers screen, accept the default option (Search for a suitable driver) and click **Next**.

c. On the Locate Driver Files screen, clear the checkbox for "Specify a location" (no boxes will be checked). Click **Next**.

d. On the Driver Files Search Results screen, make sure that "**Disable the device**" is selected. Click **Finish**.

e. Repeat steps a through d for each repetition of the wizard.

Testing IP addresses using ping

Use this procedure to verify that the IP addresses for this MAS are correct and working as expected with the corporate LAN.

To test the IP addresses for this MAS:

1. Open a Command prompt window. For example:

   a. Click the **Start** button, then select **Run**.

   > **Note:** Submenu choices are indicated with a right angle sign (>) in the rest of this document. For example, the procedure above would appear as Start > Run.

   b. In the Run box, type **cmd** in the Open field and press Enter.

2. At the command prompt, ping any IP addresses administered on the corporate network and verify success. See items **10** and **11** on your Modular Messaging MAS planning form on page A-6 for examples.

3. *Optional:* If you are using a corporate DNS, you may also want to ping other machines by name. Any name tests should show the corporate IP address for the entity you ping.

   > **Note:** In order for a name test to succeed, the machine names must be administered on the corporate DNS. If a corporate DNS is not used, ping will not be able to resolve the corporate name.

4. If the ping test fails, verify that your network connections to the MAS are good. If so, check your administration.

5. When finished, type **exit** and press Enter to close this window.

Installing required software

You must install some required software on the Avaya MAS before proceeding. Check with the customer for the procedures and software required at this site.

Installing anti-virus software and Windows updates

We strongly recommend that anti-virus software be installed on any Microsoft Windows machine that is used to run Avaya Modular Messaging software. The type of virus-checking software used and the method of installation depends upon the customer's requirements and local implementation.

Note:	You need to disable the anti-virus software after installing it so you can install the Modular Messaging software. Enable the virus-checking software after installation is complete.

In addition, Microsoft Windows security patches must be installed to protect the operating system from known security weaknesses. Check with the appropriate customer administrator for the software and installation/update procedures to use.

Enabling Exchange 2003 prerequisite software

For Exchange 2003 systems only, you have to enable the Simple Mail Transfer Protocol (SMTP), Network News Transfer Protocol (NNTP), and IIS Admin services, which are required by Exchange 2003 Short Message Service (SMS) tools.

Note:	You must enable the required Windows services *before* installing the required Microsoft Exchange software in the next section.

To enable the required Windows services:

1. Right-click **My Computer** and select **Manage**. In the Computer Management window, the left-hand (Tree) pane, expand **Services and Applications**, then click **Services**.

2. In the right-hand pane, scroll down to **Simple Mail Transfer Protocol (SMTP)**. Double-click it to open the properties window.

3. In the Properties window:

   a. On the General tab, set the "Startup type" to **Automatic**.

   b. Click **Apply**.

   c. Under "Service status," click **Start**.

   d. Wait for service to start, then click **OK** to close this window.

4. Repeat steps 2 and 3 for the **Network News Transfer Protocol (NNTP)** service and for the **IIS Admin Service**.

5. Close all open windows.

Installing required Exchange software

You must install the appropriate Microsoft Exchange tools on this machine to provide the API protocol needed for the Modular Messaging and Exchange systems to communicate. The name of the tools varies depending on the Exchange release:

- *Exchange 2000/2003:* Microsoft Exchange System Management Tools
- *Exchange 5.5:* Microsoft Exchange Administration 5.5 Tools

To install this required software on an Exchange 2000 or 2003 machine:

1. Insert the Microsoft Exchange 2000 or 2003 Server Software CD in the MAS drive.

2. Launch the Microsoft Exchange 2000 or 2003 Server menu (if it does not appear automatically). To install the tools:

   a. Click **Exchange Server Setup**.

      The Microsoft Exchange 2000 or 2003 Installation Wizard appears.

   b. Follow the wizard through the Component Selection screen, then:

      (1) In the Action column, click the drop-down arrow by the first box to select **Custom**.

      (2) Click the drop-down arrow to select **Install** for the version of tools appropriate for your release of Exchange:

      - *Exchange 2000/2003:* Microsoft Exchange System Management Tools (see "Enabling Exchange 2003 prerequisite software" on page 6-12 for Exchange 2003 systems)
      - *Exchange 5.5:* Microsoft Exchange Administration 5.5 Tools

   Note: If the domain contains a mixture of Exchange 2000/2003 and Exchange 5.5 servers, install both sets of tools.

   c. Click **Next**. Complete the wizard as prompted. Refer to your Exchange documentation for details about this procedure if needed.

   d. When the tools are installed, click **Finish**, then click **Exit**.

3. Update your version of Microsoft Exchange and the tools you just installed to the latest service pack.

a. Use the procedures appropriate for this site to access the correct Service Pack update software.

b. When the Service Pack Installation Wizard runs, update your Exchange server and tools to the appropriate Service Pack:

   - Microsoft Exchange 2000 System Management Tools: SP3.

> **Note:** If the domain contains a mixture of Exchange 2000/2003 and Exchange 5.5 servers, you need to install only SP3 for the Microsoft Exchange 2000 System Management Tools.

   - Microsoft Exchange 5.5 Administration Tools: SP4 (only needed for a Windows domain that has only Exchange 5.5 servers)

c. Complete the wizard as prompted. Refer to your Microsoft Exchange documentation for details about this procedure if needed.

Setting up remote access (optional)

As an option, you can activate remote access support now instead of waiting until after you install the Modular Messaging software. If you want to enable remote access support as soon as possible, do the steps appropriate for the Avaya MAS in "Setting up remote access" on page 7-17, then return to this section.

Configuring Modular Messaging components

Complete the basic machine setup of this Avaya MAS by specifying the message store and setting up Modular Messaging accounts for this MAS.

To complete basic Avaya MAS configuration:

1. Double-click the **OSConfigWizard.exe** icon on the desktop.

   The Modular Messaging OS Component Configuration Wizard appears.

2. On the Welcome screen, click **Next**.

3. On the Modular Messaging setup information screen:

   a. Select the message store type **Microsoft Exchange**.

   b. For **Windows NetBIOS domain**, enter the NetBIOS name (such as *zodiac*). See item **2** on the Modular Messaging MAS planning form on page A-6.

   c. Click **Next**.

4. On the next Modular Messaging setup information screen, enter the Modular Messaging account information as follows:

   a. Under **Existing account information**:

      - For **Modular Messaging (MM) account**, enter the customer-defined Modular Messaging account logon name (such as *mmacct*). Type the password in each password column to confirm it. See item **A7** on the Modular Messaging logon accounts form on page A-9.

      - For **Services account**, enter the customer-defined Services access account logon name (such as *craft*). Type the password in each password column to confirm it. See item **A8** on the Modular Messaging logon accounts form on page A-9.

   b. Under **New account information**, for **Administrator account for MAS**, enter the customer-defined local administrator account logon name for this MAS (such as *mas1-admin* or *mas2-admin*). Type the password in each password column to confirm it. See items **A1** to **A6** on the Modular Messaging logon accounts form on page A-9.

   c. Click **Next**.

5. Wait while the system processes the information you have entered. The system automatically restarts.

   As the machine reboots, you may see a Hardware Profile/Configuration Recovery screen. Wait for the program to move on, or press Enter.

6. After the MAS reboots, you are prompted to log in or simply enter a password.

   a. If prompted to log in, press **Ctrl+Alt+Del**.

   b. On the Log On to Windows screen, check the user name. It should be the Modular Messaging account (such as *mmacct*).

   c. Enter the correct password for this account. See item **A7** on the Modular Messaging logon accounts form on page A-9.

7. When prompted to insert the Modular Messaging application software:

   a. Insert the first installation disk in the DVD drive. This is either:

      - The *Avaya Modular Messaging Application Software* DVD, or
      - *For a system that uses CD-ROMs,* the *Avaya Modular Messaging Application Software and Languages* CD

   b. Close the drive door and wait for the green LED to go out. Click **OK**.

8. On the Completed Configuration process screen, click **Finish**.

9. The Modular Messaging - Installation Wizard window appears automatically. Continue with "Installing the Modular Messaging software" on page 7-11.

7

Installing and configuring the Modular Messaging software

This chapter describes how to install the Modular Messaging software on an Avaya Messaging Application Server (Avaya MAS) or a customer-provided MAS.

Note:	Before you can successfully complete the tasks in this section, you must have completed the server preparation tasks in Chapter 4, "Preparing to install Modular Messaging software," and Chapter 5, "Updating the Exchange extensions."

Overview

You need to install and configure the Modular Messaging software as described in this chapter. Begin with the appropriate section depending on whether you are configuring an Avaya Messaging Application Server (Avaya MAS) or a customer-provided MAS.

- *For a customer-provided MAS:* continue with "Prerequisite steps for a customer-provided MAS" on page 7-3.
- *For an Avaya MAS:* continue with "Installing Modular Messaging software" on page 7-10.

> **Note:** Installing the Modular Messaging software from a Microsoft Windows 2000 Terminal Services Client session is not supported.

To successfully install and configure Modular Messaging software, you need:

- A completed copy of the forms in Appendix A, ‘‘System planning forms,’’ specifically:
  - — Modular Messaging MAS planning form on page A-6
  - — Modular Messaging logon accounts form on page A-9
  - — MAS features list on page A-10
- The appropriate prerequisite tasks completed. These include:
  - — The tasks in Chapter 5, ‘‘Updating the Exchange extensions,’’ for a customer-provided MAS.
  - — The tasks in Chapter 6, ‘‘Configuring a new Avaya MAS,’’ for an Avaya MAS.

Prerequisite steps for a customer-provided MAS

If you are installing Modular Messaging software on a customer-provided MAS, you must complete the steps in this section before you can successfully install the Modular Messaging software components.

Configuring the network card

For each customer-provided MAS, the network card must be configured to support a corporate LAN connection. This procedure is similar to that used for the Avaya MAS in "Assigning IP addresses to this MAS" on page 6-6. Use your completed Modular Messaging MAS planning form on page A-6 to assign IP addresses and other TCP/IP properties for the corporate LAN interface that this MAS will use.

> **Note:** It is strongly recommended that only static IP addresses be assigned to MAS interfaces and machines.

Installing anti-virus software and Windows updates

We strongly recommend that anti-virus software be installed on any Microsoft Windows machine that is used to run Avaya Modular Messaging software. The type of virus-checking software used and the method of installation depends upon the customer's requirements and local implementation.

> **Note:** You need to disable the anti-virus software after installing it so you can install the Modular Messaging software. Enable the virus-checking software after installation is complete.

In addition, Microsoft Windows security patches must be installed to protect the operating system from known security weaknesses. Check with the appropriate customer administrator for the software and installation/update procedures to use.

Adjusting system values

Some default values on the system must be adjusted to support Modular Messaging as described in this section.

Adjust the Event Viewer values as follows:

1. Right-click **My Computer** and select **Manage**.
2. In the Computer Management window, in the left-hand pane, expand **Event Viewer**.
3. Right-click **Application** and select **Properties**.

4. On the General tab of the Application Properties screen, in the **Log size** frame, adjust the following values:

   a. Set **Maximum log size** to 4032 KB.

   b. Select the radio button for **Overwrite events as needed**.

5. Click **OK** to close the properties screen.

6. Close the Computer Management window.

Adjust the Windows 2000 Server operating system values as follows:

1. Right-click **My Computer** and select **Properties**.

2. On the System Properties screen, on the **Advanced** tab, click **Performance Options**.

3. On the Performance Options screen, adjust the following values:

   a. Select the radio button for **Background services**.

   b. Click **Change** to change the Virtual Memory size.

      (1) Under “Paging file size for selected drive,” set both the **Initial size** and **Maximum size** to the recommended value **+11** MB.

      (2) Click **Set**, then click **OK** to close this screen.

   c. Click **OK** to close the Performance Options screen.

4. On the System Properties screen Advanced tab, click **Startup and Recovery**.

5. On the Startup and Recovery screen, under **System Failure**, clear the checkbox to “Automatically reboot”. Click **OK**.

6. Close the System Properties screen.

7. If you are prompted to restart the system, click **No** (you will reboot later).

Adjust File and Printer Sharing properties as follows:

1. Right-click **My Network Places** and select **Properties**.

2. Right-click **Local Area Connection** and select **Properties**.

3. Right-click **Internet Protocol TCP/IP** and select **Properties**.

4. Select the **File and Printer Sharing** properties page and make the following change:

   Enable maximum data throughput for network applications.

5. Click **OK**. Close all open screens.

Joining the Windows domain

You must manually join the Windows domain as follows:

1. Switch the monitor to show this MAS.
2. Log in to the local administrator account for this MAS:
   a. On the Log On to Windows screen, change the user name to the local administrator account name (such as *mas1-admin*). items **A1** to **A6** on the Modular Messaging logon accounts form on page A-9.
   b. Enter the password for this account.
   c. If the “Log in to:” field shows a different domain, use the drop-down box to select this local machine (should be the default).
   d. Press Enter or click **OK**.
3. Right-click My Computer and select **Properties**.
4. In the System Properties window, click the **Network Identification** tab.
5. Click the **Properties** button. In the Identification Changes window:
   a. Under **Member of**, click the **Domain** radio button.
   b. Type the corporate Windows domain NetBIOS name, such as *zodiac*. See item **2** on your Modular Messaging MAS planning form on page A-6.

   Note: Depending on your local configuration, you may need to enter the fully qualified name here, such as *zodiac.loc.avaya.com*. This name is a combination of items **2** and **7** on the Modular Messaging MAS planning form on page A-6.

   c. Click **OK**.
6. A Domain Username and Password screen may appear. Enter the name and password of an account that has permissions to join the Windows domain. This is typically the Modular Messaging account, if the domain administrator has set it up as described in "Adding an MAS account to the Active Directory" on page 4-10. The account name *must* be in the format ***domain\account name*** (such as *zodiac\mmacct*).
7. If a Welcome to the domain screen appears, click **OK**.
8. Click **OK** when prompted to reboot the computer.
9. Click **OK** to close the System Properties window.
10. Click **Yes** to restart the machine when prompted. You *must* reboot.

Adding the service accounts to the local Administrators group

For the accounts to work correctly, the Modular Messaging service account (required for software installation and administration) and the Services support remote access account must be added to the local administrators group as follows:

1. Log in to the local administrator account for this MAS (see "Joining the Windows domain" on page 7-5 for details if needed).
2. Click Start > Programs > Administrative Tools > Computer Management.
3. In the Computer Management window, under System Tools, expand Local Users and Groups, then click **Groups**.
4. Double-click the **Administrators** group in the right-hand pane.
5. On the Administrators Properties screen, click **Add**.
6. In the Select Users or Groups window:
   a. Under the **Look in** drop-down, select the Windows domain you just joined, such as *zodiac*. See item **2** on your Modular Messaging MAS planning form on page A-6.
   b. On the Enter Network Password screen, enter an account name and password that has permission to access the Windows domain controller. This is typically the Modular Messaging account, if the domain administrator has set it up as described in "Adding an MAS account to the Active Directory" on page 4-10. The account name *must* be in the format ***domain\account name*** (such as *zodiac\mmacct*).
   c. Click **OK**.
7. Scroll down to the Modular Messaging account, such as *mmacct* (see item **A7** on the Modular Messaging logon accounts form on page A-9).
   a. Double-click it or click **Add** to add it to the Administrators group.

      The account name may appear in the format ***domain\account name*** (for example, *zodiac\mmacct*) or as an email account, such as *mmacct@zodiac.loc.avaya.com*.
   b. Click **OK**.
8. Repeat steps 5 through 7 to add the Services access account, such as *craft* (see item **A8** on the Modular Messaging logon accounts form on page A-9).
9. Click **OK** to close the Administrators Properties screen.
10. Close the Computer Management window.

Installing Windows prerequisite software

Microsoft Windows Simple Network Management Protocol (SNMP) services must be installed on every customer-provided MAS that will be used to handle voice calls. SNMP services are required for the Modular Messaging Alarming Server to work.

> **Note:** You must install the required SNMP software *before* installing the required Microsoft Exchange software in the next section. Exchange 2003 system tools require additional prerequisite software as described in step 9.

To install Windows Simple Network Management Protocol (SNMP) services:

1. Log in to an account that has permissions to install software on this machine (such as the local administrator account). See "Joining the Windows domain" on page 7-5 for details if needed.
2. Insert the Microsoft Windows Operating System CD in the MAS drive.
3. Click Start > Settings > Control Panel.
4. In the Control Panel window, double-click **Add/Remove Programs**.
5. In the Add/Remove Programs window, in the left-hand column, click **Add/Remove Windows Components**.
6. In the Windows Components Wizard window, check **Management and Monitoring Tools** and click **Next**.
7. In the Management and Monitoring Tools window, check the box for **Simple Network Management Protocol**.
8. Complete the wizard to install the SNMP services.
9. *For Exchange 2003 systems only:* You also have to install and enable the Simple Mail Transfer Protocol (SMTP) and Network News Transfer Protocol (NNTP) software, which is required by Exchange 2003 Short Message Service (SMS) tools. To do this:
   a. Open Control Panel again and double-click **Add/Remove Programs**.
   b. In the Add/Remove Programs window, in the left-hand column, click **Add/Remove Windows Components**.
   c. In the Windows Components Wizard window, check **Internet Information Services (IIS)** and click **Details**.
   d. Select **SMTP Service** and **NNTP Service**, and click **OK**. (The World Wide Web Service including IIS Admin will be installed as part of this package.)
   e. When the wizard launches, click **Next** and then **Install**.
   f. Complete the wizard to install the software.

After the software is installed, the following services must be enabled:

a. Right-click **My Computer** and select **Manage**. In the Computer Management window, the left-hand (Tree) pane, expand **Services and Applications**, then click **Services**.

b. In the right-hand pane, scroll down to **Simple Mail Transfer Protocol (SMTP)**. Double-click it to open the properties window.

c. In the Properties window:

(1) On the General tab, set the “Startup type” to **Automatic**.

(2) Click **Apply**.

(3) Under “Service status,” click **Start**.

(4) Wait for service to start, then click **OK** to close this window.

d. Repeat steps b and c for the **Network News Transfer Protocol (NNTP)** service and for the **IIS Admin Service**.

e. *Optional:* You may choose to disable the World Wide Web Publishing service, as it is not specifically required to support Exchange 2003 tools.

f. Close all open windows.

Installing required Exchange software

You must install the appropriate Microsoft Exchange tools on every MAS to provide the API protocol needed for the Modular Messaging and Exchange systems to communicate. The name of the tools varies depending on the Exchange release:

- *Exchange 2000/2003:* Microsoft Exchange System Management Tools
- *Exchange 5.5:* Microsoft Exchange Administration 5.5 Tools

For example, to install this required software on an Exchange 2000 or 2003 machine:

1. Insert the Microsoft Exchange 2000 or 2003 Server Software CD in the MAS drive.

2. Launch the Microsoft Exchange 2000 or 2003 Server menu (if it does not appear automatically). To install the tools:

a. Click **Exchange Server Setup**.

The Microsoft Exchange 2000 or 2003 Installation Wizard appears.

b. Follow the wizard through the Component Selection screen, then:

(1) In the Action column, click the drop-down arrow by the first box to select **Custom**.

(2) Click the drop-down arrow to select **Install** for the version of tools appropriate for your release of Exchange:

- *Exchange 2000/2003:* Microsoft Exchange System Management Tools
- *Exchange 5.5:* Microsoft Exchange Administration 5.5 Tools

> **Note:** If the domain contains a mixture of Exchange 2000/2003 and Exchange 5.5 servers, install both sets of tools.

c. Click **Next**. Complete the wizard as prompted. Refer to your Exchange documentation for details about this procedure if needed.

d. When the tools are installed, click **Finish**, then click **Exit**.

3. Update your version of Microsoft Exchange and the tools you just installed to the latest service pack.

a. Use the procedures appropriate for this site to access the correct Service Pack update software.

b. When the Service Pack Installation Wizard runs, update your Exchange server and tools to the appropriate Service Pack:

- Microsoft Exchange 2000 System Management Tools: SP3.

> **Note:** If the domain contains a mixture of Exchange 2000/2003 and Exchange 5.5 servers, you need to install only SP3 for the Microsoft Exchange 2000 System Management Tools.

- Microsoft Exchange 5.5 Administration Tools: SP4 (only needed for a Windows domain that has only Exchange 5.5 servers)

c. Complete the wizard as prompted. Refer to your Microsoft Exchange documentation for details about this procedure if needed.

4. After installing the appropriate Microsoft Exchange tools, open the System Management Tools or Administration Tools application and connect to the appropriate Exchange server.

Installing Modular Messaging software

You need to install the required Modular Messaging software and configure each MAS as described in this section.

Note:	Completely install and test one MAS first, and let it run for 15 minutes before installing any additional MASs.

Launching the installation wizard

If you are continuing an installation from Chapter 6, ‘‘Configuring a new Avaya MAS,’’ the Modular Messaging - Installation Wizard launches automatically. Continue with "Installing the Modular Messaging software" on page 7-11.

If you are configuring a customer-provided MAS, you must launch the Modular Messaging Installation Wizard manually as follows:

1. Log in to the Modular Messaging service account. For example:
   a. Click Start > Log off *admin-account*.
   b. Click **Yes** when prompted to confirm the logoff.
   c. Press **Ctrl+Alt+Del** to log on.
   d. On the Log On to Windows screen, change the user name to the Modular Messaging service account name (such as *mmacct*). See item **A7** on the Modular Messaging logon accounts form on page A-9.
   e. Enter the password for this account.
   f. Using the drop-down box, change the **Log in to:** field to show the correct Windows domain, such as *zodiac*. See item **2** on your Modular Messaging MAS planning form on page A-6.
   g. Press Enter or click **OK**.
2. Insert the application software disk in the MAS drive. This is either:
   - The *Avaya Modular Messaging Application Software* DVD, or
   - *For a system that uses CD-ROMs,* the *Avaya Modular Messaging Application Software and Languages* CD.
3. Close the drive door and wait for the green LED to go out. Click **OK**.
4. Run the Modular Messaging Installation Wizard as follows:
   a. In Windows Explorer, navigate to the CD or DVD drive (such as D:).
   b. Navigate to the **Install** directory.

c. Double-click the file **setup.exe**.

