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Chapter 1

GETTING STARTED
PURPOSE OF THIS HANDBOOK

This handbook provides instructions on how to install, upgrade, maintain and troubleshoot Mitel® NuPoint Unified Messaging™ (UM) and is intended for certified NP-UM technicians. For detailed programming information, please refer to the NuPoint Unified Messaging System Administration Help.

For information on what each NuPoint UM guide and help file contains and its intended audience, see “NuPoint Unified Messaging Documentation” on page 21.

SYMBOLS USED IN THE HANDBOOK

Note: Provides important details.

Tip: Provides additional information you should know about a topic.

CAUTION: Indicates a potentially hazardous situation that could result in damage to the equipment.

REGULATORY NOTICES

SAFETY INSTRUCTIONS

Read all instructions before attempting to install or use this product.

CAUTION: Changes or modifications not expressly approved by MITEL could void the user’s authority to operate the equipment.

These instructions provide basic installation information, necessary for the proper and safe functioning of this equipment. Persons installing or maintaining this product must read all of the safety instructions and the parts of system grounding which are applicable to the system being maintained. Only trained, qualified service personnel shall install or maintain this product.

WARNING: FAILURE TO FOLLOW ALL INSTRUCTIONS MAY RESULT IN IMPROPER EQUIPMENT OPERATION AND/OR RISK OF ELECTRICAL SHOCK.

• Read all instructions.
• Keep these instructions with the equipment.
• Do not attempt to install or service this equipment unless you are skilled in the installation and maintenance of electronic telecommunications equipment and have successfully completed specific training for this equipment.
• This product must be installed and serviced in accordance with both this document and the technical documentation.
• Follow all procedures outlined in the technical documentation, in the sequence given.
• Configure this product with only the assemblies specified and in the locations stated in the technical documentation.
• Replace all guards or barriers. Close and lock doors when you complete the installation or before you return the equipment to service.
• Do not connect telecommunications cabling to the system, service the system, or operate the system with the grounding conductor disconnected.
• Install all wiring in accordance to local, state, and federal electrical code requirements.

Digital Media Gateway (formerly PIMG) Installation of Telecommunications Wiring

WARNING: Refer to safety instruction contained within the Digital Media Gateway (DMG) installation manual before attempting installation.

Telecommunications wiring to this product must conform to all applicable local safety and electrical wiring regulations.
• Use caution when installing or modifying telephone lines.
• Do not install telephone wiring during a lightning storm.
• Do not install a telephone jack in wet locations unless the jack is specifically designed for wet locations.
• Do not touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.

Fuse and Component Replacement

WARNING: Unauthorized repair of this product may result in a fire or shock hazard, and/or defective operation, and/or equipment damage. Do not repair or replace components on circuit card assemblies or other parts of this equipment unless there is a specific description of the procedure provided in the Technician’s Handbook. Return all inoperative assemblies to an authorized MITEL agent for repair.

Refer to the Troubleshooting section of the NuPoint Unified Messaging Technician’s Handbook for information on the troubleshooting and servicing of this product.

Electricity at Work Regulations 1989

This product, as manufactured by Mitel Networks Corporation, is a SYSTEM as defined by the Electricity At Work Regulations 1989. All persons involved in the installation and repair should be aware of their duties and responsibilities under these regulations.

Use of Safety Notices

The following information provides an explanation of the notices which appear on the product or in the technical documentation.
Use of Safety Notices

**DANGER**
Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

**WARNING**
Warning indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

**CAUTION**
Caution indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury and/or damage to the equipment or property.

Use of Symbols

**DANGEROUS VOLTAGE**
The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a significant risk of electric shock to persons.

**INSTRUCTIONS**
The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

**PROTECTIVE GROUNDING TERMINAL**
The ground symbol within a circle identifies the terminal which is intended for connection to an external protective conductor. This connector must be connected to earth ground prior to making any other connections to the equipment.

NOTICE TO NORTH AMERICAN CUSTOMERS

Refer also to the regulatory information contained within the Digital Media Gateway (DMG) installation guide.

**Industry Canada Notice**

This Class A digital apparatus meets all requirements of the Canadian Interference-causing Equipment Regulations ICES003.

**Federal Communications Commission (FCC) Notice**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 sub part B 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. If not installed and used in accordance with the technical documentation, this equipment 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.
North American Warranty and Service Information

There are no user-serviceable parts within this equipment. Refer all servicing to a Mitel Networks Corporation-authorized repair facility. If you require a Mitel Networks Corporation return authorization number, or information on obtaining service or repairs, please contact Mitel Networks Corporation at the following telephone number:

1-800-SXMITEL (1-800-796-4835)

A Mitel Networks Corporation return authorization number must be obtained before sending equipment to the Mitel Networks Corporation repair facility. The Mitel Networks Corporation repair facilities are located at the following addresses:

Mitel Repair Services
340 Legget Drive
Kanata, ON
K2K 2W7
CANADA

Mitel Repair Services
1016 W. Geneva Dr.
Tempe, AZ
85282
USA

NOTICE TO EUROPEAN CUSTOMERS

Refer also to the regulatory information contained within the Dialogic Media Gateway (formerly PIMG) installation guide.

Conformance to EC Directives

The "CE" mark is affixed to this product to demonstrate conformance to the R&TTE directive 1999/5/EC (Radio Equipment and Telecommunications Terminal Equipment Directive).

WARNING: THE STANDALONE SERVER CONFIGURATION IS A CLASS A PRODUCT. IN A DOMESTIC ENVIRONMENT THIS PRODUCT MAY CAUSE RADIO INTERFERENCE, POSSIBLY REQUIRING THE USER TO TAKE ADEQUATE MEASURES.

Declaration of Conformity

We,

Mitel Networks Limited
Castlegate Business Park
Portskewett
Caldicot
NP26 5YR
U.K.

Declare under our sole responsibility that the product:

Mitel NuPoint Unified Messaging and all associated peripherals manufactured by Mitel Networks Corporation to which this declaration relates, is in conformity with the essential requirements specified in Article 3.1 (a) and 3.1 (b) of:


For a copy of the Original Signed Declaration (in full conformance with EN45014) please contact the Regulatory Approvals Manager at the above address.

Warranty Information

There are no user-serviceable parts within this equipment. Refer all servicing to a Mitel Networks Corporation-authorized repair facility or to Mitel Networks Corporation. If you require a Mitel Networks Corporation return authorization number, or information on obtaining service or repairs, please contact Mitel Networks Corporation at the following telephone number:

• 0870 909 2020 (UK only)
• 01291 430000 (non-UK callers)

Mitel Networks Corporation return authorization number must be obtained before sending equipment to the Mitel Networks Corporation repair facility. The Mitel Networks Corporation repair facility is located at the following address:

Mitel Networks Limited
Castlegate Business Park
Portskewett
Caldicot
NP26 5YR
U.K.
GETTING STARTED

This section includes information on what you require to install NuPoint Unified Messaging and links to pertinent sections of the guide for configuration, maintenance, upgrades, and troubleshooting.

WHAT YOU RECEIVED

NuPoint UM is distributed in the following configurations:

Physical NuPoint

The "Physical NuPoint UM" version of NuPoint UM can be installed on a Mitel Standard Linux (MSL) qualified hardware server platform. It can be deployed as follows:

• NuPoint 60 - (formerly "Standard Edition") supports up to 60 voice mail ports and 57,000 mailboxes on an entry-level server.
• NuPoint 120 - (formerly "Single Server") supports up to 120 voice mail ports and 120,000 mailboxes on a mid-level server.

Virtual NuPoint (vNuPoint)

vNuPoint is a version of NuPoint UM that runs as a virtual appliance (vApp) in a VMware vSphere or Microsoft Hyper-V environment.

For deployments in a VMware environment, the NuPoint application software is packaged with the MSL operating system and delivered as an OVA file which can be installed on a vSphere Client. For Hyper-V deployments, the software is installed like a physical system, using an ISO image.

NuPoint on MiCollab

NuPoint UM is available as one of the applications provided by the MiCollab. For more information about MiCollab, see the MiCollab documentation available at Mitel OnLine.

NuPoint on Virtual MiCollab (vMiCollab)

NuPoint UM is also available as application within vMiCollab running in a VMware vSphere or MS Hyper-V environment. For more information about vMiCollab, see the MiCollab documentation available at Mitel OnLine.

WHAT'S NEW

Important new features are listed below. For a complete list of all features made available with each software release, please refer to the NuPoint Unified Messaging System Administration online help.
Effective Software Release 8.1

Technology Alignment for NuPoint UM Release 8.1:

NUPOINT UM R8.0 COMPATIBILITY MATRIX

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>VERSION(S) SUPPORTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALL CONTROL SERVERS</td>
<td></td>
</tr>
<tr>
<td>MiVoice MX-ONE</td>
<td>6.0 SP2</td>
</tr>
<tr>
<td>MiVoice Business</td>
<td>6.0 SP3 (12.0.3.24), 7.0, 7.1, 7.2 (See Note, below)</td>
</tr>
<tr>
<td>Note: If your MiVoice Business has software that is older than R6.0 SP3 (12.0.3.24), you must upgrade it to a later software release prior to installing R8.1 on NuPoint UM.</td>
<td></td>
</tr>
<tr>
<td>BROWSERS (OPERABLE WITH WEB CONSOLE AND WEB VIEW INTERFACES)</td>
<td></td>
</tr>
<tr>
<td>Microsoft Edge</td>
<td>21</td>
</tr>
<tr>
<td>Internet Explorer</td>
<td>9, 10 and 11</td>
</tr>
<tr>
<td>Mozilla Firefox</td>
<td>41 and higher</td>
</tr>
<tr>
<td>Google Chrome</td>
<td>46 and higher</td>
</tr>
<tr>
<td>Apple Safari</td>
<td>9 and higher</td>
</tr>
<tr>
<td>OPERATING SYSTEMS (OPERABLE WITH WEB CONSOLE, OCP, AND FAX PRINTER)</td>
<td></td>
</tr>
<tr>
<td>Microsoft Windows</td>
<td>7.0, 8.0, 8.1 and 10</td>
</tr>
<tr>
<td>Apple OS X (supports Web View only)</td>
<td>10.9.x</td>
</tr>
<tr>
<td>EMAIL SERVERS AND CLIENTS</td>
<td></td>
</tr>
<tr>
<td>Microsoft Exchange server</td>
<td>2010 SP3 and 2013 CU11</td>
</tr>
<tr>
<td>Google Mail (Gmail)</td>
<td>N/A (web-based)</td>
</tr>
<tr>
<td>Office 365</td>
<td>N/A (web-based)</td>
</tr>
<tr>
<td>Microsoft Outlook</td>
<td>2010 and 2013 SP1</td>
</tr>
<tr>
<td>VIRTUALIZATION SOFTWARE AND HARDWARE</td>
<td></td>
</tr>
<tr>
<td>Refer to the Mitel Virtual Appliance Deployment Guide.</td>
<td></td>
</tr>
</tbody>
</table>

- **Call Director enhancement:**
  - When users add a Caller ID Filter to a call flow, they can program up to twenty numbers to be filtered.

- **Virtualization Features:**

  After you upgrade NuPoint UM software on a VMware platform, the system will automatically perform a database restore. Previously, this step had to be performed manually.

  For details concerning VMware vSphere and Microsoft Hyper-V version support, software and hardware requirements, supported features and configurations, and installation and upgrade instructions, refer to the Mitel Virtual Appliance Deployment Guide on Mitel Online.

**Note:** By default, Windows 10 uses white window title bars, which may be difficult to read in some NuPoint applications. To specify a new color for your title bars, access Settings > Personalization > Colors, select a color other than white, and click the Show color on Start, taskbar, action center, and title bar option. For more information, search the web for the following topic: "How to Get Colored Window Title Bars on Windows 10."
Effective Software Release 8.0

Technology Alignment for NuPoint UM Release 8.0:

**NUPOINT UM R8.0 COMPATIBILITY MATRIX**

<table>
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<th>PRODUCT</th>
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Note: If your MiVoice Business has software that is older than R6.0 SP3 (12.0.3.24), you must upgrade it to a later software release prior to installing R8.0 on NuPoint UM.

**BROWSERS (OPERABLE WITH WEB CONSOLE AND WEB VIEW INTERFACES)**

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<tr>
<th>BROWSER</th>
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<tbody>
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<tr>
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<td>37, 38 and 39</td>
</tr>
<tr>
<td>Google Chrome</td>
<td>40, 41 and 42</td>
</tr>
<tr>
<td>Apple Safari</td>
<td>7.0 and 7.1</td>
</tr>
</tbody>
</table>

**OPERATING SYSTEMS (OPERABLE WITH WEB CONSOLE, OCP, AND FAX PRINTER)**

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<tr>
<th>OPERATING SYSTEM</th>
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**EMAIL SERVERS AND CLIENTS**

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<td>2010 SP3 and 2013 CU9</td>
</tr>
<tr>
<td>Lotus Domino server</td>
<td>7</td>
</tr>
<tr>
<td>Google Mail (Gmail)</td>
<td>N/A (web-based)</td>
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<td>2010 and 2013 SP1</td>
</tr>
<tr>
<td>Lotus Notes</td>
<td>7</td>
</tr>
</tbody>
</table>

**VIRTUALIZATION SOFTWARE AND HARDWARE**

Refer to the *Mitel Virtual Appliance Deployment Guide*.

- **Technology Retirement** — Effective R8.0, NuPoint UM no longer supports the following:
  - Operating systems: Windows XP.
  - Features/Applications: NP Receptionist; Ops Manager.

- **Dial-by-Name (DBN) Enhancements**:
  - Callers can now be prompted to dial either a first or last name to reach a mailbox owner. Previously, callers were prompted to simply dial "a name" which could be either a first name or a last name, depending on how the mailbox was originally programmed. Dial-by-Name can be programmed as feature of the NuPoint Voice Application or as a call flow action in Call Director.
  - In all supported languages, the prompts have been updated to say "Press 7 for the letters P, Q, R and S" and "Press 9 for the letters W, X, Y and Z".
• **12/24 Hour Clock**: Depending on the language selected when a user accesses Web View, the clock will be in either 12- or 24-hour format. Those who sign in as English (UK and US) and Spanish (Latin American) users will default to a 12 clock, while all others will default to a 24 clock. The clock format appears on the interface applies to user communications such as message time stamps and email notifications. Previously, the clock was only displayed in 12-hour format. Note: The 12/24 clock is available only with Web View; Call Director continues to use a 12-hour clock.

• **Additional Languages**:
  - NuPoint UM now supports the installation of up to 25 prompt languages. Prior to R8.0, only nine prompt languages could be installed (English plus eight others).
  - Support has been added for three additional Nordic languages: Finnish, Swedish and Norwegian. Callers can receive prompts in these languages, and users can select one of them when accessing the Web View interface. The new languages are not available, however, in the Call Director interface.
  - Special accents and characters are permitted for mailbox names, such as the name "Jörgen Björkner." Note that when callers search for such a name using the dial by name feature, they must use equivalents for the accented characters (press 6/O on their telephone dialpad in order to select the letter ö).
  - The Bilingual Service feature has been expanded to five languages, making it "Multilingual." Activate the feature by installing the alternate-language prompt software on NuPoint, configuring a line group with up to five Language Prompts, and then (optionally) adding the Language Router action to a Call Director call flow. When callers reach the Message Center or Receptionist application, they will hear an initial greeting asking them to select one of the languages. Thereafter, they will receive prompts in their selected language.
  - All static text in emails sent to end users regarding voice and fax messages is consistent with the language associated with the user's account.

• **UM Improvements**:
  - **Email notification when mailbox is full**: Mailbox owners will receive an email message when their voice mailbox is approaching its capacity (80% full). The email is sent on a daily basis until the message count is reduced, and includes a link to Web View to facilitate message management. This feature supplements the existing functionality where users receive a verbal alert through the TUI.
  - **Display caller name in emails**: When the name of the caller is available, it will be displayed in the email header rather than the calling number identification (CLI). The calling number will continue to appear in the body of the message to facilitate easy callback from mobile devices.
  - **Faxes in PDF or TIFF format**: Depending on the system configuration, you can receive faxes in either PDF or TIFF format. Previously, faxes could only be received in TIFF format.
  - **New Call Director template**: A new system template has been created, called "NP Receptionist," which provides the functionality of a simple automated attendant. The template greets the caller, asks for an extension number, and transfers the call to the destination. The existing "NP Receptionist" optional feature is still available; however, its use is not recommended.
• **Integration with SIP-based New Call Control products**: Currently, NuPoint UM in MiCollab supports standard voicemail features when integrated with MiVoice Office 250 over SIP. With Release 8.0, NuPoint UM will support a similar feature set with the MiVoice MX-ONE (for MiCollab and Standalone) and MiVoice 5000 (for MiCollab only).

• **System Improvements (with Mitel Standard Linux R10.3)**:
  - **Mitel Standard Linux (MSL) Support**: NuPoint Release 8.0 is supported as a 32-bit application on MSL Release 10.3, which is a 64-bit operating system.
  - To install NuPoint Release 8.0, you must do a complete system backup and then perform a fresh install of the MSL operating system, following by a database restore. You may use a database from NuPoint Release 5.0 SP1 or later. See the NuPoint UM Technician’s Handbook for instructions.

• **Virtualization Features**:
  - **VMware Support**: vNuPoint UM Release 8.0 supports the latest VMware hypervisor software, including vSphere 5.0, 5.1 and 5.5.
  - **Microsoft Hyper-V Support**: vNuPoint UM Release 8.0 supports Windows Server Virtualization (Hyper-V), the Windows native hypervisor.

In previous releases, it was necessary to issue a command (ovanpminstaller.sh) in order to install NuPoint UM Software Assurance and NuPoint UM software blades for software installs and upgrades. In Release 8.0, this process has been automated so it is no longer necessary to execute the command.

For details concerning software and hardware requirements, supported features and configurations, and installation and upgrade instructions, refer to the Mitel Virtual Appliance Deployment Guide on Mitel Online.

*Effective Software Release 7.0 SP1*

• **Technology Alignment for NuPoint UM Release 7.0 SP1**:
  - **Browser Support**: The Web Console and Web View interfaces have been tested and verified with Internet Explorer 11.0.11, Mozilla Firefox versions 3.5 to 31.0, Google Chrome 36.0, and Safari 7.0.6.
  - **Operating System Support**: The Web Console and Web View interfaces and the OCP and Fax Printer applications have been tested and verified with Windows Vista, 7, 8 and 8.1. The Web View interface has been tested and verified with Apple OS X version 10.9.

• **General Improvements**:
  - The Advanced UM Configuration screen now includes a Restart button in addition to the Save, Reset and Cancel buttons. The new button can be used to restart Advanced UM while all other NuPoint services remain running.
  - FCOS 14, which is assigned to NuPoint mailboxes that are created in the MiCollab platform, now includes feature bit 081 by default. This feature bit prompts a user to enter a correct passcode only once after having entered an incorrect passcode. Without feature bit 081, the correct passcode must be entered twice.

• **Advanced UM Enhancements**:
- The mail server adapters (IMAP and MAPI) are supported on Microsoft Exchange 2013 SP1.

**Effective Software Release 7.0**

- **Advanced UM Enhancements:**
  - The IMAP and MAPI mail server adapters are supported on Microsoft Exchange 2013.
  - The Outlook Client Plug-in (OCP) is supported on Microsoft Outlook 2013 (32- and 64-bit).
  - Microsoft Office 365 over an IMAP connection is supported for up to 500 Advanced UM users.
  - It is now possible to configure a non-default IP port number for hosted Microsoft Exchange servers.

- **Call Director Enhancements:**
  - Tooltip help has been added to the Call Flow buttons, dropdown menus, and actions. When a user hovers over an item, a small pop-up window will appear containing a brief overview and usage instructions. The user can click a link within the window to open a help topic containing relevant, detailed information.
  - In the Web Console, pressing the Help icon brings up the help topic pertaining to the current screen.
  - Call Flows may now be printed.
  - Call Director now supports time zone offsets (set during Mailbox configuration) for personal call flows containing weekly and holiday Schedules.

- **Distribution List with Import/Export Feature:** This feature facilitates management of Distribution Lists. A list can be exported as a CSV file, modified in an editor such as OpenOffice Calc, and then imported back into the system.

- **Virtualization Features:**
  - **Deployment Configurations:** Three configuration options are now supported, one of which you can select during the vNuPoint install or upgrade process:
    - Mid Market: 60 ports / 4 GB RAM / 2 vCPU / 130 GB hard disk storage.
    - Enterprise: 120 ports / 6 GB RAM / 4 vCPU / 260 GB hard disk storage.
  - **VMware Support:** vNuPoint UM Release 7.0 supports the latest VMware hypervisor software, including vSphere 5.0, 5.1 and 5.5. For software and hardware requirements, plus supported features and configurations, refer to the *Mitel Virtual Appliance Deployment Guide* on Mitel Online.
  - **Microsoft Hyper-V Support:** vNuPoint UM Release 7.0 supports Windows Server Virtualization (Hyper-V), the Windows native hypervisor. For software and hardware requirements, supported features and configurations, and installation and upgrade instructions, refer to the *Mitel Virtual Appliance Deployment Guide* on Mitel Online.
  - Most of the Mitel product portfolio has been rebranded. These changes are reflected as follows on the NuPoint UM interface:
Effective Software Release 6.0

- **Product Consolidation:** NuPoint Single Server and NuPoint Standard Edition have been consolidated into a single software-only product that is designed to be installed on a Mitel Standard Linux (MSL) qualified hardware server. It can be deployed as follows:
  - NuPoint 60 - replaces the Standard Edition and supports up to 60 voice mail ports on an entry-level MSL server.
  - NuPoint 120 - replaces the Single Server (formerly 640E) and supports up to 120 voice mail ports on a mid-level MSL server.

- **Product Discontinuation:** NuPoint 640 has been discontinued. If your system has 120 or fewer ports, you can upgrade it to Release 6.0 by following the migration instructions contained in this guide. If your system has more than 120 ports, contact Mitel Professional Services for assistance migrating to a networked NuPoint environment.

- **Hosted Email Integration to the Cloud:**
  - Advanced UM now supports integration with Google Apps for Business over an IMAP connection using OAuth authentication. With this setup, users can synchronize their accounts without having to enter an email password on the NuPoint UM system.
  - Standard UM can now be configured to connect to an outgoing SMTP mail server using secure port 587 (TLS). This is helpful if you are connected directly to a hosted service such as Google Apps, which requires the use of a port 587.
  - To provide higher security and privacy, all media streaming is now required to use secure HTTP (HTTPS).

- **Speech Navigation:** Speech Navigation is an optional, licensed feature of NuPoint UM that enables users to manage their mailboxes using voice commands. Instead of struggling to find and press a button on their telephone dial, they can simply “say the command” from their principal or alternate extension.

- **G.729 Support:** If the system is licensed for G.729, you can select between two audio codecs, G.711 (the default) and G.729, when you program a line group.

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**MITEL PRODUCT REBRANDING**

<table>
<thead>
<tr>
<th>OLD NAME</th>
<th>NEW NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>5000 Communications Platform</td>
<td>MiVoice Office 250</td>
</tr>
<tr>
<td>Mitel Communications Director</td>
<td>MiVoice Business</td>
</tr>
<tr>
<td>Mitel Applications Suite</td>
<td>MiCollab</td>
</tr>
<tr>
<td>Speech Auto Attendant</td>
<td>MiCollab Speech Auto Attendant</td>
</tr>
<tr>
<td>Mitel Collaboration Advanced</td>
<td>MiCollab Audio, Web and Video Conferencing</td>
</tr>
<tr>
<td>Unified Communicator Advanced</td>
<td>MiCollab Client</td>
</tr>
<tr>
<td>Unified Communications Advanced Mobile</td>
<td>MiCollab Mobile Client</td>
</tr>
<tr>
<td>Unified Communications Server</td>
<td>MiCollab Client Service</td>
</tr>
<tr>
<td>Mitel Border Gateway</td>
<td>MiVoice Border Gateway</td>
</tr>
<tr>
<td>Unified Communicator 360</td>
<td>MiVoice Conference Unit</td>
</tr>
<tr>
<td>Mitel Enterprise Manager</td>
<td>MiVoice Enterprise Manager</td>
</tr>
</tbody>
</table>
• **Flexible CLID Delivery**: By default, the system plays the caller’s ID (CLID) prior to playing the voice message. With NuPoint Release 6.0, you can now suppress the CLID by applying feature bit 305, or you can cause the CLID to be played after the message rather than before it by applying feature bit 306.

**Effective Software Release 5.0**

• **IMAP for Advanced UM**:
  - When using the IMAP connector with Exchange Server 2007 or 2010, it is now possible to configure a single superuser account to access the accounts and inboxes of the users in order to synchronize voicemail and email messages.
  - Secure IMAP connections are now supported for Exchange Server 2007 and 2010. If this feature is enabled, the entire communication session, including passwords, is encrypted using SSL with digitally signed certificates.

• **Virtual MAPI Gateway**: The Advanced UM MAPI Gateway can now be installed as an appliance within a VMware virtualized environment.

• **OCP for Outlook 2010**: The Outlook Client Plug-in (OCP) is now supported on Microsoft Outlook 2010 (32- and 64-bit).

• **Bilingual Service**: This feature allows you to program a line group with two prompt languages, setting one as the primary language and the other as the secondary.

• **Fax Confirmation**: If feature bit 199 is enabled, a confirmation voice mail message will be placed in the user’s mailbox when the user successfully transmits a fax. If the feature bit is disabled, voice mail messages will be generated only for failed fax transmissions.

**Effective Software Release 4.2**

• Oracle Sunfire servers are no longer available.

**Effective software Release 3.0**

• The product was renamed NuPoint Unified Messaging (NuPoint UM) and the release number was lowered from 12.5 to 3.0.

**WHAT YOU NEED FOR INSTALLATION**

**SOFTWARE DOWNLOADS**

You need to download the following software and prompts:

• Mitel Standard Linux Release 10.0

• Mitel NuPoint Unified Messaging, Applications Prompts, and Options software. See “Accessing Documentation, Release Notes, Articles, and Downloads” on page 22.

You must order the following items separately:
IP INTEGRATIONS

For IP integrations, you must order a Mitel 3300 IP Communications Platform (ICP); MiVoice Business Release 5.0 or later.

Note: MiVoice Business is the brand name of the call-processing software that runs on platforms such as the 3300 ICP. 3300 ICP is the brand name for Mitel hardware platforms that run MiVoice Business software.

DIGITAL INTEGRATIONS (TDM)

For TDM digital integrations, you must order:
- One or more Dialogic Media Gateway DMG1000s (formerly called PIMG). Part numbers for Mitel integrations are distinguished by the "MTL" coding (for example, DMG1008MTL DNIW)
- For integrations with multiple DMG1000s, you may need a rack-mount kit
- PBX port to DMG1000 port cable (one per port)
- 8 RJ-12 phone cables
- Serial cable
- 10/100 Base T Ethernet Cable
- Power Supply Unit power requirements are:
  - Line Voltage: 90 to 264 Volts AC
  - Frequency: 47 to 63 Hz

DIGITAL INTEGRATIONS (T1)

For T1 digital integrations, you must order:
- One or two Dialogic Media Gateway DMG2000s (formerly called TIMG).
  - Single T1/E1 connection model is part number DMG2030DITQ.
  - Dual T1/E1 connection model is part number DMG2060DTIQ.
- PBX port to T1 IP Media Gateway port cable (one per port)
- 10/100 Base T Ethernet Cable
- Power Supply Unit power requirements are:
  - Line Voltage: 90 to 264 Volts AC
  - Frequency: 47 to 63 Hz

ANALOG INTEGRATIONS

For Analog integrations, you must order:
- DMG1000 analog model is part number DMG1008LSW.

T1/E1 MSDN INTEGRATIONS

For T1/E1 MSDN digital integrations, you must order:
• Mitel 3300 Integrated Communications Platform (ICP) Gateway (Release 5.x or later) including the Dual T1/E1 Framer MMC Module and the Release 5.x or later base software package.

Note: The 3300 Integrated Communications Platform (ICP) Gateway must have a Network Services Unit (NSU) and the SX-2000 platform must have a Fiber Interface Module (FIM) to complete the interface. This hardware does not ship with the system by default and must be provided or ordered separately.

T1/E1 SMDI INTEGRATIONS

For T1/E1 SMDI digital integrations, you must order:

Mitel 3300 Integrated Communications Platform (ICP) Gateway (Release 5.x or later) including the Dual T1/E1 Framer MMC Module and the Release 5.x or later base software package.

For detailed information and installation instructions see the NuPoint Unified Messaging Optional Integrations Guide.

PREPARATION

Prior to installing the NuPoint UM:
• Read the chapter on “System Information” on page 27.
• Check the MSL Qualified Hardware List for special BIOS setting instructions that may apply to your server.
• For all installations, complete the System Settings Worksheet on page 99.
• For new installations, complete the “NuPoint UM Settings Worksheet” on page 226.
• Read the safety instructions on page 3.

INTEGRATIONS

For information on setting up integrations, refer to the following topics:
• “Integrating with a Communications Platform” on page 44
• “Integrating with a Dialogic Media Gateway” on page 79

INSTALLATION

Refer to the following installation procedures:
• “Connecting a Monitor or Console to the Server” on page 96
• “Installing Physical NuPoint (NuPoint 60 or NuPoint 120)” on page 98
• “Installing Virtual NuPoint on VMware” on page 108
• “Verifying Server Operation” on page 122
• “Importing Mailbox Data” on page 125
CONFIGURATION

Refer to the following topics:

• “About the NuPoint Administration Consoles” on page 133
• “Setting up a 3300 ICP Line Group” on page 136
• “Setting up an MWI Line Group” on page 137
• “Setting up a Paging Line Group” on page 137

SYSTEM MAINTENANCE

Refer to the following topics:

• “Backing Up Data - All Systems” on page 166
• “Configuring SNMP Settings - All Systems” on page 184
• “Shutting Down the System - All Systems” on page 185
• “Upgrading the Firmware or BIOS - Physical NuPoint” on page 186
• “Cleaning a Redundant Hard Drive - Physical NuPoint” on page 186
• “Replacing a Redundant Hard Drive - Physical NuPoint” on page 188

SOFTWARE UPGRADES

Refer to the following topics:

• “Upgrading Physical NuPoint with Same MSL Version” on page 142
• “Upgrading Physical NuPoint with New MSL Version” on page 144
• “Upgrading Virtual NuPoint on VMWare” on page 147
• “Data Migration from Release 7.0” on page page 150
• “Migrating from Physical NuPoint to Virtual NuPoint” on page 156

TROUBLESHOOTING

Refer to the following topics:

• “General Troubleshooting Steps” on page 192
• “Self Help Solutions” on page 191
• “General Troubleshooting Steps” on page 192
• “About Event Recorder” on page 193
• “Specific Troubleshooting Issues” on page 194
ABOUT NUPOINT UNIFIED MESSAGING

NuPoint Unified Messaging is a server-based voice processing system that provides call processing along with voice messaging and paging support. Users can access their voice mails remotely and can be notified by telephone or pager when a voice message is left for them. Users can also use NuPoint’s Unified Messaging capabilities to listen to their voice mails through their Novell GroupWise or Microsoft Outlook clients with Message Waiting Indicator (MWI) on playback via the URL. In addition, they can play their messages through the Telephony User Interface (TUI). Messages between Advanced clients and the NuPoint TUI are synchronized for message playback.

NuPoint Unified Messaging offers Speech Auto Attendant (SAA) with presence enabled on the Microsoft Office Live Communications Server 2005 (LCS 2005) and Microsoft Office Communications Server 2007 (OCS 2007). NuPoint Unified Messaging also offers inbound auto attendant, hospitality, and mailbox user messaging features as well as digital networking. All of these features and functions are accessible from a touch-tone telephone. NuPoint Unified Messaging also provides complete desktop access of voice messages from an email client or web browser.

In addition, administrators are provided with applications and interfaces to administer the NuPoint server on site or remotely, and to create their own applications to suit their specific needs.

CONFIGURATIONS

NuPoint UM is available in the configurations listed here. All Editions use the same NuPoint Unified software.

PHYSICAL NUPOINT

Physical NuPoint edition is a modular, open, standards-based communications server that allows users to make, send, receive, and answer voice messages from a single mailbox, 24 hours a day, using a touch-tone telephone or a PC.

Physical NuPoint is a software-only solution; you purchase the servers separately. It can be deployed as follows:

- **NuPoint 60** - (formerly “Standard Edition”) supports up to 60 voice mail ports and 57,000 mailboxes on an entry-level server.

- **NuPoint 120** - (formerly “Single Server”) supports up to 120 voice mail ports and 120,000 mailboxes on a mid-level server that has the capacity to be configured with RAID5 (at least four disks with a minimum of 100 GB per disk).

For a list of qualified servers, refer to the Mitel Standard Linux Qualified Hardware List, available at Mitel OnLine (see “NuPoint Unified Messaging Documentation” on page 21).

VIRTUAL NUPOINT (VNUPOINT)

Running in a VMware vSphere or Microsoft Hyper-V environment, vNuPoint supports most features of the standard NuPoint UM server, including Speech Auto Attendant (SAA), Unified Messaging, and FAX services. vNuPoint supports third-party Hospitality and PMS integrations.
via IP connections. It does not, however, support PBX integrations or Hospitality/PMS integrations via serial connections.

**VMware Deployments**

In a VMware environment, vNuPoint supports three different deployment configurations:

- **Mid Market** - supports up to 60 ports and 57,000 mailboxes.
- **Enterprise** - supports up to 120 ports and 120,000 mailboxes.
- **Large Enterprise** - Support for up to 240 voice mail ports and 120,000 mailboxes.

vNuPoint is packaged in a OVA file which can be installed on a VMware vSphere Client using the Deploy OVF Template wizard. The OVA file contains the following software:

- VMware tools, a suite of utilities that enhances the performance of the virtual machine’s guest operating system
- Mitel Standard Linux (MSL), the base operating system on which NuPoint resides.
- NuPoint, the application base software bundle, independent of any specialized hardware.
  (The pre-installed base software bundle excludes NPM optional features.)

vNuPoint has the following characteristics:

- the MSL operating system and vNuPoint application software function within a VMware ESXi compatible hardware environment
- the vApp encapsulates both MSL and NuPoint which is deployed using the vSphere Client.

**Hyper-V Deployments**

Installing the MSL operating system and NuPoint application software in Hyper-V is identical to installing it on a physical server. The only limitations are that you can mount the ISO image from a network drive or CD/DVD, but not from a USB device, and that you require a virtual product license applied the ARID.

**NUPOINT ON MICOLLAB**

NuPoint UM is also available as one of the applications in the combined application offering provided by the MiCollab. As part of MiCollab, NuPoint UM is licensed on a per mailbox basis. For more information about MiCollab, see the MiCollab documentation available at Mitel OnLine.
At Mitel OnLine (http://www.mitel.com/mol) you can access product documentation, Knowledge Base articles, Release Notes, and the Mitel Qualified Hardware List. You must be a registered user to access Mitel OnLine.

KNOWING WHICH DOCUMENT TO CONSULT

The NuPoint Unified Messaging documentation set includes the following components:

General Audience

• **General Information Guide**: includes general information on systems architecture, resiliency, feature descriptions, licensing, and geographic availability and provides an overview of administration and maintenance.

Installers

• **Technician’s Handbook**: includes information on hardware and software requirements, platforms and configurations, installations, basic maintenance, upgrades, data migration, configuring MSL, and trouble shooting systems and features.

• **Engineering Guidelines**: includes information on system capacities, system requirements, and network engineering.

Administrators

• **System Administration Help** (with Call Director for System Administrators): includes information on post-installation instructions, system administration and maintenance, configuring and managing NuPoint UM and optional features, and troubleshooting Advanced UM.

• **Mitel Virtual Appliance Deployment Solutions Guide**: describes the equipment, network, and configuration considerations that apply when setting up Mitel virtual appliances on servers enabled on a VMware® vSphere™ or Microsoft® Hyper-V™ hypervisor.

End Users

• **Web View Help**: includes information on the features that are available to users through the web client interface. It includes configuration information and describes unified messaging features.

• **Messaging User Guide**: includes information on setting up and using voice mailboxes, managing voice and email messages, using PCs to receive and manage messages, and the record-a-call, fax, and speech auto attendant features.

• **Call Director Web Help**: includes information on configuring automated attendant call flows to handle calls when you can’t answer them personally.

• **Mitel TUI Quick Reference Guide**: This one-page document explains how to access voice mailboxes and identifies telephone user interface (TUI) main menu options.
ACCESSING DOCUMENTATION, RELEASE NOTES, ARTICLES, AND DOWNLOADS

The following sections detail how to access information on NuPoint UM.

DOCUMENTS AND HELP FILES
1. Log in to Mitel OnLine.
2. Point to Support and then click Product Documentation.
3. In the right pane, select Product Documentation.
4. Point to Messaging and click NuPoint Unified Messaging.
5. A list of documents intended for System Administrators is displayed. Select a document from the list or select Show End User Documents or Show Archived Documents to access current or archived documents.

THE QUALIFIED HARDWARE LIST
1. Log in to Mitel OnLine.
2. Point to Support and then click Product Documentation.
3. Click the Product Documentation link.
4. To search for a document, press CTL + F.
5. To access the Mitel Standard Linux Qualified Hardware list, type Mitel Standard Linux in the CTL + F search box.

PRODUCT RELEASE NOTES
1. Log in to Mitel OnLine.
2. Point to Technical and then click Knowledge Base.
3. In the left pane, click Knowledge Base.
4. In the Product list, select Mitel NuPoint UM IP (Standard).
5. Under Article Type, select Release Notes and click Search.

KNOWLEDGE BASE ARTICLES
1. Log in to Mitel OnLine.
2. Point to Technical and then click Knowledge Base. In the left pane, click Knowledge Base.
3. In the Product list, select the appropriate NuPoint product.
4. Under Article Type, select the type of article to be viewed.
5. Specify other search parameters to narrow your search and click Search.

SOFTWARE DOWNLOADS
1. Log in to Mitel OnLine.
2. Point to Support and then click Software Downloads.

3. Select the appropriate Mitel NuPoint UM link.

4. Click the download link for your selected release and follow the instructions on the software download page.

SEARCHING FOR INFORMATION IN SPECIFIC DOCUMENTS

When you open a document or help file and conduct a search (for example, when you search for a particular Feature Class of Service, or FCOS), enter a specific term, such as FCOS bit, rather than a general term, such as FCOS. This will help to narrow your search. If the search does not produce any results, then generalize your search criteria, or search for related terms, such as FCOS overview or FCOS description.

CONTACTING TECHNICAL SUPPORT

Please contact Mitel Technical Support if you require technical assistance. Before you call, check the Troubleshooting section of this handbook for tips and solutions (see page 189). If you are unable to find a solution, please have the following information ready when you call:

- Software version number
- System IP address and passwords
- Nature of the problem
- What you were doing with the application when the problem occurred
- Troubleshooting results
ABOUT THE APPLICATIONS MANAGEMENT CENTER

The Mitel Applications Management Center (AMC) is a remote server that generates the license keys you need for all NuPoint Unified Messaging software, features, and options. The AMC allows licensing passcodes to be automatically created 24 hours a day, 7 days a week, through remote passcode generation. The AMC processes the license keys for all new NuPoint Unified Messaging systems as well as for systems that upgrade.

Authorized Mitel resellers receive a unique account on the AMC. To access this account, resellers must go to the AMC Web site (https://www.mitel-amc.com/) and log in with their unique ID and password. To request an AMC account, see New AMC Accounts.

When you place a new order for a NuPoint Unified Messaging system with the Customer Care Center, the order information is entered into the AMC system, which creates all of the required licensing information. The AMC places the licensing information into your account, for use in creating an application record. You must then log in to the AMC and create the application record; assign purchased products, features, and options to that application record; and then activate the customer’s Mitel Standard Linux (MSL) operating system (OS) before the NuPoint Unified Messaging software can be installed.

NuPoint Unified Messaging uses the AMC to obtain licensing information, which is required for installing base software from the DVDs, for installing upgrade software (language packs excluded), and for installing system option upgrade software (language packs excluded). You must install the Mitel Standard Linux OS and then register it with the AMC online in order to be able to install and upgrade the NuPoint Unified Messaging system and all your purchased options.

When the installation of the Mitel Standard Linux operating system software is complete, MSL generates a unique Hardware ID that includes the MAC address of the server. When you connect to the AMC over the Internet, MSL uses the Hardware ID and the Application Record ID to communicate with the AMC to obtain licensing information (also called "sync").

When NuPoint is deployed on a virtual appliance, when the AMC receives the vNuPoint Application Record ID, it responds with a Globally Unique Identifier (GUID). The GUID is stored in the database of the virtual appliance and used when performing regular synchronization with the AMC. If the virtual appliance is upgraded by deploying a new OVF image, MSL backup and restore procedures are required to maintain the GUID and ensure continued synchronization with the AMC.

Note: The licensing process requires the availability of a computer with an Internet connection. If the server running the Mitel Standard Linux OS does not have an Internet connection, you must download the license keys from the AMC to a PC that does have an Internet connection and then copy the license keys to the Mitel Standard Linux OS server. For more information, see “Activating ServiceLink (Sync)” on page 223.

For additional information about the Mitel Applications Management Center (AMC), refer to the AMC Web site and the AMC online Help (https://www.mitel-amc.com/+).

NEW AMC ACCOUNTS

To request an AMC account, send an email containing the following information to amc_accounts@mitel.com:
• Name of your certified Technician
• Full company name
• Company mailing address
• Phone 1/Phone2
• Fax number
• Admin email (address of the person who should receive notification of service expiry dates)
• Tech email (address of the person who should receive notification of update releases and other technical notices)
• Company URL (if any)
• Your Mitel SAP account number
• Specify if you would like your user ID and password delivered to you by fax, phone, or both (for security reasons user IDs and passwords are not sent by email.

Please allow two business days for your AMC account to be created.
ABOUT SOFTWARE ASSURANCE

The Mitel Software Assurance (SWA) Program is a subscription-based service that provides customers with access to new software releases, updates, functionality and product support services for all users (ports) on a given application record. The Mitel Applications Management Center (AMC) manages the entitlement of the Software Assurance Program, determining whether a given application record ID for a customer is entitled to a specific software installation or upgrade. Initial product purchase includes 13 months of Software Assurance. The program can then be renewed for your chosen term, up to 4 additional years. Multi-year renewals earn discounted rates.

RENEWING SOFTWARE ASSURANCE

Your Authorized Mitel Reseller will contact you before the expiry of your Software Assurance term to assist you with the renewal process. When you have decided upon a renewal term, your Mitel Reseller will supply a price quotation. Upon acceptance of the quotation, your order is placed and your Software Assurance is renewed within minutes.  
**Note:** If your Software Assurance plan has expired, it can still be renewed, but a re-enlistment fee will be applied.

For more information about Software Assurance:

1. Log on to Mitel Online.
2. Under Services, click **Software Assurance**.
Chapter 2

SYSTEM INFORMATION
SYSTEM INFORMATION

This section provides system information about the following models of NuPoint Unified Messaging software:

- Physical NuPoint (page 30)
- Virtual NuPoint (page 33)
- Resiliency for NuPoint Unified Messaging (page 36)
PHYSICAL NUPOINT

OVERVIEW

The software-only version of NuPoint UM is a modular, open, standards-based communications server that allows users to make, send, receive, and answer voice messages from a single mailbox, 24 hours a day, using a touch-tone telephone or a PC. The system is compatible with most major PBX and switching systems.

Physical NuPoint UM can be configured as follows:

- **NuPoint 60** - (formerly "Standard Edition") supports up to 60 voice mail ports and 57,000 mailboxes on an entry-level MSL qualified server.

- **NuPoint 120** - (formerly "Single Server") supports up to 120 voice mail ports and 120,000 mailboxes on a mid-level server that has the capacity to be configured with RAID5 (at least four disks with a minimum of 100 GB per disk).

You can implement either configuration, provided that your system is licensed appropriately and has sufficient server hardware capacity.

SYSTEM CAPACITIES

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>CAPACITY</th>
<th>NUPOINT 60</th>
<th>NUPOINT 120</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mailboxes</td>
<td>57000</td>
<td>120,000</td>
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</tr>
<tr>
<td>Mailboxes with UM Advanced (see Engineering Guidelines for details)</td>
<td>2000 (max)</td>
<td>6000</td>
<td></td>
</tr>
<tr>
<td>Messages per mailbox</td>
<td>configurable (default is 200)</td>
<td>configurable (default is 200)</td>
<td></td>
</tr>
<tr>
<td>(Current maximum is 200. Assign an overflow mailbox if larger capacity is required.)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Recording Storage capacity (hours)</td>
<td>8000*</td>
<td>15,000</td>
<td></td>
</tr>
<tr>
<td>Fax lines</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Voice mail ports</td>
<td>60</td>
<td>120</td>
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<td>Line groups</td>
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</tr>
<tr>
<td>IP Integration</td>
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<td>4</td>
<td></td>
</tr>
<tr>
<td>PIMG devices</td>
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<td>30</td>
<td></td>
</tr>
<tr>
<td>Tenant groups</td>
<td>56</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>TTS licenses</td>
<td>12</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>Maximum concurrent Web View sessions</td>
<td>60</td>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>

* * See note below.
INTEGRATION

A Physical NuPoint UM system can be integrated with various configurations, as described below.

TDM-BASED INTEGRATION

For TDM-based systems, the NuPoint UM system supports both digital and analog integrations through a session initiation protocol (SIP) interface to the Dialogic Media Gateway (DMG) 1000 (formerly PIMG/TIMG).

3300 ICP INTEGRATION

This integration uses one standard 3300 ICP gateway; hosting up to 120 voice mail ports with NuPoint 120. A voice mail hunt group contains the voice mail ports hosted by the gateway. The hunt groups on the gateways all have the same pilot number. Automatic Route Selection (ARS) is then programmed on each 3300 ICP to route calls to a route list when a user dials the voice mail pilot number. This means that the AMC will allow the purchase of 120 ports per ServiceLink ID.

ESMDI INTEGRATION

A Physical NuPoint UM system can be integrated with ESMDI by using the server IP address with the Precidia box. SMDI information carried by the SMDI link refers to specific lines (TDM trunks) on which the incoming or outgoing calls are carried. These lines are then mapped to NuPoint Unified Messaging lines (triplets). These mappings, once specified, are fixed. Calls can be distributed to all the nodes, but the distribution must be fixed; that is, no hunt group is involved.

For more information, see the NuPoint Unified Messaging Optional Integrations Guide available at Mitel OnLine.

RS-232 MWI INTEGRATION

The RS-232 MWI application talks to a Precidia box connected to a PMS serial port that controls the PBX MWI.

For more information, see the NuPoint Unified Messaging Optional Integrations Guide available at Mitel OnLine.

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**Note:** The recording storage capacity for NuPoint UM depends on the storage capacity of the MSL qualified server. NuPoint UM stores audio at 8 KB per second. To determine the maximum recording limit in hours, divide the total disk space by 8000, divide the result by 60, and then divide the result by 60 again. For example, if you have 230 GB of available disk space, the recording storage capacity is 230 GB / 8000 / 60 / 60 = 7,986 hours (close to 8000 hours of recording capacity).
SUPPORTED HARDWARE

Physical NuPoint software runs on several certified servers. For a list of the supported servers, refer to the MSL Qualified Hardware List available at Mitel OnLine. (See “NuPoint Unified Messaging Documentation” on page 21.)

NUPOINT 60

Servers compatible with the NuPoint 60 configuration are listed under the Entry-level Servers heading for each MSL release.

NUPOINT 120

Servers compatible with the NuPoint 120 configuration are listed under the Mid-level Servers heading for each MSL release.

For information about installing any of the servers, refer to the server product documentation.
VIRTUAL NUPOINT (VNUPOINT)

OVERVIEW

Virtual NuPoint (vNuPoint) is a software-only version of the product that runs as a virtual appliance (vApp) in a VMware vSphere or Microsoft Hyper-V environment, enabling users to make, send, receive, and answer voice messages from a single mailbox, 24 hours a day, using a touch-tone telephone or a PC. The system is compatible with most major PBX and switching systems.

VMware Deployments

In a VMware environment, vNuPoint supports three different deployment configurations, Mid Market (60 ports/57,000 mailboxes), Enterprise (120 ports/120,000 mailboxes) and Large Enterprise (240 ports/120,000 mailboxes). The vNuPoint application is packaged together with the MSL operating system in a OVA file which can be installed within a VMware vSphere Client using the Deploy OVF Template wizard.

Hyper-V Deployments

vNuPoint can be installed in a Microsoft Hyper-V environment using the "physical" software installation procedure. For detailed information concerning the Hyper-V deployment, including hardware and software requirements, refer to the Virtual Appliance Deployment Guide.
SYSTEM CAPACITIES (VMWARE)

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>MID MARKET</th>
<th>ENTERPRISE</th>
<th>LARGE ENTERPRISE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mailboxes</td>
<td>120000</td>
<td>120000</td>
<td>120000</td>
</tr>
<tr>
<td>Mailboxes with UM Advanced</td>
<td>2000 (max)</td>
<td>2000 (max)</td>
<td>2000 (max)</td>
</tr>
<tr>
<td>(see Engineering Guidelines for details)</td>
<td></td>
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<td>Messages per mailbox</td>
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</tr>
<tr>
<td>(Current maximum is 200. Assign an overflow</td>
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</tr>
<tr>
<td>mailbox if larger capacity is required.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recording Storage capacity (hours)</td>
<td>2500*</td>
<td>5000*</td>
<td>10000</td>
</tr>
<tr>
<td>Fax lines</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Voice mail ports</td>
<td>60</td>
<td>120</td>
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</tr>
<tr>
<td>Line groups</td>
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</tr>
<tr>
<td>IP Integration</td>
<td>4</td>
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<tr>
<td>TTS licenses</td>
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<td>24</td>
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</tr>
<tr>
<td>Maximum concurrent Web View sessions</td>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
</tbody>
</table>

* See note below

**Note:** The recording storage capacity for vNuPoint is 2500 hours or greater depending on the storage capacity of the MSL entry-level qualified server. NuPoint UM stores audio at 8 KB per second. To determine the maximum recording limit in hours, divide the total disk space by 8000 (bytes), divide the result by 3600, and then divide the result by 1.5. For example, if you have 130 GB of available disk space, the recording storage capacity for vNuPoint is 130 GB / 8000 / 3600 / 1.5 = 3,009 hours of recording capacity. Note that when you set up the disk in a VMware environment, you must select the "Thick Provision Lazy Zeroed" option.

**Note:** When you select a hard drive for your implementation, make sure that it has sufficient disk space to support backups and restores. As a minimum, the free disk space must be double the amount of space reserved for audio recordings. So if 10 GB is reserved for recordings, then 20 GB of free disk space is required. If you fail to allot sufficient free disk space, the back/restore procedure will fail and system operation may be impaired. For detailed guidelines concerning hard drive requirements, refer to the NuPoint Unified Messaging Engineering Guidelines.

INTEGRATION

vNuPoint supports full IP integration with the Mitel 3300 IP Communications Platform (ICP) with MiVoice Business call-processing software. For TDM-based systems, vNuPoint supports both digital and analog integrations through a session initiation protocol (SIP) interface to a Dialogic Media Gateway (DMG 1000 and DMG 2000).
HARDWARE COMPONENTS

vNuPoint can be run as a virtual appliance (vApp) on:

- VMware vSphere Hypervisor (ESXi).
- Microsoft Windows Server Virtualization (Hyper-V)

For a list of supported servers, refer to the hardware compatibility guides provided by VMware and Microsoft.

For details concerning capacity requirements (amount of RAM, hard drive space, etc.), refer to the NuPoint Unified Messaging Engineering Guidelines and the Mitel Virtual Appliance Deployment Guide available at Mitel OnLine (http://www.mitel.com/mol).
3300 ICP RESILIENCY

OVERVIEW

In the context of NuPoint Unified Messaging, resiliency is the ability for the pseudo 5020 and 5240 IP phones used by the NuPoint Unified Messaging system to fail over to a secondary host 3300 ICP when the primary 3300 ICP is down or unreachable, and then to fail back to the primary 3300 ICP when it recovers and the programming allows it to do so. Resiliency is programmed on, and only functions in, systems with 3300 ICPs. All resiliency programming is performed on the 3300 ICP Gateway. For information about resiliency and programming, refer to Resiliency Guidelines and the MiVoice Business System Administration Tool Help.

NuPoint Unified Messaging resiliency is supported only if you have 3300 ICP Release 7.0 or greater.

OPTIONING

Resilient capability is part of the 3300 Gateway. Therefore, you do not require a license on NuPoint Unified Messaging for resiliency. Furthermore, since options are not synchronized between primary and secondary switches, if RAC is purchased on the primary switch, it must be purchased on the secondary switch as well.

CONFIGURATION

Configuration for resiliency is done entirely on the 3300 Gateways. No configuration is needed on the NuPoint UM server. Refer to the MiVoice Business System Administration Tool Help for information about configuring IP phones for resiliency. When you program NuPoint UM voice mail ports for resiliency, simply treat them as IP phones.

To configure resiliency for NuPoint Unified Messaging voice mail, you must

• Configure a hunt group with the same pilot number and containing the same members on the secondary switch, and then make this the resilient hunt group to the one on the primary switch.

• Program all voice mail ports to have the same primary and secondary switch.
  - If RAC is programmed, make sure it is also purchased on the secondary switch.
  - If RAC is programmed, make sure that those sets that have RAC have the same primary and secondary switches as the NuPoint Unified Messaging server.

The following diagram shows a NuPoint Unified Messaging system integrated with four 3300 Gateways (resilient pairs). Note the additional provisioning of more TDM trunks at the PBX.
NuPoint Unified Messaging in a Resilient Cluster (in service on Primary ICP)
BEHAVIOR

The following two diagrams show how NuPoint Unified Messaging functions in a resilient cluster of 3300 ICPs. NuPoint Unified Messaging in a Resilient Cluster (on Primary ICP) shows normal function of the NuPoint Unified Messaging server (and extension 1000) on the primary ICP.

**Note:** The voice mail hunt group (VM HG) 6001 must be resilient so that dialing 6001 from any switch will route the call to the primary cluster element.

PORT REGISTRATION BEHAVIOR

Each resilient voice mail port behaves as an independent IP phone (refer to 3300 ICP Resiliency for behavior information). Ports fail over independently of one another; however, if the primary cluster element fails, all ports may fail over at the same time. When a port fails, a log is generated indicating the port number. If a port is talking to an IP device when it fails over, the voice path is not affected, but the signaling path is affected. This means that any attempts to make an outbound call will fail. This includes MWI, transfers, and paging. MWI and paging calls are re-queued.
The NuPoint UM voice mail ports register with the 3300 ICP based on the port mapping information in the Mapping Extension/Port menu. Starting with NuPoint Messenger Release 10.0, lines are mapped to switches explicitly because of the fact that one NuPoint Unified Messaging server can integrate with more than one switch. In a resiliency setting, the lines must be mapped to the primary switch. Upon registration with the primary cluster element, each port gets the IP address of the secondary cluster element. For more information on Resiliency, refer to the MiVoice Business Resiliency Guidelines document and the MiVoice Business System Administration Tool Help.

**Note:** The MiVoice Business software on the 3300 ICP can be programmed so that failback does not occur even after the primary ICP has recovered.

**FEATURE AND HARDWARE INTERACTIONS IN RESILIENT ENVIRONMENTS**

**MWI**

If NuPoint Unified Messaging needs to make an MWI call out to the PBX during the failover interval when no MWI channel is available, the MWI will be queued until one MWI voice mail port has failed over to the secondary switch. Then another call will be made out to the secondary switch. This minimizes loss of MWI information during failover. If the NuPoint UM server resets while the MWI is in the queue, that MWI is now lost.

If there are many MWI events during the failover interval, the MWI queue may fill up and may discard any new events. Logs will be generated to document these losses. To minimize the loss of these events, ensure that the pilot number and the members of the hunt groups on the primary and secondary cluster elements are the same.

**PAGER NOTIFICATIONS**

Pager notification calls behave in the same way as outgoing MWI calls.

**DIALOGIC MEDIA GATEWAY (FORMERLY PIMG)**

Resiliency is not supported with PIMG integration.

**RECORD-A-CALL**

Record-A-Call (RAC) will continue to work on the secondary switch, after a failover. Any RAC session that is in progress during a failover will be terminated; however, any RAC session that is in progress during a failback will remain in progress until the session terminates (ports failback only when idle). If the secondary switch fails, then an active RAC session is cleared down, and the port fails back over to the primary switch (if the switch is reachable).
VPIM

NuPoint UM can exchange voice messages with MiVoice Business Embedded Voice Mail on a 3300 ICP, using the Voice Profile for Internet Mail (VPIM) feature. If the 3300 ICP with which NuPoint UM is exchanging messages is the primary cluster element, and if this element fails, NuPoint UM can fail over to the secondary switch. On the secondary switch there are resilient EMEM mailboxes. However, NuPoint UM cannot continue to exchange messages with these mailboxes because programming for VPIM on NuPoint UM does not support resiliency.
Chapter 3

INTEGRATIONS
OVERVIEW

NuPoint Unified Messaging supports several different integrations, including digital, analog, and IP. This section describes the planning and programming required to set up each integration.

- “Integrating with a Communications Platform” on page 44
- “Integrating with a Dialogic Media Gateway” on page 79
INTEGRATING WITH A COMMUNICATIONS PLATFORM

NuPoint Unified Messaging can be integrated with the following communications platforms:

• “Integrating with MiVoice Business” on page 44
• “Integrating with MiVoice MX-ONE” on page 46

INTEGRATING WITH MIVOICE BUSINESS

NuPoint Unified Messaging supports IP integration for MiTAI connections with the MiVoice Business software on the Mitel 3300 ICP. NuPoint UM emulates virtual extensions. On the 3300 ICP, NuPoint UM supports up to

• 60 ports for NuPoint 60
• 120 ports for NuPoint 120

The following image illustrates an IP configuration for NuPoint UM. It includes a layer 2 switch that enables you to control communication between ports (recommended). For details on the ICP configuration requirements for vNuPoint, refer to the NuPoint Unified Messaging Engineering Guidelines.

PLANNING AHEAD

• The 3300 ICP system and the NuPoint Unified Messaging server should be on the same local area network. The 3300 ICP system requires MiTAI Release 10.0 or greater.
• The number of ICPs you can have in an IP integration depends on whether they are used as gateways or in a cluster; the licensed maximum is four.

PROGRAMMING THE 3300 ICP

Note: If you are not licensed for Record A Call, your telephones must be registered as 5020 devices.
If you are licensed for the Record A Call optional feature, your telephones must be registered as 5240 devices, except those lines that are used for MWI, which must always be registered as 5020 devices.

1. In the System Administration Tool, click View by Category > Users and Devices > User and Device Configuration.
2. In the **User and Device Configuration** form, for each channel purchased, program a NuPoint Unified Messaging port as a 5020 or 5240 IP device and select "Full" as the Service Level.

   **Note:** You must select "Full" as the Service Level, which causes a license to be consumed. Selecting any other Service Level will prevent the NuPoint ports from registering.

3. Repeat step 2 for each port to be configured.

4. Click **View by Category > System Properties > System Feature Settings > Class of Service Options**.

5. In the **Class Of Service (COS) Options** form, program the COS options for the ports and the sets.

   **COS OPTION FOR PORTS** | **SETTING**
   --- | ---
   HCI/CTI/TAPI Call Control Allowed | Yes
   HCI/CTI/TAPI Monitor Allowed | Yes
   Public Network Access via DPNSS | Yes
   COV/ONS/E&M Voice Mail Port | Yes
   Multiline Set On-hook Dialing | No

6. Create an **HCI Reroute Hunt Group** on the 3300 ICP and then configure a matching group in NuPoint. Refer to the MiTAI MWI Configuration topic in the NuPoint UM System Administration Help for instructions.

7. Click **View by Category > System Properties > System Feature Settings > System Options**.

8. In the **Systems Options** form, program the following site-specific settings:

   • Registration Access Code value, (for example ***)
   • Replacement Access Code value (for example, ###)
   • Message Waiting Activate code (for example, *70)
   • Message Waiting Deactivate code (for example, #71).

   **Note:** The system option "DPNSS/QSIG Diversion Enabled" must be set to **Yes** in order for the called extension number to forward to voice mail across an E1 DPNSS integration.

9. Click **View by Category > Users and Devices >Group Programming > Hunt Groups**.

10. In the **Hunt Groups** form, assign a pilot number for a hunt group and program the ports as members of a circular hunt group:

    • Assign the Hunt Group type as "Voice Mail".
    • Assign the voice mail integration and message waiting ports as members of the same hunt group.

**CONNECTING THE NUPOINT SERVER TO THE LAN**

It is essential you:
INTEGRATING WITH MIVOICE MX-ONE

You can integrate a NuPoint UM system with a MiVoice MX-ONE platform to provide NuPoint UM features to users who are hosted on the MiVoice MX-ONE platforms.

OVERVIEW

NuPoint Unified Messaging (NuPoint UM) supports Session Initiation Protocol (SIP) integration with the MiVoice Office 250 or MiVoice MX-ONE PBX system. NuPoint UM communicates with a single PBX over a SIP trunk. The PBX communicates with NuPoint Unified Messaging through the SIP interface and consequently has access to the voice mail features. The maximum number of NuPoint ports is 120.

One or more SIP trunks can link NuPoint UM to the PBX. NuPoint Unified Messaging receives and sends SIP messages over these trunks. Each SIP trunk consists of one or multiple SIP ports.
Every SIP trunk is assigned a Pilot Number. To call into NuPoint UM, the PBX provides a pilot number for the endpoint users to dial. When NuPoint UM makes a trunk call to the communications platform, it identifies itself using a pilot number. Therefore, when NuPoint UM receives an incoming call, the pilot number issued as the Called ID. When NuPoint UM makes an outgoing call, in the case of MWI, pager or external call transferring, the pilot number is used as the Calling ID.

A SIP session is established through connection to a SIP port in real-time. Each SIP port handles one call connection to NuPoint UM, thus the number of ports grouped in a SIP trunk determines the number of parallel-connections this trunk can handle at the same time. For example, if four callers on the communications platform simultaneously dial the pilot number 2500 (shown in the figure above), only three of these callers can be connected to NuPoint UM. This principle is applied to every voice mail call connection, whether it is inbound and outbound.

The pilot numbers on NuPoint UM are mapped to applications on the communications platform. For example, pilot number 2500 for NuPoint UM Voice is mapped to extension 2500 for the Voice Mail application programmed on the communications platform. In the configuration where the application is configured as a mailbox, you must associate an extension to an application as well as the pilot number used to access the application. Multiple pilot numbers can exist in the system.

A SIP trunk is reserved to be either a receiver or a sender, so it cannot perform both roles. The receiver SIP trunk will detect inbound calls and the sender SIP trunk will generate outbound calls.

All calls arriving to NuPoint UM on a SIP trunk are accepted at the fixed and predefined SIP port. This port is not configurable. The call is redirected based on the pilot number (which is the called ID in the case of an incoming trunk).

All SIP trunk calls generated by NuPoint UM include a pre-configured SIP port and a pilot number (which is the calling ID in the case of an outgoing trunk).

REQUIREMENTS

- Integration with NuPoint UM 8.0 or higher is supported with MX-ONE version 6.0 SP2.

SUPPORTED FEATURES

NPUM supports standard voicemail features when integrated with the MiVoice MX-ONE.

- **Call Transfer**: A Transfer action routes the caller to a specified destination, such as an extension, the attendant, or an external telephone number.
  - **Blind Transfers**: A Blind Transfer dials the destination and then releases the call regardless whether the destination is busy or not answering.
  - **Supervised Transfer**: A Supervised Transfer waits for the called party to answer before completing the transfer. If the call is not answered or the called party is busy, it returns to the call flow for further processing.
  - **Screened Transfer**: A Screened Transfer, is similar to a Supervised Transfer, except that the caller's name is first recorded and then played back to the called person. The called person has the option to accept or reject the call.
- **Alternate Transfer**: An Alternate Transfer is used to route calls to an external destination, such as a cell phone or pager, and for text messaging.

- **MWI**: Message Waiting Indicator Synchronization.

- **Pager**: The Pager application causes the NuPoint Unified Messaging server to initiate, rather than receive, a telephone call. It is used for sending messages to pagers, but also for a number of other functions that require out dials. An out dial is a call placed by the server.

- **Fax**: Receiving and replying to fax messages.

- **DTMF**: Recognition and collection.

- **Answering a telephone or Speech Auto Attendant (SAA) call**: Speech Auto Attendant (SAA) is a speech-enabled application that allows users to place calls to people quickly and efficiently by speaking their names. In addition to placing calls by name, users can say a department name or telephone number. The SAA feature uses an automated attendant to route incoming calls based on spoken commands. Typically, you say the name of the person you want to speak to and the system transfers your call to the requested party.

- **G.729 Support**: If the system is licensed for G.729, you can select between two audio codecs, G.711 (the default) and G.729, when you program a line group. Without the license, only G.711 is supported.

**UNSUPPORTED FEATURES**

- **Voice Mail Soft keys**: The Voice Mail Soft keys feature allows users to control voice mail functions through context-sensitive keys on the telephone.

- **Record-A-Call**: (RAC) is an optional feature that allows mailbox subscribers to record both ends of a two-party external call in progress at their phone. Recorded conversations are delivered to the user's voice mailbox. Unlike regular voice mail messages, Record-A-Call messages are stored immediately as saved messages, so they do not trigger Message Waiting Indicators on the user's telephone.

- **Speech Navigation**: Speech Navigation is an optional, licensed feature of NuPoint UM that enables users to manage their mailboxes using voice commands. Instead of struggling to find and press a button on their telephone dial, they can simply “say the command. Speech Navigation prompts are only supported in NA English.

**CONDITIONS AND LIMITATIONS**

- For MiVoice MX-ONE integrations, a single NuPoint UM can provide applications services to the users on one or more MX-ONE systems.

- The integration of multiple NuPoint UM systems to MiVoice MX-ONE platforms is not supported.

- Connection of a NuPoint UM to a mix of different network elements (for example, MiVoice MX-ONE and MiVoice Business) is not supported. All network element types must be of the same type An errors occur if you attempt to mix network element types. You cannot simply switch the PBX type that is connected to a NuPoint UM system. You must reinstall and reconfigure the NuPoint UM system for the new PBX type.

- NuPoint Unified Messaging Speech Auto Attendant is not a supported application for MX-ONE integrations.
• The NuPoint UM system supports a maximum of 5000 users. The MiVoice MX-ONE supports up to 500,000 users in a networked configuration.

• NuPoint UM does not allow you to configure the phone types for each user. Users who are assigned MiVoice Border Gateway applications must have SIP phones.

• The Speech Auto Attendant application is not supported for MiVoice MX-ONE systems.

• NuPoint UM does not support multi-company management mode with the MiVoice MX-ONE.

• NuPoint UM does not provide the ability to configure the phone types for each Aastra subscriber. Subscribers who are assigned MiVoice Border Gateway applications will be assumed to have SIP phones.

• MiVoice Business, MiVoice Office, and MX-ONE network elements cannot co-exist on the same NuPoint UM.

• Network element updates are supported only by overriding the network element during role changes.

• When a user calls into his or her mailbox, NuPoint UM will issue a REFER message to the MX-ONE, which the MX-ONE will reject. This process has no impact on the call.

• If a caller reaches an extension that has been forwarded to another extension and no one answers, the caller will then be sent to voice mail. However, the caller will not receive any voice mail prompts. This problem only affects implementations that include MX-ONE Release 6.1 systems, and will be fixed in a later release.

LICENSING

You license the NuPoint UM system through the Application Management Center (AMC). The AMC is not used to assign licenses that are required on the MiVoice MX-ONE.

1. Log into AMC.

2. Create a customer account.

3. Register (purchase) products and licenses and assign them to the customer account.

4. Create Application Record IDs for the NuPoint UM and optional MiVoice Border Gateway (MBG).

5. Assign base software licenses to the system ARIDs.

6. Create a ULM using the NuPoint UM ARID.

7. Optionally, add the MBG system server ARID.

8. Purchase and activate any additional “a-la-carte” feature, port, or language licenses for the NuPoint UM system applications.

Note: Refer to the AMC online help for detailed licensing steps.
INTEGRATION OVERVIEW

The following steps are required to integrate a new NuPoint UM system with a new or existing MiVoice MX-ONE platform.

- Install the platforms — see page 50.
- Configure the NuPoint UM and application settings — see page 50.
- Configure the MX-ONE — see page 59.
- Integrate NuPoint Unified Messaging — see page 77.
- Configure the connection

INTEGRATION: INSTALL THE PLATFORMS

1. Install, license, configure, and provision the MiVoice MX-ONE platform. Refer to the MiVoice MX-ONE Installation and Maintenance Guide.
2. Install the NuPoint UM platform and configure the application settings. Refer to the NuPoint Unified Messaging online help and Technician’s Handbook.
3. Collect the following information for the integration:
   - NuPoint UM IP Address
   - MiVoice MX-ONE IP Address

INTEGRATION: CONFIGURE NUPOINT UM AND APPLICATION SETTINGS

Preparation

Gather the following information in preparation for this voice mail integration:

- customer’s desired voice mail call flows, features, applications, and users/extensions.
- network information including IP addresses, Subnet Mask, Gateway IP address, primary domain name, and Fully Qualified Domain Name (FQDN) information.

Configuration Summary:

- Edit an Offline Configuration
- Add a SIP Gateway Network Element
- Add a Voice Mail Line Group
- Add a Message Waiting Indicator (MWI) Line Group
- Add a Pager Line Group
- Activate Offline Configuration
- Add a Test User and Mailbox

Edit the Offline Configuration

1. Log into the MSL Server Manager.
2. Click NuPoint Web Console under Applications.
3. Click **Edit Offline Configuration** under **Offline Configuration**.

   ![Edit Offline Configuration](image1.png)

4. The Duplicate Active Configuration page appears.

5. Click **Yes** to duplicate the active configuration to the offline configuration for editing purposes. (The edited offline configuration will later be “activated” back to the server.)

   ![Duplicate Active Configuration](image2.png)

---

**Add a SIP Gateway as a Network Element**

NuPoint UM connects to the MiVoice MX-ONE via SIP trunks:

1. Select **Network Elements** under Offline Configuration in the navigation pane. The Network Elements Web page appears.

   ![Network Elements](image3.png)

2. Click **Add**. The Add Network Element page appears.
3. Provide network element information:

- **Type**: Select **SIP GATEWAY**.
- **Name**: Enter a name for the network element (for example: MiVoice MX-ONE).
- **Domain Name**: Type the domain name according to the network information for this site. For example, mitel.com.
- **IP Address**: Type the MiVoice MX-ONE IP address
- **Number of Ports**: Select the number of ports according to the license for this system, up to a maximum of 120. The number of ports configured on NuPoint UM must match the number of ports that are configured on the MX-ONE.

4. Click **Save**, then click **OK** at the prompt. The Network Elements page returns and shows the added element.

### Add a Voice Mail Line Group

The pilot number you specify in this procedure is going to be the VM extension for users. Choose a number different from the current voice mail extension, if one is configured.

To add a Voice Mail Line Group:

1. Select **Line Groups** under Offline Configuration in the navigation pane. The Line Groups page appears.
2. Click **Add** at the top of the page.
3. Specify the following information:

- **Line Group Number**: Specify a number or click **Next Available**. This is simply a line group number and not related to any extension.
- **Name**: Type a name representative of this voice mail line group, using no more than 10 characters. For example "MX-ONE VM"
- **Application**: Select **NuPoint Receptionist** from the list.
- **User Interface**: Select **Call Director** from the list.
- **Fax Group Connection**: Leave at the default.

4. Click the **Dialing Plan** tab. Create a dialing plan based on site requirements. The choices are Standard Mode or Classic Mode.

   Use the lists to specify the length of the extension or digits that need to be dialed. Or, select **Classic Mode** and specify all digits to be variable, as shown in the example at right.

5. Add a Line Group Triplet (port).

   - Click the **Lines** tab, and then click **Add** below the Lines section. The Line Triplet pane appears.
• Specify the following information.

- **Line Triplet**: Click **Next Available**.

  **Note**: Do **not** use 1:0:0 as the initial line triplet. Doing so may cause anomalous call behavior. Use triplet 1:0:1 or greater.

- **Number of Lines**: The number of ports specified here depends on the number of ports you want to dedicate to MWI, Pager, SAA, CRAs, etc. Refer to the site plan to determine the port allocation. The field here is essentially the port or ports you want to allocate to this line group. In the example above, the license specifies 15 ports but the site wants pager notification and MWI, so only 13 is entered here.

- **PBX**: Select the PBX (network element) that you created previously.

- **Mapping**: Set this field to the next number according to the sequential mapping set for the line groups. For example, set this mapping to 1.

• Click **Add** to create the Line Triplet and the Pilot Number field for the Voice Mail Line Group. A page similar to the following appears.

• Type a number in the **Pilot Number** (voice mail extension) box. This is going to be the number people use to access NuPoint UM voice mail.

6. Click **Save** at the top of the page, and then click **OK** at the prompt. The Line Groups page appears.

---

**Add a Message Waiting Indicator (MWI) Line Group**

To add an MWI Line Group:

1. Select **Line Groups** under Offline Configuration in the navigation pane. The Line Groups page appears.

2. Click **Add** at the top of the page.
3. Specify the following information:

- **Line Group Number**: Specify a reference number for this line group, or click Next Available.
- **Name**: Type a name representative of this MWI line group, using no more than 10 characters. For example “MX ONE MWI.”
- **Application**: Select DTMF to PBX Dialer from the list.
- **User Interface**: Select NuPoint Voice from the list.
- **Fax Group Connection**: Leave at the default.

4. Click the DTMF to Dialer tab, and then specify the following information:

- **DTMF to PBX Dialer**: Change only the following options:
  - **Pre-DN On Dial String**: Type 1.
  - **Pre-DN Off Dial String**: Type 0.
- **Options**: Change only the following options.
  - **Initial Dialtone Detect**: Select this checkbox.
  - **Dial Tone Confirmation**: Clear this checkbox.
  - **Suppress Updates to MWI**: Select this checkbox.

5. Add a Line Group Triplet (port).
- Click the Lines tab.
- Click Add below the Lines section. The Line Triplet pane shown at the right appears.
- Specify the following information:

  - **Line Triplet**: Click Next Available.
  - **Number of Lines**: Type 1.
  - Refer to the site plan to determine the port allocation. The field here is essentially the port or ports you want to allocate to this line group. In the previous example when creating the voice mail line group, the license specifies 15 ports but the site wants pager notification and MWI, so only 13 was entered for the voice mail line group. MWI only requires one port. That is what you type here.
  - **PBX**: Select the PBX (network element) you created previously.
  - **Mapping**: Set this field to the next number according to the sequential mapping set for the line groups. For example, set the mapping to 14.

- Click Add to create the Line Triplet and the Pilot Number field for the MWI Line Group. A page similar to the one below appears.

- Type the **Pilot Number** (voice mail extension) you specified for the voice mail line group.

6. Click Save at the top of the page, then click OK at the prompt. The Line Groups page appears.

---

### Add a Outbound Pager (Dialer) Line Group

1. Select **Line Groups** under Offline Configuration in the navigation pane. The Line Groups page appears.

2. Click Add at the top of the page.

3. Specify the following information:
- **Line Group Number**: Specify a number or click **Next Available**.
- **Name**: Type a name representative of this Pager line group, using no more than 10 characters. For example “MX-ONE Pager.”
- **Application**: Select **Outbound (Pager) Dialer** from the list.
- **User Interface**: Select **NuPoint Voice** from the list.
- **Fax Group Connection**: Leave at the default.

4. Add a Line Group Triplet (port).
   - Click **Add** below the Lines section. The Line Triplet pane at right appears.
   - Specify the following information:
     - **Line Triplet**: Click **Next Available**.
     - **Number of Lines**: Type **1**.
     - Refer to the site plan to determine the port allocation. The field here is essentially the port or ports you want to allocate to this line group. In the previous example when creating the voice mail line group, the license specifies 15 ports but the site wanted pager notification and MWI, so 13 was entered—with one port for MWI and one port for pager notification. It takes a minimum one port to use pager notifications. MWI only requires one port.
     - **PBX**: Select the PBX you created previously.
     - **Mapping**: Set this field to the next number according to the sequential mapping set for the line groups. For example, set the mapping for this Pager line group to **15**.
   - Click **Add** to create the Line Triplet and the Pilot Number field for the Pager Line Group. A page similar to the following appears.
     - Type the **Pilot Number** (voice mail extension) you previously specified for the voice mail line group.

5. Click **Save** at the top of the page, then click **OK** at the prompt. The Line Groups page appears.
Program the Dialers (Pagers)

1. Select **Dialers (Pagers)** under Offline Configuration in the navigation pane. The Add Dialer (Pager) page appears.

2. Click **Add** at the top of the page.

3. Click **Next Available**.

4. Specify the following information:
   - **Name**: Internal
   - **Access Code**: T
   - **Hold Time**: 2

5. Click **Add**.

6. Repeat steps 2 to 5 for any other indexes you require.

7. Select **Line Groups** under Offline Configuration in the navigation pane. The Line Groups page appears.

8. In the Offline menu, select the Outbound Pager (Dialer) Line Group created previously and click **Edit**.

9. On the **Dialers (Pagers)** tab, select the dialers created in step 5 and then click **Save**.

Activate the Offline Configuration

1. Select **Commit Changes & Exit** under Offline Configuration in the navigation pane. The Commit Offline Changes page appears.

2. Click **Commit** to commit the changes you have made to the offline configuration. The main NuPoint UM Web Console page appears.

3. Click **Activate Offline Configuration** under Offline Configuration in the navigation pane (or click the link at the top of the page). The Activate Offline Configuration page appears.

4. Clear the following check box options:
   - Wait for MWI queue to be empty
   - Wait for pager queue to be empty

   Leaving these options selected results in additional wait time.

5. Click **Activate**, and then click **OK** at the prompt. A Status window displays the activation progress.

6. Click **OK** again at the prompt indicating a successful activation. The Activation Configuration page appears.
7. Click **Return to Server Manager**. The main NuPoint UM licensing information page appears.

**Add a Test Mailbox**

1. Log into the MSL Server Manager.
2. Click **NuPoint Web Console** under **Applications**.
3. From the navigation tree, click **Mailbox Maintenance**, and then click **Mailboxes**.
4. Click **Add**. The Mailbox Data View is displayed.
5. Enter the required information:
   - **Mailbox Number**: Enter a single mailbox number to create a single mailbox.
   - **Copy from another mailbox**: Enter a mailbox number in this field to copy the data from that mailbox into the new mailboxes you are creating, and then click **Copy**. All the fields from that mailbox are displayed now for the new mailboxes, except for the **Name** and the **Extension** fields.

**Note**: The number you provide is an extension configured on the Mitel MX-ONE.

6. Enter the **Basic** mailbox parameters on the following tabs:
   - **General Tab**: Enter personal information for the mailbox user. Required fields:
     - **Name**: Can be in format `<last name>`, `<first name>`.
     - **Passcode**: Use the extension number.
     - **Extension**: Type the extension you used for the Mailbox Number(s) above.
   - **Class of Service Tab**: Select the class of service options for the mailbox.
   - **Message Waiting Tab**: Set parameters like message waiting types, frequencies, and intervals. For **Message Waiting #1**, Select **DTMF to PBX** and for **Message Waiting #2**, select **Pager**.
7. Enter the **Advanced** mailbox parameters on the following tabs:
   - **Outdial Applications**: Specify the Fax, NP-UM Wake Up, Call Placement, and Access Types parameters for the mailbox.
   - **Personal Distribution Lists**: Set up the personal distribution lists for a mailbox.
   - **Miscellaneous Tab**: Set addition mailbox preferences.
8. Click **Save**, and then click **Done** to close the prompt.
9. Click **Show All** at the top of the page.

   The test mailbox appears in the list of mailboxes.

**INTEGRATION: CONFIGURE THE MIVOICE MX-ONE**

This section details the configuration necessary on the MiVoice MX-ONE so it can communicate with and use NuPoint UM as the voice mail system.

1. Log into the Service Node Manager (MX-ONE management system).
2. Initiate the Voice Mail and the Auto Attendant numbers.

3. Go to **Number Analysis** and then **Number Plan, Number Series**, and then click **Add**.

4. Select the **Number Series Type**, and enable the **External numbers** option.

5. Enter the Voice Mail and the Auto Attendant numbers in the External Destination field.
6. Click **Apply**. The Service Node Manager shows the result of the operation.

7. Set the number length to the external number.

8. Click **Number Analysis**, **Number Plan**, and then select **External Number Length**.

9. Click **Add**.
Figure 5: External Number Length

10. Enter the **External Number**, **Minimum Length** and **Maximum Length**.

Figure 6: External Number Length - Add

11. Click **Apply**. The Service Node Manager shows the operation result:
12. Configure a SIP trunk:
   • Click Telephony, click External Lines, and then select Route.
   • Click Add.

   - Set the Type of Signaling to “IP Public, SIP”.
   - Select “NuPoint” in the Profile Name List.
13. Enter the following NuPoint information:

- **Route Name**: Enter a meaningful name for the route.
- **Route Number**: Select the next route number in the drop down list.
- **Number of Trunks**: Enter the number of trunks dimensioned to the customer system.
- **Remote Proxy IP**: Enter the NuPoint UM server FQDN or IP address.
- **Remote Proxy Port**: 5060.
- **Server Numbers**: Service Node number where the SIP trunk is configured.
- **Voice Number**: Enter the number that was used in Step 2.
14. Click **Apply**. The Service Node Manager shows the operation result.
### Figure 11: Add Route - Result

<table>
<thead>
<tr>
<th><strong>Route Name</strong></th>
<th>Voice_Mail</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Profile Name</strong></td>
<td>NuPoint</td>
</tr>
<tr>
<td><strong>Remote Port</strong></td>
<td>5060</td>
</tr>
<tr>
<td><strong>Unknown Public Number</strong></td>
<td>sip:?:@192.168.222.153</td>
</tr>
<tr>
<td><strong>Type of Accepted Calls</strong></td>
<td>Remote IP</td>
</tr>
<tr>
<td><strong>Incoming Traffic</strong></td>
<td>192.168.222.153</td>
</tr>
<tr>
<td><strong>Priority for Incoming Calls</strong></td>
<td>255</td>
</tr>
<tr>
<td><strong>MWI Number</strong></td>
<td>6001</td>
</tr>
<tr>
<td><strong>Handle as Extension</strong></td>
<td>No</td>
</tr>
<tr>
<td><strong>Incoming Invite Challenge</strong></td>
<td>No</td>
</tr>
<tr>
<td><strong>Type of Accepted Calls</strong></td>
<td>EMERGENCY</td>
</tr>
<tr>
<td><strong>Addresses or Numbers to Match Incoming Call</strong></td>
<td>192.168.222.153</td>
</tr>
<tr>
<td><strong>Third Party Registration</strong></td>
<td>255</td>
</tr>
<tr>
<td><strong>Supervise Time</strong></td>
<td>30</td>
</tr>
<tr>
<td><strong>Route Category</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>Disturbance Level</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>Incoming Traffic</strong></td>
<td>Open for Incoming Traffic</td>
</tr>
<tr>
<td><strong>Line Selection During Outgoing Traffic</strong></td>
<td>Sequential</td>
</tr>
<tr>
<td><strong>Route Characteristics Outgoing Traffic</strong></td>
<td>Normal route</td>
</tr>
<tr>
<td><strong>Allow Alternative Route Selection</strong></td>
<td>Permitted</td>
</tr>
<tr>
<td><strong>Customer Affiliation</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>Allow Virtual Calls</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Allow Malicious Call Tracing</strong></td>
<td>No</td>
</tr>
<tr>
<td><strong>Facilities Restriction Level</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>Receive Traveling Class Mark Information</strong></td>
<td>No</td>
</tr>
<tr>
<td><strong>Route to Telidient Machine for Emergency Calls</strong></td>
<td>Normal</td>
</tr>
<tr>
<td><strong>Traffic Category</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Call Discrimination Group Night for Incoming External Lines</strong></td>
<td>15</td>
</tr>
<tr>
<td><strong>Call Discrimination Group Day for Incoming External Lines</strong></td>
<td>15</td>
</tr>
<tr>
<td><strong>Traffic Connection Class</strong></td>
<td>15</td>
</tr>
<tr>
<td><strong>Service Category</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Allow Initiation of Call Waiting Tone Transmission</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Allow Reception of Call Waiting Tone and Intrusion</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Automatic Call Back Characteristics</strong></td>
<td>Permitted</td>
</tr>
<tr>
<td><strong>Type of Route</strong></td>
<td>Tie line</td>
</tr>
<tr>
<td><strong>Allow Paging Over Speech Channel</strong></td>
<td>No</td>
</tr>
<tr>
<td><strong>Mobile Extension without R1 Number</strong></td>
<td>No</td>
</tr>
<tr>
<td><strong>Allow Bearer Capability Substitution</strong></td>
<td>No</td>
</tr>
<tr>
<td><strong>Allow High Level Compatibility Substitution</strong></td>
<td>No</td>
</tr>
<tr>
<td><strong>Allow Number Conversion</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Route Selection Category</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Signaling Data</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Dial Tone Characteristics after External Line Seizure</strong></td>
<td>No monitoring path established</td>
</tr>
<tr>
<td><strong>User of Digit Transmission for Transit Exchange</strong></td>
<td>No</td>
</tr>
<tr>
<td><strong>Use Net Service Facilities</strong></td>
<td>No</td>
</tr>
<tr>
<td><strong>Ringing Tone Transmission for Outgoing Traffic</strong></td>
<td>A-party receives ringing tone</td>
</tr>
<tr>
<td><strong>Ringing Tone Transmission for Outgoing Traffic</strong></td>
<td>After minimum number of digits</td>
</tr>
<tr>
<td><strong>Route Equipment</strong></td>
<td>1-15</td>
</tr>
<tr>
<td><strong>Trunk Line Number</strong></td>
<td>1-15</td>
</tr>
</tbody>
</table>
15. Associate the route with the destination access code.

16. Click **Telephony** and then **External Lines**, select **Destination**, and click **Add**.

![Figure 12: External Lines - Destination](image)

17. Click **Destination**, set the Type of Destination to **Destination** and then click **Next**.

![Figure 13: Destination - Add - Step 1](image)

18. Select the **Destination Number** and the **Route Name** and then click **Next**.
Figure 14: Destination - Add - Step 2
19. Click **Advanced** and select:
   - Show Original A-Number
   - Enable Enhanced Sent A-Number Conversion.

![Figure 15: External Lines - Destination - Change](image)

20. Click **Apply**. The Service Node Manager shows the operation result.
21. Log into the Provisioning Manager (MiVoice MX-ONE management system) and set up a Personal Number List to an extension.

22. Complete the user configuration to forward to Mitel Voice Mail. Any third-party terminal registered in MiVoice MX-ONE can subscribe on Message Waiting Indicator (MWI) according to RFC 3842.

23. Click Services, and then click the Extension tab.
24. Select the extension to set up the Personal Number List.

25. Click edit in the Personal Number List.
Figure 18: Extension - Change - 8002
26. Click in the first pen to edit List Number 1.

![Figure 19: Extension - Personal Number List](image)

27. Make the changes in the Personal Number List and click **Continue**. The setup below enables a user to forward calls to Mitel Voice Mail. The example shows how calls will be forwarded to Mitel Voice Mail number 6001 if a call is made to extension 8002 on no answer:
Figure 20: Personal Number List - Change - 1
28. Click Continue.

Figure 21: Personal Number List - Extension - Change IP

29. Click Continue.
Figure 22: Extension - Change - 8003

30. When the extension change task is presented, click Apply to complete the configuration.

CONFIGURE MITEL PHONES

If a user mailbox has been configured with an alternate extension (such as a cell phone), you must program the user’s desktop phone with the following RTP settings:

Mitel 6700 and 6800 Series SIP Phones
- **Force RFC2833 Out-of-Band DTMF**: Select the check box.
• DTMF Method: Select RTP.

Mitel Dual Mode IP Phones
• Media Profile: Select RTP.
• DTMF Type: Select Outband.