The Modular Messaging - Installation Wizard launches and searches for packages relevant to this configuration.

5. Click the **Read Me** button to review the Readme file for recent notices.

6. *To change the default installation path (optional):*

   a. Click the **Change** button.

   b. Browse to an existing destination directory, or create a new destination directory as follows:

      - If you are using Microsoft Windows 2000, use the **New Folder** button to create a new directory for the installation.
      - If you are using NT4, use Windows Explorer to create a new directory for the installation, then select this directory.

> **Note:** You cannot define different installation paths for individual components.

Installing the Modular Messaging software

Use the Modular Messaging - Installation Wizard to install the appropriate Modular Messaging software components.

To install the Modular Messaging software:

1. Check your MAS features list on page A-10 for the software packages that must be installed on this particular MAS.

2. On the main screen, verify that the Configuration drop-down box shows **Microsoft Exchange**.

3. In the components list, check the boxes for any messaging services you need to install on this MAS.

> **Note:** If you want to add Exchange extensions tools to this MAS, you can select them at this time. See Chapter 5, ‘‘Updating the Exchange extensions,’’ for details.

   a. *Required on every MAS:*

      - Administration Tools
      - Diagnostic Tools

b. *Required on every MAS that will handle calls:*

- Messaging Application Server (includes the Alarming Server, which also installs the Event Monitor Server, Performance Monitor Server, and Process Monitor Server)
- Prompt Files (at least one set is required on every MAS*)*

> **Note:** These software components are not required on an MAS that does *not* handle calls, such as a machine that has only the Caller Applications Editor or Tracing Server installed on it.

c. *Required on this MAS as specified by the customer:* See the MAS features list on page A-10 for the specific services you need to put on this server. Check the appropriate boxes. Services include:

- Call Me Server (includes the Mailbox Monitor Server)
- Caller Applications Editor
- Language Packs
- Message Waiting Indicator (MWI) Server (also includes the Mailbox Monitor Server)
- Tracing Server

4. When all required services are selected, click **Install**.

5. Wizards run for all the Modular Messaging software packages you selected. Complete each wizard as directed.

   The following components install automatically (no response is needed):

   - Administration Tools *(required)*
   - Caller Applications Editor *(optional on any machine)*
   - Diagnostic Tools *(required)*
   - Language Packs *(optional on any MAS)*
   - Prompt Files *(required; this may take several minutes)*

6. The following components must be installed on every MAS that will handle calls:

   - Alarming Server
   - Messaging Application Server

   The wizards for these components must be completed as follows:

   a. When one of the above server installation wizards runs, click **Next**.

b. When prompted, enter the following account information:

- For **Domain**, enter the NetBIOS name of the Windows domain (such as *zodiac*). See item **2** on the Modular Messaging MAS planning form on page A-6.
- For **User Name** and **Password**, enter the Modular Messaging account name (such as mmacct) and its password. See item **A7** on the Modular Messaging logon accounts form on page A-9.
- Click **Next**.

c. Click **Install**.

d. When done, click **Finish**.

7. The following components may be installed on any MAS (check your MAS features list on page A-10):

- Mailbox Monitor Server *(by default, this is installed first if the Call Me or MWI Server is selected)*
- Call Me Server
- Message Waiting Indicator (MWI) Server
- Tracing Server

The wizards for these components must be completed as follows:

a. When one of the above server installation wizards runs, click **Next**.

b. When prompted, enter name of this MAS machine (such as *zippy*). See item **1** on the Modular Messaging MAS planning form on page A-6. Click **Next**.

c. When prompted, enter the password for the Modular Messaging account (such as mmacct). See item **A7** on the Modular Messaging logon accounts form on page A-9. Click **Next**.

d. Click **Install**.

e. When done, click **Finish**.

8. *For a system that uses CD-ROMs,* you are prompted to insert additional disks to install the RealSpeak Text-to-Speech software in multiple languages. When prompted to insert installation disk 2:

a. Remove the *Avaya Modular Messaging Application Software and Languages* CD from the drive.

b. Insert the first *Enhanced Email Reader (Text-to-Speech)* RealSpeak software CD in the drive and close the door.

c. Wait for the drive's green LED to go out. Click **OK**.

d. After the disk is copied, you are prompted to insert the next disk:

- Insert the next RealSpeak TTS software CD in the drive.
- Repeat steps b and d for each RealSpeak TTS software CD.

Allow several minutes for the RealSpeak software to install. When finished, the wizard returns to the main screen.

9. To complete the installation, click **Close**.
10. Click **Restart** when prompted to restart the system now.
11. Remove the media from the CD or DVD drive.

Configuring the MAS

To configure Modular Messaging services on this MAS:

1. When the reboot completes, press **Ctrl+Alt+Del** to log back in. Use the Modular Messaging account (such as *mmacct*) and its password (see item **A7** on the Modular Messaging logon accounts form on page A-9).

   The Messaging Application Server - Configuration Wizard appears.

2. For the Peer Microsoft Exchange Server Selection screen:

   a. Enter the name of the primary **Microsoft Exchange Server**. This is Windows NetBIOS name of the Exchange server, such as *exchange1* (the name is forced to upper-case). See item **3** on the Modular Messaging MAS planning form on page A-6.

   b. Click **Next**.

   The Service configuration may take several minutes.

3. For the Peer Directory Server Selection screen:

   a. For Peer Directory Server, click **Browse**.

   b. On the Select Computer screen, navigate to the desired peer directory server, such as *directory1*, then double-click or click **OK**. See item **4** on the Modular Messaging MAS planning form on page A-6.

   c. Click **Next**.

   The Service configuration may take several minutes.

4. The Peer Microsoft Exchange Server Configuration screen displays a scroll box showing a list of potential errors concerning external caller account creation and replication in the environment. For this screen:

   a. Wait up to 10 minutes (larger systems will take longer). When the configuration is resolved, the screen automatically advances.

   Note: Be patient. *Do not* click the **Back** button. The system works to resolve these errors independently. The screen will be updated a couple of times as the resolution progresses.

   b. If the screen does not advance after several minutes, read the messages in the scroll box. Follow the instructions to resolve the problem before the installation can proceed.

5. For the Voice Mail Domain Selection screen:

   a. Select a new or existing voice mail domain as follows:

   - ***For MAS#1:*** Click the radio button for "First server in a new voice mail domain."
   - ***For a subsequent MAS:*** Click the radio button for "Subsequent server in an existing voice mail domain."

   b. Click **Next**.

CAUTION: If you are restoring MAS#1 to service after a disk failure in a multiple-MAS system, you need to join the voice mail domain as a subsequent MAS. See Recovering from a catastrophic disk failure on page F-1 for details.

6. On the Voice Mail Domain Selection screen:

   a. Specify the voice main domain as follows:

   - ***For MAS#1:*** Enter the unique voice mail domain name for this set of MAS machines (such as *zebra*). See item **5** on the Modular Messaging MAS planning form on page A-6.
   - ***For a subsequent MAS:*** Verify that the existing voice mail domain name appears in the drop-down box (such as *zebra*).

   b. Click **Next**.

   The VMD configuration may take several minutes.

7. *For a subsequent MAS:* The Offline Storage Location screen appears if offline access is enabled in the voice mail domain and an offline message store has not already been selected. Browse to an existing, shared directory in the domain to set up the remote offline message store, used to synchronize messages in a multiple-MAS configuration. See item **6** on the Modular Messaging MAS planning form on page A-6.

a. For Store Location, click **Browse**.

b. In the Browse for Folder window, navigate to the specified directory.

c. Select the folder and click **OK**.

d. Click **Next**.

8. *For a subsequent MAS:* The Caller Application screen appears if Caller Applications are deployed in the domain.

   a. Use the default setting for this step.

   b. Click **Next**.

> **CAUTION:** If you are restoring an MAS following a disk failure, see Restoring Caller Applications after a catastrophic disk failure on page F-3 for instructions about this feature.

9. For the User Information screen, just click **Next**.

10. On the Setup Complete screen, click **Finish**.

> **Note:** You can enable the anti-virus software on the MAS at this time.

Setting up remote access

Remote access allows Services support personnel to dial into a system to correct problems and perform routine maintenance. Unless other arrangements have been made, use the following procedure to set up the MAS to take incoming service calls.

> **Note:** The modem for this MAS must already be installed and correctly configured. See the documentation included with your modem for details on modem setup and operation.

To set up this MAS for remote access:

1. Activate remote access service as follows:

   a. Double-click the **Monitor** icon on the desktop.

   b. In the Monitor window, click **Services (Local)** in the left-hand pane.

   c. In the right-hand pane, scroll down to **Routing and Remote Access**. Double-click it to open the properties window.

   d. In the Routing and Remote Access Properties window:

      (1) On the General tab, set the “Startup type” to **Automatic**.

      (2) Click **Apply**.

      (3) Under “Service status,” click **Start**.

      (4) Wait for service to start, then click **OK** to close this window.

   e. Close the Monitor window.

2. Access Routing and Remote Access using one of these methods:

   - Double-click the **Configure** icon on the desktop (if present).

     > **Note:** This icon has a .msc extension and is labeled **Configure.msc**.

   - Click Start > Programs > Administrative Tools > Routing and Remote Access.

3. Continue as follows:

   - *If you are setting up a customer-provided MAS,* continue with step 4.

   - *If you are setting up an Avaya MAS,* continue with "Preparing an Avaya MAS for remote access" on page 7-18.

4. *If you are setting up a customer-provided MAS,* preconfigure routing and remote access properties as follows:

   a. In the left-hand pane of the window, right-click **Routing and Remote Access** and select **Add Server**.

   b. On the Add Server screen, select “This computer.” Click **OK**.

   c. In the left-hand pane, expand Routing and Remote Access to see the new server name (such as *ZIPPY*).

   d. Right click the server name and select **Configure and Enable Routing and Remote Access**.

   e. The wizard is launched. On the Welcome screen, click **Next**.

   f. Choose **Remote Access Server** and click **Next**.

   g. Select **TCP/IP yes** and click **Next**.

   h. Network selection is “select the appropriate adaptor”. Click **Next**.

   i. Choose “from a specified range of addresses”. Click **Next**.

   j. On the Address Range Assignment screen, enter the range of 2 static IP addresses provided by the customer. See item **15** on the Modular Messaging MAS planning form on page A-6.

   k. Click **Next** again.

   l. On the “managing Multiple remote access servers” screen, choose **No** to RADIUS.

   m. Click **Finish**.

      The Routing and Remote Access service starts.

5. Continue with "Completing remote access setup" on page 7-19.

Preparing an Avaya MAS for remote access

Do the following steps only on an Avaya MAS:

1. To set up remote access properties for this Avaya MAS:

   a. Expand **Routing and Remote Access**.

   b. Expand the server name (such as *ZIPPY*).

2. Verify that remote access service (RAS) is running as follows:

   a. If a green upward-pointing arrow appears on the server’s icon, RAS is running. Continue with step 1.

   b. If a red symbol appears on the server’s icon, activate RAS as follows:

      (1) Right-click the server’s name, and select All Tasks > Start.

(2) If prompted to re-enable Routing and Remote Access, click **Yes**.

3. Set up a static IP address pool as follows:

   a. In the left-hand pane, right-click the server name (such as *ZIPPY*) and select **Properties**.

   b. On the server's local Properties screen, click the IP tab.

   c. Check the box to "Enable IP routing".

   d. Check the box to "Allow IP-based remote access and demand-dial connections".

   e. Under "IP address assignment," select "Static address pool".

   f. If an IP address range of 0000 to 0000 appears, select it and click **Edit**. (If no address appears, click **Add**.)

   g. In the New Address Range properties box, enter the range of 2 static IP addresses provided by the customer. See item **15** on the Modular Messaging MAS planning form on page A-6.

   h. Make sure the number of addresses is **2**.

   i. Click **OK**.

   j. For the Adapter field, select **Local Area Connection 2** for the corporate LAN.

   k. Click **OK** to close the Properties window.

Completing remote access setup

Do the following steps on all MASs to set up the modem:

1. Set up inbound remote access to the modem as follows:

   a. Right-click **Ports** and select **Properties**.

   b. In the Ports Properties window, make sure the modem is highlighted, then click **Configure**.

   c. In the Configure Device - <*model*> window, verify that the box to activate **Remote access connections (inbound only)** is checked.

   d. Click **OK**.

   e. Click **OK** to close the Ports Properties window.

2. Verify your modem setup:

   a. Click **Ports** in the left-hand pane.

   b. In the right-hand pane, verify that there is an entry for the modem attached to this MAS, such as MultiTech ZBA-USB-V92.

- If the modem entry is present, go to step 3.
- If the modem entry is missing, continue as follows:

(1) Verify that the modem is correctly installed.

For an Avaya MAS, check that the external modem is plugged into the recommended USB port (see "Connecting the USB modem on the MAS" on page 2-28).

(2) Click Start > Settings > Control Panel.

(3) Double-click **Phone And Modem Options**.

(4) The first time you select Phone and Modem Options, a wizard runs.

- Complete the wizard following the steps on each screen to configure your locale settings.
- When finished, your new entry appears in the **Locations** box on the **Dialing Rules** tab.

(5) In the Phone And Modem Options window, click the **Modems** tab.

(6) Verify that the modem is present and attached to a port (typically COM3 if you used the recommended USB port).

(7) *If the modem is not present or attached to a port,* you may need to remove the modem entry, then reinstall the modem.

(8) When finished, click **OK** to close the Phone And Modem Options window.

(9) Close the Control Panel.

(10) Return to step a and verify that the modem is now present.

3. Close the Configure or the Routing and Remote Access window.

8

Configuring and testing the port boards

This chapter describes how to configure and test the port boards on every MAS.

Note:	Before you can successfully complete the tasks in this section, you must have successfully completed the tasks in Chapter 7, “Installing and configuring the Modular Messaging software.” If you are using an IP H.323 integration, continue with Chapter 9, “Configuring the voice mail system.”

Configuring the port boards

The port boards on each MAS must be configured and tested as described in this section. Port board administration involves three phases:

1. The appropriate party must administer the switch for the port boards using the configuration notes for your particular PBX or switch integration. See "Required documentation" on page 1-2 for instructions on obtaining the configuration notes.

> **CAUTION:** You can only install this system by using the required configuration notes for your switch or PBX. The PBX administrator *must* have administered the ports on the switch before you can proceed.

2. Configure and test the port boards as described in this section.

3. Afterwards, complete the port board administration for this MAS using the configuration notes as directed in "Configuring the voice mail system" on page 9-2.

Table 8-1 lists supported Dialogic port boards and their associated documents (copies of the PDF files are on the documentation CD and application software disk). The type of port boards may vary on different MASs in the system, although each MAS can have only one type of board installed in it.

Table 8-1. Supported MAS port boards

Protocol	Ports	Port boards	Max #	Dialogic files on documentation CD
Analog	4 - 8 12 - 48	Dialogic 4-port T/R board Dialogic 12-port T/R board	2 4	**D/41JCT-LS** (PDF 133K) **D/120JCT-LS** (PDF 131K)
Digital Set Emulation	8 - 40 or 8 - 48	Dialogic D/82JCT-U Dialogic D/82JCT-U-PCI-UNIV	5 - Avaya MAS or 6 - other MAS	**D/82JCT-U** (PDF 240K) **D/82JCT-U PCI Univ** (PDF 234K)
T1-QSIG	23 - 69	Dialogic D/480JCT-2T1 Dialogic D/240JCT-T1	3	**DualSpan JCT boards** (PDF 104K) **Span JCT boards** (PDF 99K) are supported for upgrades only
E1-QSIG	30 - 60	Dialogic D/600JCT-2E1 Dialogic D/300JCT-E1-120	2	**DualSpan JCT boards** (PDF 104K) **Span JCT boards** (PDF 99K) are supported for upgrades only

Continue based on the type of port boards installed in this MAS:

- "Configuring analog port boards" on page 8-3
- "Configuring set emulation boards" on page 8-5
- "Configuring T1- or E1-QSIG boards" on page 8-7

Configuring analog port boards

You may have the following analog port boards installed in an MAS:

- Dialogic 4-port Tip/Ring board (up to 2 per MAS; see the **D/41JCT-LS** PDF file on the documentation media for details)
- Dialogic 12-port Tip/Ring board (up to 4 per MAS; see the **D/120JCT-LS** PDF file on the documentation media for details)

To configure either of these analog cards:

1. Click Start > Programs > Intel Dialogic System Software > Configuration Manager - DCM.

   The Intel Dialogic Configuration Manager window appears.

2. In the Computer Name popup window, make sure that the radio button for **Local** is selected and verify the server's name, such as *ZIPPY*.

3. Click **Connect**.

   The Dialogic software locates any installed port boards.

4. Under Configured Devices, double-click the name of the first Dialogic board shown (such as #0).

> **CAUTION:** If you can't find a suitable TSF file for your PBX, you need to build an appropriate tone file now or the integration will not work. **Cancel** out of this screen, then see Appendix C, "Creating a new tone file."

5. In the Dialogic Configuration Manager Properties window:

   a. Click the **Files** tab.

      The **TSFFileName** parameter should be selected.

> **Note:** If you are using a D/41JCT-LS card, you must highlight the "Configured Devices" parameter on the DCM display when selecting Configure Device. This is necessary to be able to view the TSFFilename parameter.

b. Locate the prerecorded TSF file for your PBX or switch:

(1) Click the **...** button to browse, then navigate to the C:\Avaya_Support\Tone_Files directory.

(2) In the Search File window, select a TSF file that is appropriate for the PBX to which you are connecting (for example, Avaya-G3-US.tsf). Double-click the file name.

The appropriate TSF file is inserted in the Value field.

6. After an appropriate TSF file is selected, click the **Misc** tab.

a. Click the **TSFFileSupport** parameter.

b. Select **Yes** from the Value drop-down list.

> **Note:** You must have selected an appropriate TSF file for your PBX or switch before setting the TSFFileSupport parameter to Yes, or errors may occur.

c. Click the **DisconnectTone** parameter.

d. Select **Yes** from the Value drop-down list.

e. Click **OK** to close the Properties window.

7. Repeat steps 4 through 6 for any other installed Dialogic boards (such as #1).

> **Note:** Most of the first board's settings will persist between boards, except for the **FirmwareFile** parameter.

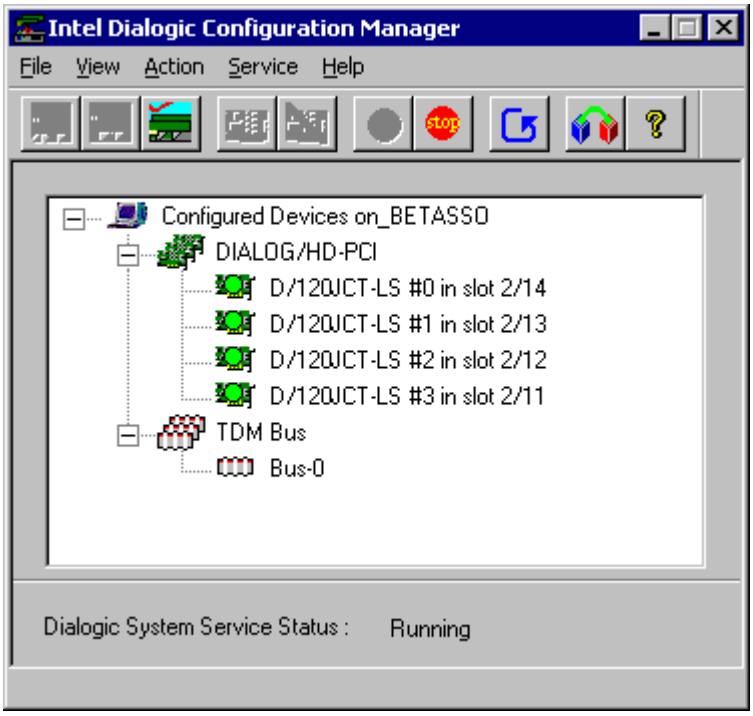
8. When all boards are configured, click the green Start Service button on the button bar.

Wait for service to start. The installed boards show a green light when service is started, and the Stop Service button becomes active. See Figure 8-1 on page 8-5 for an example.

9. Close the Intel Dialogic Configuration Manager window.

10. Continue with "Testing the port boards" on page 8-10.

Figure 8-1. Sample Dialogic Configuration Manager analog window - service started



Configuring set emulation boards

You may have up to five 8-port Dialogic Digital Set Emulation (DSE) boards installed in an Avaya MAS, or up to six DSE boards installed in a customer-provided MAS. See the **D/82JCT-U** or **D/82JCT-U PCI Univ** PDF file on the documentation media for more information.

To configure your digital set emulation boards:

1. Click Start > Programs > Intel Dialogic System Software > Configuration Manager - DCM.

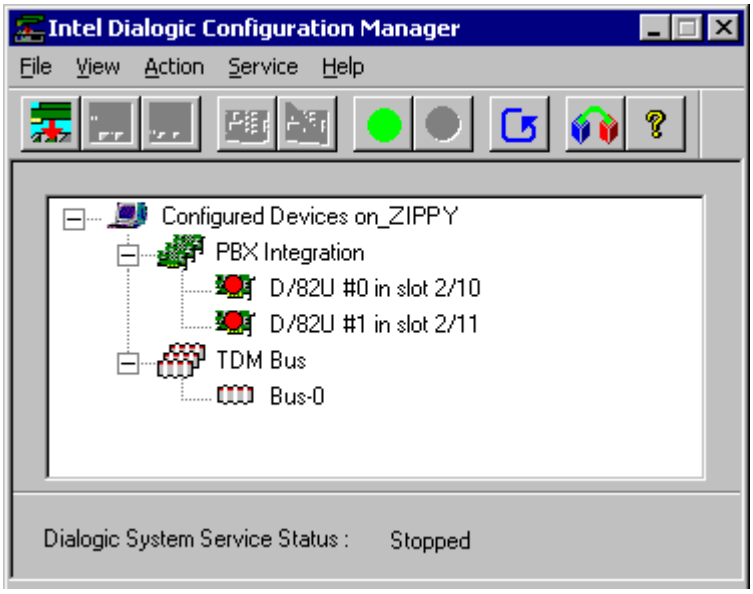
   The Intel Dialogic Configuration Manager window appears.

2. In the Computer Name popup window, make sure that the radio button for **Local** is selected and verify the server's name, such as *ZIPPY*.

3. Click **Connect**.

   The Dialogic software locates any installed port boards. See Figure 8-2 on page 8-6 for an example.

Figure 8-2. Sample Dialogic Configuration Manager DSE window - service not started



4. Under Configured Devices, double-click the name of the first Dialogic board shown (such as #0).

5. In the Dialogic Configuration Manager Properties window:

   a. Click the **Telephony Bus** tab and select the **PCMEncoding** parameter.

   b. On the pull-down list of values, select either **A-Law** or **μ-Law** depending on your location. Typically, **A-Law** is Europe and **μ-Law** is United States.

   c. Click the **Misc** tab and select the **PBXSwitch** parameter.

   d. On the pull-down list of values, select the name of the PBX (for example, use Lucent 2-wire for an Avaya G3 switch).

   e. Click the **Country** tab and select the **Country** parameter.

   f. On the pull-down list of values, select your country.

   g. Click **OK** to close the Dialogic Configuration Manager Properties window.

6. Repeat steps 4 and 5 for any other installed Dialogic boards (such as #1).

CAUTION: If the DSE boards are connected to a Nortel (NTM-1) PBX, you need to reboot the MAS *before* starting the Dialogic drivers. Close the DCM and reboot the system now. When the reboot completes, log back in and reopen the DCM (see step 1), then continue with step 7.

7. When all boards are configured, click the green Start Service button on the button bar.

   Wait for service to start. The installed boards show a green light when service is started, and the Stop Service button becomes active.

8. Check that the boards are operating correctly.

   a. Check the LED display on the Dialogic board faceplate. It flashes a code for each port consecutively as follows:

      - Ports that are connected to a phone line and functioning correctly show 0 and the port number (such as 00 or 01).
      - Ports that are not connected to a phone line or not functioning correctly show E**n**, where **n** is the port number. For example, the display reads *E3* if there is an error on port 3.

   b. If any errors (E**n** codes) are present, check your board configuration, the physical connections between the board and the PBX, or the PBX configuration itself. (For example, make sure you have configured the correct PBX). Repeat steps 4 through 8 as needed.

9. Close the Intel Dialogic Configuration Manager window.

10. Continue with "Testing the port boards" on page 8-10.

Configuring T1- or E1-QSIG boards

You may have either of the following QSIG port boards installed in your MAS. See the **DualSpan JCT boards** PDF file on the documentation media for more information.

- Dialogic D/480JCT-2T1 board (up to 3 boards per MAS)
- Dialogic D/600JCT-2E1 board (up to 2 boards per MAS)

> **Note:** The **single-span version** of these boards (D/240JCT-T1 and D/300JCT-E1-120) is supported for upgrades only.

To configure either T1-QSIG or E1-QISG boards:

1. Click Start > Programs > Intel Dialogic System Software > Configuration Manager - DCM.

   The Intel Dialogic Configuration Manager window appears.

2. In the Computer Name popup window, make sure that the radio button for **Local** is selected and verify the server's name, such as *ZIPPY*.

3. Click **Connect**.

   The Dialogic software locates any installed port boards.

4. Under Configured Devices, double-click the name of the first Dialogic board shown (such as #0).

5. In the Dialogic Configuration Manager Properties window:

   a. Click the **Interface** tab and select the **ISDNProtocol** parameter.

   b. Select the correct value for this type of board from the pull-down list:

      - For E1-QSIG: select **QTE**
      - For T1-QSIG: select **QTU**

   c. Click the **Telephony Bus** tab and select the **PCMEncoding** parameter.

   d. Select the correct value for this type of board from the pull-down list:

      - For E1-QSIG: select **A-Law**
      - For T1-QSIG: select **μ-Law**

   e. Click the **Misc** tab. For the **FirmwareFile** parameter, verify that **default** is displayed.

   f. Click the **Country** tab and select the **Country** parameter.

   g. On the pull-down list of values, *always* use United States for either type of board.

   h. Click **OK** to close the properties window.

6. Repeat steps 4 and 5 for any other installed Dialogic boards (such as #1).

7. When all boards are configured, click the green Start Service button on the button bar.

   Wait for service to start. The installed boards show a green light when service is started, and the Stop Service button becomes active. See Figure 8-3 on page 8-9 for an example.

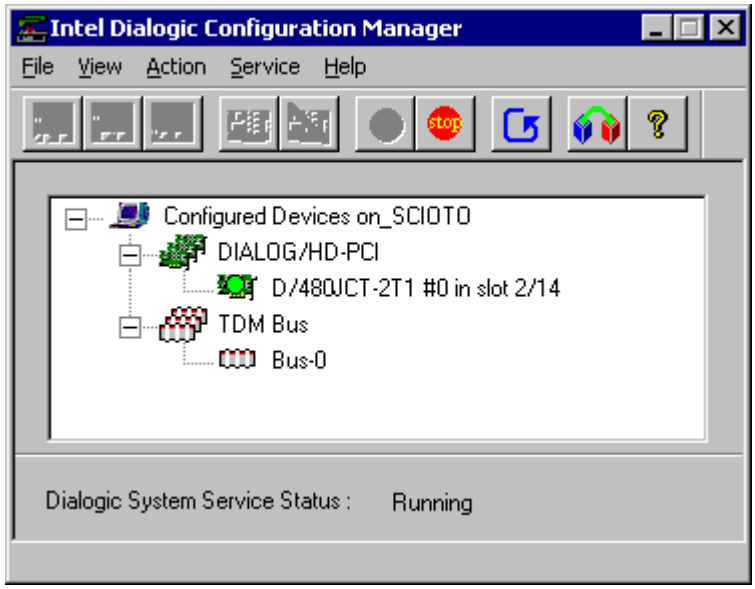
8. Check that the boards are operating correctly.

   a. Check the LED display on the Dialogic board faceplate.

      - A red status LED appears on the back of the voice card during driver start-up.
      - If the drivers start successfully, the LED of the board whose port is connected to the PBX is replaced by a green LED within about 20 to 30 seconds. LEDs on the other boards remain red.

   b. If a problem occurs, check your board configuration, the physical connections between the board and the PBX, or the PBX configuration itself. Repeat steps 4 through 8 as needed.

Figure 8-3. Sample Dialogic Configuration Manager QSIG window - service started



9. Close the Intel Dialogic Configuration Manager window.
10. Continue with "Testing the port boards" on page 8-10.

Testing the port boards

Test all port boards and channels to verify that they can send and receive calls.

Prepare for port board testing as follows:

1. Stop Modular Messaging service as follows:

   a. Access the window to monitor services using one of these methods:

      - Double-click the **Monitor** icon on the desktop (if present). In the left-hand pane, click **Services** if it is not already selected.

      - Right-click **My Computer** and select **Manage**. In the Computer Management window, the left-hand (Tree) pane, expand **Services and Applications**, then click **Services**.

   b. In the right-hand pane, scroll down to **MM Messaging Application Server**.

   c. Right-click **MM Messaging Application Server** and select **Stop**.

2. ***For software upgrades only,*** the Dialogic Line Tester program is not yet installed. Access the test program on disk as follows:

   a. Insert the application software disk in the MAS drive. This is either:

      - The *Avaya Modular Messaging Application Software* DVD, or

      - *For a system that uses CD-ROMs,* the *Avaya Modular Messaging Application Software and Languages* CD

   b. Close the drive door and wait for the green LED to go out. Click **OK**.

   c. In Windows Explorer, navigate to the CD or DVD drive (D:).

   d. Navigate to the **Install** directory, then to the **DLTest** subdirectory.

   e. Double-click the file **DLTest.exe**.

   The Dialogic Line Test Application launches.

3. *For T1-QSIG or E1-QISG boards,* set up the test options as follows:

   a. Click Start > Programs > Avaya Modular Messaging > Dialogic Line Tester (or access the program from the applications disk as described in step 2).

   b. In the Dialogic Line Test Application window, click Tools > Options.

   c. In the Options window, select the correct values for each field. Use your configuration notes to identify the correct values:

      - For Layer 1 Protocol, select your ISDN protocol from the drop-down list.

      - For Number Type, select the destination number type.

- For Number Plan, select the destination number plan.

> **Note:** The values you select here must be the same as those entered on the PBX or switch. Check your configuration notes.

To test Dialogic port board functionality:

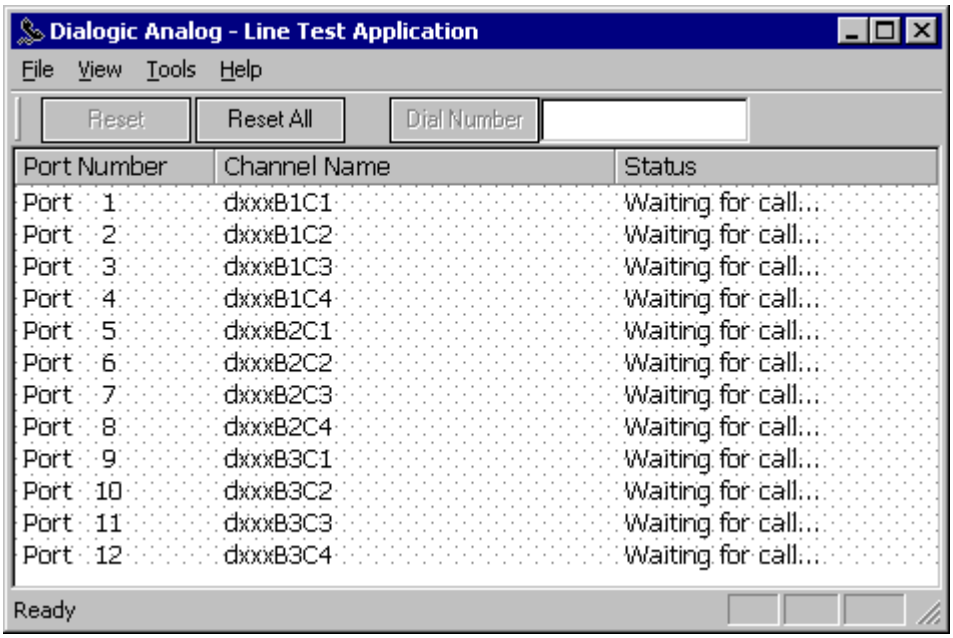
1. Access the Dialogic Line Test application using one of these methods:

   - Click Start > Programs > Avaya Modular Messaging > Dialogic Line Tester

   - Access the DLTest program from the applications software disk described in step 2 on page 8-10.

   The Dialogic Analog - Line Test Application (or DLTest) window appears. The name of the window varies depending on the type of port boards installed. All port numbers and channel designations should be listed. See Figure 8-4 for an example.

Figure 8-4. Sample Dialogic Analog - Line Test Application window



2. Test the incoming call connectivity of all ports as follows:

   a. From a handset on the same PBX, dial each port individually.

      - For analog and set emulation boards, use the individual port extensions from Required switch and messaging information on page A-11.

      - For QSIG cards, repeatedly dial the number for that group of ports. The switch connects to the next port in the list each time you dial.

b. Check the **Status** column. Verify that each port shows “Received call” followed by “Connected.” See Table 8-2 for different status conditions.

The system should answer each connected call with a standard welcome message.

Table 8-2. DL Test status messages

Status	Description	Highlight
Channel starting…	The channel is being started.	Normal
Channels idle…	The channel is idle.	Normal
Waiting for call…	The channel is waiting for an incoming call.	Normal
Received call…	An incoming call is being processed.	Normal
Dialling number…	A number is being dialled to make on outgoing call.	Normal
Resetting…	The user reset the channel.	Normal
Line Busy.	An outgoing call was made but a busy tone was detected.	Normal
No Answer.	An outgoing call was made but the call was not answered.	Normal
Connected.	An incoming or outgoing call was answered so the call is now connected.	Normal
Call was disconnected.	An incoming or outgoing call was disconnected.	Normal
Error.	A general error with channel occurred.	Error
Error, No Dial tone detected.	An outgoing call was made but no dial tone was detected before dialling.	Error

3. Test the outcalling capability of all ports as follows:

   a. Type the number of an extension on this PBX in the Dial Number field near the top of the window.

   b. Select a Port Number in the Dialogic Line Test Application window.

   c. Click **Dial Number**.

   d. When the dialed extension rings, answer the call and hang up.

   e. Select the next Port Number, and click **Dial Number** again.

   f. Repeat steps d and e until all ports have been tested.

4. When finished, close the test application window.

5. If a problem occurs, check your board configuration, the physical connections between the board and the PBX, or the PBX configuration itself. For example, make sure that you have configured the correct PBX and administered it according to the appropriate configuration notes.

9

Configuring the voice mail system

This chapter describes how to configure the basic Voice Mail System Configuration (VMSC) parameters and complete initial Modular Messaging software administration.

Note:	Before you can successfully complete the tasks in this section, you must have successfully completed the tasks in Chapter 8, "Configuring and testing the port boards."

Overview

You are now ready to configure the basic Voice Mail System Configuration (VMSC) parameters and complete initial Modular Messaging software administration.

To successfully complete this task, you need:

- A completed copy of the forms in Appendix A, ‘‘System planning forms,’’ specifically:
  - — Modular Messaging MAS planning form on page A-6
  - — MAS features list on page A-10
  - — Required switch and messaging information on page A-11
  - — Services information on page A-12
- The configuration notes for your PBX or switch. See "Required documentation" on page 1-2 for instructions on how to obtain these.

Configuring the voice mail system

Voice mail system configuration falls into three areas:

1. Domain-wide administration, some of which *must* be done on MAS#1 only (such as initial PBX setup).
2. Administration of domain-wide features that may be installed on any MAS, such as Call Me or Message Waiting Indicator.
3. Port board and feature configuration specific to each MAS.

This section guides you through the administration of key parameters that are required to get a new system operational.

Note: This section is intended to get a Modular Messaging system up and running with the basic required features. Customers are encouraged to tailor the Voice Mail System Configuration (VMSC) parameters for their site after a successful installation using the *Avaya Modular Messaging Software Messaging Application Server Administration* guide (PDF 3 MB), located on the documentation media shipped with the system.

> **CAUTION:** The procedures in this section can only be completed by using the required configuration notes for your PBX or switch. See "Required documentation" on page 1-2 for instructions on obtaining the configuration notes.

Configuring domain-wide features

This section covers the administration of domain-wide features as follows:

- Required features that must be administered for every Modular Messaging system are marked ***On MAS#1*** in this guide. This is to ensure the configuration of all required system elements. (Note that, except for initial PBX administration, most domain-wide features technically can be administered on any MAS.)
- Some domain-wide features are optional and may be installed on any MAS, including the first one (such as the Call Me and Message Waiting Indicator Servers). Use the MAS features list on page A-10 to determine what features need to be configured on a given MAS.

To configure the voice mail system:

1. *If you installed multiple languages,* specify the preferred language for this MAS:
   a. Click Start > Programs > Avaya Modular Messaging > Languages.
   b. On the Modular Messaging User Properties screen, select the **Preferred language** from the drop-down list.
   c. Click **OK**.
2. Verify that Modular Messaging service is started as follows:
   a. Access the window to monitor services using one of these methods:
      - Double-click the **Monitor** icon on the desktop (if present). In the left-hand pane, click **Services** if it is not already selected.

      > **Note:** This icon has a .msc extension and is labeled **Monitor.msc**.

      - Right-click **My Computer** and select **Manage**. In the Computer Management window, the left-hand (Tree) pane, expand **Services and Applications**, then click **Services**.

   b. In the right-hand pane, scroll down to **MM Messaging Application Server**.
   c. Check the Status column.
      (1) If the status is **Started**, continue with step 3.

(2) If service is not started, right-click **MM Messaging Application Server** and select **Start**.

The system begins a messaging service startup.

> **Note:** When you restart messaging service, the window immediately shows a status of Started. However, service may actually take several minutes to start, depending on the number of port boards installed and the integration method.

d. Track startup progress as follows:

(1) Access the event viewer using one of these methods:

- In the Monitor window, in the left-hand pane, expand **Event Viewer (Local)**.
- In the Computer Management window, in the left-hand pane, expand **System Tools**, then **Event Viewer**.

(2) In the left-hand (Tree) pane, click **Application**.

(3) Refresh the window periodically until you see Telephony User Interface event 1241, “TUI service has been enabled.” You can now proceed.

e. When service is restarted, close or minimize this window.

3. Click Start > Programs > Avaya Modular Messaging > Voice Mail System Configuration.

The Voice Mail System Configuration window appears. All MASs present in the messaging system are listed.

> **Note:** Do the steps in this section under the voice mail domain, not under a specific MAS.
>
> Although you are prompted to restart service several times during this procedure, you actually need to restart service only before entering the port board extension numbers in "Configuring MAS-specific parameters" on page 9-9 and at the end, when configuration is complete.

4. ***On MAS#1:*** Double-click **Telephone User Interface**.

a. On the **General** tab, set the “Number of Digits in a Mailbox” to match the number of digits in the extension numbers on the customer’s PBX. See Required switch and messaging information on page A-11.

b. Click the **Subscriber** tab.

(1) If prompted that your extension number changes will invalidate all previous mailboxes, click **Yes**.

(2) Verify that “Login Failures before Mailbox Lockout” is **18**.

c. Click **OK** to close this window.

5. *To set up Call Me service:* Do this procedure if the optional Call Me Server is installed on any MAS. See the MAS features list on page A-10.

a. Double-click **Call Me**.

b. In the Call Me - Voice Mail Domain window, on the General tab, check the box to **Enable Call Me**.

c. For **Call Me server**, specify the MAS on which the Call Me software is installed (such as *ZIPPY*). If this field is blank:

(1) Click the **...** button next to the field.

(2) In the Select Computer window, double-click the name of the MAS that has Call Me installed (such as *ZIPPY*).

(3) Click **OK** to close this window.

6. *To set up MWI service:* Do this procedure if the optional Message Waiting Indicator Server is installed on any MAS. See the MAS features list on page A-10.

a. Double-click **Message Waiting Indicator**.

b. In the Message Waiting Indicator - Voice Mail Domain window, on the General tab, check the box to **Enable Message Waiting Indicator (MWI)**.

c. For **MAS MWI server**, specify the MAS on which the MWI software is installed (such as *ZIPPY*). If this field is blank:

(1) Click the **...** button next to the field.

(2) In the Select Computer window, double-click the name of the MAS that has MWI installed (such as *ZIPPY*).

d. In the “Messaging Application Servers that support MWI” box, list all MAS servers that support MWI. To add a server’s name:

(1) Double-click inside the top of the big list box, or click the **Add** (dashed-box) button just above the list box.

(2) A data entry field and **...** button appear in the list box. Click the **...** button.

(3) In the Select Computer window, double-click the name of each MAS that supports MWI (such as *ZIPPY* and *ZORRO*).

(4) Click **OK**.

e. Click **OK** to close this window.

7. ***On MAS#1:*** Set up access permissions to allow authorized users to administer the Modular Messaging system or subscribers on the directory server.

> **Note:** The customer may have predefined groups that include users who are authorized to perform system or subscriber administration. Check with the domain administrator for the correct entries to make here.

   a. In the Voice Mail System Configuration window, expand **Security**.

   b. Double-click **System Administration**.

      (1) In the Permissions for System Administration window, verify that the Modular Messaging account (such as *mmacct*) is already listed. Click **Add** to include additional required users.

      (2) In the Select Users, Computers, or Groups window, add the appropriate users or groups who require system administration permissions (for example, the Services remote access account such as *craft*). See item **17** on the Modular Messaging MAS planning form on page A-6. Double-click the required entry, then click **OK**.

      (3) Click **OK** to close this window.

   c. Double-click **Subscriber Administration**.

      (1) In the Permissions for Subscriber Administration window, click **Add** to add the users who are required to administer subscribers. The prerequisite is Exchange subscriber administration rights and Exchange user administration extensions.

      (2) In the Select Users, Computers, or Groups window, add the customer-specified users or groups required to administer Exchange users and extensions. See item **17** on the Modular Messaging MAS planning form on page A-6. Double-click the required entry, then click **OK**.

      (3) Click **OK** to close this window.

8. ***On MAS#1:*** *If multiple languages or the optional Text-to-Speech feature are used at this site,* double-click **Languages**. Do the following in the Languages - Voice Mail Domain window:

   a. For **Primary Language**, select the primary prompt set to be used at this site. See the MAS features list on page A-10.

   b. *If the optional Text-to-Speech (TTS) feature is used at this site:*

      (1) Check the box to enable **Enable Multilingual Text to Speech**.

      (2) In the list box, check all the languages to use for TTS at this site. See the MAS features list on page A-10.

c. Click **OK** to close this window.

9. *To set up the optional offline access feature:* Do this procedure on any MAS.

   a. Double-click **Messaging**.

   b. In the Messaging - Voice Mail Domain window, click the Offline Access tab.

   c. Check the box to **Enable offline access to messages**.

   d. *If multiple MASs are installed,* check the box to **Synchronize offline messages with remote store**. Click **Browse** to select an existing, shared directory in the domain for the remote offline message store. See item **6** on the Modular Messaging MAS planning form on page A-6.

   Note: If the offline message store is to be on a machine other than an MAS, the share must be mapped as a network drive on this MAS. See the *Administration* guide (PDF 3 MB) for details.

   e. Alter any other parameters on this screen as needed. See the *Avaya Modular Messaging Software Messaging Application Server Administration* guide (PDF 3 MB) on the documentation media for details.

10. ***On MAS#1:*** Double-click **Serviceability**. Enter the following in the Serviceability - Voice Mail Domain window:

    a. On the **General** tab, select the type of alarming to be used on this voice mail domain for the Modular Messaging system: INADS, SNMP, or none.