TEST NUPOINT VOICE MAIL OPERATION

To test basic communication between the MiVoice MX-ONE and the NuPoint UM:

1. From any extension configured on the communications platform, call the NuPoint UM voice mail extension.
2. Verify you hear the voice mail system greeting: “Welcome to the message center.” This step establishes that you connected successfully to the NuPoint UM voice mail system.
3. Set up the test Mailbox Name and Greeting.

From the phone for which you created a test mailbox on NuPoint UM, dial the NuPoint UM voice mail extension.

1. Dial the mailbox passcode to access the voice mail system options for that mailbox.
2. Follow the voice mail prompts to set up the mailbox and create a greeting.
3. Dial Extension “xxxxx” and Leave a Voice Mail Message
   • From any phone on the communications platform, dial the NuPoint UM voice mail extension.
   • When prompted for an extension at the system greeting, dial the test mailbox created earlier.
   • Leave a voice mail message and then follow the prompts to deliver the message.
4. Check MWI and Retrieve Voice Message from Extension “xxxxx”
5. Verify MWI on the phone that was left a voice mail message.
6. Access the voice mail system, provide the passcode, and then listen to the message.

INTEGRATION: TEST VOICE MAIL OPERATION

To test the integration, you will make a call and leave/retrieve voice mail on NuPoint UM.

Summary:
• Dial the NuPoint UM Voice Mail Extension
• Set Up the Test Mailbox Name and Greeting
• Dial Extension “xxxxx” and Leave a Voice Mail Message
• Check MWI and Retrieve Voice Message from Extension “xxxxx”

To test basic communication between the MX-ONE and the NuPoint UM.

1. From any extension configured on the platform, call the NuPoint UM voice mail extension.
2. Verify you hear the voice mail system greeting: “Welcome to the message center.” This establishes that you connected successfully to the NuPoint UM voice mail system.

3. Set Up the test Mailbox Name and Greeting
   - From the phone for which you created a test mailbox on NuPoint UM, dial the NuPoint UM voice mail extension.
   - Dial the mailbox passcode to access the voice mail system options for that mailbox.
   - Follow the voice mail prompts to set up the mailbox and create a greeting.

4. Dial Extension “xxxxx” and Leave a Voice Mail Message
   - From any phone on the MiVoice MX-ONE CP, dial the NuPoint UM voice mail extension.
   - When prompted for an extension at the system greeting, dial the test mailbox created earlier in MAS.
   - Leave a voice mail message and then follow the prompts to deliver the message.

5. Check MWI and Retrieve Voice Message from Extension “xxxxx”
   - Verify MWI on the phone that was left a voice mail message.
   - Access the voice mail system, provide the passcode, and then listen to the message.
INTEGRATING WITH A DIALOGIC MEDIA GATEWAY

The DMG1000 is an external peripheral that provides integration from NuPoint UM to the PBX/Centrex by emulating digital and analog sets. The DMG1000 converts analog or digital PBX messages into Session Initiation Protocol (SIP) format for communication to the NuPoint UM server.

Each DMG1000 unit supports up to 8 ports, 1 serial connection, and 1 LAN/WAN/private network connection. Each port on the DMG1000 emulates a digital set.

Mitel digital systems require a Mitel-specific DMG1000 model, distinguishable from other models by the coding in the part number (for example, DMG1008MTLDNIW). Part numbers for DMG1000s for other manufacturers’ digital systems do not contain the MTL reference (for example, DMG1008RLMDNIW).

The Dialogic 2000 Media Gateway (DMG2000, formerly called TIMG) is a TDM trunk version of the DMG1000, supporting T1/E1 protocols. Mitel supports QSIG integration over T1 with DMG2000, using up to two T1 links. Integration over E1 with DMG2000 is not supported at this time.

One DMG2000 can support two T1 links on the TDM side and up to 60 SIP sessions on the IP side. It also supports all other integration features of the DMG1000 including: FAC for MWI, SMDI integration, and Fax.

The DMG2000 is a rack-mounted unit that is available in a single T1/E1 (24/30 ports) or a dual T1/E1 (48/60 ports) variant.

DMG PINOUT

The serial port has a female DB-9 connector that enables connectivity to the PBX serial interface. This permits bidirectional flow of call information (e.g. calling/called party and MWI operational codes/responses) between the PBX and the Media Gateway. The table below shows the pin-out of the diagnostic connector.

<table>
<thead>
<tr>
<th>PIN</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Not Connected</td>
</tr>
<tr>
<td>2</td>
<td>Transmit</td>
</tr>
<tr>
<td>3</td>
<td>Receive</td>
</tr>
<tr>
<td>4</td>
<td>Not Connected</td>
</tr>
<tr>
<td>5</td>
<td>Ground</td>
</tr>
<tr>
<td>6</td>
<td>Not Connected</td>
</tr>
<tr>
<td>7</td>
<td>Not Connected</td>
</tr>
<tr>
<td>8</td>
<td>Not Connected</td>
</tr>
<tr>
<td>9</td>
<td>Not Connected</td>
</tr>
</tbody>
</table>

Please note that a special cable may be required in order to properly connect the Media Gateway to a serial switch interface. If the PBX requires the use of serial control signals (for example, CTS, CD/DVD, etc.), then some form of loopback functionality is required at the switch connector. Also consult your switch vendor's documentation for the required serial interface configuration parameter values (baud rate, parity, data bits, and stop bits) for your PBX. These
parameters can be easily changed to match your switch on the DMG1000's Web interface under the Configuration > Serial > General menu.

The image below provides a cabling suggestion between the DMG1000 unit and PBX switch.

DIGITAL INTEGRATIONS

NuPoint Unified Messaging supports digital integrations using the following hardware:

- **Dialogic 1000 Media Gateway** (formerly Intel PBX-IP Media Gateway - PIMG)

OR

- **Dialogic 2000 Media Gateway** (formerly Intel T1 IP Media Gateway - TIMG)

The NuPoint Unified Messaging editions support the quantities listed in the following table.

<table>
<thead>
<tr>
<th>EDITION</th>
<th>MAX DMG1000 (PIMG)</th>
<th>MAX DMG2000 (TIMG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NuPoint 60</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>NuPoint 120</td>
<td>15</td>
<td>5</td>
</tr>
</tbody>
</table>

ANALOG INTEGRATIONS

An analog (SMDI) integration can support up to three DMG1000s. Each DMG1000 supports 8-ports, each emulating an analog set and providing a Physical NuPoint UM SMDI, if required. The DMG1000(s) and the NuPoint Unified Messaging server connect to a Layer 2 Switch (100 MB full duplex L2 switch recommended). The PBX connects to the DMG1000(S).

Analog DMG1000 models are distinguishable from other models by the coding in their part numbers. Part numbers for analog integrations include the designation LS, for Loop Start (for example, DMG1008LSW).
INSTALLATION OF DMG

These instructions are for the installation of a new, out-of-the-box, Dialogic Media Gateway. If you are upgrading an existing DMG, refer to "Upgrading DMG Release 6.x to 6.0.SU4.0.0.12" on page 91.

1. Connect the 10/100BaseT Ethernet cable from the LAN connector on the rear panel of the DMG to the Ethernet.

2. Connect up to eight DNIC PBX lines from the PBX to the eight PBX Port connectors on the rear panel of the DMG. Connecting a port on the DMG to the associated PBX port requires an 8-wire cable with an 8-pin modular plug on one end, and a connector on the other end that is determined by the mating connector on the PBX.

3. Connect the DMG to the PBX as follows:
   - Connect the 8-pin modular plug end of a PBX-to-DMG cable to PBX PORT connector 1 on the rear panel of the DMG.
   - Connect the other end of the PBX-to-DMG cable to a telephone port on the PBX.

4. Repeat step 3 for each successive PBX port that is to be connected to the DMG.

5. Connect the Power Supply Unit DC output to the DC POWER Connector on the rear panel of the DMG using the 5-pin DIN plug.

   CAUTION: Be sure to connect the DC cable from the Power Supply Unit to the DMG before Connecting the AC Power Cord to the AC power source.

6. Connect the AC Power Cord from the Power Supply Unit to an AC power source. Power is immediately applied to the DMG.

7. Check initial status of the front panel indicators. When a DMG is a Phone Emulating model, the functions of the PORT STATUS Indicators are as follows:
   - Steady Green - indicates that Carrier is present.
   - Flashing Green - indicates that there is activity on the port.
   - Steady Yellow - Hardware Carrier is present, but no software communication.
   - Flashing Yellow - External power detected, but port cannot gain carrier.
INITIAL CONFIGURATION VIA THE SERIAL PORT

The recommended method for logging on and performing the initial configuration of the Media Gateway is via the serial port. If a serial port is not available, you can use the Web interface if you know the IP address of the Media Gateway.

CONFIGURATION VIA THE SERIAL PORT (RECOMMENDED METHOD)

1. Connect a serial cable to the serial connector on the rear panel of the Media Gateway unit.

2. Using a standard serial interface application (like HyperTerminal) configure the workstation as follows:
   - Baud rate = 38400
   - Parity = None
   - Data Bits = 8
   - Stop Bits = 1
   - Hardware flow control = Off

3. Press Enter repeatedly until the PIMG> prompt appears.

4. Type pwd and press Enter.

5. When prompted, enter the password for the admin user (default is IpodAdmin) and then press Enter. (Note: username and password are case-sensitive.)

6. At the prompt, type quickcfg and press Enter.

7. At the Client IP Address prompt, enter the site-specific IP address for this DMG1000.

8. At the Client Subnet Mask prompt, enter the subnet mask to apply.

9. At the Network Gateway IP prompt, enter the IP address of customer’s network gateway.

10. At the PIMG> prompt, type restart.

11. After the DMG1000 unit has restarted, turn it off and then connect it to the Layer 2 switch and power it up. You can now connect to the DMG unit from the Web interface using the IP address you just configured.
NUPOINT-SPECIFIC CONFIGURATION

To configure the NuPoint UM to recognize the Dialogic Media Gateway:

1. Log in to the admin console as "root".

2. From the Main Menu, navigate to the Offline Menu as follows: Enter (S) System, (R) Reconfiguration, (R) Reconfigure System, and then (G) Offline Menu.

3. Select (B) Duplicate Active Configuration.

4. From the Offline Menu, select (I) Server Options Configuration, and then select (P) Configure SIP Gateway/Intel PIMG/TIMG integration.

5. In the PIMG/TIMG configuration Menu, enter the following information:
   - Number assigned to the current DMG (0 - 30)
   - Number of T1 ports (channels)
   - IP address of the PIMG/TIMG/SIP Gateway
   - Is the Server a SIP Gateway (Y/N)? Y

6. Define line groups:
   - From the Offline Menu, select (G) Define Line Groups, (N) Name of current group, and then enter a name for the line group.
   - Select (A) Add lines to current group, and then enter the lines 0:0-0:48.
   - Select (T) Show THIS group.
   - Select (M) Mapping Extension/Port, then (P) Mapping for PIMG ports.
   - Enter the number you assigned to the unit in step 5, then select (P) Port Mapping, and then enter 1-48. (The Port Number to Extension Mapping is displayed.).

7. To save the changes, press X and Enter to exit out of each menu until you exit out of the Offline Menu.

8. In the Reconfigure System menu, select (A) Activate Configuration, and then select (A) Activate Configuration.

9. Enter Y, and then wait for the configuration to be activated.

ACCESSING THE DMG WEB INTERFACE

Now that you have assigned an IP address to the Media Gateway, you can access the configuration interface using Internet Explorer.

1. From a PC on the network, enter the IP address of the Media Gateway in the address bar of Internet Explorer. (For multiple Media Gateways, configure each one as you set it up.)

2. Log in to the Media Gateway interface with username Admin and password IpodAdmin (case-sensitive). The Summary page displays status and IP address information.

USING A DEFAULT CONFIGURATION FILE

Due to the complex configuration requirements of the DMG, we recommend that you import a known good config.ini file from a working system. You can use the DMG web interface backup utility to back up an existing system.
If you have no config file, you can use the default `config.ini` file provided at Mitel OnLine. When you use this default file, you need to substitute IP address information to match your network.

To customize the default `config.ini` file for your network:

1. Download the Rev 6.x.x_Mitel DNIC_PIMG_Upgrade.zip file from Mitel OnLine (see “Accessing Documentation, Release Notes, Articles, and Downloads” on page 22.) The `config.ini` file is included.

2. Open the `config.ini` file in a text editor like Notepad.

3. Change the fields shown in bold print below to match your network.

   **Note:** Ensure the **Gateway Application** and **Main Board Boot** version numbers match that of the gateway application you installed.

```plaintext
; Dialogic Media Gateway

; Version Information:

; 00-a0-e6-82-fa-41 10.37.52.242

; Gateway Application (ROM): |6.0.SU4.0.012| |TUE JUL 28 21:08:15 2009|

; Gateway Application: |6.0.SU4.0.012| |TUE JUL 28 21:08:15 2009|

; Main Board Boot (ROM): |6.0.SU4.0.012| |TUE JUL 28 20:55:43 2009|

; DSP Firmware (ROM): |9.1 w/Fax| |FRI MAY 20 16:38:20 2005|

; DSP Firmware: |9.1 w/Fax| |FRI MAY 20 16:38:20 2005|

; Adept Config: Custom

;******************************************************************************

; Client IP Address: IP Address in dotted decimal notation

ipClientAddr = 10.37.52.242

; Client Subnet Mask: Network address mask

ipSubnetMask = 255.255.255.0

; Default Network Gateway Address: IP Address in dotted decimal notation

ipRouterAddr = 10.37.52.1

4. **Save** the file and make a note of the filename. You will need to know it for the Import procedure.
IMPORTING THE CONFIGURATION FILE

1. In the Web interface of the DMG, in the left-hand menu under Configuration, click Import/Export.
2. Browse to the storage location of your config.ini file.
3. Click Import File.

**Tip:** After you have completed the DMG configuration, you can use the Export All Settings button on this page to save a copy of your new config.ini file.

CONFIGURING ROUTING TABLES

If you have used the default config.ini file supplied by Mitel, all of the field labels and names described below are automatically entered for you. You can manually change these values as required or you can skip to “Additional Programming for Digital Integrations” on page 88. The image below shows the navigation areas of the Dialogic Media Gateway interface:

Area 1: Left-hand menu
Area 2: Router Configuration menu
Area 3: Group Heading

**VoIP Host Groups**

1. In the left-hand menu, under Configuration, click Routing Table.
2. In the Router Configuration menu, select VoIP Host Groups.
3. Click Add Host Group and enter a name for this group (for example, NuPoint).
4. In the Host List box, enter the IP address of the NuPoint server and click **Add Host**.

5. Click **Submit**.

**TDM Trunk Groups**

6. In the Router Configuration menu, select **TDM Trunk Groups**.

7. Click **Add Trunk Group** to add new groups with the following parameters:
   - **Name**: a unique name for the group (suggested names are "Incoming", "Outgoing Pager", and "Outgoing MWI").
   - **Selection Direction**: select **Ascending**.
   - **Selection Mode**: select **Linear**.
   - **Port/Channel Content**: ports can be selected individually (for example, "7"), in a comma-separated list (for example, "1,2,3"), or in a range (for example 1-6). Enter * to select all channels if all ports are in the same trunk group.

8. Click **Submit** to save.

**Inbound TDM Rules (PBX to NuPoint)**

9. In the Router Configuration menu, select **Inbound TDM Rules**.

10. Click **Add Rule** and enter an Inbound TDM rule with the following parameters:
    - **Rule label**: enter **InboundTdmCall**
    - **Request Type**: select **Call**
    - **Trunk Group**: select **Incoming**

11. Under the **Inbound TDM Request Matching** group heading, all fields should contain * (asterisk).

12. Scroll down to the **Outbound Routes** group heading and select the following parameters:
    - **Outbound Destination**: select **VoIP**
    - **Host Group**: enter the VoIP Host Group Name you configured step 1.

13. Click **Submit**.

**Inbound VoIP Rules (NuPoint to PBX) for MWI**

14. In the Router Configuration menu, select **Inbound VoIP Rules**. If you are using the default config.ini file, you can modify rules by clicking in the "select" box to the left of the rule you want to modify.

15. Click **Add Rule** and add the following parameters for **MWI configuration**:

<table>
<thead>
<tr>
<th>ENABLE</th>
<th>RULE LABEL</th>
<th>REQUEST TYPE</th>
<th>ORIGINATING VOIP HOST</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>Inbound VoIP MWI</td>
<td>Message</td>
<td>*</td>
</tr>
</tbody>
</table>

16. Under the **Inbound VoIP Request Matching** group heading, configure the MWI rule as follows:

<table>
<thead>
<tr>
<th>CPID MATCHING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calling Number</td>
</tr>
<tr>
<td>Called Number</td>
</tr>
<tr>
<td>Redirect Number</td>
</tr>
</tbody>
</table>
Under the Outbound Routes group header, select the following parameters:

Click Submit to save the MWI rule.

**Inbound VoIP Rules for Pager**

19. Click Add Rule and add the following parameters for Pager configuration:

<table>
<thead>
<tr>
<th>ENABLE</th>
<th>RULE LABEL</th>
<th>REQUEST TYPE</th>
<th>ORIGINATING VOIP HOST</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>Inbound VoIP Pager</td>
<td>Call</td>
<td>*</td>
</tr>
</tbody>
</table>

20. Under the **Inbound VoIP Request Matching** group header, configure the Pager rule. In the Called Name field, enter a port number to filter call requests to the pager. Enter the port name in the format *portn* where "n" is the DMG port number to which the call is being directed (for example, port7). If you are using more than one pager port, you need to configure additional rules with different "portn" values.

<table>
<thead>
<tr>
<th>Calling Name</th>
<th>*</th>
<th>Called Name</th>
<th>*</th>
<th>Redirect Name</th>
<th>*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calling Number</td>
<td>*</td>
<td>Called Number</td>
<td>*</td>
<td>Redirect Number</td>
<td>*</td>
</tr>
</tbody>
</table>

21. Under the Outbound Routes group header, select the following parameters:

Outbound Destination TDM Trunk Group Outgoing Pager

(or the trunk group name you applied in step 7)

<table>
<thead>
<tr>
<th>OUTBOUND ROUTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>(or the trunk group name you applied in step 7)</td>
</tr>
</tbody>
</table>

22. Click Submit to save the Pager rule.

**Inbound VoIP Rules for Inbound Transfer**

Calls from the DMG that are not processed by the MWI rule or the Inbound Pager rule are considered to be Inbound VoIP transfers.

23. Click Add Rule and add the following parameters for Inbound configuration:

<table>
<thead>
<tr>
<th>ENABLE</th>
<th>RULE LABEL</th>
<th>REQUEST TYPE</th>
<th>ORIGINATING VOIP HOST</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td>Inbound VoIP transfer</td>
<td>Call</td>
<td>*</td>
</tr>
</tbody>
</table>
24. Under the **Inbound VoIP Request Matching** group header, configure the Inbound rule as follows:

<table>
<thead>
<tr>
<th>Calling Number</th>
<th>*</th>
<th>Called Number</th>
<th>*</th>
<th>Redirect Number</th>
<th>*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calling Name</td>
<td>*</td>
<td>Called Name</td>
<td>*</td>
<td>Redirect Name</td>
<td>*</td>
</tr>
</tbody>
</table>

25. Under the Outbound Routes group header, select the following parameters:

| Outbound Destination | TDM | Trunk Group | Incoming (or the trunk group name you applied in step) |

26. Click **Submit** to save the Inbound rule.

**General TDM Settings**

27. For new installations, configure the following TDM settings:
   - In the left-hand menu under **TDM**, select the **General** sub-menu.
   - In the **Turn MWI on FAC** field, enter the feature access code that matches your PBX settings.
   - In the **Turn MWI off FAC** field, enter the feature access code that matches your PBX settings.

28. Click **Submit** to save.

**ADDITIONAL PROGRAMMING FOR DIGITAL INTEGRATIONS**

**PROGRAMMING PBX PORTS**

Follow these procedures to program ports on the SX-200, SX-2000, and 3300 ICP for digital integration with the NuPoint Unified Messaging via Media Gateway.

**PROGRAMMING THE SX-200 (DMG1000)**

The DMG1000 emulates Superset 430 phone sets to the PBX.

1. In **Form 01 - System Configuration**, assign a Digital Line Card for the NuPoint Unified Messaging ports.

2. In **Form 02 - Feature Access Codes**, program the feature access codes (Message Waiting - Activate, and Message Waiting - Deactivate) for MWI. The codes must match those programmed in the DMG1000 Web interface.

3. In **Form 03 - COS Define**, create a Class of Service with the following options to use for your voice mail ports:
   - Option 208: Call Forwarding - External
   - Option 211: Call Hold and Retrieve Access
   - Option 213: Can Flash If Talking to an Outgoing Trunk
• Option 245: Abbreviated Dialing Access
• Option 261: ONS Voice Mail Port
• Option 313 to Option 319
• Option 502: Display ANI/DNIS/CLASS Information
• Option 613: Display ANI Only
• Option 702: SMDR - Overwrite
• Option 229: COV/DNIC Voice Mail Port
• Option 259: Message Sending
• Option 265: Voice Mail System Speed Dial Index (0–255)

Note: The number for MWI COS Option 265 must be the same number as the speed dial index in Form 31, "System Abbreviated Dial Entry." This number points to the hunt group number of the NuPoint Unified Messaging ports.

Note: With a DMG1000, the MWI command can go out on any port that is programmed for MWI.

4. In Form 04 - System Options/System Timers, enable Option 22, Last Party Clear Dial Tone.

5. In Form 09 - Desktop Device Assignments, program the ports as SS430 sets.

6. In Form 17 - Hunt Groups, program the ports as members of a hunt group. We recommend that you set the hunt group type to circular. Assign an Access Code for the hunt group.

7. In Form 17 - Hunt Groups, program a second hunt group for MWI.

PROGRAMMING THE SX-2000 (DMG1000)

The DMG1000 emulates Superset 430 phone sets to the PBX.

1. In the System Configuration form, program a DNI line card.

2. In the DNI Circuit Assignment form, program the set type as Superset 430 against Channel #1 of the PLID.

3. In the Multiline Set Assignment form, program a prime Directory Number and an Interconnect Number against the line circuits for the NuPoint Unified Messaging system.

4. In the Station Service Assignment form, assign the phone’s directory number a Class of Service (COS), Class of Restriction (COR), and Intercept Number.

5. In the Class of Service Options Assignment form, program the following COS:

<table>
<thead>
<tr>
<th>PORT COS OPTION</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>COV/ONS/E&amp;M Voice Mail Port</td>
<td>Yes</td>
</tr>
<tr>
<td>Display ANI/ISDN Calling Number Only</td>
<td>Yes (Optional)</td>
</tr>
<tr>
<td>Display ANI/DNIS/ISDN Calling/Called Number</td>
<td>Yes (optional)</td>
</tr>
<tr>
<td>Account Code Verified or Non-verified Account Code</td>
<td>Yes (optional)</td>
</tr>
</tbody>
</table>
6. In the Feature Access Code Assignment form, program the feature access codes (Message Waiting - Activate, and Message Waiting - Deactivate) for MWI. The codes must match those programmed in the DMG1000 Web interface.


8. In the Hunt Group Assignment form, program the ports as members of a hunt group. Program the Hunt Group Type as Voice Mail, and assign a pilot number for the hunt group.

   **Note:** For MWI to work, you must assign the MWI port to DTMF to the PBX. This port must also be assigned a COS with Permanent DND (see step 5)

### ADDITIONAL PROGRAMMING FOR ANALOG INTEGRATIONS (SMDI SUPPORT)

The analog DMG directly supports SMDI/MCI PBX systems by converting analog calls, along with their corresponding SMDI/MCI data packet, into SIP invites that can be used by NuPoint.

To configure SMDI support:

1. In the left-hand menu, under Configuration, click Serial and then General.

2. Set the parameters (Baud Rate, Parity, Data Bits, Stop Bits) to match the serial port settings of your PBX SMDI/MCI link.

3. In the left-hand menu, under Configuration, click Serial and then Switch Protocol.

4. Set the parameters (Serial Mode, Serial Interface Protocol, CPID Length, MWI Response Timeout, Serial CPID Expiration), to match the serial port settings of your PBX SMDI/MCI link.

   **Note:** The SX-200 and SX-2000 systems do not support SMDI and therefore do not support analog integrations with the DMG1000. For PBX units that support SMDI, refer to the programming information supplied with the PBX.
UPGRADING DMG1000 TO RELEASE 6

**Note:** When you perform a major software upgrade, existing configuration information may be erased and the default values restored. We recommend you export the current configuration information using the Export utility before you upgrade the software. Refer to the *Media Gateway Series Users Guide, Section 2.6, “Importing and Exporting Configuration Information”, for information about backing up the configuration information.

**Upgrading DMG Release 6.x to 6.0.SU4.0.0.12**

To upgrade the DMG:

1. Log on to Mitel OnLine.
2. Click Support->Software Downloads and download the Release 6.0 Mitel DNIC DMG upgrade zip file.
3. Extract the zip archive contents to a folder on your PC.
   - **Note:** You will update the .app, .fsh, .lca, and .dsp files. You can update these files individually, or use the mtl_6.0.SU4.0.012.pkg file to upgrade the files simultaneously. You do not require the config.ini file for the upgrade, but you can use it to configure a new DMG.
4. Log on to the Mitel DNIC DMG with username "admin" and password "IpodAdmin".
5. In the left pane, select an appropriate upgrade option.
6. Browse to the location of the unzipped files downloaded from MOL, double-click the mtl_6.0.SU4.0.012.pkg file, and click Install.
   - **Note:** Do not restart the DMG until you have upgraded the file.
7. When the Upgrade Complete message appears, restart the computer to reset the DMG.
8. Log on to the DMG, access the Version window, and verify the files have been upgraded.

**Upgrading DMG Release 6.x to 6.0.SU7.0.0.12**

**Note:** When you upgrade to DMG Release 6.0.SU7.0.0.12, if you are using 20 ms Packet Time, in the Acceptable Media drop-down box you must select RTP Only.

To upgrade the DMG:

1. Log on to Mitel OnLine.
2. Click Support->Software Downloads and download the Release 6.0 Mitel DNIC DMG upgrade zip file.
3. Extract the zip archive contents to a folder on your PC.
   - **Note:** You will update the .app, .fsh, .lca, and .dsp files. You can update these files individually, or use the mtl_6.0.SU7.0.012.pkg file to upgrade the files simultaneously. You do not require the config.ini file for the upgrade, but you can use it to configure a new DMG.
4. Log on to the Mitel DNIC DMG with username "admin" and password "IpodAdmin".
5. In the left pane, select an appropriate upgrade option.
6. Browse to the location of the unzipped files downloaded from MOL, double-click the mtl_6.0.SU7.0.012.pkg file, and click Install.

Note: Do not restart the DMG until you have upgraded the file.

7. When the Upgrade Complete message appears, restart the computer to reset the DMG.
8. Log on to the DMG, access the Version window, and verify all files have been upgraded.
Chapter 4

INSTALLATION
OVERVIEW

This section describes a fresh installation of the Mitel Standard Linux (MSL) operating system and NuPoint Unified Messaging (UM) Software on a qualified MSL server. For information about upgrading from previous versions, see “Software Upgrades” on page 139.

For detailed instructions, see the following sections:

- Connecting a Monitor to the Server (page 96)
- Installing an External DVD Drive on a Physical NuPoint (page 97)
- Installing Physical NuPoint UM (page 98)
- Installing Virtual NuPoint on VMware (page 108)
- Installing Virtual NuPoint on Hyper-V (page 121)
- Verifying Server Operation (page 122)
- Importing Mailbox Data (page page 125)
CONNECTING A MONITOR OR CONSOLE TO THE SERVER

If your system is not equipped with the optional mounting rack that includes a monitor, you will need to connect a monitor or console to the rear panel of the server.

**CAUTION:** When you connect the components, do not force a cable connector into an interface connector. If you have difficulty making a connection, make sure the cable connector is properly aligned with the interface connector and that the keys or slots align with their mates. Also, make sure the connector pins are straight.

To connect a monitor to the server:

1. Ensure the AC power switch for the monitor is set to the OFF position.
2. Locate the signal cable for the monitor.
3. For monitors with a separate modular signal cable, plug this cable into the interface connector on the monitor.
4. Plug the other end of the monitor signal cable into the Video Adapter interface connector on the server. If you need more length, use a monitor signal extension cable.
5. Plug the AC power cord for the monitor into an electrical outlet.

To connect a console to the server:

1. Check the switch settings on the console. See the manufacturer's documentation for specific switch settings.
2. Plug the console cable into the console and into serial port 1.
INSTALLING AN EXTERNAL DVD DRIVE FOR PHYSICAL NUPOINT

Physical NuPoint software is delivered in two .ISO files which are intended to be burned onto DVDs. This requires the installer to have access to a suitable DVD burner to create the software DVDs from the images downloaded from Mitel OnLine. The server that will run the Physical NuPoint software must also be equipped with a DVD reader.

Newer supported servers are equipped with combination CD/DVD readers and no change to the installation procedure is required. If you are installing/upgrading NuPoint UM Release 4.x or higher and your server does not have a DVD reader, you have two options:

• Replace the internal CD reader with an internal DVD reader
• Use an external DVD reader

If you replace the internal CD drive with a DVD drive, then the installation procedure remains unchanged.

If you use an external DVD reader, then you need to disable the internal CD reader in order to direct the MSL software to read the external USB drive. The easiest way to disable the internal drive is to remove the power and data cables from the internal CD drive. With the internal drive disconnected, follow this procedure to install the Physical NuPoint software:

1. Connect the USB cable from the external USB drive to a USB connector on the NuPoint UM server.
2. Start the external USB DVD drive using the power supply and cables that came with it.
3. Insert the correct version of MSL (CD) in the external USB DVD drive and power up the server.
4. The server detects the external drive and boots from the MSL CD. (If the drive is not detected, you need to check BIOS boot settings.)
5. Choose a language (English default) and select OK (use the Tab key to navigate to OK button)
6. Choose a keyboard (US default) select OK.
7. You are prompted to choose what type of media contains the packages to be installed. Select Local CDROM and select OK.
8. At the No Driver Found message, click the Select Driver button to select from a list.
9. Scroll down the list to USB Mass Storage Driver for Linux (usb-storage) and select this driver.
10. MSL can now be installed in the normal manner and the NuPoint UM software blades will be installed from the external USB DVD drive.
INSTALLING PHYSICAL NUPOINT (NUPOINT 60 OR NUPOINT 120)

This section assumes the following tasks have been completed:

- Your server hardware has been chosen from the "Entry-Level" or "Mid-Level" server offering in the Mitel Qualified Hardware List and installed according to manufacturer’s instructions.
- All required licenses have been purchased and an Application Record has been created for either of the following deployments:
  - **NuPoint 60** - (formerly "Standard Edition") Support for up to 60 voice mail ports and 57,000 mailboxes on an entry-level Mitel Standard Linux qualified server.
  - **NuPoint 120** - (formerly "Single Server") Support for up to 120 voice mail ports and 120,000 mailboxes on a mid-level Mitel Standard Linux qualified server that has the capacity to be configured with RAID5.
- You have completed the NuPoint Unified Messaging training.

**Note:** NuPoint UM Release 8.0 and later software must be installed on a 64-bit server. It is not supported on a 32-bit server.

OVERVIEW

A new installation and activation of Physical NuPoint UM takes about 60 minutes and consists of the following steps:

- Set up hardware following manufacturer’s instructions
- Read Installation Notes on page 98
- Collect System Settings Information
- Install Mitel Standard Linux Operating System
  - Download MSL and NuPoint Unified Messaging software from Mitel OnLine and burn to DVD
  - Install the MSL Operating System software
  - Configure the MSL Operating System
- Activate the ServiceLink by registering with the AMC
- Install the NuPoint UM Blades (Software Assurance and NuPoint UM software)
- Install NuPoint UM Prompt Language blades, as required
- Enable SSH Access
- Allow Trusted Network Access to MSL Server Manager (Optional)
- Access the MSL Server Manager

INSTALLATION NOTES

- For a NuPoint 120 deployment, you require a mid-level MSL qualified hardware server that has the capacity to be configured with RAID5. It must have at least four disks with a minimum of 100 GB per disk (three system disks and one hot-swappable spare). The RAID5 array
should be set up prior to installing the Mitel Standard Linux software. Refer to the disk manufacturer’s documentation for instructions.

- To use mirroring for redundancy, you must have two hard drives of identical size (at the byte level) installed in the system. The hard drives should both be installed prior to installing the Mitel Standard Linux software.

- The installation process rewrites the boot sector on the hard drive. Machines with BIOS boot sector virus detection enabled may not boot unattended. This detection should be disabled. Refer to the BIOS configuration instructions supplied by your hardware manufacturer for instructions.

- The server running the Mitel Standard Linux operating system cannot be the primary DNS server.

- Ensure that you have received all the required hardware and software that you ordered and that your server hardware has been installed and configured (including the server BIOS if you are using the IBM Series x206 server.). For information about installing and configuring IBM or HP servers, refer to the product documentation that you received with the hardware.

- Ensure that there is no USB device connected to the system. If a USB device is connected to the system when you are installing or upgrading NuPoint Unified Messaging software, the installation/upgrade will not complete successfully.

CAUTION: If you have purchased an additional hard drive from Mitel to make your system redundant, verify that both hard drives are recognized in the BIOS at boot up time. Failure to follow this step at the outset could result in improper functioning of the NuPoint Unified Messaging server or a failed installation.

SYSTEM SETTINGS INFORMATION

The following table itemizes the information you will need to enter during software installation and configuration. For efficient installation, gather this information before you start.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>NOTES</th>