    Note: If no modem is present, INADS alarming is not available.

    b. If alarming is activated, enter the unique product ID for this system. See Services information on page A-12 for this number.

    c. Generally, you can accept the default values for the following parameters, unless directed otherwise:

       - The conditions for sending an alarm notification
       - The alarm level at which notification will be sent (minor or major)
       - The system behavior for stopping Modular Messaging service

    d. *If you selected SNMP alarming,* click the **SNMP** tab. See SNMP alarming information on page A-12 to enter the required values.

       - For **Network Management Station**, specify the corporate network management system (NMS) that will monitor the Modular Messaging system for alarm notifications (traps). Either type the IP address or fully qualified domain name for the NMS in the field, or click **Browse** to navigate to and select the appropriate NMS.
       - For **Context (community)**, enter the name of the context or community to which the NMS belongs (such as *public*).

- For **Acknowledgement type**, select either **Return trap** (to have traps actively acknowledged) or **Ping surround** (to send a ping to the NMS before and after sending a trap to assume trap receipt).

e. Click **OK** to close this window.

11. ***On MAS#1:*** Obtain and install the license for this system as follows:

> **Note:** The procedure for obtaining a license file may vary. Follow your local procedures for obtaining a license for this system.
>
> You can continue administering the system while a license is being generated. Return to this procedure after the license is received to install the license.

a. To obtain a license, in the Voice Mail System Configuration window, right-click **Licensing** and select **Copy Host ID to Clipboard**.

b. Open a text editor application such as Notepad and **Paste** the ID into the file. This is the unique ID for this voice mail domain (system).

c. Include the following information in the same file:

(1) The platform (Microsoft Exchange)

(2) Whether this is a new installation or an upgrade (for upgrades, specify the release you are upgrading from)

(3) The number of seats (voice mail-enabled user mailboxes) purchased for the system

(4) The maximum number of concurrent sessions of text-to-speech conversion purchased for the system

(5) Specify the text-to-speech engine (such as Fonix DECtalk US English, ScanSoft Realspeak Any Language, or ScanSoft TTS-3000 International).

(6) The installer's name and contact information (telephone number and email address)

d. Notify the appropriate Modular Messaging remote support center and transmit the file as directed (through email, FTP, and so on).

e. Continue the installation while the remote support center generates and transmits back a valid license for this system.

After the license is obtained, install it as follows:

a. In the Voice Mail System Configuration window, right-click **Licensing** and select **Import License**.

b. On the License Import Wizard welcome screen, click **Next**.

c. On the Importing the License screen, click **Browse**.

d. Navigate to the location where the license file is stored.

e. Double-click the appropriate *.xml license file. Click **Open**.

f. Click **Next** to install the license.

g. When the wizard completes, click **Finish**.

h. In the Voice Mail System Configuration window, double-click **Licensing**.

i. On the Licensing - Voice Mail Domain properties screen, on the **General** tab, verify that the correct values for this customer are displayed.

j. Click the **Text-to-Speech** tab. Every MAS in the voice mail domain is listed.

(1) For each MAS, double-click the TTS link, such as “Text to speech, ScanSoft RealSpeak, Any Language”.

(2) On the Edit Sessions screen, enter the number of TTS sessions required for this MAS (for example, 2 sessions per MAS). See the MAS features list on page A-10.

(3) When finished, click **OK**.

k. Click **OK** again to close the Licensing properties screen.

12. ***On MAS#1:*** Set up PBX service for the system.

a. In the Voice Mail System Configuration window, right-click **PBXs** and select **Add New PBX Type**.

b. For **Telephony Type**, select the type of port board that is installed in this MAS (such as Dialogic Analog).

c. In the PBXs scroll box, select the type of switch integration that you have (such as Dialogic Avaya G3 CLAN).

d. Click **OK** to close this window.

e. In the Voice Mail System Configuration window, expand **PBXs**.

f. Double-click the PBX entry you just added.

g. Using the configuration notes for your PBX or switch, set up the specific PBX parameters required for this integration of the system.

Configuring MAS-specific parameters

After the domain-wide parameters have been configured, set up the port boards and features specific to this MAS.

Note:	Even though you are using the configuration notes for your PBX or switch to do many of these steps, read through this section to get an overview of the whole configuration procedure.

To specify MAS-specific parameters:

1. In the Voice Mail System Configuration window, expand **Messaging Application Servers**. See item **1** on the Modular Messaging MAS planning form on page A-6 for MAS names.

   a. ***For MAS#1:*** The first time you access this item, a Telephony Configuration Wizard runs to help you set up the basic PBX integration details for all MASs in this domain. Complete the wizard as prompted.

   Note: If the wizard does not start automatically, right-click the server name (such as *ZIPPY*), then select **Telephony Configuration Wizard**.

   b. ***For a subsequent MAS:*** Right-click the server name (such as *ZORRO*), then select **Telephony Configuration Wizard** to run the wizard. Complete all steps in the wizard as prompted.

2. When the wizard completes:

   a. Expand **Messaging Application Servers** again, then expand the directory for this server's name.

   b. Check your configuration notes and add any additional detailed data that are dependent on the switch and the integration type.

3. When the configuration note programming is complete, restart service as follows:

   a. Access the window to monitor services using one of these methods:

   - Double-click the **Monitor** icon on the desktop (if present). In the left-hand pane, click **Services** if it is not already selected.
   - Right-click **My Computer** and select **Manage**. In the Computer Management window, the left-hand (Tree) pane, expand **Services and Applications**, then click **Services**.

   b. In the right-hand pane, scroll down to **MM Messaging Application Server**. Right-click it and select **Stop**.

   c. When service is stopped, right-click **MM Messaging Application Server** again and select **Start**.

   The system begins a messaging service startup.

   Note: When you restart messaging service, the window immediately shows a status of Started. However, service may actually take several minutes to start, depending on the number of port boards installed and the integration type.

   d. Track startup progress as follows:

   (1) Access the event viewer using one of these methods:

- In the Monitor window, in the left-hand pane, expand **Event Viewer (Local)**.
- In the Computer Management window, in the left-hand pane, expand **System Tools**, then **Event Viewer**.

(2) In the left-hand (Tree) pane, click **Application**.

(3) Refresh the window periodically until you see Telephony User Interface event 1241, “TUI service has been enabled.” You can now proceed.

e. When service is restarted, minimize this window.

4. In the Voice Mail System Configuration window, expand **Messaging Application Servers**.

> **Note:** Some values may already be set. Follow the configuration notes for your PBX integration.

a. Expand the entry for your server name (such as *ZIPPY*).

b. Double-click **Telephony Interface**. Configure the port boards in this MAS. Use your configuration notes. See the Required switch and messaging information on page A-11 for port board extensions.

c. Double-click **PBX Type**. Select the same type of PBX service as you did in step 12 for "Configuring domain-wide features" on page 9-3. Make sure the entry in the **PBXs** box is highlighted, and click **OK**.

d. Double-click **PBX Integration** and configure the integration type for your system. Use your configuration notes to specify or confirm the detailed settings required by your switch integration.

> **Note:** To set the maximum number of MWI sessions allowed at one time, see MAS features list on page A-10.

e. *If multiple port groups are used,* double-click **Port Groups**. See the Required switch and messaging information on page A-11 for details.

f. *If INADS alarming is used,* double-click **Serviceability** to set up dial-out information for this MAS. See INADS alarming information on page A-12.

(1) For **COM port**, select the communications port that the modem should use to initiate calls for alarm notification. This is typically COM3 if you used recommended USB port A on an Avaya MAS.

(2) For **Phone number**, enter the complete telephone number that the modem must dial to place an alarm notification with the Services support center. Include any special characters needed (for example, to access an outside line, insert pauses, and so on).

(3) For **Modem setup**, enter the modem initialization (setup) string if required for the modem to make alarm notification calls.

(4) Click **OK** to close this window.

5. When configuration is complete, restart service again (see step 3).

6. When finished, close all open windows.

Completing initial MAS administration

This section covers the final steps for completing initial administration of this MAS.

Setting up and starting messaging services

To allow the Modular Messaging (MM) services to restart automatically during normal operation, and to start the messaging services:

1. Click Start > Run.

2. In the Run box Open field, type the following and press Enter:

   C:\Avaya_Support\Scripts\serverrecovery.vbs

   The script takes a few seconds to run. When it completes, all installed MM services will be started.

3. *Optional.* To verify that all services are started:

   a. Access the window to monitor services using one of these methods:

      - Double-click the **Monitor** icon on the desktop (if present). In the left-hand pane, click **Services** if it is not already selected.

      - Right-click **My Computer** and select **Manage**. In the Computer Management window, the left-hand (Tree) pane, expand **Services and Applications**, then click **Services**.

   b. In the right-hand pane, scroll down to the list of Modular Messaging (MM) services. Make sure that the Status column shows that service is **Started** for each installed messaging service.

   c. If service is stopped or the Status column is blank, right-click the appropriate MM service and select **Start**.

   d. When finished, close this window.

Verifying alarming setup

Run the following test to verify that alarm notification is working:

1. Click Start > Run.
2. In the Run box Open field, type **cmd** and press Enter.
3. In the command prompt window, type the following and press Enter:

   testaom -v

4. Check that the last line of the test reads:

   Alarm origination test successful

Note: For instructions on accessing the MAS alarm or error logs, see the *Avaya Modular Messaging Software Messaging Application Server Administration* guide (PDF 3 MB) on the documentation media.

Configuring Active Directory Connector if required

This procedure must be performed by the directory server administrator or other authorized personnel.

Organizations using a mixture of Exchange 5.5 and Exchange 2000 or 2003 servers as peer messaging servers in a single voice mail domain require a Windows 2000 service called Active Directory Connector (ADC) to be installed.

To configure ADC to support Modular Messaging software, a two-way connection agreement must be created between the voice mail domain container in the Exchange 5.5 organizational unit and the Exchange 2000 or 2003 organizational unit. The connection agreement controls replication between the Active Directory domain controller and the Exchange 5.5 site voice mail domain recipient container. It contains information required for the replication, such as the account name, server name and the location of the voice mail domain containers.

Active Directory Connector:

- Synchronizes the Exchange 5.5 directory with the Exchange 2000 or 2003 Server Active Directory to allow administration of the directory from either the Exchange 5.5 directory or Active Directory.
- Enables the migration of objects from the Exchange Directory Service to Active Directory.
- Controls replication between the Exchange 5.5 site voice mail domain recipient container and the Active Directory domain controller.

- Contains replication information including the account name, server name and the location of the voice mail domain containers.

To configure Active Directory Connector:

1. Log in to the Active Directory server using an account that has privileges to create a connection agreement (such as *administrator*).
2. Start **Active Directory Connector**.
3. Select **New Action** and then click **Recipient Connection Agreement**.
4. Enter the following information:
   - The account name and password of an account with Active Directory connection privileges
   - The name of the Exchange 5.5 server to replicate with
   - The name of the domain controller to replicate with
   - The names and passwords of accounts for replication agreement authentication
   - The location of the voice mail domain container in the Active Directory

Note: The Connection Agreement must be configured to create a new Windows NT account if the primary account for the mailbox does not exist in the domain. If you create disabled accounts, you must enable them manually for the Modular Messaging software to operate correctly.

10

Testing and backing up the system

This chapter describes how to perform acceptance tests to verify that the Modular Messaging system is providing full service. When functionality is verified, back up the system to protect the Modular Messaging configuration data.

Note: Before you can successfully complete the tasks in this section, you must have successfully completed the tasks in Chapter 9, "Configuring the voice mail system."

Adding a test subscriber

You must create at least one test subscriber to verify Modular Messaging system functionality.

Note:	If you are performing tests following a Modular Messaging software upgrade, you may wish to test the system using subscribers that are already administered.

The new account for the test subscriber must be created as a Windows domain user account on the appropriate Exchange server. Use your regular Microsoft Exchange documentation to create a new account. For example:

- On an Exchange 5.5 system, you would create a new account in the Recipients container using the Microsoft Exchange Administrator application. You would then enable the appropriate Modular Messaging features on the Modular Messaging Properties page.

Note:	For details on administering Modular Messaging features, see Chapter 15, “Creating subscriber accounts for Microsoft Exchange,” in the *Avaya Modular Messaging Software Messaging Application Server Administration* guide (PDF 3 MB) on the documentation media.

- On an Exchange 2000 or 2003 system, you might create a test subscriber and enable Modular Messaging features as follows:

1. Log in to the Active Directory server using an account that has privileges to create new user accounts (such as *administrator*).
2. Click Start > Administrative Tools > Active Directory Users and Computers.
3. In the Active Directory Users and Computers window, expand the directory for the Windows domain you used for Modular Messaging. See item **2** on the Modular Messaging MAS planning form on page A-6.
4. To access the test subscriber account, in the left-hand pane, click **Users**.

Note:	This procedure assumes that a test subscriber has already been created (see "Creating a test subscriber account" on page 4-6). If you create a test subscriber now, wait a few minutes for the Active Directory to synchronize its data with the MAS before proceeding. The extension for the test subscriber must be administered on the PBX by the appropriate party. See Required switch and messaging information on page A-11.

5. In the right-hand pane, double-click the test subscriber account, such as *Test Subscriber (testsub1),* to open the properties window.

6. Click the **Modular Messaging** tab.

7. Check the box to **Enable Modular Messaging**.

   There may be a delay as the server logs in.

8. Activate the features that you have installed and want to test.

9. When finished, click **OK**.

Performing acceptance tests

Verify correct system operation by doing the following tests.

> **CAUTION:** Wait 5 minutes after completing the tasks in Chapter 9, ‘‘Configuring the voice mail system,’’ to give the system time to update all servers in the voice mail and Windows domains with the correct Modular Messaging information.

Creating and sending a call answer message

The following test works only if call-coverage has been assigned on the switch to route unanswered calls to the test subscriber’s extension.

To create and send a call answer test message:

1. Call the test-subscriber extension from any other telephone. Allow the Modular Messaging system to answer.
2. Speak into the telephone and record the following or a similar test message after the tone:

   “This is a test call answer message.”
3. Hang up the telephone to disconnect.

Retrieving test messages in integrated mode

Test the fully integrated operation of the system as directed below. You need access to the actual telephone whose extension number is assigned to the test-subscriber mailbox to perform this test.

To verify the receipt of your test messages in integrated mode:

1. *If MWI is installed:* Check the message waiting indicator (MWI) on the test-subscriber telephone. The MWI may be a light, a screen display, or a dial-tone stutter when you pick up the phone.

   > **Note:** The message-waiting lamp may take up to 1 minute to light on the appropriate telephone after a test message is sent.

   If the MWI does *not* indicate that a call was received:

   a. Check that the Mailbox Monitor and MWI services are started.

      (1) Access the window to monitor services using one of these methods:

- Double-click the **Monitor** icon on the desktop (if present). In the left-hand pane, click **Services** if it is not already selected.
- Right-click **My Computer** and select **Manage**. In the Computer Management window, the left-hand (Tree) pane, expand **Services and Applications**, then click **Services**.

(2) In the right-hand pane, scroll down to the Modular Messaging (MM) services. Make sure that the Status column shows that service is **Started** for each installed messaging service.

(3) If service is stopped or the Status column is blank, right-click the appropriate MM service and select **Start**.

(4) When finished, close this window.

b. If service is started, check for a problem with the test subscriber administration, the switch integration or switch integration software, or the switch number administration for the test telephone.

2. From the test-subscriber telephone, dial the Modular Messaging messaging system message retrieval number.

   The system voices the test subscriber's name.

3. Enter the password for this mailbox and press #.

4. The first time you access this mailbox, you answer a series of prompts to set up the mailbox for operation. Answer all voice prompts as directed.

5. After the mailbox is set up, press 1 to review your new messages.

6. Press 1 to retrieve a voice message.

7. Listen to the message. If the message does not play properly, contact your Services support center.

8. Press 7 to erase this message.

9. Follow the voice prompts to retrieve the next message (if any), or press * to return to the main menu.

10. Hang up the telephone to disconnect when finished.

11. *If MWI is installed:* Check the MWI on the test-subscriber telephone. The MWI should be off. If it is not off, check your MWI administration on the MAS and the PBX.

Creating and sending a test message in nonintegrated mode

To create and send a test message in nonintegrated mode:

1. Dial the Modular Messaging messaging system message retrieval number from any telephone that is not administered on the system.

   The system voices the “Welcome to Avaya Messaging” prompt.

2. Press # to skip the system introduction.

3. Enter the extension number for test-subscriber mailbox and press #.

4. Enter the password for this mailbox and press #.

5. Press 2 to create a new message.

6. Speaking into the telephone, record the following or a similar test message after the tone.

   “This is a test voice mail message.”

7. Press # to approve your message.

8. Enter the mailbox number for the test subscriber when prompted for the extension, followed by #.

9. Press # twice (as prompted) to approve the message.

10. Press # again to send the test message to the test-subscriber mailbox.

11. Hang up the telephone to disconnect.

12. Retrieve the message as described in "Retrieving test messages in integrated mode" on page 10-4.

Testing the outcalling capability

Test the outcalling capability of the system using the Subscriber Options package.

To test system outcalling:

1. Switch the monitor to show the appropriate MAS. See "Switching the monitor to show the correct server" on page 6-2 if needed.

2. Install the Subscriber Options package as follows:

Note:	Microsoft Outlook must *not* be installed on the MAS.

a. Insert the *Avaya Modular Messaging Application Software* disk in the machine's drive, then navigate to the **Install\Client Distrib** directory on the appropriate drive (such as D:).

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

3. To run the Subscriber Options package, click Start > Programs > Avaya Modular Messaging > Subscriber Options.

   See the *Modular Messaging Subscriber Options User Guide* (585-310-789, PDF 1 MB) on the documentation media for details if needed.

4. In the User Logon window:

   a. Enter the mailbox number and password for the test subscriber. See "Adding a test subscriber" on page 10-2.

   b. Use the host name for MAS#1 (such as *ZIPPY*). See item **1** on the Modular Messaging MAS planning form on page A-6.

   c. Click **OK**.

5. Play back the spoken name to test outcalling as follows:

   a. In the Modular Messaging Software User Properties window, click the **Record Greetings** tab.

   b. Under Standard Greetings, click the **Spoken Name** radio button.

   c. Verify that the telephone will be used for name playback:

      (1) Check the icon to the left of the status display. If it shows a telephone, continue with step d.

      (2) If the icon shows a terminal, right-click and select **Telephone**. The icon changes to show a telephone. Continue with step d.

   d. Click the **Play** button (large black single arrow) on the player near the bottom of the window.

   e. Answer the telephone when it rings.

      The picture of the phone should change to become off-hook.

   f. Listen for the system to play the spoken name of the test subscriber.

   g. Hang up the telephone.

      The picture of the phone should change back to being on-hook (this may take a couple of seconds).

6. When finished, click **OK** to close the Modular Messaging Software User Properties window.

Running additional tests

You may want to run additional tests to verify the correct operation of features that are particularly important to the customer. For example:

- Automated Attendant
- Call Me
- Find Me
- Octel Analog Networking

To test these or other features, see the *Avaya Modular Messaging Software Messaging Application Server Administration* guide (PDF 3 MB) on the documentation media for feature setup and operation instructions.

Administering subsequent MASs

Continue this installation procedure based on the number of MASs in the system:

- If you have another new MAS to configure, return to the appropriate chapter:
  - To install another new Avaya MAS, return to Chapter 6, ‘‘Configuring a new Avaya MAS.’’
  - To configure another customer-provided MAS, return to Chapter 7, ‘‘Installing and configuring the Modular Messaging software.’’
- If all your MASs are now configured, continue with "Removing the test subscriber" on page 10-9.

Removing the test subscriber

When acceptance testing is completed, remove the test subscriber using the normal procedures for your version of Microsoft Exchange (2000, 2003, or 5.5). For example:

1. Log in to the directory server using an account that has privileges to delete user accounts (such as *administrator*).
2. Access Active Directory Users and Computers (for Exchange 2000 or 2003) or Microsoft Exchange Administrator (for Exchange 5.5).
3. Expand the directory for the Windows domain you used for Modular Messaging.
4. In the left-hand pane, click **Users** or **Recipients** as required.
5. In the right-hand pane, right-click the test subscriber and select **Delete**.

Backing up the system

As a final installation task, set up the system to perform regular, scheduled backups of MAS-specific information using the normal backup procedures for your site. We recommend that you do an attended backup now on every MAS to preserve the configuration information and to verify the backup function.

Customers should consider the following when designing their backup program:

- *Customized Tone Files*: If analog port boards are installed in any MAS and you have created customized tone files, keep a copy of the tone files (*.tsf for Dialogic boards or *.ton for Brooktrout boards) in a network location where they are part of the normal backup procedure. We suggest that all tone files be stored in the **\Avaya_Support\Tone_Files** directory. You may choose to back up this location or store a copy of the tone files elsewhere for backup.
- *Caller Applications:* Caller Applications (*.uma files), once deployed, are stored on each MAS within a folder that has a GUID. The location for this folder is **\Program Files\Avaya Modular Messaging\VServer\CallerApps**. We recommend that you back up a copy of this folder as described below.

  Deployed caller applications cannot be backed up using NTBackup while the Modular Messaging (MM) Messaging Application Server service is running. However, you can make a copy of the CallerApps folder while this service is running, and then make a backup of that (you could choose to create scripts to carry out this function). See Restoring Caller Applications after a catastrophic disk failure on page F-3 for details on restoring Caller Applications if needed.

- *Licensing Files:* Keep a backup of your licensing files (*.xml) safe on another location.

- *System State:* We suggest that you back up the system state of each MAS on a regular basis. The registry contains settings particular to your MAS.

- *Spool:* The directory **\Program Files\Avaya Modular Messaging\Vserver\Spool** stores messages that are sent while the MAS is offline from the message store. You should back up the Spool directory on each MAS.

11

Upgrading Unified Messenger 5.0 to Modular Messaging software

This chapter describes how to upgrade a system that is running Unified Messenger Release 5.0 software to Modular Messaging Release 1.1 software.

Note: Do the tasks in this section only if you are upgrading a system that is running Unified Messenger Release 5.0 software to Release 1.1 of the Modular Messaging software.

Any systems that are running an earlier release of Unified Messenger must upgrade to Unified Messenger Release 5.0 software prior to upgrading to Modular Messaging software.

Overview

A system that is already running Unified Messenger Release 5.0 software can be upgraded to Modular Messaging Release 1.1 Modular Messaging software as described in this chapter.

> **Note:** Updating the Modular Messaging software requires several server restarts. Plan to do the software upgrade during low-usage hours.

Upgrade requirements

To successfully upgrade a system to Modular Messaging software, you need:

- A completed copy of the relevant planning forms listed in Appendix A, "System planning forms," including:
  - The Modular Messaging MAS planning form on page A-6 showing the NetBIOS name of each MAS, the default (or primary) peer Exchange server, and the directory server.
  - The Modular Messaging logon accounts form on page A-9 showing the customer-specified Unified Messenger service account name and password. This account will be updated automatically to be the Modular Messaging (MM) service account.

> **Note:** The Unified Messenger software will change its name to "Modular Messaging" following the upgrade. Therefore accounts and settings that were formerly labeled "Unified Messenger" will become Modular Messaging accounts.

  - The MAS features list on page A-10 showing the services, prompts, and languages to install on each MAS.
- The newest release of the *Avaya Modular Messaging Application Software* on DVD or CD.

  If the Modular Messaging application software is provided on a CD, you also need the following CDs:
  - *Intel Dialogic Drivers* CD
  - *Enhanced Email Reader Software* containing ScanSoft Text-to-Speech (TTS) software in multiple languages (3 CDs)
  - *Avaya Modular Messaging Release 1 Documentation* CD

  If the Modular Messaging software is provided on a DVD, the DVD contains all of the information listed on the separate CDs above.

- If Brooktrout port boards are installed, obtain a copy of the *RealCT Direct Software Installation and Configuration Guide*, available on the Avaya Unified Messenger CD.

Upgrade procedure

The Modular Messaging upgrade procedure involves:

1. Updating the Exchange extensions on any machines where they are installed.
2. Preparing the MAS for the upgrade.
3. Updating the software on each of the MASs and configuring new features as needed.

Note:	Completely upgrade and test one MAS first, and let it run for 15 minutes before upgrading any additional MASs.

4. Updating the client software on each MAS and any other computer where it was previously installed.
5. Performing acceptance tests on the entire system.

CAUTION: All servers must meet the requirements listed in the *Avaya Modular Messaging Concepts and Planning* guide (PDF 2 MB). This guide is available on the documentation media shipped with your system. Review this document to make sure that your Exchange servers, directory servers, MASs, and client machines are all ready to support Modular Messaging software.

Considerations for multiple-MAS upgrades

In a multiple-MAS configuration, it is strongly recommended that all MASs that are running Unified Messenger be upgraded to Modular Messaging software as soon as possible. The User Administration Extensions use new attributes in Modular Messaging and cannot be updated on administrators' machines until all MASs are upgraded, or erratic behavior may occur. All MASs in the voice mail domain must be upgraded to Modular Messaging before you can enable the new features.

If you are installing a new Modular Messaging system in a multiple-MAS configuration, it cannot join an existing voice mail domain that only has Avaya Unified Messenger Voice Servers in it. You must first upgrade one or more of the existing Avaya Unified Messenger Voice Servers, leave the system running for at least 15 minutes, then add the new Avaya Modular Messaging server.

Updating the Exchange extensions

You must update the Exchange extensions software on any machines where it is installed before installing any other Modular Messaging software. This may include client, Exchange server, and MAS machines.

To do this:

1. Follow the procedure in "Updating the Exchange extensions" on page 5-4.

> **Note:** If other Unified Messenger software is installed on this machine, many component checkboxes will be checked. This ensures that all currently installed components are upgraded to Modular Messaging software. The components will be installed in the correct order when you click **Install**. See "Upgrading to Modular Messaging software" on page 11-10 for details on installing the various software packages.
>
> If a System Upgrade screen appears, see "Running a system upgrade" on page 11-12.

2. Return to this chapter after the Exchange extensions have been updated on all machines where it was previously installed.

Preparing the MAS for the upgrade

Do this task on every MAS.

This section describes how to take the Messaging Application Server (MAS) ports offline and prepare for the Release 1.1 Modular Messaging software upgrade.

To prepare the MAS for an upgrade:

1. If Microsoft Outlook is installed on this machine, uninstall it.

2. Make sure the anti-virus software and Microsoft Windows updates and security patches are current. See "Installing anti-virus software and Windows updates" on page 7-3.

3. If anti-virus software is installed, disable it while you upgrade the Modular Messaging software. You will enable the virus-checking software again after the upgrade is complete.

4. Adjust the system values to support Modular Messaging. See "Adjusting system values" on page 7-3.

5. Install the required prerequisite software on every MAS. This includes:

   - Microsoft Windows Simple Network Management Protocol (SNMP) services (required by the Modular Messaging Alarming Server). See "Installing Windows prerequisite software" on page 7-7.
   - The Microsoft Exchange 2000/2003 System Management Tools or the Exchange 5.5 Administration Tools as required. See "Installing required Exchange software" on page 7-8.

6. The PBX administrator must make sure that the ports for this MAS are made busy and rerouted to other MASs using the procedures appropriate for your PBX. Otherwise callers into the system could hear ringing-no answer or a busy signal.

7. Log in to the MAS using the customer-specified Unified Messaging service account name (such as *mmacct*) and its password (see item **A7** on the Modular Messaging logon accounts form on page A-9).

8. Close any open windows on the system.

9. Stop and reset all Unified Messenger services as follows:

   a. Click Start > Programs > Administrative Tools > Computer Management.

   b. In the Computer Management screen, in the left-hand pane, expand **Services and Applications**.

   c. Click **Services**.

   d. In the right-hand pane, scroll down to the set of installed Unified Messenger services.

   e. Double-click the first Unified Messenger service to open the Properties window.

   f. Under “Service status,” click **Stop**.

Note:	Stop the Unified Messenger Voice Server service last.

   g. Wait for service to stop, then set the “Startup type” to **Manual**.

   h. Click **OK** to close this window.

   i. Repeat steps e through h for each Unified Messenger service.

   j. Close the Computer Management window.

10. *If Brooktrout boards are installed,* you may want to back up the Brooktrout tone file before upgrading the software.

Updating the Dialogic port board drivers

Do this task on every MAS that contains Dialogic port boards.

This section describes how to replace the drivers for the Dialogic port boards as part of the Release 1.1 Modular Messaging software upgrade.

> **Note:** If this MAS uses Brooktrout port boards, the drivers do not need to be updated. Continue with "Updating messaging software on the MAS" on page 11-10.

Preparing for driver installation

To prepare the MAS for the Dialogic driver update:

1. You should already be logged in to the server using the Unified Messenger account name (such as *mmacct*) and its password.

2. Stop the Dialogic drivers as follows:

   a. From the task bar, click Start > Programs > Dialogic System Software > Dialogic Configuration Manager - DCM.

   b. At the “DCM could not detect devices” message, click **OK**.

      The Dialogic Configuration Manager window appears.

   c. To stop the Dialogic drivers, click the red **Stop Service** button and wait.

   d. When drivers are stopped, close the Dialogic Configuration Manager window.

3. *For analog boards:* If a custom tone file was created, it *must* be backed up on another drive or copied to a new directory now, or it will be destroyed during the upgrade. You can use the following procedure:

   a. On the C: drive of the MAS, create a new directory named **Avaya_Support** with a subdirectory named **Tone_Files**.

   b. In the Windows Explorer window, navigate to the directory where the custom tone file is stored (for example, C:\Program Files\Dialogic\DATA).

   c. If any tone files are present (those with a .tsf extension), select them (use Ctrl+click to select multiple TSF files).

   d. Right-click one of the selected files and select **Copy**.

   e. Navigate to the C:\Avaya_Support\Tone_Files directory.

   f. In the right-hand pane, right-click and select **Paste** to copy the .tsf files.

Uninstalling the existing Dialogic drivers

To remove the existing Dialogic 5.0.1 drivers:

1. Insert the applications software media in the MAS drive. This is either:
   - *Avaya Modular Messaging Application Software* DVD, or
   - *For a system that uses CD-ROMs,* the *Intel Dialogic Drivers* CD.
2. In Windows Explorer, navigate to the CD or DVD drive (D:).
3. Locate the Dialogic files. They are at the root directory on the CD, or under a **Dialogic Drivers** subdirectory on the DVD.
4. Double-click the file **Uninstall_5_01.bat**.

   A command (cmd) window opens. Press any key to continue.
5. *If the Dialogic point release Ptr26599 for SR 5.01 for Windows is installed,* this will be removed first.
   a. In the dialog box, select **Remove** and click **Next**.
   b. At the confirmation message to remove the point release, click **OK**.
   c. If the system reports any files as read only, click **Yes** to continue with the removal.
   d. When prompted, select “No, I will restart my computer later” and click **Finish**.
   e. Control returns to the batch file. Press any key to continue.
6. At the “uninstall the Dialogic System Software and SDK” message, click **Yes**.
7. When Uninstall pauses, close any open windows. Click **OK**.

   The system stops services.
8. When prompted to Remove Shared File, select **No to All**.
9. When Uninstall completes, the Remove Programs From Your Computer screen may show that some elements were not removed. Click **OK**.
10. When prompted to reboot, click **Yes**.

Installing the new Dialogic drivers

To install the new Dialogic 5.1.1 base release drivers:

1. Log back in to the server using the Unified Messenger account name (such as *mmacct*) and its password.
2. A command (cmd) window opens, explaining which batch file to run next. Press any key to continue.
3. Right-click **My Computer** and select **Explore**.
4. In Windows Explorer, navigate to the CD or DVD drive (D:), and locate the Dialogic files.
5. Double-click the file **Install_5_11.bat**.

> ⚠ **CAUTION:** Several files have similar names. Verify that you are about to select the correct file *before* clicking it.

The Intel Dialogic System Software and SDK for Windows System Release 5.1.1 for Windows wizard runs. When the installation completes, the system automatically reboots.

Applying the Dialogic Feature Pack

Update the new Dialogic drivers with the 5.11 Feature Pack (FP1):

1. Log back in to the server using the Unified Messenger account name (such as *mmacct*) and its password.
2. A command (cmd) window opens, explaining which batch file to run next. Press any key to continue.
3. Right-click **My Computer** and select **Explore**.
4. In Windows Explorer, navigate to the CD or DVD drive (D:), and locate the Dialogic files.
5. Double-click the file **Install_5_11_FP1.bat**.

   The System Release 5.1.1 Feature Pack 1 wizard launches.
6. On the Welcome screen, click **Next**.
7. On the License Agreement screen, click **Yes**.
8. On the Customer Information screen:

   a. For User Name type **Modular Messaging**.

b. Type the appropriate Company Name, then click **Next**.

9. On the Select Components screen:

   a. Verify that the box to install the Program Files is checked.

   b. *Clear* the checkbox to *not* install the Online Documentation.

   c. Click **Next**.

10. The Start Copying Files screen appears. Click **Next**.

    This step may take several minutes to complete.

11. When prompted, select **Yes, I want to restart my computer now**.

12. Click **Finish**.

    The system reboots.

Reconfiguring the Dialogic port boards

Finally, restore the configuration for your Dialogic boards:

1. Log back in to the server using the Unified Messenger account name (such as *mmacct*) and its password.

2. A command (cmd) window opens, explaining which batch file to run next. Press any key to continue.

3. Right-click **My Computer** and select **Explore**.

4. In Windows Explorer, navigate to the CD or DVD drive (D:), and locate the Dialogic files.

5. Double-click the file **Restore_Config.bat**.

6. A command (cmd) window opens. Press any key to continue.

   The program cleans up any temporary installation files and replaces certain files used by the Dialogic boards.

   For a system that uses CD-ROMs, remove the Dialogic drivers CD from the drive.

7. Reconfigure and test the Dialogic port boards for this MAS. See "Configuring the port boards" on page 8-2.

Note:	Because the Dialogic Line Test application is not yet installed, you must insert the application software disk in the MAS drive. See step 2 in "Testing the port boards" on page 8-10. When testing is complete, continue with the next section.

Updating messaging software on the MAS

Do this task on every MAS.

This section describes how to upgrade the Unified Messenger Release 5.0 software to Modular Messaging Release 1.1 software on the Messaging Application Server (MAS).

Upgrading to Modular Messaging software

To upgrade the Unified Messenger Release 5.0 software to Modular Messaging software:

1. Insert the application software disk in the MAS drive. This is either:
   - The *Avaya Modular Messaging Application Software* DVD, or
   - *For a system that uses CD-ROMs,* the *Avaya Modular Messaging Application Software and Languages* CD.
2. Close the drive door and wait for the green LED to go out. Click **OK**.
3. Run the Modular Messaging Installation Wizard as follows:
   a. In Windows Explorer, navigate to the CD or DVD drive (D:).
   b. Navigate to the **Install** directory.
   c. Double-click the file **Setup.exe**.

   The Modular Messaging - Installation Wizard launches.

   Note: If a System Upgrade screen appears, see "Running a system upgrade" on page 11-12.
4. On the main screen, verify that the Configuration drop-down box shows **Microsoft Exchange**.
5. All components that were previously installed on this machine are already selected, as well as the Diagnostic tools. Verify that all necessary components for this MAS are checked.
6. Click **Install**.

   Previously installed software components are updated automatically (no response is needed). New software components that are required for Release 1.1 are also installed.
7. You may be prompted to enter information for the following components:
   - Alarming Server

- Messaging Application Server

The wizards for these components must be completed as follows:

a. When the appropriate server installation wizard runs, click **Next**.

b. When prompted, enter the following account information:

- For **Domain**, enter the NetBIOS name of the Windows domain (such as *zodiac*). See item **2** on the Modular Messaging MAS planning form on page A-6.
- For **User Name** and **Password**, enter the Modular Messaging account name (such as *mmacct*) and its password. See item **A7** on the Modular Messaging logon accounts form on page A-9.
- Click **Next**.

c. Click **Install**.

d. When done, click **Finish**.

8. You may be prompted for additional information for other software components. If prompted, complete the wizards as follows:

a. If an additional server installation wizard runs, click **Next**.

b. When prompted, enter name of this MAS machine (such as *zippy*). See item **1** on the Modular Messaging MAS planning form on page A-6. Click **Next**.

c. When prompted, enter the password for the Modular Messaging account (such as mmacct). See item **A7** on the Modular Messaging logon accounts form on page A-9. Click **Next**.

d. Click **Install**.

e. When done, click **Finish**.

9. *For a system that uses CD-ROMs,* you are prompted to insert additional disks to install the RealSpeak Text-to-Speech software in multiple languages. When prompted to insert installation disk 2:

a. Remove the *Avaya Modular Messaging Application Software and Languages* CD from the drive.

b. Insert the first *Enhanced Email Reader (Text-to-Speech)* RealSpeak software CD in the drive and close the door.

c. Wait for the drive's green LED to go out. Click **OK**.

d. After the disk is copied, you are prompted to insert the next disk:

- Insert the next RealSpeak TTS software CD in the drive.
- Repeat steps b through d for each RealSpeak TTS software CD.

Allow several minutes for the RealSpeak software to install. When finished, the wizard returns to the main screen.

10. To complete the upgrade, click **Close**.

11. Click **Restart** when prompted to restart the system now.

12. Remove the media from the CD or DVD drive.

Running a system upgrade

Do this task only if a System Upgrade screen appears when you launch the Modular Messaging Installation Wizard.

If the required operating system components are not present on the target machine when the Modular Messaging installation wizard is launched, the System Upgrade Screen is displayed automatically.

- If Windows Installer is *not* loaded on the system, the Ignore button is disabled and you *must* click **Run System Upgrade** to install at least the Windows Installer component. This procedure requires a reboot.

- If Windows Installer is already loaded on the system, you can click **Ignore** to continue the installation without upgrading any other operating system components. This is only recommended when installing the Modular Messaging Exchange Administration extensions.

Note:	If you choose to ignore a system upgrade, some Modular Messaging components will fail to function correctly.

To run a system upgrade:

1. On the System Upgrade screen, click **Run System Upgrade**.

2. The Operating System Upgrade screen appears. This screen lists the system components that will be installed on the system.

3. Select the radio button to choose either:

   - **Upgrade Windows Installer only** (if you are installing only Exchange extensions components)

   - **Upgrade all required system components** (used for most MAS machines that will run Modular Messaging software).

4. Click **Install**.

   When the required components have been upgraded, the System Upgrade Complete screen appears.

5. Click **Restart** to reboot this machine.

> **Note:** If you are running Microsoft Windows NT4, you need to reapply the latest service pack after a System Upgrade.

6. Continue with your previous upgrade activity.

Configuring the MAS for the new software

To configure this MAS for the new Modular Messaging software:

1. When the reboot completes, log back in to the server using the Modular Messaging (MM) account name (such as *mmacct*) and its password. (This was formerly the Unified Messenger account.)

   The Messaging Application Server - Configuration Wizard launches.

   It make take a few minutes to connect to the MAS.

2. On the Front End Database Update screen, click **Next**.

> **Note:** This step may take several hours for a large database or global address list (GAL).

   The service starts up.

3. The upgrade procedure compares the prompts installed on the MAS with the existing voice mail domain prompts. If any prompts are absent, the Missing Prompts screen appears and displays a list of the prompts that need to be installed before the installation can continue. To do this:

   a. On the Missing Prompts screen, note the missing prompt sets. The configuration wizard attempts to locate the installation packages for these prompts automatically.

   b. If any installation packages cannot be found, a **Locate Installation Package** message appears. Click the text, and then click **Browse**.

   c. In the Browse for Folder screen, navigate to the **Prompts** directory.

   d. Select the folder containing the missing prompts, and click **OK**.

   e. Repeat steps b through d for all prompts that cannot be found.

   f. When finished, click **Next**. (This button is not enabled until all the prompt installations are found.)

4. On the User Information screen, click **Next** to set up users' messaging information on the MAS.

> **Note:** This step may take several hours for a large database.

5. On the Setup Complete screen:

   a. Read the instructions, then either register now, or clear the checkbox for “Register Modular Messaging online with Avaya” to register later.

   b. Click **Finish**.

Configuring new features

After the new Modular Messaging software is installed, you must configure and activate new features for this release using the Voice Mail System Configuration program.

> **Note:** You can enable the anti-virus software on the MAS at this time.

To configure new features:

1. See "Configuring domain-wide features" on page 9-3 and complete steps 1 through 3.

2. Set up the following new Modular Messaging features:

   a. **Serviceability:** See step 10 on page 9-7 to activate alarming for the system.

   b. **Licensing:** See step 11 on page 9-8 for the steps to obtain and install the required license file.

   c. *Optional:* If the Text-to-Speech (TTS) feature is used at this site, see **Languages** (step 8) on page 9-6 to activate this feature.

   d. *Optional:* If Offline Access is used at this site, see **Messaging** (step 9) on page 9-7 to activate this feature.

3. If INADS alarming is used at this site, configure it as follows:

   a. In the Voice Mail System Configuration window, expand **Messaging Application Servers**, then expand the entry for this MAS (such as *ZIPPY*).

   b. Click **Serviceability** to set up INADS service. See step 4-f on page 9-11 under Configuring MAS-specific parameters for details.

Setting up and starting messaging services

To allow the Modular Messaging (MM) services to restart automatically during normal operation, and to start messaging services:

1. Click Start > Run.

2. In the Run box Open field, type the following and press Enter:

   C:\Avaya_Support\Scripts\serverrecovery.vbs

The script takes a few seconds to run. When it completes, all installed MM services will be started.

3. *Optional.* To verify that all services are started:

   a. Access the window to monitor services using one of these methods:

      - Double-click the **Monitor** icon on the desktop (if present). In the left-hand pane, click **Services** if it is not already selected.
      - Right-click **My Computer** and select **Manage**. In the Computer Management window, the left-hand (Tree) pane, expand **Services and Applications**, then click **Services**.

   b. In the right-hand pane, scroll down to the list of Modular Messaging (MM) services. Make sure that the Status column shows that service is **Started** for each installed messaging service.

   c. If service is stopped or the Status column is blank, right-click the appropriate MM service and select **Start**.

   d. When finished, close this window.

Completing the upgrade

Continue the Modular Messaging software upgrade as appropriate:

- *If client software is installed on this MAS:* Update the client software on this MAS as described in "Updating client software" on page 11-16. When finished, return to this section.
- *If you have more than one MAS:*

  a. ***For MAS#1 only,*** let the Modular Messaging software run for 15 minutes so that it can update shared data across the voice mail domain.

  b. Return to "Preparing the MAS for the upgrade" on page 11-4 to begin upgrading the next MAS.

  c. Repeat the Modular Messaging software upgrade procedure through this section until all MASs are upgraded.

- *If Brooktrout boards are installed,* test each board using Multi-Channel Demo. See Brooktrout's *RealCT Direct Software Installation and Configuration Guide*, available on the Avaya Unified Messenger CD, for configuration and test information for Brooktrout port boards.
- *When all MASs are upgraded:* Continue with "Performing acceptance tests and backups" on page 11-16.

Updating client software

Do this task on every MAS and every subscriber machine where client software is installed.

The client software packages (such as Subscriber Options) must be updated on every MAS and on every subscriber's machine where they are already installed.

> **Note:** Upgrade all MASs in the system to Modular Messaging before before you upgrade the software on any subscriber machines.

To update the client software to the latest release:

1. Log in to each MAS or subscriber machine where a client software package from the previous release is installed. You must use an account with administrator rights to install software (such as the Modular Messaging account or local administrator account for a client machine).

2. Install a new version of the client software. For example, to reinstall the Subscriber Options package:

   a. Insert the *Avaya Modular Messaging Application Software* disk in the machine's drive, then navigate to the **Install\Client Distrib** directory on the appropriate drive (such as D:).

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

   The reinstallation process removes the old software and installs the newest version.