<th>ENTER YOUR INFORMATION HERE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server Configuration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Administrator Password</td>
<td>For password strength, choose a password that contains a mix of uppercase and lowercase letters, numbers, and punctuation characters.</td>
<td></td>
</tr>
<tr>
<td>2. Domain Name</td>
<td>Names must start with a letter; can contain letters, numbers, and hyphens.</td>
<td></td>
</tr>
<tr>
<td>3. System Name</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. IP address of your MSL/NP-UM server</td>
<td>The local IP address of the server where you are installing NP-UM.</td>
<td></td>
</tr>
<tr>
<td>5. Gateway IP address</td>
<td>The IP address that your NP-UM server will use to access the network.</td>
<td></td>
</tr>
<tr>
<td>6. DNS Server IP Address</td>
<td>Enter the IP address of your corporate DNS server, if available.</td>
<td></td>
</tr>
</tbody>
</table>
DOWNLOADING THE SOFTWARE FILES

Before you can install MSL or NuPoint UM software, you must download the ISO images of the software from Mitel OnLine. The software components must be burned as images, not as files, so ensure that your CD or DVD burning software is capable of burning ISO images.

DOWNLOADING MSL SOFTWARE FROM MITEL ONLINE

1. Log on to Mitel OnLine.
2. Move your cursor over Technical and then click Software Downloads.
3. Click the name of the NuPoint Unified Messaging software you want to install. The correct MSL load for your software is included on this page.
4. Click the MSLx.x.x.iso link (where x.x.x represents the MSL release number) and select a location on your PC to store the downloaded software ISO images.

Creating CDs

To build a CD from the downloaded ISO image:

1. Insert a CD into the CD/DVD ROM drive of the maintenance PC.
2. Navigate to the stored ISO image for MSL and double-click the file. Your CD burner builds the software. Label the CD as MSL.

DOWNLOADING NUPOINT UM SOFTWARE FROM MITEL ONLINE

1. Follow steps 1 to 3 in the "To Download MSL software from Mitel OnLine" procedure above.
2. Download the required application .iso files (NPM Blades-DVD1 and DVD2) from Mitel OnLine to a network drive or to a folder of the maintenance PC.
3. Burn the software files to DVD.
4. Insert a DVD into the CD/DVD ROM drive of the maintenance PC.
5. Navigate to the stored ISO image for NuPoint UM and double-click the file. Your DVD burner builds the software. Label the DVD as NuPoint UM with a version number as shown in Table 2:

### Table 1: Software Download Files

<table>
<thead>
<tr>
<th>FILE CONTENTS</th>
<th>FILE FORMAT</th>
<th>FILE NAME DOWNLOADED</th>
<th>APPROX FILE SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NuPoint Unified Messaging installer</td>
<td>.iso file</td>
<td>NP-UM_x.x.x.x.DVD1.iso</td>
<td>1.0 GB</td>
</tr>
<tr>
<td>OCP</td>
<td>.iso file</td>
<td>NP-UM_x.x.x.x.DVD2.iso</td>
<td>2.0 GB</td>
</tr>
<tr>
<td>Software (language prompts)</td>
<td>.iso file</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Documentation</td>
<td>.iso file</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speech Auto Attendant</td>
<td>.iso file</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Text to Speech</td>
<td>.iso file</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speech Recognition engine</td>
<td>.iso file</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**INSTALLING MITEL STANDARD LINUX**

To install the MSL operating system software:

1. Access Text Console directly or via putty and connect to the NuPoint UM node.
2. Log in as "root" and type the root password. The root password may be the same as the admin password.
3. Exit to the Linux prompt and enter `shutdown -h now` to shut down the NuPoint UM software on the server.
4. Power up the node.
5. Insert the Mitel Standard Linux CD-ROM into the CD-ROM bay of the server.
7. Choose the preferred language and keyboard type (the default is US) and click OK.
8. You are prompted to test the CD media. The first time the media is used, you must perform the check. Otherwise, click Skip to proceed with the installation.
9. At the warning to initialize the RAID 1 disk array, select Yes and proceed with the installation.
10. Remove the installation CD and reboot the computer.

**CONFIGURING MITEL STANDARD LINUX**

To configure the MSL operating system:

After the system restarts you can configure it. Refer to your System Settings worksheet to do so. On multi-node systems, use the master node first.

1. After the system has rebooted, the End user license Agreement window appears. Select Accept and press Enter.
2. At the Restore from Backup? prompt, select one of the following options.
   - For initial installations, select No and proceed to step 2.
- For upgrades, click Yes to restore server configuration if you have a valid backup file and are installing MSL subsequent to an initial installation. Follow the on-screen instructions to insert your backup storage media and restore your configuration data. (Select "Disk Img" for USB media.) The server will restart and the MSL installation will be complete. No further MSL configuration is required.

3. Specify the administrator (system) password so you can access the server console and Server Manager. Choose a password that contains numbers, mixed upper and lower case letters, and punctuation characters. After you have entered and confirmed the password, the MSL software examines the password for strength. If it is weak, you will be prompted to change it or continue.

4. Select the Time Zone in which the server is located and click Next.

5. In the Primary Domain Name window, enter the domain name that will be associated with this MSL server and click Next. This domain will be the default for the web-based MSL MSL Server Manager. The name must start with a letter and can contain letters, numbers, and hyphens (for example, mitel.com). Do not change the name after you configure it.

6. In the System Name window, enter a name for the server (for example, server1) and click Next.

The number of Network Adapters (or Network Interface Cards, also called "NICs") that are installed in your server determines the action you take next. The Local Network Adapters window displays all available adapters (or NICs).

7. Check the number of adapters displayed on the window and:
   - For systems with a Single Network Adapter:
     - Proceed to configure the Gateway IP Address. MSL automatically configures your single LAN adapter.
   - For systems with Two Network Adapters:
     - In the Local Network Adapters window, use the keyboard up/down arrows and space bar to select your LAN adapter. Do not configure the second adapter. Click Next to proceed to the next step.

8. In the Local Networking window, enter the local IP address for the NuPoint UM server or accept the default. Click Next.

9. In the Local Subnet Mask window, enter the subnet mask or accept the default. Click Next.

10. In the Enable IPv6 Protocol window, select No to limit the server to IPv4 addresses. Click Next.

11. If you still have unconfigured network adapters, MSL displays them and prompts you to configure them as WAN adapters. Leave all adapter options cleared. Click Next.

12. MSL now offers you the choice to configure any remaining adapters as LAN adapters. In the Unconfigured network adapters window, select No and press Next.

13. In the Gateway IP Address window, enter the IP address that this server should use to access the Internet. Click Next.

14. If there are specific routes out to the Internet and you want the server to do DNS lookups to other servers in the network, enter the Corporate DNS server address, click Next and
then specify how name resolution is performed for the local domain (the domain configured on the MSL server):

- **localhost** – the localhosts file is used to resolve names for the local domain while the corporate DNS server handles name resolutions for all other domains.
- **corporate** – the corporate DNS server is used to resolve names for all domains.

15. Click **Next**.

**Note:** You must enter the IP address of the DNS server in order for the Unified Messaging and VPIM features to work properly. If no DNS server is available, you will need to set the remote hostname IP address from the MSL Server Manager for VPIM connectivity (after configuring the VPIM node). To do this, access the MSL Server Manager, and select "Hostnames and addresses" from the Configuration menu, and enter the hostname IP address you want to add in the appropriate field.

16. In the **Activate Configuration Changes** window, select **Yes** to activate the configuration changes on the server. After the changes take effect, the server reboots automatically. The server is now configured for IP connectivity. Proceed to activate the ARID in ServiceLink.

**ACTIVATING THE APPLICATION RECORD ID IN YOUR SERVICELINK ACCOUNT**

The online activation (or "sync") of the Application Record ID (ARID) for your ServiceLink account requires Internet connectivity and usually takes about 60 seconds to complete. After initial installation, a sync is required only when you add features to your license key and when you upgrade your Physical NuPoint software. The AMC performs an automatic sync daily.

**Note:** If your server cannot connect to the Internet, you can activate the ARID in ServiceLink as follows:

- Perform the Offline Activation method described in Appendix A on page 223.
  —or—
- Open a pinhole in your firewall or configure a licensing proxy server to perform port forwarding. For implementation details, see the *MSL Installation and Administration Guide* and the *Mitel Virtual Appliance Deployment Solutions Guide*.

To activate the ARID in ServiceLink:

1. After the system has rebooted, enter your Application Record ID (ARID) when prompted. Click **Next**. Although the screen says that this entry is optional, we recommend that you enter your Application Record ID number now. This entry initiates registration and down-
loading of all licensed and enabled NuPoint UM Software Assurance and NuPoint UM software blades.

**Note:** If you accidentally cancel this screen, you will exit the MSL Server Console menu. You can restart activation process as follows:

- Access the MSL Server Console.
- Select **Register for ServiceLink**, click **Yes**, enter your login credentials, select **Status** under ServiceLink, enter your ARID in **Service Account ID** field and click **Activate**.
- Select **Access Server Manager** and click **Yes**.
- Select **Status** under ServiceLink, enter your ARID in **Service Account ID** field and click **Activate**.

**Note:** A message confirms that your system has successfully synchronized with the AMC.

2. Enter the Application Management Center address and port number or accept the default value, and then click **Next**. ServiceLink activation commences.

**INSTALLING THE NUPOINT SOFTWARE ASSURANCE AND MASTER INSTALLER BLADES**

After you have installed MSL and activated your ARID, employ the following procedure to install the NuPoint UM Software Assurance and Master Installer blades. Internet connectivity is required.

**Note:** If you have not yet activated your ARID, skip this procedure and proceed directly to configuring access to NuPoint. After you have enabled SSH and granted trusted network privileges, open the MSL Server Manager and activate your ARID on the Status panel. Then go to the Blades panel and install the Software Assurance (MitelNPMSA) and Master Installer (NPMAInstaller) blades, along with any other optional blades you may require. For more information, see “Installing NuPoint Blades” on page 106.

To install the NuPoint UM software:

1. After ServiceLink activation is complete, you are prompted **Do you wish to install blades from CD/DVD?**. Select **Yes**.
2. When prompted, insert the NuPoint UM software DVD (DVD1) in the DVD-ROM bay. The window displays all licensed and enabled blades for this system.
3. Select **OK** to install the NuPoint Software Assurance (MitelNPMSA) and Master Installer (NPMAInstaller) blades.
4. When prompted **Do you wish to install blades from another CD/DVD?**, select **No**. The MSL login prompt is displayed.
5. Log in as “admin”. The MSL Server Console menu is displayed.

**Note:** At this point, only North American English language prompts are installed. To install additional languages, see “Installing Language Prompts” on page 106 and “Installing Text-to-Speech Prompts” on page 107.
Mitel Standard Linux and the NuPoint UM base system software has now been installed. Before you can configure your system remotely, you need to allow system access. Proceed to the next step, “Configuring Access to NuPoint”.

**CONFIGURING ACCESS TO NUPOINT**

**ENABLING SSH ACCESS**

SSH (secure shell) provides a secure, encrypted way to log in to a remote server across a network, or to copy files from a local machine to a server.

Before allowing SSH access, please ensure you set a secure admin/root password on the server. A weak password may compromise security.

To allow SSH access:

1. From the MSL Server Console menu, select **Access server manager** and then press **Y** to proceed.

2. Under **Security**, select **Remote Access**. Navigate through the screen using your mouse or keyboard (down arrow and Enter keys).

3. Scroll down to the Secure Shell Settings.

4. Select an access option:
   - **No Access** – (Default) SSH access not allowed.
   - **Allow public access (entire Internet)** – This option enables users to access the server from anywhere on the Internet. It is selectable only if you have configured a strong SSH (admin) password. If you have weak password and attempt to select this option, you will receive the following warning: ‘The system administration password is set to a weak value. The "Allow public access" option in the form below will remain disabled until the system administration password has been reset to a strong value.’
   - **Allow access only from trusted and remote management networks** – This option enables users to access the server only from trusted and remote management networks configured in MSL.

5. Program the configuration options, selecting either **Yes** or **No**:
   - **Allow administrative command line access over secure shell**: This option allows users to connect to the server and log in as "root" with the administrative password.
   - **Allow secure shell access using standard passwords**: This option allows users to connect to the server using a standard user name and password.

   **Note:** To allow full access to the MSL administrative interfaces (Server Console and Server Manager), select **Yes** for both options.

6. Select **Save**.

To test the setup, connect to the NuPoint Unified Messaging server by launching an SSH client (such as PuTTY) on the remote system. Ensure that it points to the external domain name or IP address for the server for successful connectivity.
GRANTING TRUSTED NETWORK PRIVILEGES

When you configured the server, you provided it with the information to deduce its own local network and identify machines on this network as being eligible for access to its services. You can also allow other networks to access your server as if they were a local network. This is necessary if your maintenance PC is on a different subnet than the server.

To extend privileges to one or more additional networks:

1. Access the MSL Server Manager. (See page 216.)

2. Under Configuration, select Networks.
   Navigate through the screen using your mouse or keyboard (down arrow and Enter keys).

3. Select Add a new trusted network.

4. In the Network address field, enter the IP address of the network to designate as “local”.

5. In the Subnet mask or network prefix length field, enter the dot-decimal subnet mask or CIDR network prefix to apply to the Network Address. If this field is left blank, the system assigns a network prefix length of /24 for IPv4 networks or /64 for IPv6 networks. (For example, if the network IP address is 168.195.52.0 and you want to allow access to all network IP addresses in the range from 1 to 255, enter 255.255.255.0. This allows IP addresses 168.195.52.1 through 168.195.52.255 to access your server.)

6. In the Router field, enter the IP address of the router you will use to access the newly added network.

7. Select Add.

INSTALLING NUPOINT BLADES

INSTALLING LANGUAGE PROMPTS

If you only require the default North American English prompts, it is not necessary to install additional language prompts. Note that your system must be licensed for additional languages.

To install language prompts:

1. Insert the NuPoint UM Software DVD (DVD 1) in the DVD drive.

2. Access the MSL Server Manager. You can open the interface from a remote management server if you have granted the necessary trusted network privileges.

3. In the left-hand menu under ServiceLink, click Blades.

4. Click Update List. A list of all NuPoint Unified Messaging applications and available prompt languages appears.

5. Install the prompt languages for which your system is licensed by clicking on the Install link beside the corresponding NuPoint Messenger prompt language blade.

6. When blade installation is complete, reboot the server. (Under Administration, select Shutdown or reconfigure, select Reboot, and then click Perform.)
7. Remove DVD 1.

**Note:** To uninstall a language used in a line group or LCOS language, you must manually update the language selected in the line group or LCOS.

The NuPoint UM licensed prompt languages have now been installed. If you are using the Speech Auto Attendant or Advanced UM features, proceed to “Installing Text to Speech Prompts”.

**INSTALLING TEXT-TO-SPEECH PROMPTS**

Text to speech prompts must be installed for Speech Auto Attendant and Advanced Unified Messaging.

To install Text-to-Speech prompts:

1. Insert the NuPoint UM Software DVD (DVD 2) in the DVD drive.
2. Access the MSL Server Manager.
3. Under **Service Link**, click **Blades**.
4. Click **Update List**. A list of all NuPoint UM applications appears.
5. Install the Text-to-Speech languages by clicking on the **Install** link beside the corresponding NP-UM TTS prompt language blade.
6. When blade installation is complete, reboot the server.

**INSTALLING OPTIONAL FEATURES**

Optional features require licenses and a sync with the AMC to update license keys before installation.

To install an optional feature:

1. Ensure that licenses have been purchased and a sync with the AMC (see page 224) has been performed.
2. Insert the NuPoint UM software DVD (DVD 2) into the DVD-ROM drive.
3. Access the MSL Server Manager.
4. Under **Service Link**, click **Blades**.
5. Click **Update List**. A list of all NuPoint UM applications appears.
6. Locate the NuPoint UM blade for the feature that you are adding to the system and click the corresponding **Install** link.
7. A license agreement is displayed. Accept the license agreement to continue with the installation.
8. When blade installation is complete, reboot the server.

The customer system is now installed with the latest software version. Proceed to “Basic Configuration” on page 131. Detailed configuration instructions are available in the *NuPoint Unified Messaging System Administration Help*.
INSTALLING VIRTUAL NUPOINT ON VMWARE

Virtual NuPoint (vNuPoint) allows you to deploy NuPoint as an appliance within a VMware virtualized environment. Two deployment configurations are available:

- **Mid Market** - Support for up to 60 voice mail ports and 57,000 mailboxes.
- **Enterprise** - Support for up to 120 voice mail ports and 120,000 mailboxes.
- **Large Enterprise** - Support for up to 220 voice mail ports and 120,000 mailboxes.

VMWARE RESOURCES

This section describes the installation of the virtual NuPoint (vNuPoint). It does not describe the setup and operation of the VMware ESXi Hypervisor and vSphere Client environment. Refer to the VMware documentation for details:

- See the VMware vSphere main documentation page at http://www.vmware.com/support/pubs/ for links to the following information:
  - New Features and Release Notes
  - Hardware and Software Compatibility Information
  - System Administrator Documentation (Main Documentation Set plus additional resources)
  - Optional vSphere Products and Modules
  - Automators and Customizers
- See the VMware Compatibility Guide at http://www.vmware.com/resources/compatibility/search.php for supported hardware platforms.
- For vSphere tutorials and training videos/demos go to http://www.rtfm-ed.co.uk/vmware-content/vsphere-videosdemos/.

OVERVIEW

A new installation of vNuPoint consists of the following steps:

- Read Installation Notes on page 109
- Collect System Settings Information
- Purchase all required licenses and create an Application Record ID (Internet connectivity required)
- Download vNuPoint OVA and ISO files from Mitel OnLine (Internet connectivity required)
- Deploy vNuPoint vApp
- Configure the MSL Operating System and enter the ARID (Internet connectivity required; offline synchronization is not supported)
- Configure Access to the vNuPoint Server
- Back up MSL
- Install the vNuPoint Software
- Install Licensed vNuPoint Blades (e.g. Language prompts)
INSTALLATION NOTES

REQUIREMENTS

- **vNuPoint must** be installed in the vSphere environment using Thick, lazy zeroed provisioning. Thin provisioning can cause voice quality issues.

- (Optional) vCenter Server deployed on the network. Refer to the VMware website for detailed installation procedures and additional documentation.

- A DNS server that is reachable from the platform.

- For details concerning user limits and resource requirements for each of the three available deployment configurations (minimum RAM, vCPUs, and hard disk size), see the *Mitel Virtual Appliance Deployment Solutions Guide* available at Mitel Online. The vNuPoint OVA template enforces these specifications during deployment.

  **Note:** Once vNuPoint is deployed, you can use the **Summary** tab in the vSphere Client interface to manage the hardware specifications. Ensure that you meet or exceed the minimum resource requirements.

CONSTRAINTS

The following constraints apply:

- Mitel does not support the installation and operation of the VMware ESXi Hypervisor environment. For assistance with this product, contact VMware, Inc.

- A "vNuPoint Base" software license is required when creating the Application Record ID for a vNuPoint installation. Do not attempt to install vNuPoint using an Application Record ID created from a NuPoint Server base software license; otherwise, the installation will fail.

- vNuPoint is supported starting with software Release 4.2 SP1. If you inadvertently deploy an earlier release of software on a virtual environment you will be unable to upgrade your implementation. To resolve the problem, you must convert to vNuPoint Release 4.2 SP1 or later using the appropriate "Physical NuPoint UM-to-virtual" conversion license.

- vNuPoint is not supported if you manually install NuPoint (that is, install the MSL and the NuPoint UM software into a VMware virtual appliance and then use a vNuPoint Application Record ID to activate the software). vNuPoint is only supported if you install it from the vNuPoint .ova file.

- To restore a Physical NuPoint configuration into a newly installed vNuPoint deployment, you must use a NuPoint backup file. MSL backups cannot be restored to vNuPoint.

- The vCenter Management vMotion feature provides live migration of virtual machines from one Physical NuPoint UM host to another with zero downtime. While a vMotion migration is in progress, vNuPoint users may experience voice quality degradation.
SYSTEM SETTINGS INFORMATION

Collect the following information before you start the installation:

<table>
<thead>
<tr>
<th>ITEM</th>
<th>NOTES</th>
<th>YOUR INFORMATION:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LOCALIZATION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time zone setting</td>
<td>Identify the MSL operating system time zone setting. The default is America/New York. The Time zone setting also determines your system telecommunications regional settings.</td>
<td></td>
</tr>
<tr>
<td>Keyboard Type</td>
<td>Identify the preferred keyboard type (default is us).</td>
<td></td>
</tr>
<tr>
<td><strong>APPLICATION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial Administrator Password</td>
<td>Record the initial administrator password for the MSL server manager interface. This password must be at least six characters long. When you access the server manager, you will be prompted to change this initial password. <strong>Note:</strong> You must enter a password before you deploy the system; otherwise, the system will not boot up.</td>
<td>Initial server manager Administrator Password:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Final server manager Administrator Password:</td>
</tr>
<tr>
<td>Hostname</td>
<td>Set the hostname of the system.</td>
<td></td>
</tr>
<tr>
<td>Domain Name (Optional)</td>
<td>Specify the domain name for the hostname above. The default domain name is &quot;mycompany.local&quot;.</td>
<td></td>
</tr>
<tr>
<td>License Key (Optional)</td>
<td>Identify the License Key (ARID) for this system. The ARID is used by the AMC to distribute the system licenses.</td>
<td></td>
</tr>
<tr>
<td>DNS Server (Optional)</td>
<td>Record the IP address of your corporate DNS server. <strong>Note:</strong> If your DNS is supplied by your ISP, leave this setting blank.</td>
<td></td>
</tr>
<tr>
<td>Remote Network Address for server administration (Optional)</td>
<td>Remote management allows hosts on the another to access the server manager of your MSL server.</td>
<td></td>
</tr>
<tr>
<td>Remote Network Netmask (Optional)</td>
<td>To limit access to the specified host, enter a subnet mask of 255.255.255.255 for IPv4 networks.</td>
<td></td>
</tr>
</tbody>
</table>
CREATING THE VNUPOINT APPLICATION RECORD

Connect to the Internet and create an Application Record for this vNuPoint installation in your AMC license account. You will use the ID number of this Application Record to activate your MSL license.

Note: You must use the “vNuPoint Base” software license when you create the Application Record ID for a vNuPoint installation. Do not attempt to install vNuPoint using an Application Record ID created from a NuPoint Server license; otherwise, the installation will fail.
DOWNLOADING THE VNUPPOINT SOFTWARE FILES (OVA AND ISO)

To download the vNuPoint .ova file and any optional application software from Mitel OnLine:

1. Launch Internet Explorer on the vSphere Client PC.
3. Click Technical and then click Software Downloads.
4. Click NuPoint.
5. Click the appropriate vNuPoint Software Download version.
7. Verify that the versions of the software and applications are correct.
8. Download the vNuPoint OVA file (.ova extension) by clicking the link in the table. When you click a link, you are presented with a software Disclaimer.
9. Select a download method: HTTP or the Software Download Manager.
10. Save the OVA file to a network drive or to a folder on your vSphere Client PC.
11. Download the required application ISO files (NPM Blade DVD1 and DVD2) from Mitel OnLine to a network drive or to a folder on your vSphere Client PC.
12. The OVA and ISO files are labeled as shown in Table 2:

Table 2: Software Download Files

<table>
<thead>
<tr>
<th>FILE CONTENTS</th>
<th>FILE FORMAT</th>
<th>FILE NAME DOWNLOADED</th>
<th>APPROX FILE SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>vNuPoint Deployments</td>
<td>.ova file</td>
<td>vNuPoint_x.x.x.ova</td>
<td>2.6 GB</td>
</tr>
<tr>
<td>vNuPoint vApp packaged as a virtual appliance</td>
<td>.iso file</td>
<td>NP-UM_x.x.x.x.DVD1.iso</td>
<td>1.0 GB</td>
</tr>
<tr>
<td>NuPoint Unified Messaging software option</td>
<td>.iso file</td>
<td>NP-UM_x.x.x.x.DVD2.iso</td>
<td>2.0 GB</td>
</tr>
</tbody>
</table>

DEPLOYING THE VNUPPOINT VAPP

To deploy vNuPoint on a vSphere Standalone host or via a vCenter Server:

1. Launch the vSphere Client application on the network PC.
   - Click Start > All Programs.
   - Click VMware -> VMware vSphere Client.
   - Enter the IP address or hostname of the Hypervisor ESX/ESXi Host server or
     Enter the IP address or hostname of the vCenter Server.
   - Enter your username and password.
   - Click OK.
2. In the vSphere Client application screen, click **File-> Deploy OVF template**. The *Deploy OVF Template* screen opens.

3. Specify the Source Location for the OVF template file (.ova file extension):
   - **Deploy from file**
     - if the OVF template file is on the local computer or a network share drive, then click **Browse** to locate the file.
   - **Deploy from URL**
     - if the OVF template file is on the internet or accessible through a web browser; enter the URL of the location of the file.

4. Click **Next**. The *OVF Template Details* screen is displayed. The Version field identifies the NuPoint UM software version.

5. Click **Next**. The *End User License Agreement* screen displays.

6. Click **Accept** to accept the end-user license agreement, and then click **Next**. The *Deploy OVF Template Name and Location* screen displays.

7. Enter a meaningful **Name** for the vNuPoint instance, or accept the default name. Enter a folder location within the inventory if the vSphere Client is connected to an ESX/ESXi host.

8. Click **Next**. The *Deployment Configuration* screen displays.

9. Select the required deployment configuration for your site, either **Mid Market (60 ports)**, **Enterprise (120 ports)**, or **Large Enterprise (240 ports)**, and then click **Next**. Depending on your configuration, either the Host / Cluster or Disk Format screen displays.

10. If you are deploying in a vCenter Server, select the Host/Cluster for the vNuPoint instance, and then click **Next**. Depending on your configuration, either the Resource Pool or Disk-Format screen displays.

11. If you are deploying in a vCenter Server, select the Resource Pool for the vNuPoint instance, and then click **Next**. Depending on your configuration, either the Datastore or Disk Format screen displays.

12. If multiple datastores are available, select the Datastore for the vNuPoint instance, and then click **Next**. The Disk Format screen displays.

13. In the Disk Format screen, select the **Thick Provision Lazy Zeroed** option. vNuPoint must be installed in the vSphere environment using Thick provisioning. Thin provisioning can cause voice quality issues. Click **Next**.

14. If the network defined in the OVF template does not match the name of the template on the host to which you are deploying vNuPoint, you will be prompted to configure the network mapping. Contact your Data Center administrator for more details on which Network Mapping to use.

15. Click **Next**. The *Deploy OVF Template Ready to Complete* screen appears.

16. Review the information and click **Finish**. vSphere starts the deployment of vNuPoint on the server. A progress bar is displayed.
17. After the dialog indicating that the deployment is complete appears, click Close. The vNuPoint instance appears in the inventory list in the left side navigation pane.

CONFIGURING MITEL STANDARD LINUX

To configure Mitel Standard Linux:

1. In the vSphere Client, right-click the newly created vNuPoint instance (for example: vNuPoint 4.2.1.1) and then click Power > Power On.

2. Right-click on vNuPoint again and select Open Console. The MSL Server Console opens and displays the MSL boot up screen.

3. Place the cursor in the console window and click to continue. If at any time you need the cursor available for other desktop activities, press the CTRL + ALT keys. Click Next.

4. Select your keyboard layout (default is us), and then click Next.

5. At the Restore from backup? prompt, select No because this is your initial installation of the vNuPoint software. Click Next.

6. Enter the Administrator password and then re-enter it for confirmation. Click Next after each entry. Choose a password that contains numbers, mixed upper- and lower-case letters, and punctuation characters. After you have entered and confirmed the password, the system examines the password for strength. If it is found to be weak, you are offered the chance to change it or continue.

7. Select the server time zone in which the server is located, and then click Next.

8. Enter the Primary Domain Name that will be associated with the MSL virtual appliance (the default is "mycompany.local"). Click Next.

9. Enter a System Name for the vNuPoint virtual application, and then click Next. The name must start with a letter and can contain letters, numbers, and hyphens (for example, Server1).

10. Select the Local Network Adapters using the keyboard up/down arrows and space bar. You can select multiple adapters to bond into a single LAN connection.

11. If you have selected multiple adapters, click Next to accept the NIC Bonding Options.

12. Enter the local IP address for this server, or accept the default. Click Next.

13. Enter the local subnet mask for this server, or accept the default. Click Next.

14. At the Enable IPv6 Protocol prompt, select No to limit the server to IPv4 addresses. Click Next.

15. At the Gateway IP Address prompt, enter the IP address that this server should use to access the Internet. Click Next.

16. If there are specific routes out to the Internet and you want the server to do DNS lookups to other servers in the network, enter the "Corporate DNS server address", click Next and...
then specify how name resolution is performed for the local domain (the domain configured on the MSL server):

- **localhost** – the localhost file is used to resolve names for the local domain while the corporate DNS server handles name resolutions for all other domains.
- **corporate** – the corporate DNS server is used to resolve names for all domains.

Click **Next**.

17. After you have finished entering the configuration information, click **Reboot Now** to activate changes and automatically reboot the system.

**ACTIVATING THE APPLICATION RECORD ID IN YOUR SERVICELINK ACCOUNT**

The online activation (or “sync”) of the Application Record ID (ARID) for your ServiceLink account requires Internet connectivity and usually takes about 60 seconds to complete. After initial installation, a sync is required only when you add features to your license key and when you upgrade your Physical NuPoint software. The AMC performs an automatic sync daily.

To activate the ARID in ServiceLink:

**Note:** Internet connectivity is required to perform the next steps.

1. When prompted, enter the Application Record ID (ARID) number that you created for this installation, and then click **Next**. Although the screen says that this entry is optional, we recommend that you enter your Application Record ID number at this time. This entry initiates registration and downloading of all licensed and enabled NuPoint UM Software Assurance and NuPoint UM software blades.

**Note:** If you accidentally cancel this screen you will exit to the MSL Server Console menu. You can restart the application software installation by selecting **Register for ServiceLink** from the menu. Enter your Application Record ID number and then select the **Install Mitel Applications** menu option.

2. Enter the Application Management Center address or accept the default value, and then click **Next**.

3. After ServiceLink activation is complete, you are prompted **Do you wish to install blades from CD/DVD?**. Select **No** and press **Enter**.

The MSL login prompt appears.

Do **NOT** log in or press Enter. Instead, wait for the system to install the NuPoint UM Software Assurance and NuPoint UM software blades. This process is automatic and can take up
to ten minutes. The process is complete when the system displays the following message:
“NuPoint installation finished.”

```
Program Initialization Complete
Program Initialization Complete
Installing : Blade-NPMHospitality
Installing : Blade-NPMwebmailNetworking
Installing : Blade-NPMFax
Installing : Blade-NPMTLSPre requisite sites
Installing : Blade-NPMAdvancedUM
Installing : Blade-NPMSpeechToText
Installing : Blade-NPMspeechHotPre requisite sites
Installing : Blade-NPMSpeechNavigation
NuPoint installation finished.
```

4. After the "NuPoint installation finished“ message appears, press Enter to display the MSL login prompt.

5. At the MSL login prompt, log in as “admin”. The MSL Server Console menu is displayed.

**Note:** If the MSL server lacks direct access to the Internet, you can connect to the AMC by opening a pinhole in your firewall or by configuring a licensing proxy server to perform port forwarding. For implementation details, see the *MSL Installation and Administration Guide* and the *Mitel Virtual Appliance Deployment Solutions Guide*. Offline synchronization with the AMC is not supported in a virtual environment.

**CONFIGURING ACCESS TO VNUPONT**

**ENABLING SSH ACCESS**

SSH (secure shell) provides a secure, encrypted way to log in to a remote server across a network, or to copy files from a local machine to a server.

Before allowing SSH access, please ensure you set a secure admin/root password on the server. A weak password may compromise security.

To allow SSH access:

1. From the MSL Server Console menu, select **Access server manager** and then press Y to proceed.

2. Under **Security**, select **Remote Access**.
   Navigate through the screen using your mouse or keyboard (down arrow and Enter keys).

3. Scroll down to the Secure Shell Settings.

4. Select an access option:
   - **No Access** – (Default) SSH access not allowed.
   - **Allow public access (entire Internet)** – This option enables users to access the server from anywhere on the Internet. It is selectable only if you have configured a strong SSH (admin) password. If you have weak password and attempt to select this option, you will receive the following warning: ‘The system administration password is set to a weak value. The “Allow public access” option in the form below will remain
disabled until the system administration password has been reset to a strong value.’

- **Allow access only from trusted and remote management networks** – This option enables users to access the server only from trusted and remote management networks configured in MSL.

5. Program the configuration options, selecting either **Yes** or **No**:

- **Allow administrative command line access over secure shell**: This option allows users to connect to the server and log in as "root" with the administrative password.

- **Allow secure shell access using standard passwords**: This option allows users to connect to the server using a standard user name and password.

  **Note**: To allow full access to the MSL administrative interfaces (Server Console and Server Manager), select **Yes** for both options.

6. Select **Save**.

To test the setup, connect to the NuPoint Unified Messaging server by launching an SSH client (such as PuTTY) on the remote system. Ensure that it points to the external domain name or IP address for the server for successful connectivity.

**GRANTING TRUSTED NETWORK PRIVILEGES**

When you configured the server, you provided it with the information to deduce its own local network and identify machines on this network as being eligible for access to its services. You can also allow other networks to access your server as if they were a local network. This is necessary if your maintenance PC is on a different subnet than the server.

To extend privileges to one or more additional networks:

1. Access the MSL Server Manager. (See page 216.)

2. Under **Configuration**, select **Networks**.

   Navigate through the screen using your mouse or keyboard (down arrow and Enter keys).

3. Select **Add a new trusted network**.

4. In the **Network address** field, enter the IP address of the network to designate as "local".

5. In the **Subnet mask or network prefix length** field, enter the dot-decimal subnet mask or CIDR network prefix to apply to the Network Address. If this field is left blank, the system assigns a network prefix length of /24 for IPv4 networks or /64 for IPv6 networks. (For example, if the network IP address is 168.195.52.0 and you want to allow access to all network IP addresses in the range from 1 to 255, enter 255.255.255.0. This allows IP addresses 168.195.52.1 through 168.195.52.255 to access your server.)

6. In the **Router** field, enter the IP address of the router you will use to access the newly added network.

7. Select **Add**.

Do the next procedure, “Performing an MSL Backup”.

**PERFORMING AN MSL BACKUP**

1. Access the MSL Server Manager.
2. Under Administration, click **Backup**.

3. From the Select an action list, click **Configure network backup** and then click **Perform**.

4. Configure the server where the backup file will be stored.
   - Enter the **IP address** of the file server where the backup will be stored.
   - Enter the **Sharename** of the shared folder where the backup file will be stored. The shared folder must have permissions set to "Full Control".
   - Enter the (Optional) **Sub Directory** where the backup will be stored.
   - Enter the **Username** to use when connecting to the backup server.
   - Enter the **Domain** or **Workgroup** name of the server. (For example, mitel.com.)
   - Enter the **Password** to use when connecting to the backup server.
   - Select the **Maximum number of backup files to keep** (1-999) on the server (default is 5).

5. Select the frequency with which you want to perform backups (**Daily**, **Weekly**, **Monthly**, **Never**). Backup file names will include timestamps in the format: mslserver_<host-name>_yyyy-mm-dd_hh-mm.tgz). For immediate backup file creation, proceed to the next step.

6. (Optional) To encrypt the backup file, enter an **Encryption Password**, and then re-enter it. To create a strong password, use a mix of characters, numbers and symbols, plus both upper and lower case characters.

   **Note:** You will be prompted to enter the password when you restore from backup. If you fail to remember the password, you will not be able to restore the data contained in the backup file.

7. To test your backup configuration, or to run an immediate backup, click **Backup Now**.

8. Click **Save** to save the schedule information.

   **Note:** Save the MSL backup to a safe location. You will require it when you upgrade Virtual NuPoint using an OVA file (see "Upgrading Virtual NuPoint on VMWare" on page 147).

   **Note:** You can also save the MSL backup to the local workstation. For details, see "Backup to Desktop Option" in the *Mitel Standard Linux Installation and Administration Guide*.

If there are additional software components, proceed to "Installing vNuPoint Blades" on page 119. If there are there no additional software components, restart the server by selecting the **Reboot, reconfigure, or shutdown** menu on the MSL Server Console and then selecting the **Reboot** option.
INSTALLING VNUPPOINT BLADES

INSTALLING LANGUAGE PROMPTS

If you plan to use the default North American English language it is not necessary to install additional prompts. If you want to install additional prompt languages, follow the instructions below:

1. Insert DVD1 into the CD/DVD drive of the vSphere client computer.
2. Enable the connection to the vSphere client CD/DVD drive:
   a. In the vSphere Client toolbar, click the CD icon.
   b. Click **Connect to CD/DVD 1**.
   c. Click **Connect to D:** (The drive letter may vary, depending on your PC setup.)
3. Access the MSL Server Manager. You can open the interface from a remote management server if you have granted the necessary trusted network privileges.
4. In the left-hand menu under **Service Link**, click **Blades**.
5. Click **Update List**. A list of all NuPoint Unified Messaging applications and available prompt languages appears.

**Note:** If you fail to see the language blade you require, simply unmount DVD1 and then remount it as described in step 2, above.

6. Install the prompt languages for which your system is licensed by clicking on the **Install** link beside the corresponding NuPoint Messenger prompt language blade.
7. When blade installation is complete, reboot the server.

The NuPoint UM licensed prompt languages have now been installed. If you are using the Speech Auto Attendant or Advanced UM features, proceed to “Installing Text to Speech Prompts”.

INSTALLING TEXT-TO-SPEECH PROMPTS

Text to speech prompts must be installed for Speech Auto Attendant and Advanced Unified Messaging.

To install Text-to-Speech prompts:
1. Insert DVD2 into the CD/DVD drive of the vSphere client computer.
2. Enable the connection to the vSphere client CD/DVD drive:
   a. In the vSphere Client toolbar, click the CD icon.
   b. Click **Connect to CD/DVD 1**.
   c. Click **Connect to D:** (The drive letter may vary, depending on your PC setup.)
3. Access the MSL Server Manager.
4. Under **Service Link**, click **Blades**.

5. Click **Update List**. A list of all NuPoint Unified Messaging applications and available prompt languages appears.

6. Install the Text-to-Speech languages by clicking on the **Install** link beside the corresponding NP-UM TTS prompt language blade.

7. When blade installation is complete, reboot the server.

**Note:** After you have finished installing the software, disable the connection to the vSphere client CD/DVD drive in order to maximize system performance.

The NuPoint UM system has now been installed with the licensed prompt languages and TTS and the software installation process is complete. Proceed to “Basic Configuration” on page 131. Detailed configuration instructions are available in the *NuPoint Unified Messaging System Administration Help*. 
INSTALLING VIRTUAL NUPOINT ON HYPER-V

If you are installing NuPoint in a Microsoft Hyper-V environment, refer to the Virtual Appliance Deployment Guide for hardware and software requirements. After you have done this and created the virtual machine, use the "physical" software installation procedure to install the NuPoint virtual application.

LIMITATIONS

- Although you use the physical software installation procedure to install virtual NuPoint, you must assign a virtual product license to the ARID.
- Hyper-V virtual machines that run Mitel Standard Linux (MSL) do not support connection of USB devices. Accordingly, the MSL software installation must be performed from the CD/DVD-ROM drive.
- Mitel software must be installed using traditional physical ISO images available from Mitel OnLine. OVA images cannot be used. After creating the virtual machine, use the ISOs to install the MSL operating system and NuPoint application software as you would on a physical system.
- Once the software has been installed and licensed, Hyper-V must maintain online connectivity to the AMC and is subject to the same Sync Expiry rules in place for VMware-based deployments.
- To achieve the same performance as VMware, a Hyper-V virtual machine requires twice as many virtual processors.
VERIFYING SERVER OPERATION

You must run a System Information Report to confirm there are no configuration errors. Refer to the NuPoint Unified Messaging System Administration Help available at Mitel OnLine for instructions.

Note: For information on engineering, verifying, and maintaining voice quality over IP networks, please refer to "General Guidelines for Quality of Service" in the 3300 MiVoice Business Engineering Guidelines.

TESTING TELEPHONE LINES

1. Use the telephone test set to verify the following parameters:
   - Ringing voltage or proper E & M Signaling
   - End-to-end transmission of voice
   - End-to-end transmission of DTMF
   - Sound quality of lines (no noise or static)
   - Hunting capability of hunt lines

   Note: Please refer to the 3300 ICP Communication’s Platform Engineering Guidelines for information on troubleshooting network related voice quality issues.

2. Check the accuracy of voice prompts:
   (a) Create two mailboxes on the MSL Server Console, using the Unlimited Feature Class of Service, FCOS 1, and the default Limits Class of Service, LCOS 1.
   (b) Disable the tutorial on the second mailbox.
   (c) Call the first mailbox from the test telephone and go through the tutorial. Then:
       - Press 8 on the keypad for User Options and listen for the User Options menu.
       - Make a message for the second mailbox.
       - Press 9 on the keypad twice to exit the mailbox and return to the Company greeting.
   (d) Enter the number of the second mailbox. Then:
       - Listen for "You have an unplayed message..." Do not respond. After the time-out, check that the server plays the entire menu: "Press P to Play..."
       - Play the message, then listen for the Prompts to keep, discard, answer, and so on.
       - Press 2 on the keypad to answer the message, then listen for the Prompt to record additional comments.
       - Press 9 on the keypad to exit the mailbox.
   (e) If any Prompt is missing, reinstall the prompts.

3. Verify the Mailbox Dialing Plan
   (a) Set up a dialing plan for the server. For details, refer to Software Configuration.
   (b) Set up one test mailbox for each leading digit of the dialing plan.
(c) Call the server and enter the number of the first mailbox. Repeat for the other mailboxes. If the server does not accept a valid number, check the programming for the mailbox dialing plan for that port group.

(d) Try to enter an invalid mailbox number for each dialing plan position and check that the server responds: "That is not a valid mailbox number. Please enter another mailbox number."

(e) If the Prompt is missing, reinstall the Prompts.

4. Test the Call Attendant Operation

(a) Attach a telephone test set to Line B.

(b) Call Line B from Test Set A and check for ringing on the test set.

(c) Test each of the attendant access routes that apply to the server. When the dial string to reach the attendant is invoked, listen to the call progress on the test set. Stay on the line at Test Set A until you are transferred to the attendant.

(d) If the call fails, do the following:

- Repeat the test, but insert a plus (+) after the dialed telephone number; many PBXs do not transfer properly if the hangup occurs too fast.
- Check the programming of the Call Attendant string (take two sets and transfer one to the operator). The programming sequence should be identical to the guide transfer operation.
- Check the phone line exception (LE 23) for timing the switch hook flash. If the time is too long, an immediate disconnect occurs when the server issues a switch hook flash. If the time is too short, the call is not placed on hold.

5. Test the Message Indicators

(a) Create a mailbox and assign it the FCOS that enables the Caller’s Menu. For details, refer to Software Configuration.

(b) Call the mailbox and leave a message. Check that the message completes properly under each of the following conditions:

- You stop speaking and the server "hears" three seconds of dial tone.
- You enter a valid DTMF tone.
- The server "hears" five seconds of dial tone.
- You reach the maximum message length allowed by the mailbox LCOS.

(c) Check that the message waiting indicator activates.

(d) Log into the mailbox and retrieve the message. Log out. Check that the message waiting indicator turns off.

6. Test the Feature Classes of Service (FCOS)

(a) Create several mailboxes and assign each a different FCOS. For details, refer to Software Configuration.

(b) Test all features assigned to each FCOS. Check that appropriate prompts play and all server responses are correct.
(c) If a problem occurs, check the FCOS programming, especially possible feature conflicts.

7. Test the Limit Classes of Service (LCOS)
   (a) Create several mailboxes and assign each a different LCOS. For details, refer to Software Configuration.
   (b) Test mailboxes to ensure parameters are correct.

8. Test the Group Classes of Service (GCOS)
   (a) Create several mailboxes and assign each a different GCOS. For details, refer to Software Configuration.
   (b) Make messages among mailboxes.
   (c) Verify that you can deliver only those messages allowed by each mailbox GCOS.
IMPORTING MAILBOX DATA

Mailboxes can be imported from a non-NuPoint messaging system into NuPoint Unified Messaging systems. Information from the third-party application is exported to a configuration file, modified to fit the NuPoint UM format, and then imported.

You can also import mailbox data from the 3300 ICP Embedded Voice Mail system using an automated process. To import mailbox data from a 3300 ICP Embedded Voice Mail system, see page 127.

**Note:** It is assumed that the mailboxes to be imported, specifically the mailbox numbers, do not already exist in the NuPoint Unified Messaging system. If existing mailboxes are detected they will not be replaced and will be reported as errors during the import process.

IMPORTING MAILBOX DATA FROM THIRD-PARTY SYSTEMS

Two steps are required:
- Prepare a mailbox data file
- Import the mailboxes using the Import Mailboxes utility

PREPARING MAILBOX DATA FILES

A mailbox data file can be created from scratch using a spreadsheet program or it can be derived from an imported.csv file that you modify. The data for each mailbox is organized into ordered columns with each line representing a new mailbox. Once arranged in the expected order, the file is saved as a Mailbox Data file.

**Format**

Each line of the Mailbox Data file must use the following syntax in order for data to be correctly interpreted:

MAILBOX_NO<D>MAILBOX_NAME<D>DEPT<D>EXT<D>ATTENDANT_EXT<D>MWI<CR>

The following table explains the requirements for each field:

<table>
<thead>
<tr>
<th>FIELD</th>
<th>REQ'D</th>
<th>VALID INPUT</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAILBOX_NO</td>
<td>Y</td>
<td>Minimum of 4 digits. Maximum of 11.</td>
<td>Defines the NP-UM mailbox number to create a mailbox. Existing NP-UM mailboxes will NOT be overwritten. Should the mailbox number in the Mailbox Data file already exist as a NP-UM Mailbox, an error will be reported with details logged in the Import Mailbox Utility’s log files.</td>
</tr>
</tbody>
</table>
When you use a spreadsheet application like Microsoft Excel, you can enter data exactly as it appears below. It is not necessary to enter a delimiter character (<D>) as you can save the file with either the .CSV (comma-separated value) or .TSV (tab-separated value) extension. When saving the tab-separated value format, change the file extension from .TXT to .TSV.

<table>
<thead>
<tr>
<th>FIELD</th>
<th>REQ'D</th>
<th>VALID INPUT</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;D&gt;</td>
<td>Y</td>
<td>Comma or tab</td>
<td>The delimiter character used to divide the data in the input file. The delimiter chosen should not be embedded as a data character anywhere in the Mailbox Data File. For example: If MAILBOX_NAME is entered in the format &quot;Smith,John&quot;, then the .TXT format should be used INSTEAD of .CSV to prevent the import_mailboxes program from dividing MAILBOX_NAME into two separate variables.</td>
</tr>
</tbody>
</table>

If you are using a spreadsheet application to create the data file, the file extension of the Mailbox Data File should match the delimiter used, so that:

- comma separated data files are saved with the .CSV extension.
- tab separated data files are saved with the .TSV extension. (You will have to change the existing .TXT extension)

<table>
<thead>
<tr>
<th>MAILBOX_NAME</th>
<th>A string of 1 to 31 characters, or empty.</th>
<th>The Mailbox user’s name (for example, John Smith). Note: If name is entered as LAST, FIRST it will be reformatted to FIRST LAST. To leave the name field as is, without formatting, use the optional parameter &quot;-raw_name:&quot; when performing the import_mailboxes command.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEPT</td>
<td>1-10 characters, or empty.</td>
<td>The Mailbox user’s department, which may be defined as a number or string (for example, &quot;111&quot; or &quot;HR&quot;)</td>
</tr>
<tr>
<td>EXT</td>
<td>1-15 characters, or empty.</td>
<td>The numerical mailbox extension for the new mailbox. If this is left empty, the extension will be the same as the mailbox number.</td>
</tr>
<tr>
<td>ATTENDANT_EXT</td>
<td>1-15 characters, or empty.</td>
<td>The numerical mailbox extension for the mailbox owner's secretary/personal assistant.</td>
</tr>
<tr>
<td>MWI</td>
<td>Y or N</td>
<td>If ‘y’ is specified, the DTMF to PBX MWI feature is turned on for the created mailbox. If another character is entered, it is ignored and the MWI type remains at None.</td>
</tr>
<tr>
<td>&lt;CR&gt;</td>
<td>Y</td>
<td>Carriage Return character. Indicates the end of data for each mailbox. (If you are using a spreadsheet application, simply start a new line for each new mailbox.)</td>
</tr>
</tbody>
</table>

When you use a spreadsheet application like Microsoft Excel, you can enter data exactly as it appears below. It is not necessary to enter a delimiter character (<D>) as you can save the file with either the .CSV (comma-separated value) or .TSV (tab-separated value) extension. When saving the tab-separated value format, change the file extension from .TXT to .TSV.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAILBOX_NAME</td>
<td>MAILBOX_NAME</td>
<td>DEPT</td>
<td>EXT</td>
<td>ATTENDANT_EXT</td>
<td>MWI</td>
</tr>
<tr>
<td>1</td>
<td>1234 Smith, John</td>
<td>Sales</td>
<td></td>
<td></td>
<td>Y</td>
</tr>
</tbody>
</table>
IMPORTING THE MAILBOXES

To import mailboxes:

1. Save the mailbox data file you created on your local system and then use an FTP application to transfer the mailbox data file to NuPoint (/root or to a selected directory).

2. Access the Text Console directly or via PuTTY:
   a. Connect to the NuPoint UM node.
   b. Log in as "root" and type the root password.
   c. Type `console` and press Enter. The Text Console displays.

3. Exit to the Linux prompt.

4. From the command line, run the Import Mailboxes utility using the following command syntax:

   `import_mailboxes <filename.csv> or <filename.tsv>`

   **Note:** The utility converts all name formatting to FIRST LAST. If you have entered names in the format LAST, FIRST and you want them to remain in that format, use the optional parameter "-raw_name" when entering the import mailboxes command. For example, `import_mailboxes -raw_name<filename.csv> or <filename.tsv>`

5. Proceed to “Processing Mailbox Data”.

IMPORTING MAILBOX DATA FROM THE 3300 ICP EMEM SYSTEM

You can also migrate voice mailboxes from a 3300 ICP embedded voice mail system (EMEM) to automatically create mailboxes on a NuPoint system. In this case, the .CSV file is exported from the 3300 ICP using the System Administration Tool.

This process imports the following mailbox data:

- Mailbox number (mandatory)
- Mailbox name (optional)
- Extension number (optional)
- Attendant (or Operator) Extension (optional)

**Note:** For MiCollab deployments, see the Migration procedure in the MiCollab Installation and Maintenance Guide

IMPORTING THE MAILBOXES

To migrate 3300 EMEM mailboxes:

1. Use the 3300 System Administration Tool to export a .CSV file (only) of mailbox information from the 3300 ICP.

2. Save the exported .CSV file locally on your system and then use an FTP application to transfer the file to NuPoint (/root or to a selected directory).
3. Access the Text Console directly or via PuTTY:
   a. Connect to the NuPoint UM node.
   b. Log in as "root" and type the root password.
   c. Type `console` and press Enter. The Text Console displays.

4. Exit to the Linux prompt.

5. From the command line, run the Import Mailboxes utility using the following command syntax:

   \[\text{import\_mailboxes\ -emem <filename.csv>}\]

   For example, if your mailbox data file was named "mailboxData.csv", then you would type:
   \[\text{import\_mailboxes\ -emem mailboxData.csv}\]

**Processing Mailbox Data**

While the utility is running, progress is reported as a percentage. When complete, the results of the import are displayed in the following format:

**Importing "mailbox\_data\_file.csv"...[IMPORT FINISHED] :: Created [##] Mailboxes**

A second line will display the success of the import:

**[IMPORT SUCCESSFUL] :: No Failures Detected**

OR

**[IMPORT WARNING] :: [##] Failures Detected :: Review "fail\_mailboxes.log"**

The `fail_mailboxes.log` file can be used to troubleshoot any problems. This file is created in the same directory where `import_mailboxes` is run and includes the failed line number in the Mailbox Data File, the invalid data, if applicable, and an error message (for example, "Mailbox May Already Exist").

**Note:** If a mailbox in the Mailbox Data File already exists on the NP-UM system, then it will not be imported.
INSTALLING AND CONFIGURING PRECIDIA IPOCKET 232 CONVERTER

The RS232-to-IP serial port converter, Precidia Technologies iPocket232 (provided by the distributor and its resellers), is required to connect the customer’s PBX to the customer’s Local Area Network (LAN) which, in turn, connects to the NuPoint UM server.

SETTING UP THE PRECIDIA IPOCKET232 CONVERTER
1. Connect the Ethernet cable between the Ethernet port on the Precidia iPocket232 and the network.
2. Connect one end of the RS-232 serial cable to the DB-9 serial connector on the Precidia iPocket232 and apply power.
3. Connect the other end of the serial cable to the PC COM port.

CONFIGURING THE PRECIDIA IPOCKET232 CONVERTER
1. Launch a terminal program on the PC (such as Hyperterminal).
2. Configure the following settings in the Hyperterminal window:
   - 8N1 (eight bits, no parity, one stop bit)
   - 9600 baud
3. Press and hold the reset button on the Precidia iPocket232 until the Precidia iPocket232 Configuration window appears.
4. Configure Ethernet settings:
   - Select 1) Ethernet Settings.
   - Select A) IP Address and enter the IP address of the Precidia iPocket 232.
   - Select B) Subnet Mask and enter the subnet address of the Precidia iPocket 232.
   - Select C) Gateway and enter the gateway address of the Precidia iPocket 232.
5. Configure Serial Port Settings:
   - From the Precidia iPocket232 Configuration window, select 2) Serial Port Settings.
   - Select A) Protocol. A list of protocols will display. Enter D1 for Transparent and tcp (tunnel).
   - Select B) Port Setting and enter the serial port settings, as required, from the following table.
Select D) Local Port Settings and enter 5001, or the number you entered for your remote port.
- Select E) Remote IP and enter the IP address of the NuPoint server.
- Select F) Remote Port and enter 5001 for the remote port number. If port 5001 is in use, enter a number between 5002 and 5006.
- Select * to save the configuration parameters.

6. Disconnect the RS-232 serial cable from the PC.

7. Connect the applicable RS-232 serial cable between the SMDI-compatible switch and the Precidia iPocket232.

**Note:** For additional installation and configuration information for the Precidia iPocket232, refer to the Precidia iPocket232 User Guide, which is located on the Precidia website at www.precidia.com.

**VERIFYING THE IPOCKET CONFIGURATION**

Perform the following steps to test your Precidia iPocket232 configuration:

1. Verify that the Link lamp is lit.
2. Verify that the Status lamp is flashing.
3. Ping the IP address assigned to the Precidia iPocket232.
BASIC CONFIGURATION

This section describes the basic configuration required to get the NuPoint UM system up and running. For configuration of optional features and applications, see the NuPoint UM System Administration online help.

ABOUT THE NUPOINT ADMINISTRATION CONSOLES

There are two administration consoles for NuPoint Unified Messaging:

- **Web Console**: a web-based console accessed by URL
- **Text Console**: a text-based console accessed directly on the NP-UM server, or remotely via SSH

WEB CONSOLE OVERVIEW

The NuPoint Web Console provides a user-friendly web interface that offers a subset of the capabilities of the Text Console. You can use either console for basic configuration but, for ease of use, it is recommended that you use the Web interface.

Each Web Console window connects to one NuPoint Unified Messaging system. To administer another NuPoint UM system, you can either open another Web Console session in another browser window or use the pass-through login capability to access other systems. Two user accounts are supported: "Admin" and "root". Only one user can be logged in to the system at a given time.

For detailed information about using Web Console, refer to the *NuPoint Unified Messaging Web Console Help*.

TEXT CONSOLE OVERVIEW

The NuPoint Text Console is less user-friendly, presenting a text interface with extensive menus. You drill down through menus to make selections that configure each feature. You can use the Text Console for all software configuration, feature programming, and system administration on the NuPoint Unified Messaging server. Multiple users can access the Text Console simultaneously

The Text Console is supported through the main Linux interface (sign in as "root" to access the NuPoint UM Text Console, or as "admin" to access the MSL Server Console) and also through PuTTY (a Secure Shell (SSH) client). The current OneNet API also continues to be supported for legacy products such as OPS Manager.

ACCESSING THE ADMINISTRATION CONSOLES

UPDATING THE ACCESS SETTINGS IN MSL

You can access the NuPoint Web Console directly from a remote PC as long as the PC is on the same subnet as the NP-UM server. If your remote PC is on a different subnet, you must configure the NuPoint server to enable SSH access, and to treat the remote PC as if it were local.
Enabling Secure Shell (SSH) Settings in MSL

SSH (secure shell) provides a secure, encrypted way to log in to a remote server across a network, or to copy files from a local machine to a server.

Before allowing SSH access, please ensure you set a secure admin/root password on the server. A weak password may compromise security.

To allow SSH access:

1. From the MSL Server Console menu, select **Access server manager** and then press **Y** to proceed.
2. Under **Security**, select **Remote Access**.
   Navigate through the screen using your mouse or keyboard (down arrow and Enter keys).
3. Scroll down to the Secure Shell Settings.
4. Select an access option:
   - **No Access** – (Default) SSH access not allowed.
   - **Allow public access (entire Internet)** – This option enables users to access the server from anywhere on the Internet. It is selectable only if you have configured a strong SSH (admin) password. If you have weak password and attempt to select this option, you will receive the following warning: 'The system administration password is set to a weak value. The "Allow public access" option in the form below will remain disabled until the system administration password has been reset to a strong value.'
   - **Allow access only from trusted and remote management networks** – This option enables users to access the server only from trusted and remote management networks configured in MSL.
5. Program the configuration options, selecting either **Yes** or **No**:
   - **Allow administrative command line access over secure shell**: This option allows users to connect to the server and log in as "root" with the administrative password.
   - **Allow secure shell access using standard passwords**: This option allows users to connect to the server using a standard user name and password.

**Note**: To allow full access to the MSL administrative interfaces (Server Console and Server Manager), select **Yes** for both options.

6. Select **Save**.

To test the setup, connect to the NuPoint Unified Messaging server by launching an SSH client (such as PuTTY) on the remote system. Ensure that it points to the external domain name or IP address for the server for successful connectivity.

Granting Trusted Network Privileges

When you configured the server, you provided it with the information to deduce its own local network and identify machines on this network as being eligible for access to its services. You can also allow other networks to access your server as if they were a local network. This is necessary if your maintenance PC is on a different subnet than the server.

To extend privileges to one or more additional networks:
1. Access the MSL Server Manager. (See page 216.)

2. Under Configuration, select Networks.
   Navigate through the screen using your mouse or keyboard (down arrow and Enter keys).

3. Select Add a new trusted network.

4. In the Network address field, enter the IP address of the network to designate as "local".

5. In the Subnet mask or network prefix length field, enter the dot-decimal subnet mask or CIDR network prefix to apply to the Network Address. If this field is left blank, the system assigns a network prefix length of /24 for IPv4 networks or /64 for IPv6 networks. (For example, if the network IP address is 168.195.52.0 and you want to allow access to all network IP addresses in the range from 1 to 255, enter 255.255.255.0. This allows IP addresses 168.195.52.1 through 168.195.52.255 to access your server.)

6. In the Router field, enter the IP address of the router you will use to access the newly added network.

7. Select Add.

ACCESSING THE NUPOINT WEB CONSOLE

1. On the remote PC, open a Web browser and navigate to http://<IP Address or Fully Qualified Domain Name of the NP-UM server>/npm-admin.

2. Log in as "admin".

3. Select the appropriate server from the drop-down list, and click Login. The NuPoint Web Console menu appears. Click the Help icon in the NuPoint Web Console application for complete configuration instructions.

ACCESSING THE NUPOINT TEXT CONSOLE

You can access the NuPoint Text Console using any of the following methods:

- On site, by attaching a monitor and keyboard directly to the NP-UM server.
- From a PC on a local or remote network using an SSH client. See “Accessing the System with PuTTY over an Ethernet Connection” on page 228.

Note: Before the NuPoint Unified Messaging system can be accessed from a remote location, the Secure Shell settings (SSH) must first be enabled in Mitel Standard Linux. For details, refer to “Enable Secure Shell (SSH) Access” on page 221.

1. After you have configured your access method (direct or Ethernet), click Open.
   A command prompt displays.

2. Log in as "root" and enter the root password.
   (The root password may be the same as the administrator password.)

3. Type console and press Enter. The Text Console displays.

   Each time you log in, the system displays previous login information, system status, and the Main Menu of the Text Console with selections for:
   - (M) Mailbox maintenance
• (R) Report generation
• (S) System maintenance
• (X) Exit

BASIC CONFIGURATION USING THE TEXT CONSOLE

Basic configuration consists of the following tasks:

• Set up a 3300 ICP Line Group
• Set up an MWI Line Group
• Set up a Paging Line Group

SETTING UP A 3300 ICP LINE GROUP

Setting up a 3300 line group consists of the following tasks:

• Configure the ICP integration
• Set up a line group for the ICP
• Map extension numbers/ports to triplets

In this example, we will map ports 1 - 7 (1:0:0 to 1:0:6) to extensions 3301-3307.

1. From the Main Menu, select (S) System Maintenance, (R) Reconfiguration, (R) Reconfigure System, (G) Offline Menu, and then (B) Duplicate Offline Configuration.

2. Select (I) Server Options and configuration.

3. Select (C) Configure Mitel MCD Integration.

4. Map the 3300 ICP integration by entering the following configuration information. Note that each of the following entries must match the information entered in the 3300 ICP System Option form.
   - (N) The name of 3300 ICP server to be configured for integration with the NuPoint Unified Messaging server, for example, [pbx3].
   - (I) The Mitel MiVoice Business address or FQDN to which you are mapping, for example [10.37.237.150] or [pbx4.mitel.com].
   - (S) The set registration code that matches with the code entered in the System Options form on the 3300 ICP, for example, [***].
   - (R) The set replacement code that matches with the code entered in the System Options form on the 3300 ICP, for example, [###]

5. Exit the 3300 Integration Menu and then exit the Server Options Configuration Menu.

6. In the Offline Configuration Menu, select (G) Define Line Groups, Fax Groups.

7. Define the line group by entering the following configuration information:
   - (N) Name of current group, for example, [Incoming Line Group]
   - (A) Add lines to current group, in this example, we will add [1:0:0-1:0:6]

8. Select (M) Mapping Extension/Port, (E) Map Extension Number for 3300, and then (P) Port Mapping.

9. Enter the extension number: in this example, we want to assign extensions 3301 to 3307 [3301-3307] to the selected triplets.
10. Exit the offline menu to save your changes to the offline configuration.

If you are finished making offline changes, select (A) to Activate the Offline Configuration. If you have more changes to make, exit to the Main Menu.

SETTING UP AN MWI LINE GROUP

• set up MWI using MiTAI messaging (3300 ICP only), see the MiTAI MWI Configuration topic in the NuPoint System Administration Help.

• set up MWI using DTMF-to-PBX, see the DTMF-to-PBX Message Waiting Indicator Configuration topic in the NuPoint System Administration Help.

SETTING UP A PAGING LINE GROUP

In this example, we will support an internal paging system (0) and an external paging system (1) and we will map port 1:0:7 to extension 3008.

1. From the Main Menu, select (S) System Maintenance, (R) Reconfiguration, (R) Reconfigure System, (G) Offline Menu, and then (B) Duplicate Offline Configuration.

2. From the Offline Menu, select (G) Define Line Groups, Fax Groups.
   - Select (G) and enter a number for the Pager line group.
   - Select (N) and enter a name for the Pager line group (for example, Pager/Dialer)
   - Select (A) and enter the line or lines to add (for example, 1:0:7)

3. Select (M) Mapping Extension/Port, (E) Map Extension Number for 3300, and then (P) Port Mapping.
   - Enter the extension number to map to the pager line triplet (for example, 3008)

4. In the Offline Menu, select (A) Line Group Only Applications.

5. Select (P) Pager to assign the line group to the Pager application.

6. Exit the Offline Configuration menu to save changes to the offline configuration.

7. In the Configuration menu, select (A) Activate Configuration to assign the pager system.

8. When activation is complete, exit from the Active Configuration menu.

9. In the Configuration menu, select (E) Modify Active Configuration to configure the pager system.

10. In the Configuration Online menu, select (G) and enter the Pager group number you assigned in step 3.

11. Select (M) Modify Application and configure the pager systems as follows:
    - Select (P) and enter the supported paging systems (for example, 0, 1)
    - Select (D) and define each pager with the following configuration:
      - Pager Name: enter a name for the pager (for example, "Internal")
      - Access Code: enter a pager access code (for example, "T" to wait for dial tone).
      - Hold Time: enter a hold time (seconds) for the pager to wait between pages (for example 20)

12. Shut down the system and perform a hard reboot.
- Exit to the System Maintenance menu and select (S) System Shutdown.
- For complete instructions to perform a System Shutdown, see the System Shutdown topic in the NuPoint System Administration Help.
Chapter 6
SOFTWARE UPGRADES
SOFTWARE UPGRADES

The Software Upgrades chapter includes the following topics:

• Upgrading Physical NuPoint (page 142)
  - with the same MSL version (page 142)
  - with a new MSL version (page 144)

• Upgrading Virtual NuPoint (page 147)

• Migrating from Release 7.0 to Release 3.0 (page 150)

• Migrating from Physical to Virtual NuPoint (page 156)

• Migrating from NuPoint 640 to Physical or Virtual NuPoint (page 159)
UPGRADING PHYSICAL NUPOINT

There are two upgrade options that you can perform on a physical NuPoint Unified Messaging implementation, depending on the MSL version:

- **Upgrading with same MSL version**: this means that both the operating system (MSL) and the NuPoint UM software can be upgraded; neither requires a fresh installation.

- **Upgrading with new MSL version**: this means that the NuPoint UM software for this release operates on a new release of the operating system software (MSL). A "rebuild" type procedure (including a fresh MSL installation) is required for these versions. (See page 144.)

**Notes:**

1. Before you upgrade the software, read the NuPoint UM Release Notes available at Mitel OnLine. They specify upgrade requirements and detail any known upgrade issues. See “Accessing Documentation, Release Notes, Articles, and Downloads” on page 14.

2. If your system is currently running software that is older than R4.2, you must upgrade to R4.2 to R5.0 before upgrading to the latest software version (R6.0 SP2).

UPGRADING PHYSICAL NUPOINT WITH SAME MSL VERSION

Use this procedure to upgrade both the MSL operating system and NuPoint UM software.

Consult the *NuPoint Unified Messaging Release Notes* to confirm the valid software upgrade path for your implementation and determine when, exactly, you should use this procedure.

The upgradeable option requires the following steps:

- Back up the current NuPoint UM database in case a restore is needed.
- Upgrade MSL software
- Upgrade the Software Assurance blade (which automatically synchronizes the system with the AMC)
- Upgrade the NP-UM Master Installer blade

BACKING UP MSL CONFIGURATION AND NUPOINT DATA

Perform a LAN or USB backup following the instructions under “Backing Up Data - All Systems” on page 166.

UPGRADING THE MSL SOFTWARE

To upgrade MSL:

1. Access the Text Console directly or via PuTTY:
   - a. Connect to the NuPoint UM node.
   - b. Log in as "root" and type the root password.
c. Type `console` and press Enter. The Text Console displays.

2. Exit to the Linux prompt and enter `shutdown -h now` to shut down the NuPoint UM software on the server.

   **Note:** If you have a iSCSI-connected disk array, you can leave the array powered on.

3. Insert the Mitel Standard Linux CD or DVD into the CD/DVD-ROM bay of the server and power it up.

4. Select SL to perform a server installation.

5. Choose the preferred keyboard from the list. (The default is US).

6. You are prompted to test the CD/DVD media. Click **Skip** to proceed with the installation.

7. Select **Upgrade existing software** if you are upgrading NuPoint UM software that uses the same MSL version. Otherwise, select **Erase all disks and perform a fresh install** if you are upgrading NuPoint UM software that uses a lower MSL version.

8. After the installation process is complete, remove the CD/DVD and restart the system.

   **Note:** After you upgrade the software assurance blade and synchronize with the AMC, you must configure MSL. See “Configuring MSL” on page 216.

UPGRADING THE SOFTWARE ASSURANCE BLADE AND SYNCHRONIZING WITH THE AMC

To upgrade the software assurance blade and synchronize with the AMC:

1. Insert the NuPoint UM software DVD (DVD1) into the DVD-ROM drive of the server.

2. Log in as "admin" to the MSL Server Manager of the node where the software DVD is installed.

3. Under **Service Link**, click **Blades**.

4. Click **Update List**. A list of all NuPoint UM applications and available blades appears. (This operation may take a few minutes.)

   **Note:** After you have upgraded MSL software and before you Upgrade NuPoint UM software, you may see this warning message in the Blades panel:

   "The blade is installed, but the versions of some its components have changed. This is most likely a result of server customization or other installed blades. While in this state, the blade may not work properly, and can not be supported."

   This warning is for information purposes only and will disappear after you have completed the NuPoint UM software upgrade.

5. Click the **Upgrade** link beside the **MitelNPMSA** blade (Software Assurance) to perform the upgrade and synchronize licensing information with the AMC.

6. If your MSL server cannot be connected to the Internet, click the **Upgrade** link beside the **NPM OfflineSync** blade and perform an offline AMC sync (see page 223).

UPGRADING THE NUPOINT UM MASTER INSTALLER BLADE

1. In the Blades panel, click the **Upgrade** link beside the **NPMInstaller** blade.
2. Upgrade all installed optional blades from the Blades panel by clicking their Upgrade links. It is not necessary to reinstall custom language or Text-to-Speech prompts when upgrading with the same MSL version.

3. When the upgrade is complete, log in to the MSL Server Console as “admin” and select the Reboot option under Reboot, reconfigure, or shutdown.

**Note:** If applicable, update your MAPI and Active Directory (AD) SnapIn software versions so they are current with NuPoint UM. Installation instructions are available in the *NuPoint Unified Messaging System Administration* online help file.

**UPGRADING PHYSICAL NUPOINT WITH NEW MSL VERSION**

Use this procedure to install a fresh version of the MSL operating system prior to upgrading the NuPoint UM software.

Consult the *NuPoint Unified Messaging Release Notes* to confirm the valid software upgrade path for your implementation and determine when, exactly, you should use this procedure.

The NuPoint UM software upgrade requires the following steps:

- Perform an MSL backup
- Perform a system backup
- Shut down system and perform a fresh install of MSL operating system
- Configure MSL (restore from backup)
- Install the NuPoint UM blades (including Software Assurance and NuPoint UM software)
- Install the required language prompts
- Restore the backed up data

**PERFORMING AN MSL BACKUP**

A complete system backup includes MSL server data, the Hardware ID and the Application Record ID (ARID). It is required when upgrading with a new MSL Version.

To back up MSL server data:

1. Access the MSL Server Manager.
2. Under Administration, click **Backup**.
3. From the Select an action list, click **Configure network backup** and then click **Perform**.
4. Configure the server where the backup file will be stored.
5. Select the frequency with which you want to perform backups (**Daily**, **Weekly**, **Monthly**, **Never**). For immediate backup file creation, proceed to the next step.
6. (Optional) To encrypt the backup file, enter an **Encryption Password**, and then re-enter it. To create a strong password, use a mix of characters, numbers and symbols, plus both upper and lower case characters.

   **Note:** You will be prompted to enter the password when you restore from backup. If you fail to remember the password, you will not be able to restore the data contained in the backup file.

7. To test your backup configuration, or to run an immediate backup, click **Backup Now**.

8. Click **Save** to save the schedule information.

   **Note:** You can also save the MSL backup to the local workstation. For details, see "Backup to Desktop Option" in the *Mitel Standard Linux Installation and Administration Guide*.

PERFORMING A NUPOINT SYSTEM BACKUP

Perform a LAN or USB backup following the instructions under “Backing Up Data - All Systems” on page 166.

PERFORMING A FRESH MSL INSTALLATION

To upgrade MSL by doing a fresh install:

1. Access Text Console directly or via putty and connect to the NuPoint UM node.

2. Log in as "root" and type the root password. The root password may be the same as the admin password.

3. Exit to the Linux prompt and enter `shutdown -h now` to shut down the NuPoint UM software on the server.

4. If you have an iSCSI-connected disk array, leave the array powered on. If you have a direct-connected disk array, power down the array.

5. Insert the Mitel Standard Linux CD into the CD-ROM bay of the server and power it up.

6. Select **SL** to perform a server installation and press **Enter**.

7. Choose the preferred keyboard from the list (the default is **US**).

8. You are prompted to test the CD media. Click **Skip** to proceed with the installation.

9. Select **Erase all disks and perform a fresh install**.

   **Note:** You must perform a backup or your configuration settings will be lost. Do **not** select the Upgrade existing software option if you are upgrading NuPoint UM software that uses a different MSL version.

10. Select your **Time Zone** from the list and click **OK**.

11. When presented with a warning that your disks will be formatted, click **Yes** to confirm.

12. At the **Installation to begin** prompt, select **OK** to log results.

13. The installation takes a few minutes. At the end of the process, you are prompted to remove the CD and reboot the system. Let the Server restart. The MSL installation is then complete.
RESTORING THE MSL SETTINGS

To restore the MSL settings:

1. After the system restarts, you are prompted to **Restore from Backup?** Click **Yes** to restore server configuration and application data. You must have a valid (verified) backup file.

2. Follow the onscreen instructions to insert your backup storage media and restore your configuration data. Select **Disk Img** for USB media. The server will reboot and the MSL installation will be complete. No further MSL configuration is required.

3. Proceed to “Installing NuPoint UM Blades (Software Assurance and NuPoint UM Software)”

INSTALLING NUPOINT UM BLADES (SOFTWARE ASSURANCE AND NUPOINT UM SOFTWARE)

To install the NuPoint UM blades

1. After ServiceLink activation is complete, you are prompted **Do you wish to install blades from CD/DVD?**. Select **Yes**.

   | **Note:** If you performed an Offline synchronization, access the MSL Server Console and select the option to "Install Application blades from CD/DVD".

2. When prompted, ensure that the NuPoint UM Software DVD (DVD1) is inserted in the DVD-ROM bay. The window displays all licensed and enabled blades for this system.

3. Select **OK** to install all blades.

4. When prompted **Do you wish to install blades from another CD/DVD?**, select **No**. The console main menu is displayed.

5. Select **Reboot** to restart the server.

   | **Note:** The NuPoint UM Master Installer blade does not install languages contained on the NuPoint UM DVD. If you are using a language other than North American English, you will need to reinstall the language prompts (and Text-to-Speech prompts) by inserting the appropriate DVD and clicking the **Install** link for the appropriate language. Your system must be licensed for this language. For detailed instructions, see “Installing Language Prompts” on page 106 and “Installing Text-to-Speech Prompts” on page 107.

   | **Note:** If applicable, update your MAPI and Active Directory (AD) SnapIn software versions so they are current with NuPoint UM. Installation instructions are available in the **NuPoint Unified Messaging System Administration** online help file.

RESTORING THE BACKUP

Refer to “Restoring Data - All Systems” on page 180 and restore the backup data.
UPGRADING VIRTUAL NUPOINT ON VMWARE

This procedure involves backing up the system data, deploying the OVA file, restoring MSL from the backup, and then allowing the system to install the licensed software blades and restore the NuPoint UM database. The final steps are automatic; there is no manual intervention required unless there are optional language or software blades to install after the NuPoint UM database restore is complete.

**Notes:**

1. Do not attempt to upgrade vNuPoint from the Blades panel.
2. Before you upgrade the software, read the NuPoint UM Release Notes available at Mitel OnLine. They specify upgrade requirements and detail any known upgrade issues. See “Accessing Documentation, Release Notes, Articles, and Downloads” on page 14.
3. If your system is currently running software that is older than R5.0, you must upgrade to R5.0 before upgrading to the latest software version.
4. For upgrades of vNuPoint in a Microsoft Hyper-V environment, refer to the Mitel Virtual Appliance Deployment Guide on Mitel Online

To install a new OVA file and upgrade vNuPoint:

1. Download the vNuPoint OVA file, NP-UM DVD1 and DVD2 (software options and TTS-SAA).iso files from Mitel Online to a network drive or vSphere Client PC. See page 112 for instructions.
2. Back up the system data:
   a. Back up the MSL operating system and place it on a network share. See page 117 for instructions.
   b. Back up NuPoint UM and place it on a network share. This step is optional but recommended. See page 166 for instructions.
3. Deploy the NuPoint vApp OVA file to the host system. See page 112 for instructions. After deployment is complete the vNuPoint instance appears in the inventory list in the left side navigation pane of the vSphere Client application.
4. Configure Mitel Standard Linux and restore the MSL backup file:
   a. In the vSphere Client, right-click the newly created vNuPoint instance (for example: vNuPoint 4.2.1.1) and then click **Power > Power On**.
   b. Right-click on vNuPoint again and select **Open Console**. The MSL Server Console opens and displays the MSL boot up screen.
   c. Place the cursor in the console window and click to continue. If at any time you need the cursor available for other desktop activities, press the CTRL + ALT keys. Click **Next**.
   d. Select your keyboard layout (default is **us**), and then click **Next**.
   e. At the **Restore from backup?** prompt, click **Yes**.
   f. Select **Restore from Network Share** to restore the MSL backup file.

**Note:** The MSL backup file cannot be restored from a USB drive.
g. Click **Yes** and then click **Next**.

h. Select the location of the MSL backup file that you saved in Step 2, above.

i. Start the restore.

5. After MSL completes the restore, select **Reboot**.

   After the reboot completes, the MSL login prompt appears.

   ![Login prompt]

   Do **NOT** log in or press Enter. Instead, wait for the system to install the NuPoint UM Software Assurance and NuPoint UM software blades.

   ![Software installation progress]

   After the install process completes, "NuPoint installation finished" appears followed by "Please wait....Restore will start in a few minutes."

   ![Restore initiation]

   Do **NOT** press Enter. Instead, wait for the system to restore the NuPoint UM database.

   After the restore completes, the following messages appear:

   "The NPM Restore has completed" and "Program Initialization Complete."

   ![Restore completion]

6. Press **Enter** to display the MSL login prompt.

7. At the MSL login prompt, log in as "admin". The MSL Server Console menu is displayed.

8. Do one of the following:
   - If there are additional software components, proceed to "Installing vNuPoint Blades" on page 119.
• If there are no additional software components, restart the server by selecting the **Reboot, reconfigure, or shutdown** menu on the MSL Server Console and then selecting the **Reboot** option.

**Note:** Do not upgrade the Mitel Virtualization Framework (MVF) blade which appears at the top of the Blades panel. The MVF blade manages optional VMware features like Site Recovery Manager and High Availability, and is upgraded automatically when you perform an OVA installation.

9. To update settings that were *not* defined in the original MSL backup, proceed to “Configuring Access to vNuPoint” on page 116.

**Note:** If applicable, update the MAPI gateway and Active Directory (AD) snap-in software versions so they are current with NuPoint UM. For instructions, see to the *NuPoint System Administration Help*. 
MIGRATING A PHYSICAL NUPOINT DATABASE
FROM RELEASE 7.0

The following migration paths are defined as feasible routes for data transfer between NuPoint UM Release 7.0 and NuPoint UM Release 3.0 or later in the following table.

<table>
<thead>
<tr>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>NuPoint UM Release 7.0 Model 70 or 120</td>
<td>NuPoint UM Release 3.0 or later</td>
</tr>
</tbody>
</table>

WARNING: YOU CANNOT MIGRATE DATA FROM RELEASE 7.0 DIRECTLY TO RELEASE 4.X OR HIGHER. YOU MUST MIGRATE DATA TO RELEASE 3.0 FIRST.

MIGRATION PROCEDURE

OVERVIEW

Due to changes in system design and configuration since NPM Release 7.0, it is not possible to migrate all settings. Lists of data that can and cannot be migrated are provided here:

DATA INCLUDED IN THE MIGRATION

NPM Release 7.0 mailbox settings and their contents are compatible with NP-UM Release 3.0 and this data can be transferred between systems:

- All data configured and retrieved under the NPM Release 7.0 Console - MAIN MENU option: (M) Mailbox maintenance
- All Class of Service records: FCOS, LCOS, GCOS, NCOS, RCOS and TCOS
- All stored Mailbox Greetings: Primary Greeting, Busy Greeting, Call Forward Greeting and No Answer Greeting
- Mailbox name recording
- Mailbox fax cover page
- Mailbox voice messages: Unplayed and Saved
- Mailbox fax messages: Unplayed and Saved
- Mailbox and System Distribution Lists

DATA NOT INCLUDED IN THE MIGRATION

Data directly and indirectly related to legacy telephony protocols will not be copied to NP-UM Release 3.0. The following list identifies excluded data:

- All data configured and retrieved under the NPM Release 7.0 Console - MAIN MENU option: (C) NuPoint Agent maintenance
- All data configured and retrieved under the NPM Release 7.0 Console - MAIN MENU option: (R) Report generation
- All data configured and retrieved under the NPM Release 7.0 Console - MAIN MENU option: (S) System maintenance; excluding Class of Service settings
- Mailbox Receipt Messages and their linked (copy list) records.
BEFORE YOU BEGIN

**WARNING:** Failure to follow all of these instructions may result in incomplete and inconsistent data transfer.

You must ensure:

- Release 7 is installed on the source server.
- The source server is up-and-running, and continues to run, during the migration process.

**Note:** The server is offline only during the installation of the TCP software and Ethernet NIC card. Use the Ethernet NIC card included in the conversion kit. The card is set up specifically for NuPoint UM 7.

- The correct target load of Release 3 is installed on the target server.
- The target server is up-and-running and is answering calls.
- Duplicate mailboxes cause the data migration procedure to stop. You must delete any duplicates mailboxes (for example, 998 and 999 administrator and attendant mailboxes) from the target server before you begin data migration.

**Note:** The source server will be offline during the following procedure.

**Note:** If Release 7 is currently configured for TCP/IP activities, use the assigned IP address of this system for the migration. If Release 7 is **not** configured for TCP/IP activities, you must install the Ethernet card that is provided in the conversion kit. The kit contains NPM Legacy TCP/IP Option, QNX TCP/IP License Label, NPM 7.0 Service Plus Diskette, NPM 7.0 Conversion Source Diskette, Ethernet Crossover Cable (10 Feet), and ISA Ethernet Adapter Card.

To prepare the Release 7 and Release 3 systems for data migration, you must

1. Perform a full Offline Verify on the NPM Release 7.0 system to ensure the integrity of the source data.
   - From the MAIN MENU of the NPM Release 7.0 Text Console, enter Q and Y to exit to a Linux prompt.
   - Enter `vmshutdown` and complete the instructions as prompted to stop NPM. When you are prompted to **Perform offline system verification? [N]:** enter Y.
   - Wait for the Offline Verification process to finish.
   - Any errors found during the verification are summarized when the verification is complete. If errors are present, the migration cannot be successfully completed.
   - After any errors are fixed, repeat the Offline Verification.
   - Upon successful completion, restart the NPM Release 7.0 system with the restart command.

2. Install and license an appropriate NPM Release 3.0 model.

3. Program PBX "hunt groups" or comparable settings to reach the NPM Release 3.0. Setup IP networks, PBX(s), and IP telephony endpoints with NPM Release 3.0.
4. Make note of the NPM Release 7.0 IP address and ensure this address is reachable from
the NPM Release 3.0 system.

5. Configure the NPM Release 3.0 network settings with the appropriate data: Cluster Nodes,
Line Groups and Lines. Verify that the NPM Release 3.0 system can be dialed from IP
telephony endpoints.

6. Proceed to "Preparation".

PREPARATION

Several preparatory tasks need to first be performed before you begin the system migration
process.

Note: If the 7.0 Source system contains a serial card, you will need to remove the serial
card information from the system active configuration before running the conversion
process.

The system active configuration is accessed from the offline configuration. To remove the serial
card information:

1. Go to the offline configuration menu (S-R-R-G)
2. Duplicate the active configuration (B)
3. Select Add-in Serial Card Configuration (R)
4. Choose option (N) to set number of cards on this host to 0
5. Exit the offline configuration and activate the configuration.

To prepare for the migration process:

- Determine if the Ethernet card needs to be installed.

Note: The system will be offline during the following process.

If the 7.0 Source system is not configured for TCP/IP activities, you must:

1. Install the Ethernet card that is provided in the Release 7.0 conversion kit.
2. Install the TCP/IP extra cost option on the 7.0 Source system:
   - merge the Service and Service Plus diskettes (S-O-U-M)
   - install the TCP/IP option (See "Install an Optional Feature in the Release 7
documentation)
   - configure TCP (see CP 6471 in the Release 7 documentation)
3. Proceed to "Migrating Data".

MIGRATING DATA

Note: The migration process takes approximately 20 minutes for every 10 hours of voice
messages. To see the voice message minutes, you log in to Text Console and enter M
(Mailbox maintenance) and I (Inquire about mailboxes).

To start the migration process:
1. Start the migration software from NPM Release 7.0 from the NPM Release 7.0 Text Console:
   - From the Main menu, select the following options: (S) System Maintenance, (O) Additional Options, (E) Start Conversion Software Source.
   - You are prompted to start the VMC software on the target.

2. Start, configure and connect to NPM Release 7.0 using the migration software for NPM Release 3.0, from the NPM Release 3.0 Text Console:
   - From the Main menu, select the following options: (S) System Maintenance, (O) Additional Options, (E) Start Conversion Software Target.
   - Select (I) Configure Source IP Address and enter the IP address of the NPM Release 7.0 system.
   - Select (M) Configure MWI Mappings and configure the relevant MWI mapping.

   **Note:** Several MWI Types that exist on the Release 7.0 system are not supported in Release 3.0. You will need to change the Release 7.0 values as indicated in the following table.

<table>
<thead>
<tr>
<th>RELEASE 7.0 VALUE</th>
<th>CHANGE TO RELEASE 3.0 VALUE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>6: SLI</td>
<td>19: Mitel</td>
</tr>
<tr>
<td>10: Intecom RS232</td>
<td>20: SL1 MsgWaiting</td>
</tr>
<tr>
<td>11: NEC RS232</td>
<td>22: SL1 Enhanced Meridian</td>
</tr>
<tr>
<td>13: ITT RS232</td>
<td>23: Fujitsu 960</td>
</tr>
<tr>
<td>15: AT&amp;T System 75</td>
<td>26: Mitel DNIC Inchannel</td>
</tr>
<tr>
<td>18: ROLM</td>
<td>27: NorTel Inchannel</td>
</tr>
<tr>
<td>9: Centrex RS232</td>
<td>17: Unified Integrations</td>
</tr>
</tbody>
</table>

   **Note:** Migration does not allow you to map to type 28: MiTAI Messaging. If you are using MiTAI MWI on the new system, map to type 3. See “Converting to MiTAI MWI” on page 155.

   All other values can remain the same for both systems.

   For example, after the mapping settings are complete, all mailboxes on the source system that had MWI type 26 will have an MWI type of 3 on the target system.

   - Select (C) Connect to Source to connect to NPM Release 7.0. A prompt confirms that you are Connected to the Source System.
   - Select (X) to exit the Mapping menu. The target machine connects to the source machine and the conversion continues.

3. If you want to convert a specific range of mailboxes, select (C) Configuration. Otherwise, continue with step 4.
   - After Start Range, enter the inbox number of the first inbox in the range.
   - After End Inbox, enter the inbox number of the last inbox in the range. If the inboxes to be converted are not contiguous, you must select each range separately. For example
4. Complete each migration phase in sequence from the NPM Release 7.0 Text Console:
   - Select (1) **Phase 1 - Global configuration** and enter Y to confirm. Wait until Phase 1 is reported complete.
   - Select (2) **Phase 2 - Subscriber configuration** and enter Y to confirm. Wait until Phase 2 is reported complete.
   - Select (3) **Phase 3 - Dynamic messages** and events and enter Y to confirm. Wait until Phase 3 is reported complete. Note: Do not repeat this phase or the contents of migrated mailboxes will be duplicated.
   - Select (Q) **Exit** to close the connection.

**Note:** If a network connection problem occurs during a phase transfer, reconfigure the NPM Release 3.0 network settings and restart the migration software. Then, enter (Y) when you are prompted to resume the interrupted phase. Continue with subsequent phases and do not repeat previous phases.

5. Call in to NPM Release 3.0 system and access one of the migrated mailboxes as a preliminary confirmation.

6. Stop NPM Release 3.0 and perform an Offline Verification:
   - From the Main menu of the NPM Release 3.0 Text Console, enter X and Y to exit to a Linux prompt. If you are prompted to log in, enter the "root" username and password.
   - Enter stopnpm and complete the instructions, as prompted, to stop NPM. When you are prompted to **Perform offline system verification? [N]**: enter Y.
   - Wait for the Offline Verification process to complete.
   - If errors were not reported in the last NPM Release 7.0 Offline Verification, then the NPM Release 3.0 Offline Verification should also be error-free.
   - Start the NPM Release 3.0 software using the startnpm command

7. Optionally, compare Mailboxes for equivalence in NPM Release 7.0 and NPM Release 3.0 Text Consoles, using the same text sequence:
   - From the Main menu, select the following options: (M) **Mailbox Maintenance**, (I) **Inquire about Mailboxes**, (C) **Mailbox Contents**.
   - Enter the full range of mailboxes next to **Mailbox to display**, such as 1-10000.
   - Press Enter when **Mailbox to display**: appears again.
   - **Mailbox Contents** and the **TOTAL** line at the bottom should be equivalent, excluding Minutes (due to audio compression), and Receipt value.

All compatible data should now be present on the NPM Release 3.0 system.
CONVERTING TO MITAI MWI

Migration does not allow you to map to type 28: MiTAI Messaging. During the procedure, you were instructed to use MWI type 3. You can now convert your MWI to MiTAI using the following procedure:

1. Log in to the Text Console as "root" and exit to the Linux prompt.
2. Enter the following command:
   
   asetpass m1=<start mailbox>  m2=<end mailbox>  om1=3  mw1=28
   
   For example, \texttt{m1=1 m2=9999 om1=3 mw1=28} changes the primary MWI type of mailboxes 1 through 9999 from type 3 to type 28.

TROUBLESHOOTING TIPS

- Data migrated from NPM Release 7.0 to 3.0 will overwrite equivalent data that originally existed on NPM Release 3.0. For example, if an administrator creates mailbox 1000 on NPM Release 3.0, then performs a migration that includes a mailbox 1000 from NPM Release 7.0, the originally created Release 3.0 mailbox will be replaced by the NPM Release 7.0 mailbox 1000.

- Repeating Phase 1 or 2 in the migration process, explained in Step 3, should not have any impact on the transferred data.

- Repeating Phase 3 in the migration process, explained in Step 3, will cause mailbox contents to be duplicated.

- Migrations can be resumed when network failures occur and you will be prompted to complete migration phases from the point the connection was terminated.
MIGRATING FROM PHYSICAL NUPOINT TO VIRTUAL NUPOINT

You can migrate a NuPoint UM database from a hardware server to a virtual deployment in a VMware environment using the Restore option in the MSL Server Console.

CONDITIONS AND CONSTRAINTS

The following conditions and constraints apply:

- All application data programmed in the vNuPoint database is overwritten by the backup data during the restore operation. The data in the backup is not merged with the existing database in the vNuPoint system.
- If your physical NuPoint system is currently running software that is older than R4.2, you must upgrade to R4.2 before commencing the migration to a virtual system.
- vNuPoint can be deployed in conjunction with MiVoice Business Release 4.2 and later.
- If the vNuPoint system has additional applications that are not included in the restored database, these application databases will not contain any data after the restore. They will be blanked out during the restore.
- To restore a physical NuPoint configuration into the vNuPoint deployment, you must use a NuPoint backup file. MSL backups cannot be restored to vNuPoint.

BEFORE YOU BEGIN

Ensure that you have completed the following tasks before you begin the migration:

- Ensure migration is supported for your deployment configuration
  - Ensure that the database restore operation is supported for your configuration. If it is NOT supported, DO NOT PROCEED with the migration.
- Ensure that the physical system is running NuPoint Release 4.2 or later. Perform an upgrade if necessary.
- Purchase required licensing
  - Contact your dealer or VAR and request to have appropriate migration license added to your Application Record ID (e.g. "NuPoint Standard to vNuPoint Conversion" or "NuPoint Single Server to vNuPoint Conversion").
  - Ensure that you record your Application Record ID and have it available before you begin the migration.

PERFORMING THE MIGRATION

Schedule the migration to occur during off business hours because a service outage occurs during the migration.

Note: The migration process can take from 45 minutes to two hours, depending on the size of the database and the number of optional software application blades you install.

To migrate a Physical NuPoint database to vNuPoint in a VMware environment:
1. Obtain a database backup from the Physical NuPoint system (e.g. Standard or Single Server) and save it to a network drive. See page 166 for instructions.

2. Shut down the Physical NuPoint system.

3. Download the vNuPoint software (.ova file, NP-UM DVD1 and DVD2 .iso files) from Mitel Online to a network drive or vSphere Client PC. See page 112 for instructions.

4. Install the vNuPoint system:
   a. Deploy the NuPoint vApp OVA file to the host system. See page 112 for instructions.

   **Note:** If prompted to "Restore from backup?" during the MSL configuration process, click **No** because this is the initial installation of vNuPoint software.

5. After the configuration changes have been activated and the system has rebooted, confirm that the system has Internet connectivity.

6. Enter the Application Record ID number and then click **Next**. This entry initiates registration of all licensed and enabled NuPoint UM Software Assurance and NuPoint UM software blades.

7. Enter the Application Management Center address or accept the default value, and then click **Next**.

8. After ServiceLink activation is complete, you are prompted **Do you wish to install blades from CD/DVD?**. Select **No** and press **Enter**.

The MSL login prompt appears.

Do **NOT** log in or press Enter. Instead, wait for the system to install the NuPoint UM Software Assurance and NuPoint UM software blades. This process is automatic and can take up to ten minutes. The process is complete when the system displays the following message: "NuPoint installation finished."