3. Repeat this procedure until all existing versions of client software have been replaced with the version for the newest release.

> **Note:** The Subscriber Options software should be updated on every MAS prior to performing the acceptance tests.

Performing acceptance tests and backups

After upgrading the system, verify that it is working correctly, then save your changes:

1. See "Performing acceptance tests" on page 10-4 and perform all the tests relevant to this system.

2. When acceptance tests are complete, back up the MAS system using the regular backup procedures at your location. See "Backing up the system" on page 10-9 for guidelines.

A

System planning forms

Overview

Implementing Modular Messaging software, and especially installing any new Avaya Messaging Application Server (Avaya MAS), requires careful network planning. Server names, IP addresses, domain names, accounts, extensions, and passwords *must* be administered correctly on each of the servers in the system. Some information *must* be provided by the customer in advance, or the installation cannot proceed.

This appendix provides an overview of system planning and a set of forms for you to fill out prior to installation with the help of the local LAN, switch, and messaging administrators. Information includes:

Terminology

The following terminology applies to the LAN administration process.

Avaya MAS – A Messaging Application Server (MAS) where the hardware is provided by Avaya Inc., often with other optional peripheral devices. The port boards and much of the required software are pre-installed on an Avaya MAS.

Messaging Application Server (MAS) – Any Microsoft Windows-based machine that is running Avaya Modular Messaging software. A customer-provided MAS has some different prerequisite hardware and software requirements than an Avaya MAS (for example, the port boards and additional Windows software must be installed), but the software installation and administration is nearly identical for both platforms.

Host name – The unique name of the machine. In Microsoft Windows terminology, this is often called the NetBIOS machine name.

NetBIOS name – The Microsoft Windows term for a host name, also called a NetBIOS machine name.

Directory server – A server that contains the subscriber mailboxes, such as Active Directory or the Microsoft Exchange Administrator application.

Exchange server – A server that is running a compatible release of Microsoft Exchange software.

Domain name – A unique designator used to identify a group of related computers on the internet (for example, *avaya.com*). Domain names are hierarchical, and the labels go from more specific on the left to more general on the right. There can be any number of levels in the hierarchy.

Domain Name Service (DNS) – An Internet protocol service most often used to resolve symbolic names to IP addresses. The DNS service is constructed on hierarchical domains with different sets of servers serving each hierarchical layer.

DNS server – A machine that has the DNS service active. Such a machine can resolve symbolic names for the DNS domain it serves to an IP address.

NetBIOS domain – A Microsoft Windows domain that is not fully qualified (has no periods). For example, *zodiac*.

IP address – A value used to identify a computer connected to a network. If a machine has multiple network interfaces, then the machine will have multiple IP addresses, one for each connection to a different network. IP addresses are usually specified as four numbers separated by a period (for example, *10.9.55.183*).

Subnet mask – A value used to tell which bits of an associated IP address are the network portion and which bits identify the specific host on the network. Each network interface has an IP address and an associated subnet mask.

Corporate IP LAN and interface – Each MAS is connected to the LAN infrastructure constructed and maintained by the enterprise that purchased the system. The LAN is the corporate IP LAN, and may be identified as Local Area Connection 2 or Corporate LAC on an Avaya MAS. This LAN gives the MAS access to other machines and users.

IP gateway – An IP gateway is an IP address where IP packets are routed if the specified IP address is not on the network directly connected to an interface on the machine. An IP gateway is usually an interface on a router.

Default IP gateway – The IP gateway to use if no other specified gateway is available. Each MAS has at most one default gateway connected to the corporate IP LAN.

PPP – Point-to-Point Protocol, an Internet standard protocol used for serial line connections, such as dial-up modems.

Initialization and Administration System (INADS) – Avaya's remote service support program for monitoring alarms and maintaining installed systems.

Voice Mail Domain (VMD) – A group of one or more messaging servers. Messaging (or voice) servers in a VMD share configuration properties of the VMD and subscribers to the VMD.

Windows domain – A grouping of network objects, such as users, groups, and computers. All objects in a domain are stored on the directory server, such as Active Directory. A directory can reside on one or more domain controllers within a domain.

Guidelines for completing the forms

Use the following guidelines to complete the Modular Messaging MAS planning form on page A-6 for each Avaya Messaging Application Server (Avaya MAS) or customer-provided MAS that you need to install.

> **Note:** It is crucial to coordinate the IP addresses that will be used for any MASs with those on the corporate LAN. If you specify an Ethernet address for an Avaya server that conflicts with another Ethernet endpoint, the resulting problems with traffic on the local area network can be extremely difficult to diagnose and solve.

See the Modular Messaging MAS planning form (completed example) on page A-8 for a sample completed form.

To complete the MAS planning form:

1. For a customer-provided MAS, the machine (host) name is already assigned. Enter it here for reference.

   For any Avaya MASs that will be installed, choose unique NetBIOS machine names for each MAS (for example, *zippy* and *zorro*). You *must* keep track of what machine you are administering. In this guide, zippy is MAS#1, and zorro is a subsequent MAS.

   Note: MAS machine names must be 14 characters or less. Names shorter than 10 characters long are recommended for ease in completing the online screens. The host and domain names can be any term you want, as long as they are unique and comply with local conventions.

2. For the Windows domain NetBIOS name, enter the name already assigned by the LAN administrator to the Windows domain that this Modular Messaging system will join (for example, *zodiac*).

3. For the Peer Exchange server, enter the NetBIOS machine or host name already assigned to the server that is to act as the primary Exchange server for this MAS machine.

4. For the Peer Directory server, enter the NetBIOS machine or host name already assigned to the directory server (such as Active Directory).

5. *For MAS#1:* The voice mail domain (VMD) is created by the Modular Messaging software. Choose a simple term different from the Windows domain name (such as *zebra*).

6. *If the Offline Access feature will be used in a multiple-MAS system,* specify the location to be used for the offline message store. The remote store is used to synchronize messages in a multiple-MAS configuration.

   Note: If the offline message store is to be on a machine other than an MAS, the share must be mapped as a network drive on the MAS machine. See the *Avaya Modular Messaging Software Messaging Application Server Administration* guide (PDF 3 MB) on the documentation media for details.

7. *For any new MASs that will be installed,* the corporate LAN addresses, domain names, default gateway (if any), and WINS information (if needed) must be supplied by the corporate LAN administrator. See items **7** through **15** in the Modular Messaging MAS planning form.

   - The IP address for any required DNS or WINS servers must be supplied by the corporate IP administrator.

- The domain search order and any domain names must be supplied by the corporate LAN administrator in the order required.

> **Note:** It is *strongly recommended* that only static IP addresses be assigned to MAS interfaces and machines.
>
> IP addresses should be configured on the corporate DNS servers (if used) by LAN personnel in keeping with local policy and practices. Customers must also register the corporate domain names for each MAS on any relevant corporate DNS servers.

8. Contact the appropriate administrator for site-specific information required for a Modular Messaging installation (see items **16** and **17**).

9. Complete the Modular Messaging logon accounts form on page A-9 using the customer-provided account names and passwords required for this site.

10. Have the customer specify the messaging services that they want to install on each MAS using the MAS features list on page A-10.

11. Complete the Required switch and messaging information on page A-11 with help from the relevant messaging or switch administrator.

12. Complete the required Services information on page A-12 with help from the customer and the entity responsible for providing ongoing maintenance of the system. This information varies depending on whether INADS or SNMP alarming is to be used at this site.

> **CAUTION:** Keep a copy of the completed planning forms handy during initial administration and system configuration. Save your planning forms in a safe place when installation is complete in case changes or updates are made to the system.
>
> Be sure to file records of passwords and account names securely.

Modular Messaging MAS planning form

#	Item	MAS #1	MAS #2
1	This MAS's host name (NetBIOS name)		
2	Windows domain NetBIOS name		—Use MAS#1 value—
3	Peer Exchange server (host or NetBIOS name)		
4	Peer Directory server (host or NetBIOS name)		
5	Voice mail domain name		—Use MAS#1 value—
6	Offline message store		
7	Corporate domain name		
8	Corporate IP address for this MAS		
9	Corporate subnet mask for this MAS		
10	Corporate default gateway IP address		
11	Corporate DNS servers IP addresses		
12	Search order of DNS domains		
13	Register this connection's IP address in the DNS? Register the DNS suffix in the DNS?		
14	WINS servers IP addresses (if WINS is required)		
15	Static IP addresses for remote access (2 required per MAS)		
16	Customer name: Organization: Windows domain administrator contact information: Microsoft Exchange administrator contact information:		
17	Active Directory users or groups who require system administration access: Active Directory users or groups who require subscriber administration access:		

Modular Messaging MAS planning form (continued)

#	Item	MAS #3	MAS #4
1	This MAS's host name (NetBIOS name)		
2	Windows domain NetBIOS name	—Use MAS#1 value—	—Use MAS#1 value—
3	Peer Exchange server (host or NetBIOS name)		
4	Peer Directory server (host or NetBIOS name)		
5	Voice mail domain name	—Use MAS#1 value—	—Use MAS#1 value—
6	Offline message store		
7	Corporate domain name		
8	Corporate IP address for this MAS		
9	Corporate subnet mask for this MAS		
10	Corporate default gateway IP address		
11	Corporate DNS servers IP addresses		
12	Search order of DNS domains		
13	Register this connection's IP address in the DNS? Register the DNS suffix in the DNS?		
14	WINS servers IP addresses (if WINS is required)		
15	Static IP addresses for remote access (2 required per MAS)		
16	Customer name: Organization: Windows domain administrator contact information: Microsoft Exchange administrator contact information:		
17	Active Directory users or groups who require system administration access: Active Directory users or groups who require subscriber administration access:		

Copy this form as many times as needed to cover all MASs.

The following planning form shows a completed example for a two-MAS system. These sample values are used in this guide for illustration purposes only.

Modular Messaging MAS planning form (completed example)

#	Item	MAS #1	MAS #2
1	This MAS's host name (NetBIOS name)	zippy	zorro
2	Windows domain NetBIOS name	zodiac	—Use MAS#1 value—
3	Peer Exchange server (host or NetBIOS name)	exchange1	exchange2
4	Peer Directory server (host or NetBIOS name)	directory1	directory1
5	Voice mail domain name	zebra	—Use MAS#1 value—
6	Offline message store	\\zorro\OfflineStore	\\zorro\OfflineStore
7	Corporate domain name	loc.avaya.com	loc.avaya.com
8	Corporate IP address for this MAS	10.9.83.72	10.9.83.39
9	Corporate subnet mask for this MAS	255.255.255.0	255.255.255.0
10	Corporate default gateway IP address	10.9.83.254	10.9.83.254
11	Corporate DNS servers IP addresses	10.9.1.39 10.9.1.2	10.9.1.39 10.9.1.2
12	Search order of DNS domains	loc.avaya.com avaya.com	loc.avaya.com avaya.com
13	Register this connection's IP address in the DNS? *yes* Register the DNS suffix in the DNS? *yes*		
14	WINS servers IP addresses (if WINS is required)	10.152.6.24 10.9.6.8	10.152.6.24 10.9.6.8
15	Static IP addresses for remote access (2 required per MAS)	10.168.2.200 10.168.2.201	10.168.2.202 10.168.2.203
16	Customer name: Messaging Administrator Organization: Avaya Inc. Windows domain administrator contact information: *name, email, telephone number* Microsoft Exchange administrator contact information: *name, email, telephone number*		
17	Active Directory users or groups who require system administration access: *craft* Active Directory users or groups who require subscriber administration access: *Exchange Subscriber Administrators*		

Account logon names and passwords should be site-specific for security reasons.

Modular Messaging logon accounts form

#	Account	Logon name (should be customer specified)	Password	Used for
A1	Local administrator account for MAS#1 (required)	*customer specified* (for example, **mas1-admin**)		Local administration for this MAS
A2	Local administrator account for MAS #2 (if present)	*customer specified* (for example, **mas2-admin**)		Local administration for this MAS
A3	Local administrator account for MAS #3 (if present)	*customer specified* (for example, **mas3-admin**)		Local administration for this MAS
A4	Local administrator account for MAS #4 (if present)	*customer specified* (for example, **mas4-admin**)		Local administration for this MAS
A5	Local administrator account for MAS #5 (if present)	*customer specified* (for example, **mas5-admin**)		Local administration for this MAS
A6	Local administrator account for MAS #6 (if present)	*customer specified* (for example, **mas6-admin**)		Local administration for this MAS
	Add as many local accounts as needed to support all MASs			
A7	Modular Messaging (MM) account	*customer specified* (for example, **mmacct**)		MAS messaging services (MM) administration
A8	Services support remote access account	*customer specified* (for example, **craft**)		Remote access maintenance account for MM

CAUTION: We strongly recommend that passwords and account names on the MAS be at least 8 characters long and not composed of easily guessed words or numeric combinations, including sequential or repeated numbers. For best security, use a combination of upper-case, lower-case, and alphanumeric characters. At least one of the first 7 characters should be a symbol (such as a # sign or punctuation mark), but *not* a **%** symbol.

Do not use the examples shown above as the actual account names; they are provided for example purposes only.

MAS services and features

Fill out the following table with the customer to specify the Modular Messaging services and optional features to install on each MAS. Guidelines include:

- If only one MAS is installed, all required services are installed on that machine. Check the features to install in the MAS#1 column.
- If more than one MAS is installed:
  - — Install the Call Me Server and MWI Server software on the same MAS. These services must be co-resident with the Mailbox Monitor Server, and should be installed on the MAS with the smallest number of ports if possible, or on the MAS with the second smallest number of ports if the Tracing Server is installed.
  - — Install the Tracing Server on a *different* MAS than the one that is hosting the Call Me and/or MWI software. Always put the Tracing Server service on the MAS with the smallest number of ports.

MAS features list

Messaging service to install	Max. # of sessions:*	on MAS#1	on MAS#2	on MAS#3	on MAS#4
Call Me Server Message Waiting Indicator (MWI) Server *Both use Mailbox Monitor Server and should be on the same MAS; install these services only once per voice mail domain (VMD).*					
Caller Applications Editor	N/A				
Tracing Server *(install only once per VMD)*	N/A				
Text-to-Speech *(If required, note languages to use; specify the number of sessions for each MAS.)*					
Messaging Application Server Prompt Files *(One set is required for each MAS that is running the Messaging Application Server software; list the default file set first and additional prompt files if needed.)*	N/A				
Language Packs *(Specify additional languages to install if needed; list the desired default language first. Install the same set of languages on each MAS.)*	N/A				

* Specify the maximum number of concurrent sessions for the feature based on expected usage. Copy this form as many times as needed to assign features to all MASs at this site.

Switch and messaging information

Collect the required information from the relevant administrator prior to installation.

> **CAUTION:** You can only install a Modular Messaging system by using the required configuration notes for the switch or PBX. See "Information on the web" on page 1-2.

Required switch and messaging information

Item	Value	Notes
Extension numbers for the port boards on the MAS, and the switch ports to which they connect. **Note:** Distribute the port board extensions over a number of switch boards if possible for greater reliability.	*Use format: cabinet carrier slot port*	*Connects to extension number:*
Number of digits in voice mailbox extension:		
Are port groups required? If yes, supply name, use, and number of ports. (For example, *MWI outgoing only, 2 ports*)	*Port group 1*:	*Port group 2*:
DID numbers used for: • MM hunt group for messaging services: • MAS dial-in number (one per modem):	*Complete dial-in number*:	
Test subscriber information: • name • password • extension number to test telephone		—

Services information

Fill out the appropriate section depending on how alarming will be implemented at this site: either through Avaya's Initialization and Administration System (INADS) or the corporation's Simple Network Management Protocol (SNMP) system.

> **Note:** If SNMP alarming is used, it is the customer's responsibility to provide and provision the SNMP network management system, and to configure it to receive (and optionally acknowledge) the traps generated by the Modular Messaging system.

Services information required for every installation includes:

- Alarming notification used at this site (INADS, SNMP, or none): ____
- Product ID number: _____

INADS alarming information

Supply the following information to allow the MAS modem to initiate outgoing calls:

- Communications (COM) port that each modem should use to initiate alarm notification calls. This is COM3 for the recommended USB port A on the MAS: _____
- Complete alarm destination telephone number: _____
- Modem setup (initialization) string required for the modem to make the alarm notification calls; see the documentation included with your modem for details: _____

SNMP alarming information

Supply the following information if SNMP alarming is to be used at this site:

- Network Management Station IP address or fully qualified domain name for the corporate network management system (NMS) that will monitor the Modular Messaging system for alarm notifications (traps): _____
- Context (community) to which the NMS belongs (see your SNMP NMS documentation for details): _____
- Acknowledgement type: choose either Return Trap (to have traps actively acknowledged by the NMS) or Ping Surround (to have the MAS send a ping to the NMS before and after sending a trap; if the pings succeed, the NMS is assumed to have received the trap): _____

B

Installation checklists

Overview

This appendix contains checklists to help guide you through the various tasks described in this guide. Before beginning a new Modular Messaging installation or upgrade, print the checklist relevant to the procedure you will be performing. Check off the steps as you complete them to make sure that you do not overlook any important tasks.

Checklists include:

- New Modular Messaging installation on a customer-provided MAS on page B-2
- New Modular Messaging installation on an Avaya MAS on page B-5
- Unified Messenger R5.0 to Modular Messaging software upgrade on page B-9

New Modular Messaging installation on a customer-provided MAS

This checklist applies to a new Modular Messaging installation on a customer-provided MAS. As you complete a procedure, make a check mark in the " ✔ " column.

Modular Messaging on a customer-provided MAS installation checklist

Task	Description	Comments	✔
Complete preinstallation planning:			
1.	Complete the planning forms in Appendix A. Requires customer input.	See LAN, messaging, and switch administrators as needed.	
2.	Obtain virus-checking software for the MAS.	Customer obtains if required.	
3.	Arrange for LAN administration of the MAS system. Some LANs may be administered in advance; others require new machine administration to be done at installation. Register MAS corporate FQDNs on the DNS if required. **Note:** Avaya Inc. is not responsible for the installation, administration, or test of communications between customer PCs and the LAN.	See the LAN administrator.	
4.	Verify that the switch is administered.	See the switch administrator.	
5.	Arrange for the Active Directory data schema update and schedule downtime for the Exchange server if required.	Review requirements to determine if this is needed.	
6.	Assemble and review the required documentation.	Web access is required.	
7.	Review security issues.		
8.	Gather the necessary tools and test equipment.		
9.	Collect any software CDs that will be needed during the installation (such as the Microsoft Windows OS CD, Microsoft Exchange software CD, SP updates, or anti-virus software)		
Install any required hardware:			
10.	Install the Dialogic port boards. This includes: • Setting jumpers and switches • Installing the Dialogic software and drivers • Connecting the boards to the switch or PBX	See the Dialogic documentation for details. IP H.323 integrations skip this step.	
11.	Install and configure the modem for each MAS.	Optional - do if required.	
Prepare to install the Modular Messaging software:			
12.	Set up the required Modular Messaging service account, plus • a remote access account for ongoing maintenance • a test subscriber for acceptance testing	Do this on the directory server.	

(1 of 3)

Modular Messaging on a customer-provided MAS installation checklist

Task	Description	Comments	✔
13.	Assign permissions to the service accounts.	Procedure may vary.	
14.	Add a computer account for each MAS to the Active Directory.	Do this on the directory server.	
15.	Set up each MAS to support remote access.	Do this on the directory server.	
16.	Update the Active Directory and data schema if required for Windows 2000 or 2003 with Active Directory or Octel systems.	Do this *before* installing other Modular Messaging software.	
17.	Update the Exchange extensions on any machine that is used to administer subscribers.	Most extension updates require a server restart.	
Set up the MAS for Modular Messaging:			
18.	Configure the network card on the MAS.	Use static IP addresses.	
19.	Install and update anti-virus software on the MAS, then disable it for Modular Messaging software installation.	Do if required; installation procedures vary.	
20.	Install the latest Microsoft Windows security patches.	Do if required; procedures vary.	
21.	Adjust system values on the MAS for Modular Messaging: • Event Viewer • Windows 2000 Server operating system properties • File and Printer Sharing properties		
22.	Join the Microsoft Windows domain.	Do this on the MAS.	
23.	Add the Modular Messaging service accounts to the local administrators group for this MAS.	Required for installing software.	
24.	Install Microsoft Windows software on the MAS required to support the Microsoft Exchange tools.	Requires the Microsoft Windows OS CD.	
25.	Install required Exchange software on the MAS, including: • System Management or Administration tools • Latest service pack for your version of Exchange	Requires Microsoft Exchange software CD.	
Install and configure the Modular Messaging software:			
26.	Install Modular Messaging software packages using the Installation wizard.	Install on each MAS based on the planning forms.	
27.	Use Messaging Application Server - Configuration Wizard to: • Identify the Exchange and directory servers • Set up (on MAS#1) or join the voice mail domain	Steps vary between MAS#1 and a subsequent MAS.	
28.	Enable the virus-checking software on the MAS.	Do if anti-virus software is installed.	
29.	Set up remote access on each MAS.		

(2 of 3)

Modular Messaging on a customer-provided MAS installation checklist

Task	Description	Comments	✔
30.	Configure and test the port boards. This includes: • *For analog cards*, create or use an appropriate tone file. • Configure each port board. • Test incoming and outgoing calls on each board.	Configuration notes required. IP H.323 integrations skip this step.	
31.	Use the Voice Mail System Configuration program to: • Enable the messaging services you installed. • Configure the MAS for this PBX. • Set up specific features for each MAS. • Install the license file when received.	Configuration notes required.	
32.	Arrange to obtain a license for this system.	Local procedures may vary.	
33.	Set up and start MAS messaging services.		
34.	Verify the alarming setup on the MAS.		
35.	Configure Active Directory Connector in a mixed Exchange 5.5 and 2000/2003 environment.	Do this on the directory server if required.	
Test and back up the system:			
36.	Enable the test subscriber for Modular Messaging.	Do this on the directory server.	
37.	Perform acceptance tests. These include: • Creating and receiving test messages in both integrated and nonintegrated mode • Testing system outcalling using Subscriber Options • Testing additional features if required for this site		
38.	Install and configure each subsequent MAS.	Repeat these steps as needed.	
39.	Remove the test subscriber.		
40.	Back up the data on every MAS.		
41.	Save the planning forms in a safe place.		

(3 of 3)

New Modular Messaging installation on an Avaya MAS

This checklist applies to a new Modular Messaging installation using an Avaya Messaging Application Server (Avaya MAS). As you complete a procedure, make a check mark in the " ✔ " column.

Modular Messaging on an Avaya MAS installation checklist

Task	Description	Comments	✔
Complete preinstallation planning:			
1.	Complete the planning forms in Appendix A. Requires customer input.	See LAN, messaging, and switch administrators as needed.	
2.	Obtain virus-checking software for the MAS.	Customer obtains if required.	
3.	Arrange for LAN administration of the Avaya MAS system. Some LANs may be administered in advance; others require new machine administration to be done at installation. Register MAS corporate FQDNs on the DNS if required. **Note:** Avaya Inc. is not responsible for the installation, administration, or test of communications between customer PCs and the LAN.	See the LAN administrator.	
4.	Verify that the switch is administered.	See the switch administrator.	
5.	Arrange for the Active Directory data schema update and schedule downtime for the Exchange server if required.	Review requirements to determine if this is needed.	
6.	Assemble and review the required documentation.	Web access is required.	
7.	Review security issues.		
8.	Gather the necessary tools and test equipment.		
9.	Collect any software CDs that will be needed during the installation (such as the Microsoft Exchange software CD, SP updates, or anti-virus software)		
Install the hardware:			
10.	Review preinstallation site requirements, including: • environmental requirements • weight and space requirements • customer-provided cabinet requirements • installation area requirements • power and grounding requirements • demarcation points		
11.	Unpack the Modular Messaging system hardware and peripheral components.	Open boxes as instructed to reuse packing materials.	
12.	Assemble and identify the system components.		

(1 of 4)

Modular Messaging on an Avaya MAS installation checklist

Task	Description	Comments	✔
13.	Attach mounting brackets and handles to UPS and any EBM units as needed, then cable the units together.	Optional - do if UPS and any EBMs are present.	
14.	Attach the front bezel to each MAS.		
15.	Attach rails for rack-mount or rubber spacers for stackable configuration to each MAS.		
16.	Connect the Avaya MAS system power cables.		
17.	If present, connect the MAS port boards to the switch or PBX.	See the Dialogic documentation for details.	
18.	Connect each MAS to the corporate LAN.		
19.	Assemble the KVM switch. Steps include: • Attach mounting brackets to KVM switch (if needed). • Connect KVM switch to the monitor and keyboard/mouse. • Connect the KVM switch to each MAS.	Optional. Procedure varies depending on type of KVM switch purchased.	
20.	Attach the required ferrites to the video cables and QSIG port board cables (if present).		
21.	Set up the external modem for each MAS.		
22.	Power up the Avaya MAS system.		
Prepare to install the Modular Messaging software:			
23.	Set up the required Modular Messaging service account, plus • a remote access account for ongoing maintenance • a test subscriber for acceptance testing	Do this on the directory server.	
24.	Assign permissions to the service accounts.	Procedure may vary.	
25.	Add a computer account for each MAS to the Active Directory.	Do this on the directory server.	
26.	Set up each MAS to support remote access.	Do this on the directory server.	
27.	Update the Active Directory and data schema if required for Windows 2000 or 2003 with Active Directory or Octel systems.	Do this *before* installing other Modular Messaging software.	
28.	Update the Exchange extensions on any machine that is used to administer subscribers.	Most extension updates require a server restart.	
Set up the Avaya MAS:			
29.	Switch the monitor to show the correct MAS.		
30.	Install the hard disk image from the OS boot CD or DVD.	Do only if the operating system must be reloaded on this MAS.	
31.	Complete the Found New Hardware wizards if they appear.	Complete wizards as prompted.	

(2 of 4)

Modular Messaging on an Avaya MAS installation checklist

Task	Description	Comments	✔
32.	Complete the Windows 2000 Server Setup Wizard to: • Localize system information • Assign IP addresses and DNS servers • Join the Microsoft Windows domain	Use your planning forms.	
33.	Test IP addresses on the corporate network using ping.	Optional but recommended.	
34.	Install and update anti-virus software on the MAS, then disable it for Modular Messaging software installation.	Do if required; installation procedures vary.	
35.	Install the latest Microsoft Windows security patches.	Do if required; procedures vary.	
36.	Enable Windows prerequisite services for Exchange 2003.	Do for Exchange 2003 only.	
37.	Install required Exchange software, including: • System Management or Administration tools • Latest service pack for your version of Exchange	Requires Microsoft Exchange software CD.	
38.	Complete the Modular Messaging OS Component Configuration Wizard to: • Identify the message store • Set up account information	Use the logon accounts form.	
Install and configure the Modular Messaging software:			
39.	Install Modular Messaging software packages using the Installation wizard.	Install on each MAS based on the planning forms.	
40.	Complete the Messaging Application Server - Configuration Wizard to: • Identify the Exchange and directory servers • Set up (on MAS#1) or join the voice mail domain	Steps vary between MAS#1 and a subsequent MAS.	
41.	Enable the virus-checking software on the MAS.	Do if anti-virus software is installed.	
42.	Set up remote access on each MAS.		
43.	Configure and test the port boards. This includes: • *For analog cards*, create or use an appropriate tone file. • Configure each port board. • Test incoming and outgoing calls on each board.	Configuration notes required. IP H.323 integrations skip this step.	
44.	Use the Voice Mail System Configuration program to: • Enable the messaging services you installed. • Configure the MAS for this PBX. • Set up specific features for each MAS. • Install the license file when received.	Configuration notes required.	
45.	Arrange to obtain a license for this system.	Local procedures may vary.	
46.	Set up and start MAS messaging services.		

(3 of 4)

Modular Messaging on an Avaya MAS installation checklist

Task	Description	Comments	✔
47.	Verify the alarming setup on the MAS.		
48.	Configure Active Directory Connector in a mixed Exchange 5.5 and 2000/2003 environment.	Do this on the directory server if required.	
Test and back up the system:			
49.	Enable the test subscriber for Modular Messaging.	Do this on the directory server.	
50.	Perform acceptance tests. These include: • Creating and receiving test messages in both integrated and nonintegrated mode • Testing system outcalling using Subscriber Options • Testing additional features if required for this site		
51.	Install and configure each subsequent MAS.	Repeat these steps as needed.	
52.	Remove the test subscriber.		
53.	Back up the data on every MAS.		
54.	Save the planning forms in a safe place.		

(4 of 4)

Unified Messenger R5.0 to Modular Messaging software upgrade

This checklist should be used when you upgrade an existing Unified Messenger Release 5.0 system to run the new Modular Messaging software. As you complete a procedure, make a check mark in the " ✔ " column.

Modular Messaging upgrade checklist

Task	Description	Comments	✔
Prepare for the upgrade:			
1.	Schedule downtime for the Exchange server if required.	Review requirements to determine if this is needed.	
2.	Update the Exchange extensions on any machine that is used to administer subscribers.	Most extension updates require a server restart.	
3.	Install and update anti-virus software on the MAS, then disable it for Modular Messaging software installation.	Installation procedures vary.	
4.	Install the latest Microsoft Windows security patches.	Do if required; procedures vary.	
5.	Adjust system values on the MAS for Modular Messaging: • Event Viewer • Windows 2000 Server operating system properties • File and Printer Sharing properties		
6.	Install Microsoft Windows software on the MAS required to support the Microsoft Exchange tools.	Requires the Microsoft Windows OS CD.	
7.	Install required Exchange software on the MAS, including: • System Management or Administration tools • Latest service pack for your version of Exchange	Requires Microsoft Exchange software CD.	
8.	Busy-out and reroute the ports to this MAS.	Use PBX procedures.	
9.	Log in to the MAS to be upgraded using the Unified Messenger service account.	This will become the Modular Messaging service account.	
10.	Stop and reset all Unified Messenger services.		
11.	Update the Dialogic port board drivers. This includes: • *For analog cards*, copy the custom tone file to safe place • Stop and uninstall the existing drivers • Install and update the new drivers • Reconfigure and test the Dialogic port boards	Configuration notes required. Installations that use Brooktrout port boards skip this step.	
Install and configure the Modular Messaging software:			
12.	Upgrade existing and install new Modular Messaging software packages using the Installation wizard.		
13.	Complete the Messaging Application Server - Configuration Wizard to update the data base and directory server		

(1 of 2)

Modular Messaging upgrade checklist

Task	Description	Comments	✔
14.	Use the Voice Mail System Configuration program to: • Enable the new messaging services you installed. • Set up specific new features for each MAS. • Install the license file when received.	Configuration notes required.	
15.	Arrange to obtain a license for this system.	Local procedures may vary.	
16.	Set up and start MAS messaging services.		
17.	Upgrade each additional MAS.	Repeat this section as needed.	
Complete the upgrade:			
18.	Allow 15 minutes for the upgrade information to be shared.	Do this for MAS#1.	
19.	Update client software packages on all machines.	Do only after all MASs are upgraded.	
20.	Perform acceptance tests. These include: • Creating and receiving test messages in both integrated and nonintegrated mode • Testing system outcalling using Subscriber Options • Testing additional features if required for this site		
21.	Back up the data on every MAS.		

(2 of 2)

C

Creating a new tone file

Overview

This appendix describes how to build a tone file for Dialogic analog port boards by using the PBXpert utility to learn PBX tones.

> **Note:** If Brooktrout port boards are installed, use the *RealCT Direct Software Installation and Configuration Guide*, available on the Avaya Unified Messenger CD, to create a tone file if needed.

This procedure must be done after the port boards are administered on the switch, but before you configure them using the Intel Dialogic Configuration Manager (see "Configuring analog port boards" on page 8-3).

> ⚠ **CAUTION:** Use the configuration notes to administer the port boards for your particular PBX or switch integration. See "Required documentation" on page 1-2 for instructions on obtaining the configuration notes. The port boards *must* be administered on the switch before you can proceed.

You can use PBXpert either automatically or manually to learn the call progress tones for your PBX and store them in a Tone Set File (TSF). Many tone sets can be stored in a single TSF file.

- *Automatic Learning:* PBXpert uses two different channels on the Dialogic voice board to set up tones and learn the resulting call progress tones automatically. See Learning tones automatically on page C-2.

- *Manual Learning:* PBXpert uses one channel on the Dialogic voice board and a telephone to set up tones and learn the resulting call progress tones manually. PBXpert prompts you how and when to use the telephone. See Learning tones manually on page C-7.

Note:	If only one line is connected to the Dialogic voice board, you must use Manual Learning.

Learning tones automatically

This section describes the following procedures:

Running the PBXpert wizard

The PBXpert wizard guides you through learning the tones used by your PBX and saving the information as a TSF file. PBXpert can learn the following tones:

- Dial tone
- Ringback
- Busy
- Reorder (fast busy)
- Disconnect

To run the PBXpert wizard:

1. Start the Dialogic voice cards.

   a. You should have already started the Intel Dialogic Configuration Manager. See steps 1 through 3 in “Configuring analog port boards“ on page 8-3.

   b. Click the green **Start Service** button on the button bar.

   The installed boards show a green light when service is started, and the Stop Service button becomes active.

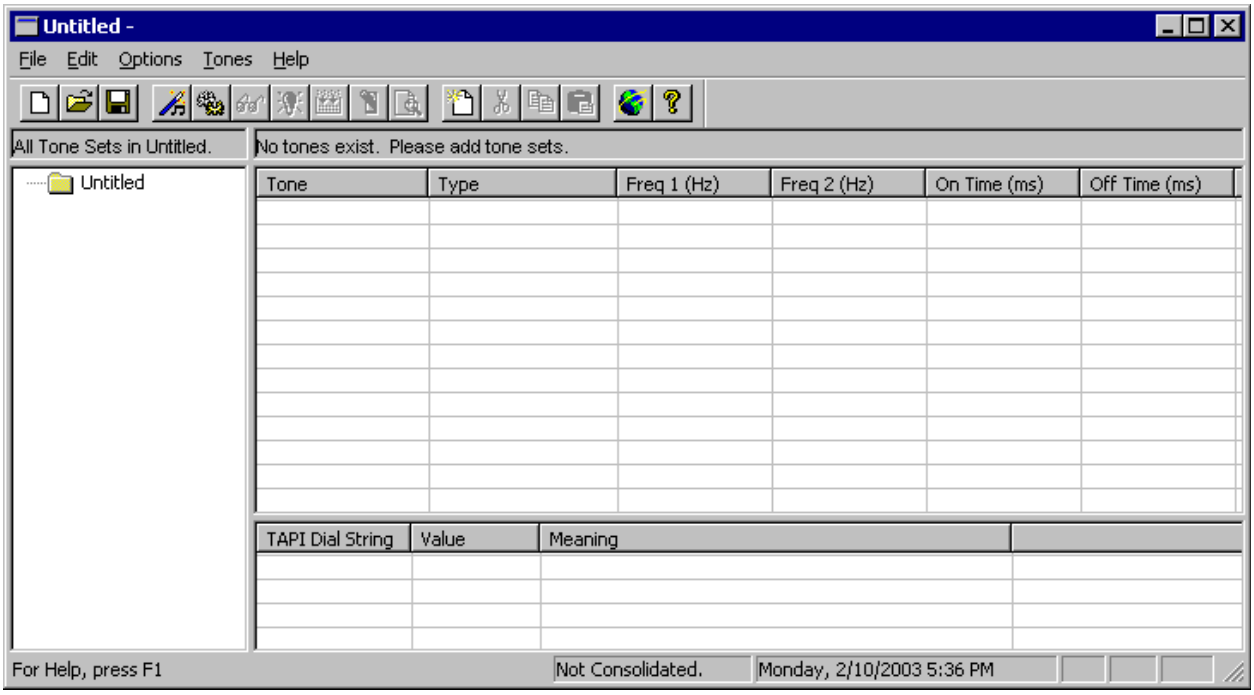
2. Click Start > Programs > Dialogic System Software > PBXpert.

   The PBXpert main window appears (see Figure C-1 on page C-3). Most fields are blank until tones are learned.

   - If you are using PBXpert for the first time after installation, the PBXpert wizard starts automatically.
   - If the PBXpert wizard does not start automatically, click Tones > Tone Wizard.

> **Note:** You can change the default settings in the wizard if you are familiar with your PBX environment and the Dialogic API. Any settings that you change are saved when you exit PBXpert. For help on a particular screen, click the **Help** button in the wizard.

Figure C-1. PBXpert main window



Complete the PBXpert wizard screens as follows:

1. When the PBXpert Wizard Welcome screen appears, click **Next**.
2. On the PBX Information page:
   - Under PBX, enter the name of the manufacturer (such as *Mitel*) and the model of the PBX (such as *SX-2000*).

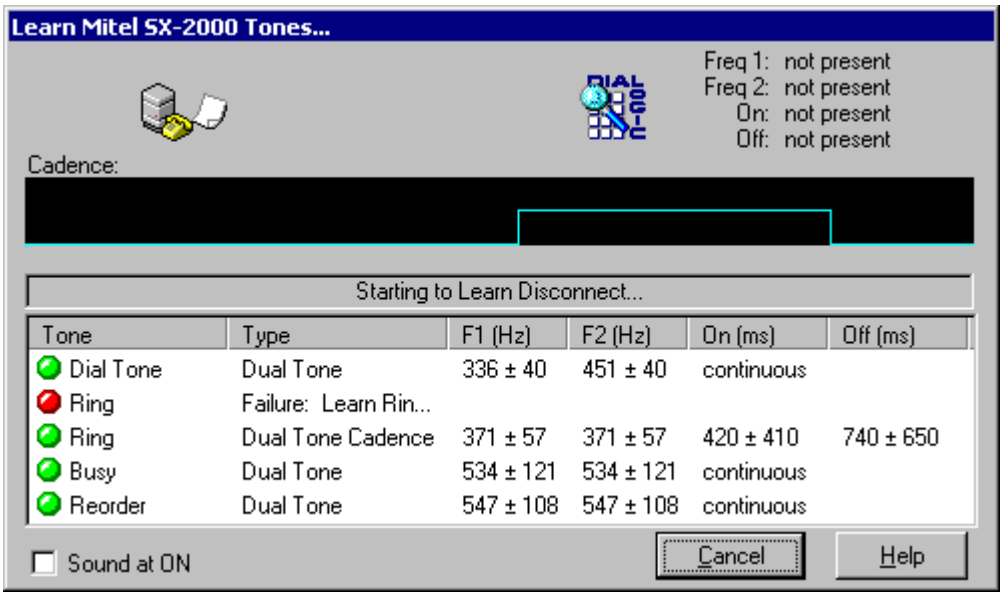
- You can use the automatically created Tone Set File name as it appears, or alter it as desired.
- Click **Next**.

3. On the TAPI Information page, just use the default values. Click **Next**.
4. On the Select a Board screen:
   - Select the Dialogic board to use.
   - Click **Next**.
5. On the Select the Calling Resource screen, for the Line A Calling Channel:
   - For “Select the Channel,” enter the port number or channel to use.
   - For “Phone Number,” enter the extension number of this port. See Required switch and messaging information on page A-11 for port board extensions.
   - Click **Next**.
6. On the Select the Calling Resource screen, for the Line B Called Channel:
   - For “Select the Channel,” enter a different port number or channel to use.
   - For “Phone Number,” enter the extension number of this port.
   - Click **Next**.
7. On the Settings Confirmation screen:
   - Verify your settings. Click **Back** if you need to change anything.
   - Make sure that the **Run Wizard Auto-Test** box is checked.
   - Click **Next**.
8. The Auto Line Test window appears while PBXpert verifies the connection between the two specified channels.
   - If you see a “Test finished successfully!” message, click **OK** to close this window and proceed.
   - If the line test fails, click **OK** to close this window. Click **Back** on the wizard, adjust your settings, and try the test again.
9. On the Learn Tones screen, click **Next** to begin learning tones automatically.

The Learn Tones window appears. See Figure C-2 on page C-5.

> **Note:** You can click **Cancel** at any time during the test to stop automated learning.

Figure C-2. Learn Tones window (learning in progress)



10. When PBXpert completes learning, buttons appear allowing you to keep or discard the data.

    - If the tones were learned without errors, select **Keep Data**. The Learn Tones window closes and you can proceed.
    - If errors occurred, select **Discard Data**. The window closes. Click **Back** on the wizard, adjust your settings, and try to learn the tones again. You cannot test or save the tone file if it contains errors.

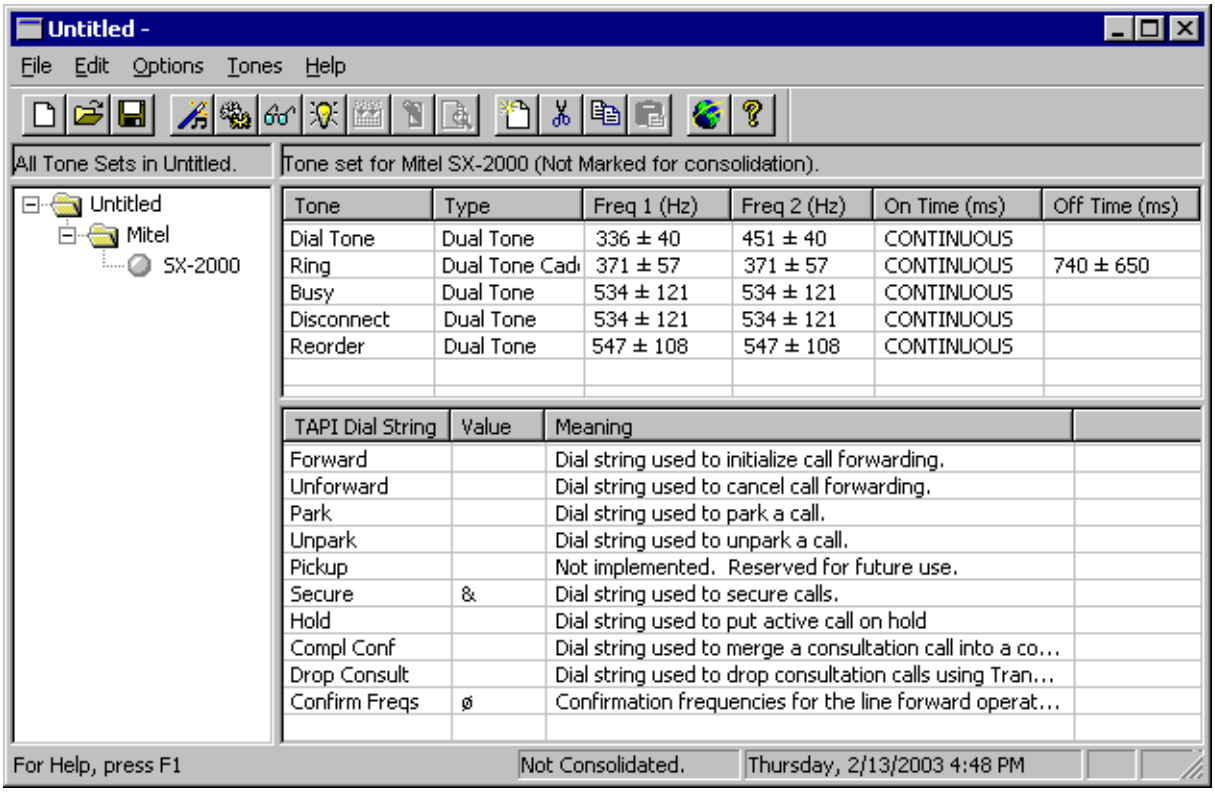
11. On the Verifying the Learn screen, click **Next** to test the learned tones.

    - If the test succeeds, click **OK** to close the test window and proceed.
    - **OK** to close this window. Click **Back** on the wizard, adjust your settings, and try the test again.

12. The Summary of Results page shows the final wizard status and tone definitions. Click **Finish**.

    Tone definitions are displayed in the main window (see Figure C-3 on page C-6).