```
Program Initialization Complete

Installing : Blade-NPMHospitality
Installing : Blade-NPMVoiceMailNetworking
Installing : Blade-NPMFax
Installing : Blade-NPMTSPrerequisites
Installing : Blade-NPMTSvMux
Installing : Blade-NPMTSvMux
Installing : Blade-NPMTSvMux
Installing : Blade-NPMTSvMux
Installing : Blade-NPMTSvMux
Installing : Blade-NPMTSvMux
Installing : Blade-NPMTSvMux
Installing : Blade-NPMTSvMux
Installing : Blade-NPMTSvMux
Installing : Blade-NPMTSvMux

NuPoint installation finished.
```
9. After the "NuPoint installation finished" message appears, press **Enter** to display the MSL login prompt.

10. At the MSL login prompt, log in as "admin". The MSL Server Console menu is displayed.

11. Configure SSH and trusted network access to vNuPoint. See page 116 for instructions.


<table>
<thead>
<tr>
<th>Note: Save the MSL backup to a safe location. You will require it when you upgrade virtual NuPoint using an OVA file (see “Upgrading Virtual NuPoint on VMWare” on page 147).</th>
</tr>
</thead>
</table>

13. If there are additional software components, proceed to “Installing vNuPoint Blades” on page 119. If there are there no additional software components, restart the server by selecting the **Reboot, reconfigure, or shutdown** menu on the MSL Server Console and then selecting the **Reboot** option.

14. After the software blades are installed and the system has rebooted, log into the MSL Server Manager and check that all applications are present.

15. Restore the database backup from the NuPoint Server. See page 180 for instructions.

| Note: You cannot employ a USB device to restore the database. |
MIGRATING FROM NUPOINT 640 TO PHYSICAL OR VIRTUAL NUPOINT

Existing NuPoint 640 systems are supported up to software release 5.0 SP1. If you wish to upgrade to Release 6.0 or later, you can migrate your 640 database to one of the following deployments:

• **Physical NuPoint 120** on a mid-level Mitel Standard Linux qualified server.
• **Virtual NuPoint** (vNuPoint) within a VMware virtualized client environment.

Both deployments can support up to 120 voice mail ports and 120,000 mailboxes; however, you may need to purchase additional licenses in order to reach these limits.

**CONDITIONS AND CONSTRAINTS**

The following conditions and constraints apply:

• This migration procedure applies to 640 systems with 120 or fewer ports. If you have a larger system with more than 120 ports, contact Mitel Professional Services for assistance migrating it to two 120-port Physical or Virtual NuPoint servers. Note that you may experience difficulties migrating to two servers if you are running any of the following services:
  - Voice Profile for Internet Mail (VPIM) - see page 40
  - ESMDI Integration - see page 31
  - Property Management System (PMS) - see page 31
  - RS-232 MWI - see page 31
• This migration procedure deploys the 640 database to a Physical or Virtual system that can support up to 120 ports and 120,000 mailboxes. In order to take advantage of this capacity, you may need to purchase additional licenses and have them applied to the Application Record ID (ARID) for the new system.
• All application data programmed in the Physical or Virtual NuPoint database is overwritten by the 640 database. The backup database is not merged with the existing database in the Physical or Virtual NuPoint system.
• The 640 system must be running software Release 4.0 to 5.0 SP1. If your system is running pre-R4.0 software, you must upgrade it prior to commencing the migration.
• If the Physical or Virtual NuPoint system has applications that are not included in the 640 database, these applications will not contain data after the restore has been completed.
• You must use a NuPoint backup file, not an MSL backup file, to restore a 640 into a Physical or Virtual NuPoint system.
• All system configuration data, including line programming, is restored if the lines (triplets) fall into the supported range of 1:0:0 to 1:0:119. Line programming outside of this range will be removed and must be reprogrammed by the administrator. For example, if a 640 Active/Passive system has 175 ports with lines programmed as 1:0:1 to 1:0:130 and 1:0:201 to 1:0:245, the second set of lines will be deleted during the restore procedure and must be reprogrammed. If specialized ports like Pager or MWI lines are included in the second group, they must also be reprogrammed.
BEFORE YOU BEGIN

Complete the following tasks before you begin the migration:

☐ Ensure migration is supported for your deployment configuration:
  - Ensure that the database restore operation is supported for your configuration. If it is **NOT** supported, **DO NOT PROCEED** with the migration.
  - Ensure that the 640 system is running NuPoint Release 4.0 to 5.0 SP1. Perform an upgrade if necessary.

☐ Obtain the required licensing information:
  - Contact your dealer or VAR and request the migration part number. You will be required to provide the Application Record ID (ARID), a System Configuration report, and a System Information report from the existing 640 system; refer to the *NuPoint Unified Messaging System Administration Help* for instructions. If desired, purchase additional licensed features (for example, expand your system capacity from 60 to 120 ports). Mitel will use this information to generate a new ARID with the appropriate licenses, and then forward it to your dealer or VAR who will in turn share it with you.
  - Record the new ARID and have it available before you begin the migration.

☐ Ensure that your server can support the migration to a Physical or Virtual system:
  - Migration to Virtual NuPoint — For a list of supported servers, refer to the *VMware Compatibility Guide* available at www.vmware.com/guides/. For details concerning capacity requirements (amount of RAM, hard drive space, etc.), refer to the *NuPoint Unified Messaging Engineering Guidelines* available at Mitel OnLine.
  - Migration to Physical NuPoint — For a list of supported servers, refer to the *Mitel Standard Linux Qualified Hardware List*, available at Mitel OnLine. Servers compatible with the NuPoint 120 configuration are listed under the Mid-level Servers heading for each MSL release. Servers compatible with the NuPoint 60 configuration are listed under the Entry-level Servers.

PERFORMING THE MIGRATION

Schedule the migration to occur during off business hours because a service outage occurs during the migration.

**Note:** The migration process can take from 45 minutes to two hours, depending on the size of the database and the number of optional software application blades you install.

NUPOINT 640 TO PHYSICAL NUPOINT 120

If your site is currently running a 640 system with 120 ports or fewer, you can migrate its database to a physical deployment of NuPoint 120. You can use your existing hardware, provided that it is a mid-level Mitel Standard Linux qualified server, or purchase new hardware.

**Physical Server Requirements**

- The server must be a mid-level MSL qualified server. For a list of supported servers, refer to the *Mitel Standard Linux Qualified Hardware List*, available at Mitel OnLine.
• Disk drive storage capacity must total at least 300 GB. (You may need to purchase new drives.)

• The server must have the capacity to be configured with RAID to divide and replicate data among multiple physical disk drives. The following configurations are supported:

### Physical Server RAID Configuration Options

<table>
<thead>
<tr>
<th>Number of Drives</th>
<th>Drive Size (GB)</th>
<th>RAID Level</th>
<th>Active Drives</th>
<th>Spare</th>
<th>Volume Capacity (GB)</th>
<th>Failure-Ability</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>300</td>
<td>1^1</td>
<td>2</td>
<td>0</td>
<td>300</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>300</td>
<td>1^1</td>
<td>2</td>
<td>1</td>
<td>300</td>
<td>2</td>
</tr>
<tr>
<td>4^2</td>
<td>146</td>
<td>1+0</td>
<td>4</td>
<td>0</td>
<td>292</td>
<td>2</td>
</tr>
<tr>
<td>4^3</td>
<td>146</td>
<td>5</td>
<td>4</td>
<td>0</td>
<td>438</td>
<td>1</td>
</tr>
<tr>
<td>5^3</td>
<td>146</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>438</td>
<td>2</td>
</tr>
<tr>
<td>5^2</td>
<td>146</td>
<td>1+0</td>
<td>4</td>
<td>1</td>
<td>292</td>
<td>3</td>
</tr>
</tbody>
</table>

1. Some HP servers display "RAID 1+0" in the RAID BIOS. You may use this setting to configure RAID 1.
2. The drive has a small deficiency in the volume capacity that may or may not be acceptable to the user. Volume capacity has a direct, linear relationship to the number of hours of recording the system can store. For details regarding this relationship, see the NuPoint UM Engineering Guidelines.
3. A battery-backed write cache is required. This hardware must be purchased separately and installed before RAID 5 can be configured.

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**Notes:** For additional information concerning RAID configuration requirements, refer to the NuPoint UM Engineering Guidelines. For instructions to set up the RAID array on your system, refer to the disk manufacturer’s documentation.

To convert a NuPoint 640 database to a Physical NuPoint 120 system:

1. Obtain a database backup from the NuPoint 640 system and save it to a network drive. See page 166 for instructions.
2. Shut down the NuPoint 640 system.
3. If using existing hardware, select one of your servers to employ for the new system.
4. Program the disks in a four-disk RAID5 configuration. Consult the server manufacturer’s documentation for instructions.
5. Install the Physical NuPoint 120. See page 98 for instructions.
6. After the new Application Record ID is validated, the software blades are installed and the system has rebooted, log into the MSL Server Manager and check that all applications are present.
7. Restore the NuPoint 640 database backup to the Physical NuPoint 120 system. See page 180 for instructions.
8. If you have implemented Advanced UM or SMTP forwarding, verify that the Sender Domain field contains a valid enterprise domain name. In the NuPoint Web Console, this field is found under Unified Messaging > Advanced UM > NuPoint.
NUPOINT 640 TO VIRTUAL NUPOINT

To convert a NuPoint 640 database to a Virtual NuPoint system:

1. Obtain a database backup from the NuPoint 640 system and save it to a network drive. See page 166 for instructions.
2. Shut down the NuPoint 640 system.
3. Install the vNuPoint system. See page 108 for instructions.
4. After the new Application Record ID is validated, the software blades are installed and the system has rebooted, log into the MSL Server Manager and check that all applications are present.
5. Restore the NuPoint 640 database backup to the Virtual NuPoint system. See page 180 for instructions.
6. If you have implemented Advanced UM or SMTP forwarding, verify that the Sender Domain field contains a valid enterprise domain name. In the NuPoint Web Console, this field is found under Unified Messaging > Advanced UM > NuPoint.

**Note:** You cannot employ a USB device to restore the database to a vNuPoint system.
Chapter 7

MAINTENANCE AND REPAIR
SYSTEM MAINTENANCE

This section covers the following aspects of system maintenance for the NuPoint Unified Messaging system.

ALL NUPOINT SYSTEMS (PHYSICAL AND VIRTUAL)
- Backing Up the Database (page 166)
- Restoring the Database (page 180)
- Configuring SNMP Settings (page 184)
- System Shutdown (page 185)

PHYSICAL NUPOINT SYSTEMS
- Upgrading the System Firmware or BIOS (page 186)
- Cleaning a Hard Drive for use as a Redundant Hard Drive (page 186)
- Replacing a Redundant Hard Drive (page 188)
BACKING UP DATA - ALL SYSTEMS

The following methods are supported for backing up NuPoint system data:

- Backup over the LAN to an FTP server (page 168)
- Backup over the LAN to a Microsoft network share (page 170)
- Local backup to a USB Device (page 177)
- Virtual NuPoint backup using VMware Tools (page 178)

REQUIREMENTS

Backing up NuPoint UM data can take a few seconds or up to several hours, and should be performed during off-peak periods when traffic is at a minimum. Factors that influence the duration of the backup process include:

- The nature of the files to be backed up and the amount of information being transferred. Messages, names, and greetings are large files and significantly increase the backup duration.
- The network speed: the throughput of the network between the NuPoint UM system and the storage server.
- The processing speed of the storage server.

The backup process saves all of the data to a single, large compressed file and is therefore limited by the destination file system: 4 GB for a FAT32, 2 TB for NTFS, and 16 GB to 16 TB for ext3 (depending on file system block size). The current MSL ext3 block size is 4096 bytes which allows file sizes of 2TB.

For example, if you are backing up data to a Windows client that uses the FAT32 file system (the default for many older versions of Windows), you are limited to a maximum file size of 4 GB; newer Windows operating systems that use the NTFS file system have a much larger capacity. If the backup file exceeds the maximum file size of the client operating system, it cannot be properly restored.

Notes:

1. Prior to Release 4.1, files were backed up (and restored) individually. For Release 4.1 and later, backup creates a single compressed file called npum_db.tar.gz with built-in error checking. More hard disk space may be required to accommodate the compression procedure.
2. FPSA user information is not included in a NuPoint backup. If it is necessary to perform a restore procedure, FPSA user information will not be included and therefore must be re-entered.
3. To restore the NuPoint system data, see page 180.
NUPOINT TEXT CONSOLE OR WEB CONSOLE?

You can perform all of the backup and restore procedures using NuPoint Text Console and some of the backup and restore procedures using NuPoint Web Console, as illustrated in the following table.

<table>
<thead>
<tr>
<th>PROCEDURE</th>
<th>TEXT CONSOLE</th>
<th>WEB CONSOLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configure login, network, and backup settings for the destination server</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Configure scheduled (automatic) backups to the LAN</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Perform manual backups</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>Back up data to USB memory devices</td>
<td>Y</td>
<td>During scheduled backups only</td>
</tr>
<tr>
<td>Restore data</td>
<td>Y</td>
<td>N</td>
</tr>
</tbody>
</table>

BACKING UP NUPOINT UM SYSTEM DATA TO THE LAN

OVERVIEW

NuPoint UM supports manual and scheduled backups over the LAN to an FTP server or to a network share using Microsoft Networking. Each backup is a full and independent backup of NuPoint UM data and does not include existing MSL configuration data.

NuPoint UM provides a system restore capability from the LAN archive to the server. You can restore data using FTP / MS Networking interchangeably, provided that you use the same directory path for both. The format of the backed up data is the same, regardless of whether you backed it up using FTP or Microsoft Networking.

Microsoft Networking enables NuPoint Unified Messaging to mount a remote driver or folder on a Microsoft Windows PC. The supported Windows operating systems include:

- Windows 7 Enterprise and Professional
- Windows 8 Professional (64-bit)
- Windows 8.1 Professional (64-bit)
- Windows 10 (64-bit)
- Windows Server 2008 (32- and 64-bit)
- Windows Server 2012 (64-bit)

The following procedures describe how to:

- Configure the FTP server to back up and restore data to the LAN.
- Back up all configuration settings, mailbox names, messages, greetings, and billing information.
- Schedule automatic daily, weekly, monthly or delayed LAN system backups that occur once or repeatedly at specified times or dates.
- Activate the inactive configuration after you schedule backups.
• Turn off Auto Backup.
• Restore systems to retrieve backed-up content from the LAN archive.

CONFIGURING THE FTP SERVER FOR BACKUPS AND RESTORES TO THE LAN

Before you back up the NuPoint UM data to an FTP server, you must configure the backup data store. The configuration requirements and procedures vary across FTP server types. The following example explains how to configure an open source server on a Windows operating system. However, you can use any properly configured FTP server for the backup.

To configure the backup data store on a backup server:

1. Set up the root folder for the NuPoint UM backup (for example, NUPOINT\SiteA) and click I Agree to continue.
2. Double-click the executable file to download the server software.
3. On the Licence Agreement window, click I Agree to proceed with the installation.
4. On the Choose Components window, click Next to install the default installation options:
   • Backup Server (Service)
   • Administration Interface
   • Start Menu Shortcuts
   • Desktop Icon
5. On the Choose Install Location window, click Next to accept the default location to install the server software: C:\Program Files\BackupServer.
6. On the Startup Settings window
   • Click Next to accept the default startup settings for the Backup Server: Install as service, started with Windows (default).
   • Click Next to accept additional default startup settings for the Backup Server: Start if user logs on, apply to all users (default).
7. On the Installation Complete window, click Close.
8. On the Connect to Server window, click OK to accept the default server IP address and port and click OK. The Backup Server console opens.
9. In the Backup Server Console, on the menu bar, click the Groups (double head) icon. The Groups window appears.
10. Create a group for backing up data, under Groups, type a name and click Add.
11. Set up shared folders for the group:
   • Under Page, click Shared folders.
   • In the center pane, click Add and add the NuPoint UM backup root folder (you created in Step 1) as the shared folder.
   • Under Files and Directories, select all of the check boxes to enable all of the file and directory options.
• Click **Set as home directory** to make the directory the home directory for the group and click **OK**.

12. In the **Backup Server Console**, on the **menu bar**, click the **Users** (head) icon. The Users window appears.

13. Set up a user account:
   • Under **Users**, type a password and click **Add**.
   • Under **Account settings**, ensure **Enable account** and **Password** are enabled.
   • After **Group membership**, select the group you created in Step 10.
   • After **Maximum connection count**, type **0**.
   • After **Connection limit** per IP, type **0**.

14. Set up shared folders for the user account:
   • Under **Page**, click **Shared folders**.
   • In the center pane, click **Add** and add the NuPoint UM backup root folder (you created in Step 1) as the shared folder.
   • Under **Files and Directories**, select all of the check boxes to enable all of the file and directory options.
   • Click **Set as home directory** to make the directory the home directory for the user and click **OK**. The Backup server console opens.
   • Log on to the FTP server to test the network share.

**BACKING UP NUPOINT UM DATA TO THE LAN USING FTP**

Backing up NuPoint UM data can take a few seconds or up to several hours. Factors that influence the duration include

• The nature of the files to be backed up and the amount of information being transferred. Messages, names, and greetings are large files and significantly increase the backup duration.

• The network speed: the throughput of the network between the NuPoint UM system and the storage server.

• The processing speed of the storage server.

Because backups can take several hours, they should be performed during off-peak periods when traffic is at a minimum.

**Before You Begin**

• For the backup to function, you must enable write access on the customer’s FTP server before you perform the backup. Failure to do so will result in errors.

• Ensure the Windows PC has sufficient disk space available for the backup.

• Ensure the MSL server has sufficient disk space for the restore. You require 150% of the size of the database. For example, if you back up a 1 GB database, you require at least 1.5 GB of disk space for the restore.
• If you have added local hostnames for VPIM servers to the MSL server, the hostnames are not backed up when you back up data to the LAN. To back up local hostnames for VPIM servers on the MSL server, you must back up the MSL server settings before you perform the LAN backup procedure. For information on backing up the MSL server, refer to the *Mitel Standard Linux (MSL) Installation and Administration Guide* on the Mitel Customer Documentation site at http://edocs.mitel.com/.

• Ensure the network connection functions and is stable.

To specify network, login, and default backup settings for the FTP destination server:

1. Access the Text Console directly or via PuTTY:
   a. Connect to the NuPoint UM node.
   b. Log in as "root" and type the root password.
   c. Type `console` and press Enter. The Text Console displays.

2. Select S (System Maintenance), L (NPM Backup Menu), and L (Lan Backup using FTP).

3. In the FTP Backup menu, configure the following settings:
   - (I) FTP Server IP Address/host name = [enter the IP address of the FTP server to which you will back up the data (for example, 10.32.63.100)]
   - (U) FTP Server User ID = [enter the FTP server user ID]
   - (P) FTP Server Password = [enter the FTP server password]
   - (D) Backup Path = [enter the path to the location on the FTP server where the data will be backed up.] You specified the name of the root folder in Step 1 of “Configuring the FTP Server for Backups and Restores to the LAN” on page 168.
   - (M) Backup Messages (Y/N)? = [enter Y (yes) or N (no) to indicate if mailbox messages will be backed up]
   - (N) Backup Names and Greetings (Y/N)? = [enter Y (yes) or N (no) to indicate whether mailbox names and greetings will be backed up]
   - (F) Backup Fax Coverpages (Y/N) = [enter Y (yes) or N (no) to indicate whether Fax cover pages will be backed up]

   **Note:** The system configuration is automatically backed up the FTP server.

4. Select B (Perform Backup) to begin the backup process.

5. When the backup is complete, under General information the Status line confirms if the backup was completed successfully.

6. Return to the Main Menu and quit Text Console.

**CONFIGURING THE MICROSOFT NETWORK SHARE FOR BACKUPS AND RESTORES TO THE LAN**

Before you back up the NuPoint UM data to a network share, you must configure the backup data store.
Before You Begin

- Go to http://support.microsoft.com and search for articles on "file sharing."
- Ensure the folder or drive to be used for backups to the LAN is shared with Read/Write permission to the user ID configured in the NP UM menu.

To configure the Microsoft Network Share:

1. On the target drive, set up the root directory for the NuPoint UM backup (for example, NUPOINT\SiteA) and click **I Agree** to continue.
2. Right-click the root folder and select **Properties**.
3. On the **Sharing** tab, select **Share this folder**.
4. After **Share name**, enter the name of the root directory for the NuPoint UM backup (in this example, enter **NUPOINT\SiteA**) and click **OK**.
5. Click **Permissions**. The Share Permissions window appears.
6. Under **Group or user names**, add the user ID/group that will need to access the NP-Backup directory.
7. Under **Permissions for Everyone**, after **Allow**, select the **Full Control**, **Change**, and **Read** check boxes to grant everyone full control of the NUPOINT\SiteA directory and click **OK**.
8. On the **Security** tab, add the user ID/group (the same group you selected in Step 6) that will need to access the NUPOINT\SiteA directory.
9. Under **Permissions for Everyone**, after **Allow**, select the **Full Control**, **Modify**, **Read & Execute**, **List Folder Contents**, **Read**, and **Write** check boxes to grant everyone full control of the NP-Backup folder and click **OK**.

BACKING UP NUPOINT UM SYSTEM DATA TO THE LAN USING MICROSOFT NETWORKING

Backing up NuPoint UM data can take a few seconds or up to several hours. Factors that influence the duration include

- The nature of the files to be backed up and the amount of information being transferred. Messages, names, and greetings are large files and significantly increase the backup duration.
- The network speed: the throughput of the network between the NuPoint UM system and the storage server.
- The processing speed of the storage server.

Because backups can take several hours, they should be performed during off-peak periods when traffic is at a minimum.

Before You Begin

- Ensure the folder or drive to be used for backing up data to the LAN is shared with Read/Write permission for the user ID configured in the NuPoint Unified Messaging menu. Failure to do so will result in errors.
- Ensure the Windows PC has sufficient disk space available for the backup.
- Ensure the MSL server has sufficient disk space for the restore. You require 150% of the size of the database. For example, if you back up a 1 GB database, you require at least 1.5 GB of disk space for the restore.
- If you have added local hostnames for VPIM servers to the Mitel Standard Linux server, the hostnames are not backed up to the LAN. Back up local hostnames for VPIM servers on the Mitel Standard Linux server, you must back up the Mitel Standard Linux server settings before you back up data to the LAN. For information on backing up the Mitel Standard Linux server, refer to the Mitel Standard Linux Technician's Handbook on the Mitel Customer Documentation site at http://edocs.mitel.com/.
- Ensure the network connection is functioning and is stable.

To specify network, login, and default backup settings for the Microsoft Network destination server:

1. Access the Text Console directly or via PuTTY:
   a. Connect to the NuPoint UM node.
   b. Log in as "root" and type the root password.
   c. Type `console` and press Enter. The Text Console displays.

2. Access the MS Networking Backup menu, select S (System Maintenance), then L (NPM Backup Menu), then M (Lan Backup using MS Networking).

3. In the MS Networking Backup Menu, configure the following settings:
   - (I) MS Network Destination Hostname = [enter the IP address of the server to which you will back up the data (for example, 10.33.63.111).]
   - (A) MS Network Shared Path = [enter the path to the shared folder on the PC where the data will be backed up]
   - (U) MS Network User Id = [enter the user name for the local account on the PC where the data will be backed up.]
   - (W) MS Network Domain = [enter the domain name of the backup server]
   - (P) MS Network Password = [enter the password for the local account on the PC where the data will be backed up.]
   - (D) Backup Path = [enter the path to the folder where the data will be backed up.] You specified the name of the root folder in Step 1 of "Configuring the Microsoft Network Share for Backups and Restores to the LAN" on page 170.
   - (M) Backup Messages (Y/N)? = [enter Y (yes) or N (no) to indicate whether you want to restore the mailbox messages.]
   - (N) Backup Names and Greetings (Y/N)? = [enter Y (yes) or N (no) to indicate whether you want to restore the mailbox names and greetings.]
   - (F) Backup Fax Coverpages (Y/N) = [enter Y (yes) or N (no) to indicate whether you want to restore the Fax cover pages.]

Note: The system configuration is automatically backed up to the MS Networking server.
4. Select **B (Perform Backup)** to begin the backup process. When the backup is complete, under **General information** the **Status** line confirms if the backup was completed successfully.

5. Exit to the **Main Menu** and quit Text Console.

**Troubleshooting Backups to the LAN (MS Networking)**

If the backup fails (times out, broken connection), you are given a choice to either start it again from beginning or to resume the last backup. The time-out value in case of a broken LAN connection is 1 minute.

- **LAN connection failure** - The backup stops after a time-out of 1 minute. In this case, you must restart the backup manually. The system prompts you to either resume the backup or restart it from the beginning. The log file will specify the error encountered.

- **Windows server share not available** - This scenario is same as LAN connection failure. See above.

- **Remote disk full** - The backup process can not find out if the disk space is full or not. The processes will simply log the error that it could not copy the file(s). Attempts to resume the backup may continue failing. Ensure that enough disk space is available on the remote server.

- **Login failure** - Backup will stop immediately, indicating the appropriate error in the log file.

**CONFIGURING SCHEDULED BACKUPS TO THE LAN**

Using the NuPoint Web Console or Text Console, you can schedule automatic daily, weekly, monthly or delayed NuPoint UM system backups that occur once or repeatedly at specified times or dates.

- **Note:** After you schedule the automatic backup, you must activate the inactive configuration.

**Before You Begin**

- Manually back up the NuPoint UM data to the LAN to confirm it is configured properly before you schedule automatic backups.

**Configuring Scheduled Backups to the LAN Using NuPoint Web Console**

To use NuPoint Web Console to schedule automatic backups to the LAN (using either FTP or MS Networking):

1. From the navigation tree, click **Offline Configuration > Edit Offline Configuration**. The Offline Configuration navigation tree opens.

2. When prompted to **Duplicate Active Configuration**, click **Yes**.
3. In the navigation tree, click **Auto Backup**. The Auto Backup configuration window is displayed.

4. Select **Turn on auto backup**.

5. In the Frequency list, select the frequency in which the system will perform backups:
   - If you selected **Daily**, select the **Hour of Day** to perform the backup. (The default is 0, midnight.)
   - If you selected **Weekly**, select the **Day of the Week** and the **Hour of Day** to perform the backup.
   - If you selected **Monthly**, select the **Day of Month** and **Hour of Day** to perform the backup.
   - If you selected **Delayed**, enter a **Year**, select a **Month**, **Day of Month** and **Hour of Day** to perform the backup.

6. In the **Backup Details** section, select a **backup type** and configure its parameters:
   - FTP
   - USB
   - Hard Disk
   - MS Networking

7. Click **Save**.

8. In the navigation tree, select **Commit Changes**, **X** (Exit), and **Y** (Yes).

9. Activate the inactive configuration. (*See “Activating the Inactive Configuration” on page 174.*)

**Activating the Inactive Configuration**

You must perform this procedure to update the configuration after you have made changes to the Offline Configuration or the Inactive configuration. Before you do so, you must stop the NuPoint service. We recommend you perform this procedure during periods of low call traffic.

To activate the inactive configuration:

1. In the navigation tree, select **Offline Configuration > Activate Offline Configuration**. An on window message indicates if the Offline Configuration has changed since the last activation.

2. You can delay the activation until **MWI queue** and **Pager queue** are empty by selecting the appropriate check boxes.

3. Click **Activate**. The currently active configuration is replaced with your edited offline version.

**Note:** NuPoint services are temporarily unavailable while the configuration is activated.
Turning off Auto Backup

To turn off Auto Backup:

1. From the navigation tree, click **Offline Configuration > Edit Offline Configuration**. The Offline Configuration navigation tree opens.
2. After **Duplicate Active Configuration**, select **Yes**.
3. In the navigation tree, click **Auto Backup**. The Auto Backup configuration window is displayed.
4. Clear the **Turn on auto backup** check box.
5. Click **Save**.
6. In the navigation tree, select **Commit Changes, X (Exit), and Y (Yes)**.
7. Activate the inactive configuration. (See “Activating the Inactive Configuration” on page 174.)

Configuring Scheduled Backups to the LAN using NuPoint Text Console

To use NuPoint Text Console to schedule automatic backups (using either FTP or MS Networking):

1. Access the Text Console directly or via PuTTY:
   a. Connect to the NuPoint UM node.
   b. Log in as "root" and type the root password.
   c. Type `console` and press Enter. The Text Console displays.
2. Select **S (System Maintenance), R (Reconfiguration), R (Reconfigure System), and G (Offline Menu)**.
3. In the Offline menu, select **S (Auto Task Menu)**.
4. In the Auto Task menu, select **D (Backup Menu)**. The NPM Backup menu appears.
5. Configure a daily, weekly, monthly, or delayed backup. (See the following procedures.)
6. Activate the inactive configuration. (See “Activating the Inactive Configuration” on page 174.)

Scheduling Daily Backups

To schedule daily backups:

1. From the NPM Backup Menu, select **D (Daily Backup Menu)**.
2. Select **H (Hour to do Backup)** and enter the number (from zero <midnight> to 23 hours) that corresponds to the hour at which the backup will begin.
3. Exit to the **Main Menu**.

**Scheduling Weekly Backups**

To schedule weekly backups:

1. From the NPM Backup Menu, select **W (Weekly Backup Menu)**.
2. Select **D (Day to do Backup)** and enter the letter that corresponds to the day of the week on which the backup will occur: (M - Monday, T - Tuesday, W - Wednesday, TH - Thursday, F - Friday, S - Saturday, SU - Sunday).
3. Select **H (Hour to do Backup)** and enter the number (from zero (midnight) to 23 hours) that corresponds to the hour at which the backup will begin.
4. Exit to the **Main Menu**.

**Scheduling Monthly Backups**

To schedule monthly backups:

1. From the NPM Backup Menu, select **M (Monthly Backup Menu)**.
2. Select **M (day of Month to Do Backup)** and enter the number (from 1 to 28) that corresponds to the date/day of the month on which the backup will occur.
3. Select **H (Hour to do Backup)** and enter the number (from zero (midnight) to 23 hours) that corresponds to the hour at which the backup will begin.
4. Exit to the **Main Menu**.

**Scheduling Delayed Backups**

To schedule delayed backups:

1. From the NPM Backup Menu, select **O (Delayed Backup Menu)**.
2. Specify the year, month, day, and hour in which you want the backup to occur, as follows.
3. Select **Y (Year to do Backup)** and specify the year during which the scheduled backup will occur, (for example, enter 2005).
4. Select **M (Month to do backup)** and enter the number (from 1 to 12) that corresponds to the month during which the backup will occur.
5. Select **D (Day to do backup)** and enter the number (from 1 to 28) that corresponds to the date/day of the month on which the backup will occur.
6. Select **H (Hour to do Backup)** and enter the number (from zero (midnight) to 23 hours) that corresponds to the hour at which the backup will begin.
7. Exit to the **Main Menu**.

**Activating the Inactive Configuration**

You must perform this procedure to update the configuration after you have made changes to the Offline Configuration or the Inactive configuration. Before you do so, you must stop the NuPoint service. We recommend you perform this procedure during periods of low call traffic.
To activate the inactive configuration:

1. From the Main Menu, select S (System maintenance), R (Reconfiguration), R (Reconfigure system).

2. Select A (Activate Configuration). The system prompts you to confirm the activation.

3. Select Y to activate the configuration.

4. After *Wait for message waiting queues to be empty?*, enter Y.

5. After *Wait for paging queues to be empty?*, enter Y.

6. Exit to the Main menu and enter X to exit NuPoint Text Console.

   ![Note:](image1) The NuPoint services are temporarily unavailable while the configuration is activated.

   ![Note:](image2) When you activate the new configuration, the old configuration is stored offline as the inactive configuration. If you experience problems with the new configuration, you can restore the old configuration by activating the inactive configuration, provided no changes have been made to it in the interim.

**BACKING UP NUPOINT UM SYSTEM DATA TO USB DEVICES**

**OVERVIEW**

You can back up to USB memory devices. It is the responsibility of the administrator to ensure that the memory device can accommodate the size of the backup as backing up a large number of recordings to such a device may fail if there is inadequate storage.

Many memory sticks will work but the following two brands are officially supported:

- Sandisk Cruzer flash drive
- Lexar Jumpdrive flash drive

**Before You Begin**

- Ensure that the USB memory device can accommodate the size of the backup.
- Before the USB device can be used for backup it must be formatted with a file system. The supported file systems are FAT and FAT32.

   ![Note:](image3) You cannot back up Virtual NuPoint system data to a USB memory device.

To perform the backup:

1. Insert the USB device (in the master node for systems with multiple nodes).

2. In the Text Console, select S (System maintenance), L (NPM Backup), and U (USB Backup).

3. select A (USB Drive Path) and then select the USB device to use.

4. Configure the following USB backup settings:
• (D) Backup Path = [enter the path to the location where the backed up data is to be stored]
• (M) Backup Messages (Y/N) = [enter Y to backup mailbox messages or N to skip]
• (N) Backup Names and Greetings (Y/N) = [enter Y to backup names and greeting or N to skip]
• (F) Backup Fax Coverpages (Y/N) = [enter Y to backup Fax cover pages or N to skip]

5. Select B (Perform Backup).

Note: The device configuration is always backed up.

6. Return to the Main Menu and quit Text Console.

BACKING UP VIRTUAL NUPOINT USING VMWARE TOOLS

You can use the following standard methods to back up Virtual NuPoint system data:
• FTP server on the LAN (page 168)
• Microsoft Networking on the LAN (page 170)

In addition to the standard backup methods, the following VMware tools can be used:
• Export of vNuPoint .ova file from vSphere Client
• VMware Data Recovery
• vStorage APIs for Data Protection (VADP).

Notes:
1. “VMware Data Recovery” and “vStorage APIs for Data Protection” are optional tools.
2. Snapshots are not supported for vNuPoint while the virtual appliance is powered on or suspended. You may take a snapshot while the virtual appliance is powered off prior to performing an upgrade; however, you must delete the snapshot as soon as the upgrade has been completed.
3. You cannot back up vNuPoint system data to a USB memory device.
4. For information on how to back up vNuPoint in a Hyper-V environment, refer to the Mitel Virtual Appliance Deployment Guide on Mitel Online.

USING VMWARE TOOLS TO EXPORT AN OVF TEMPLATE

The vSphere Client allows you to export an OVF template of the vNuPoint virtual appliance. The template is a copy of the virtual appliance in .ova format. To restore the virtual appliance, you deploy the exported OVF file to the vSphere platform.

1. In the vSphere Client, right-click the vNuPoint instance and select Shutdown Guest. The normal shut down sequence appears on the MSL Server Manager.
2. Select File -> Export -> Export OVF Template:
3. Enter the Name of the OVF Template file and specify the directory where you want the file to be saved.
4. Select either Optimized for Physical Media (OVA) or Web
- **Physical Media (OVA):** export consists of a single .ova file (recommended).
- **Web:** export consists of multiple files.

5. Select **Create folder for OVF template** check box and click **Ok**. A progress bar is displayed. A “Completed successfully” dialog appears when the export is done.

6. To restart the vNuPoint virtual server, right-click on the vNuPoint instance and select **Restart Guest**. The normal startup sequence appears on the MSL Server Manager.

7. In the MSL Server Manager, select the option to **Configure this Server**. Click **Next** through all entries to reset MSL with the MAC addresses of the NICs in the new virtual appliance.
RESTORING DATA - ALL SYSTEMS

CAUTION: Partial restore is not supported. Ensure that all data you want to keep is backed up before restoring.

Using Text Console, you can restore NuPoint UM data:

- From a USB device
- From the LAN using FTP
- From the LAN using MS Networking

Notes:

1. You cannot restore virtual NuPoint system data from a USB memory device.
2. Before starting the restore procedure, ensure the MSL server has sufficient disk space. You require 150% of the size of the database that has been backed up. For example, a 1 GB database requires 1.5 GB of disk space for the restore.
3. After completing the restore procedure, verify that the system settings are correct. For example, if you have configured an outbound SMTP server (Smart Host), you will need to re-enter some settings. For configuration details, see the "Configuring Standard UM" topic in the NuPoint Unified Messaging System Administration online help file.

Message waiting indicators will automatically refresh following a restore. Time required for MWI restore is dependent upon the number of mailboxes in the system.

To restore previously backed up data:

**Note:** This procedure requires you to shut down the system and disable the servers. You must stop and disable all system servers before you restore the database.

1. Access the Text Console directly or via PuTTY:
   a. Connect to the NuPoint UM node.
   b. Log in as "root" and type the root password.
   c. Type `console` and press Enter. The Text Console displays.
2. In the Main Menu, select (S) System Maintenance and then (S) System Shutdown.
3. Answer A (All) to the Modules to shutdown prompt, and then type Y to confirm.
4. Type `shutdown` (lowercase) to reconfirm the shutdown process.
5. Answer the questions to the MWI and Paging prompts.
6. Answer Y to the Enable or disable modules? prompt.
7. From the Module Maintenance Menu that appears, select D to disable a server (you then need to enter the specific server to disable), or type all to disable all the servers.
8. NuPoint Unified Messaging is now completely stopped; press Enter to return to the # prompt.
9. Type **startnpm** to start NuPoint Unified Messaging.

10. When the NuPoint Unified Messaging system has started, type **system.restore** to start the data restore process.

11. Select one of the following restore options from the menu:
   - USB Restore
   - LAN Restore using FTP
   - LAN Restore using MS Networking

12. Modify the parameters in the restore menu as follows:

**USB RESTORE**

To restore data using a USB device:

- **(D) Backup Path** = [enter the **path to the backup folder**]
- **(R) Restore From** = [enter the number that corresponds to the **date of the backup** you want to restore]
- **(C) Restore System Configuration (Y/N)** = [enter **Y** (yes) or **N** (no) to indicate whether you want to restore the system configuration.]
- **(M) Restore Messages (Y/N)** = [enter **Y** (yes) or **N** (no) to indicate whether you want to restore the mailbox messages.]
- **(N) Restore Names and Greetings (Y/N)** = [enter **Y** (yes) or **N** (no) to indicate whether you want to restore the mailbox names and greetings.]
- **(F) Restore Fax Coverpages (Y/N)** = [enter **Y** (yes) or **N** (no) to indicate whether you want to restore the Fax cover pages.]

**FTP RESTORE**

To restore data from the LAN using FTP:

- **(A) FTP Server IP Address** = [enter the **IP address of the FTP server** from which you are restoring the data, for example, 192.168.1.101]
- **(U) FTP Server User Id** = [enter your **FTP server user ID**, for example, anonymous]
- **(P) FTP Server Password** = [enter your **FTP server password**, for example, ftp1001]
- **(D) Backup Path** = [enter the **LAN Backup path** from which you are restoring the data; for example, NUPOINT\SiteA]
- **(R) Restore From** = [enter the number that corresponds to the **date** from which you would like to restore the archived system backup]

**Note:** A maximum of 20 of the most recent backup dates are listed

- **(C) Restore System Configuration (Y/N)?** = [enter **Y** (yes) or **N** (no) to indicate whether you want to restore the system configuration.]
- **(M) Restore Messages (Y/N)?** = [enter **Y** (yes) or **N** (no) to indicate whether you want to restore the mailbox messages.]
• (N) Restore Names and Greetings (Y/N)? = [enter Y (yes) or N (no) to indicate whether you want to restore the mailbox names and greetings.]
• (F) Restore Fax Coverpages (Y/N) = [enter Y (yes) or N (no) to indicate whether you want to restore the Fax cover pages.]

MS NETWORKING RESTORE

To restore data from the LAN using MS Networking:
• (I) MS Network Destination Hostname = [enter the IP address of the PC to restore the data to.]
• (A) MS Network Shared Path = [enter the path to the shared folder on the PC where the data will be restored]
• (U) MS Network User Id = [enter the user name for the local account on the PC.]
• (P) MS Network Password = [enter the password for the local account on the PC.]
• (D) Backup Path = [enter the path to the folder that contains the backup data you want to restore.]
• (R) Restore From = [enter the number that corresponds to the date from which you would like to restore the archived system backup]
• (C) Restore System Configuration (Y/N)? = [enter Y (yes) or N (no) to indicate whether you want to restore the system configuration.]
• (M) Restore Messages (Y/N)? = [enter Y (yes) or N (no) to indicate whether you want to restore the mailbox messages.]
• (N) Restore Names and Greetings (Y/N)? = [enter Y (yes) or N (no) to indicate whether you want to restore the mailbox names and greetings.]
• (F) Restore Fax Coverpages (Y/N) = [enter Y (yes) or N (no) to indicate whether you want to restore the Fax cover pages.]

13. Select (S) Perform Restore to begin the restore process. If you are restoring messages and/or names, the following message may appear:

Speech Allocation Manager (SAM) Initialization is in progress.
This can take maximum 15 minutes. Do you want to continue [yes/no]

14. Select yes to continue with the system restore. (If you select no, the system restore process is aborted.) The restore process begins.

15. When the system restore process has completed, the LAN Restore Menu will reappear. Exit from this menu by selecting (X) Exit. The system updates the configuration records.

16. At the prompt, type host.status, and press Enter. The Module Maintenance Menu is displayed.

17. Select (E) to enable a server, or type all to enable all the servers.

18. If you are enabling a specific server, type the number of the server at the Which Module? prompt.

19. At the # prompt, type console to return to the Main Menu.
20. Restart the system now to restore FPSA functionality. For more information about FPSA, see the Security section of the *NuPoint Unified Messaging System Administration Help*.

21. Log into each of the other servers and start up NuPoint UM manually. The data restore is now complete.

**Note:** After completing the restore procedure, verify that the system settings are correct. Reprogram any settings that are missing or incorrect.
CONFIGURING SNMP SETTINGS - ALL SYSTEMS

You can configure SNMP to monitor network devices and send alarms when a device requires attention. In the following instructions, server1 refers to the Active or Master server in the cluster.

To configure the SNMP settings:

1. Log in as "admin" on server1. The MSL Server Console menu is displayed.
2. In the MSL Server Manager under Configuration, select SNMP.
3. For SNMP service status, select Enabled.
4. Configure the following settings using the values listed in the SNMP section of the worksheet:
   - For SNMPv2c community String for read-only access, specify the value SNMP clients will use to monitor the server.
   - For SNMPv2 network access setting, select All configured trusted networks to permit access to the node's SNMP information.
   - For System contact address, type the address of the administrator who will receive system notifications.
   - For System location, specify a location for the system (for example, Caldicot Computer Room).
   - For all other required fields, accept the default values.
5. Click Save to your settings.

Note: The SNMP settings set for server1 are replicated to server2 automatically
SHUTTING DOWN THE SYSTEM - ALL SYSTEMS

This procedure describes how to shut down NuPoint Unified Messaging servers properly. Use this procedure before you turn off the power to the servers.

**CAUTION:** You should warn users that you are planning to shut down the system. This process affects service, taking the NuPoint UM system out of operation. We recommended you perform this procedure during periods of low call traffic only.

SHUTTING DOWN PHYSICAL NUPOINT UM

To shut down a Physical NuPoint UM system:

1. Access the Text Console directly or via PuTTY:
   a. Connect to the NuPoint UM node.
   b. Log in as "root" and type the root password.
   c. Type `console` and press Enter. The Text Console displays.
2. Exit to the Linux prompt and enter `shutdown -h now` to shut down the Physical NuPoint UM on the server.
3. Perform the maintenance activity, or remove power from the server.
4. After you complete the maintenance activity, power up the server to return it to service.

SHUTTING DOWN VIRTUAL NUPOINT (VMWARE)

Shut down vNuPoint using the **Shutdown Guest** operation from the VMware vSphere Client. This operation performs a graceful shutdown of the guest MSL operating system. In normal circumstances, do not use the **Power Off** operation since this performs a hard reset (similar to disconnecting the power source).

To shut down the vNuPoint virtual server from the vSphere Client:

1. Right-click on the vNuPoint instance.
2. Select **Shutdown Guest**. The normal shut down sequence appears on the MSL Server Manager.

To restart the vNuPoint virtual server from the vSphere Client:

1. Right-click on the vNuPoint instance.
2. Select **Restart Guest**. The normal startup sequence appears on the MSL Server Manager.
UPGRADING THE FIRMWARE OR BIOS - PHYSICAL NUPOINT

Perform the firmware or BIOS upgrade according to the manufacturer's guidelines for the affected server. The upgrade is service affecting.

Before you commence the upgrade procedure, it is essential you shut down the server properly. See “Shutting Down the System - All Systems” on page 185. for instructions.

CLEANING A REDUNDANT HARD DRIVE - PHYSICAL NUPOINT

You can implement a second hard drive in your Physical NuPoint UM system for redundancy. If the drive you choose to use contains previous data, it must be cleaned before adding it to the NuPoint system.

**Note:** These instructions apply only to a Physical NuPoint UM system. Do NOT use them for Virtual NuPoint (vNuPoint).

**CAUTION:** These instructions will wipe out the contents of the hard drive. Ensure that you are working with the correct disk.

1. If you have two disks in your system, clearly identify which physical disk is the good disk and which one is to be cleaned. A simple way to do this is to boot from one disk and then the other. This will tell you which disk is the good one. It is a good idea to clearly identify (place a sticker on) the disk that is to be cleaned.

2. Remove the good disk from the system and leave the disk to be cleaned in the system. If you remove a disk, power the system off and then remove the good disk and set it aside in a safe place.

3. Locate your copy of the Mitel Standard Linux CD or DVD and boot the system with this disc in the CD/DVD-ROM drive.

4. At the window that prompts you to select the Upgrade or Install option, press Alt+F2. A command prompt appears.
5. Enter the command 'fdisk -l' to see the name of the disk in your system. In the example below, it shows that the name of the disk drive in this system as "/dev/cciss/c0d0". Make a note of this name as it appears for your system.

6. Enter the command 'fdisk <name of disk as given by the fdisk -l command>'. In the example shown, you would enter fdisk /dev/cciss/c0d0.

7. At the command prompt, enter d (to delete a partition).

8. Enter 1 as the partition number to delete.

9. Continue deleting partitions until all partitions are deleted.

10. Enter w to write the partition information to disk and exit. The disk is now cleaned.

11. Add the good disk back in to the system by turning off the power to the server and reinstalling the good disk in its slot.

12. Remove the CD or DVD from the CD/DVD-ROM drive and power up the system. The system may try to boot from the cleaned drive. If this happens, it means that you have swapped the drive positions and the boot will fail. If this happens, swap the drives' positions and restart again.

13. Log in to MSL Server Manager and select Manage Disk Redundancy to synch the disks and copy the contents of the good drive to the new drive.
REPLACING A REDUNDANT HARD DRIVE - PHYSICAL NUPOINT

If a redundant drive fails, you must replace it with a vendor approved blank drive of equal or greater capacity.

To replace a failed redundant drive:

1. Turn off power to the server.
2. Remove the failed drive and replace it with a vendor approved blank drive of equal or greater capacity. (See "Upgrading the Firmware or BIOS - Physical NuPoint" for instructions to clear a previously-used drive.)
3. Start the system.
4. Log in to the MSL Server Console as "admin" and select the option to Manage disk redundancy.
5. Select the option to Synch the drives. **Note:** If this option does not appear, it means that your new drive is not blank.

**Note:** NuPoint supports two RAID configurations: MSL Software RAID 1 and Vendor Hardware RAID 1, 5 & 10. For details concerning RAID implementations, information about how MSL handles RAID, and troubleshooting tips for installation problems, refer to the *Mitel Standard Linux Installation and Administration Guide*. For details concerning vendor-approved hardware and recommended BIOS settings, refer to the *Mitel Standard Linux Qualified Hardware List*. 
Chapter 8

TROUBLESHOOTING
TROUBLESHOOTING

This section provides troubleshooting information for all NuPoint UM Systems.

- Self Help Solutions (page 191)
- General Troubleshooting Steps (page 192)
- About Event Recorder (page 193)
- MWI Troubleshooting (page 204)
- System Troubleshooting (page 194)
- Feature Troubleshooting (page 199)
- MWI Troubleshooting (page 204)
- Virtual NuPoint Troubleshooting (page 207)
- Online Help Troubleshooting (page 209)

SELF HELP SOLUTIONS

CHECKING THE KNOWLEDGE BASE

The Knowledge Base is your source for product information covering a large range of technical support methods. All new Technical Bulletins (TBs), Release Notes (RNs), How to Guides and Troubleshooting guides will be posted in the Knowledge Base. Access to the Knowledge Base is given with access to MOL.

To access the Knowledge Base:
1. Log into Mitel OnLine.
2. Point to Technical and then click Knowledge Base.
3. Select the product name (for example, NuPoint UM).
4. (Optional) Enter key words as required.
5. Click Search.

BEFORE YOU CALL TECHNICAL SUPPORT

☑ Ensure that you are certified on the product in question.
☑ Search the Troubleshooting section of this guide (see page 192) for a solution.
☑ Check the Mitel Customer Documentation site, Knowledge Base and training materials for a solution to the issue.
☑ Collect the following information:
  - Software version number
  - System IP address
  - System passwords
  - Nature of the problem
  - Troubleshooting results
Ensure that you can allow Mitel Product Support to access your NuPoint system by providing Internet access from a PC connected to the NuPoint Unified Messaging system. See “Accessing the System with PuTTY over an Ethernet Connection” on page 228.

Ensure that you can connect to the Mitel MiCollab Client site.

(When you make your call to Mitel Product Support, they will supply a conference number to enter on the site that will allow remote control of your system.)

**GENERAL TROUBLESHOOTING STEPS**

If you experience problems during installation, check your work, consult the following troubleshooting steps, and then try to restart the NuPoint Unified Messaging server. If the server still fails, call your Mitel support representative for additional instructions.

1. Meet with the customer and discuss the symptoms in order to define the problem. Ask these questions:
   - Did the server fail after a hardware expansion or upgrade?
     - May indicate defective new hardware, a hardware configuration problem, hardware incompatibility, or an installation problem.
   - Is the problem constant or intermittent?
     - May indicate a loose cable or other intermittent component. Consider the power environment:
       - Is the grounding correct?
       - Any changes to connected devices?
       - Any power surges or line hits?
   - Did the company hire new employees?
     - The server may be exceeding original capacities.
   - Are users properly trained?
     - Problems may be caused by misuse of the system
   - When was the last preventive maintenance performed?
     - Check for blocked filters, dim LEDs, or out of service components.

2. Before you log in, record any error messages that appear on the console.

3. Check and record the condition of all status lamps and LEDs for the system and individual components, including the hard disks.

4. Try to log in to the console.

5. Does the server accept the user name and do you see the prompt for the password?

6. Does the server accept the password and allow log in?

7. After you log in, run the Logfile and check for error messages.

8. If the symptoms seem to be related to a specific port or to the network, check the Usage report to identify any ports or lines that do not carry normal traffic.
9. When the tests and checks indicate a specific failed component, remove and replace the FRU. Check that the system operates correctly. Return the failed component for repair according to the terms of your support plan.

ABOUT EVENT RECORDER

During troubleshooting sessions, Mitel Product Support may ask you to use the Event Recorder utility (available in the Text Console only) to monitor the real-time activity of the NuPoint UM server or of a particular line or group of lines.

Monitoring system activity requires the following steps:

• Access the Event Recorder
• Configure it for the events/lines you want to monitor or strings you want to match
• Configure the output file name and maximum size
• Run Event Recorder and monitor the required events
• Terminate Event Recorder

To configure and enable Event Recorder:

1. Access the Text Console directly or via PuTTY:
   a. Connect to the NuPoint UM node.
   b. Log in as "root" and type the root password.
   c. Type `console` and press Enter. The Text Console displays.

2. In the Text Console Main menu, select (S) System Maintenance, (V) Event Recorder, and then (C) Configure Event Recorder/Line Monitor.

3. Select (C) Message levels and enter message levels as required. For example, for most call processing monitoring, select levels 1, 3, 5, and 12 in a comma-separated list. For paging operation monitoring, select 1, 3, 5, and 28. For PMS monitoring, select 23. Note: the more levels you choose, the more data is output, making it more difficult to isolate single events.

4. Optionally, you can select a line or lines to monitor. Select (A) Event Recorder Lines and enter the line triplet, or triplets, to monitor.

5. Optionally, you can record only those records that match a certain string. Select (E) String Match, enable the option, and then enter the string (1-25 alphanumeric characters) you want to match.

6. Select (F) Output File Name and enter a filename (1-20 characters, for example, `feb29`) or enter a period (.) to clear the filename. If no name is entered, data is output to the console.

7. Select (L) Maximum Lines in Output File and enter 0 (zero) to make the length infinite.

8. Ensure that Event Recorder is enabled: Select (D) Enable/Disable Event Recorder and enter Y to enable.
9. Select (X) to Exit and Save Changes. Note: These configuration settings are maintained for future monitoring. Check them each time to ensure that they are set appropriately for the current session.

10. In the Event Recorder/Line Monitor menu, select (R) to Run. The system confirms that Event Recorder has started. Events are sent to the file you specified in step 5 (or to the console if no filename was specified.)

11. When you have completed testing, select (T) Terminate Event Recorder again to stop recording.

VIEWING THE LOGGED EVENTS FILE

For short tests, you can select the (S) Show Log File option in the Event Recorder menu to display the file on window.

To access the logged file:

1. In the Admin Console, exit to the Linux prompt (#) and type cd / to switch to the root directory

2. At the prompt, type ls to list the files stored at the root. Your filename (in our example above, the filename is feb29) appears in the list.

3. Use the following Linux commands to view the data:
   - cat feb29: displays the full file content
   - tail feb29: displays the last 10 lines of the file
   - tail -f feb29: displays the content and real-time updates to the file. Press CTL + C to exit.

The Event Recorder runs until you Terminate it or until the system is restarted.

SPECIFIC TROUBLESHOOTING ISSUES

This section details specific troubleshooting issues in the following categories:

- System Troubleshooting
- Feature Troubleshooting (page 199)
- MWI Troubleshooting (page 204)
- Virtual NuPoint Troubleshooting (page 207)
- Online Help Troubleshooting (page 209)

SYSTEM TROUBLESHOOTING

The following information is intended to help you to isolate the source of hardware and system-related configuration problems and fix them, typically through a process of elimination.

Please refer to the 3300 ICP Communication’s Platform Engineering Guidelines for information on troubleshooting network related voice quality issues.
<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>POSSIBLE CAUSE</th>
<th>CORRECTIVE ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call Director is not working on one or more mailboxes.</td>
<td>You have insufficient licenses for Call Director features.</td>
<td>1. View the Call Director features for which you are licensed and verify you have sufficient feature licenses to support all users:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Access Text Console:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Connect to the NuPoint UM node.</td>
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<tr>
<td></td>
<td></td>
<td>- Log in as &quot;root&quot; and type the root password.</td>
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<td></td>
<td>- Type <code>console</code> and press Enter.</td>
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<td></td>
<td></td>
<td>• Exit to the Linux prompt and enter <code>getids -l</code>.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Locate feature 320. Confirm the number of Call Director Call Flows for which you are licensed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. If a particular mailbox is not listed, confirm the FCOS contains bit 292 and update the Call Director database:</td>
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<tr>
<td></td>
<td></td>
<td>• Return to the main menu.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• At the command prompt, type `R (Report Generation), then N (Call Director Database Report), and then C (Console). The data lists the mailboxes currently using Call Director licenses.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Verify the line group is enabled for Call Director:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Return to the main menu.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• At the command prompt, type `R (Reports Generation), then C (Configuration), then P (Console with pause).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Type a line group number to display.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Under NP Call Director Interface, confirm that Call Director is on the line group. If it is not listed, then enable the Call Director interface for the line group.</td>
</tr>
<tr>
<td>Call Director is not working on one or more mailboxes.</td>
<td>Call Director licenses have not been allocated to intended users.</td>
<td>1. Verify intended users have Call Director licenses:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Access Text Console:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Connect to the NuPoint UM node.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Log in as &quot;root&quot; and type the root password.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Type <code>console</code> and press Enter.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• At the command prompt, type `R (Report Generation), then N (Call Director Database Report), and then C (Console). The data lists the mailboxes currently using Call Director licenses.</td>
</tr>
</tbody>
</table>

Page 1 of 4
Table 3: System Troubleshooting (continued)

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>POSSIBLE CAUSE</th>
<th>CORRECTIVE ACTION</th>
</tr>
</thead>
</table>
| NuPoint UM ports do not answer when you dial the 3300 ICP, or do not display the same traffic as that displayed by Text Console. |  • The Record-a-call option was purchased after NuPoint UM was up-and-running and you forgot to install the Record-a-call blade.  
  • The blade was installed but the ports do not answer.                  | Perform the following steps on both NuPoint UM nodes:  
  1. Determine if the Record-a-call option was purchased and the blade was installed on NuPoint UM:  
     • Access Text Console:  
       - Connect to the NuPoint UM node.  
       - Log in as "root" and type the root password.  
       - Type `console` and press Enter.  
     • Exit to the Linux prompt and enter `getids -l`.  
     • Scroll down to feature 140 and confirm if it is set to `Y` and `Enabled`: `Y` = option was purchased, `Enabled` = blade was installed. The following steps assume the option was purchased, but not yet enabled.  
     • Add the Record-a-call option to the application record.  
     • Synchronize the NuPoint UM server to the AMC to obtain the Record-a-call license.  
     • Install the NuPoint UM blades to change the Record-a-call option from `Disabled` to `Enabled` (for more information see "Downloading NuPoint UM Software from Mitel OnLine").  
     • Change the phone set type on the 3300 from 5020 to 5240.  
   2. If the ports still do not answer, call Mitel Product Support.        |

Need to monitor real-time port behavior  
For example, if you call a port and get a Ring no answer signal, but in Text Console the port appears to be idle, you can use the VCCS tool to confirm port behavior.  

Monitoring Port Behavior  
1. View the real-time status of a NuPoint UM port:  
   • Access Text Console:  
     - Connect to the NuPoint UM node.  
     - Log in as "root" and type the root password.  
     - Type `console` and press Enter.  
   • Exit to the Linux prompt, enter `vccs`, and press `Enter`. A table that displays real-time port activity appears.  
   • Press `Shift + ?` to view a legend that displays real-time states.  

Cannot log in to your administrators mailbox. When you attempt to log in you receive a message stating the password is invalid.  

Specify a password that meets security requirements:  
• Type a 4-digit number that is complex/atypical (do not enter a simple password such as 1234 or 2222).
<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>POSSIBLE CAUSE</th>
<th>CORRECTIVE ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>System slows down after redundant drive synchronization on HP ML110 G5 or G6</td>
<td>Possible incorrect BIOS settings</td>
<td>When installing the <strong>HP ML110 G5</strong> or <strong>G6</strong> server with redundant 250GB drives, the following BIOS settings must be changed for proper SATA storage throughput:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. On boot up, press <strong>F10</strong> to enter the BIOS menu.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. In the BIOS menu, under Advanced &gt; Advanced Chipset Control, ensure the following settings:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Serial ATA <strong>[Enabled]</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Native Mode Operation <strong>[Serial ATA]</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• SATA RAID Enable <strong>[Disabled]</strong></td>
</tr>
<tr>
<td>Failure to resolve FQDN of smart host when Corporate DNS is enabled</td>
<td>By default, MSL is set to Resolve locally all DNS requests even if a Corporate DNS server has been configured.</td>
<td>1. In the MSL Server Manager, under Configuration, click <strong>Domains</strong>.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Select the <strong>Modify</strong> link for the domain you are trying to resolve.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. In the Domain DNS servers lists, select <strong>Resolve using Corporate DNS server</strong>.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Click <strong>Save</strong>.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If you do not have a corporate DNS server, you need to add the domain and IP address to the Hosts file:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. In the MSL Server Manager, under Configuration, click <strong>Hostnames and Addresses</strong>.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Click <strong>Add Hostname</strong>.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Enter the host name and select the Domain and Location.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Click <strong>Save</strong>.</td>
</tr>
<tr>
<td>Notification of hard drive failure in external disk array</td>
<td></td>
<td><strong>SNMP</strong> provides remote monitoring of network devices and services and reports system issues such as hard drive failure. For information on setting up SNMP to monitor the disk array, refer to the operational manuals provided by the disk array manufacturer. Set up SNMP traps to be sent directly to an SNMP manager.</td>
</tr>
</tbody>
</table>

Table 3: System Troubleshooting (continued)
### TCP/IP information missing from Configuration Report

The TCP/IP System Wide Host Configuration section of the Configuration Report, generated through Text Console access, should include domain name, host name, and IP address information of the server.

If the hostname configured during the "Configure this Server" setup is 16 characters or longer, the TCP/IP information will not be properly displayed in the Configuration Report. To resolve this issue in NPUM 3.0 and earlier loads, re-configure the server with a host name of 15 characters or less. NuPoint UM Release 4.0 and later include support for 16-character host names.

### How to keep a modem connection "up" for maintenance

It may be necessary to keep a modem connection connected for remote maintenance on a Voice Mail server. To keep a modem connection connected for remote maintenance, run the PING command with the -t switch from your PC to the VM server once the modem is connected to the voice mail server. The -t switch pings the specified host until stopped. For example:

```
ping 203.96.92.132  -t
```

stop pinging, type Control + C.

### PPP modem connections Non working on HP ML110 G5 or G6 server

PPP modem connections to NuPoint UM systems are done through the server's serial port.

HP ML110 G5 or G6 servers embedded serial port has three modes: BMC, System and Shared.

When the serial port is in BMC mode, PPP modem connections cease to function properly. The default setting of "Shared" allows switching the setting using keyboard shortcuts that may be pressed accidentally.

To eliminate the possibility of selecting BMC mode accidentally, we recommend that the BIOS setting be changed from "Shared" to "System".

To access the BIOS, press **F10** on boot up.

Under Advanced > I/O Device Configuration, the default for Embedded Serial Port Mode [System]: is Shared. Change the setting from "Shared" to "System".
FEATURE TROUBLESHOOTING

This section details issues you may encounter with NuPoint UM features.

Table 4: Feature Troubleshooting

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>POSSIBLE CAUSE</th>
<th>CORRECTIVE ACTION</th>
</tr>
</thead>
</table>
| Voice mail messages are not reaching a user's email account. | Need to verify if SMTP forwarding is functioning | 1. Examine a message file to confirm if voice mail messages are being forwarded:  
• Access Text Console:  
  - Connect to the NuPoint node.  
  - Log in as "root".  
  - Type the root password.  
  - Type `console` and Enter.  
• Exit to the Linux prompt and enter `cd /` to switch to the root directory.  
• Type `/var/log/qmail`.  
• View the log file, type `tail -f current`.  
• Leave a voice mail message for the mailbox in question. If SMTP forwarding is functioning, you will see a message being sent to the IP address of the Exchange Server. The message will appear in the current file. |
| Prompt languages disappear after software upgrade | The backup process does not back up the language prompts that are installed on the system. | It is the administrator’s responsibility to note the prompts that are installed and to re-install them on the upgraded system.  
Ensure that all required options have been licensed for a new installation or upgrade. |
| Incorrect prompt sequence when users are logged into their mailbox (Advanced UM) | Currently Text-to-Speech playback for Advanced UM is only supported in North American English and British English. The required prompts sets do not exist for other languages. | Do not enable FCOS bit 296 (Enable Text to Speech Playback) for users who are configured to use a non-English language. |
SMTP traffic fails: MSL 9.x corrects a security issue by applying a restriction for the hosts from which the SMTP process will forward mail. The default setting is "localhost only", which is acceptable in the physical NuPoint UM environment.

To correctly configure clustered systems using MSL 9.x for UM-SMTP, UM-Standard, VPIM, and any other services that dispatch SMTP messages, it is necessary to ease the security restrictions as follows:

1. Log in to the MSL server using the cluster IP address.
2. Under Configuration, click Networks and verify that all NuPoint node IP addresses are contained in the listed ranges. If not, specify the proper ranges to include all nodes.
3. Under Configuration, click on Email Settings and click on the Change button next to SMTP email injection restrictions.
4. Select Accept only from trusted networks and click Save, then ensure the setting is properly applied.

DTMF Tone included in recorded name: During the tutorial for SAA users, you may be prompted to record your name and then press the pound key when you are finished. If your recorded name playback includes the DTMF for the pound key, then your Release 5.1 Dialogic Media Gateway (or PIMG) is not set correctly.

1. Access the DMG with user name and password (default user name is "admin" and password is "IpodAdmin").
2. Click Configure > Gateway > Gateway Advanced > Telephony.
3. In the Dial Send Key field, ensure that the setting is None.
Table 4: Feature Troubleshooting (continued)

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>POSSIBLE CAUSE</th>
<th>CORRECTIVE ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outbound pager system is not functioning: messages are not being</td>
<td>The pager system may not be supported or defined, or the pager access dial</td>
<td>Refer to the following section for instructions on Testing the pager access code</td>
</tr>
<tr>
<td>delivered to pagers or cell phones</td>
<td>string for outdials may include two “Ts” (for example, T1T9) instead of one.</td>
<td>with message delivery.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>TESTING THE PAGER ACCESS CODE WITH MESSAGE DELIVERY</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>For information on how to set up paging line groups, see “Setting up a Paging</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Line Group” on page 135. Complete the following steps to test the pager access</td>
</tr>
<tr>
<td></td>
<td></td>
<td>code with message delivery.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Configuring Pager Settings</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To configure pager settings:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Start Web Console, log on as “admin”, and type your password.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. In the left pane, under Applications, select NuPoint Web Console.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Click Edit Offline Configuration.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Click Yes to duplicate the active configuration.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. In the left pane, select Dialers (Pagers).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Click Add to configure internal and external access codes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. Specify internal access code settings:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Number = 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Name = Internal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Access Code = T</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Hold Time = 10 (seconds)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8. Save your settings.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9. Dial the pager or cell number to confirm if it can receive messages.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If the pager or cell phone is still unable to receive messages, you need to</td>
</tr>
<tr>
<td></td>
<td></td>
<td>test the pager system using Web Console in an open PuTTY session.</td>
</tr>
</tbody>
</table>

For information on how to set up paging line groups, see “Setting up a Paging Line Group” on page 135. Complete the following steps to test the pager access code with message delivery.
Outbound pager system is not functioning (continued):

Testing the Pager System
To test the pager system:
1. Start Web Console, log on as "admin", and type your password.
2. In the left pane, under Mailbox Maintenance, select Mailboxes.
3. After Message Waiting Type, select Pager.
4. Click Details.
5. Under Primary, select Paging (for a pager) or select Message Delivery (for a cell phone) and configure the following options.
   For a Cell Phone:
   • After Telephone Number, type the cell phone number.
   • Leave the Post Pager field blank.
   • After Access Type, select 1-External (which we specified in Step 7).
   • After Frequency, type a number (for example, type 3).
   • After Interval, type a number (for example, type 5). If you specify a frequency of 3 and an interval of 5, the cell phone will ring 3 times: once every 5 minutes over a 15 minute period.
   For a Pager:
   • After Telephone Number, type the pager number.
   • After Post Pager Number, type +G followed by the number to be displayed on the pager (for example, type +G1000).
1. Click Save to save the mailbox configuration.
2. After Busy Attempts, type a number (for example, type 5).
3. After Start Time, specify the time of the day and after Stop Time, specify the duration the system will attempt to contact the user.
   • G1000) that identifies who is calling.
4. Click Save to save the mailbox configuration.

Table 4: Feature Troubleshooting (continued)

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>POSSIBLE CAUSE</th>
<th>CORRECTIVE ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Testing the Pager System</td>
<td>To test the pager system:</td>
<td>1. Start Web Console, log on as &quot;admin&quot;, and type your password.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. In the left pane, under Mailbox Maintenance, select Mailboxes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. After Message Waiting Type, select Pager.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Click Details.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Under Primary, select Paging (for a pager) or select Message Delivery (for a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>cell phone) and configure the following options.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>For a Cell Phone:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• After Telephone Number, type the cell phone number.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Leave the Post Pager field blank.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• After Access Type, select 1-External (which we specified in Step 7).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• After Frequency, type a number (for example, type 3).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• After Interval, type a number (for example, type 5). If you specify a frequency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>of 3 and an interval of 5, the cell phone will ring 3 times: once every 5 minutes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>over a 15 minute period.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>For a Pager:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• After Telephone Number, type the pager number.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• After Post Pager Number, type +G followed by the number to be displayed on the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>pager (for example, type +G1000).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Click Save to save the mailbox configuration.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. After Busy Attempts, type a number (for example, type 5).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. After Start Time, specify the time of the day and after Stop Time, specify the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>duration the system will attempt to contact the user.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• G1000) that identifies who is calling.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Click Save to save the mailbox configuration.</td>
</tr>
</tbody>
</table>
5. If you selected "Paging" in step 5:
   • After **Type**, select **Paging**.
   • After **Telephone Number**, type your pager number.
   • After **Post Pager Number**, type the pager company greeting number (for example, type **G1000**) that identifies who is calling.
   • Click **Save** to save the mailbox configuration.

**Entering Message Levels for Paging**

To enter the message levels for paging:

1. Access Text Console:
   - Connect to the NuPoint node.
   - Log in as "root".
   - Type the root password.
   - Type **console** and Enter.

2. At the command prompt, enter S (System Maintenance), then V (Event Recorder), then C (Configure Event Recorder / Line Monitor), and then C (Message Levels).

3. Enter the message levels for paging: 1, 3, 5, 12, and 28.

4. Enter X and then R to run Event Recorder.

5. Exit to the Main menu.

**Performing a Lights Test**

To perform a lights test:

1. In Text Console, enter S (System Maintenance), then O (Additional Options), and then L (Lights Test).

2. Enter the number to be tested (for example, enter 1000).

3. Enter 1 for a phone or 5 for a pager and press Enter. If errors are listed in the data, or the cell phone or pager is still not receiving messages, contact Mitel Product Support.

**Note:** After you have tested the Pager Access Code with Message Delivery, you must restart the NuPoint UM server.

---

Table 4: Feature Troubleshooting (continued)

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>POSSIBLE CAUSE</th>
<th>CORRECTIVE ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. If you selected &quot;Paging&quot; in step 5:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• After <strong>Type</strong>, select <strong>Paging</strong>.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• After <strong>Telephone Number</strong>, type your pager number.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• After <strong>Post Pager Number</strong>, type the pager company greeting number (for example, type <strong>G1000</strong>) that identifies who is calling.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Click <strong>Save</strong> to save the mailbox configuration.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Entering Message Levels for Paging**

To enter the message levels for paging:

1. Access Text Console:
   - Connect to the NuPoint node.
   - Log in as "root".
   - Type the root password.
   - Type **console** and Enter.

2. At the command prompt, enter S (System Maintenance), then V (Event Recorder), then C (Configure Event Recorder / Line Monitor), and then C (Message Levels).

3. Enter the message levels for paging: 1, 3, 5, 12, and 28.

4. Enter X and then R to run Event Recorder.

5. Exit to the Main menu.

**Performing a Lights Test**

To perform a lights test:

1. In Text Console, enter S (System Maintenance), then O (Additional Options), and then L (Lights Test).

2. Enter the number to be tested (for example, enter 1000).

3. Enter 1 for a phone or 5 for a pager and press Enter. If errors are listed in the data, or the cell phone or pager is still not receiving messages, contact Mitel Product Support.

**Note:** After you have tested the Pager Access Code with Message Delivery, you must restart the NuPoint UM server.
### MWI TROUBLESHOOTING

**Table 5: MWI Troubleshooting**

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>POSSIBLE CAUSE</th>
<th>CORRECTIVE ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>MWI not flashing even though you have messages</td>
<td>The 3300 ICP System Options form has a parameter called &quot;SUPERSET Callback Message Cancel Timer&quot;. If this parameter is set to any value other than blank, the 3300 ICP will turn off the MWI set by NP-UM when the timer value expires. For example, if the parameter is set at the default of 24 hours and a message is recorded for John Smith on Friday evening, then the 3300 ICP turns off the indicator Saturday evening. When John Smith arrives at work on Monday morning, he is unaware that there is a message waiting until such time as he receives another message.</td>
<td>Ensure that the &quot;SUPERSET Callback Message Cancel Timer&quot; parameter in the Systems Option form of the 3300 ICP is left blank.</td>
</tr>
</tbody>
</table>
If you are experiencing problems with MWI or delayed messages, please turn on the Event Recorder and capture an event before contacting Technical Support.

To turn on the Event Recorder:

1. Modify the affected user's FCOS and add feature bit 254 - mailbox trace. (For instructions to modify an FCOS, see the Modify a Default FCOS topic in the NuPoint System Administration online help.)
2. In the Main Menu, select (S) - System Maintenance
3. In the System Maintenance menu, select (V) Event Recorder
4. Select (C) Configure Event Recorder. You will be presented with a list of available Message Levels.
5. Enter 1, 3, 5, 8, 9
6. Select (F) File Output Name.
7. Enter a name for the file to send the trace information to. No extension is needed.
8. Select (X) Exit
9. Select (R) Run Event Recorder
10. When an event has been captured, contact Technical Support and provide the file name.

### MiTAI MWI troubleshooting

For issues regarding MWI with MiTAI, contact Mitel Technical Support.

---

### Table 5: MWI Troubleshooting (continued)

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>POSSIBLE CAUSE</th>
<th>CORRECTIVE ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTMF-to-PBX troubleshooting</td>
<td>If you are experiencing problems with MWI or delayed messages, please turn on the Event Recorder and capture an event before contacting Technical Support.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To turn on the Event Recorder:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Modify the affected user's FCOS and add feature bit 254 - mailbox trace.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(For instructions to modify an FCOS, see the Modify a Default FCOS topic in the NuPoint System Administration online help.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. In the Main Menu, select (S) - System Maintenance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. In the System Maintenance menu, select (V) Event Recorder</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Select (C) Configure Event Recorder. You will be presented with a list of available Message Levels.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Enter 1, 3, 5, 8, 9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Select (F) File Output Name.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. Enter a name for the file to send the trace information to. No extension is needed.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Select (X) Exit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9. Select (R) Run Event Recorder</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10. When an event has been captured, contact Technical Support and provide the file name.</td>
<td></td>
</tr>
<tr>
<td>MiTAI MWI troubleshooting</td>
<td>For issues regarding MWI with MiTAI, contact Mitel Technical Support.</td>
<td></td>
</tr>
</tbody>
</table>
If the MWI lamps are not lighting properly for a RS-232 MWI configuration using a modem, perform the following steps to troubleshoot your system:

1. Confirm your system setup by running a Configuration Report from the main menu (R,C) and check that the correct values have been entered into the system. Refer to the Programming RS-232 MWI Using a Modem topic in the NuPoint online help for the specific values that need to be entered.

The RS-232 settings are displayed at the end of the report, as indicated below:

| Port $term2 RS-232 Serial Port application = Programmable |
| Programmed values for Port $term2: |
| Initialization string = [ATDTE0V1X4\r], Reply string = [] |
| Pre-DN ON string = [ATDT761], Pre-DN OFF string = [ATDT762] |
| Post-DN ON string = [\r], Post-DN OFF string = [\r] |
| Dept. Code as DN = [], Unplayed msg count sent = [] |
| Delay between message waiting requests = [3] |
| Delay between Post-DN and Trailer string = [6] |
| Trailer string = [] |
| Suppress message light updates = [N] |

**Note:** The values indicated below are only an example and will differ from system to system.

---

**Table 5: MWI Troubleshooting (continued)**

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>POSSIBLE CAUSE</th>
<th>CORRECTIVE ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS-232 MWI troubleshooting</td>
<td>If the MWI lamps are not lighting properly for a RS-232 MWI configuration using a modem, perform the following steps to troubleshoot your system:</td>
<td><strong>Note:</strong> The values indicated below are only an example and will differ from system to system.</td>
</tr>
</tbody>
</table>
VIRTUAL NUPOINT TROUBLESHOOTING

The following issues are specific to Virtual NuPoint deployments:

Table 6: vNuPoint Troubleshooting

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>POSSIBLE CAUSE</th>
<th>CORRECTIVE ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>System performance is slow.</td>
<td>You have taken snapshots of vNuPoint, which degrades system performance.</td>
<td>Delete all vNuPoint snapshots from system.</td>
</tr>
<tr>
<td>Unable to connect to a CD/DVD drive when you are attempting to install software.</td>
<td>In the Virtual Machine Properties Hardware screen, under Host Device, the drop-down menu displays &quot;CD/DVD Drive 1 - Device unavailable&quot;.</td>
<td>Select a valid CD/DVD drive from the list of devices.</td>
</tr>
</tbody>
</table>
After importing (restoring) an vNuPoint OVF template backup file, system performance and voice quality is poor.

Network adapter type is set incorrectly. After a importing an OVF template file, the network adapter type is reset to default. The network adapter must be reset to type VMXNET3.

1. In the vSphere Client, click the vNuPoint App properties Hardware tab.
2. Select Network adapter 1 from the Hardware list.
3. Click Remove.
4. Click Add.
5. From the "Adapter type" drop-down menu, select MXNET3.
6. Click Next and then click OK.

Voice quality issues vNuPoint is installed in the vSphere environment using Thin provisioning.

Thin provisioning can cause voice quality issues due to disk sharing. Reinstall vNuPoint and select Thick provisioning during the install wizard.

vNuPoint features not working as expected.

Invalid license. You have installed NuPoint on a virtual machine, but you do not have a virtualization license.

In the Server Manager, click the Licensing Information page. If your license is invalid a red warning message will appear near the top of the web page.
1. Contact your authorized Reseller to purchase a virtualization license and obtain an Application Record ID.
2. In your AMC account, access the appropriate Application Record and assign the license.
3. Log into the Server Manager.
4. Under ServiceLink, click Status.
5. Click Sync.

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>POSSIBLE CAUSE</th>
<th>CORRECTIVE ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>After importing (restoring) an vNuPoint OVF template backup file, system performance and voice quality is poor.</td>
<td>Network adapter type is set incorrectly. After a importing an OVF template file, the network adapter type is reset to default. The network adapter must be reset to type VMXNET3.</td>
<td>Set the network adapter to type VMXNET3: 1. In the vSphere Client, click the vNuPoint App properties Hardware tab. 2. Select Network adapter 1 from the Hardware list. 3. Click Remove. 4. Click Add. 5. From the &quot;Adapter type&quot; drop-down menu, select MXNET3. 6. Click Next and then click OK.</td>
</tr>
<tr>
<td>Voice quality issues</td>
<td>vNuPoint is installed in the vSphere environment using Thin provisioning.</td>
<td>Thin provisioning can cause voice quality issues due to disk sharing. Reinstall vNuPoint and select Thick provisioning during the install wizard.</td>
</tr>
<tr>
<td>vNuPoint features not working as expected.</td>
<td>Invalid license. You have installed NuPoint on a virtual machine, but you do not have a virtualization license.</td>
<td>In the Server Manager, click the Licensing Information page. If your license is invalid a red warning message will appear near the top of the web page. 1. Contact your authorized Reseller to purchase a virtualization license and obtain an Application Record ID. 2. In your AMC account, access the appropriate Application Record and assign the license. 3. Log into the Server Manager. 4. Under ServiceLink, click Status. 5. Click Sync.</td>
</tr>
</tbody>
</table>
# Online Help Troubleshooting

## Table 7: Online Help Troubleshooting

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Corrective Action</th>
</tr>
</thead>
</table>
| Table of Contents is not present or not functioning correctly in Internet Explorer. | Help compatibility issues with latest versions of Internet Explorer.            | 1. In the Internet Explorer toolbar, click **Tools** and then click **Compatibility View settings**.  
2. Select **Display all websites in Compatibility View**.                   | 3. Click **Close**.                                                              |
| Help topic text is not appearing in Internet Explorer.                  |                                                                                   |                                                                                   |
| Numbered steps are ordered incorrectly and text formatting is inconsistent in Internet Explorer. |                                                                                   |                                                                                   |
| Cannot display online help in Google Chrome browser locally.            | Google Chrome does not support webhelp files when they are run locally on your PC. The webhelp must be running on a web server in order to support Google Chrome. | Open the webhelp from the NuPoint application, or  
To open webhelp files locally on your PC, use a supported Internet Explorer browser version or a supported Firefox browser version. |
Appendix A

ABOUT MITEL STANDARD LINUX
ABOUT MITEL STANDARD LINUX

Mitel Standard Linux provides the base operating system for NuPoint Unified Messaging software. For NuPoint Unified Messaging Release 12.0 and later, both MSL and NP-UM software are available for download from Mitel OnLine.

This section describes the following procedures:

• Collect Site Information for MSL Configuration (page 214)
• Download MSL software from Mitel OnLine (page 214)
• Installation (page 215)
• Configuration (page 216)
• Server Administration (page 219)
• Remote access to the MSL server (page 221)
• Activation/Registration/Sync with the AMC (page 223)
SITE INFORMATION REQUIRED FOR MSL CONFIGURATION

<table>
<thead>
<tr>
<th>REQUIRED INFO:</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrator Password</td>
<td>Choose a password that contains a mix of uppercase and lowercase letters, numbers, and punctuation characters.</td>
</tr>
<tr>
<td>Domain Name</td>
<td>Names must start with a letter; can contain letters, numbers, and hyphens.</td>
</tr>
<tr>
<td>System Name</td>
<td>If this is a clustered implementation, the domain name must be site-specific <strong>cluster name</strong> followed by the <strong>domain name</strong> for the server (for example: voicemail.mitel.com)</td>
</tr>
<tr>
<td>NuPoint Server IP Address</td>
<td>The local IP address of the server where you are installing NuPoint UM.</td>
</tr>
<tr>
<td>Voice Network Gateway IP Address</td>
<td>The IP address that NuPoint will use to access the Voice Network</td>
</tr>
<tr>
<td>For External Storage:</td>
<td></td>
</tr>
<tr>
<td>Voice Network IP Address</td>
<td>The IP address of the IP interface that connects to the Voice network</td>
</tr>
<tr>
<td>SAN Storage Network IP Address</td>
<td>The IP address of the IP interface that connects to the SAN network</td>
</tr>
</tbody>
</table>

DOWNLOADING SOFTWARE

Use this procedure when you install or upgrade the system.

Before you can install MSL or NuPoint UM, you must download the ISO images of the software from Mitel OnLine. The software components must be burned as images, not as files, so ensure that your CD or DVD burning software is capable of burning ISO images.

DOWNLOADING MSL SOFTWARE FROM MITEL ONLINE

1. Log on to Mitel OnLine.
2. Move your cursor over **Technical** and then click **Software Downloads**.
3. Click the name of the NuPoint Unified Messaging software to be installed. The correct MSL load for your software is included on this page.
4. Click the **MSL x.x.x.iso** link (where x.x.x represents the MSL release number) and select a location on your PC to store the downloaded software ISO images.

CREATING CD/DVDS

For 32-bit installations of MSL, use a CD. For 64-bit installations of MSL, use a DVD.
To build a CD or DVD from the downloaded ISO image:
1. Insert a CD or DVD into the CD/DVD-ROM drive of the maintenance PC.
2. Navigate to the stored ISO image for MSL and double-click the file. Your CD/DVD burner builds the software. Label the disc as MSL.

   **Note:** The .iso file must be written as an image and not as a file.

**DOWNLOADING NUPOINT UM SOFTWARE FROM MITEL ONLINE**
1. Follow steps 1 to 3 in the "Download MSL software from Mitel OnLine" procedure above.
2. Click the NPM Blades DVD download link and select a location on your PC to store the downloaded software ISO images.
3. Insert a DVD into the CD/DVD ROM drive of the maintenance PC.
4. Navigate to the stored ISO image for NuPoint UM and double-click the file. Your DVD burner builds the software. Label the DVD as NuPoint UM with a version number.

**INSTALLING MITEL STANDARD LINUX SOFTWARE**

To install the MSL software:
1. Power down all nodes.
2. Insert the Mitel Standard Linux CD or DVD into the CD/DVD-ROM bay of the server. For 640 systems, if you have two discs, you can insert one in each node and install both at the same time and power up the node(s).
3. Select SL for the server installation.
4. You are prompted to select a keyboard type. (The default is US.)
5. You are prompted to test the CD/DVD media. Click Skip to proceed with the installation.
6. Select your Time Zone from the list and select OK.
7. MSL retrieves information and dependencies from the server and then prompts you to proceed. Click Yes to proceed.
8. The installation process informs you that a log of your installation will be placed in /root/install.log on the server. Click OK to continue. The installation process then formats the hard drive and installs the software. This takes a few minutes.
9. When prompted, remove the installation CD/DVD and to restart the server.

You have installed the Mitel Standard Linux operating system software. Now you are ready to configure it (see page 216).
CONFIGURING MSL

The MSL operating system offers the same configuration options for all editions but not all options apply to all editions.

ACCESSING THE MSL CONFIGURATION

After the system restarts you can configure it. Refer to your System Settings worksheet to do so. On multi-node systems, use the master node first.

1. After the system has rebooted, the End user license Agreement window appears. Select Accept and press Enter.

2. At the Restore from Backup? prompt, select one of the following options.
   - For initial installations, select No and proceed to step 2.
   - For upgrades, click Yes to restore server configuration if you have a valid backup file and are installing MSL subsequent to an initial installation. Follow the on screen instructions to insert your backup storage media and restore your configuration data. (Select "Disk Img" for USB media.) The server will restart and the MSL installation will be complete. No further MSL configuration is required.

3. Specify the administrator (system) password so you can access the server console and Server Manager. Choose a password that contains numbers, mixed upper and lower case letters, and punctuation characters. After you have entered and confirmed the password, the MSL software examines the password for strength. If it is weak, you will be prompted to change it or continue.

4. Proceed to the next step, “Configuring MSL (All Servers)”.

CONFIGURING MSL (ALL SERVERS)

1. In the Primary Domain Name window, enter the domain name that will be associated with this MSL server (for example, mitel.com). This domain will be the default for the web-based MSL Server Manager. The name must start with a letter and can contain letters, numbers, and hyphens.

2. In the System Name window, enter a name for the server (for example, server1) and press Enter.

   The number of Network Adapters (or Network Interface Cards, also called “NICs”) that are installed in your server determines the action you take next. The Local Network Adapters window displays all available adapters (or NICs)

3. Check the number of adapters displayed on the window and then do one of the following:
   - For systems with a Single Network Adapter
     - Proceed to step 8 (MSL automatically configures your single adapter.)
   - For systems with Two Network Adapters
     - In the Local Network Adapters window, select one adapter to configure as your LAN adapter. Do not configure the second adapter. Proceed to step 4.
   - For systems with Four Network Adapters and INTERNAL or DIRECT storage
- Use the space bar to select eth0 and eth2 and bond them together. In the NIC Bonding window, press Enter to accept the default setting for NIC Bonding "miimon=200 mode=active-backup". Proceed to step 4.

• For systems with Four Network Adapters and EXTERNAL iSCSI storage
  - Use the instructions under “Configuring MSL for Physical NuPoint External Storage” on page 217 to complete MSL configuration.

4. In the Local Networking window, enter the local IP address for the NuPoint UM server and press Enter.

5. In the Local Subnet Mask window, press Enter to accept the default subnet mask.

6. If you still have unconfigured network adapters, MSL displays them and prompts you to configure them as WAN adapters. Leave all adapters unselected and then select Next. If you have no more adapters, proceed to step 8.

7. MSL now offers you the choice to configure any remaining adapters as LAN adapters. In the Unconfigured network adapters window, select No and press Enter.

8. In the Gateway IP Address window, enter the IP address that this server should use to access the Internet, and then press Enter.

9. If there are specific routes out to the Internet and you want the server to do DNS lookups to other servers in the network, enter the Corporate DNS server address, click Next and then specify how name resolution is performed for the local domain (the domain configured on the MSL server):
   - localhost – the localhosts file is used resolve names for the local domain while the corporate DNS server handles name resolutions for all other domains.
   - corporate – The corporate DNS server is used to resolve names for all domains.

Click Next.

Note: You must enter the IP address of the DNS server in order for the Unified Messaging and VPIM features to work properly. If no DNS server is available, you will need to set the remote hostname IP address from the MSL Server Manager for VPIM connectivity (after configuring the VPIM node). To do this, access the MSL Server Manager, and select "Hostnames and addresses" from the Configuration menu, and enter the hostname IP address you want to add in the appropriate field.

10. In the Activate Configuration Changes window, select Yes to activate the configuration changes on the server. After the changes take effect, the server restarts automatically. The server is now configured for IP connectivity and is fully operational. See Server Administration on page 219 for information about accessing MSL server control panels.

CONFIGURING MSL FOR PHYSICAL NUPOINT EXTERNAL STORAGE

Redundant external iSCSI storage requires 4 network adapters. You must configure 2 bonded pairs of Network Interface Cards - one pair for the Voice network and the other pair for the SAN external storage network.

After you complete “Configuring MSL (All Servers)” steps 1 and 2:
1. In the Local Network Adapters window, use the space bar to select eth1 and eth3 to form the first bonded interface. Select Next.

2. In the NIC Bonding Options window, accept the default value.

3. In the Local Networking Parameters window, enter the IP address for the IP interface that connects to the Voice network and then select Next.

4. Assign a Subnet mask to the Voice network IP address and then select Next.

5. When prompted to Select WAN network adapters, select Next to skip this window.

6. When prompted to Add another Local network adapter?, select Yes.

7. Use the space bar to select eth0 and eth2 to form the second bonded interface. Select Next.

8. In the NIC Bonding Options window, accept the default value.

9. In the Local Networking Parameters window, enter the IP address of the interface that connects to the SAN (storage) network and then select Next.

10. Assign a Subnet mask to the SAN interface IP address, and then select Next.

11. In the Gateway IP Address window, enter the IP address of the Voice network gateway.

12. If there are specific routes out to the Internet and you want the server to do DNS lookups to other servers in the network, enter the Corporate DNS server address, click Next and then specify how name resolution is performed for the local domain (the domain configured on the MSL server):
   - localhost – the localhosts file is used resolve names for the local domain while the corporate DNS server handles name resolutions for all other domains.
   - corporate – The corporate DNS server is used to resolve names for all domains.

   Click Next.

13. In the Activate Configuration Changes window, select Yes to activate the configuration changes on the server. After the changes take effect, the server restarts automatically. The server is now configured for IP connectivity and is fully operational. See Server Administration on page 219 for information about accessing MSL server control panels.

**Note:** You must enter the IP address of the DNS server in order for the Unified Messaging and VPIM features to work properly. If no DNS server is available, you will need to set the remote hostname IP address from the MSL Server Manager for VPIM connectivity (after configuring the VPIM node). To do this, access the MSL Server Manager, and select "Hostnames and addresses" from the Configuration menu, and enter the hostname IP address you want to add in the appropriate field.
SERVER ADMINISTRATION

There are two ways to perform MSL server administration, depending on the function you want to perform.

MSL SERVER MANAGER

The MSL Server Manager is a web-based control panel that can be used remotely for configuring the server and its optional features, and managing available services. A text-based version of the MSL Server Manager is also available through the MSL Server Console.

To access the web-based MSL Server Manager:
1. Open a Web browser.
2. Enter the following URL:
   http://<FQDN or IP address of MSL server>/server-manager
3. Log in as "admin" using the system password.

MSL SERVER CONSOLE

The MSL Server Console is a text-based control panel built into the MSL server and used for performing functions like changing server configuration, testing Internet access, and managing disk mirroring. Sign in at the server as "admin" with the password you set during MSL installation OR access the console remotely using an SSH client (like PuTTY) See “Remote Access to the MSL Server” on page 221. The MSL Server Console also provides access to a text-based version of the MSL Server Manager.

For more information about server administration options, see the Mitel Standard Linux Installation and Administration Guide.

To access the text-based MSL Server Console:
1. Open a command prompt on the server in either of two ways:
• Connect a monitor, keyboard and mouse directly to the server hardware.
   —or—
• If the server has an IP address, enter it in an SSH client such as PuTTY and click **Open**.

2. Log in as "admin" using the system password.
REMOTE ACCESS TO THE MSL SERVER

ENABLE SECURE SHELL (SSH) ACCESS

The NuPoint Unified Messaging system can be accessed via SSH using a freeware application like PuTTY or similar software via an Ethernet connection; see page 228 for details.

To access the NuPoint Unified Messaging system via SSH, you need to enable the Secure Shell Settings (SSH) on the Mitel Standard Linux server, as described in the following procedure:

1. Access the MSL Server Manager.
   Navigate through the screen using your mouse or keyboard (down arrow and Enter keys).
3. Scroll down to the Secure Shell Settings.
4. Select an access option:
   - No Access – (Default) SSH access not allowed.
   - Allow public access (entire Internet) – This option enables users to access the server from anywhere on the Internet. It is selectable only if you have configured a strong SSH (admin) password. If you have weak password and attempt to select this option, you will receive the following warning: ‘The system administration password is set to a weak value. The "Allow public access" option in the form below will remain disabled until the system administration password has been reset to a strong value.’
   - Allow access only from trusted and remote management networks – This option enables users to access the server only from trusted and remote management networks configured in MSL.
5. Program the configuration options, selecting either Yes or No:
   - Allow administrative command line access over secure shell: This option allows users to connect to the server and log in as “root” with the administrative password.
   - Allow secure shell access using standard passwords: This option allows users to connect to the server using a standard user name and password.
   Note: To allow full access to the MSL administrative interfaces (Server Console and Server Manager), select Yes for both options.
6. Select Save and press Enter.

You have now enabled the Secure Shell Settings (SSH) for secure shell connectivity to the NuPoint Unified Messaging system.

After SSH is enabled, connect to the NuPoint Unified Messaging server by launching an SSH client (such as PuTTY) on the remote system. Ensure that it points to the external domain name or IP address for the server for successful connectivity.
ALLOW "TRUSTED NETWORK" ACCESS

If your maintenance PC is on a different subnet than the server, you need to allow access for that subnet in the Networks section of the MSL server.

To allow Trusted Network access:
1. Access the MSL Server Manager.
2. Under Configuration, select Networks.
3. Navigate (Tab key) to Add a new trusted network and press Enter.
4. In the Network Address, enter the IPv4 or IPv6 address of the network to designate as "local".
5. In the Subnet mask or prefix length field, enter the dot-decimal subnet mask or CIDR network prefix to apply to the Network Address. If this field is left blank, the system assigns a network prefix length of /24 for IPv4 networks or /64 for IPv6 networks. (For example, if the network IP address is 168.195.52.0 and you want to allow access to all network IP addresses in the range from 1 to 255, enter 255.255.255.0. This allows IP addresses 168.195.52.1 through 168.195.52.255 to access your server.)
6. Enter the Router address. (IP address of the router on your local network.)
7. Navigate to Save and press Enter.
ACTIVATING SERVICELINK (SYNC)

AMC synchronization is required at the following times:
- at the initial installation of a new NuPoint system ("activation")
- after addition of optional features ("sync")
- after software upgrades

ACTIVATION AT INITIAL INSTALLATION

After you install Mitel Standard Linux, you must register (or "activate") the server with the Mitel Applications Management Center (AMC) to complete the licensing process. This initial activation requires you to enter your Service Account ID (also called Application Record ID) so that the AMC can synchronize your licenses and deliver your software blades. There are two ways to activate ServiceLink:

- **Online Sync** (Internet-Connected Mode): Use this method when your MSL server is connected to the Internet. It can interact directly with the AMC.
- **Offline Sync** (Internet-Disconnected Mode): Use this method when your MSL server is not connected to the Internet. Offline sync requires access to another PC that does have an Internet connection.

You can use either synchronization procedure to activate the ServiceLink for your Mitel Standard Linux OS server.

ONLINE ACTIVATION

The online sync requires Internet connectivity and usually takes about 60 seconds to complete.

To perform an online sync:

1. Access the MSL Server Manager. Use the master node in multi-node systems.
2. Log in as "admin" using the system password.
3. In the left-hand menu under Service Link, click Status.
4. In the Service Account ID field, enter your Application Record ID.
5. Click Activate. A confirmation message confirms that your system has successfully synched to the AMC.

OFFLINE (DISCONNECTED) ACTIVATION

The offline sync is performed using an intermediate PC, which has Internet connectivity, to transfer the license key information from the AMC to the offline server.

**Note:** MSL Release 9.x does not support USB floppy drives as a storage medium for license key data.

To perform an offline sync:
1. In your AMC account, reset your hardware ID. (Click the Help link in your AMC account for instructions. If you are unable to reset the hardware ID yourself, send an email request to amcaccounts@mitel.com and they will reset it for you.)

2. Access the MSL Server Console and log in as "admin".

3. Select the option to perform **Offline Sync with the AMC**.

4. On the Offline sync window, select `create`.

5. When prompted, insert a portable storage device and then select `Next`.

6. When prompted, enter your **Application Record ID** and then select `Next`.

7. When prompted, remove the storage device and take it to a PC with Internet connectivity.

8. Insert the storage device in the remote PC and navigate to the storage drive location.

9. Search the main directory for a file called `sync.bat` and double-click it. A script runs that sends your sync information to the AMC and receives license key information in return.

10. Verify the sync, navigate to the `sync.log` file in the `sdata` directory of the storage drive location. Double-click `sync.log` to open and check for "completed successfully" message.

11. Remove the storage device from the remote PC and go to the MSL server.

12. Select the option to **perform Offline Sync with the AMC**.

13. On the Offline sync window, select `read`.

14. When prompted, insert the storage device and select `Next`. The MSL server reads the activation information from the storage device and signals successful completion.

15. Select the option to **Exit** from the MSL Server Console.

You have successfully performed an offline activation.

**SYNC FOR OPTIONAL FEATURES OR UPGRADES**

When you purchase optional features, or when you Upgrade NuPoint UM, you need to "sync" with the AMC to update your licensing information. The AMC performs an automatic sync daily but you can force a sync when required.

To force an immediate AMC sync:

1. Access the MSL Server Manager. Use the master node in multi-node systems.

2. Log in as "admin" using the system password.

3. In the left-hand menu under **Service Link**, click **Status**.

4. In the lower right corner of the page, click **Sync**. The sync is confirmed.
Appendix B

NUPOINT SYSTEM WORKSHEETS
**NUPOINT UM SETTINGS WORKSHEET**

Complete this worksheet prior to installing the system.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DEFAULT VALUES</th>
<th>CUSTOMER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mitel Standard Linux Release*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NuPoint UM Software Release*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Login User ID</td>
<td>Host administrator ID</td>
<td></td>
</tr>
<tr>
<td>Login Password</td>
<td>Host administrator password</td>
<td></td>
</tr>
<tr>
<td>Server1 Information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time Zone</td>
<td>Eastern Standard Time</td>
<td></td>
</tr>
<tr>
<td>Admin Password</td>
<td>password</td>
<td></td>
</tr>
<tr>
<td>Root Password</td>
<td>password</td>
<td></td>
</tr>
<tr>
<td>Domain Name</td>
<td>mitel.com</td>
<td></td>
</tr>
<tr>
<td>Server1 Host Name</td>
<td>Node1</td>
<td></td>
</tr>
<tr>
<td>Bonded Ethernet Interfaces on the SAN Network</td>
<td>eth1 and eth3</td>
<td></td>
</tr>
<tr>
<td>IP Address</td>
<td>192.168.0.11</td>
<td></td>
</tr>
<tr>
<td>Network Mask</td>
<td>255.255.255.0</td>
<td></td>
</tr>
<tr>
<td>Default Gateway</td>
<td>192.168.0.1</td>
<td></td>
</tr>
<tr>
<td>DNS Server</td>
<td>192.168.0.2</td>
<td></td>
</tr>
<tr>
<td>Node 1 iLOM Information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ILO IP Address</td>
<td>192.168.0.10</td>
<td></td>
</tr>
<tr>
<td>ILO Network Mask</td>
<td>255.255.255.0</td>
<td></td>
</tr>
<tr>
<td>ILO Gateway</td>
<td>192.168.0.1</td>
<td></td>
</tr>
<tr>
<td>Password</td>
<td>changeme</td>
<td></td>
</tr>
</tbody>
</table>

* The software versions vary depending on release levels to the factory.
Appendix C

REMOTE ACCESS TO YOUR SERVER
ACCESSING THE ADMINISTRATION CONSOLES

After the software is installed, you can access the system console using any of the following methods:

- Onsite, by attaching a monitor and keyboard directly to the NuPoint UM physical server
- From a PC on the same network using an SSH client via an Ethernet connection
- From a PC on a remote network using an SSH client via an Ethernet connection

**Note:** Before the NuPoint Unified Messaging system can be accessed from a remote network, the Secure Shell settings (SSH) must first be enabled in the Mitel Standard Linux OS. Refer to “Enable Secure Shell (SSH) Access” on page 221 for instructions to enable the SSH settings.

ACCESSING THE SYSTEM WITH PUTTY OVER AN ETHERNET CONNECTION

PuTTY is a free, open-source terminal emulator that you can use to establish a Secure Shell (SSH) connection to the NuPoint UM system over an Ethernet connection. Download the PuTTY software from http://www.putty.org/ and place the executable file (PuTTY.exe) in an accessible folder on your computer.

To access the system with PuTTY:

1. Ensure that a network cable is connected to the NuPoint UM server.
2. Enable the appropriate SSH settings in MSL; see page 221 for instructions.
3. Launch a command prompt. For example, in Windows 7, click the Start button, type Command in the search box, and then press Enter or double-click Command Prompt.
4. Change to the directory on your computer that contains the PuTTY.exe file.
5. Type `<drive letter>: <directory name>` (for example, c: Program Files), and press Enter.
6. Type `PuTTY <NuPoint IP address>` (for example, PuTTY 10.37.39.151), and press Enter. **Note:** You can also start PuTTY by double-clicking the executable PuTTY.exe file. In the dialog that appears, enter the Host Name (or IP Address) of the NuPoint UM server and then click Open.
7. Log in to the appropriate administration console:
   - “Log in to the NuPoint Text Console” on page 228
   - “Log in to the MSL Server Console” on page 229

LOG IN TO THE NUPOINT TEXT CONSOLE

The Text Console is a menu-driven administration console that you can use to perform maintenance and administration tasks on the NuPoint Unified Messaging server.

To log in to the NuPoint UM Text Console:

1. Access the System with PuTTY; see page 228.
2. At the login prompt, type **root** and press **Enter**.

3. At the password prompt, enter the root password. (The root password may be the same as the administrator password used to access the MSL Server Console.)

4. Type **console** and press **Enter**. The Text Console is displayed.

   ![Text Console Screenshot]

---

**LOG IN TO THE MSL SERVER CONSOLE**

The MSL Server Console is text-based control panel used for maintaining the Mitel Standard Linux server. It also provides access to a text-based version of the MSL Server Manager.

To log in to the MSL Server Console:

1. Access the System with PuTTY; see page 228.

2. At the login prompt, type **admin** and press **Enter**.

3. At the password prompt enter the administrator password that was set during the NuPoint installation. The server console menu is displayed.

   ![Server Console Menu]

   **Welcome to the server console!**

   Use the Arrow and Tab keys to make your selection, then press Enter.

   1. Check status of this server
      2. Restart this server
      3. Test internet access
      4. Register for Servicelink
      5. Install application blades from CD
      6. Install application blades from factory preload
      7. Reboot, reconfigure or shut down this server
      8. Manage disk redundancy
      9. MFX Console
      10. Access server manager
Appendix D

BATCH MODE COMMANDS
BATCH MODE COMMANDS

The NuPoint UM system provides the Web Console menu interface for administration. This interface is ideal for untrained or minimally-trained personnel, but it does not allow for rapid configuration by skilled order entry personnel or for machine-to-machine batched order entry. To accommodate this need, NuPoint UM includes a command language that supports batch mode data entry. Using this protocol, you can build or modify mailboxes offline and down-load them on a scheduled basis. Data entry is rapid, and multiple entry points are supported.

The majority of batch mode commands can operate on a range of mailboxes; the acr\text{eate} command can create 100 mailboxes as easily as it creates a single mailbox. This feature is especially useful for changing the service level (FCOS, LCOS, etc.) of a large number of subscribers at once. Use the "range of mailboxes" feature with caution with commands such as ade\text{lete}, where you can easily remove 1000 mailboxes with a single command.

This section provides a brief description of each command, shows the command syntax with all available parameters, and provides examples of the commands with confirmation and error messages.

This guide assumes that you are familiar with Linux file systems and basic commands.

REACHING THE COMMAND LINE

1. Launch an SSH client such as PuTTY.
2. Enter the Host Name (or IP Address) of the NuPoint UM server.
3. Click Open. A command prompt displays.
4. Log in as "root" and enter the root password.
   (The root password may be the same as the administrator password.)
5. Type console and press Enter. The Text Console displays.
6. From the main menu, select (X) to exit. Select Y to confirm. The Linux command prompt displays. ([server name] # ).
7. Enter a command with the syntax and parameters listed in this guide.

CREATING A SCRIPT OF COMMANDS

1. Use a text editor (like Notepad) to create a file containing multiple commands (for example, batch.txt).
2. FTP the batch.txt file to the NuPoint UM server.
3. At the Linux command prompt, type chmod a+x batch.txt to make the file executable.
4. Type ./batch.txt to run the script.
COMMAND LIST

ACHECK

Check in or check out a mailbox in the lodging environment. You can use the optional parameters to clear or save some mailbox information during check out.

SYNTAX