Figure C-3. Sample tone definitions in main window



Consolidating and saving the TSF file

You must consolidate and save the new TSF file so that you can use it with the Dialogic voice driver. To do this:

1. Click Tones > Consolidate.
2. When finished, click File > Save to save the new TSF file.
   a. On the Save As screen, navigate to the following directory to ensure that the file will be backed up: **c:\Avaya_Support\Tone_Files**

      (If you use the default DATA directory, this file will *not* be backed up.)

   b. Specify a file name with file type of TSF (such as *Mitel-SX-2000.tsf*).

Using the new TSF in Dialogic Configuration Manager

To use the new TSF that you just created:

1. Return to the Intel Dialogic Configuration Manager window.

2. Click the red **Stop Service** button on the button bar.

3. Return to step 4 in “Configuring analog port boards“ on page 8-3 and complete board configuration and testing.

Learning tones manually

This section describes the following procedures:

Running PBXpert

To run PBXpert manually:

1. Start the Dialogic voice cards.

   a. You should have already started the Intel Dialogic Configuration Manager. See steps 1 through 3 in “Configuring analog port boards“ on page 8-3.

   b. Click the green **Start Service** button on the button bar.

   The installed boards show a green light when service is started, and the Stop Service button becomes active.

2. Click Start > Programs > Dialogic System Software > PBXpert.

   The PBXpert main window appears (see Figure C-1 on page C-3). Most fields are blank until tones are learned.

3. If you are using PBXpert for the first time after installation, the PBXpert wizard starts automatically. If the PBXpert32 Wizard starts, check the “Don’t run wizard at startup” checkbox and click the **Cancel** button.

   A new, empty TSF is now active.

4. In the PBXpert main window, click **Settings** on the button bar.

5. In the Settings window:

   a. For Line A, enter the **Board Number** (such as *1*) and the **Channel Number** or port number.

   b. The **Manual mode** checkbox should be checked.

   c. For Line B, for **Phone Number**, enter extension for this port or channel. See Required switch and messaging information on page A-11 for port board extensions

      You can use the default values for all the other fields on this screen. Click **Help** for more information if needed.

> **Note:** If you are familiar with your PBX environment and the Dialogic API, you can change these default settings. Any settings that you change are saved when you exit PBXpert.

   d. Click **OK**.

Adding a new tone set

To add a new tone set to a TSF:

1. From the PBXpert main window, click Edit > New Tone Set.

2. In the New Tone Set window:

   a. Enter the PBX **Manufacturer** (such as *Mitel*) and **Model** name (such as *SX-2000*).

   b. Click **OK**.

   The PBXpert main window shows the manufacturer and model names you entered. The tone definitions are set to zero.

Learning tone definitions

To add tone definitions to the new tone set:

1. From the PBXpert main window, click Tones > Learn.

2. On the Start Learn window:

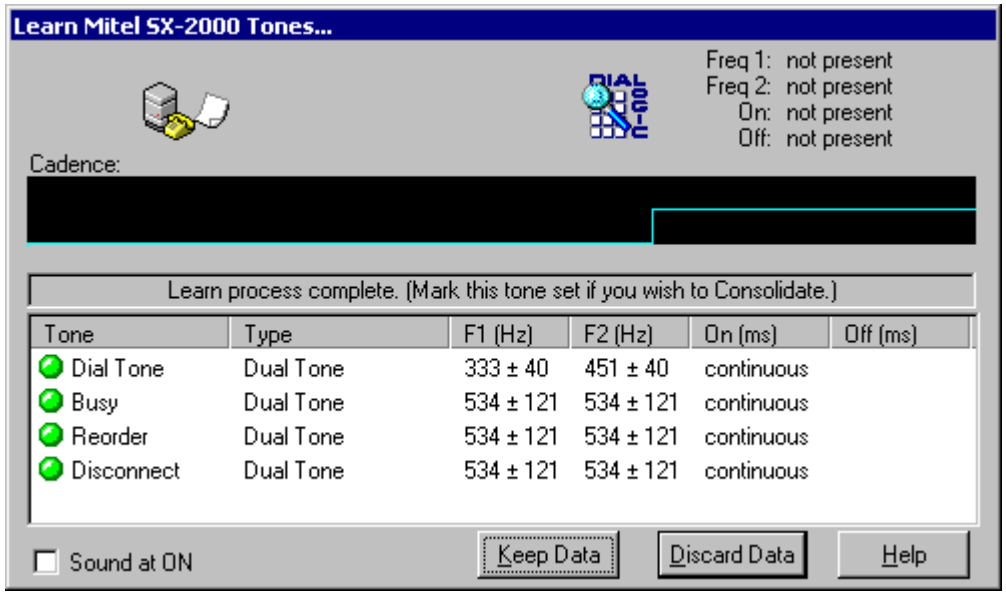
   a. Select the tones for the Dialogic cards to learn (the default is all tones).

   b. Click **Start Learn** to have PBXpert start learning tones.

The Learn Tones window appears (see Figure C-4 on page C-9).

Note:	Click **Cancel** at any time to stop learning.

Figure C-4. Learn Tones window (learning complete)



3. You are prompted to listen for ringing, and to pick up or replace the telephone handset during the test. When the message box pops up, do the requested action, then click **OK**.

4. When the learning process has finished, tone definitions appear in the Learn window. Keep or discard the data as follows:

   - If the tones were learned without errors, select **Keep Data**. The Learn Tones window closes and you can proceed.

   - If errors occurred, select **Discard Data**. The window closes. Click **Back** on the wizard, adjust your settings, and try to learn the tones again. You cannot test or save the tone file if it contains errors.

   The Learn window closes. The new tone definitions appear in the PBXpert main window. See Figure C-3 on page C-6 for an example.

Testing the tone set

The Test function checks that the consolidated tone set in the active TSF works correctly with the Perfect Call call-progress analysis utility.

To test the newly learned tones:

1. In the main PBXpert window, Tones > Test.
2. A Test window appears.

   When testing is complete, test results are displayed in the Test window.
3. Check that the tone definitions of the learned tones are correct.

Consolidating and saving the TSF file

You must consolidate and save the new TSF file so that you can use it with the Dialogic voice driver. To do this:

1. Click Tones > Consolidate.
2. When finished, click File > Save to save the new TSF file.

   a. On the Save As screen, use the default DATA directory.

   b. Specify a file name with file type of TSF (such as *Mitel-SX-2000.tsf*).

Using the new TSF in Dialogic Configuration Manager

To use the new TSF that you just created:

1. Return to the Intel Dialogic Configuration Manager window.
2. Click the red **Stop Service** button on the button bar.
3. Return to step 4 in ‘‘Configuring analog port boards‘‘ on page 8-3 and complete board configuration and testing.

D

Administrator's reference

Overview

This appendix details the permissions and data schema modifications that are required to support Modular Messaging software in a Microsoft Exchange environment. Information for Exchange 2000/2003 and Exchange 5.5 servers is included.

Exchange 2000/2003 permissions

Avaya Modular Messaging service account permissions are covered in "Assigning Exchange 2000/2003 permissions" on page 4-7. This section details why the Modular Messaging service account must be added to the following groups:

- The BuiltIn/Account Operators group in each domain contains accounts that will be enabled for Avaya Modular Messaging. This ensures that the Modular Messaging software has rights to perform the following operations:
  - Provide full access to the ms-Exch-Extension-Data attribute for user objects that are to be enabled for Modular Messaging. This access right is required to enable Modular Messaging subscriber accounts.
  - Create container objects. Avaya Modular Messaging creates a voice mail domain container. By default, the voice mail domain container is located root of the domain for which the Modular Messaging service account is a member. This container stores the directory objects required for the Messaging Application Server and Mailbox Monitor Server software components.

If the Modular Messaging service account does not have sufficient privileges to create container objects at the base location of the domain that contains the service account, a voice mail domain container must be created manually. See "Creating the voice mail domain container manually if required" on page 4-11 for this procedure.

— Create User objects, and mailbox-enable User objects, in the voice mail domain container. This right is required for the operation of the Messaging Application Server and Mailbox Monitor Server software.

- The BuiltIn/Administrators group in the domain that contains the Global Catalog server(s), that will be used as peer-directory servers for Avaya Modular Messaging servers. This can be the domain that contains the service account, or any sub-domain that contains the service account. The right enables the Modular Messaging software to obtain search results from the peer-directory server, including recently deleted objects. This allows Avaya Modular Messaging to maintain consistency in its Front End Database (FEDB).

- The Domain Exchange Servers group in the domain that contains subscriber mailboxes. This right enables Avaya Modular Messaging software to access the information store for subscribers in order to provide Modular Messaging services.

The following table details the property permissions required to support Modular Messaging and their purpose. It also indicates the lowest level in the Exchange Service property tree that this permission should be applied.

Table D-1. Required switch and messaging information

Permission	Description	Applies to this object and subcontainers	Modular Messaging requirement
Read	Read permission for items in container	Mailbox Store	Core requirement
Execute	Execute permission for items in container	Mailbox Store	Automatic with 'Read'
Read Permissions	Ability to read the permissions for an object	Mailbox Store	Automatic with 'Read'
Create Children	Ability to create an object below the current object	Connectors	Octel Analog Networking
List Contents	Displays the contents and children of an object	Exchange Organization	Exchange System Manager
Read Properties	Allows for Properties to be read from the class object	Administrative Group	Core requirement
Write Properties	Allows for existing class object Properties to be written to	Connectors	Octel Analog Networking

Table D-1. Required switch and messaging information

Permission	Description	Applies to this object and subcontainers	Modular Messaging requirement
Administer Information Store	Allows creation of objects at root of folder	Mailbox Store	Voicemail Domain Mailbox
Create Named Properties in the Information Store	Allows new properties to be added to the class object	Mailbox Store	User Admin
View Information Store Status	Required for MAPI Logon	Mailbox Store	External Caller Mailbox
Receive As	Receive on behalf of privilege	Mailbox Store	Core requirement
Send As	Send on behalf of privilege	Mailbox Store	Core requirement

Active Directory schema updates

Avaya Modular Messaging software requires the following changes to be made to the schema in an Exchange 2000/2003 environment before any other Modular Messaging server components are installed:

- Enable replication of the ms-Exch-Extension-Data attribute in the Global Catalog.
- Add classes and attributes for Octel Analog Messaging (if applicable).

The Modular Messaging software stores information about subscriber configurations in the ms-Exch-Extension-Data attribute. For Modular Messaging MASs to obtain this information, this attribute must be replicated in the Global Catalog, a central repository for information about objects in the Windows 2000 or 2003 forest. By enabling the replication, the system instructs the Global Catalog servers to include the ms-Exch-Extension-Data attribute in the list of objects replicated in the Windows 2000 or 2003 forest.

Replication of the ms-Exch-Extension-Data in the Global Catalog is also necessary for the correct operation of the Modular Messaging Subscriber Options. This is because the MAPI address book provider for Active Directory uses the Global Catalog as its data source. Replication is required for MAPI to support access to client applications, such as Subscriber Options, through the PR_EMS_AB_EXTENSION_DATA property.

When the Modular Messaging Subscriber Administration software component is installed, the following changes occur:

- The Modular Messaging property page is added for each user in Active Directory Users and Computers. More specifically, the guide "A6688A44-CEDE-456E-AE57-3567D9909AE7" is added to the multi-valued attribute adminPropertyPages on the user-Display object, which has the dn: CN=user-Display,CN=409, CN=DisplaySpecifiers,CN=Configuration,DC=mycorp,DC=com.

- Files for the software components required to display the Modular Messaging property page are copied to the Program Files\Avaya Modular Messaging directory.

Exchange 5.5 subscriber administration tools

On an Exchange 5.5 system, Modular Messaging subscriber accounts are created and administered using Voice Mail User Administration Extension. When Voice Mail User Administration Extension is installed, the following changes occur:

- An administration extension directory object is created under ORG\Site\Configuration\Add-Ins. This directory object is called "Extension for Modular Messaging User Administration".

  The administration extension object is created with the dn, /o=org/ou=unit/cn=Configuration/cn=Add-Ins/cn=gnvuaext:i386

- The extension is added to the list of administration extensions displayed for mailboxes in the site's Recipients container. More specifically, the value "gnvuaext" is added to the multi-valued attribute "Extension-Name-Inherited" on the /o=org/ou=unit/cn=Recipients object.

- The software components required for running Voice Mail User Administration Extension are installed. These files are copied to the Add-Ins\gnvuaext\i386 directory of the Exchange 5.5 server running the installation.

E

Reloading software on an Avaya MAS

Overview

This appendix describes how to reload the operating system and application software on an Avaya Messaging Application Server (Avaya MAS). This procedure may be used to install new software on a new system, or to put the required software on the hard disk if the MAS suffered a catastrophic disk failure and a hard disk had to be replaced.

Loading new MAS software

To copy new software to the Avaya Messaging Application Server (Avaya MAS):

1. The KVM switch should be connected to the MAS through one of the VGA computer ports. Verify that the monitor is showing the correct MAS.

   - *For a Belkin OmniView Pro2 KVM:* To have the monitor show a different server, press slowly in sequence Scroll Lock, then Scroll Lock, then the up (or down) arrow key to change to the server connected to a higher or lower port number.

     You can alternatively type the port number instead of pressing the up or down arrow key (such as *02* for port 2). See your KVM switch documentation for complete user instructions.

   - If the monitor does *not* showing the correct server, see “Connecting the KVM cables“ on page 2-24 and verify the cable connections. To correct cabling problems, power down the system, correct the cabling, then power up the system again.

2. Insert the *Avaya Modular Messaging OS Boot Software* DVD in the DVD drive.

   Wait for green LED on the drive to go out.

3. Press **Ctrl + Alt + Del** to reboot the system.

   a. In the Windows Security window, click **Shut Down...**

   b. On the Shut Down Windows screen, select **Restart** and click **OK**.

4. When the machine begins to boot, it displays a warning message that the hard drive contents will be overwritten. Press any key to continue.

5. At the message confirming that the hard drive will be overwritten, press any key to continue.

   The MAS begins to copy the disk image to the hard disk. The entire copy procedure may take up to 20 minutes.

> **CAUTION:** *Do not* touch the keyboard once the software starts loading, or the software will not install properly.

6. When finished, the program prompts you to remove the media before the system reboots.

   - Remove the DVD from the drive and close the drive door.
   - Press any key to continue.

7. When the reboot completes, the Windows 2000 Server Setup Wizard appears. Complete the wizard as follows:

   a. On the Your Product Key screen, type the Windows product key for this MAS (each unit has a unique product key).

> **Note:** This number must be entered exactly as shown. It is located on a sticker or tag on the side or rear of each MAS unit.

   b. Click **Next**.

   c. On the Licensing Modes screen, do nothing. The wizard continues the setup on its own.

   The machine automatically reboots.

8. When the reboot completes, proceed as follows:

   - If no Found New Hardware Wizard appears, continue with step 9.

- If a Found New Hardware Wizard appears, *it must be completed first, or the software will not install correctly.* The hardware wizard appears once for every Dialogic port board installed in the system.

Disable the Dialogic hardware for now as follows:

a. On the Welcome screen, click **Next**.

b. On the Install Hardware Device Drivers screen, accept the default option (Search for a suitable driver) and click **Next**.

c. On the Locate Driver Files screen, clear the checkbox for “Specify a location” (no boxes will be checked). Click **Next**.

d. On the Driver Files Search Results screen, make sure that “Disable the device” is selected.

e. Click **Finish**.

f. Repeat steps a through e for each repetition of the wizard.

9. Double-click the **MM_Setup.bat** icon on the desktop.

   A C:\WINNT\system32\cmd.exe window appears.

10. The program prompts you to load the required application software:

    a. When prompted, insert the *Avaya Modular Messaging Application Software* DVD or CD in the DVD drive.

    b. Wait for green LED on the drive to go out.

    c. When ready, press any key to continue.

    d. When notified that the D:\MM_Load\MM_Load.bat file was copied, press any key to continue.

       The machine displays the list of files that were copied.

    e. When prompted, press any key to continue.

11. When prompted to remove the media:

    a. Remove the DVD or CD from the drive and close the drive tray door.

    b. Press any key to continue.

12. When prompted that the Mini-Setup program will run after the system reboots, press any key to continue.

    The machine stores the information and shuts down.

F

Recovering from a catastrophic disk failure

Overview

This appendix summarizes the procedure for restoring a Messaging Application Server (MAS) if the hard disk drive failed and had to be replaced.

To recover from a catastrophic disk failure, you will need:

- This guide and other required documentation for system installation. See "Required documentation" on page 1-2 for a complete list.
- *For an Avaya-provided MAS only,* the *Avaya Modular Messaging OS Boot Software* DVD.
- A copy of the completed planning forms, which should be on file. See Appendix A, "System planning forms."

> **Note:** Make sure that the planning forms are accurate and up-to-date. When you restore the MAS machine, you must duplicate *exactly* the information from your original setup (machine names, domain names, passwords, and so on) to avoid problems.

Recovery procedure

Follow the steps in this section for:

- "Restoring an MAS after a catastrophic disk failure" on page F-2
- "Restoring Caller Applications after a catastrophic disk failure" on page F-3

Restoring an MAS after a catastrophic disk failure

To restore any MAS following a catastrophic disk failure:

1. The faulty drive must be replaced and the operating system reloaded and brought up to date.

   - *For a customer-provided MAS:* Follow these steps:

     (1) Use the hard disk restoration procedures appropriate for your site to replace the hardware and reload the operating system.

     (2) When the disk is restored, complete the installation procedures from ‘‘Prerequisite steps for a customer-provided MAS‘‘ on page 7-3 through ‘‘Configuring the MAS‘‘ on page 7-14.

   - *For an Avaya MAS:* Follow these steps:

     (1) See “IDE drive replacement” on the documentation media for hardware replacement steps.

     (2) Install the operating system on the new disk drive. Follow the steps in Appendix E, ‘‘Reloading software on an Avaya MAS.’’

     (3) Complete the installation from ‘‘Setting up the Windows system‘‘ on page 6-4 through ‘‘Configuring the MAS‘‘ on page 7-14.

2. When you reach ‘‘Configuring the MAS‘‘ on page 7-14, do these steps:

   a. The Messaging Application Server - Configuration Wizard automatically launches. Complete steps 1 through 4 as directed.

   b. For step 5, on the Voice Mail Domain Selection screen, always join the voice mail domain as a “***Subsequent*** server in an existing voice mail domain” (even if this is MAS#1).

   c. Continue with the wizard as directed until step 8. If the Caller Applications Editor was installed, proceed as directed in ‘‘Restoring Caller Applications after a catastrophic disk failure‘‘ on page F-3.

   d. Complete the wizard as directed in ‘‘Configuring the MAS‘‘ on page 7-14.

3. Complete the rest the MAS installation through Chapter 9, ‘‘Configuring the voice mail system.’’

4. Reinstall any previously installed patches on this MAS.

5. Restore data files from backup including spooled messages, customized caller applications and prompts. See ‘‘Restoring Caller Applications after a catastrophic disk failure‘‘ on page F-3 if relevant to this MAS.

CAUTION: *Do not* restore the System State following a catastrophic disk failure.

6. Reinstall any other software that was previously installed on this MAS (for example, Subscriber Options).

7. Do “Performing acceptance tests“ on page 10-4 and perform all the tests relevant to this system.

8. When you are satisfied that the system is running correctly, back up the restored MAS using the regular backup procedures at your location. See “Backing up the system“ on page 10-9 for details.

Restoring Caller Applications after a catastrophic disk failure

The procedure for restoring the Caller Applications Editor software varies depending on how it is installed at this site.

If MAS#1 is the only MAS in the voice mail domain, or if Caller Applications have been deployed on only the MAS that has had the hard disk replaced:

1. Stop the Modular Messaging (MM) Messaging Application Server service as follows:

   a. Double-click the **Monitor** icon on the desktop.

   b. Select the **Services (Local)** item in the left-hand pane if it is not already selected.

   c. In the right-hand pane of the Monitor window, scroll down to the **MM Messaging Application Server** service.

   d. RIght-click the service and select **Stop**.

   e. Wait for service to stop, then click **OK** to close this window.

2. From your MAS backup files, restore the CallerApps directory to the correct location:
   C:\Program Files\Avaya Modular Messaging\VServer\CallerApps

3. Restart the Messaging Application Server service. Follow the procedure in step 1, but select **Start** when you right-click the service.

If you are restoring any MAS to service in a multiple-MAS system and if Caller Applications has been deployed on one or more of the other MASs that are still operational and their services are running:

1. In the Messaging Application Server - Configuration Wizard, on the Caller Application screen, accept the default setting to get the Caller Application information from the voice mail domain.

2. If you skip this screen or have problems with Caller Applications after installation, restore the **CallerApps** directory as described for a single MAS deployment above.

3. If you still encounter problems after following these procedures, then restore the CallerApps ***.uma** files to a convenient location and redeploy Caller Applications.

G

Removing Modular Messaging components

Overview

This appendix describes how to remove Modular Messaging software components from a machine where they are currently installed. You might use this procedure if you want to change the Messaging Application Server (MAS) on which a particular feature is installed, or to remove Modular Messaging software packages or tools from an administrator's Microsoft Windows machine.

Removing software components

To remove Modular Messaging software components:

1. Click Start > Settings > Control Panel.
2. From the Control Panel window, double-click **Add/Remove Programs**.
3. In the Add/Remove Programs window, scroll down the list of currently installed programs to locate the Modular Messaging software components installed on this machine.

   All Modular Messaging components begin with the name **MM**.
4. Click the Modular Messaging software component you want to remove (for example, click **MM Caller Applications Editor**).
5. Click **Remove**.
6. If prompted to confirm the deletion:

   - Click **Yes** to remove the selected component.

- Click No to leave this component installed on this machine.

When the component removal is complete, the next item in the Add/Remove Programs window is selected.

7. Repeat steps 3 through 6 to remove additional software components if needed.

8. When finished, close this window.

Index

D

E

F

G

H

I

J

K

L

M

N

O

P

R

S

T

U

V

W