```
acheck in m=mailbox   parameters
acheck out m=mailbox   parameters
```

where:

• `m` identifies the mailbox to be checked out or checked in.

• `parameters` are listed below.

PARAMETERS

```
f = a new FCOS to assign to the mailbox. You can use this to set the mailbox to “no login” upon check out, and “guest” upon check in.

+v print out errors and progress reports
```

The following parameters apply only to the check out command, and override the configuration options set via the administrative menus.

```
+p Clear passcode on check out
-p Save passcode on check out
+m Clear all messages on check out
-m Save all messages on check out
+g Clear recorded greeting on check out
-g Save recorded greeting on check out
-n Save recorded name on check out
```

EXAMPLES

1. Check in mailbox 100 and set the FCOS to 2 (Full Guest).
   
   `acheck in m=100 f=2`

2. Check out mailbox 200 and retain any messages in the mailbox.
   
   `acheck out m=200 -m`

Note: acheck does not return confirmation messages.
ERROR MESSAGES

acheck returns the error message below when the “in” or “out” parameter is not included in the command line. It does not return an error message under any other conditions.

acheck m=100 f=2

acheck: **** Invalid parameter passed

ACREATE

Create a mailbox or range of mailboxes. The optional parameters control all of the mailbox characteristics. Any parameters you do not specify from the command line cause the mailbox(es) to assume the default values.

SYNTAX

acreate m1=mailbox number [m2=mailbox number] parameters

where:

- **m1** identifies the mailbox when creating a single mailbox, or the first mailbox when creating a range of mailboxes.
- **m2** identifies the last mailbox when creating a range of mailboxes.
- **parameters** are listed below.

PARAMETERS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-v</td>
<td>Suppress display of mailbox after creation (single mailboxes only)</td>
</tr>
<tr>
<td>ef=</td>
<td>Send any error messages to error file (file name)</td>
</tr>
<tr>
<td>+a</td>
<td>Abort the command if an error is encountered</td>
</tr>
<tr>
<td>+t</td>
<td>Turn off (ignore) errors</td>
</tr>
<tr>
<td>-t</td>
<td>No tutorial</td>
</tr>
<tr>
<td>+s</td>
<td>Set password to be the same as the mailbox number</td>
</tr>
<tr>
<td>+r</td>
<td>Set a random passcode for the mailbox</td>
</tr>
<tr>
<td>id=</td>
<td>Name or ID for mailbox</td>
</tr>
<tr>
<td>cd=</td>
<td>Department code</td>
</tr>
<tr>
<td>ac=</td>
<td>Access code</td>
</tr>
<tr>
<td>dt=</td>
<td>Receptionist day treatment</td>
</tr>
<tr>
<td>nt=</td>
<td>Receptionist night treatment</td>
</tr>
<tr>
<td>xt=</td>
<td>Mailbox extension number</td>
</tr>
<tr>
<td>pr=</td>
<td>Mailbox extension pre-dial index (0-15 or N for none)</td>
</tr>
<tr>
<td>ae1</td>
<td>Mailbox alternate extension #1</td>
</tr>
<tr>
<td>ae2</td>
<td>Mailbox alternate extension #2</td>
</tr>
<tr>
<td>Symbol</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td>ae3</td>
<td>Mailbox alternate extension #3</td>
</tr>
<tr>
<td>ae4</td>
<td>Mailbox alternate extension #4</td>
</tr>
<tr>
<td>at=</td>
<td>Attendant extension (up to 15 digits)</td>
</tr>
<tr>
<td>ap=</td>
<td>Attendant extension pre-dial index (0-15 or N for none)</td>
</tr>
<tr>
<td>fc=</td>
<td>Fature class of service (1-64)</td>
</tr>
<tr>
<td>lc=</td>
<td>lc=limits class of service (1-64)</td>
</tr>
<tr>
<td>gc=</td>
<td>Group class of service (1-64)</td>
</tr>
<tr>
<td>nc=</td>
<td>Network class of service (1-64)</td>
</tr>
<tr>
<td>tn=</td>
<td>Tenant class of service (1-64)</td>
</tr>
<tr>
<td>tz=</td>
<td>Time zone offset</td>
</tr>
<tr>
<td>wk=</td>
<td>y to enable or n to disable wakeup, if defined</td>
</tr>
<tr>
<td>wf=</td>
<td>Wakeup frequency (1-255)</td>
</tr>
<tr>
<td>wi=</td>
<td>Wakeup interval (1-255)</td>
</tr>
<tr>
<td>wn=</td>
<td>Phone number to dial for wakeup calls</td>
</tr>
<tr>
<td>ws=</td>
<td>Wakeup call pager system index</td>
</tr>
<tr>
<td>ox=</td>
<td>Off-system messaging index (0-15 or N for none)</td>
</tr>
<tr>
<td>fi=</td>
<td>Fax retrieval access code index (0-15 or N for none)</td>
</tr>
<tr>
<td>fn=</td>
<td>Fax default number (N for none)</td>
</tr>
</tbody>
</table>

**Message Waiting Indicator 1**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>pw1=</td>
<td>Post pager number</td>
</tr>
<tr>
<td>ca1=</td>
<td>Pager access code index (0-15)</td>
</tr>
<tr>
<td>cf1=</td>
<td>Pager call frequency (1-255)</td>
</tr>
<tr>
<td>ci1=</td>
<td>Pager call interval (1-255)</td>
</tr>
<tr>
<td>bc1=</td>
<td>Pager busy call attempts (0-255)</td>
</tr>
<tr>
<td>bi1=</td>
<td>Pager busy call interval (0-255)</td>
</tr>
<tr>
<td>tp1=</td>
<td>Pager start time (HH:MM:am or pm)</td>
</tr>
<tr>
<td>ep1=</td>
<td>Pager stop time (HH:MM:am or pm)</td>
</tr>
<tr>
<td>ps1=</td>
<td>y to suppress primary paging, n to stop suppressing primary paging</td>
</tr>
<tr>
<td>cm1=</td>
<td>y to enable pager message delete, n to disable pager message delete</td>
</tr>
<tr>
<td>po1=</td>
<td>y to create an alternate pager, n to remove an alternate pager</td>
</tr>
<tr>
<td>an1=</td>
<td>Alternate pager number</td>
</tr>
<tr>
<td>aw1=</td>
<td>Alternate post pager number</td>
</tr>
<tr>
<td>aa1=</td>
<td>Alternate pager access code index (0-15)</td>
</tr>
<tr>
<td>af1=</td>
<td>Alternate pager call frequency (1-255)</td>
</tr>
<tr>
<td>ai1=</td>
<td>Alternate pager call interval (1-255)</td>
</tr>
<tr>
<td>bp1=</td>
<td>Alternate pager busy call attempts (0-255)</td>
</tr>
<tr>
<td>bn1=</td>
<td>Alternate pager busy call interval (0-255)</td>
</tr>
<tr>
<td>Variable</td>
<td>Description</td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
</tr>
<tr>
<td>ta1=</td>
<td>Alternate pager start time (HH:MM:am or pm)</td>
</tr>
<tr>
<td>ea1=</td>
<td>Alternate pager stop time (HH:MM:am or pm)</td>
</tr>
<tr>
<td>sa1=</td>
<td>y to suppress alternate paging, n to stop suppressing alternate paging</td>
</tr>
<tr>
<td>am1=</td>
<td>y to enable alternate pager message delete, n to disable alternate pager message delete</td>
</tr>
<tr>
<td>ya1=</td>
<td>TNPP primary destination address (4 hex digits)</td>
</tr>
<tr>
<td>yi1=</td>
<td>TNPP primary ID (1 to 10 characters)</td>
</tr>
<tr>
<td>yc1=</td>
<td>TNPP primary CAP (1 to 8 characters)</td>
</tr>
<tr>
<td>yt1=</td>
<td>TNPP primary page type</td>
</tr>
<tr>
<td>ys1=</td>
<td>TNPP primary page class (B, N, n, or A)</td>
</tr>
<tr>
<td>yr1=</td>
<td>TNPP primary RF channel (single ASCII character)</td>
</tr>
<tr>
<td>yz1=</td>
<td>TNPP primary RF zone (single ASCII character)</td>
</tr>
<tr>
<td>yf1=</td>
<td>TNPP primary function code (single ASCII character)</td>
</tr>
<tr>
<td>yg1=</td>
<td>TNPP primary paging flag (0=none, 1=CAP, 2=ID)</td>
</tr>
<tr>
<td>za1=</td>
<td>TNPP alternate destination address (4 hex digits)</td>
</tr>
<tr>
<td>zi1=</td>
<td>TNPP alternate ID (1 to 10 characters)</td>
</tr>
<tr>
<td>zc1=</td>
<td>TNPP alternate CAP (1 to 8 characters)</td>
</tr>
<tr>
<td>zt1=</td>
<td>TNPP alternate page type</td>
</tr>
<tr>
<td>zs1=</td>
<td>TNPP alternate page class (B, N, n, or A)</td>
</tr>
<tr>
<td>zr1=</td>
<td>TNPP alternate RF channel (single ASCII character)</td>
</tr>
<tr>
<td>zz1=</td>
<td>TNPP alternate RF zone (single ASCII character)</td>
</tr>
<tr>
<td>zf1=</td>
<td>TNPP alternate function code (single ASCII character)</td>
</tr>
<tr>
<td>zg1=</td>
<td>TNPP alternate paging flag (0=none, 1=CAP, 2=ID)</td>
</tr>
<tr>
<td>mw2= through zg2=</td>
<td>See descriptions above for MWI</td>
</tr>
<tr>
<td>mw3=</td>
<td>message waiting type #3 (9, 17, or 0 for none)</td>
</tr>
</tbody>
</table>
EXAMPLES

1. Create mailbox 100 with all default values.

   acreate m1=100

   Mailbox 100 created

   MAILBOX: 100       Created: 04/08/94  1:51 pm
   MSGS: 0       UNPLAYED: 0       URGENT: 0       RECEIPT: 0
   LCOS: Default         : 1        FCOS: UNLIMITED         : 1
   GCOS: Default GCOS 1  : 1        NCOS: Default           : 1
   TCOS: Default TCOS 1  : 1
   BAD LOGS: 0       LAST LOG: NEVER                      MINS: 0.0
   PASSWD: N          TUTOR: Y           DAY: M          NIGHT: M
   NAME:                                   CODE:
   EXTEN:                                  INDEX: 0
   ATTEN DN:                                  INDEX: 0
   ACCESS: NONE                                   NOTIFICATION: Y
   OFF SYSTEM MESSAGE INDEX:      NONE        TIME ZONE OFFSET: 0
   DISTRIBUTION LISTS WITH CHANGE RIGHTS: all
   DISTRIBUTION LISTS WITH REVIEW RIGHTS: all

2. Create mailboxes 196 to 200 with FCOS 10 and MWI1 set for Centrex.

   acreate m1=196 m2=200 fc=10 mw1=9

   Mailbox 196 created, added to phonebook
   Mailbox 197 created, added to phonebook
   Mailbox 198 created, added to phonebook
   Mailbox 199 created, added to phonebook
   Mailbox 200 created, added to phonebook

ERROR MESSAGES

acreate returns an error message when it encounters an unrecognized parameter or an invalid value, but it attempts to create the mailboxes with all valid parameters and values, if possible.
The following command, with an unrecognized parameter and two values out of range, returns the error message below, but does create the mailbox.

```
acreate m1=901 cc=12 mw1=28 fc=80 -v
```

901: cc=12: unknown field
901: mw1:: input number is too large in this field
901: fc: input number is too large in this field

Mailbox 901 created

`acreate` uses the following parameters for handling error messages:

- `ef=` send any error messages to error file (file name)
- `+a` abort the command if an error is encountered
- `+t` turn off (ignore) errors

### ADELETE

Delete a mailbox or range of mailboxes.

**CAUTION:** Use this command with care! The `adelete` command does not prompt you for confirmation before executing, and a typo when deleting a range of mailboxes can easily delete many mailboxes unintentionally, and there is no way to undo the command. As a safety measure, you may wish to use this command to delete mailboxes one at a time, and never use the “range” feature.

#### SYNTAX

```
adelete m1=mailbox number [m2=mailbox number]
```

where:

- `m1` identifies the mailbox when deleting a single mailbox, or the first mailbox when deleting a range of mailboxes.
- `m2` identifies the last mailbox when deleting a range of mailboxes.

#### EXAMPLES

1. Delete mailbox 100, if it exists.
   ```
   adelete m1=100
   Mailbox 100 deleted.
   ```

2. Delete all mailboxes from 100 to 200.
   ```
   adelete m1=100 m2=200
   101 Mailboxes deleted
   ```
ERROR MESSAGES

**adelete** does not return any error messages. If you use the command to delete a single mailbox and the mailbox you specify does not exist, **adelete** simply returns and does not display the message, “Mailbox nn deleted.”

AMODIFY

Modify an existing mailbox. All mailbox configuration parameters that you do not specify in the command remain the same. When the command is used to move a mailbox (change the mailbox number) all configuration parameters, distribution lists, and messages are moved with the mailbox.

This command only operates on one mailbox at a time; see **asetpass** to modify parameters for a range of mailboxes.

SYNTAX

```
amodify om=mailbox number  parameters
```

PARAMETERS

amodify supports most of the parameters of acreate, with the following differences:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-v</td>
<td>Suppress before and after listing of mailbox</td>
</tr>
<tr>
<td>om=</td>
<td>Mailbox number to modify (amodify does not recognize m1= or m2=)</td>
</tr>
<tr>
<td>nm=</td>
<td>New mailbox number</td>
</tr>
</tbody>
</table>

amodify does not support the following parameters of acreate; use asetpass instead:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>+s</td>
<td>Set password to be the same as mailbox number</td>
</tr>
<tr>
<td>+r</td>
<td>Set random password</td>
</tr>
<tr>
<td>-t</td>
<td>No tutorial</td>
</tr>
</tbody>
</table>

EXAMPLES

1. Modify mailbox 100 so that the FCOS is 8 and the attendant extension is 334.

```
amodify om=100 fc=8 at=334
```

(The system displays the mailbox configuration before the command, followed by the resulting mailbox configuration, shown below.)

```
MAILBOX: 100  Created: 04/08/94  1:51 pm
MSGS: 0  UNPLAYED: 0  URGENT: 0  RECEIPT: 0
LCOS: Default  : 1  FCOS: Chain  : 8
GCOS: Default GCOS 1  : 1  NCOS: Default  : 1
TCOS: Default TCOS 1  : 1
```
2. Reassign mailbox 100 as mailbox 200 and suppress before and after listing of the mailbox.

    amodify om=100 nm=200 -v
    Mailbox 100 modified.

ERROR MESSAGES

    amodify returns error messages for non-existent mailboxes, unknown parameters, invalid values, and attempts to change a mailbox number to one that is already in use.

    amodify om=100 nm=300
    Mailbox 100 does not exist.
    amodify om=200 qm=300
    200: qm=3: unknown field
    amodify om=200 nm=300 -v
    nm: **** Mailbox number 300 already exists
    amodify om=200 lc=12 fc=65 -v
    200: fc: input number is too large in this field
    Mailbox 200 modified.

**Note:** The "Mailbox xxx modified" line indicates that all valid modifications were made; all invalid values were ignored.

ASETPASS

Modify the passcode and certain other parameters of one or more mailboxes. Some of the parameters provide filtering to allow a command to change those parameters only on those mailboxes that meet the filter criteria.
SYNTAX

```asetpass m1=mailbox number [m2=mailbox number] parameters```

where:
- **m1** identifies the mailbox when changing a single passcode, or the first mailbox when changing a range of mailboxes.
- **m2** identifies the last mailbox when changing a range of mailboxes.
- **parameters** are listed below.

PARAMETERS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>pw=</td>
<td>New passcode</td>
</tr>
<tr>
<td>tt=y</td>
<td>To enable or n to disable the tutorial</td>
</tr>
<tr>
<td>+r</td>
<td>Assigns a random passcode</td>
</tr>
<tr>
<td>+s</td>
<td>Sets the passcode to be the same as the mailbox number</td>
</tr>
<tr>
<td>+c</td>
<td>Clears the bad passcode attempts count</td>
</tr>
<tr>
<td>of=</td>
<td>Existing FCOS number, 100 for all. Used as a filter when changing mailboxes’ FCOS. See fc.</td>
</tr>
<tr>
<td>fc=</td>
<td>New FCOS number. Used with of to change mailboxes’ FCOS</td>
</tr>
<tr>
<td>ol=</td>
<td>Existing LCOS number, 100 for all. Used as a filter when changing mailboxes’ LCOS. See lc.</td>
</tr>
<tr>
<td>lc=</td>
<td>New LCOS number. Used with ol to change mailboxes’ LCOS</td>
</tr>
<tr>
<td>bc=</td>
<td>“na” to broadcast the mailbox name, or “gr” to broadcast the mailbox greeting</td>
</tr>
<tr>
<td>om1=</td>
<td>Existing message waiting type #1, 100 for all. Used as a filter when changing mailboxes’ mw1. See mw1</td>
</tr>
<tr>
<td>mw1=</td>
<td>New message waiting type #1. Used with om1 to change mailboxes’ mw1 type.</td>
</tr>
<tr>
<td>nom2=</td>
<td>Existing message waiting type #2, 100 for all. Used as a filter when changing mailboxes’ mw2. See mw2.</td>
</tr>
<tr>
<td>mw2=</td>
<td>New message waiting type #2. Used with om2 to change mailboxes’ mw2 type</td>
</tr>
<tr>
<td>mw3=</td>
<td>Message waiting type #3 (9, 17, or 0 for none)</td>
</tr>
<tr>
<td>cd=</td>
<td>New mailbox department code</td>
</tr>
</tbody>
</table>

EXAMPLES

1. Set the mailbox 100 passcode to 1111 and enable the tutorial.

   ```asetpass m1=100 pw=1111 tt=y```

   Passcode for mailbox 100 set, Tutorial set.

2. Change the FCOS from 1 to 10 and enable the tutorial for all mailboxes from 190 to 195.

   (Note that this command will not change the FCOS of any mailbox that does not have FCOS 1, but it will enable the tutorial for all mailboxes in the range.)
**Note:** `asetpass` only reports on the status of mailbox passcodes and tutorials; changes to other fields are not reported.

### ERROR MESSAGES

`asetpass` only returns an error when it encounters a non-existent mailbox. Other errors, such as a value out of range, produce the standard response.

```plaintext
asetpass m1=100 pw=2222

**** Mailbox 100 does not exist.

asetpass m1=190 of=1 fc=65

Passcode for mailbox 190 not changed, Tutorial unchanged.
```

### ATEXT

Modify the number of text messages waiting. You can use this command in the lodging environment to indicate messages waiting at the front desk. You can also use it with email systems to inform VoiceMemo mailbox owners of the number of email messages waiting.

**Note:** The target mailboxes must have FCOS bit 154 (Announce text message count) enabled for this command to be effective.

### SYNTAX

```
atext m1=mailbox number [m2=mailbox number] parameters
```

where:
- **m1** identifies the mailbox when changing a single mailbox, or the first mailbox when changing a range of mailboxes.
- **m2** identifies the last mailbox when changing a range of mailboxes.
- **parameters** are listed below.
PARAMETERS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>t=</td>
<td>The number of text messages (0-255)</td>
</tr>
<tr>
<td>+v</td>
<td>Verbose mode; print results information</td>
</tr>
</tbody>
</table>

EXAMPLES

1. Set the text message count for mailbox 100 to 2 and display results.
   ```
   atext ml=100 t=2 +v
   ```
   Mailbox 100: Text count set to 2

2. Set the text message count for all mailboxes from 100 to 200 to 0.
   ```
   atext ml=100 m2=200 t=0
   ```

ERROR MESSAGES

`atext` only returns an error when it encounters a non-existent mailbox or an invalid value for the number of text messages.

```atext ml=100 t=2```

**** Mailbox 100 does not exist.

```atext ml=100 t=-1```

**** Invalid text count passed: -1 (range 0-255)

DCREATE

Create a distribution list for one or more mailboxes, or add members to, or delete members from, distribution lists.

**Note:** You cannot use dcreate to remove all members from a distribution list; you must use `ddelete` to remove the entire list.

SYNTAX

```
dcreate ml=mailbox number [m2=mailbox number] dl=distribution list
# dm=list of members  parameters
```

where:

- `m1` identifies the mailbox when creating a list for a single mailbox, or the first mailbox when creating a list for a range of mailboxes.
- `m2` identifies the last mailbox when creating a list for a range of mailboxes.
- `dl` is the number of the distribution list to create.
- `dm` is followed by a list of numbers to be included in the distribution list. The list can contain any of the following types of entries:
- *a mailbox number in the range 1 to 99999999999
- *a range of mailboxes separated by a hyphen (100-199)
- *T and a telephone number
- *N and a remote mailbox number
- *P and a remote mailbox with a network prefix
- *M and a remote mailbox with a telephone number separated by an at (@) sign (M3788@5551212)
- *D and a mailbox distribution list number (for nesting distribution lists)
- *S and a master distribution list number (for nesting master lists)

Multiple options can be separated by commas: dm=101,T5551212, 201-210

PARAMETERS

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>+d</td>
<td>Delete members from the distribution list</td>
</tr>
<tr>
<td>-s</td>
<td>The new distribution list is to be a sorted list</td>
</tr>
<tr>
<td>+c</td>
<td>Check for duplicate entries in the distribution list</td>
</tr>
<tr>
<td>-v</td>
<td>Verbose; show only the summary and not the list contents</td>
</tr>
</tbody>
</table>

EXAMPLES

1. Create a distribution list 5 for mailbox 100 that contain mailboxes 120, 130, and 140. Error Messages.

   dcreate m1=100 dl=5 dm=120,130,140
   
   120 - added to list
   130 - added to list
   140 - added to list
   
   Distribution List 5, for mailbox 100 created
   
   Current Members: 120 130 140

2. Remove mailbox 120 from distribution list 1 in mailbox 200.

   dcreate m1=200 dl=1 dm=120 +d
   
   Modifying list 1: 
   
   Current Members: 120 130 140
   
   120 - deleted from list
   
   Distribution list 1, for mailbox 200 modified.

ERROR MESSAGES

*dcreate* returns error messages for invalid mailbox numbers, for distribution list numbers out of range, and for non-existent distribution list numbers when using the +d (delete) parameter.
dcreate m1=98765 dl=1 dm=120
Mailbox 98765 does not exist

dcreate m1=200 dl=123 dm=120
List number must be in the range of 1 to 99

dcreate m1=200 dl=99 dm=98765
Mailbox 98765 does not exist

dcreate m1=200 dl=99 dm=120 +d
delete_member: head_rec is all zero

Note: This message means that the distribution list in the delete command does not exist.
DDELETE

Delete a distribution list or range of distribution lists from a mailbox or range of mailboxes.

SYNTAX

ddelete m1=mailbox number [m2=mailbox number] dl=distribution list #
parameters

where:
• m1 identifies the mailbox when deleting a distribution list from a single mailbox, or the first
mailbox when operating on a range of mailboxes.
• m2 identifies the last mailbox when deleting a distribution list from a range of mailboxes.
• dl is the number of the distribution list to delete, or a range of distribution lists to delete.
  Note: If a range of mailboxes or ranges of distribution lists is specified, the system prompts
  the user to type “delete” to confirm.
• parameters are listed below.

PARAMETERS

  -v  show no message or summary

EXAMPLES

1. Remove distribution list 5 from mailbox 100.
   ddelete m1=100 dl=5
   Current Members: 100 200
   Distribution List 5 for mailbox 100 deleted

2. Remove distribution lists 2-4 from mailboxes 200 through 203 and suppress error
   messages.
   ddelete m1=200 m2=203 dl=2-4 -v
   Deleting distribution list 02 through 04 for mailboxes 200 thru 203
   WARNING: If you really want to delete these distribution lists
   enter "delete"

delete

ERROR MESSAGES

ddelete returns error messages for non-existent mailbox and distribution list numbers.

ddelete m1=100 dl=99
**** Distribution List 99 for mailbox 100 does not exist.
ddelete m1=98765 dl=20

**** Distribution List 20 for mailbox 98765 does not exist.
ddelete m1=100 dl=120

Starting distribution list number too long
ddelete m1=100 dl=99-101

Ending distribution list number too long
ddelete m1=100 dl=-1

Distribution List [00] numbers must be in the range 1 to 99

DINQUIRE

Find and/or delete mailboxes in distribution lists. The system searches both mailbox distribution lists and master distribution lists. If you use the command to delete the last mailbox in a distribution list, the entire list is removed.

SYNTAX

    dinquire m=mailbox number   parameter

where:

- **m** identifies the distribution list member (mailbox number) to look for.
- **parameters** are listed below

PARAMETERS

- **+r** remove mailbox from all distribution lists

EXAMPLES

1. Show all distribution lists that contain mailbox 100.

    dinquire m=100

Mailbox 100:

- 100 found in mailbox 100 list 04
- 100 found in mailbox 110 list 02
- 100 found in mailbox 120 list 17
- 100 found in mailbox 130 list 04
100 found in mailbox 140 list 01

Found in 5 lists.

2. Remove mailbox 120 from all distribution lists.

   dinquire m=120 +r

Mailbox 120:

   120 deleted from mailbox 100 list 04
   120 deleted from mailbox 110 list 04
   120 deleted from mailbox 120 list 04
   120 deleted from mailbox 130 list 04
   120 deleted from mailbox 140 list 04

Found in 5 lists.

ERROR MESSAGES

   *dinquire* does not return any error messages. It returns a syntax line when it encounters an invalid parameter.

**MM_BDELETE**

Delete all mailbox mapping associated with a mailbox number.

**SYNTAX**

```
mm_bdelete mailbox number
```

where:

- **mailbox number** identifies the mailbox with mappings to be deleted.

**EXAMPLE**

1. Delete all mappings related to mailbox 9996003.

   mm_bdelete 9996003

Pre-request data looks like this:

```
Request= MBOX_MAP_BLOCK_DELETE
Mailbox= 000000009996003
Switchgroup= 0
Extension=
```
Tenant Number= 00
In permission= FALSE
Out permission= FALSE
Greetings= 00, 00, 00

Request result= MAP_SUCCESS.

Time to completion= 16.

ERROR MESSAGES

*mm_bdelete* does not return any error messages.
**MM_BINQUIRE**

Find all mailbox mappings associated with a single mailbox.

**SYNTAX**

```
mm_binquire mailbox number
```

where:

- **mailbox number** identifies the mailbox to query for mappings.

**EXAMPLE**

1. Show all mappings associated with mailbox 9996001.

```
mm_binquire 9996001
```

Pre-request data looks like this:

```
Request= MBOX_MAP_BLOCK_INQUIRE
Mailbox= 000000009996001
Switchgroup= 0
Extension=
Tenant Number= 00
In permission= FALSE
Out permission= FALSE
Greetings= 00, 00, 00

Request result= MAP_SUCCESS.
Time to completion= 0.

Mapping Number 0
Mailbox= "000000009996001"
Switchgroup= 0
Extension= 000000009996001
```
Tenant Number= 00

In permission= TRUE

Out permission= TRUE

Greetings= 00, 00, 00

ERROR MESSAGES

*mm_binquire* does not return any error messages.
Create a single mailbox mapping.

**SYNTAX**

```
mm_create mailbox number extension switchgroup permissions
tenant_number g1 g2 g3
```

where:

- **m** identifies the mailbox for which to create a mailbox mapping.
- **extension** identifies the switch extension associated with the mailbox (1–15 digits).
- **switchgroup** identifies the switch associated with the mailbox (0–31). Note that this number is 0-based in batch mode commands, but is 1-based in the regular administrative menus. In other words, to map a mailbox to switch group 1, you must enter the value as “0” in the batch command.
- **permissions** is “in,” “out,” or “both” to allow the mailbox to receive messages and set message waiting indications via the switch group.
- **tenant_number** identifies the switch tenant number associated with the mailbox (0–55). Note that this number is 0-based in batch mode commands, but is 1-based in the regular administrative menus. In other words, to map a mailbox to tenant number 1, you must enter the value as “0” in the batch command.
- **g1 g2 g3** each represent a number to indicate which mailbox greeting to use for No Answer, Line Busy, and Call Forward, respectively. The valid values are:
  - 0  mailbox default greeting
  - 1  mailbox greeting #1
  - 2  mailbox greeting #2
  - 3  mailbox greeting #3
  - 4  mailbox greeting #4

**EXAMPLE**

1. Map mailbox 9996002 to extension 4089996002 in tenant 3 on switch group 1 with both incoming and outgoing permissions using the default greeting for all types of forwarding.

   ```
   mm_create 9996002 4089996002 0 in 2 0 0 0
   ```

Pre-request data looks like this:

- `Request= MBOX_MAP_CREATE`
- `Mailbox= 00000009996002`
- `Switchgroup= 1`
Extension= 000004089996002
Tenant Number= 01
In permission= TRUE
Out permission= FALSE
Greetings= 00, 00, 00

Request result= MAP_SUCCESS.
Time to completion= 4.

The request succeeded. The mapping returned is as follows:

Mailbox=
Switchgroup= 03
Extension=
Tenant Number= 02
In permission= FALSE
Out permission= FALSE
Greetings= 00, 00, 00

Note: The values for switch group and tenant number are 0-based, both in the command line and in the return message.

ERROR MESSAGES

_mm_create does not return any error messages.

MM_DELETE

Delete a single mailbox mapping.

SYNTAX

    mm_delete mailbox number extension switchgroup

where:
• **mailbox number** identifies the mailbox with associated mappings.
• **extension** identifies the mapped extension in the switch.
• **switchgroup** identifies the mapped switch group for the mailbox.

**EXAMPLES**

1. Remove the mapping of mailbox 9996001 as extension 4089996001 in switch group 1.

   ```
   mm_delete 9996001 4089996001 1
   ```

   Pre-request data looks like this:

   ```
   Request= MBOX_MAP_SINGLE_DELETE
   Mailbox= 00000009996001
   Switchgroup= 1
   Extension= 000004089996001
   Tenant Number= 00
   In permission= FALSE
   Out permission= FALSE
   Greetings= 00, 00, 00
   ```

   Request result= MAP_NOT_FOUND.

   Time to completion= 0.

   The request failed. The mapping returned is as follows:

   ```
   Mailbox=
   Switchgroup= 0
   Extension=
   Tenant Number= 00
   In permission= FALSE
   Out permission= FALSE
   ```
Greetings= 00, 00, 00

ERROR MESSAGES

`mm_delete` does not return any error messages.

**MM_INQUIRE**

Find information associated with a single mapping mailbox.

**SYNTAX**

```
mm_inquire mailbox number extension switchgroup
```

where:

- `mailbox number` identifies the mailbox to look for.
- `extension` identifies the mapped extension in the switch.
- `switchgroup` identifies the mapped switch group for the mailbox.

**EXAMPLE**

1. Verify that mailbox 9996002 is mapped to extension 4089996002 on switch group 1 and see associated mapping information.

   ```
   mm_inquire 9996002 4089996002 1
   ```

   Pre-request data looks like this:

   Request= EXT_SWGRP_GET_MBOX
   Mailbox= 000000009996002
   Switchgroup= 1
   Extension= 000004089996002
   Tenant Number= 00
   In permission= FALSE
   Out permission= FALSE
   Greetings= 00, 00, 00

   Request result= MAP_SUCCESS.
   Time to completion= 0.
The request succeeded. The mapping returned is as follows:

Mailbox= 000000009996002
Switchgroup= 1
Extension= 000004089996002
Tenant Number= 01
In permission= TRUE
Out permission= FALSE
Greetings= 01, 02, 01

ERROR MESSAGES

*mm_inquire* does not return any error messages.

**SLIGHT**

Set the status of mailbox message waiting indicators. You can use this command to synchronize indicators with the mailbox message status, or to test indicators.

**SYNTAX**

```
slight m1=mailbox number [m2=mailbox number] parameters
```

where:

- **m1** identifies the mailbox when setting the status of a single mailbox, or the first mailbox when setting the status of a range of mailboxes.
- **m2** identifies the last mailbox when setting the status of a range of mailboxes.
- **parameters** are listed below.

**PARAMETERS**

```
ls= light/indicator state (0=off, 1=on, 2=according to mailbox data)
mw= message waiting type (1-23, 0 for all)
t= number to display on a cut-through page
```

**EXAMPLES**

1. Turn off all message waiting indicators for mailbox 100.

```
slight m1=100 ls=0
```
2. Send a cut-through page to the pager defined in mailbox 100 and display the digits 5551212 on the pager. This command does not turn on the message waiting indicators for the mailbox.

```
slight ml=100 t=5551212 ls=1 mw=5
```

**Note:** slight does not return confirmation messages.

**ERROR MESSAGES**

*slight* does not return any error messages, regardless of success or failure, the command simply returns.
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